

**SECTION LAN**  
**LAN SYSTEM**

A  
B  
C

**CONTENTS**

D  
E

<b>CAN FUNDAMENTAL</b>		
<b>PRECAUTION</b> .....	38	
<b>PRECAUTIONS</b> .....	38	
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER" .....	38	
Precautions for Trouble Diagnosis .....	38	
Precautions for Harness Repair .....	38	
<b>PREPARATION</b> .....	40	
<b>PREPARATION</b> .....	40	
Special Service Tool .....	40	
<b>HOW TO USE THIS MANUAL</b> .....	41	
<b>HOW TO USE THIS SECTION</b> .....	41	
Information .....	41	
<b>SYSTEM DESCRIPTION</b> .....	42	
<b>SYSTEM</b> .....	42	
<b>CAN COMMUNICATION SYSTEM</b> .....	42	
CAN COMMUNICATION SYSTEM : System Description .....	42	
<b>DIAG ON CAN</b> .....	42	
DIAG ON CAN : System Description .....	42	
<b>TROUBLE DIAGNOSIS</b> .....	44	
Component Description .....	44	
Condition of Error Detection .....	44	
Symptom When Error Occurs in CAN Communication System .....	45	
CAN Diagnosis with CONSULT .....	47	
Self-Diagnosis .....	48	
CAN Diagnostic Support Monitor .....	48	
How to Use CAN Communication Signal Chart .....	50	
<b>BASIC INSPECTION</b> .....	51	
<b>DIAGNOSIS AND REPAIR WORKFLOW</b> .....	51	
Trouble Diagnosis Flow Chart .....	51	
<b>CAN</b>		
<b>HOW TO USE THIS MANUAL</b> .....	56	
<b>HOW TO USE THIS SECTION</b> .....	56	
Information .....	56	
Abbreviation List .....	56	
<b>SYSTEM DESCRIPTION</b> .....	57	
<b>COMPONENT PARTS</b> .....	57	
Component Parts Location .....	57	
<b>SYSTEM</b> .....	59	
<b>CAN COMMUNICATION SYSTEM</b> .....	59	
CAN COMMUNICATION SYSTEM : System Description .....	59	
CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit .....	65	
CAN COMMUNICATION SYSTEM : CAN System Specification Chart .....	65	
CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart .....	70	
<b>WIRING DIAGRAM</b> .....	75	
<b>CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)</b> .....	75	
Wiring Diagram .....	75	
<b>CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)</b> .....	80	
Wiring Diagram .....	80	
<b>CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)</b> .....	87	
Wiring Diagram .....	87	

F  
G  
H  
I  
J  
K  
L

**LAN**

N  
O  
P

<b>CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)</b> .....	95	Diagnosis Procedure .....	129
Wiring Diagram .....	95	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	130
<b>CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)</b> .....	102	Diagnosis Procedure .....	130
Wiring Diagram .....	102	<b>MAIN LINE BETWEEN A-BAG AND M&amp;A CIRCUIT</b> .....	131
<b>BASIC INSPECTION</b> .....	115	Diagnosis Procedure .....	131
<b>DIAGNOSIS AND REPAIR WORKFLOW</b> .....	115	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	132
Interview Sheet .....	115	Diagnosis Procedure .....	132
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	116	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	133
<b>MALFUNCTION AREA CHART</b> .....	116	Diagnosis Procedure .....	133
CAN Communication Circuit .....	116	<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	134
ITS Communication Circuit .....	118	Diagnosis Procedure .....	134
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	119	<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	135
Diagnosis Procedure .....	119	Diagnosis Procedure .....	135
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	120	<b>MAIN LINE BETWEEN M&amp;A AND TPMS CIRCUIT</b> .....	136
Diagnosis Procedure .....	120	Diagnosis Procedure .....	136
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	121	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	137
Diagnosis Procedure .....	121	Diagnosis Procedure .....	137
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	122	<b>MAIN LINE BETWEEN HVAC AND PTC CIRCUIT</b> .....	138
Diagnosis Procedure .....	122	Diagnosis Procedure .....	138
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	123	<b>MAIN LINE BETWEEN DLC AND AVM CIRCUIT</b> .....	139
Diagnosis Procedure .....	123	Diagnosis Procedure .....	139
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	124	<b>MAIN LINE BETWEEN DLC AND DIFF CIRCUIT</b> .....	140
Diagnosis Procedure .....	124	Diagnosis Procedure .....	140
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	125	<b>MAIN LINE BETWEEN DLC AND SONAR CIRCUIT</b> .....	141
Diagnosis Procedure .....	125	Diagnosis Procedure .....	141
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	126	<b>MAIN LINE BETWEEN AVM AND SONAR CIRCUIT</b> .....	142
Diagnosis Procedure .....	126	Diagnosis Procedure .....	142
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	127	<b>MAIN LINE BETWEEN AVM AND DIFF CIRCUIT</b> .....	143
Diagnosis Procedure .....	127	Diagnosis Procedure .....	143
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	128	<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	144
Diagnosis Procedure .....	128	Diagnosis Procedure .....	144
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	129		

<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	145	Diagnosis Procedure .....	145	
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	147	Diagnosis Procedure .....	147	
<b>MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT</b> .....	148	Diagnosis Procedure .....	148	
<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT</b> .....	150	Diagnosis Procedure .....	150	
<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	152	Diagnosis Procedure .....	152	
<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	154	Diagnosis Procedure .....	154	
<b>MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT</b> .....	155	Diagnosis Procedure .....	155	
<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	156	Diagnosis Procedure .....	156	
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	157	Diagnosis Procedure .....	157	
<b>MAIN LINE BETWEEN ABS AND ADP CIRCUIT</b> .....	158	Diagnosis Procedure .....	158	
<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	159	Diagnosis Procedure .....	159	
<b>MAIN LINE BETWEEN M&amp;A AND HVAC CIRCUIT</b> .....	161	Diagnosis Procedure .....	161	
<b>MAIN LINE BETWEEN TCU AND HVAC CIRCUIT</b> .....	162	Diagnosis Procedure .....	162	
<b>MAIN LINE BETWEEN AV AND HVAC CIRCUIT</b> .....	163	Diagnosis Procedure .....	163	
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	164	Diagnosis Procedure .....	164	
<b>ECM BRANCH LINE CIRCUIT</b> .....	165	Diagnosis Procedure .....	165	
<b>4WD BRANCH LINE CIRCUIT</b> .....	166	Diagnosis Procedure .....	166	A
<b>ABS BRANCH LINE CIRCUIT</b> .....	167	Diagnosis Procedure .....	167	B
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	168	Diagnosis Procedure .....	168	C
<b>TCM BRANCH LINE CIRCUIT</b> .....	169	Diagnosis Procedure .....	169	D
<b>ADP BRANCH LINE CIRCUIT</b> .....	170	Diagnosis Procedure .....	170	E
<b>DLC BRANCH LINE CIRCUIT</b> .....	171	Diagnosis Procedure .....	171	F
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	172	Diagnosis Procedure .....	172	G
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	173	Diagnosis Procedure .....	173	H
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	174	Diagnosis Procedure .....	174	I
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	175	Diagnosis Procedure .....	175	J
<b>STRG BRANCH LINE CIRCUIT</b> .....	176	Diagnosis Procedure .....	176	K
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	177	Diagnosis Procedure .....	177	L
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	178	Diagnosis Procedure .....	178	LAN
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	179	Diagnosis Procedure .....	179	N
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	180	Diagnosis Procedure .....	180	O
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	181	Diagnosis Procedure .....	181	P
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	182	Diagnosis Procedure .....	182	
<b>AV BRANCH LINE CIRCUIT</b> .....	183	Diagnosis Procedure .....	183	

<b>TCU BRANCH LINE CIRCUIT</b> .....	184	<b>CAN GATEWAY SYSTEM</b> .....	211
Diagnosis Procedure .....	184	Wiring Diagram .....	211
<b>TPMS BRANCH LINE CIRCUIT</b> .....	185	<b>BASIC INSPECTION</b> .....	213
Diagnosis Procedure .....	185	<b>ADDITIONAL SERVICE WHEN REPLACING</b>	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	186	<b>CAN GATEWAY</b> .....	213
Diagnosis Procedure .....	186	Description .....	213
<b>PTC BRANCH LINE CIRCUIT</b> .....	187	Work Procedure .....	213
Diagnosis Procedure .....	187	<b>CONFIGURATION (CAN GATEWAY)</b> .....	214
<b>BCM BRANCH LINE CIRCUIT</b> .....	188	Work Procedure .....	214
Diagnosis Procedure .....	188	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	215
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	189	<b>U1000 CAN COMM CIRCUIT</b> .....	215
Diagnosis Procedure .....	189	DTC Description .....	215
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	190	Diagnosis Procedure .....	215
Diagnosis Procedure .....	190	<b>U1010 CONTROL UNIT (CAN)</b> .....	216
<b>AVM BRANCH LINE CIRCUIT</b> .....	191	DTC Description .....	216
Diagnosis Procedure .....	191	Diagnosis Procedure .....	216
<b>DIFF BRANCH LINE CIRCUIT</b> .....	193	<b>B2600 CONFIG ERROR</b> .....	217
Diagnosis Procedure .....	193	DTC Description .....	217
<b>SONAR BRANCH LINE CIRCUIT</b> .....	195	<b>WRONG DATA</b> .....	217
Diagnosis Procedure .....	195	WRONG DATA : Diagnosis Procedure .....	217
<b>CAN COMMUNICATION CIRCUIT</b> .....	197	<b>NOT CONFIGURED</b> .....	217
Diagnosis Procedure .....	197	NOT CONFIGURED : Diagnosis Procedure .....	217
<b>CAN COMMUNICATION CIRCUIT 1</b> .....	199	<b>POWER SUPPLY AND GROUND CIRCUIT</b> ...	219
Diagnosis Procedure .....	199	Diagnosis Procedure .....	219
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	201	<b>REMOVAL AND INSTALLATION</b> .....	220
Diagnosis Procedure .....	201	<b>CAN GATEWAY</b> .....	220
<b>ITS COMMUNICATION CIRCUIT</b> .....	203	Removal and Installation .....	220
Diagnosis Procedure .....	203	<b>CAN SYSTEM (TYPE 1)</b>	
<b>CAN GATEWAY</b>		<b>DTC/CIRCUIT DIAGNOSIS</b> .....	221
<b>SYSTEM DESCRIPTION</b> .....	205	<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>	
<b>COMPONENT PARTS</b> .....	205	<b>CIRCUIT</b> .....	221
Component Parts Location .....	205	Diagnosis Procedure .....	221
<b>SYSTEM</b> .....	206	<b>MAIN LINE BETWEEN IPDM-E AND TCM</b>	
System Description .....	206	<b>CIRCUIT</b> .....	222
<b>DIAGNOSIS SYSTEM (CAN GATEWAY)</b> .....	207	Diagnosis Procedure .....	222
CONSULT Function .....	207	<b>MAIN LINE BETWEEN TCM AND DLC CIR-</b>	
<b>ECU DIAGNOSIS INFORMATION</b> .....	209	<b>CUIT</b> .....	223
<b>CAN GATEWAY</b> .....	209	Diagnosis Procedure .....	223
Reference Value .....	209	<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>	
DTC Inspection Priority Chart .....	209	<b>CUIT</b> .....	224
DTC Index .....	210	Diagnosis Procedure .....	224
<b>WIRING DIAGRAM</b> .....	211	<b>MAIN LINE BETWEEN STRG AND A-BAG</b>	
		<b>CIRCUIT</b> .....	225
		Diagnosis Procedure .....	225

<b>MAIN LINE BETWEEN A-BAG AND M&amp;A CIRCUIT</b> .....	<b>226</b>	<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>245</b>	<b>A</b>
Diagnosis Procedure .....	226	Diagnosis Procedure .....	245	
<b>MAIN LINE BETWEEN M&amp;A AND TPMS CIRCUIT</b> .....	<b>227</b>	<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>246</b>	<b>B</b>
Diagnosis Procedure .....	227	Diagnosis Procedure .....	246	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>228</b>	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>247</b>	<b>C</b>
Diagnosis Procedure .....	228	Diagnosis Procedure .....	247	
<b>MAIN LINE BETWEEN HVAC AND PTC CIRCUIT</b> .....	<b>229</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>248</b>	<b>D</b>
Diagnosis Procedure .....	229	Diagnosis Procedure .....	248	
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>230</b>	<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	<b>249</b>	<b>E</b>
Diagnosis Procedure .....	230	Diagnosis Procedure .....	249	
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>231</b>	<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	<b>250</b>	<b>F</b>
Diagnosis Procedure .....	231	Diagnosis Procedure .....	250	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>232</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>251</b>	<b>G</b>
Diagnosis Procedure .....	232	Diagnosis Procedure .....	251	
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>233</b>	<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	<b>252</b>	<b>H</b>
Diagnosis Procedure .....	233	Diagnosis Procedure .....	252	
<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>234</b>	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>253</b>	<b>I</b>
Diagnosis Procedure .....	234	Diagnosis Procedure .....	253	
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>235</b>	<b>MAIN LINE BETWEEN DLC AND SONAR CIRCUIT</b> .....	<b>254</b>	<b>J</b>
Diagnosis Procedure .....	235	Diagnosis Procedure .....	254	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>236</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>255</b>	<b>K</b>
Diagnosis Procedure .....	236	Diagnosis Procedure .....	255	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>237</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>256</b>	<b>LAN</b>
Diagnosis Procedure .....	237	Diagnosis Procedure .....	256	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>238</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>257</b>	<b>N</b>
Diagnosis Procedure .....	238	Diagnosis Procedure .....	257	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>239</b>	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>258</b>	<b>O</b>
Diagnosis Procedure .....	239	Diagnosis Procedure .....	258	
<b>PTC BRANCH LINE CIRCUIT</b> .....	<b>240</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>259</b>	<b>P</b>
Diagnosis Procedure .....	240	Diagnosis Procedure .....	259	
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>241</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>260</b>	
Diagnosis Procedure .....	241	Diagnosis Procedure .....	260	
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>242</b>	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>261</b>	
Diagnosis Procedure .....	242	Diagnosis Procedure .....	261	
<b>CAN SYSTEM (TYPE 2)</b>				
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>244</b>			
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>244</b>			
Diagnosis Procedure .....	244			

<b>A-BAG BRANCH LINE CIRCUIT</b> .....	262	<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	282
Diagnosis Procedure .....	262	Diagnosis Procedure .....	282
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	263	<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	283
Diagnosis Procedure .....	263	Diagnosis Procedure .....	283
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	264	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	284
Diagnosis Procedure .....	264	Diagnosis Procedure .....	284
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	265	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	285
Diagnosis Procedure .....	265	Diagnosis Procedure .....	285
<b>AV BRANCH LINE CIRCUIT</b> .....	266	<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	286
Diagnosis Procedure .....	266	Diagnosis Procedure .....	286
<b>TPMS BRANCH LINE CIRCUIT</b> .....	267	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	287
Diagnosis Procedure .....	267	Diagnosis Procedure .....	287
<b>HVAC BRANCH LINE CIRCUIT</b> .....	268	<b>MAIN LINE BETWEEN DLC AND SONAR CIRCUIT</b> .....	288
Diagnosis Procedure .....	268	Diagnosis Procedure .....	288
<b>BCM BRANCH LINE CIRCUIT</b> .....	269	<b>ECM BRANCH LINE CIRCUIT</b> .....	289
Diagnosis Procedure .....	269	Diagnosis Procedure .....	289
<b>SONAR BRANCH LINE CIRCUIT</b> .....	270	<b>ABS BRANCH LINE CIRCUIT</b> .....	290
Diagnosis Procedure .....	270	Diagnosis Procedure .....	290
<b>CAN COMMUNICATION CIRCUIT 1</b> .....	272	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	291
Diagnosis Procedure .....	272	Diagnosis Procedure .....	291
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	274	<b>TCM BRANCH LINE CIRCUIT</b> .....	292
Diagnosis Procedure .....	274	Diagnosis Procedure .....	292
<b>CAN SYSTEM (TYPE 3)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	276	<b>ADP BRANCH LINE CIRCUIT</b> .....	293
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	276	Diagnosis Procedure .....	293
Diagnosis Procedure .....	276	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	294
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	277	Diagnosis Procedure .....	294
Diagnosis Procedure .....	277	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	295
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	278	Diagnosis Procedure .....	295
Diagnosis Procedure .....	278	<b>STRG BRANCH LINE CIRCUIT</b> .....	296
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	279	Diagnosis Procedure .....	296
Diagnosis Procedure .....	279	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	297
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	280	Diagnosis Procedure .....	297
Diagnosis Procedure .....	280	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	298
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	281	Diagnosis Procedure .....	298
Diagnosis Procedure .....	281		

<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>299</b>	
Diagnosis Procedure .....	299	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>300</b>	
Diagnosis Procedure .....	300	
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>301</b>	
Diagnosis Procedure .....	301	
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>302</b>	
Diagnosis Procedure .....	302	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>303</b>	
Diagnosis Procedure .....	303	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>304</b>	
Diagnosis Procedure .....	304	
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>305</b>	
Diagnosis Procedure .....	305	
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>306</b>	
Diagnosis Procedure .....	306	
<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>308</b>	
Diagnosis Procedure .....	308	
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>310</b>	
Diagnosis Procedure .....	310	
<b>CAN SYSTEM (TYPE 4)</b>		
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>312</b>	
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>312</b>	
Diagnosis Procedure .....	312	
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>313</b>	
Diagnosis Procedure .....	313	
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>314</b>	
Diagnosis Procedure .....	314	
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>315</b>	
Diagnosis Procedure .....	315	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>316</b>	
Diagnosis Procedure .....	316	
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>317</b>	
Diagnosis Procedure .....	317	
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>318</b>	
Diagnosis Procedure .....	318	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>319</b>	<b>A</b>
Diagnosis Procedure .....	319	
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	<b>320</b>	<b>B</b>
Diagnosis Procedure .....	320	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>321</b>	<b>C</b>
Diagnosis Procedure .....	321	
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	<b>322</b>	<b>D</b>
Diagnosis Procedure .....	322	
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>324</b>	<b>E</b>
Diagnosis Procedure .....	324	
<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	<b>325</b>	<b>F</b>
Diagnosis Procedure .....	325	
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>327</b>	<b>G</b>
Diagnosis Procedure .....	327	
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>328</b>	<b>H</b>
Diagnosis Procedure .....	328	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>329</b>	<b>I</b>
Diagnosis Procedure .....	329	
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>330</b>	<b>J</b>
Diagnosis Procedure .....	330	
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>331</b>	<b>K</b>
Diagnosis Procedure .....	331	
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>332</b>	<b>L</b>
Diagnosis Procedure .....	332	
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>333</b>	<b>LAN</b>
Diagnosis Procedure .....	333	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>334</b>	<b>N</b>
Diagnosis Procedure .....	334	
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>335</b>	<b>O</b>
Diagnosis Procedure .....	335	
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>336</b>	<b>P</b>
Diagnosis Procedure .....	336	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>337</b>	
Diagnosis Procedure .....	337	
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>338</b>	

Diagnosis Procedure .....	338	<b>MAIN LINE BETWEEN M&amp;A AND AV CIR- CUIT .....</b>	<b>358</b>
<b>TPMS BRANCH LINE CIRCUIT .....</b>	<b>339</b>	Diagnosis Procedure .....	358
Diagnosis Procedure .....	339	<b>MAIN LINE BETWEEN AV AND TCU CIR- CUIT .....</b>	<b>359</b>
<b>HVAC BRANCH LINE CIRCUIT .....</b>	<b>340</b>	Diagnosis Procedure .....	359
Diagnosis Procedure .....	340	<b>MAIN LINE BETWEEN TCU AND TPMS CIR- CUIT .....</b>	<b>360</b>
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>341</b>	Diagnosis Procedure .....	360
Diagnosis Procedure .....	341	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT .....</b>	<b>361</b>
<b>RDR-R BRANCH LINE CIRCUIT .....</b>	<b>342</b>	Diagnosis Procedure .....	361
Diagnosis Procedure .....	342	<b>MAIN LINE BETWEEN DLC AND RDR-R CIR- CUIT .....</b>	<b>362</b>
<b>RDR-L BRANCH LINE CIRCUIT .....</b>	<b>343</b>	Diagnosis Procedure .....	362
Diagnosis Procedure .....	343	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT .....</b>	<b>364</b>
<b>SONAR BRANCH LINE CIRCUIT .....</b>	<b>344</b>	Diagnosis Procedure .....	364
Diagnosis Procedure .....	344	<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT .....</b>	<b>365</b>
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>346</b>	Diagnosis Procedure .....	365
Diagnosis Procedure .....	346	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>367</b>
<b>ITS COMMUNICATION CIRCUIT .....</b>	<b>348</b>	Diagnosis Procedure .....	367
Diagnosis Procedure .....	348	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>368</b>
<b>CAN SYSTEM (TYPE 5)</b>		Diagnosis Procedure .....	368
<b>DTC/CIRCUIT DIAGNOSIS .....</b>	<b>350</b>	<b>IPDM-E BRANCH LINE CIRCUIT .....</b>	<b>369</b>
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT .....</b>	<b>350</b>	Diagnosis Procedure .....	369
Diagnosis Procedure .....	350	<b>TCM BRANCH LINE CIRCUIT .....</b>	<b>370</b>
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT .....</b>	<b>351</b>	Diagnosis Procedure .....	370
Diagnosis Procedure .....	351	<b>ADP BRANCH LINE CIRCUIT .....</b>	<b>371</b>
<b>MAIN LINE BETWEEN TCM AND ADP CIR- CUIT .....</b>	<b>352</b>	Diagnosis Procedure .....	371
Diagnosis Procedure .....	352	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT) .....</b>	<b>372</b>
<b>MAIN LINE BETWEEN ADP AND DLC CIR- CUIT .....</b>	<b>353</b>	Diagnosis Procedure .....	372
Diagnosis Procedure .....	353	<b>DLC BRANCH LINE CIRCUIT (ITS COMMU- NICATION CIRCUIT) .....</b>	<b>373</b>
<b>MAIN LINE BETWEEN DLC AND STRG CIR- CUIT .....</b>	<b>354</b>	Diagnosis Procedure .....	373
Diagnosis Procedure .....	354	<b>STRG BRANCH LINE CIRCUIT .....</b>	<b>374</b>
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT .....</b>	<b>355</b>	Diagnosis Procedure .....	374
Diagnosis Procedure .....	355	<b>A-BAG BRANCH LINE CIRCUIT .....</b>	<b>375</b>
<b>MAIN LINE BETWEEN A-BAG AND ICC CIR- CUIT .....</b>	<b>356</b>	Diagnosis Procedure .....	375
Diagnosis Procedure .....	356	<b>ICC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT) .....</b>	<b>376</b>
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIR- CUIT .....</b>	<b>357</b>	Diagnosis Procedure .....	376
Diagnosis Procedure .....	357		



<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	377	Diagnosis Procedure .....	377	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	378	Diagnosis Procedure .....	378	A
<b>AV BRANCH LINE CIRCUIT</b> .....	379	Diagnosis Procedure .....	379	B
<b>TCU BRANCH LINE CIRCUIT</b> .....	380	Diagnosis Procedure .....	380	C
<b>TPMS BRANCH LINE CIRCUIT</b> .....	381	Diagnosis Procedure .....	381	D
<b>HVAC BRANCH LINE CIRCUIT</b> .....	382	Diagnosis Procedure .....	382	E
<b>BCM BRANCH LINE CIRCUIT</b> .....	383	Diagnosis Procedure .....	383	F
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	384	Diagnosis Procedure .....	384	G
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	385	Diagnosis Procedure .....	385	H
<b>SONAR BRANCH LINE CIRCUIT</b> .....	386	Diagnosis Procedure .....	386	I
<b>CAN COMMUNICATION CIRCUIT</b> .....	388	Diagnosis Procedure .....	388	J
<b>ITS COMMUNICATION CIRCUIT</b> .....	390	Diagnosis Procedure .....	390	K
<b>CAN SYSTEM (TYPE 6)</b>				
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	392			L
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	392	Diagnosis Procedure .....	392	LAN
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	393	Diagnosis Procedure .....	393	N
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	394	Diagnosis Procedure .....	394	O
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	395	Diagnosis Procedure .....	395	P
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	396	Diagnosis Procedure .....	396	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	397	Diagnosis Procedure .....	397	
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	398	Diagnosis Procedure .....	398	
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	399	Diagnosis Procedure .....	399	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	400	Diagnosis Procedure .....	400	
<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	401	Diagnosis Procedure .....	401	
<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	402	Diagnosis Procedure .....	402	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	403	Diagnosis Procedure .....	403	
<b>MAIN LINE BETWEEN DLC AND AVM CIRCUIT</b> .....	404	Diagnosis Procedure .....	404	
<b>MAIN LINE BETWEEN AVM AND SONAR CIRCUIT</b> .....	405	Diagnosis Procedure .....	405	
<b>ECM BRANCH LINE CIRCUIT</b> .....	406	Diagnosis Procedure .....	406	
<b>ABS BRANCH LINE CIRCUIT</b> .....	407	Diagnosis Procedure .....	407	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	408	Diagnosis Procedure .....	408	
<b>TCM BRANCH LINE CIRCUIT</b> .....	409	Diagnosis Procedure .....	409	
<b>ADP BRANCH LINE CIRCUIT</b> .....	410	Diagnosis Procedure .....	410	
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	411	Diagnosis Procedure .....	411	
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	412	Diagnosis Procedure .....	412	
<b>STRG BRANCH LINE CIRCUIT</b> .....	413	Diagnosis Procedure .....	413	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	414	Diagnosis Procedure .....	414	

<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>415</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>436</b>
Diagnosis Procedure .....	415	Diagnosis Procedure .....	436
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>416</b>	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>437</b>
Diagnosis Procedure .....	416	Diagnosis Procedure .....	437
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>417</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>438</b>
Diagnosis Procedure .....	417	Diagnosis Procedure .....	438
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>418</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>439</b>
Diagnosis Procedure .....	418	Diagnosis Procedure .....	439
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>419</b>	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	<b>440</b>
Diagnosis Procedure .....	419	Diagnosis Procedure .....	440
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>420</b>	<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	<b>441</b>
Diagnosis Procedure .....	420	Diagnosis Procedure .....	441
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>421</b>	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>442</b>
Diagnosis Procedure .....	421	Diagnosis Procedure .....	442
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>422</b>	<b>MAIN LINE BETWEEN AVM AND SONAR CIRCUIT</b> .....	<b>443</b>
Diagnosis Procedure .....	422	Diagnosis Procedure .....	443
<b>AVM BRANCH LINE CIRCUIT</b> .....	<b>423</b>	<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	<b>444</b>
Diagnosis Procedure .....	423	Diagnosis Procedure .....	444
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>425</b>	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>446</b>
Diagnosis Procedure .....	425	Diagnosis Procedure .....	446
<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>427</b>	<b>MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT</b> .....	<b>447</b>
Diagnosis Procedure .....	427	Diagnosis Procedure .....	447
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>429</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>449</b>
Diagnosis Procedure .....	429	Diagnosis Procedure .....	449
<b>CAN SYSTEM (TYPE 7)</b>		<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>450</b>
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>431</b>	Diagnosis Procedure .....	450
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>431</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>451</b>
Diagnosis Procedure .....	431	Diagnosis Procedure .....	451
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>432</b>	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>452</b>
Diagnosis Procedure .....	432	Diagnosis Procedure .....	452
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	<b>433</b>	<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>453</b>
Diagnosis Procedure .....	433	Diagnosis Procedure .....	453
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	<b>434</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>454</b>
Diagnosis Procedure .....	434	Diagnosis Procedure .....	454
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>435</b>		
Diagnosis Procedure .....	435		

<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>455</b>	Diagnosis Procedure .....	455	
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>456</b>	Diagnosis Procedure .....	456	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>457</b>	Diagnosis Procedure .....	457	
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>458</b>	Diagnosis Procedure .....	458	
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>459</b>	Diagnosis Procedure .....	459	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>460</b>	Diagnosis Procedure .....	460	
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>461</b>	Diagnosis Procedure .....	461	
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>462</b>	Diagnosis Procedure .....	462	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>463</b>	Diagnosis Procedure .....	463	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>464</b>	Diagnosis Procedure .....	464	
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>465</b>	Diagnosis Procedure .....	465	
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>466</b>	Diagnosis Procedure .....	466	
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>467</b>	Diagnosis Procedure .....	467	
<b>AVM BRANCH LINE CIRCUIT</b> .....	<b>468</b>	Diagnosis Procedure .....	468	
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>470</b>	Diagnosis Procedure .....	470	
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>472</b>	Diagnosis Procedure .....	472	
<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>474</b>	Diagnosis Procedure .....	474	
<b>CAN SYSTEM (TYPE 8)</b>				
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>476</b>			
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>476</b>	Diagnosis Procedure .....	476	
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>477</b>	Diagnosis Procedure .....	477	
		Diagnosis Procedure .....	477	
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>478</b>	Diagnosis Procedure .....	478	
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>479</b>	Diagnosis Procedure .....	479	
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>480</b>	Diagnosis Procedure .....	480	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>481</b>	Diagnosis Procedure .....	481	
<b>MAIN LINE BETWEEN A-BAG AND M&amp;A CIRCUIT</b> .....	<b>482</b>	Diagnosis Procedure .....	482	
<b>MAIN LINE BETWEEN M&amp;A AND TPMS CIRCUIT</b> .....	<b>483</b>	Diagnosis Procedure .....	483	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>484</b>	Diagnosis Procedure .....	484	
<b>MAIN LINE BETWEEN HVAC AND PTC CIRCUIT</b> .....	<b>485</b>	Diagnosis Procedure .....	485	
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>486</b>	Diagnosis Procedure .....	486	
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>487</b>	Diagnosis Procedure .....	487	
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>488</b>	Diagnosis Procedure .....	488	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>489</b>	Diagnosis Procedure .....	489	
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>490</b>	Diagnosis Procedure .....	490	
<b>DLC BRANCH LINE CIRCUIT</b> .....	<b>491</b>	Diagnosis Procedure .....	491	
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>492</b>	Diagnosis Procedure .....	492	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>493</b>	Diagnosis Procedure .....	493	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>494</b>	Diagnosis Procedure .....	494	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>495</b>	Diagnosis Procedure .....	495	

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>496</b>	Diagnosis Procedure .....	512
Diagnosis Procedure .....	496		
<b>PTC BRANCH LINE CIRCUIT</b> .....	<b>497</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>513</b>
Diagnosis Procedure .....	497	Diagnosis Procedure .....	513
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>498</b>	<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>514</b>
Diagnosis Procedure .....	498	Diagnosis Procedure .....	514
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>499</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>515</b>
Diagnosis Procedure .....	499	Diagnosis Procedure .....	515
<b>CAN SYSTEM (TYPE 9)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>501</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>516</b>
<b>MAIN LINE BETWEEN 4WD AND ABS CIR-</b>		Diagnosis Procedure .....	516
<b>CUIT</b> .....	<b>501</b>	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>517</b>
Diagnosis Procedure .....	501	Diagnosis Procedure .....	517
<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>		<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>	
<b>CIRCUIT</b> .....	<b>502</b>	<b>UNICATION CIRCUIT 1)</b> .....	<b>518</b>
Diagnosis Procedure .....	502	Diagnosis Procedure .....	518
<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>		<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>	
<b>CIRCUIT</b> .....	<b>502</b>	<b>UNICATION CIRCUIT 2)</b> .....	<b>519</b>
Diagnosis Procedure .....	502	Diagnosis Procedure .....	519
<b>MAIN LINE BETWEEN IPDM-E AND TCM</b>		<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>520</b>
<b>CIRCUIT</b> .....	<b>503</b>	Diagnosis Procedure .....	520
Diagnosis Procedure .....	503	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>521</b>
<b>MAIN LINE BETWEEN TCM AND DLC CIR-</b>		Diagnosis Procedure .....	521
<b>CUIT</b> .....	<b>504</b>	<b>CGW BRANCH LINE CIRCUIT (CAN COM-</b>	
Diagnosis Procedure .....	504	<b>MUNICATION CIRCUIT 1)</b> .....	<b>522</b>
<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>		Diagnosis Procedure .....	522
<b>CUIT</b> .....	<b>505</b>	<b>CGW BRANCH LINE CIRCUIT (CAN COM-</b>	
Diagnosis Procedure .....	505	<b>MUNICATION CIRCUIT 2)</b> .....	<b>523</b>
<b>MAIN LINE BETWEEN STRG AND A-BAG</b>		Diagnosis Procedure .....	523
<b>CIRCUIT</b> .....	<b>506</b>	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>524</b>
Diagnosis Procedure .....	506	Diagnosis Procedure .....	524
<b>MAIN LINE BETWEEN A-BAG AND CGW</b>		<b>AV BRANCH LINE CIRCUIT</b> .....	<b>525</b>
<b>CIRCUIT</b> .....	<b>507</b>	Diagnosis Procedure .....	525
Diagnosis Procedure .....	507	<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>526</b>
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIR-</b>		Diagnosis Procedure .....	526
<b>CUIT</b> .....	<b>508</b>	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>527</b>
Diagnosis Procedure .....	508	Diagnosis Procedure .....	527
<b>MAIN LINE BETWEEN M&amp;A AND AV CIR-</b>		<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>528</b>
<b>CUIT</b> .....	<b>509</b>	Diagnosis Procedure .....	528
Diagnosis Procedure .....	509	<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>529</b>
<b>MAIN LINE BETWEEN AV AND TPMS CIR-</b>		Diagnosis Procedure .....	529
<b>CUIT</b> .....	<b>510</b>	<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>531</b>
Diagnosis Procedure .....	510	Diagnosis Procedure .....	531
<b>MAIN LINE BETWEEN TPMS AND HVAC</b>		<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>533</b>
<b>CIRCUIT</b> .....	<b>511</b>	Diagnosis Procedure .....	533
Diagnosis Procedure .....	511	<b>CAN SYSTEM (TYPE 10)</b>	
<b>MAIN LINE BETWEEN DLC AND SONAR</b>			
<b>CIRCUIT</b> .....	<b>512</b>		

<b>DTC/CIRCUIT DIAGNOSIS</b> .....	535	<b>TCM BRANCH LINE CIRCUIT</b> .....	551	A
		Diagnosis Procedure .....	551	
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	535	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	552	B
Diagnosis Procedure .....	535	Diagnosis Procedure .....	552	
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	536	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	553	C
Diagnosis Procedure .....	536	Diagnosis Procedure .....	553	
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	537	<b>STRG BRANCH LINE CIRCUIT</b> .....	554	D
Diagnosis Procedure .....	537	Diagnosis Procedure .....	554	
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	538	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	555	E
Diagnosis Procedure .....	538	Diagnosis Procedure .....	555	
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	539	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	556	F
Diagnosis Procedure .....	539	Diagnosis Procedure .....	556	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	540	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	557	G
Diagnosis Procedure .....	540	Diagnosis Procedure .....	557	
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	541	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	558	H
Diagnosis Procedure .....	541	Diagnosis Procedure .....	558	
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	542	<b>AV BRANCH LINE CIRCUIT</b> .....	559	I
Diagnosis Procedure .....	542	Diagnosis Procedure .....	559	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	543	<b>TPMS BRANCH LINE CIRCUIT</b> .....	560	J
Diagnosis Procedure .....	543	Diagnosis Procedure .....	560	
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	544	<b>HVAC BRANCH LINE CIRCUIT</b> .....	561	K
Diagnosis Procedure .....	544	Diagnosis Procedure .....	561	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	545	<b>BCM BRANCH LINE CIRCUIT</b> .....	562	L
Diagnosis Procedure .....	545	Diagnosis Procedure .....	562	
<b>MAIN LINE BETWEEN DLC AND DIFF CIRCUIT</b> .....	546	<b>DIFF BRANCH LINE CIRCUIT</b> .....	563	
Diagnosis Procedure .....	546	Diagnosis Procedure .....	563	
<b>ECM BRANCH LINE CIRCUIT</b> .....	547	<b>CAN COMMUNICATION CIRCUIT 1</b> .....	565	LAN
Diagnosis Procedure .....	547	Diagnosis Procedure .....	565	
<b>4WD BRANCH LINE CIRCUIT</b> .....	548	<b>CAN COMMUNICATION CIRCUIT 2</b> .....	567	N
Diagnosis Procedure .....	548	Diagnosis Procedure .....	567	
<b>ABS BRANCH LINE CIRCUIT</b> .....	549	<b>CAN SYSTEM (TYPE 11)</b>		
Diagnosis Procedure .....	549	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	569	O
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	550	<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	569	P
Diagnosis Procedure .....	550	Diagnosis Procedure .....	569	
		<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	570	
		Diagnosis Procedure .....	570	
		<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	571	

Diagnosis Procedure .....	571	<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>588</b>
<b>MAIN LINE BETWEEN TCM AND ADP CIR- CUIT</b> .....	<b>572</b>	Diagnosis Procedure .....	588
Diagnosis Procedure .....	572	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT 1)</b> .....	<b>589</b>
<b>MAIN LINE BETWEEN ADP AND DLC CIR- CUIT</b> .....	<b>573</b>	Diagnosis Procedure .....	589
Diagnosis Procedure .....	573	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT 2)</b> .....	<b>590</b>
<b>MAIN LINE BETWEEN DLC AND STRG CIR- CUIT</b> .....	<b>574</b>	Diagnosis Procedure .....	590
Diagnosis Procedure .....	574	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>591</b>
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>575</b>	Diagnosis Procedure .....	591
Diagnosis Procedure .....	575	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>592</b>
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	<b>576</b>	Diagnosis Procedure .....	592
Diagnosis Procedure .....	576	<b>CGW BRANCH LINE CIRCUIT (CAN COM- MUNICATION CIRCUIT 1)</b> .....	<b>593</b>
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIR- CUIT</b> .....	<b>577</b>	Diagnosis Procedure .....	593
Diagnosis Procedure .....	577	<b>CGW BRANCH LINE CIRCUIT (CAN COM- MUNICATION CIRCUIT 2)</b> .....	<b>594</b>
<b>MAIN LINE BETWEEN M&amp;A AND AV CIR- CUIT</b> .....	<b>578</b>	Diagnosis Procedure .....	594
Diagnosis Procedure .....	578	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>595</b>
<b>MAIN LINE BETWEEN AV AND TCU CIR- CUIT</b> .....	<b>579</b>	Diagnosis Procedure .....	595
Diagnosis Procedure .....	579	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>596</b>
<b>MAIN LINE BETWEEN TCU AND TPMS CIR- CUIT</b> .....	<b>580</b>	Diagnosis Procedure .....	596
Diagnosis Procedure .....	580	<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>597</b>
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>581</b>	Diagnosis Procedure .....	597
Diagnosis Procedure .....	581	<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>598</b>
<b>MAIN LINE BETWEEN DLC AND SONAR CIRCUIT</b> .....	<b>582</b>	Diagnosis Procedure .....	598
Diagnosis Procedure .....	582	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>599</b>
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>583</b>	Diagnosis Procedure .....	599
Diagnosis Procedure .....	583	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>600</b>
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>584</b>	Diagnosis Procedure .....	600
Diagnosis Procedure .....	584	<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>601</b>
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>585</b>	Diagnosis Procedure .....	601
Diagnosis Procedure .....	585	<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>603</b>
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>586</b>	Diagnosis Procedure .....	603
Diagnosis Procedure .....	586	<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>605</b>
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>587</b>	Diagnosis Procedure .....	605
Diagnosis Procedure .....	587	<b>CAN SYSTEM (TYPE 12)</b>	
		<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>607</b>
		<b>MAIN LINE BETWEEN 4WD AND ABS CIR- CUIT</b> .....	<b>607</b>
		Diagnosis Procedure .....	607
		<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>608</b>
		Diagnosis Procedure .....	608

<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	609	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	628	A
Diagnosis Procedure .....	609	Diagnosis Procedure .....	628	
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	610	<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	629	B
Diagnosis Procedure .....	610	Diagnosis Procedure .....	629	
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	611	<b>STRG BRANCH LINE CIRCUIT</b> .....	630	C
Diagnosis Procedure .....	611	Diagnosis Procedure .....	630	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	612	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	631	D
Diagnosis Procedure .....	612	Diagnosis Procedure .....	631	
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	613	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	632	E
Diagnosis Procedure .....	613	Diagnosis Procedure .....	632	
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	614	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	633	F
Diagnosis Procedure .....	614	Diagnosis Procedure .....	633	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	615	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	634	G
Diagnosis Procedure .....	615	Diagnosis Procedure .....	634	
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	616	<b>AV BRANCH LINE CIRCUIT</b> .....	635	H
Diagnosis Procedure .....	616	Diagnosis Procedure .....	635	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	617	<b>TPMS BRANCH LINE CIRCUIT</b> .....	636	I
Diagnosis Procedure .....	617	Diagnosis Procedure .....	636	
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	618	<b>HVAC BRANCH LINE CIRCUIT</b> .....	637	J
Diagnosis Procedure .....	618	Diagnosis Procedure .....	637	
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	620	<b>BCM BRANCH LINE CIRCUIT</b> .....	638	K
Diagnosis Procedure .....	620	Diagnosis Procedure .....	638	
<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	621	<b>RDR-R BRANCH LINE CIRCUIT</b> .....	639	L
Diagnosis Procedure .....	621	Diagnosis Procedure .....	639	
<b>ECM BRANCH LINE CIRCUIT</b> .....	623	<b>RDR-L BRANCH LINE CIRCUIT</b> .....	640	LAN
Diagnosis Procedure .....	623	Diagnosis Procedure .....	640	
<b>4WD BRANCH LINE CIRCUIT</b> .....	624	<b>SONAR BRANCH LINE CIRCUIT</b> .....	641	N
Diagnosis Procedure .....	624	Diagnosis Procedure .....	641	
<b>ABS BRANCH LINE CIRCUIT</b> .....	625	<b>CAN COMMUNICATION CIRCUIT</b> .....	643	O
Diagnosis Procedure .....	625	Diagnosis Procedure .....	643	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	626	<b>ITS COMMUNICATION CIRCUIT</b> .....	645	P
Diagnosis Procedure .....	626	Diagnosis Procedure .....	645	
<b>TCM BRANCH LINE CIRCUIT</b> .....	627	<b>CAN SYSTEM (TYPE 13)</b>		
Diagnosis Procedure .....	627	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	647	
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	647	<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	647	
Diagnosis Procedure .....	647	Diagnosis Procedure .....	647	
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	648	<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	648	
Diagnosis Procedure .....	648	Diagnosis Procedure .....	648	

<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>649</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>666</b>
Diagnosis Procedure .....	649	Diagnosis Procedure .....	666
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>650</b>	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>667</b>
Diagnosis Procedure .....	650	Diagnosis Procedure .....	667
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>651</b>	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>668</b>
Diagnosis Procedure .....	651	Diagnosis Procedure .....	668
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>652</b>	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>669</b>
Diagnosis Procedure .....	652	Diagnosis Procedure .....	669
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	<b>653</b>	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>670</b>
Diagnosis Procedure .....	653	Diagnosis Procedure .....	670
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	<b>654</b>	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>671</b>
Diagnosis Procedure .....	654	Diagnosis Procedure .....	671
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>655</b>	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>672</b>
Diagnosis Procedure .....	655	Diagnosis Procedure .....	672
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	<b>656</b>	<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>673</b>
Diagnosis Procedure .....	656	Diagnosis Procedure .....	673
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>657</b>	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>674</b>
Diagnosis Procedure .....	657	Diagnosis Procedure .....	674
<b>MAIN LINE BETWEEN DLC AND DIFF CIRCUIT</b> .....	<b>658</b>	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>675</b>
Diagnosis Procedure .....	658	Diagnosis Procedure .....	675
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	<b>659</b>	<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>676</b>
Diagnosis Procedure .....	659	Diagnosis Procedure .....	676
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>660</b>	<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>678</b>
Diagnosis Procedure .....	660	Diagnosis Procedure .....	678
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>661</b>	<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>680</b>
Diagnosis Procedure .....	661	Diagnosis Procedure .....	680
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>662</b>	<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>682</b>
Diagnosis Procedure .....	662	Diagnosis Procedure .....	682
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>663</b>	<b>CAN SYSTEM (TYPE 14)</b>	
Diagnosis Procedure .....	663	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>684</b>
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>664</b>	<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>684</b>
Diagnosis Procedure .....	664	Diagnosis Procedure .....	684
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>665</b>	<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>685</b>
Diagnosis Procedure .....	665	Diagnosis Procedure .....	685
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>686</b>	<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>686</b>
Diagnosis Procedure .....	686	Diagnosis Procedure .....	686
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>687</b>	<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>687</b>



Diagnosis Procedure .....	687	<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>706</b>	A
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>688</b>	Diagnosis Procedure .....	706	
Diagnosis Procedure .....	688	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>707</b>	B
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>689</b>	Diagnosis Procedure .....	707	
Diagnosis Procedure .....	689	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>708</b>	C
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>690</b>	Diagnosis Procedure .....	708	
Diagnosis Procedure .....	690	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>709</b>	D
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>691</b>	Diagnosis Procedure .....	709	
Diagnosis Procedure .....	691	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>710</b>	E
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>692</b>	Diagnosis Procedure .....	710	
Diagnosis Procedure .....	692	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>711</b>	F
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	<b>693</b>	Diagnosis Procedure .....	711	
Diagnosis Procedure .....	693	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>712</b>	G
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>694</b>	Diagnosis Procedure .....	712	
Diagnosis Procedure .....	694	<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>713</b>	H
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	<b>695</b>	Diagnosis Procedure .....	713	
Diagnosis Procedure .....	695	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>714</b>	I
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>697</b>	Diagnosis Procedure .....	714	
Diagnosis Procedure .....	697	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>715</b>	J
<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT</b> .....	<b>698</b>	Diagnosis Procedure .....	715	
Diagnosis Procedure .....	698	<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>716</b>	K
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>700</b>	Diagnosis Procedure .....	716	
Diagnosis Procedure .....	700	<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>717</b>	L
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>701</b>	Diagnosis Procedure .....	717	
Diagnosis Procedure .....	701	<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>718</b>	
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>702</b>	Diagnosis Procedure .....	718	
Diagnosis Procedure .....	702	<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>720</b>	LAN
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>703</b>	Diagnosis Procedure .....	720	
Diagnosis Procedure .....	703	<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>722</b>	
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>704</b>	Diagnosis Procedure .....	722	
Diagnosis Procedure .....	704	<b>CAN SYSTEM (TYPE 15)</b>		N
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>705</b>	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>724</b>	
Diagnosis Procedure .....	705	<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>724</b>	O
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>706</b>	Diagnosis Procedure .....	724	
Diagnosis Procedure .....	706	<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>725</b>	P
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>707</b>	Diagnosis Procedure .....	725	
Diagnosis Procedure .....	707	<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>726</b>	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>708</b>	Diagnosis Procedure .....	726	
Diagnosis Procedure .....	708			
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>709</b>			
Diagnosis Procedure .....	709			
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>710</b>			
Diagnosis Procedure .....	710			
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>711</b>			
Diagnosis Procedure .....	711			
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>712</b>			
Diagnosis Procedure .....	712			
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>713</b>			
Diagnosis Procedure .....	713			
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>714</b>			
Diagnosis Procedure .....	714			
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>715</b>			
Diagnosis Procedure .....	715			
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>716</b>			
Diagnosis Procedure .....	716			
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>717</b>			
Diagnosis Procedure .....	717			
<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>718</b>			
Diagnosis Procedure .....	718			
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>720</b>			
Diagnosis Procedure .....	720			
<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>722</b>			
Diagnosis Procedure .....	722			
<b>CAN SYSTEM (TYPE 15)</b>				
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>724</b>			
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>724</b>			
Diagnosis Procedure .....	724			
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>725</b>			
Diagnosis Procedure .....	725			
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>726</b>			
Diagnosis Procedure .....	726			

<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	727	Diagnosis Procedure .....	745
Diagnosis Procedure .....	727	<b>TCM BRANCH LINE CIRCUIT</b> .....	746
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	728	Diagnosis Procedure .....	746
Diagnosis Procedure .....	728	<b>ADP BRANCH LINE CIRCUIT</b> .....	747
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	729	Diagnosis Procedure .....	747
Diagnosis Procedure .....	729	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	748
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	730	Diagnosis Procedure .....	748
Diagnosis Procedure .....	730	<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	749
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	731	Diagnosis Procedure .....	749
Diagnosis Procedure .....	731	<b>STRG BRANCH LINE CIRCUIT</b> .....	750
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	732	Diagnosis Procedure .....	750
Diagnosis Procedure .....	732	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	751
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	733	Diagnosis Procedure .....	751
Diagnosis Procedure .....	733	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	752
<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	734	Diagnosis Procedure .....	752
Diagnosis Procedure .....	734	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	753
<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	735	Diagnosis Procedure .....	753
Diagnosis Procedure .....	735	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	754
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	736	Diagnosis Procedure .....	754
Diagnosis Procedure .....	736	<b>AV BRANCH LINE CIRCUIT</b> .....	755
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	737	Diagnosis Procedure .....	755
Diagnosis Procedure .....	737	<b>TCU BRANCH LINE CIRCUIT</b> .....	756
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	739	Diagnosis Procedure .....	756
Diagnosis Procedure .....	739	<b>TPMS BRANCH LINE CIRCUIT</b> .....	757
<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	740	Diagnosis Procedure .....	757
Diagnosis Procedure .....	740	<b>HVAC BRANCH LINE CIRCUIT</b> .....	758
<b>ECM BRANCH LINE CIRCUIT</b> .....	742	Diagnosis Procedure .....	758
Diagnosis Procedure .....	742	<b>BCM BRANCH LINE CIRCUIT</b> .....	759
<b>4WD BRANCH LINE CIRCUIT</b> .....	743	Diagnosis Procedure .....	759
Diagnosis Procedure .....	743	<b>RDR-R BRANCH LINE CIRCUIT</b> .....	760
<b>ABS BRANCH LINE CIRCUIT</b> .....	744	Diagnosis Procedure .....	760
Diagnosis Procedure .....	744	<b>RDR-L BRANCH LINE CIRCUIT</b> .....	761
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	745	Diagnosis Procedure .....	761
		<b>SONAR BRANCH LINE CIRCUIT</b> .....	762
		Diagnosis Procedure .....	762
		<b>CAN COMMUNICATION CIRCUIT</b> .....	764
		Diagnosis Procedure .....	764
		<b>ITS COMMUNICATION CIRCUIT</b> .....	766
		Diagnosis Procedure .....	766

**CAN SYSTEM (TYPE 16)**

<b>DTC/CIRCUIT DIAGNOSIS</b> .....	768	<b>ECM BRANCH LINE CIRCUIT</b> .....	783	A
		Diagnosis Procedure .....	783	
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	768	<b>4WD BRANCH LINE CIRCUIT</b> .....	784	B
Diagnosis Procedure .....	768	Diagnosis Procedure .....	784	
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	769	<b>ABS BRANCH LINE CIRCUIT</b> .....	785	C
Diagnosis Procedure .....	769	Diagnosis Procedure .....	785	
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	770	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	786	D
Diagnosis Procedure .....	770	Diagnosis Procedure .....	786	
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	771	<b>TCM BRANCH LINE CIRCUIT</b> .....	787	E
Diagnosis Procedure .....	771	Diagnosis Procedure .....	787	
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	772	<b>ADP BRANCH LINE CIRCUIT</b> .....	788	F
Diagnosis Procedure .....	772	Diagnosis Procedure .....	788	
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	773	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	789	G
Diagnosis Procedure .....	773	Diagnosis Procedure .....	789	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	774	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	790	H
Diagnosis Procedure .....	774	Diagnosis Procedure .....	790	
<b>MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT</b> .....	775	<b>STRG BRANCH LINE CIRCUIT</b> .....	791	I
Diagnosis Procedure .....	775	Diagnosis Procedure .....	791	
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIRCUIT</b> .....	776	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	792	J
Diagnosis Procedure .....	776	Diagnosis Procedure .....	792	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	777	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	793	K
Diagnosis Procedure .....	777	Diagnosis Procedure .....	793	
<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	778	<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	794	L
Diagnosis Procedure .....	778	Diagnosis Procedure .....	794	
<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	779	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	795	LAN
Diagnosis Procedure .....	779	Diagnosis Procedure .....	795	
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	780	<b>AV BRANCH LINE CIRCUIT</b> .....	796	N
Diagnosis Procedure .....	780	Diagnosis Procedure .....	796	
<b>MAIN LINE BETWEEN DLC AND AVM CIRCUIT</b> .....	781	<b>TCU BRANCH LINE CIRCUIT</b> .....	797	O
Diagnosis Procedure .....	781	Diagnosis Procedure .....	797	
<b>MAIN LINE BETWEEN AVM AND SONAR CIRCUIT</b> .....	782	<b>TPMS BRANCH LINE CIRCUIT</b> .....	798	P
Diagnosis Procedure .....	782	Diagnosis Procedure .....	798	
		<b>HVAC BRANCH LINE CIRCUIT</b> .....	799	
		Diagnosis Procedure .....	799	
		<b>BCM BRANCH LINE CIRCUIT</b> .....	800	
		Diagnosis Procedure .....	800	
		<b>AVM BRANCH LINE CIRCUIT</b> .....	801	
		Diagnosis Procedure .....	801	
		<b>SONAR BRANCH LINE CIRCUIT</b> .....	803	
		Diagnosis Procedure .....	803	

<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>805</b>	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>823</b>
Diagnosis Procedure .....	805	Diagnosis Procedure .....	823
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>807</b>	<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT</b> .....	<b>824</b>
Diagnosis Procedure .....	807	Diagnosis Procedure .....	824
<b>CAN SYSTEM (TYPE 17)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>809</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>826</b>
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>809</b>	Diagnosis Procedure .....	826
Diagnosis Procedure .....	809	<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>827</b>
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>810</b>	Diagnosis Procedure .....	827
Diagnosis Procedure .....	810	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>828</b>
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>811</b>	Diagnosis Procedure .....	828
Diagnosis Procedure .....	811	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>829</b>
<b>MAIN LINE BETWEEN TCM AND DLC CIRCUIT</b> .....	<b>812</b>	Diagnosis Procedure .....	829
Diagnosis Procedure .....	812	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>830</b>
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>813</b>	Diagnosis Procedure .....	830
Diagnosis Procedure .....	813	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>831</b>
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>814</b>	Diagnosis Procedure .....	831
Diagnosis Procedure .....	814	<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>832</b>
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>815</b>	Diagnosis Procedure .....	832
Diagnosis Procedure .....	815	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>833</b>
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>816</b>	Diagnosis Procedure .....	833
Diagnosis Procedure .....	816	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>834</b>
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>817</b>	Diagnosis Procedure .....	834
Diagnosis Procedure .....	817	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>835</b>
<b>MAIN LINE BETWEEN AV AND TPMS CIRCUIT</b> .....	<b>818</b>	Diagnosis Procedure .....	835
Diagnosis Procedure .....	818	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>836</b>
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	<b>819</b>	Diagnosis Procedure .....	836
Diagnosis Procedure .....	819	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>837</b>
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	<b>820</b>	Diagnosis Procedure .....	837
Diagnosis Procedure .....	820	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>838</b>
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	<b>821</b>	Diagnosis Procedure .....	838
Diagnosis Procedure .....	821	<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>839</b>
		Diagnosis Procedure .....	839
		<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>840</b>
		Diagnosis Procedure .....	840
		<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>841</b>
		Diagnosis Procedure .....	841
		<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>842</b>
		Diagnosis Procedure .....	842

<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>843</b>	<b>MAIN LINE BETWEEN TCU AND TPMS CIR-</b>	<b>863</b>	<b>A</b>
Diagnosis Procedure .....	843	<b>CUIT</b> .....	863	
<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>844</b>	Diagnosis Procedure .....	863	
Diagnosis Procedure .....	844	<b>MAIN LINE BETWEEN TPMS AND HVAC</b>	<b>864</b>	<b>B</b>
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>846</b>	<b>CIRCUIT</b> .....	864	
Diagnosis Procedure .....	846	Diagnosis Procedure .....	864	
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>848</b>	<b>MAIN LINE BETWEEN DLC AND DIFF CIR-</b>	<b>865</b>	<b>C</b>
Diagnosis Procedure .....	848	<b>CUIT</b> .....	865	
<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>850</b>	Diagnosis Procedure .....	865	
Diagnosis Procedure .....	850	<b>MAIN LINE BETWEEN DIFF AND SONAR</b>	<b>866</b>	<b>D</b>
<b>CAN SYSTEM (TYPE 18)</b>		<b>CIRCUIT</b> .....	866	
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>852</b>	Diagnosis Procedure .....	866	<b>E</b>
<b>MAIN LINE BETWEEN 4WD AND ABS CIR-</b>	<b>852</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>867</b>	
<b>CUIT</b> .....	852	Diagnosis Procedure .....	867	
Diagnosis Procedure .....	852	<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>868</b>	<b>F</b>
<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>	<b>853</b>	Diagnosis Procedure .....	868	
<b>CIRCUIT</b> .....	853	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>869</b>	<b>G</b>
Diagnosis Procedure .....	853	Diagnosis Procedure .....	869	
<b>MAIN LINE BETWEEN IPDM-E AND TCM</b>	<b>854</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>870</b>	<b>H</b>
<b>CIRCUIT</b> .....	854	Diagnosis Procedure .....	870	
Diagnosis Procedure .....	854	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>871</b>	<b>I</b>
<b>MAIN LINE BETWEEN TCM AND ADP CIR-</b>	<b>855</b>	Diagnosis Procedure .....	871	
<b>CUIT</b> .....	855	<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>872</b>	<b>J</b>
Diagnosis Procedure .....	855	Diagnosis Procedure .....	872	
<b>MAIN LINE BETWEEN ADP AND DLC CIR-</b>	<b>856</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>	<b>873</b>	<b>K</b>
<b>CUIT</b> .....	856	<b>UNICATION CIRCUIT 1)</b> .....	873	
Diagnosis Procedure .....	856	Diagnosis Procedure .....	873	
<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>	<b>857</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>	<b>874</b>	<b>L</b>
<b>CUIT</b> .....	857	<b>UNICATION CIRCUIT 2)</b> .....	874	
Diagnosis Procedure .....	857	Diagnosis Procedure .....	874	
<b>MAIN LINE BETWEEN STRG AND A-BAG</b>	<b>858</b>	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>875</b>	<b>LAN</b>
<b>CIRCUIT</b> .....	858	Diagnosis Procedure .....	875	
Diagnosis Procedure .....	858	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>876</b>	<b>N</b>
<b>MAIN LINE BETWEEN A-BAG AND CGW</b>	<b>859</b>	Diagnosis Procedure .....	876	
<b>CIRCUIT</b> .....	859	<b>CGW BRANCH LINE CIRCUIT (CAN COM-</b>	<b>877</b>	<b>O</b>
Diagnosis Procedure .....	859	<b>MUNICATION CIRCUIT 1)</b> .....	877	
<b>MAIN LINE BETWEEN CGW AND M&amp;A CIR-</b>	<b>860</b>	Diagnosis Procedure .....	877	
<b>CUIT</b> .....	860	<b>CGW BRANCH LINE CIRCUIT (CAN COM-</b>	<b>878</b>	<b>P</b>
Diagnosis Procedure .....	860	<b>MUNICATION CIRCUIT 2)</b> .....	878	
<b>MAIN LINE BETWEEN M&amp;A AND AV CIR-</b>	<b>861</b>	Diagnosis Procedure .....	878	
<b>CUIT</b> .....	861	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>879</b>	
Diagnosis Procedure .....	861	Diagnosis Procedure .....	879	
<b>MAIN LINE BETWEEN AV AND TCU CIR-</b>	<b>862</b>	<b>AV BRANCH LINE CIRCUIT</b> .....	<b>880</b>	
<b>CUIT</b> .....	862	Diagnosis Procedure .....	880	
Diagnosis Procedure .....	862			

<b>TCU BRANCH LINE CIRCUIT</b> .....	881	<b>MAIN LINE BETWEEN M&amp;A AND AV CIR-</b>	
Diagnosis Procedure .....	881	<b>CUIT</b> .....	902
<b>TPMS BRANCH LINE CIRCUIT</b> .....	882	Diagnosis Procedure .....	902
Diagnosis Procedure .....	882	<b>MAIN LINE BETWEEN AV AND TCU CIR-</b>	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	883	<b>CUIT</b> .....	903
Diagnosis Procedure .....	883	Diagnosis Procedure .....	903
<b>BCM BRANCH LINE CIRCUIT</b> .....	884	<b>MAIN LINE BETWEEN TCU AND TPMS CIR-</b>	
Diagnosis Procedure .....	884	<b>CUIT</b> .....	904
<b>DIFF BRANCH LINE CIRCUIT</b> .....	885	Diagnosis Procedure .....	904
Diagnosis Procedure .....	885	<b>MAIN LINE BETWEEN TPMS AND HVAC</b>	
<b>SONAR BRANCH LINE CIRCUIT</b> .....	887	<b>CIRCUIT</b> .....	905
Diagnosis Procedure .....	887	Diagnosis Procedure .....	905
<b>CAN COMMUNICATION CIRCUIT 1</b> .....	889	<b>MAIN LINE BETWEEN AVM AND SONAR</b>	
Diagnosis Procedure .....	889	<b>CIRCUIT</b> .....	906
<b>CAN COMMUNICATION CIRCUIT 2</b> .....	891	Diagnosis Procedure .....	906
Diagnosis Procedure .....	891	<b>MAIN LINE BETWEEN DLC AND RDR-R CIR-</b>	
<b>CAN SYSTEM (TYPE 19)</b>		<b>CUIT</b> .....	907
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	893	Diagnosis Procedure .....	907
<b>MAIN LINE BETWEEN 4WD AND ABS CIR-</b>		<b>MAIN LINE BETWEEN RDR-R AND RDR-L</b>	
<b>CUIT</b> .....	893	<b>CIRCUIT</b> .....	909
Diagnosis Procedure .....	893	Diagnosis Procedure .....	909
<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>		<b>MAIN LINE BETWEEN RDR-L AND AVM CIR-</b>	
<b>CIRCUIT</b> .....	894	<b>CUIT</b> .....	910
Diagnosis Procedure .....	894	Diagnosis Procedure .....	910
<b>MAIN LINE BETWEEN IPDM-E AND TCM</b>		<b>ECM BRANCH LINE CIRCUIT</b> .....	912
<b>CIRCUIT</b> .....	895	Diagnosis Procedure .....	912
Diagnosis Procedure .....	895	<b>4WD BRANCH LINE CIRCUIT</b> .....	913
<b>MAIN LINE BETWEEN TCM AND ADP CIR-</b>		Diagnosis Procedure .....	913
<b>CUIT</b> .....	896	<b>ABS BRANCH LINE CIRCUIT</b> .....	914
Diagnosis Procedure .....	896	Diagnosis Procedure .....	914
<b>MAIN LINE BETWEEN ADP AND DLC CIR-</b>		<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	915
<b>CUIT</b> .....	897	Diagnosis Procedure .....	915
Diagnosis Procedure .....	897	<b>TCM BRANCH LINE CIRCUIT</b> .....	916
<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>		Diagnosis Procedure .....	916
<b>CUIT</b> .....	898	<b>ADP BRANCH LINE CIRCUIT</b> .....	917
Diagnosis Procedure .....	898	Diagnosis Procedure .....	917
<b>MAIN LINE BETWEEN STRG AND A-BAG</b>		<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>	
<b>CIRCUIT</b> .....	899	<b>UNICATION CIRCUIT)</b> .....	918
Diagnosis Procedure .....	899	Diagnosis Procedure .....	918
<b>MAIN LINE BETWEEN A-BAG AND ICC CIR-</b>		<b>DLC BRANCH LINE CIRCUIT (ITS COMMU-</b>	
<b>CUIT</b> .....	900	<b>UNICATION CIRCUIT)</b> .....	919
Diagnosis Procedure .....	900	Diagnosis Procedure .....	919
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIR-</b>		<b>STRG BRANCH LINE CIRCUIT</b> .....	920
<b>CUIT</b> .....	901	Diagnosis Procedure .....	920
Diagnosis Procedure .....	901	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	921

Diagnosis Procedure .....	921	Diagnosis Procedure .....	943
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT) .....</b>	<b>922</b>	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT .....</b>	<b>944</b>
Diagnosis Procedure .....	922	Diagnosis Procedure .....	944
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT) .....</b>	<b>923</b>	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT .....</b>	<b>945</b>
Diagnosis Procedure .....	923	Diagnosis Procedure .....	945
<b>M&amp;A BRANCH LINE CIRCUIT .....</b>	<b>924</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT .....</b>	<b>946</b>
Diagnosis Procedure .....	924	Diagnosis Procedure .....	946
<b>AV BRANCH LINE CIRCUIT .....</b>	<b>925</b>	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT .....</b>	<b>947</b>
Diagnosis Procedure .....	925	Diagnosis Procedure .....	947
<b>TCU BRANCH LINE CIRCUIT .....</b>	<b>926</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT .....</b>	<b>948</b>
Diagnosis Procedure .....	926	Diagnosis Procedure .....	948
<b>TPMS BRANCH LINE CIRCUIT .....</b>	<b>927</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT .....</b>	<b>949</b>
Diagnosis Procedure .....	927	Diagnosis Procedure .....	949
<b>HVAC BRANCH LINE CIRCUIT .....</b>	<b>928</b>	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT .....</b>	<b>950</b>
Diagnosis Procedure .....	928	Diagnosis Procedure .....	950
<b>BCM BRANCH LINE CIRCUIT .....</b>	<b>929</b>	<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT .....</b>	<b>951</b>
Diagnosis Procedure .....	929	Diagnosis Procedure .....	951
<b>RDR-R BRANCH LINE CIRCUIT .....</b>	<b>930</b>	<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT .....</b>	<b>952</b>
Diagnosis Procedure .....	930	Diagnosis Procedure .....	952
<b>RDR-L BRANCH LINE CIRCUIT .....</b>	<b>931</b>	<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT .....</b>	<b>953</b>
Diagnosis Procedure .....	931	Diagnosis Procedure .....	953
<b>AVM BRANCH LINE CIRCUIT .....</b>	<b>932</b>	<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT .....</b>	<b>954</b>
Diagnosis Procedure .....	932	Diagnosis Procedure .....	954
<b>SONAR BRANCH LINE CIRCUIT .....</b>	<b>934</b>	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT .....</b>	<b>956</b>
Diagnosis Procedure .....	934	Diagnosis Procedure .....	956
<b>CAN COMMUNICATION CIRCUIT .....</b>	<b>936</b>	<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT .....</b>	<b>957</b>
Diagnosis Procedure .....	936	Diagnosis Procedure .....	957
<b>ITS COMMUNICATION CIRCUIT .....</b>	<b>938</b>	<b>ECM BRANCH LINE CIRCUIT .....</b>	<b>959</b>
Diagnosis Procedure .....	938	Diagnosis Procedure .....	959
<b>CAN SYSTEM (TYPE 20)</b>		<b>4WD BRANCH LINE CIRCUIT .....</b>	<b>960</b>
<b>DTC/CIRCUIT DIAGNOSIS .....</b>	<b>940</b>	Diagnosis Procedure .....	960
<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT .....</b>	<b>940</b>	<b>ABS BRANCH LINE CIRCUIT .....</b>	<b>961</b>
Diagnosis Procedure .....	940	Diagnosis Procedure .....	961
<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT .....</b>	<b>941</b>		
Diagnosis Procedure .....	941		
<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT .....</b>	<b>942</b>		
Diagnosis Procedure .....	942		
<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT .....</b>	<b>943</b>		

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>962</b>	<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>985</b>
Diagnosis Procedure .....	962	Diagnosis Procedure .....	985
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>963</b>	<b>CAN SYSTEM (TYPE 21)</b>	
Diagnosis Procedure .....	963	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>987</b>
<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>964</b>	<b>MAIN LINE BETWEEN 4WD AND ABS CIR-</b>	
Diagnosis Procedure .....	964	<b>CUIT</b> .....	<b>987</b>
<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>		Diagnosis Procedure .....	987
<b>UNICATION CIRCUIT)</b> .....	<b>965</b>	<b>MAIN LINE BETWEEN ABS AND IPDM-E</b>	
Diagnosis Procedure .....	965	<b>CIRCUIT</b> .....	<b>988</b>
<b>DLC BRANCH LINE CIRCUIT (ITS COMMU-</b>		Diagnosis Procedure .....	988
<b>UNICATION CIRCUIT)</b> .....	<b>966</b>	<b>MAIN LINE BETWEEN IPDM-E AND TCM</b>	
Diagnosis Procedure .....	966	<b>CIRCUIT</b> .....	<b>989</b>
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>967</b>	Diagnosis Procedure .....	989
Diagnosis Procedure .....	967	<b>MAIN LINE BETWEEN TCM AND ADP CIR-</b>	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>968</b>	<b>CUIT</b> .....	<b>990</b>
Diagnosis Procedure .....	968	Diagnosis Procedure .....	990
<b>ICC BRANCH LINE CIRCUIT (CAN COMMU-</b>		<b>MAIN LINE BETWEEN ADP AND DLC CIR-</b>	
<b>UNICATION CIRCUIT)</b> .....	<b>969</b>	<b>CUIT</b> .....	<b>991</b>
Diagnosis Procedure .....	969	Diagnosis Procedure .....	991
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNI-</b>		<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>	
<b>CATION CIRCUIT)</b> .....	<b>970</b>	<b>CUIT</b> .....	<b>992</b>
Diagnosis Procedure .....	970	Diagnosis Procedure .....	992
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>971</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG</b>	
Diagnosis Procedure .....	971	<b>CIRCUIT</b> .....	<b>993</b>
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>972</b>	Diagnosis Procedure .....	993
Diagnosis Procedure .....	972	<b>MAIN LINE BETWEEN A-BAG AND CGW</b>	
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>973</b>	<b>CIRCUIT</b> .....	<b>994</b>
Diagnosis Procedure .....	973	Diagnosis Procedure .....	994
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>974</b>	<b>MAIN LINE BETWEEN CGW AND M&amp;A CIR-</b>	
Diagnosis Procedure .....	974	<b>CUIT</b> .....	<b>995</b>
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>975</b>	Diagnosis Procedure .....	995
Diagnosis Procedure .....	975	<b>MAIN LINE BETWEEN M&amp;A AND AV CIR-</b>	
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>976</b>	<b>CUIT</b> .....	<b>996</b>
Diagnosis Procedure .....	976	Diagnosis Procedure .....	996
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>977</b>	<b>MAIN LINE BETWEEN AV AND TCU CIR-</b>	
Diagnosis Procedure .....	977	<b>CUIT</b> .....	<b>997</b>
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>978</b>	Diagnosis Procedure .....	997
Diagnosis Procedure .....	978	<b>MAIN LINE BETWEEN TCU AND TPMS CIR-</b>	
<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>979</b>	<b>CUIT</b> .....	<b>998</b>
Diagnosis Procedure .....	979	Diagnosis Procedure .....	998
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>981</b>	<b>MAIN LINE BETWEEN TPMS AND HVAC</b>	
Diagnosis Procedure .....	981	<b>CIRCUIT</b> .....	<b>999</b>
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>983</b>	Diagnosis Procedure .....	999
Diagnosis Procedure .....	983	<b>MAIN LINE BETWEEN DLC AND AVM CIR-</b>	
		<b>CUIT</b> .....	<b>1000</b>
		Diagnosis Procedure .....	1000



<b>MAIN LINE BETWEEN AVM AND DIFF CIRCUIT</b> .....	<b>1001</b>	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>1020</b>	
Diagnosis Procedure .....	1001	Diagnosis Procedure .....	1020	A
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	<b>1002</b>	<b>AVM BRANCH LINE CIRCUIT</b> .....	<b>1021</b>	
Diagnosis Procedure .....	1002	Diagnosis Procedure .....	1021	B
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>1003</b>	<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>1023</b>	
Diagnosis Procedure .....	1003	Diagnosis Procedure .....	1023	C
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>1004</b>	<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>1025</b>	
Diagnosis Procedure .....	1004	Diagnosis Procedure .....	1025	
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>1005</b>	<b>CAN COMMUNICATION CIRCUIT 1</b> .....	<b>1027</b>	D
Diagnosis Procedure .....	1005	Diagnosis Procedure .....	1027	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>1006</b>	<b>CAN COMMUNICATION CIRCUIT 2</b> .....	<b>1029</b>	E
Diagnosis Procedure .....	1006	Diagnosis Procedure .....	1029	
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>1007</b>	<b>CAN SYSTEM (TYPE 22)</b>		
Diagnosis Procedure .....	1007	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>1031</b>	F
<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>1008</b>	<b>MAIN LINE BETWEEN 4WD AND ABS CIRCUIT</b> .....	<b>1031</b>	
Diagnosis Procedure .....	1008	Diagnosis Procedure .....	1031	G
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>1009</b>	<b>MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT</b> .....	<b>1032</b>	
Diagnosis Procedure .....	1009	Diagnosis Procedure .....	1032	H
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>1010</b>	<b>MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT</b> .....	<b>1033</b>	
Diagnosis Procedure .....	1010	Diagnosis Procedure .....	1033	I
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>1011</b>	<b>MAIN LINE BETWEEN TCM AND ADP CIRCUIT</b> .....	<b>1034</b>	
Diagnosis Procedure .....	1011	Diagnosis Procedure .....	1034	J
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>1012</b>	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	<b>1035</b>	
Diagnosis Procedure .....	1012	Diagnosis Procedure .....	1035	K
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)</b> .....	<b>1013</b>	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	<b>1035</b>	
Diagnosis Procedure .....	1013	Diagnosis Procedure .....	1035	L
<b>CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)</b> .....	<b>1014</b>	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>1036</b>	
Diagnosis Procedure .....	1014	Diagnosis Procedure .....	1036	LAN
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>1015</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>1037</b>	
Diagnosis Procedure .....	1015	Diagnosis Procedure .....	1037	N
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>1016</b>	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>1038</b>	
Diagnosis Procedure .....	1016	Diagnosis Procedure .....	1038	O
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>1017</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>1039</b>	
Diagnosis Procedure .....	1017	Diagnosis Procedure .....	1039	P
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>1018</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>1040</b>	
Diagnosis Procedure .....	1018	Diagnosis Procedure .....	1040	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>1019</b>			
Diagnosis Procedure .....	1019			

<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	1041	Diagnosis Procedure .....	1060
Diagnosis Procedure .....	1041	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1061
<b>MAIN LINE BETWEEN TCU AND TPMS CIRCUIT</b> .....	1042	Diagnosis Procedure .....	1061
Diagnosis Procedure .....	1042	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1062
<b>MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT</b> .....	1043	Diagnosis Procedure .....	1062
Diagnosis Procedure .....	1043	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1063
<b>MAIN LINE BETWEEN AVM AND DIFF CIRCUIT</b> .....	1044	Diagnosis Procedure .....	1063
Diagnosis Procedure .....	1044	<b>AV BRANCH LINE CIRCUIT</b> .....	1064
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1045	Diagnosis Procedure .....	1064
Diagnosis Procedure .....	1045	<b>TCU BRANCH LINE CIRCUIT</b> .....	1065
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1047	Diagnosis Procedure .....	1065
Diagnosis Procedure .....	1047	<b>TPMS BRANCH LINE CIRCUIT</b> .....	1066
<b>MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT</b> .....	1048	Diagnosis Procedure .....	1066
Diagnosis Procedure .....	1048	<b>HVAC BRANCH LINE CIRCUIT</b> .....	1067
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	1050	Diagnosis Procedure .....	1067
Diagnosis Procedure .....	1050	<b>BCM BRANCH LINE CIRCUIT</b> .....	1068
<b>ECM BRANCH LINE CIRCUIT</b> .....	1051	Diagnosis Procedure .....	1068
Diagnosis Procedure .....	1051	<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1069
<b>4WD BRANCH LINE CIRCUIT</b> .....	1052	Diagnosis Procedure .....	1069
Diagnosis Procedure .....	1052	<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1070
<b>ABS BRANCH LINE CIRCUIT</b> .....	1053	Diagnosis Procedure .....	1070
Diagnosis Procedure .....	1053	<b>AVM BRANCH LINE CIRCUIT</b> .....	1071
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1054	Diagnosis Procedure .....	1071
Diagnosis Procedure .....	1054	<b>DIFF BRANCH LINE CIRCUIT</b> .....	1073
<b>TCM BRANCH LINE CIRCUIT</b> .....	1055	Diagnosis Procedure .....	1073
Diagnosis Procedure .....	1055	<b>SONAR BRANCH LINE CIRCUIT</b> .....	1075
<b>ADP BRANCH LINE CIRCUIT</b> .....	1056	Diagnosis Procedure .....	1075
Diagnosis Procedure .....	1056	<b>CAN COMMUNICATION CIRCUIT</b> .....	1077
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1057	Diagnosis Procedure .....	1077
Diagnosis Procedure .....	1057	<b>ITS COMMUNICATION CIRCUIT</b> .....	1079
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1058	Diagnosis Procedure .....	1079
Diagnosis Procedure .....	1058	<b>CAN SYSTEM (TYPE 23)</b>	
<b>STRG BRANCH LINE CIRCUIT</b> .....	1059	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1081
Diagnosis Procedure .....	1059	<b>MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT</b> .....	1081
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1060	Diagnosis Procedure .....	1081
		<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1082
		Diagnosis Procedure .....	1082
		<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	1083
		Diagnosis Procedure .....	1083

<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1085	<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1104	A
Diagnosis Procedure .....	1085	Diagnosis Procedure .....	1104	
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1086	<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	1105	B
Diagnosis Procedure .....	1086	Diagnosis Procedure .....	1105	
<b>MAIN LINE BETWEEN A-BAG AND M&amp;A CIRCUIT</b> .....	1087	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1107	C
Diagnosis Procedure .....	1087	Diagnosis Procedure .....	1107	
<b>MAIN LINE BETWEEN M&amp;A AND HVAC CIRCUIT</b> .....	1088	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1108	D
Diagnosis Procedure .....	1088	Diagnosis Procedure .....	1108	E
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1089	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1109	F
Diagnosis Procedure .....	1089	Diagnosis Procedure .....	1109	
<b>ECM BRANCH LINE CIRCUIT</b> .....	1090	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	1110	G
Diagnosis Procedure .....	1090	Diagnosis Procedure .....	1110	
<b>ABS BRANCH LINE CIRCUIT</b> .....	1091	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1111	H
Diagnosis Procedure .....	1091	Diagnosis Procedure .....	1111	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1092	<b>MAIN LINE BETWEEN AV AND HVAC CIRCUIT</b> .....	1112	I
Diagnosis Procedure .....	1092	Diagnosis Procedure .....	1112	
<b>TCM BRANCH LINE CIRCUIT</b> .....	1093	<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1113	J
Diagnosis Procedure .....	1093	Diagnosis Procedure .....	1113	
<b>DLC BRANCH LINE CIRCUIT</b> .....	1094	<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1114	K
Diagnosis Procedure .....	1094	Diagnosis Procedure .....	1114	L
<b>STRG BRANCH LINE CIRCUIT</b> .....	1095	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1116	LAN
Diagnosis Procedure .....	1095	Diagnosis Procedure .....	1116	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1096	<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	1117	N
Diagnosis Procedure .....	1096	Diagnosis Procedure .....	1117	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1097	<b>ECM BRANCH LINE CIRCUIT</b> .....	1119	O
Diagnosis Procedure .....	1097	Diagnosis Procedure .....	1119	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1098	<b>ABS BRANCH LINE CIRCUIT</b> .....	1120	P
Diagnosis Procedure .....	1098	Diagnosis Procedure .....	1120	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1099	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1121	
Diagnosis Procedure .....	1099	Diagnosis Procedure .....	1121	
<b>BCM BRANCH LINE CIRCUIT</b> .....	1100	<b>TCM BRANCH LINE CIRCUIT</b> .....	1122	
Diagnosis Procedure .....	1100	Diagnosis Procedure .....	1122	
<b>CAN COMMUNICATION CIRCUIT</b> .....	1101	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1123	
Diagnosis Procedure .....	1101			
<b>CAN SYSTEM (TYPE 24)</b>				
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1103			
<b>MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT</b> .....	1103			
Diagnosis Procedure .....	1103			

Diagnosis Procedure .....	1123	Diagnosis Procedure .....	1144
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>1124</b>	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	<b>1145</b>
Diagnosis Procedure .....	1124	Diagnosis Procedure .....	1145
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>1125</b>	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>1146</b>
Diagnosis Procedure .....	1125	Diagnosis Procedure .....	1146
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>1126</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>1147</b>
Diagnosis Procedure .....	1126	Diagnosis Procedure .....	1147
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>1127</b>	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>1148</b>
Diagnosis Procedure .....	1127	Diagnosis Procedure .....	1148
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>1128</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>1149</b>
Diagnosis Procedure .....	1128	Diagnosis Procedure .....	1149
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>1129</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	<b>1150</b>
Diagnosis Procedure .....	1129	Diagnosis Procedure .....	1150
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>1130</b>	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	<b>1151</b>
Diagnosis Procedure .....	1130	Diagnosis Procedure .....	1151
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>1131</b>	<b>MAIN LINE BETWEEN TCU AND HVAC CIRCUIT</b> .....	<b>1152</b>
Diagnosis Procedure .....	1131	Diagnosis Procedure .....	1152
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>1132</b>	<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	<b>1153</b>
Diagnosis Procedure .....	1132	Diagnosis Procedure .....	1153
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>1133</b>	<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	<b>1154</b>
Diagnosis Procedure .....	1133	Diagnosis Procedure .....	1154
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>1134</b>	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>1156</b>
Diagnosis Procedure .....	1134	Diagnosis Procedure .....	1156
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>1135</b>	<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	<b>1157</b>
Diagnosis Procedure .....	1135	Diagnosis Procedure .....	1157
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>1136</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>1159</b>
Diagnosis Procedure .....	1136	Diagnosis Procedure .....	1159
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>1138</b>	<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>1160</b>
Diagnosis Procedure .....	1138	Diagnosis Procedure .....	1160
<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>1140</b>	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>1161</b>
Diagnosis Procedure .....	1140	Diagnosis Procedure .....	1161
<b>CAN SYSTEM (TYPE 25)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>1142</b>	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>1162</b>
<b>MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT</b> .....	<b>1142</b>	Diagnosis Procedure .....	1162
Diagnosis Procedure .....	1142		
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	<b>1143</b>		
Diagnosis Procedure .....	1143		
<b>MAIN LINE BETWEEN ABS AND ADP CIRCUIT</b> .....	<b>1144</b>		

<b>ADP BRANCH LINE CIRCUIT</b> .....	1163	Diagnosis Procedure .....	1184
Diagnosis Procedure .....	1163		
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1164	<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1185
Diagnosis Procedure .....	1164	Diagnosis Procedure .....	1185
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1165	<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1186
Diagnosis Procedure .....	1165	Diagnosis Procedure .....	1186
<b>STRG BRANCH LINE CIRCUIT</b> .....	1166	<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	1187
Diagnosis Procedure .....	1166	Diagnosis Procedure .....	1187
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1167	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1189
Diagnosis Procedure .....	1167	Diagnosis Procedure .....	1189
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1168	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1190
Diagnosis Procedure .....	1168	Diagnosis Procedure .....	1190
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1169	<b>MAIN LINE BETWEEN A-BAG AND M&amp;A CIRCUIT</b> .....	1191
Diagnosis Procedure .....	1169	Diagnosis Procedure .....	1191
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1170	<b>MAIN LINE BETWEEN M&amp;A AND HVAC CIRCUIT</b> .....	1192
Diagnosis Procedure .....	1170	Diagnosis Procedure .....	1192
<b>AV BRANCH LINE CIRCUIT</b> .....	1171	<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1193
Diagnosis Procedure .....	1171	Diagnosis Procedure .....	1193
<b>TCU BRANCH LINE CIRCUIT</b> .....	1172	<b>ECM BRANCH LINE CIRCUIT</b> .....	1194
Diagnosis Procedure .....	1172	Diagnosis Procedure .....	1194
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1173	<b>4WD BRANCH LINE CIRCUIT</b> .....	1195
Diagnosis Procedure .....	1173	Diagnosis Procedure .....	1195
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1174	<b>ABS BRANCH LINE CIRCUIT</b> .....	1196
Diagnosis Procedure .....	1174	Diagnosis Procedure .....	1196
<b>BCM BRANCH LINE CIRCUIT</b> .....	1175	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1197
Diagnosis Procedure .....	1175	Diagnosis Procedure .....	1197
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1176	<b>TCM BRANCH LINE CIRCUIT</b> .....	1198
Diagnosis Procedure .....	1176	Diagnosis Procedure .....	1198
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1177	<b>DLC BRANCH LINE CIRCUIT</b> .....	1199
Diagnosis Procedure .....	1177	Diagnosis Procedure .....	1199
<b>SONAR BRANCH LINE CIRCUIT</b> .....	1178	<b>STRG BRANCH LINE CIRCUIT</b> .....	1200
Diagnosis Procedure .....	1178	Diagnosis Procedure .....	1200
<b>CAN COMMUNICATION CIRCUIT</b> .....	1180	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1201
Diagnosis Procedure .....	1180	Diagnosis Procedure .....	1201
<b>ITS COMMUNICATION CIRCUIT</b> .....	1182	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1202
Diagnosis Procedure .....	1182	Diagnosis Procedure .....	1202
<b>CAN SYSTEM (TYPE 26)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1184	<b>TPMS BRANCH LINE CIRCUIT</b> .....	1203
<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	1184	Diagnosis Procedure .....	1203

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

<b>HVAC BRANCH LINE CIRCUIT</b> .....	1204	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1222
Diagnosis Procedure .....	1204	Diagnosis Procedure .....	1222
<b>BCM BRANCH LINE CIRCUIT</b> .....	1205	<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	1223
Diagnosis Procedure .....	1205	Diagnosis Procedure .....	1223
<b>CAN COMMUNICATION CIRCUIT</b> .....	1206	<b>ECM BRANCH LINE CIRCUIT</b> .....	1225
Diagnosis Procedure .....	1206	Diagnosis Procedure .....	1225
<b>CAN SYSTEM (TYPE 27)</b>		<b>4WD BRANCH LINE CIRCUIT</b> .....	1226
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1208	Diagnosis Procedure .....	1226
<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	1208	<b>ABS BRANCH LINE CIRCUIT</b> .....	1227
Diagnosis Procedure .....	1208	Diagnosis Procedure .....	1227
<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1209	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1228
Diagnosis Procedure .....	1209	Diagnosis Procedure .....	1228
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1210	<b>TCM BRANCH LINE CIRCUIT</b> .....	1229
Diagnosis Procedure .....	1210	Diagnosis Procedure .....	1229
<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	1211	<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1230
Diagnosis Procedure .....	1211	Diagnosis Procedure .....	1230
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1213	<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1231
Diagnosis Procedure .....	1213	Diagnosis Procedure .....	1231
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1214	<b>STRG BRANCH LINE CIRCUIT</b> .....	1232
Diagnosis Procedure .....	1214	Diagnosis Procedure .....	1232
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1215	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1233
Diagnosis Procedure .....	1215	Diagnosis Procedure .....	1233
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	1216	<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1234
Diagnosis Procedure .....	1216	Diagnosis Procedure .....	1234
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1217	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1235
Diagnosis Procedure .....	1217	Diagnosis Procedure .....	1235
<b>MAIN LINE BETWEEN AV AND HVAC CIRCUIT</b> .....	1218	<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1236
Diagnosis Procedure .....	1218	Diagnosis Procedure .....	1236
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1219	<b>AV BRANCH LINE CIRCUIT</b> .....	1237
Diagnosis Procedure .....	1219	Diagnosis Procedure .....	1237
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1220	<b>TPMS BRANCH LINE CIRCUIT</b> .....	1238
Diagnosis Procedure .....	1220	Diagnosis Procedure .....	1238
		<b>HVAC BRANCH LINE CIRCUIT</b> .....	1239
		Diagnosis Procedure .....	1239
		<b>BCM BRANCH LINE CIRCUIT</b> .....	1240
		Diagnosis Procedure .....	1240
		<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1241
		Diagnosis Procedure .....	1241

<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1242	Diagnosis Procedure .....	1242
<b>SONAR BRANCH LINE CIRCUIT</b> .....	1243	Diagnosis Procedure .....	1243
<b>CAN COMMUNICATION CIRCUIT</b> .....	1245	Diagnosis Procedure .....	1245
<b>ITS COMMUNICATION CIRCUIT</b> .....	1247	Diagnosis Procedure .....	1247
<b>CAN SYSTEM (TYPE 28)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1249		
<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	1249	Diagnosis Procedure .....	1249
<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1250	Diagnosis Procedure .....	1250
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1251	Diagnosis Procedure .....	1251
<b>MAIN LINE BETWEEN ABS AND DLC CIRCUIT</b> .....	1252	Diagnosis Procedure .....	1252
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1254	Diagnosis Procedure .....	1254
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1255	Diagnosis Procedure .....	1255
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1256	Diagnosis Procedure .....	1256
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	1257	Diagnosis Procedure .....	1257
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1258	Diagnosis Procedure .....	1258
<b>MAIN LINE BETWEEN AV AND HVAC CIRCUIT</b> .....	1259	Diagnosis Procedure .....	1259
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1260	Diagnosis Procedure .....	1260
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1261	Diagnosis Procedure .....	1261
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1263	Diagnosis Procedure .....	1263
<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT</b> .....	1264	Diagnosis Procedure .....	1264
<b>ECM BRANCH LINE CIRCUIT</b> .....	1266	Diagnosis Procedure .....	1266
<b>4WD BRANCH LINE CIRCUIT</b> .....	1267	Diagnosis Procedure .....	1267
<b>ABS BRANCH LINE CIRCUIT</b> .....	1268	Diagnosis Procedure .....	1268
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1269	Diagnosis Procedure .....	1269
<b>TCM BRANCH LINE CIRCUIT</b> .....	1270	Diagnosis Procedure .....	1270
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1271	Diagnosis Procedure .....	1271
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1272	Diagnosis Procedure .....	1272
<b>STRG BRANCH LINE CIRCUIT</b> .....	1273	Diagnosis Procedure .....	1273
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1274	Diagnosis Procedure .....	1274
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1275	Diagnosis Procedure .....	1275
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1276	Diagnosis Procedure .....	1276
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1277	Diagnosis Procedure .....	1277
<b>AV BRANCH LINE CIRCUIT</b> .....	1278	Diagnosis Procedure .....	1278
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1279	Diagnosis Procedure .....	1279
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1280	Diagnosis Procedure .....	1280
<b>BCM BRANCH LINE CIRCUIT</b> .....	1281	Diagnosis Procedure .....	1281
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1282		

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

Diagnosis Procedure .....	1282	<b>MAIN LINE BETWEEN TCU AND HVAC CIR- CUIT</b> .....	1301
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1283	Diagnosis Procedure .....	1301
Diagnosis Procedure .....	1283	<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1302
<b>DIFF BRANCH LINE CIRCUIT</b> .....	1284	Diagnosis Procedure .....	1302
Diagnosis Procedure .....	1284	<b>MAIN LINE BETWEEN DLC AND RDR-R CIR- CUIT</b> .....	1303
<b>CAN COMMUNICATION CIRCUIT</b> .....	1286	Diagnosis Procedure .....	1303
Diagnosis Procedure .....	1286	<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1305
<b>ITS COMMUNICATION CIRCUIT</b> .....	1288	Diagnosis Procedure .....	1305
Diagnosis Procedure .....	1288	<b>MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT</b> .....	1306
<b>CAN SYSTEM (TYPE 29)</b>		Diagnosis Procedure .....	1306
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1290	<b>ECM BRANCH LINE CIRCUIT</b> .....	1308
<b>MAIN LINE BETWEEN TCM AND 4WD CIR- CUIT</b> .....	1290	Diagnosis Procedure .....	1308
Diagnosis Procedure .....	1290	<b>4WD BRANCH LINE CIRCUIT</b> .....	1309
<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1291	Diagnosis Procedure .....	1309
Diagnosis Procedure .....	1291	<b>ABS BRANCH LINE CIRCUIT</b> .....	1310
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1292	Diagnosis Procedure .....	1310
Diagnosis Procedure .....	1292	<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1311
<b>MAIN LINE BETWEEN ABS AND ADP CIR- CUIT</b> .....	1293	Diagnosis Procedure .....	1311
Diagnosis Procedure .....	1293	<b>TCM BRANCH LINE CIRCUIT</b> .....	1312
<b>MAIN LINE BETWEEN ADP AND DLC CIR- CUIT</b> .....	1294	Diagnosis Procedure .....	1312
Diagnosis Procedure .....	1294	<b>ADP BRANCH LINE CIRCUIT</b> .....	1313
<b>MAIN LINE BETWEEN DLC AND STRG CIR- CUIT</b> .....	1295	Diagnosis Procedure .....	1313
Diagnosis Procedure .....	1295	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT)</b> .....	1314
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1296	Diagnosis Procedure .....	1314
Diagnosis Procedure .....	1296	<b>DLC BRANCH LINE CIRCUIT (ITS COMMU- NICATION CIRCUIT)</b> .....	1315
<b>MAIN LINE BETWEEN A-BAG AND ICC CIR- CUIT</b> .....	1297	Diagnosis Procedure .....	1315
Diagnosis Procedure .....	1297	<b>STRG BRANCH LINE CIRCUIT</b> .....	1316
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIR- CUIT</b> .....	1298	Diagnosis Procedure .....	1316
Diagnosis Procedure .....	1298	<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1317
<b>MAIN LINE BETWEEN M&amp;A AND AV CIR- CUIT</b> .....	1299	Diagnosis Procedure .....	1317
Diagnosis Procedure .....	1299	<b>ICC BRANCH LINE CIRCUIT (CAN COMMU- NICATION CIRCUIT)</b> .....	1318
<b>MAIN LINE BETWEEN AV AND TCU CIR- CUIT</b> .....	1300	Diagnosis Procedure .....	1318
Diagnosis Procedure .....	1300	<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNI- CATION CIRCUIT)</b> .....	1319
		Diagnosis Procedure .....	1319
		<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1320
		Diagnosis Procedure .....	1320



<b>AV BRANCH LINE CIRCUIT</b> .....	<b>1321</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIR-</b>		
Diagnosis Procedure .....	1321	<b>CUIT</b> .....	<b>1342</b>	<b>A</b>
		Diagnosis Procedure .....	1342	
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>1322</b>	<b>MAIN LINE BETWEEN M&amp;A AND AV CIR-</b>		<b>B</b>
Diagnosis Procedure .....	1322	<b>CUIT</b> .....	<b>1343</b>	
		Diagnosis Procedure .....	1343	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>1323</b>	<b>MAIN LINE BETWEEN AV AND HVAC CIR-</b>		<b>C</b>
Diagnosis Procedure .....	1323	<b>CUIT</b> .....	<b>1344</b>	
		Diagnosis Procedure .....	1344	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>1324</b>	<b>MAIN LINE BETWEEN HVAC AND TPMS</b>		<b>D</b>
Diagnosis Procedure .....	1324	<b>CIRCUIT</b> .....	<b>1345</b>	
		Diagnosis Procedure .....	1345	<b>E</b>
<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>1325</b>	<b>MAIN LINE BETWEEN DLC AND RDR-R CIR-</b>		<b>F</b>
Diagnosis Procedure .....	1325	<b>CUIT</b> .....	<b>1346</b>	
		Diagnosis Procedure .....	1346	
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>1326</b>	<b>MAIN LINE BETWEEN RDR-R AND RDR-L</b>		<b>G</b>
Diagnosis Procedure .....	1326	<b>CIRCUIT</b> .....	<b>1348</b>	
		Diagnosis Procedure .....	1348	
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>1327</b>	<b>MAIN LINE BETWEEN RDR-L AND DIFF CIR-</b>		<b>H</b>
Diagnosis Procedure .....	1327	<b>CUIT</b> .....	<b>1349</b>	
		Diagnosis Procedure .....	1349	
<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>1328</b>	<b>MAIN LINE BETWEEN DIFF AND SONAR</b>		<b>I</b>
Diagnosis Procedure .....	1328	<b>CIRCUIT</b> .....	<b>1351</b>	
		Diagnosis Procedure .....	1351	
<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>1330</b>	<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>1352</b>	<b>J</b>
Diagnosis Procedure .....	1330	Diagnosis Procedure .....	1352	
<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>1332</b>	<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>1353</b>	<b>K</b>
Diagnosis Procedure .....	1332	Diagnosis Procedure .....	1353	
<b>CAN SYSTEM (TYPE 30)</b>		<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>1354</b>	<b>L</b>
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>1334</b>	Diagnosis Procedure .....	1354	
<b>MAIN LINE BETWEEN TCM AND 4WD CIR-</b>		<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>1355</b>	<b>LAN</b>
<b>CUIT</b> .....	<b>1334</b>	Diagnosis Procedure .....	1355	
Diagnosis Procedure .....	1334	<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>1356</b>	<b>N</b>
<b>MAIN LINE BETWEEN 4WD AND IPDM-E</b>		Diagnosis Procedure .....	1356	
<b>CIRCUIT</b> .....	<b>1335</b>	<b>DLC BRANCH LINE CIRCUIT (CAN COMMU-</b>		<b>O</b>
Diagnosis Procedure .....	1335	<b>UNICATION CIRCUIT)</b> .....	<b>1357</b>	
<b>MAIN LINE BETWEEN IPDM-E AND ABS</b>		Diagnosis Procedure .....	1357	
<b>CIRCUIT</b> .....	<b>1336</b>	<b>DLC BRANCH LINE CIRCUIT (ITS COMMU-</b>		<b>P</b>
Diagnosis Procedure .....	1336	<b>UNICATION CIRCUIT)</b> .....	<b>1358</b>	
<b>MAIN LINE BETWEEN ABS AND DLC CIR-</b>		Diagnosis Procedure .....	1358	
<b>CUIT</b> .....	<b>1337</b>	<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>1359</b>	
Diagnosis Procedure .....	1337	Diagnosis Procedure .....	1359	
<b>MAIN LINE BETWEEN DLC AND STRG CIR-</b>		<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>1360</b>	
<b>CUIT</b> .....	<b>1339</b>	Diagnosis Procedure .....	1360	
Diagnosis Procedure .....	1339			
<b>MAIN LINE BETWEEN STRG AND A-BAG</b>				
<b>CIRCUIT</b> .....	<b>1340</b>			
Diagnosis Procedure .....	1340			
<b>MAIN LINE BETWEEN A-BAG AND ICC CIR-</b>				
<b>CUIT</b> .....	<b>1341</b>			
Diagnosis Procedure .....	1341			

<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1361	Diagnosis Procedure .....	1361
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1362	Diagnosis Procedure .....	1362
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1363	Diagnosis Procedure .....	1363
<b>AV BRANCH LINE CIRCUIT</b> .....	1364	Diagnosis Procedure .....	1364
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1365	Diagnosis Procedure .....	1365
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1366	Diagnosis Procedure .....	1366
<b>BCM BRANCH LINE CIRCUIT</b> .....	1367	Diagnosis Procedure .....	1367
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1368	Diagnosis Procedure .....	1368
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1369	Diagnosis Procedure .....	1369
<b>DIFF BRANCH LINE CIRCUIT</b> .....	1370	Diagnosis Procedure .....	1370
<b>SONAR BRANCH LINE CIRCUIT</b> .....	1372	Diagnosis Procedure .....	1372
<b>CAN COMMUNICATION CIRCUIT</b> .....	1374	Diagnosis Procedure .....	1374
<b>ITS COMMUNICATION CIRCUIT</b> .....	1376	Diagnosis Procedure .....	1376
<b>CAN SYSTEM (TYPE 31)</b>			
<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1378		
<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	1378	Diagnosis Procedure .....	1378
<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1379	Diagnosis Procedure .....	1379
<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1380	Diagnosis Procedure .....	1380
<b>MAIN LINE BETWEEN ABS AND ADP CIRCUIT</b> .....	1381	Diagnosis Procedure .....	1381
<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	1382	Diagnosis Procedure .....	1382
<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1383	Diagnosis Procedure .....	1383
<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1384	Diagnosis Procedure .....	1384
<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1385	Diagnosis Procedure .....	1385
<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	1386	Diagnosis Procedure .....	1386
<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1387	Diagnosis Procedure .....	1387
<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	1388	Diagnosis Procedure .....	1388
<b>MAIN LINE BETWEEN TCU AND HVAC CIRCUIT</b> .....	1389	Diagnosis Procedure .....	1389
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1390	Diagnosis Procedure .....	1390
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1391	Diagnosis Procedure .....	1391
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1393	Diagnosis Procedure .....	1393
<b>MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT</b> .....	1394	Diagnosis Procedure .....	1394
<b>MAIN LINE BETWEEN AVM AND SONAR CIRCUIT</b> .....	1396	Diagnosis Procedure .....	1396
<b>ECM BRANCH LINE CIRCUIT</b> .....	1397	Diagnosis Procedure .....	1397
<b>4WD BRANCH LINE CIRCUIT</b> .....	1398	Diagnosis Procedure .....	1398
<b>ABS BRANCH LINE CIRCUIT</b> .....	1399	Diagnosis Procedure .....	1399
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1400	Diagnosis Procedure .....	1400

<b>TCM BRANCH LINE CIRCUIT</b> .....	1401	Diagnosis Procedure .....	1401	<b>CAN SYSTEM (TYPE 32)</b>	A
Diagnosis Procedure .....	1401				
<b>ADP BRANCH LINE CIRCUIT</b> .....	1402	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	1425		B
Diagnosis Procedure .....	1402				
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1403	<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	1425		C
Diagnosis Procedure .....	1403	Diagnosis Procedure .....	1425		
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1404	<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	1426		D
Diagnosis Procedure .....	1404	Diagnosis Procedure .....	1426		
<b>STRG BRANCH LINE CIRCUIT</b> .....	1405	<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	1427		E
Diagnosis Procedure .....	1405	Diagnosis Procedure .....	1427		
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1406	<b>MAIN LINE BETWEEN ABS AND ADP CIRCUIT</b> .....	1428		F
Diagnosis Procedure .....	1406	Diagnosis Procedure .....	1428		
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1407	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	1429		G
Diagnosis Procedure .....	1407	Diagnosis Procedure .....	1429		
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1408	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	1430		H
Diagnosis Procedure .....	1408	Diagnosis Procedure .....	1430		
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1409	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	1431		I
Diagnosis Procedure .....	1409	Diagnosis Procedure .....	1431		
<b>AV BRANCH LINE CIRCUIT</b> .....	1410	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1432		J
Diagnosis Procedure .....	1410	Diagnosis Procedure .....	1432		
<b>TCU BRANCH LINE CIRCUIT</b> .....	1411	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	1432		K
Diagnosis Procedure .....	1411	Diagnosis Procedure .....	1432		
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1412	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	1433		L
Diagnosis Procedure .....	1412	Diagnosis Procedure .....	1433		
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1413	<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1434		LAN
Diagnosis Procedure .....	1413	Diagnosis Procedure .....	1434		
<b>BCM BRANCH LINE CIRCUIT</b> .....	1414	<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	1435		N
Diagnosis Procedure .....	1414	Diagnosis Procedure .....	1435		
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1415	<b>MAIN LINE BETWEEN TCU AND HVAC CIRCUIT</b> .....	1436		O
Diagnosis Procedure .....	1415	Diagnosis Procedure .....	1436		
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1416	<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1437		P
Diagnosis Procedure .....	1416	Diagnosis Procedure .....	1437		
<b>AVM BRANCH LINE CIRCUIT</b> .....	1417	<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1438		
Diagnosis Procedure .....	1417	Diagnosis Procedure .....	1438		
<b>SONAR BRANCH LINE CIRCUIT</b> .....	1419				
Diagnosis Procedure .....	1419				
<b>CAN COMMUNICATION CIRCUIT</b> .....	1421				
Diagnosis Procedure .....	1421				
<b>ITS COMMUNICATION CIRCUIT</b> .....	1423				

<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	<b>1440</b>	<b>HVAC BRANCH LINE CIRCUIT</b> .....	<b>1460</b>
Diagnosis Procedure .....	1440	Diagnosis Procedure .....	1460
<b>MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT</b> .....	<b>1441</b>	<b>BCM BRANCH LINE CIRCUIT</b> .....	<b>1461</b>
Diagnosis Procedure .....	1441	Diagnosis Procedure .....	1461
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	<b>1443</b>	<b>RDR-R BRANCH LINE CIRCUIT</b> .....	<b>1462</b>
Diagnosis Procedure .....	1443	Diagnosis Procedure .....	1462
<b>ECM BRANCH LINE CIRCUIT</b> .....	<b>1444</b>	<b>RDR-L BRANCH LINE CIRCUIT</b> .....	<b>1463</b>
Diagnosis Procedure .....	1444	Diagnosis Procedure .....	1463
<b>4WD BRANCH LINE CIRCUIT</b> .....	<b>1445</b>	<b>DIFF BRANCH LINE CIRCUIT</b> .....	<b>1464</b>
Diagnosis Procedure .....	1445	Diagnosis Procedure .....	1464
<b>ABS BRANCH LINE CIRCUIT</b> .....	<b>1446</b>	<b>SONAR BRANCH LINE CIRCUIT</b> .....	<b>1466</b>
Diagnosis Procedure .....	1446	Diagnosis Procedure .....	1466
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	<b>1447</b>	<b>CAN COMMUNICATION CIRCUIT</b> .....	<b>1468</b>
Diagnosis Procedure .....	1447	Diagnosis Procedure .....	1468
<b>TCM BRANCH LINE CIRCUIT</b> .....	<b>1448</b>	<b>ITS COMMUNICATION CIRCUIT</b> .....	<b>1470</b>
Diagnosis Procedure .....	1448	Diagnosis Procedure .....	1470
<b>ADP BRANCH LINE CIRCUIT</b> .....	<b>1449</b>	<b>CAN SYSTEM (TYPE 33)</b>	
Diagnosis Procedure .....	1449	<b>DTC/CIRCUIT DIAGNOSIS</b> .....	<b>1472</b>
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>1450</b>	<b>MAIN LINE BETWEEN TCM AND 4WD CIRCUIT</b> .....	<b>1472</b>
Diagnosis Procedure .....	1450	Diagnosis Procedure .....	1472
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>1451</b>	<b>MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT</b> .....	<b>1473</b>
Diagnosis Procedure .....	1451	Diagnosis Procedure .....	1473
<b>STRG BRANCH LINE CIRCUIT</b> .....	<b>1452</b>	<b>MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT</b> .....	<b>1474</b>
Diagnosis Procedure .....	1452	Diagnosis Procedure .....	1474
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	<b>1453</b>	<b>MAIN LINE BETWEEN ABS AND ADP CIRCUIT</b> .....	<b>1475</b>
Diagnosis Procedure .....	1453	Diagnosis Procedure .....	1475
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	<b>1454</b>	<b>MAIN LINE BETWEEN ADP AND DLC CIRCUIT</b> .....	<b>1476</b>
Diagnosis Procedure .....	1454	Diagnosis Procedure .....	1476
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	<b>1455</b>	<b>MAIN LINE BETWEEN DLC AND STRG CIRCUIT</b> .....	<b>1477</b>
Diagnosis Procedure .....	1455	Diagnosis Procedure .....	1477
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	<b>1456</b>	<b>MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT</b> .....	<b>1478</b>
Diagnosis Procedure .....	1456	Diagnosis Procedure .....	1478
<b>AV BRANCH LINE CIRCUIT</b> .....	<b>1457</b>	<b>MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT</b> .....	<b>1479</b>
Diagnosis Procedure .....	1457	Diagnosis Procedure .....	1479
<b>TCU BRANCH LINE CIRCUIT</b> .....	<b>1458</b>	<b>MAIN LINE BETWEEN ICC AND M&amp;A CIRCUIT</b> .....	<b>1480</b>
Diagnosis Procedure .....	1458	Diagnosis Procedure .....	1480
<b>TPMS BRANCH LINE CIRCUIT</b> .....	<b>1459</b>		
Diagnosis Procedure .....	1459		

<b>MAIN LINE BETWEEN M&amp;A AND AV CIRCUIT</b> .....	1481	
Diagnosis Procedure .....	1481	
<b>MAIN LINE BETWEEN AV AND TCU CIRCUIT</b> .....	1482	
Diagnosis Procedure .....	1482	
<b>MAIN LINE BETWEEN TCU AND HVAC CIRCUIT</b> .....	1483	
Diagnosis Procedure .....	1483	
<b>MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT</b> .....	1484	
Diagnosis Procedure .....	1484	
<b>MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT</b> .....	1485	
Diagnosis Procedure .....	1485	
<b>MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT</b> .....	1487	
Diagnosis Procedure .....	1487	
<b>MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT</b> .....	1488	
Diagnosis Procedure .....	1488	
<b>MAIN LINE BETWEEN AVM AND DIFF CIRCUIT</b> .....	1490	
Diagnosis Procedure .....	1490	
<b>MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT</b> .....	1491	
Diagnosis Procedure .....	1491	
<b>ECM BRANCH LINE CIRCUIT</b> .....	1492	
Diagnosis Procedure .....	1492	
<b>4WD BRANCH LINE CIRCUIT</b> .....	1493	
Diagnosis Procedure .....	1493	
<b>ABS BRANCH LINE CIRCUIT</b> .....	1494	
Diagnosis Procedure .....	1494	
<b>IPDM-E BRANCH LINE CIRCUIT</b> .....	1495	
Diagnosis Procedure .....	1495	
<b>TCM BRANCH LINE CIRCUIT</b> .....	1496	
Diagnosis Procedure .....	1496	
<b>ADP BRANCH LINE CIRCUIT</b> .....	1497	
Diagnosis Procedure .....	1497	
<b>DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1498	
Diagnosis Procedure .....	1498	
<b>DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1499	A
Diagnosis Procedure .....	1499	
<b>STRG BRANCH LINE CIRCUIT</b> .....	1500	B
Diagnosis Procedure .....	1500	
<b>A-BAG BRANCH LINE CIRCUIT</b> .....	1501	C
Diagnosis Procedure .....	1501	
<b>ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)</b> .....	1502	D
Diagnosis Procedure .....	1502	
<b>ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)</b> .....	1503	E
Diagnosis Procedure .....	1503	
<b>M&amp;A BRANCH LINE CIRCUIT</b> .....	1504	F
Diagnosis Procedure .....	1504	
<b>AV BRANCH LINE CIRCUIT</b> .....	1505	G
Diagnosis Procedure .....	1505	
<b>TCU BRANCH LINE CIRCUIT</b> .....	1506	H
Diagnosis Procedure .....	1506	
<b>TPMS BRANCH LINE CIRCUIT</b> .....	1507	I
Diagnosis Procedure .....	1507	
<b>HVAC BRANCH LINE CIRCUIT</b> .....	1508	J
Diagnosis Procedure .....	1508	
<b>BCM BRANCH LINE CIRCUIT</b> .....	1509	K
Diagnosis Procedure .....	1509	
<b>RDR-R BRANCH LINE CIRCUIT</b> .....	1510	L
Diagnosis Procedure .....	1510	
<b>RDR-L BRANCH LINE CIRCUIT</b> .....	1511	
Diagnosis Procedure .....	1511	
<b>AVM BRANCH LINE CIRCUIT</b> .....	1512	
Diagnosis Procedure .....	1512	
<b>DIFF BRANCH LINE CIRCUIT</b> .....	1514	
Diagnosis Procedure .....	1514	
<b>SONAR BRANCH LINE CIRCUIT</b> .....	1516	
Diagnosis Procedure .....	1516	
<b>CAN COMMUNICATION CIRCUIT</b> .....	1518	
Diagnosis Procedure .....	1518	
<b>ITS COMMUNICATION CIRCUIT</b> .....	1520	
Diagnosis Procedure .....	1520	

LAN

PRECAUTION

PRECAUTIONS

Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TENSIONER"

INFOID:000000013465651

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

**WARNING:**

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, it is recommended that all maintenance and repair be performed by an authorized NISSAN/INFINITI dealer.
- Improper repair, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

PRECAUTIONS WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

**WARNING:**

- When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery or batteries, and wait at least three minutes before performing any service.

Precautions for Trouble Diagnosis

INFOID:000000012555415

**CAUTION:**

Follow the instructions listed below. Failure to do this may cause damage to parts:

- Never apply 7.0 V or more to the measurement terminal.
- Use a tester with open terminal voltage of 7.0 V or less.
- Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness.

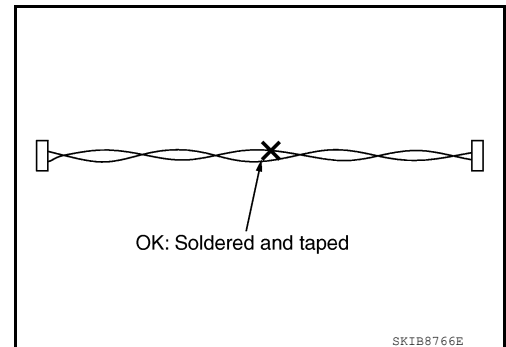
Precautions for Harness Repair

INFOID:000000012555416

- Solder the repaired area and wrap tape around the soldered area.

**NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).



# PRECAUTIONS

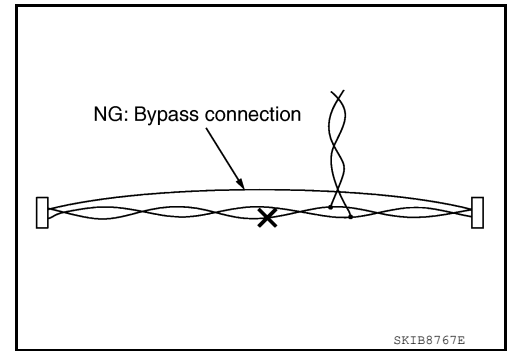
< PRECAUTION >

[CAN FUNDAMENTAL]

- Bypass connection is never allowed at the repaired area.

**NOTE:**

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# PREPARATION

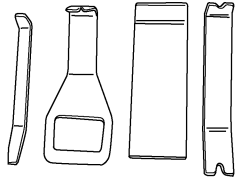
## PREPARATION

### Special Service Tool

INFOID:000000013174405

The actual shape of the tools may differ from those illustrated here.

Tool number (TechMate No.) Tool name	Description
— (J-46534) Trim Tool Set	Removing trim components



AWJIA04832Z



# HOW TO USE THIS MANUAL

## HOW TO USE THIS SECTION

### Information

INFOID:0000000012555414

- “CAN FUNDAMENTAL” of LAN Section describes the basic knowledge of the CAN communication system and the method of trouble diagnosis.
- For information peculiar to a vehicle and inspection procedure, refer to “CAN”.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SYSTEM DESCRIPTION

## SYSTEM

### CAN COMMUNICATION SYSTEM

#### CAN COMMUNICATION SYSTEM : System Description

INFOID:0000000012555417

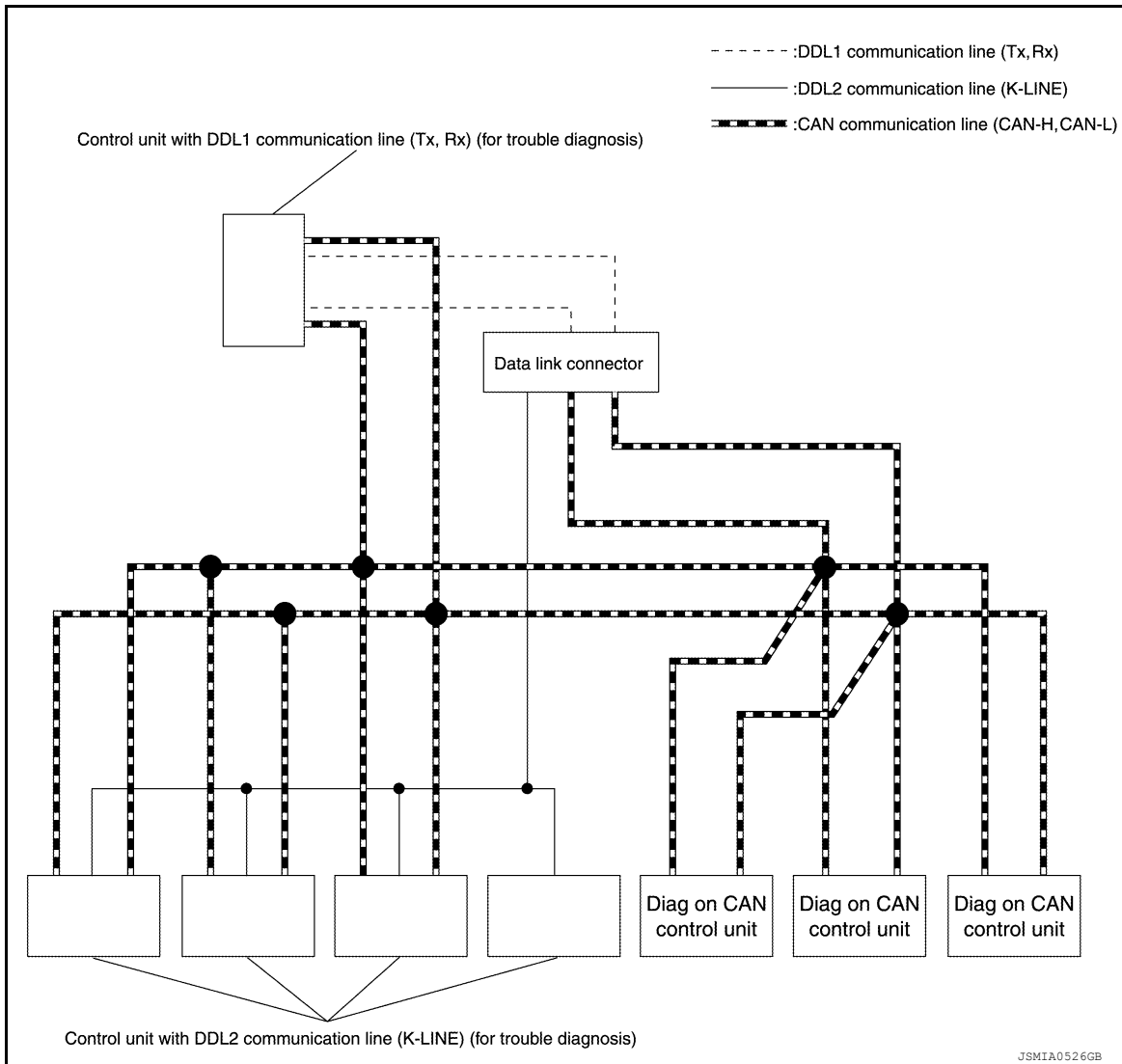
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

#### DIAG ON CAN

#### DIAG ON CAN : System Description

INFOID:0000000012555418

#### SYSTEM DIAGRAM



JSMIA0526GB

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Name	Harness	Description
DDL1	Tx Rx	For communications with the diagnostic tool. (CAN-H and CAN-L are used for controlling)
DDL2	K-LINE	For communications with the diagnostic tool. (CAN-H and CAN-L are used for controlling)
Diag on CAN	CAN-H CAN-L	For communications with the diagnostic tool. (CAN-H and CAN-L are also used for control and diagnoses.)

## DESCRIPTION

“Diag on CAN” is a diagnosis method which uses the CAN communication line for the communication between the control unit and the diagnostic tool.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

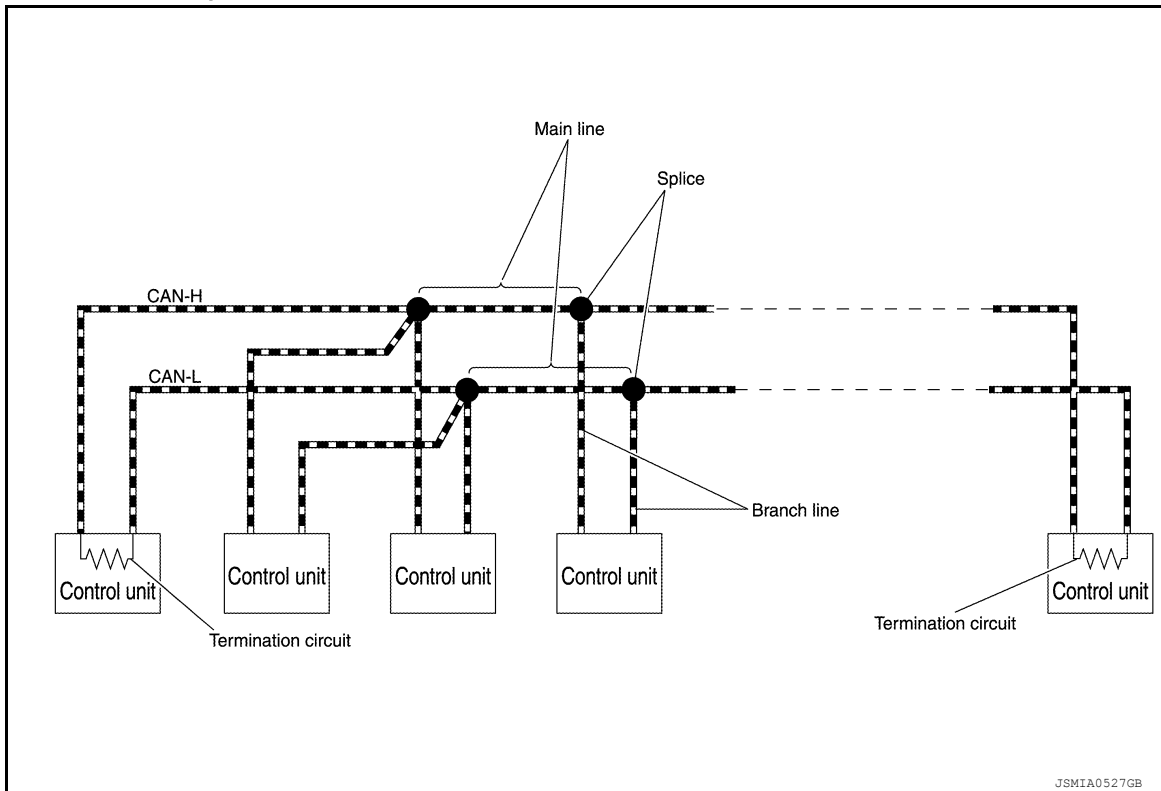
LAN

N  
O  
P

## TROUBLE DIAGNOSIS

### Component Description

INFOID:000000012555419



Component	Description
Main line	CAN communication line between splices
Branch line	CAN communication line between splice and a control unit
Splice	A point connecting a branch line with a main line
Termination circuit	Circuit connected across the CAN communication system. (Resistor)

### Condition of Error Detection

INFOID:000000012555420

DTC (e.g. U1000 and U1001) of CAN communication is indicated on SELF-DIAG RESULTS on CONSULT if a CAN communication signal is not transmitted or received between units for 2 seconds or more.

#### CAN COMMUNICATION SYSTEM ERROR

- CAN communication line open (CAN-H, CAN-L, or both)
- CAN communication line short (ground, between CAN communication lines, other harnesses)
- Error of CAN communication control circuit of the unit connected to CAN communication line

#### WHEN DTC OF CAN COMMUNICATION IS INDICATED EVEN THOUGH CAN COMMUNICATION SYSTEM IS NORMAL

- Removal/installation of parts: Error may be detected when removing and installing CAN communication unit and related parts while turning the ignition switch ON. (A DTC except for CAN communication may be detected.)
- Fuse blown out (removed): CAN communication of the unit may cease.
- Voltage drop: Error may be detected if voltage drops due to discharged battery when turning the ignition switch ON (Depending on the control unit which carries out CAN communication).
- Error may be detected if the power supply circuit of the control unit, which carries out CAN communication, malfunctions (Depending on the control unit which carries out CAN communication).
- Error may be detected if reprogramming is not completed normally.

**NOTE:**

CAN communication system is normal if DTC of CAN communication is indicated on SELF-DIAG RESULTS of CONSULT under the above conditions. Erase the memory of the self-diagnosis of each control unit.

# TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

## Symptom When Error Occurs in CAN Communication System

INFOID:000000012555421

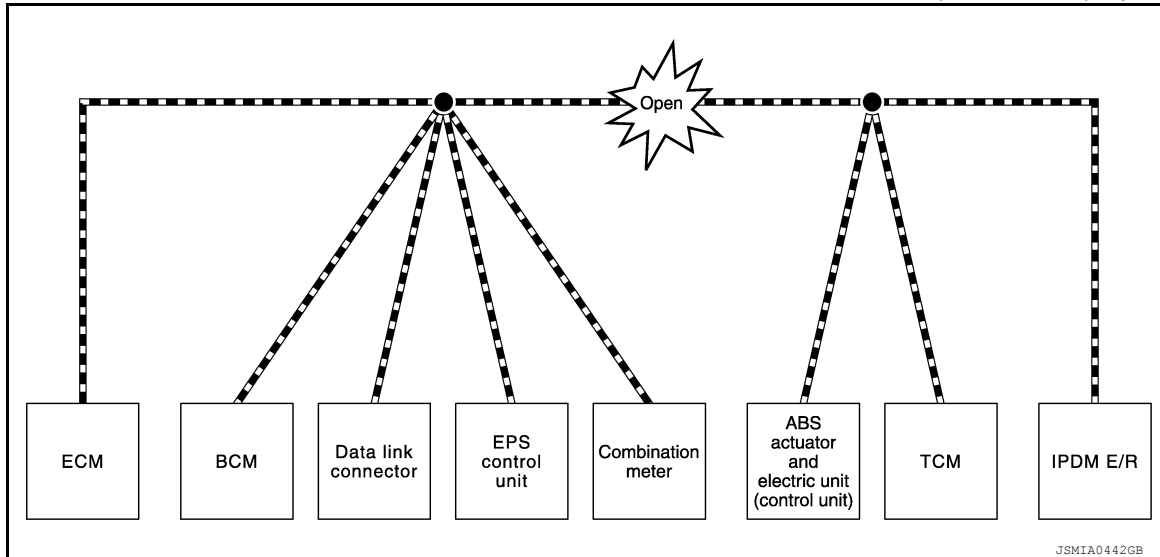
In CAN communication system, multiple control units mutually transmit and receive signals. Each control unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

### ERROR EXAMPLE

**NOTE:**

Each vehicle differs in symptom of each control unit under fail-safe mode and CAN communication line wiring.

Example: Main Line Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Open Circuit



Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	<ul style="list-style-type: none"> <li>• Reverse warning buzzer does not sound.</li> <li>• The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> </ul>
EPS control unit	The steering effort increases.
Combination meter	<ul style="list-style-type: none"> <li>• The shift position indicator and OD OFF indicator turn OFF.</li> <li>• The speedometer is inoperative.</li> <li>• The odo/trip meter stops.</li> </ul>
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, <ul style="list-style-type: none"> <li>• The headlamps (Lo) turn ON.</li> <li>• The cooling fan continues to rotate.</li> </ul>

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

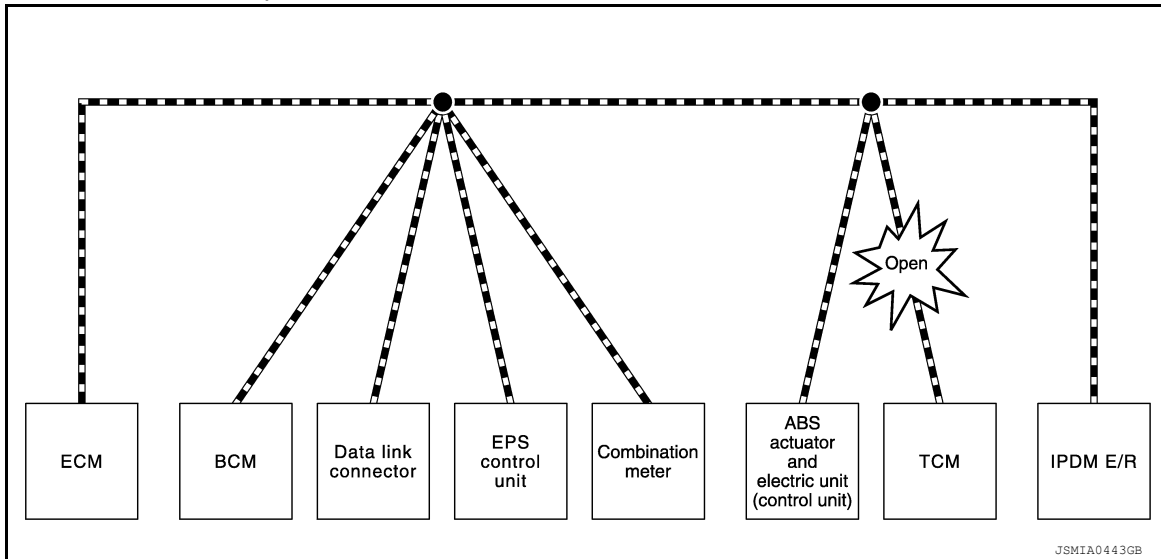
LAN

# TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Example: TCM Branch Line Open Circuit



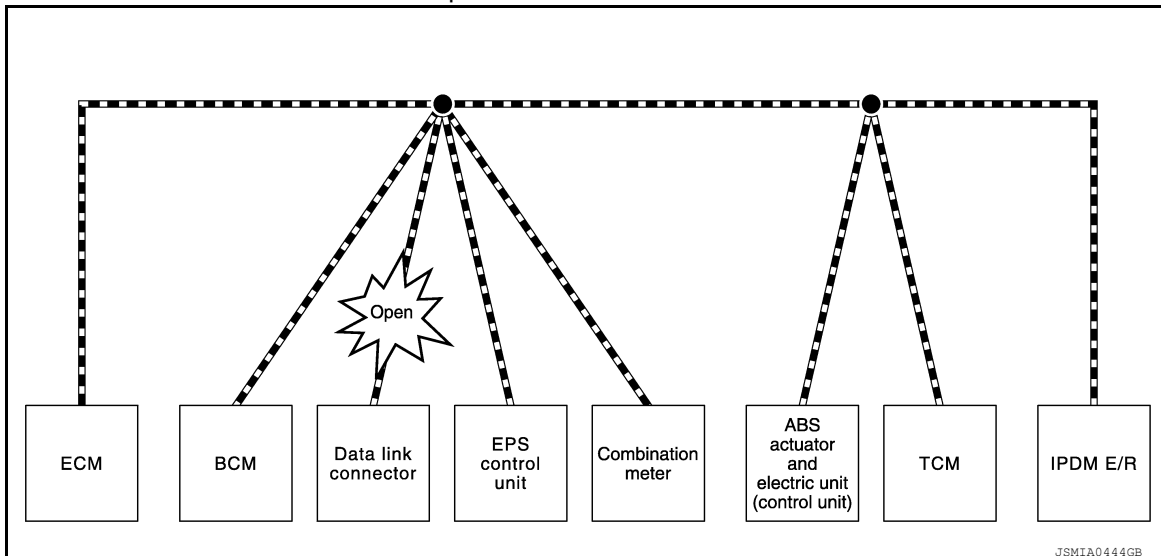
Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	Reverse warning buzzer does not sound.
EPS control unit	Normal operation.
Combination meter	<ul style="list-style-type: none"> <li>• Shift position indicator and O/D OFF indicator turn OFF.</li> <li>• Warning lamps turn ON.</li> </ul>
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	Normal operation.

**NOTE:**

The model (all control units on CAN communication system are Diag on CAN) cannot perform CAN diagnosis with CONSULT if the following error occurs. The error is judged by the symptom.

Error	Difference of symptom
Data link connector branch line open circuit	Normal operation.
CAN-H, CAN-L harness short-circuit	Most of the control units which are connected to the CAN communication system enter fail-safe mode or are deactivated.

Example: Data Link Connector Branch Line Open Circuit



# TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

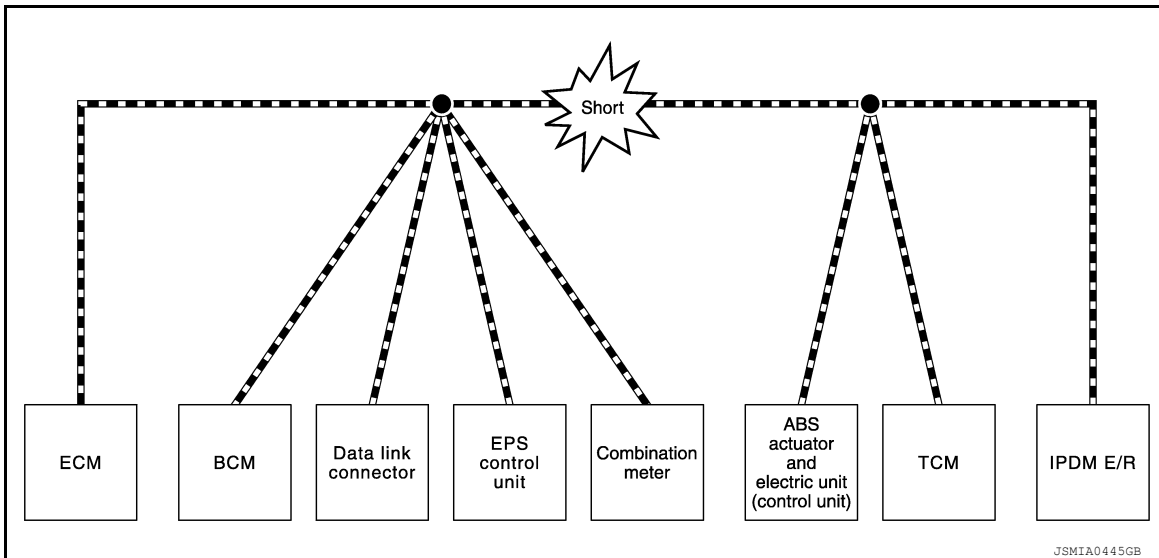
[CAN FUNDAMENTAL]

Unit name	Major symptom
ECM	Normal operation.
BCM	
EPS control unit	
Combination meter	
ABS actuator and electric unit (control unit)	
TCM	
IPDM E/R	

**NOTE:**

When data link connector branch line is open, transmission and reception of CAN communication signals are not affected. Therefore, no symptoms occur. However, be sure to repair malfunctioning circuit.

Example: CAN-H, CAN-L Harness Short Circuit



Unit name	Major symptom
ECM	<ul style="list-style-type: none"> <li>• Engine torque limiting is affected, and shift harshness increases.</li> <li>• Engine speed drops.</li> </ul>
BCM	<ul style="list-style-type: none"> <li>• Reverse warning buzzer does not sound.</li> <li>• The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> <li>• The room lamp does not turn ON.</li> <li>• The engine does not start (if an error or malfunction occurs while turning the ignition switch OFF.)</li> <li>• The steering lock does not release (if an error or malfunction occurs while turning the ignition switch OFF.)</li> </ul>
EPS control unit	The steering effort increases.
Combination meter	<ul style="list-style-type: none"> <li>• The tachometer and the speedometer do not move.</li> <li>• Warning lamps turn ON.</li> <li>• Indicator lamps do not turn ON.</li> </ul>
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, <ul style="list-style-type: none"> <li>• The headlamps (Lo) turn ON.</li> <li>• The cooling fan continues to rotate.</li> </ul>

## CAN Diagnosis with CONSULT

INFOID:0000000012555422

CAN diagnosis on CONSULT extracts the root cause by receiving the following information.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TROUBLE DIAGNOSIS

**[CAN FUNDAMENTAL]**

**< SYSTEM DESCRIPTION >**

- Response to the system call
- Control unit diagnosis information
- Self-diagnosis
- CAN diagnostic support monitor

## Self-Diagnosis

INFOID:0000000012555423

If communication signals cannot be transmitted or received among control units communicating via CAN communication line, CAN communication-related DTC is displayed on the CONSULT “Self Diagnostic Result” screen.

**NOTE:**

The following table shows examples of CAN communication-related DTC. For other DTC, refer to the applicable sections.

DTC	Self-diagnosis item (CONSULT indication)	DTC detection condition		Inspection/Action
U1000	CAN COMM CIRCUIT	ECM	When ECM is not transmitting or receiving CAN communication signal of OBD (emission-related diagnosis) for 2 seconds or more.	Start the inspection. Refer to the applicable section of the indicated control unit.
		Except for ECM	When a control unit (except for ECM) is not transmitting or receiving CAN communication signal for 2 seconds or more.	
U1001	CAN COMM CIRCUIT	When ECM is not transmitting or receiving CAN communication signal other than OBD (emission-related diagnosis) for 2 seconds or more.		
U1002	SYSTEM COMM	When a control unit is not transmitting or receiving CAN communication signal for 2 seconds or less.		
U1010	CONTROL UNIT(CAN)	When an error is detected during the initial diagnosis for CAN controller of each control unit.		

## CAN Diagnostic Support Monitor

INFOID:0000000012555424

### MONITOR ITEM (CONSULT)

Example: CAN DIAG SUPPORT MNTR indication

Without PAST				With PAST			
BCM				ENGINE			
MONITOR ITEM	PRESENT	PAST		MONITOR ITEM	PRESENT	PAST	
INITIAL DIAG	OK	-		TRANSMIT DIAG	OK	OK	
TRANSMIT DIAG	OK	-		VDC/TCS/ABS	OK	5	
ECM	OK	-		METER/M&A	Not diagnosed	-	
METER/M&A	OK	-		BCM/SEC	OK	OK	
TCM	OK	-		ICC	Not diagnosed	-	
IPDM E/R	OK	-		HVAC	Not diagnosed	-	
I-KEY	OK	-		TCM	OK	OK	
				EPS	OK	OK	
				IPDM E/R	OK	5	
				e4WD	Not diagnosed	-	
				AWD/4WD	Not diagnosed	-	

JSMIA0964GB

**Without PAST**

Item	PRESENT	Description
Initial diagnosis	OK	Normal at present
	NG	Control unit error (Except for some control units)



# TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Item	PRESENT	Description
Transmission diagnosis	OK	Normal at present
	UNKWN	Unable to transmit signals for 2 seconds or more.
		Diagnosis not performed
Control unit name (Reception diagnosis)	OK	Normal at present
	UNKWN	Unable to receive signals for 2 seconds or more.
		Diagnosis not performed
	No control unit for receiving signals. (No applicable optional parts)	

With PAST

Item	PRESENT	PAST	Description
Transmission diagnosis	OK	OK	Normal at present and in the past
		1 – 39	Normal at present, but unable to transmit signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)
	UNKWN	0	Unable to transmit signals for 2 seconds or more at present.
Control unit name (Reception diagnosis)	OK	OK	Normal at present and in the past
		1 – 39	Normal at present, but unable to receive signals for 2 seconds or more in the past. (The number indicates the number of ignition switch cycles from OFF to ON.)
	UNKWN	0	Unable to receive signals for 2 seconds or more at present.
	Not diagnosed	-	Diagnosis not performed.
No control unit for receiving signals. (No applicable optional parts)			

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TROUBLE DIAGNOSIS

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

## How to Use CAN Communication Signal Chart

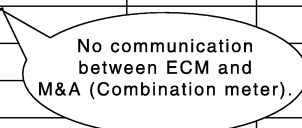
INFOID:000000012555425

The CAN communication signal chart lists the signals transmitted/received among control units. It is useful for detecting the root cause by finding a signal related to the symptom, and by checking transmission and reception unit.

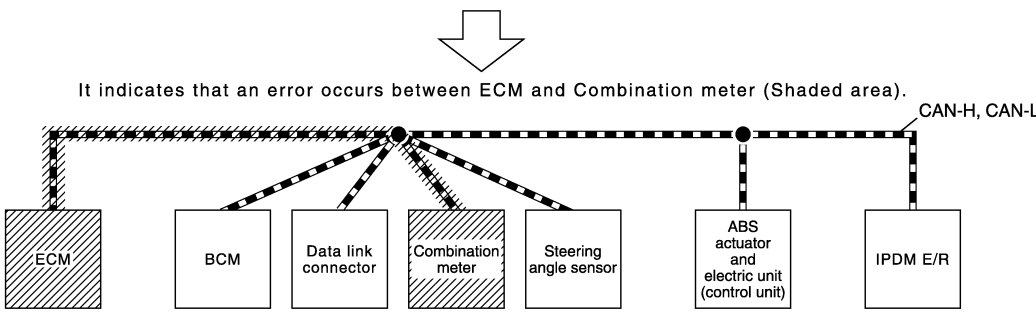
**Example: Tachometer does not move even though the engine rotates.**

T: Transmit R: Receive

Signal name/Connecting unit	ECM	BCM	M&A	STRG	ABS	IPDM-E
A/C compressor feedback signal	T		R			
A/C compressor request signal	T					R
Accelerator pedal position signal	T				R	
Cooling fan motor operation signal	T					R
Engine coolant temperature signal	T		R			
Engine speed signal	T		R		R	
Fuel consumption monitor signal	T		R			
Malfunction indicator lamp signal	T		R			
A/C switch signal	R	T				
Ignition switch signal		T				R
Sleep/wake up signal		T	R			R



No communication between ECM and M&A (Combination meter).



It indicates that an error occurs between ECM and Combination meter (Shaded area).

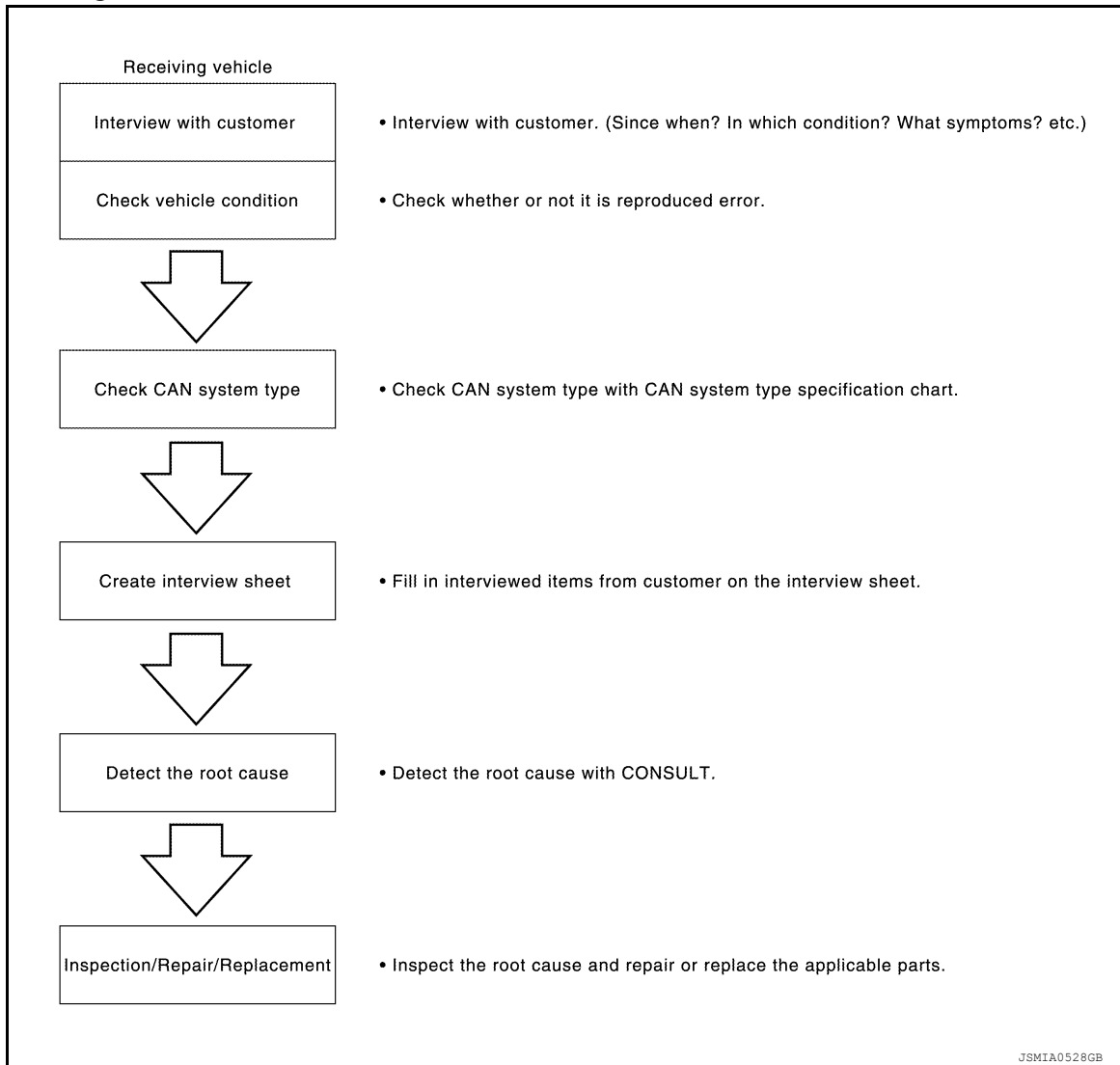
JSMIA0446GB

## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

#### Trouble Diagnosis Flow Chart

INFOID:0000000012555426



#### DETAIL OF TROUBLE DIAGNOSIS FLOW CHART

##### 1. INTERVIEW WITH CUSTOMER

Interview with the customer is important to detect the root cause of CAN communication system errors and to understand vehicle condition and symptoms for proper trouble diagnosis.

##### Points in interview

- What: Parts name, system name
- When: Date, Frequency
- Where: Road condition, Place
- In what condition: Driving condition/environment
- Result: Symptom

##### Notes for checking error symptoms:

- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

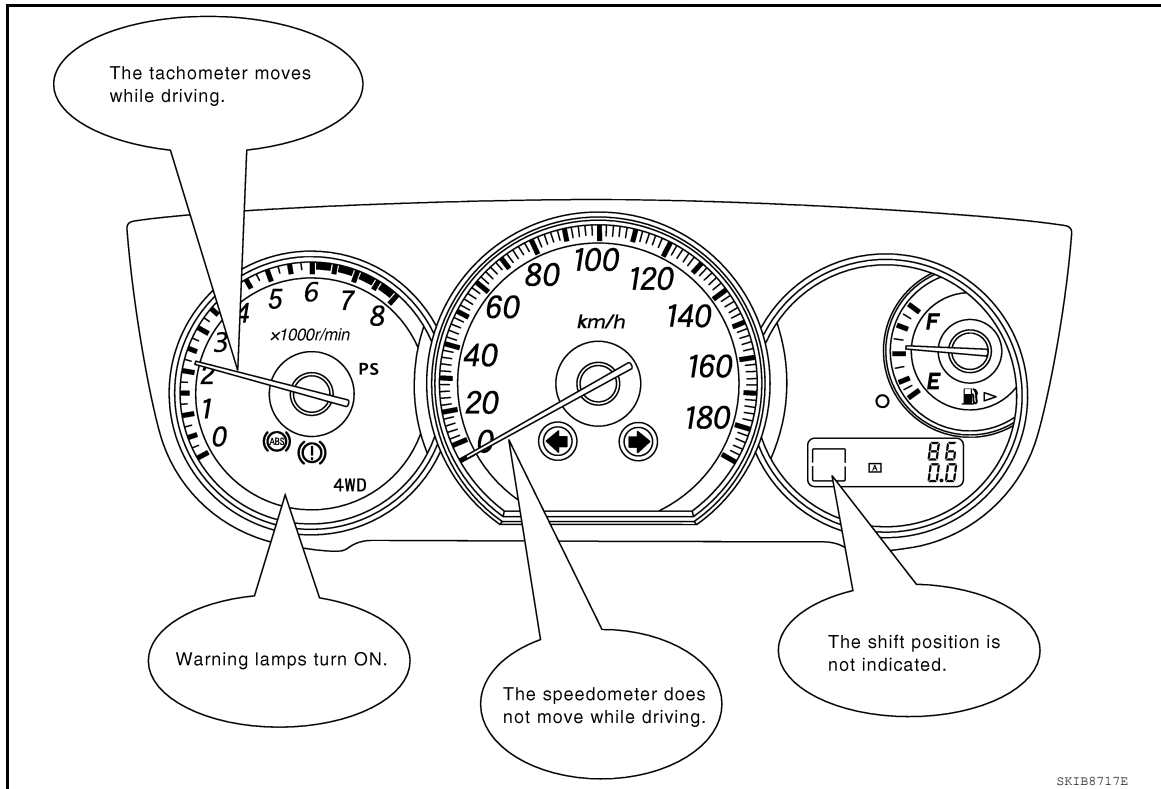
N  
O  
P

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

- Indication of the combination meter is important to detect the root cause because it is the most obvious to the customer, and it performs CAN communication with many units.



>> GO TO 2.

## 2. INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

**NOTE:**

Do not turn the ignition switch OFF or disconnect the 12V battery cable while reproducing the error. The error may temporarily correct itself, making it difficult to determine the root cause.

>> GO TO 3.

## 3. CHECK OF CAN SYSTEM TYPE (HOW TO USE CAN SYSTEM TYPE SPECIFICATION CHART)

Determine CAN system type based on vehicle equipment.

**NOTE:**

- This chart is used if CONSULT does not automatically recognize CAN system type.
- There are two styles for CAN system type specification charts. Depending on the number of available system types, either style A or style B may be used.
- CAN System Type Specification Chart (Style A)

**NOTE:**

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

CAN system type is easily checked with the vehicle equipment identification information shown in the chart.

Example:  
Vehicle is equipped as follows: Wagon, AWD, VQ35DE, CVT, VDC, and Intelligent Key system. (○ shows an example of CAN system type.)

**CAN System Specification Chart**  
Determine CAN system type from the following specification chart.

Body type	Wagon					
Axle	2WD			AWD		
Engine	QR25DE			VQ35DE		
Transmission	A/T			CVT		
Brake control	ABS			VDC		
Intelligent Key system		×		×		×
CAN system type	1	2	3	4	5	6
CAN communication control unit						
ECM	×	×	×	×	×	×
AWD control unit					×	×
Air bag diagnosis sensor unit	×	×	×	×	×	×
BCM	×	×	×	×	×	×
Intelligent Key unit		×		×		×
Steering angle sensor					×	×
EPS control unit	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
TCM	×	×	×	×	×	×
IPDM E/R	×	×	×	×	×	×

× : Applicable

**VEHICLE EQUIPMENT IDENTIFICATION INFORMATION**  
**NOTE:**  
Check CAN system type from the vehicle shape and equipment.

**A**

1. VDC OFF switch  
A. With VDC

**B**

2. Ignition knob  
B. With Intelligent Key system

For the above case, CAN system type is "6".

JSMIA0529GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

• CAN System Type Specification Chart (Style B)  
**NOTE:**

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

CAN system type is easily checked with the vehicle equipment identification information shown in the chart.

Example:  
Vehicle is equipped as follows: Sedan, 2WD, MR20DE, CVT, ABS, Active AFS, Intelligent Key system, Navigation system and Automatic drive positioner. (○ shows an example of CAN system type.)

**CAN System Specification Chart**  
Refer to the specification as shown in the chart.

Body type	Sedan		
Axle	2WD		AWD
Engine	HR15DE	MR20DE	HR15DE
Transmission	A/T	CVT	A/T
Brake control	ABS		
Specification chart	XX.XX... SPECIFICATION CHART A.	XX.XX... SPECIFICATION CHART B.	XX.XX... SPECIFICATION CHART C.

×: Applicable

Check the vehicle equipment with the vehicle identification number plate.  
Check the vehicle equipment.  
Select the applicable vehicle equipment. Refer to the specification chart.

**SPECIFICATION CHART B**  
Determine CAN system type from the following specification chart.

Body type	Sedan											
Axle	2WD											
Engine	MR20DE											
Transmission	CVT											
Brake control	ABS											
Active AFS		×			×	×		×	×	×		
Intelligent Key system			×		×		×	×	×	×		
Navigation system				×		×		×		×		
Automatic drive positioner							×		×	×		
CAN system type	9	10	11	12	13	14	15	16	17	18	19	20
CAN communication control unit												
ECM	×	×	×	×	×	×	×	×	×	×	×	×
AFS control unit		×			×	×			×	×		×
BCM	×	×	×	×	×	×	×	×	×	×	×	×
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×

×: Applicable

Check the vehicle equipment.  
The number indicates the CAN system type of the vehicle.

**VEHICLE EQUIPMENT IDENTIFICATION INFORMATION**  
**NOTE:**  
Check CAN system type from the vehicle shape and equipment.

In the above example,

- Checking Xenon bulb and bending lamp lead to judge whether or not Active AFS is equipped.
- Checking the ignition knob leads to judge whether or not Intelligent Key system is equipped.
- Checking display and multifunction switch lead to judge whether or not Navigation system is equipped.
- Checking seat memory switch leads to judge whether or not Automatic drive positioner is equipped.

1. Bending lamp      2. Xenon bulb      3. Ignition knob  
4. Display            5. Multifunction switch      6. Seat memory switch  
A. With active AFS      B. With Intelligent Key system      C. With navigation system  
D. With automatic drive positioner

For the above case, CAN system type is "20".

>> GO TO 4.

## 4. CREATE INTERVIEW SHEET

Fill out the symptom described by the customer, vehicle condition, and CAN system type on the interview sheet.

**NOTE:**

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

Interview Sheet (Example)

CAN Communication System Diagnosis Interview Sheet	
Date received:	3, Feb. 2006
Type: DBA-KG11	VIN No.: KG11-005040
Model: BDRARGZG11EDA-E-J-	
First registration: 10, Jan. 2001	Mileage: 62,140
CAN system type: Type 19	
Symptom (Results from interview with customer)	
<ul style="list-style-type: none"><li>• Headlamps suddenly turn ON while driving the vehicle.</li><li>• The engine does not restart after stopping the vehicle and turning the ignition switch OFF.</li><li>• The cooling fan continues rotating while turning the ignition switch ON.</li></ul>	
Condition at inspection	
Error Symptom: Present / Past	
<p>The engine does not start. While turning the ignition switch ON,</p> <ul style="list-style-type: none"><li>• The headlamps (Lo) turn ON, and the cooling fan continues rotating.</li><li>• The interior lamp does not turn ON.</li></ul>	

JSMIA0531GB

>> GO TO 5.

## 5. DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects a root cause.

>> GO TO 6.

## 6. REPAIR OR REPLACE MALFUNCTIONING PART

Repair or replace malfunctioning parts identified by CAN diagnosis function of CONSULT.

CAN communication circuit>> Refer to [LAN-116, "CAN Communication Circuit"](#).  
ITS communication circuit>> Refer to [LAN-118, "ITS Communication Circuit"](#).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# HOW TO USE THIS SECTION

< HOW TO USE THIS MANUAL >

[CAN]

## HOW TO USE THIS MANUAL

### HOW TO USE THIS SECTION

#### Information

INFOID:0000000012555427

- “CAN” of LAN Section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to [LAN-51. "Trouble Diagnosis Flow Chart"](#) of “CAN FUNDAMENTAL”.

#### Abbreviation List

INFOID:0000000012555428

Unit name abbreviations in CONSULT CAN diagnosis and in this section are as per the following list.

Abbreviation	Unit name
4WD	Transfer control unit
A-BAG	Air bag diagnosis sensor unit
ABS	ABS actuator and electric unit (control unit)
ADP	Driver seat control unit
AV	AV control unit
AVM	Around view monitor control unit
BCM	BCM
CGW	CAN gateway
DIFF	Differential lock control unit
DLC	Data link connector
ECM	ECM
HVAC	•A/C auto amp. (automatic air conditioner) •Front air control (manual air conditioner)
ICC	ADAS control unit
IPDM-E	IPDM E/R
M&A	Combination meter
PTC	PTC heater control unit
RDR-L	Side radar LH
RDR-R	Side radar RH
STRG	Steering angle sensor
SONAR	Sonar control unit
TCM	TCM
TCU	TCU
TPMS	Low tire pressure warning control unit

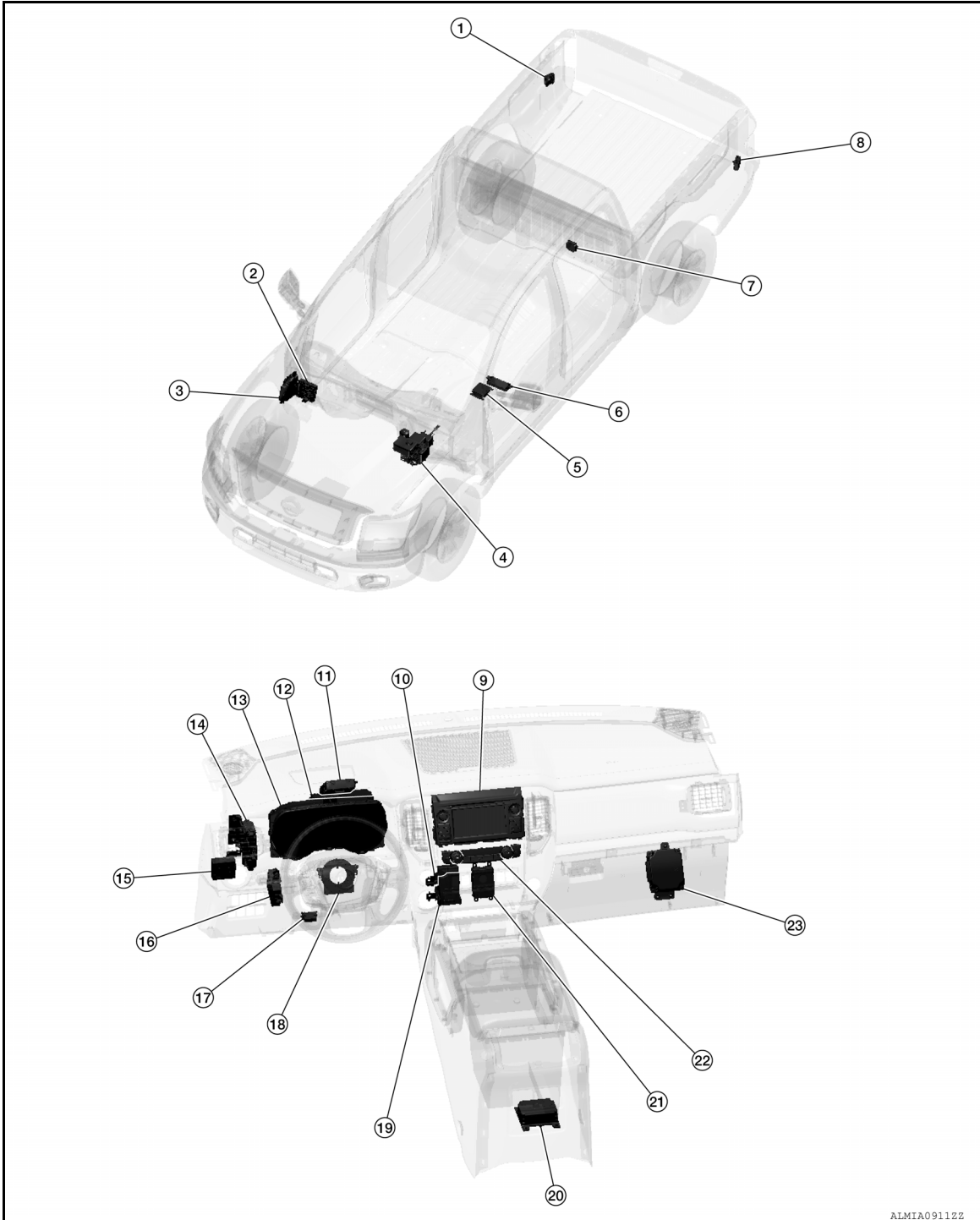


## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### Component Parts Location

INFOID:0000000012555432



ALMIA09112Z

- |   |                                    |                            |
|---|------------------------------------|----------------------------|
| ① Side radar RH                                 | ② IPDM E/R                         | ③ ECM                      |
| ④ ABS actuator and electric unit (control unit) | ⑤ Around view monitor control unit | ⑥ Driver seat control unit |
| ⑦ Differential lock control unit                | ⑧ Side radar LH                    | ⑨ AV control unit          |
| ⑩ ADAS control unit                             | ⑪ TCU                              | ⑫ BCM                      |

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## COMPONENT PARTS

< SYSTEM DESCRIPTION >

[CAN]

- 
- |  |                                 |  |
|--|---------------------------------|--|
| ⑬ Combination meter                          | ⑭ Transfer control unit         | ⑮ Low tire pressure warning control unit |
| ⑯ Sonar control unit                         | ⑰ Data link connector           | ⑱ Steering angle sensor                  |
| ⑲ CAN gateway                                | ⑳ Air bag diagnosis sensor unit | ㉑ PTC heater control unit                |
| ⑳ A/C auto amp. (automatic air conditioner)  | ㉒ TCM                           |  |
| ㉑ Front air control (manual air conditioner) |                                 |  |

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

## SYSTEM

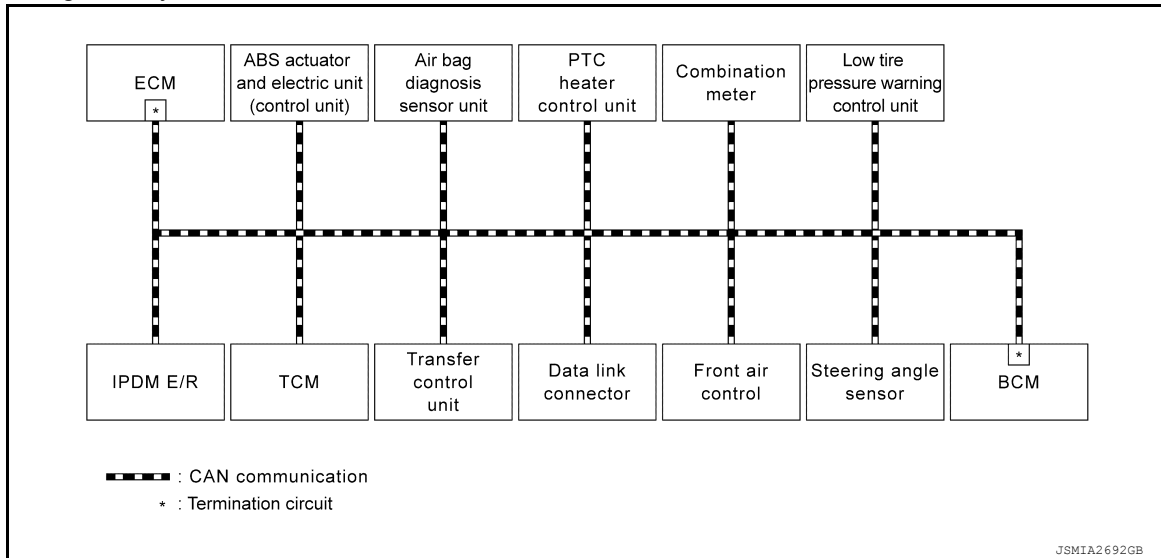
### CAN COMMUNICATION SYSTEM

#### CAN COMMUNICATION SYSTEM : System Description

INFOID:000000012555433

#### SYSTEM DIAGRAM

Without Navigation System



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

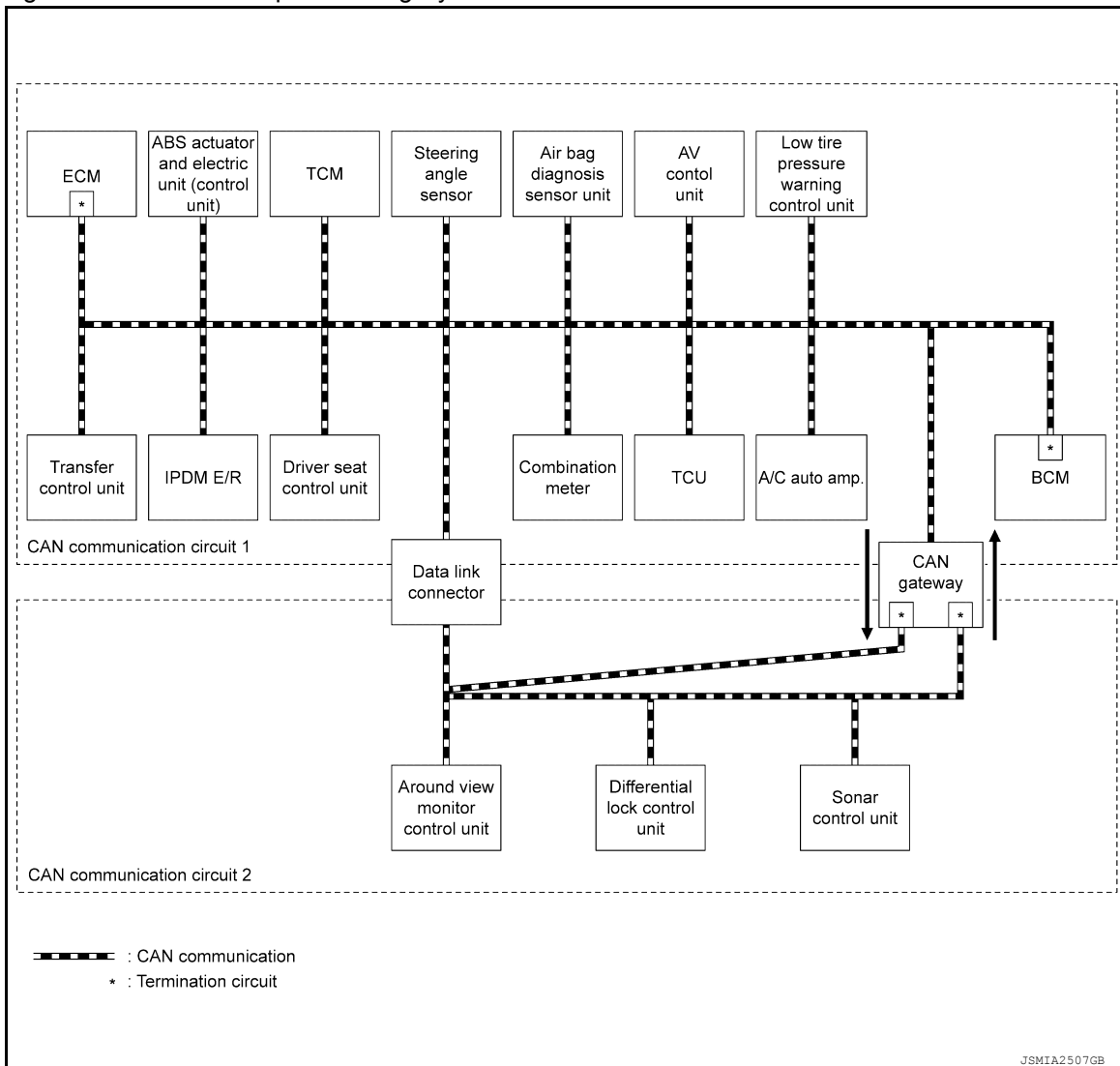
LAN

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

With Navigation Without Blind Spot Warning Systems

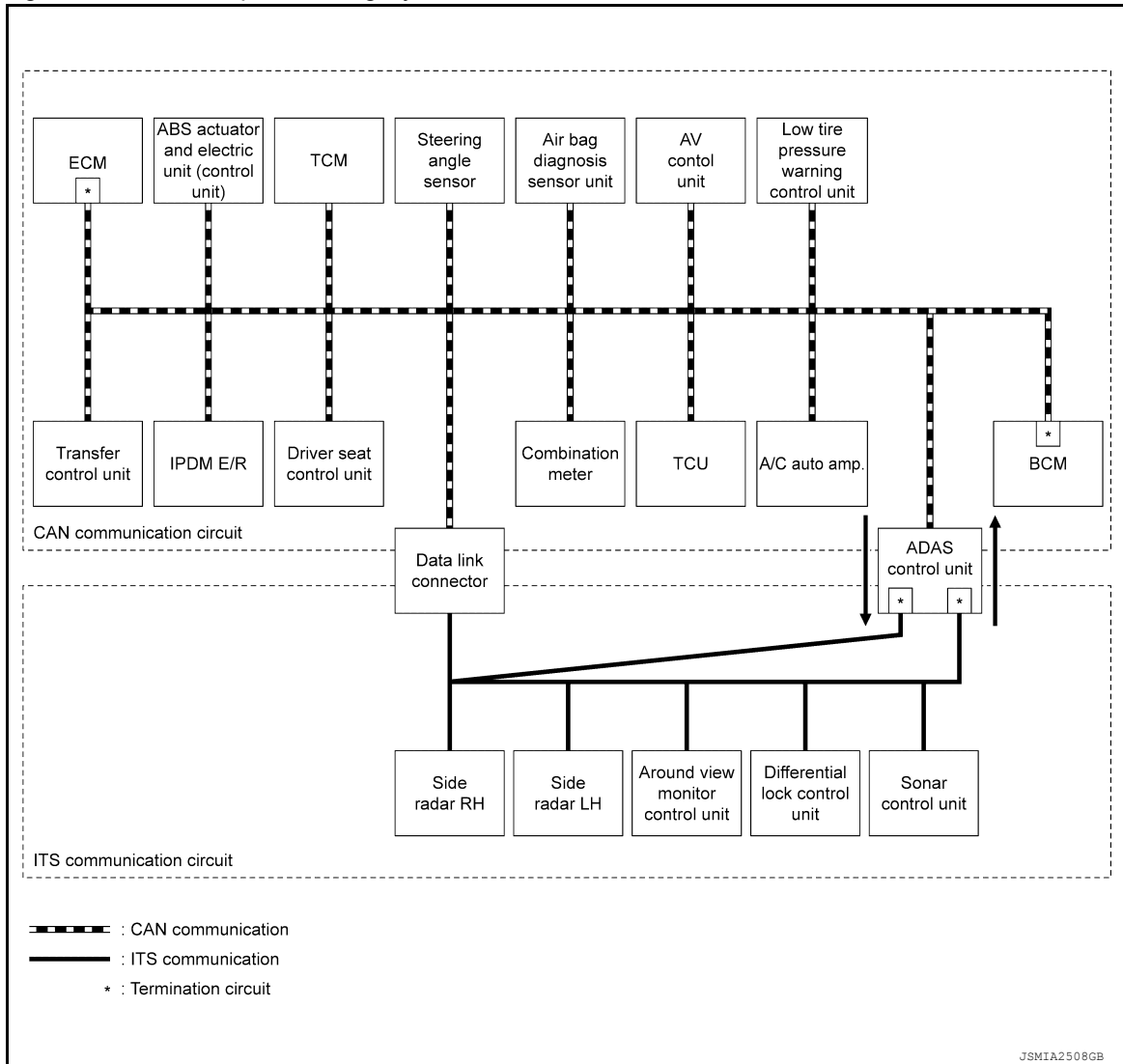


# SYSTEM

[CAN]

## < SYSTEM DESCRIPTION >

### With Navigation With Blind Spot Warning Systems



## DESCRIPTION

- CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
- The following control units include a gateway function and communicate signals between the different CAN communication circuits.

CAN communication circuit	Gateway control unit	Reference
CAN communication circuit 1 ↔ CAN communication circuit 2	CAN gateway	<a href="#">LAN-206, "System Description"</a>
CAN communication circuit 2 ↔ ITS communication circuit	ADAS control unit	<a href="#">DAS-5, "ADAS Control Unit"</a>

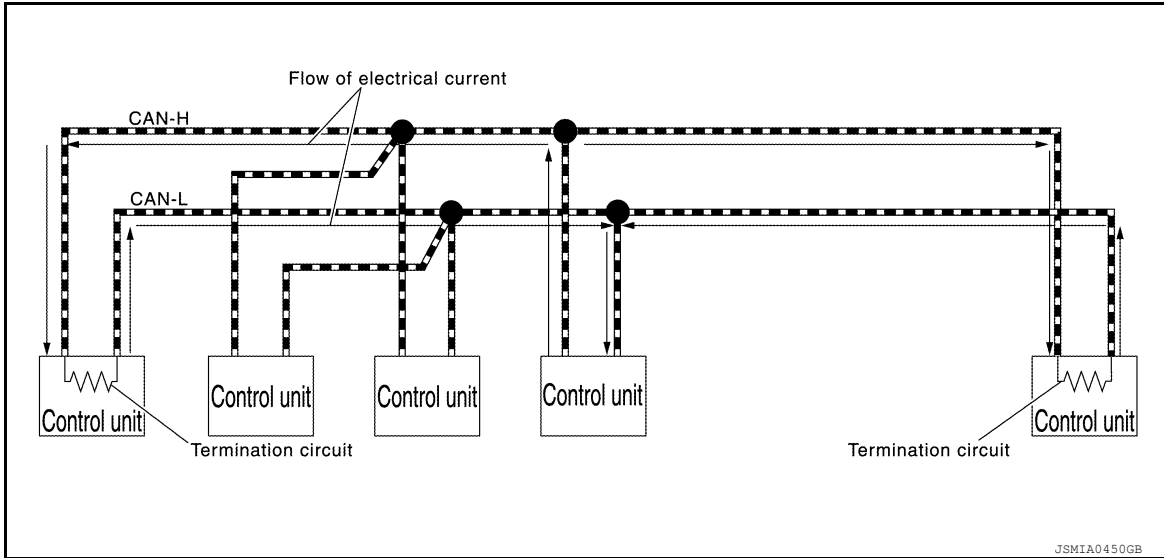
## CAN Communication Signal Generation

# SYSTEM

[CAN]

## < SYSTEM DESCRIPTION >

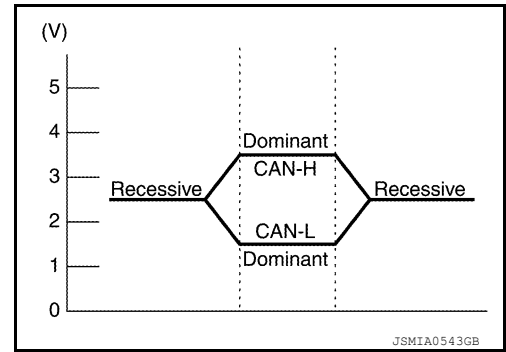
- Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line.



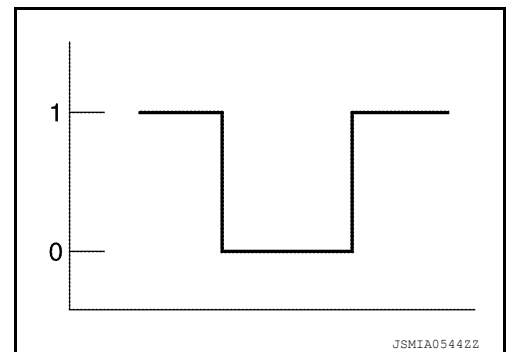
- The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.

**NOTE:**

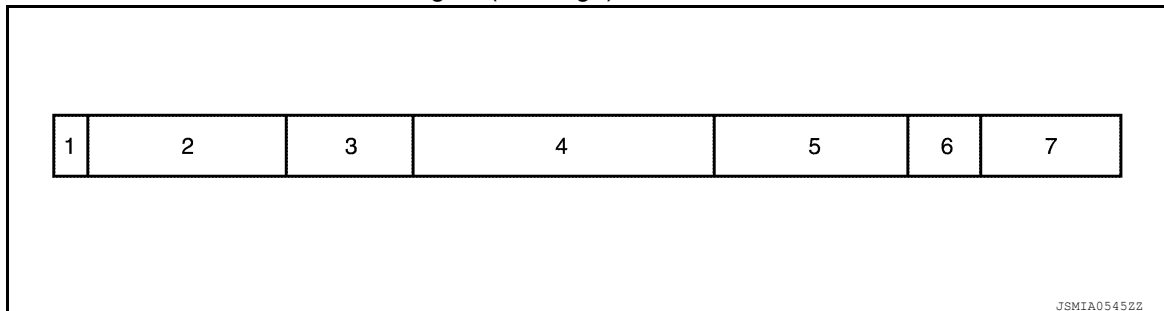
A signal with no current passage is called "Recessive" and one with current passage is called "Dominant".



- The system produces digital signals for signal communications, by using the potential difference.



### The Construction of CAN Communication Signal (Message)



# SYSTEM

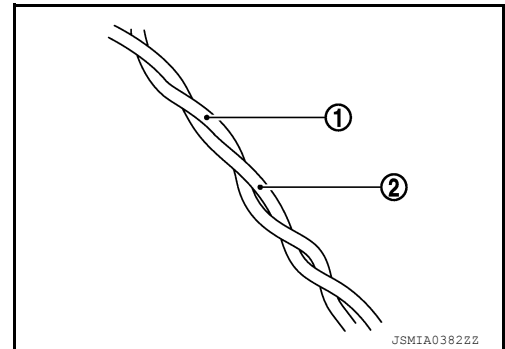
< SYSTEM DESCRIPTION >

[CAN]

No.	Message name	Description
1	Start of frame (1 bit)	Start of message.
2	Arbitration of field (11 bit)	Priorities of message-sending are shown when there is a possibility that multiple messages are sent at the same time.
3	Control field (6 bit)	Signal quantity in data field is shown.
4	Data field (0-64 bit)	Actual signal is shown.
5	CRC field (16 bit)	<ul style="list-style-type: none"> <li>The transmitting control unit calculates sending data in advance and writes the calculated value in a message.</li> <li>The receiving control unit calculates received data and judges that the data reception is normal when the calculated value is the same as the value written in the sent data.</li> </ul>
6	ACK field (2 bit)	The completion of normal reception is sent to the transmitting control unit.
7	End of frame (7 bit)	End of message.

## CAN COMMUNICATION LINE

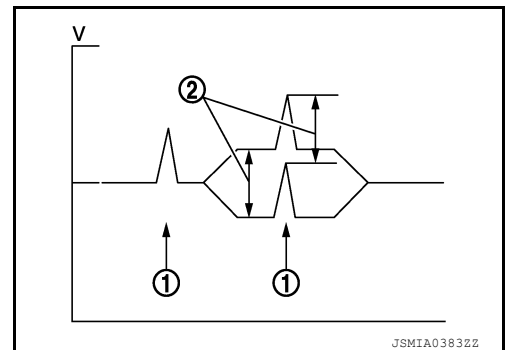
The CAN communication line is a twisted pair wire consisting of strands of CAN-H ① and CAN-L ② and has noise immunity.



### NOTE:

The CAN communication system has the characteristics of noise-resistant because this system produces digital signals by using the potential difference between the CAN-H line and the CAN-L line and has the twisted pair wire structure.

Since the CAN-H line and the CAN-L line are always adjacent to each other, the same degree of noise occurs, respectively, when a noise ① occurs. Although the noise changes the voltage, the potential difference ② between the CAN-H line and the CAN-L line is insensitive to noise. Therefore, noise-resistant signals can be obtained.



## CAN SIGNAL COMMUNICATIONS

Each control unit of the CAN communication system transmits signals through the CAN communication control circuit included in the control unit and receives only necessary signals from each control unit to perform various kinds of control.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

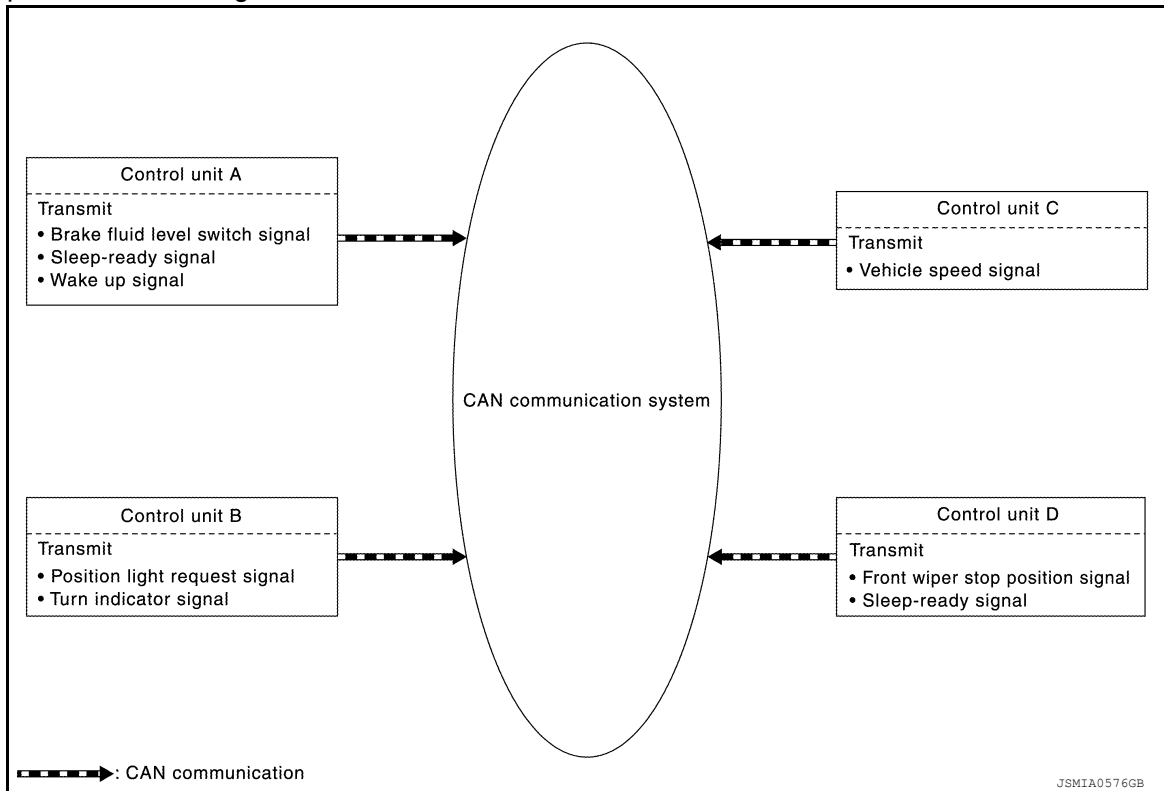
LAN

# SYSTEM

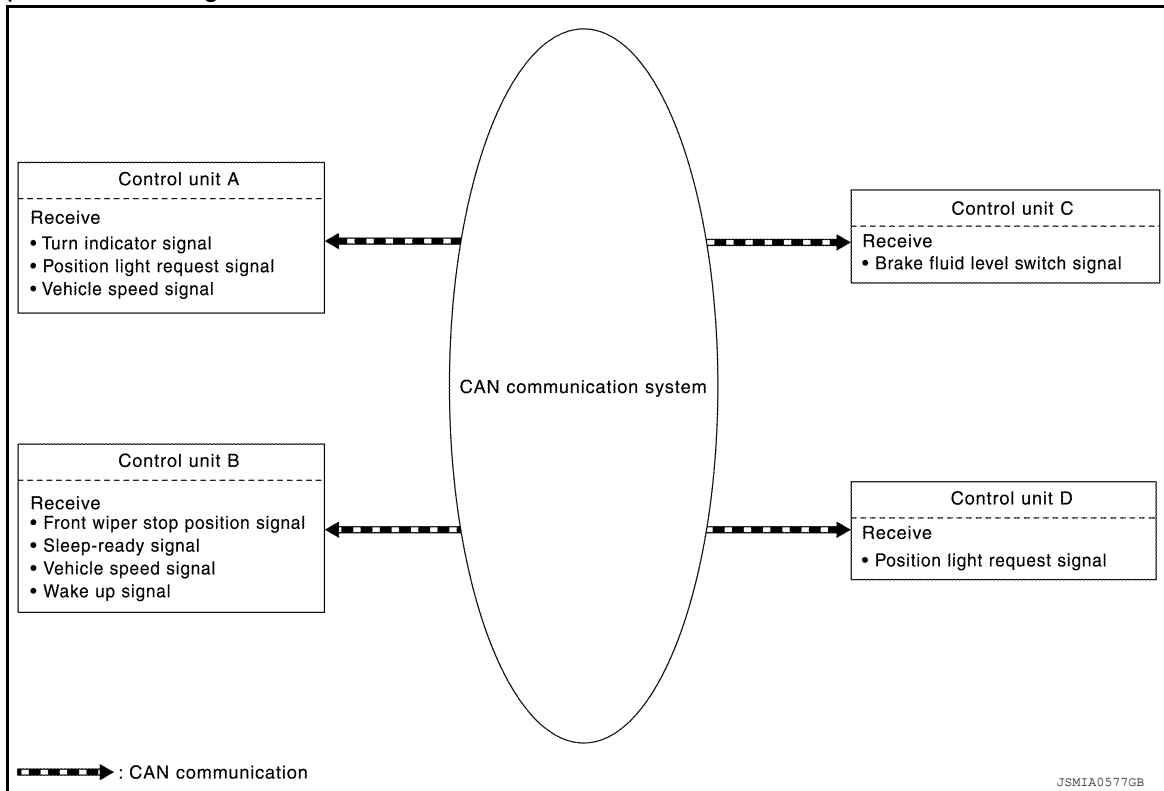
[CAN]

## < SYSTEM DESCRIPTION >

### • Example: Transmitted signals



### • Example: Received signals



### NOTE:

The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to [LAN-70, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).



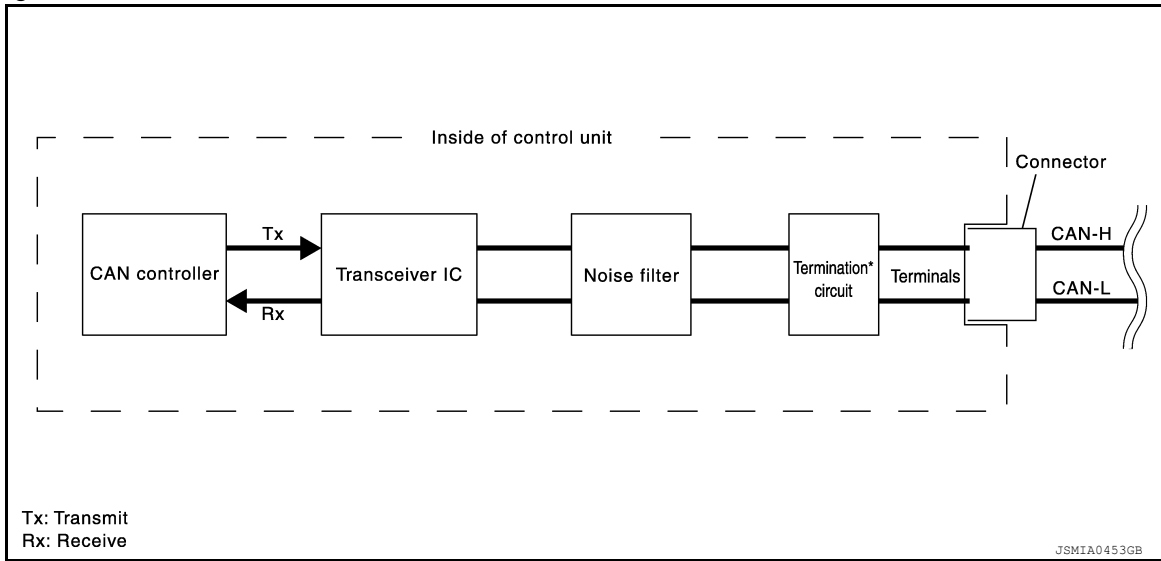
# SYSTEM

[CAN]

< SYSTEM DESCRIPTION >

## CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit INFOID:000000012555434

CAN communication control circuit is incorporated into the control unit and transmits/receives CAN communication signals.



Component	System description
CAN controller	It controls CAN communication signal transmission and reception, error detection, etc.
Transceiver IC	It converts digital signal into CAN communication signal, and CAN communication signal into digital signal.
Noise filter	It eliminates noise of CAN communication signal.
Termination circuit* (Resistance of approx. 120 Ω)	Generates a potential difference between CAN-H and CAN-L.

\*: These are the only control units wired with both ends of CAN communication system.

## CAN COMMUNICATION SYSTEM : CAN System Specification Chart INFOID:000000012555435

Determine CAN system type from the following specification chart.

**NOTE:**

Refer to [LAN-51, "Trouble Diagnosis Flow Chart"](#) for how to use CAN system specification chart.

Refer to the specification as shown in the chart.

Engine type	Diesel engine		Gasoline engine	
Body type	Crew Cab Truck			
Axle	2WD	4WD	2WD	4WD
Engine	Cummins Diesel		VK56VD	
Transmission	A/T			
Brake control	VDC			
Specification chart	SPECIFICATION CHART A		SPECIFICATION CHART B	

### SPECIFICATION CHART A

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Body type	Crew Cab Truck																					
Axle	2WD							4WD														
Engine	Cummins Diesel																					
Transmission	A/T																					
Brake control	VDC																					
Differential lock system																						
Around view monitor system																						
Blind Spot Warning system																						
Navigation system																						
Telematics system																						
Sonar system																						
CAN system type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22

CAN communication control unit

ECM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Transfer control unit																						
ABS actuator and electric unit (control unit)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
IPDM E/R	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TCM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Driver seat control unit																						
Data link connector	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Steering angle sensor	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Air bag diagnosis sensor unit	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
CAN gateway																						
ADAS control unit																						
Combination meter	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
AV control unit																						
TCU																						
Low tire pressure warning control unit	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
• A/C auto amp. (automatic air conditioner) • Front air control (manual air conditioner)	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
PTC heater control unit	x																					
BCM	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

CAN communication control unit 2

CAN gateway																						
Around view monitor control unit																						

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Body type	Crew Cab Truck																						
Axle	2WD							4WD															
Engine	Cummins Diesel																						
Transmission	A/T																						
Brake control	VDC																						
Differential lock system										x													
Around view monitor system						x	x										x				x	x	
Blind Spot Warning system				x	x							x					x			x	x		
Navigation system		x	x	x	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Telematics system			x		x	x						x					x	x		x	x	x	
Sonar system		x	x	x	x	x			x		x	x			x	x	x	x	x	x	x	x	
CAN system type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	
Differential lock control unit										x												x	
Sonar control unit		x	x				x				x						x					x	
ITS communication control unit																							
ADAS control unit				x	x								x					x			x	x	
Side radar RH				x	x								x					x			x	x	
Side radar LH				x	x								x					x			x	x	
Around view monitor control unit																							x
Differential lock control unit																							x
Sonar control unit				x	x																		x

x: Applicable

Vehicle Equipment Identification Information

**NOTE:**

Check CAN system type from the vehicle shape and equipment.

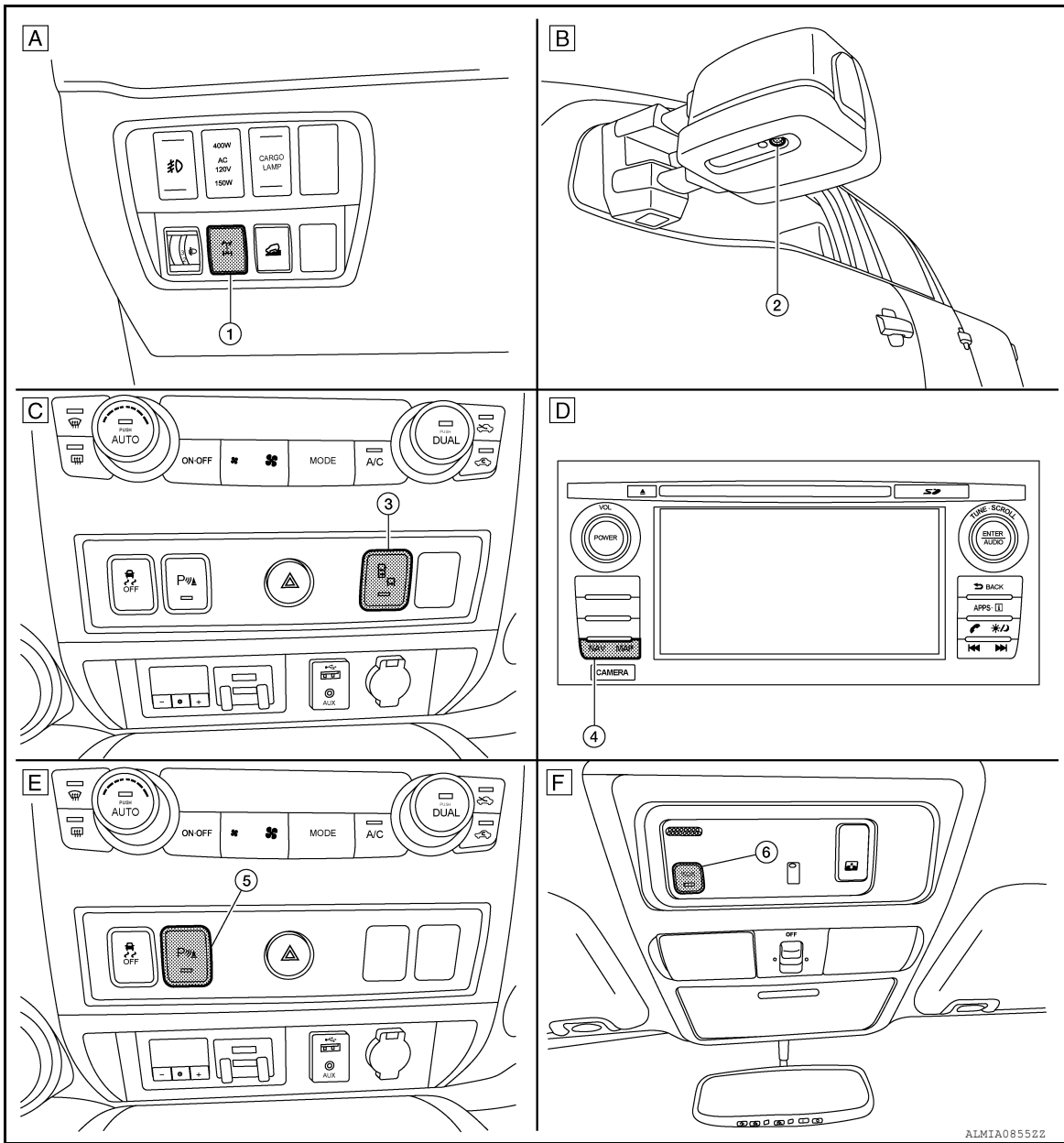
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]



- |  |  |   |
|--|--|---|
| ① Differential lock mode switch        | ② Side camera LH                         | ③ Blind spot warning switch             |
| ④ NAVI switch                          | ⑤ Sonar system OFF switch                | ⑥ Telematics switch                     |
| <b>A</b> With differential lock system | <b>B</b> With around view monitor system | <b>C</b> With blind spot warning system |
| <b>D</b> With navigation system        | <b>E</b> With sonar system               | <b>F</b> With telematics system         |

## SPECIFICATION CHART B

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Body type	Crew Cab Truck										
Axle	2WD				4WD						
Engine	VK56VD										
Transmission	A/T										
Brake control	VDC										
Differential lock system						x		x		x	x
Around view monitor system									x		x
Blind Spot Warning system		x	x		x	x	x	x	x	x	x
Telematics system			x				x		x	x	x
Sonar system		x	x		x		x	x	x	x	x
CAN system type	23	24	25	26	27	28	29	30	31	32	33
<b>CAN communication control unit</b>											
ECM	x	x	x	x	x	x	x	x	x	x	x
Transfer control unit				x	x	x	x	x	x	x	x
ABS actuator and electric unit (control unit)	x	x	x	x	x	x	x	x	x	x	x
IPDM E/R	x	x	x	x	x	x	x	x	x	x	x
TCM	x	x	x	x	x	x	x	x	x	x	x
Driver seat control unit			x				x		x	x	x
Data link connector	x	x	x	x	x	x	x	x	x	x	x
Steering angle sensor	x	x	x	x	x	x	x	x	x	x	x
Air bag diagnosis sensor unit	x	x	x	x	x	x	x	x	x	x	x
ADAS control unit		x	x		x	x	x	x	x	x	x
Combination meter	x	x	x	x	x	x	x	x	x	x	x
AV control unit		x	x		x	x	x	x	x	x	x
TCU			x				x		x	x	x
Low tire pressure warning control unit	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> <li>• A/C auto amp. (automatic air conditioner)</li> <li>• Front air control (manual air conditioner)</li> </ul>	x	x	x	x	x	x	x	x	x	x	x
BCM	x	x	x	x	x	x	x	x	x	x	x
<b>ITS communication control unit</b>											
ADAS control unit		x	x		x	x	x	x	x	x	x
Side radar RH		x	x		x	x	x	x	x	x	x
Side radar LH		x	x		x	x	x	x	x	x	x
Around view monitor control unit									x		x
Differential lock control unit						x		x		x	x
Sonar control unit		x	x		x		x	x	x	x	x

x: Applicable

Vehicle Equipment Identification Information

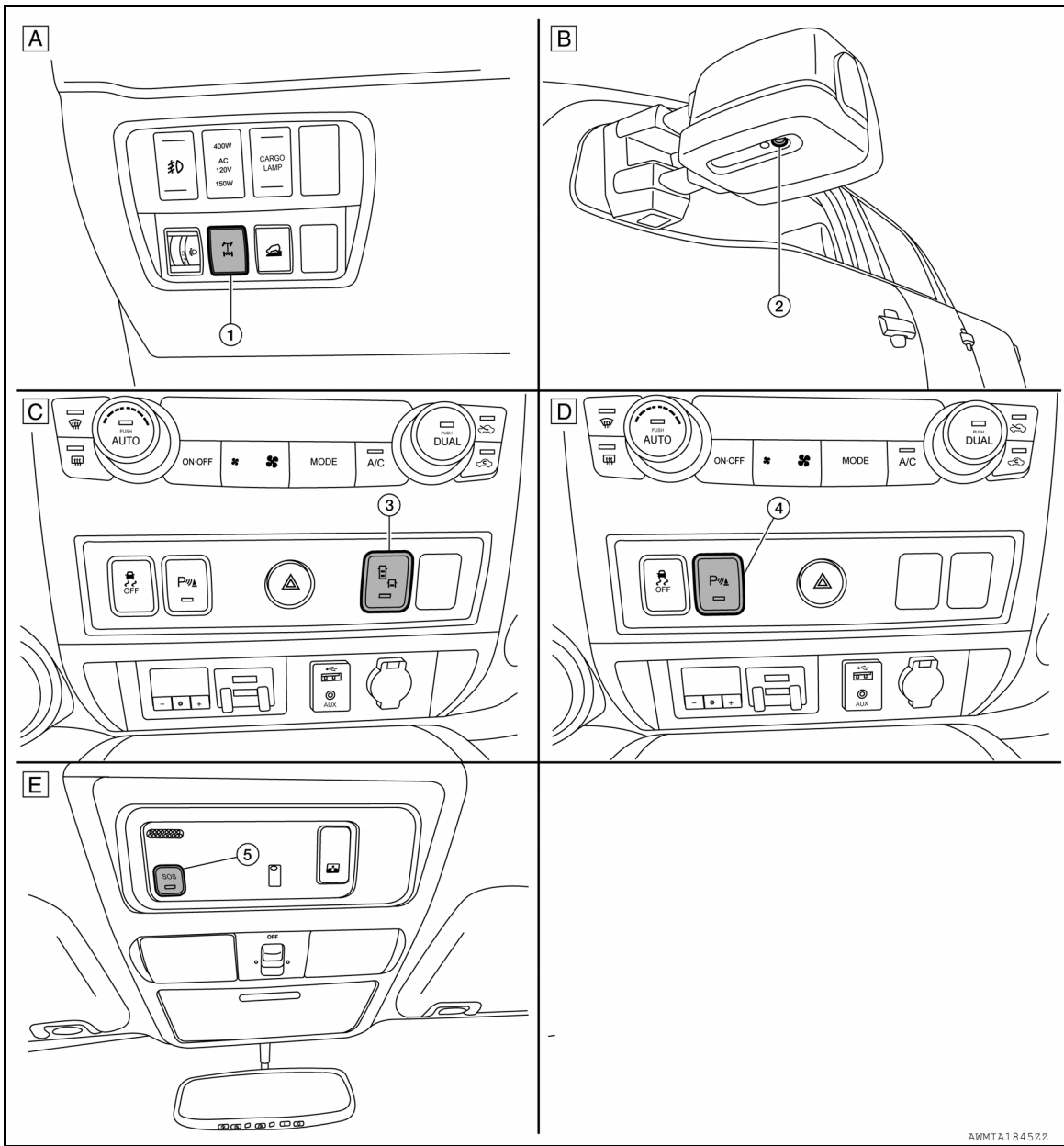
**NOTE:**

Check CAN system type from the vehicle shape and equipment.

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]



- |                                 |                                   |                                  |
|---------------------------------|-----------------------------------|----------------------------------|
| ① Differential lock mode switch | ② Side camera LH                  | ③ Blind spot warning switch      |
| ④ Sonar system OFF switch       | ⑤ Telematics switch               |                                  |
| Ⓐ With differential lock system | Ⓑ With around view monitor system | Ⓒ With blind spot warning system |
| Ⓓ With sonar system             | Ⓔ With telematics system          |                                  |

## CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

INFOID:000000012555436

Refer to [LAN-50. "How to Use CAN Communication Signal Chart"](#) for how to use CAN communication signal chart.

**NOTE:**

Refer to [LAN-56. "Abbreviation List"](#) for the abbreviations of the connecting units.

# SYSTEM

## < SYSTEM DESCRIPTION >

[CAN]

T: Transmit R: Receive

Signal name	ECM	4WD	ABS	IPDM-E	TCM	ADP	STRG	A-BAG	CGW	ICC	M&A	AV	TCU	TPMS	HVAC	PTC	BCM	RDR-R	RDR-L	AVM	DIFF	SONAR
A/C compressor cut-off signal*1	T														R	R						
A/C compressor request signal	T			R											R							
Accelerator pedal position signal	T		R		R					R												
Air filter service status signal*1	T										R											
ASCD status signal	T										R		R									
Closed throttle position signal	T			R																		
Condenser fan speed request signal*1	T			R											R	R						
Cooling fan speed request signal*2	T			R																		
Diesel exhaust fluid low level signal*1	T										R											
Diesel particulate filter status signal*1	T										R											
Diesel water-in-fuel signal*1	T										R											
Diesel particulate filter warning lamp signal*1	T										R											
DPF regeneration active signal*1	T										R											
Engine and A/T integrated control signal*2	T				R																	
	R				T																	
Engine coolant temperature signal	T		R	R	R					R	R				R	R					R	
Engine coolant temperature warning signal*1	T										R											
Engine speed signal	T	R	R		R			R		R	R		R		R	R						R
Engine status signal	T			R	R													R				
Engine torque signal	T				R																	
Exhaust gas temperature signal*1	T										R											
Fuel consumption monitor signal	T										R	R	R									
Glow indicator monitor signal*1	T										R											
Malfunction indicator lamp signal	T										R		R									
	R* 1				T																	
Oil pressure warning lamp*2	T										R											
Power generation command value signal*2	T			R																		
Wide open throttle position signal	T				R* 2						R* 1											
4WD signal		T	R																			

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Signal name	ECM	4WD	ABS	IPDM-E	TCM	ADP	STRG	A-BAG	CGW	ICC	M&A	AV	TCU	TPMS	HVAC	PTC	BCM	RDR-R	RDR-L	AVM	DIFF	SONAR
4WD warning icon/display signal		T									R											
4WD mode indicator signal		T									R											
4WD mode signal		T			R																	
4WD warning lamp signal		T									R											
ATP warning lamp signal		T									R											
ABS operation signal			T		R							R										
ABS warning lamp signal			T								R											
AT fluid temperature signal*2	R		T																			
Brake warning lamp signal			T								R											
Front LH wheel speed signal		R	T		R																	
Front RH wheel speed signal		R	T		R																	
Rear LH wheel speed signal		R	T		R																R	
Rear RH wheel speed signal		R	T		R																R	
Sleep-ready signal		T															R					
				T													R					
										T							R					
Stop lamp switch signal		R			R												T					
			T																		R	
Target throttle position signal*2	R		T																			
TCS operation signal*1	R		T		R																	
VDC OFF indicator lamp signal			T								R											
VDC operation signal*1	R		T		R																	
VDC warning lamp signal			T								R											
Vehicle speed signal	R* 2		T		R	R					R						R				R	R
	R	R		R	R						T	R			R		R					
A/C compressor feedback signal	R			T								R			R							
Front wiper position signal				T														R				
High beam status signal	R			T								R										
Hood switch signal				T														R				
Low beam status signal	R			T								R										
Push-button ignition switch status signal				T														R				
A/T check indicator lamp signal*1	R				T						R											
A/T self-diagnosis signal*1	R				T					R												
Current gear position signal*1	R		R	R	T			R		R									R	R		
Gear position signal		R			T																	
Input speed signal	R		R		T			R			R											
Manual mode signal*1	R				T						R											
Output shaft revolution signal	R	R	R		T						R											



# SYSTEM

< SYSTEM DESCRIPTION >

[CAN]

Signal name	ECM	4WD	ABS	IPDM-E	TCM	ADP	STRG	A-BAG	CGW	ICC	M&A	AV	TCU	TPMS	HVAC	PTC	BCM	RDR-R	RDR-L	AVM	DIFF	SONAR		
Shift position signal					T	R					R										R		R	A
Torque converter status signal*1	R				T																			B
Steering angle sensor malfunction signal			R				T														R			C
Steering angle sensor signal			R				T					R									R			D
Steering angle speed signal			R				T															R		D
Steering calibration signal			R				T														R			D
Brake fluid level switch signal			R								T													E
Distance to empty signal											T	R												E
Fuel filler cap warning reset signal*1	R										T													F
Fuel level low warning signal											T	R												F
Fuel level sensor signal*1	R										T													F
Manual mode (shift down) signal					R						T													G
Manual mode (shift up) signal					R						T													G
Odometer signal											T						R							H
Parking brake switch signal			R								T						R							H
Seat belt buckle switch signal (driver side)											T						R							I
Tow mode switch signal					R						T													I
Wake up signal											T						R							J
A/C switch operation signal												T			R									J
Rear window defogger switch signal												T					R							K
System setting signal												T					R							K
Voice recognition signal												R												L
A/C display signal												R				T								L
A/C evaporator temperature signal*1	R															T								LAN
A/C ON signal	R															T								N
Ambient sensor signal											R					T								N
Blower fan ON signal	R															T								O
Target A/C evaporator temperature signal*1	R															T								O
Buzzer request signal											R						T					T	R	P
Low tire pressure warning lamp signal											R						T							P
Sonar status signal																					R		T	P
PTC idle up request signal	R															T		R						
	R																T	R						

# SYSTEM

## < SYSTEM DESCRIPTION >

[CAN]

Signal name	ECM	4WD	ABS	IPDM-E	TCM	ADP	STRG	A-BAG	CGW	ICC	M&A	AV	TCU	TPMS	HVAC	PTC	BCM	RDR-R	RDR-L	AVM	DIFF	SONAR
PTC power consumption signal	R															T	T	R				
	R																T	R				
Buzzer output signal											R						T					
Day time running light request signal				R											R		T				R	
Dimmer signal											R						T					
Door switch signal				R		R					R				R		T				R	
Door unlock signal						R											T					
Front fog light request signal				R							R				R		T				R	
Front wiper request signal				R								R			R		T					
Handle position signal						R											T					
High beam request signal				R							R				R		T				R	
Horn reminder signal				R													T					
Ignition switch ON signal				R													T					
				T													R					
Ignition switch signal				R		R											T					
Intelligent Key system warning display signal											R						T					
Interlock/PNP switch signal				R													T					
				T													R					
Key ID signal						R									R		T					
Low beam request signal				R											R		T				R	
Meter display signal											R						T					
Meter ring illumination request signal											R						T					
Oil pressure switch signal											R						T					
				T							R						R					
Position light request signal				R							R				R		T				R	
Rear window defogger control signal				R											R		T					
	R			T								R										
Sleep wake up signal		R		R		R			R		R						T					
Starter control relay signal				R													T					
Starter relay status signal				R							R						T					
				T													R					
Starting mode signal						R											T					
Theft warning horn request signal				R													T					
Turn indicator signal											R	R			R		T				R	
Sonar setting change signal																					T	R

\*1: Diesel engine

\*2: Gasoline engine

# CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

< WIRING DIAGRAM >

[CAN]

## WIRING DIAGRAM

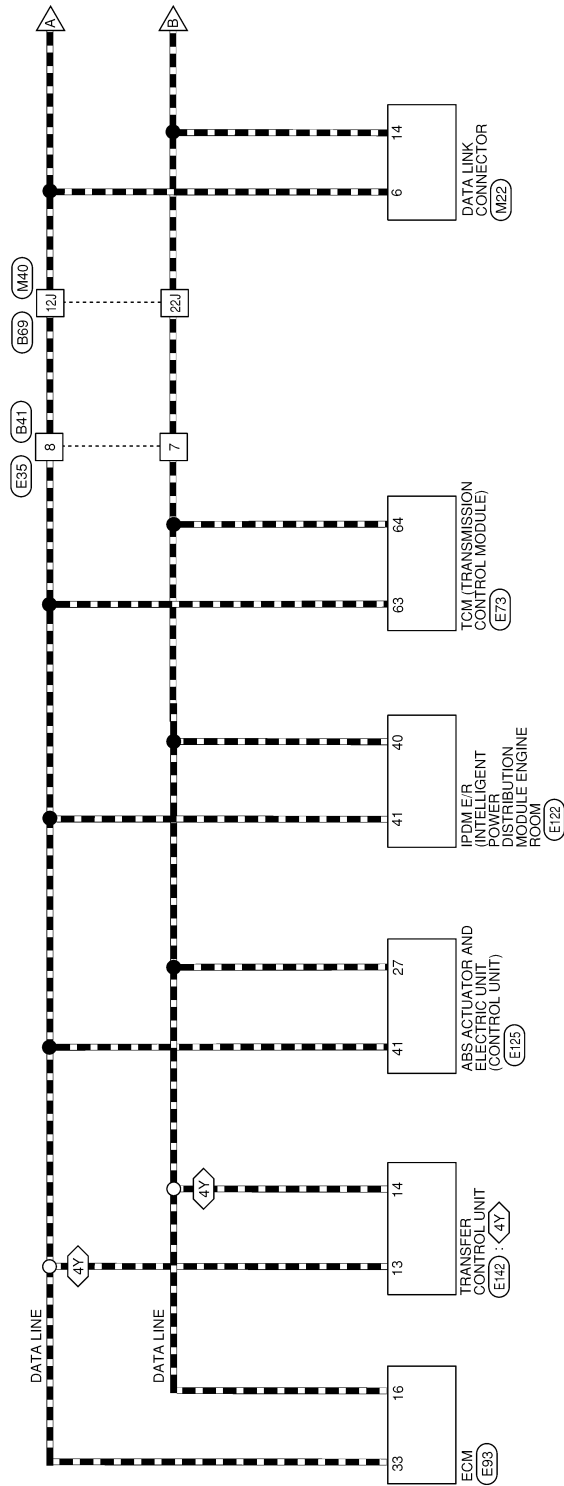
### CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

#### Wiring Diagram

INFOID:000000013499335

◀ 4Y : WITH 4WD SYSTEM

CAN SYSTEM - WITHOUT NAVIGATION SYSTEM

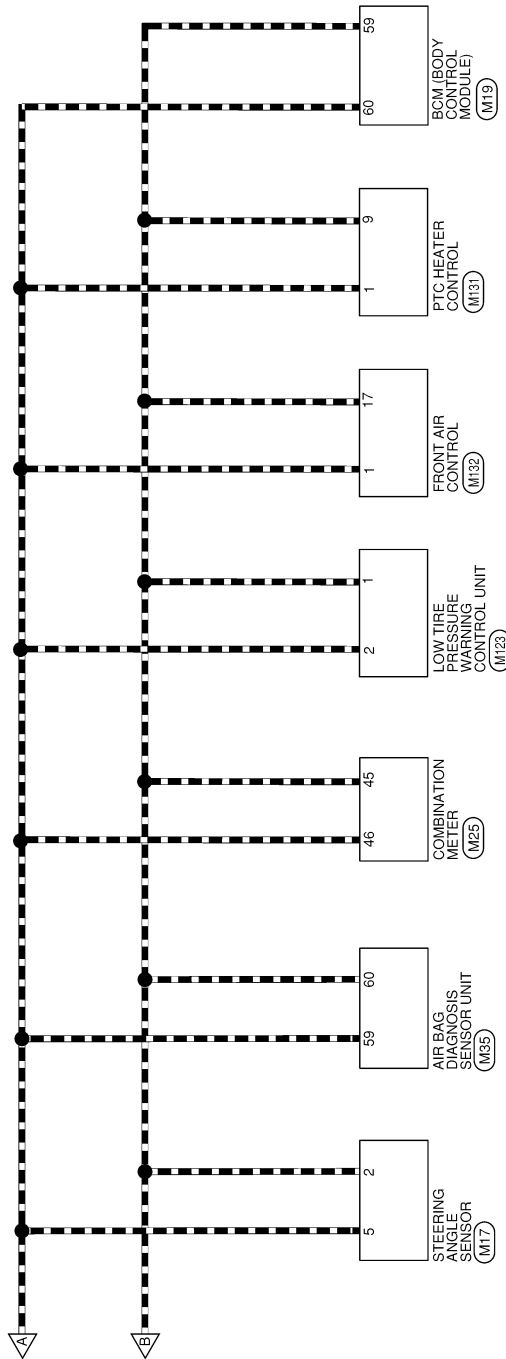


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

< WIRING DIAGRAM >

[CAN]



AAMWA1968GB


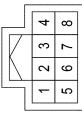
# CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITHOUT NAVIGATION SYSTEM


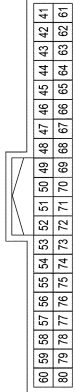
Connector No.	M17	14	P	-
Connector Name	STEERING ANGLE SENSOR			
Connector Type	TH08FW-NH			
Connector Color	WHITE			

Terminal No.	2	5		
Color of Wire	P	L		
Signal Name	CAN-L	CAN-H		


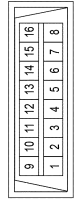
Connector No.	M19			
Connector Name	BCM (BODY CONTROL MODULE)			
Connector Type	TH40FB-NH			
Connector Color	BLACK			

Terminal No.	2	5		
Color of Wire	P	L		
Signal Name	CAN-L	CAN-H		


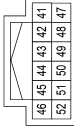
Connector No.	M22			
Connector Name	DATA LINK CONNECTOR			
Connector Type	BD16FW			
Connector Color	WHITE			

Terminal No.	6			
Color of Wire	L			
Signal Name	-			


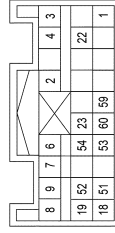
Connector No.	M25			
Connector Name	COMBINATION METER			
Connector Type	TH12FW-NH			
Connector Color	WHITE			

Terminal No.	46			
Color of Wire	P	L		
Signal Name	CAN-L	CAN-H		


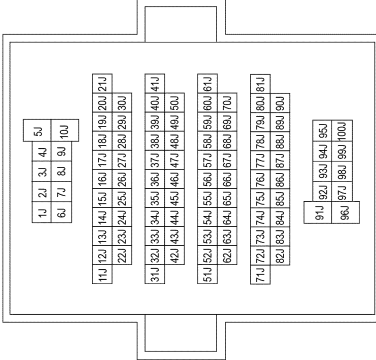
Connector No.	M35			
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT			
Connector Type	NH28FY-EX			
Connector Color	YELLOW			

Terminal No.	59	60		
Color of Wire	L	P		
Signal Name	CAN-H	CAN-L		


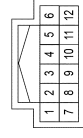
Connector No.	M40			
Connector Name	WIRE TO WIRE			
Connector Type	TH80FW-CST6-TM4			
Connector Color	WHITE			

Terminal No.	12J	22J		
Color of Wire	L	P		
Signal Name	-	-		

Connector No.	M123			
Connector Name	LOW TIRE PRESSURE WARNING CONTROL UNIT			
Connector Type	TH12FW-NH			
Connector Color	WHITE			

Terminal No.	1	2		
Color of Wire	P	L		
Signal Name	CAN-L	CAN-H		

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

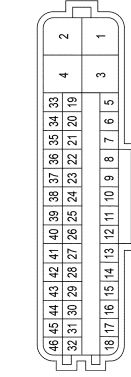
AAMIA3750GB

# CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

< WIRING DIAGRAM >

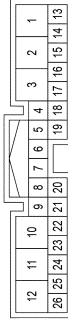
[CAN]

41	L	CAN-H
Connector No.	E125	
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)	
Connector Type	SAZ42FB-SJZ4	
Connector Color	BLACK	



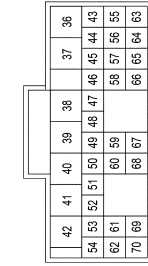
Terminal No.	Color of Wire	Signal Name
27	P	CAN-L
41	L	CAN-H

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Type	TH20FW-TB6
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	L	CAN-H
14	P	CAN-L

Connector No.	E73
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	AAH28FW-TK7
Connector Color	WHITE



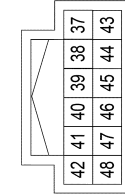
Terminal No.	Color of Wire	Signal Name
63	L	CAN-H
64	P	CAN-L

Connector No.	E93
Connector Name	ECM (WITH CUMMINS 5.0L)
Connector Type	1-928-405-452
Connector Color	BLACK



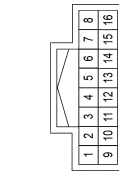
Terminal No.	Color of Wire	Signal Name
16	P	CAN-L
33	L	CAN-H

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH
Connector Color	WHITE



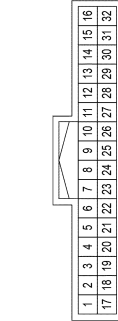
Terminal No.	Color of Wire	Signal Name
40	P	CAN-L

Connector No.	M131
Connector Name	PTC HEATER CONTROL
Connector Type	TH16FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	-
9	P	-

Connector No.	M132
Connector Name	FRONT AIR CONTROL
Connector Type	TH32FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
17	P	CAN-L

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	P	-
8	L	-

AAMIA37516B

# CAN SYSTEM (WITHOUT NAVIGATION SYSTEM)

< WIRING DIAGRAM >

[CAN]

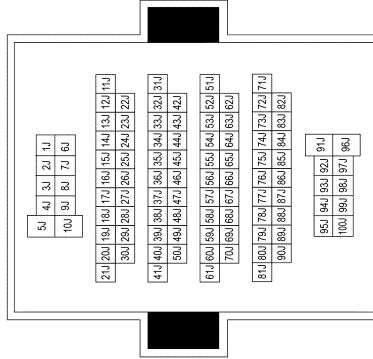
Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS
Connector Color	WHITE



1	2	3	4	5
6	7	8	9	10
11	12			

Terminal No.	Color of Wire	Signal Name
7	P	-
8	L	-

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12J	L	-
22J	P	-

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

AAMIA3752GB

# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]

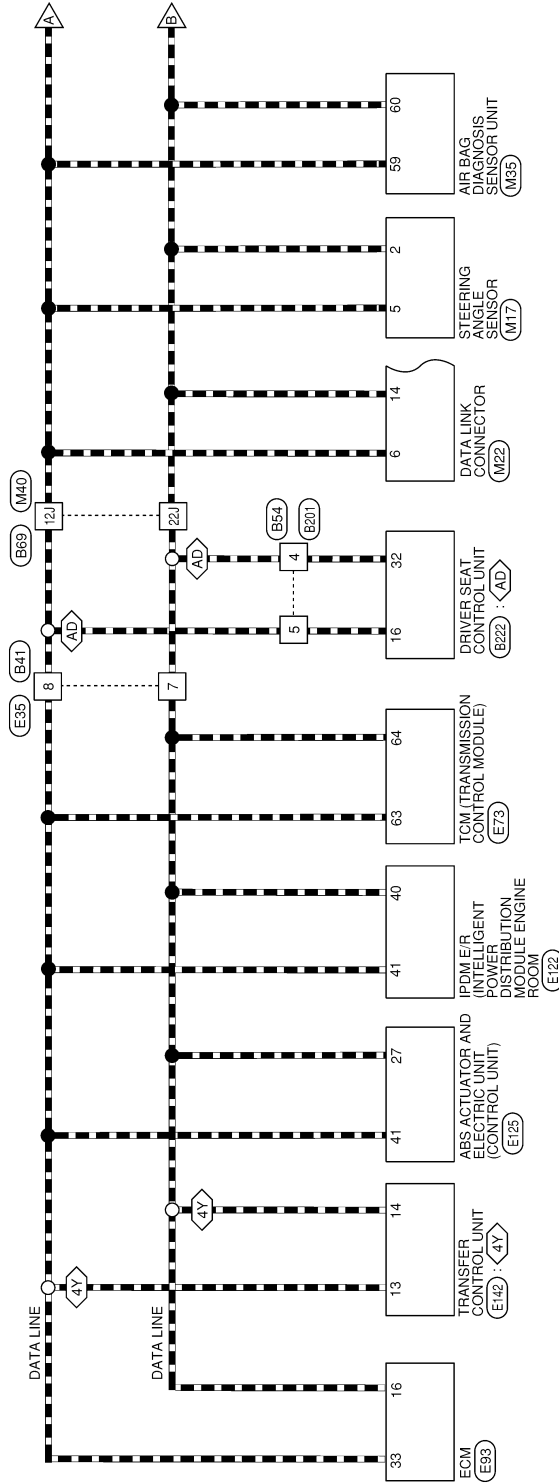
## CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

### Wiring Diagram

INFOID:000000012555437

- <AD> : WITH AUTOMATIC DRIVE POSITIONER
- <DL> : WITH ELECTRONIC LOCKING REAR DIFFERENTIAL
- <SV> : WITH SONAR SYSTEM
- <TH> : WITH TELEMATICS SYSTEM
- <WA> : WITH AUDIO AMPLIFIER
- <WM> : WITHOUT AUDIO AMPLIFIER
- <JD> : WITH AROUND VIEW MONITOR
- <4Y> : WITH 4WD SYSTEM

### CAN SYSTEM - WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS



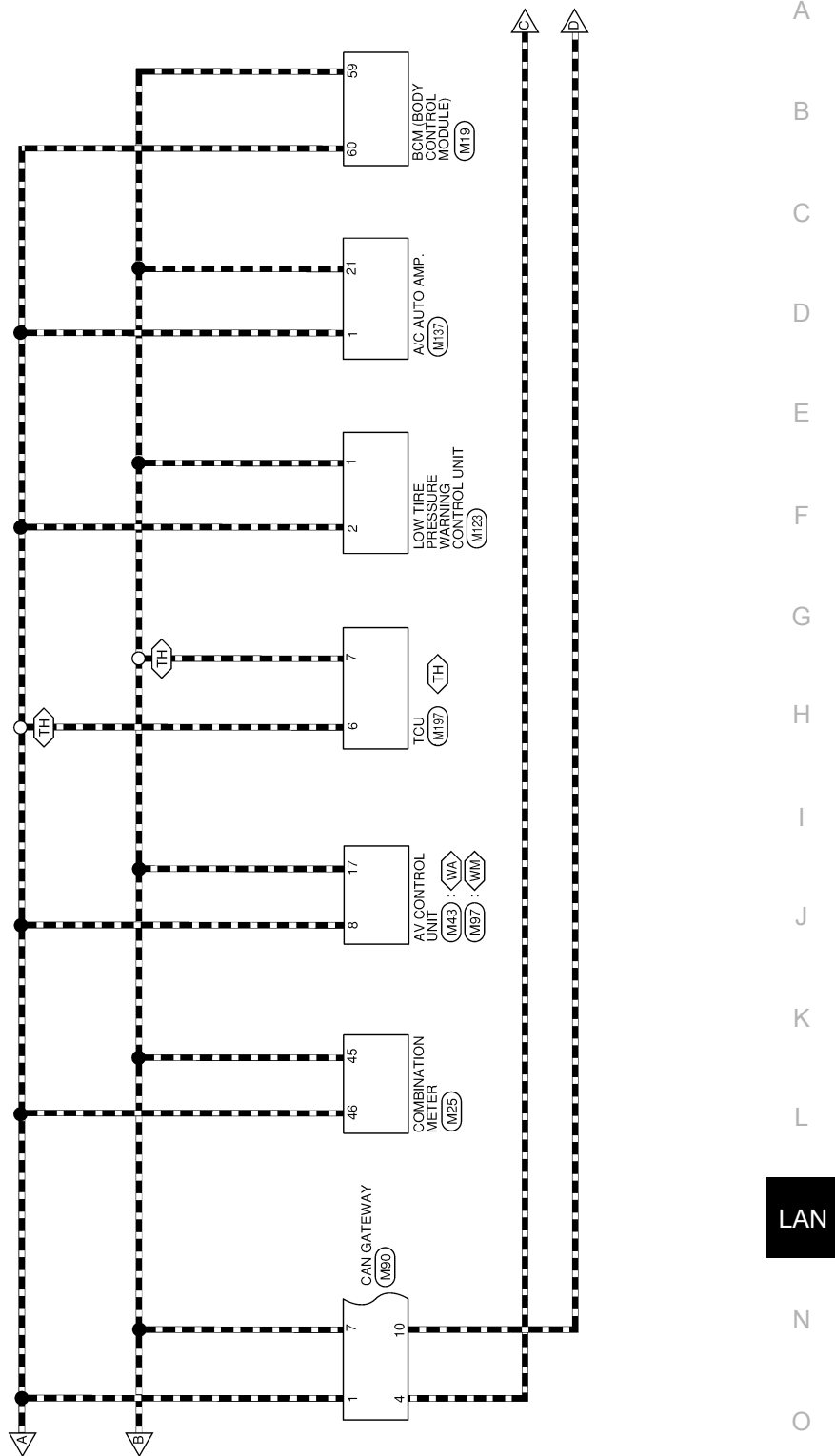
AAMWA1964GB



# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]

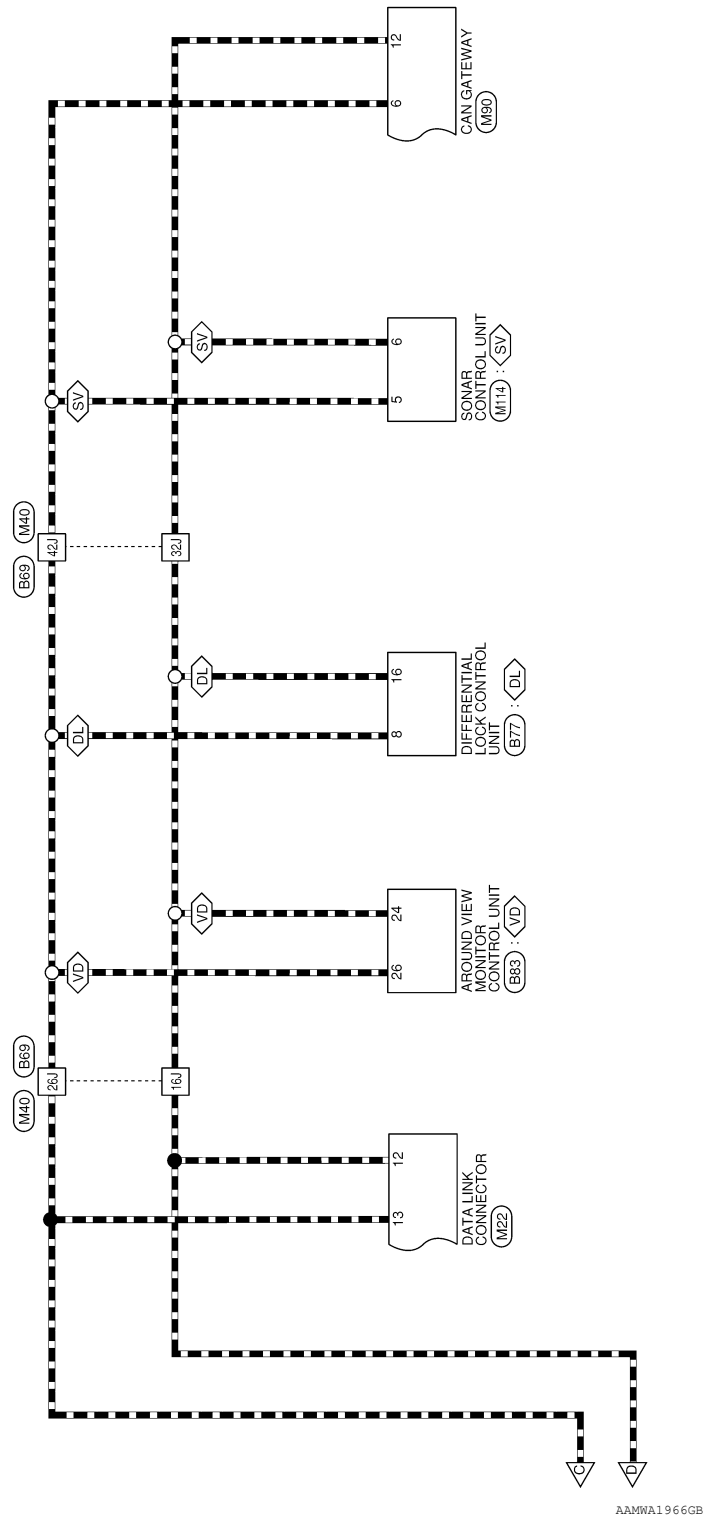


AAMWA1965GB

# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]



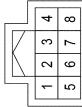
# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

[CAN]

< WIRING DIAGRAM >

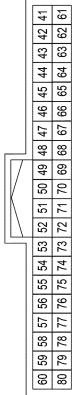
## CAN SYSTEM CONNECTORS - WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS

Connector No.	M17
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH
Connector Color	WHITE



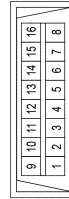
Terminal No.	Color of Wire	Signal Name
2	P	CAN-L
5	L	CAN-H

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
59	P	CAN-L
60	L	CAN-H

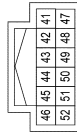
Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	L	-

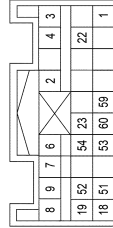
12	R	-
13	L	-
14	P	-

Connector No.	M25
Connector Name	COMBINATION METER
Connector Type	TH12FW-NH
Connector Color	WHITE



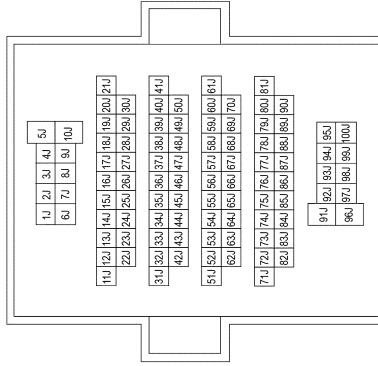
Terminal No.	Color of Wire	Signal Name
45	P	CAN-L
46	L	CAN-H

Connector No.	M35
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX
Connector Color	YELLOW



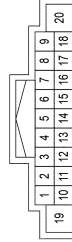
Terminal No.	Color of Wire	Signal Name
59	L	CAN-H
60	P	CAN-L

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12J	L	-
16J	R	-
22J	P	-
28J	L	-
32J	R	-
42J	L	-

Connector No.	M43
Connector Name	AV CONTROL UNIT (WITH AUDIO AMPLIFIER)
Connector Type	NH18FW-CS2
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	P	CAN-L

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P


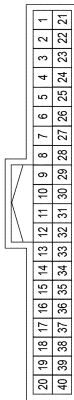
LAN

# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >


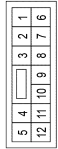
[CAN]

21	P	CAN-L
Connector No.	M197	
Connector Name	TCU	
Connector Type	TH40FB-NH	
Connector Color	BLACK	

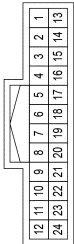
Terminal No.	Color of Wire	Signal Name
6	L	CAN-H
7	P	CAN-L

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS
Connector Color	WHITE


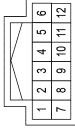
Terminal No.	Color of Wire	Signal Name
7	P	-
8	L	-

Connector No.	M114
Connector Name	SONAR CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE


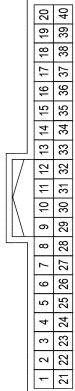
Terminal No.	Color of Wire	Signal Name
5	L	CAN-H
6	R	CAN-L

Connector No.	M123
Connector Name	LOW TIRE PRESSURE WARNING CONTROL UNIT
Connector Type	TH12FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H

Connector No.	M137
Connector Name	A/C AUTO AMP.
Connector Type	TH40FW-NH
Connector Color	WHITE


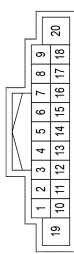
Terminal No.	Color of Wire	Signal Name
1	L	CAN-H

Connector No.	M90
Connector Name	CAN GATEWAY
Connector Type	TH12FW-NH
Connector Color	WHITE




Terminal No.	Color of Wire	Signal Name
1	L	-
4	L	-
6	L	-
7	P	-
10	R	-
12	R	-

Connector No.	M97
Connector Name	AV CONTROL UNIT (WITHOUT AUDIO AMPLIFIER)
Connector Type	NH18FW-CS2
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
17	P	CAN-L

AAMIA3746GB

# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

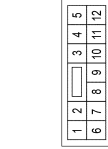
< WIRING DIAGRAM >

[CAN]

7	P	-
8	L	-

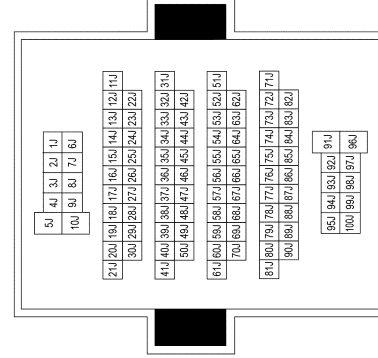
  

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Type	NS12FBR-CS
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
4	P	-
5	L	-

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE

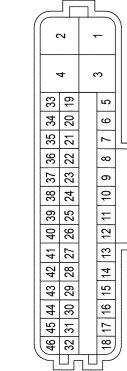


Terminal No.	Color of Wire	Signal Name
12J	L	-
16J	R	-
22J	P	-
26J	L	-
32J	R	-
42J	L	-

41	L	CAN-H
----	---	-------

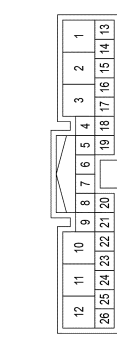
  

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ42FB-SJZ4
Connector Color	BLACK



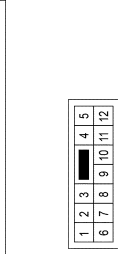
Terminal No.	Color of Wire	Signal Name
27	P	CAN-L
41	L	CAN-H

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Type	TH20FW-TB6
Connector Color	WHITE



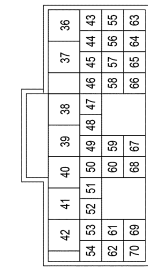
Terminal No.	Color of Wire	Signal Name
13	L	CAN-H
14	P	CAN-L

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS
Connector Color	WHITE



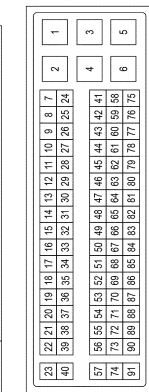
Terminal No.	Color of Wire	Signal Name
--------------	---------------	-------------

Connector No.	E73
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	AAH28FW-TK7
Connector Color	WHITE



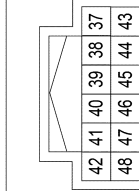
Terminal No.	Color of Wire	Signal Name
63	L	CAN-H
64	P	CAN-L

Connector No.	E93
Connector Name	ECM (WITH CUMMINS 5.0L)
Connector Type	1-928-405-452
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
16	P	CAN-L
33	L	CAN-H

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
40	P	CAN-L

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P


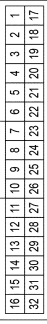
LAN

# CAN SYSTEM (WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >



[CAN]

Connector No.	B222
Connector Name	DRIVER SEAT CONTROL UNIT
Connector Type	TH32FW-NH
Connector Color	WHITE


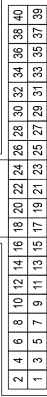
Terminal No.	Color of Wire	Signal Name
16	P	CAN-H
32	W	CAN-L

Connector No.	B77
Connector Name	DIFFERENTIAL LOCK CONTROL UNIT
Connector Type	TH16FW-NH
Connector Color	WHITE


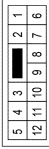
Terminal No.	Color of Wire	Signal Name
8	L	CAN-H
16	R	CAN-L

Connector No.	B83
Connector Name	AROUND VIEW MONITOR CONTROL UNIT
Connector Type	TH40FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
24	R	CAN L
26	L	CAN H

Connector No.	B201
Connector Name	WIRE TO WIRE
Connector Type	NS12MBR-CS
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
4	W	-
5	P	-

AAMIA3748GB

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]

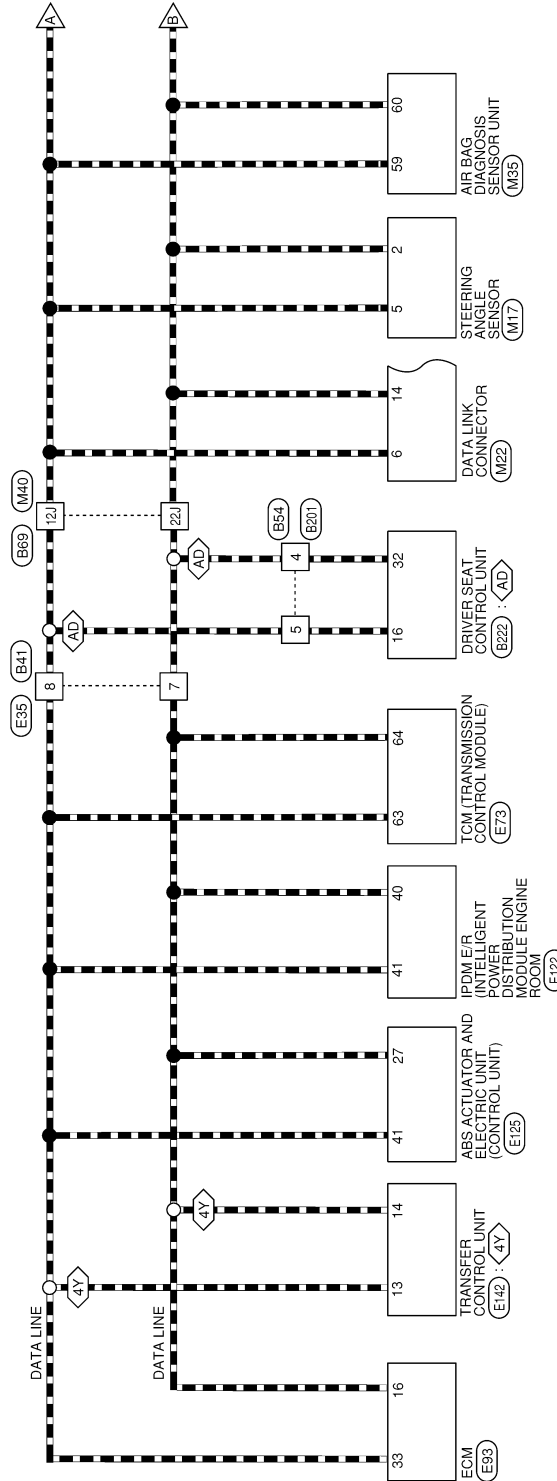
## CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

### Wiring Diagram

INFOID:000000012555438

- <AD> : WITH AUTOMATIC DRIVE POSITIONER
- <DL> : WITH ELECTRONIC LOCKING REAR DIFFERENTIAL
- <SV> : WITH SONAR SYSTEM
- <TH> : WITH TELEMATICS SYSTEM
- <WA> : WITH AUDIO AMPLIFIER
- <VM> : WITHOUT AUDIO AMPLIFIER
- <VD> : WITH WITH AROUND VIEW MONITOR
- <4Y> : WITH 4WD SYSTEM

### CAN SYSTEM - WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS

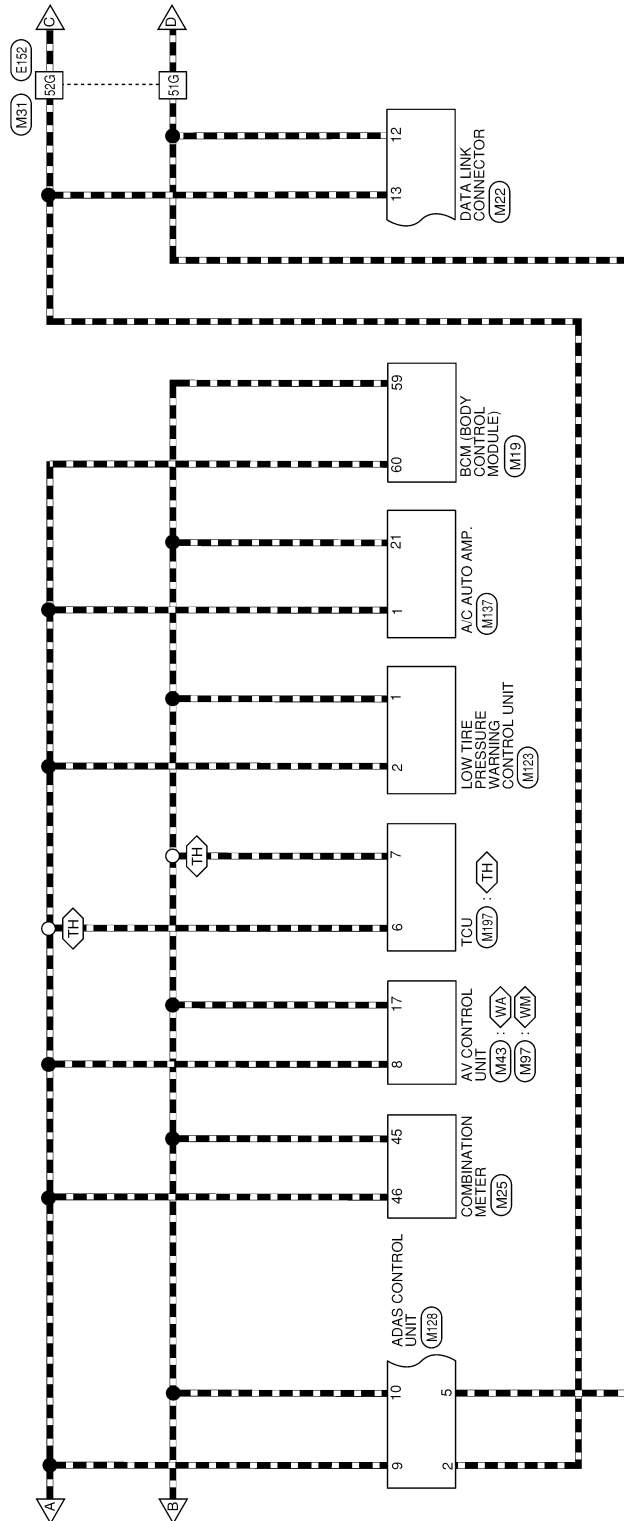


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]



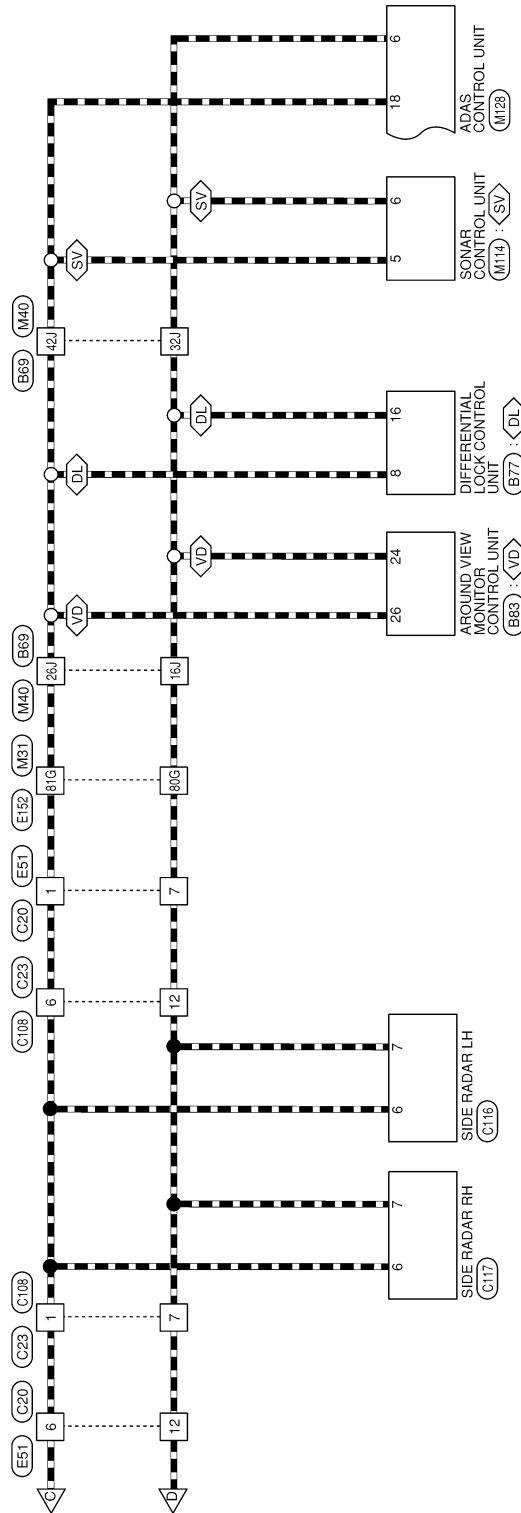
AAMWA1962GB



# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]

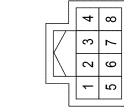


AAMWA1963GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

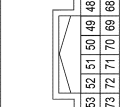
CAN SYSTEM CONNECTORS - WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS

Connector No.	M17
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH
Connector Color	WHITE



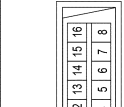
Terminal No.	Color of Wire	Signal Name
2	P	CAN-L
5	L	CAN-H

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
59	P	CAN-L
60	L	CAN-H

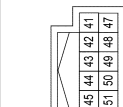
Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	L	-

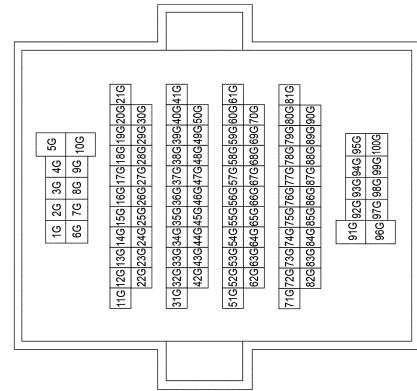
Terminal No.	Color of Wire	Signal Name
12	R	-
13	L	-
14	P	-

Connector No.	M25
Connector Name	COMBINATION METER
Connector Type	TH12FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
45	P	CAN-L
46	L	CAN-H

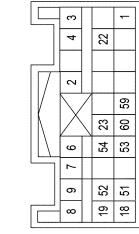
Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
51G	R	-
52G	L	-
80G	R	-

Terminal No.	Color of Wire	Signal Name
81G	L	-

Connector No.	M35
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX
Connector Color	YELLOW

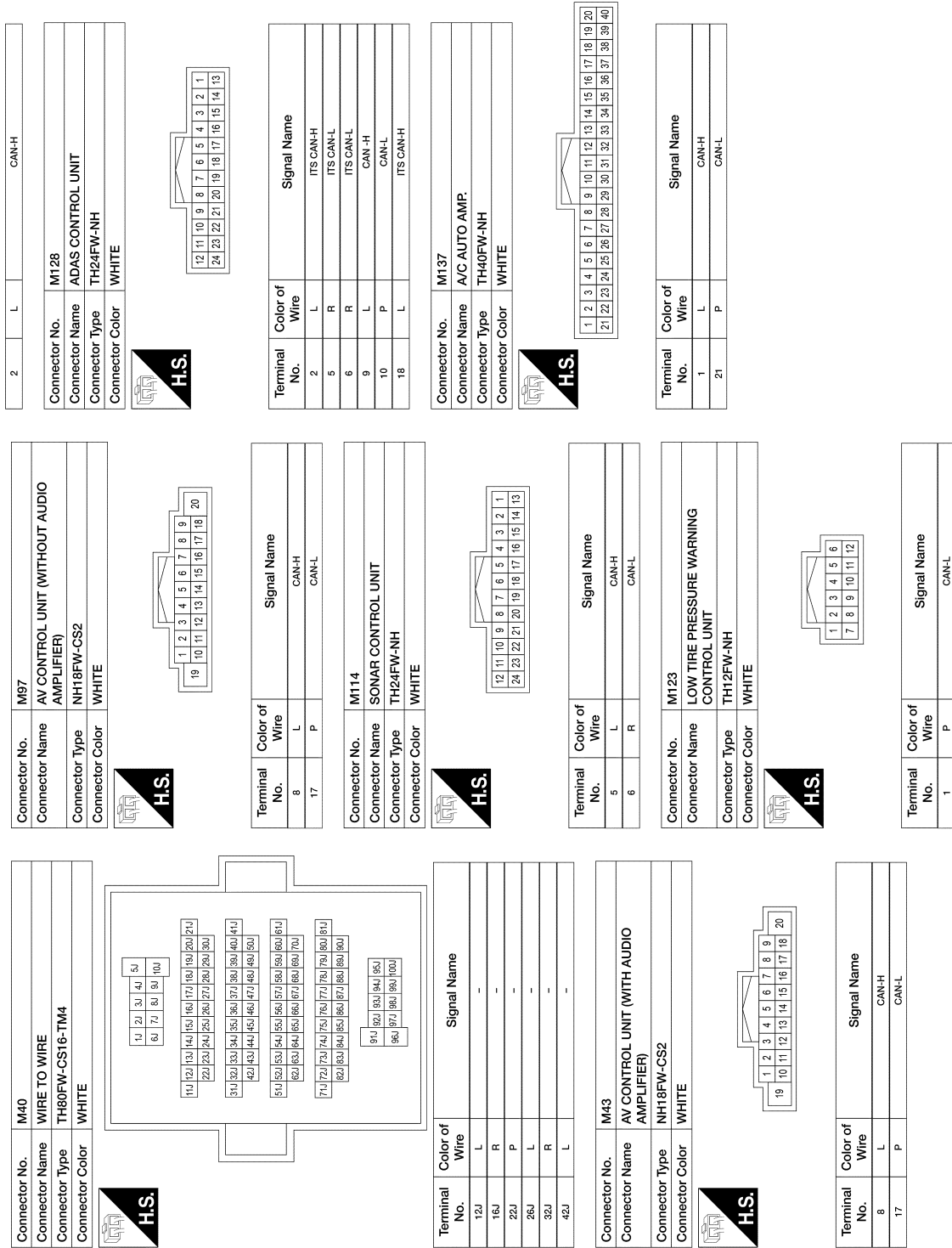


Terminal No.	Color of Wire	Signal Name
59	L	CAN-H
60	P	CAN-L

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]



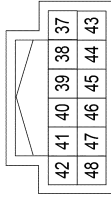
A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

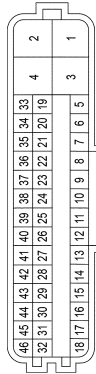
[CAN]

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH
Connector Color	WHITE



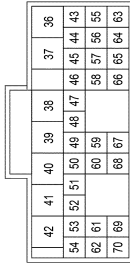
Terminal No.	Color of Wire	Signal Name
40	P	CAN-L
41	L	CAN-H

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ42FB-SJZ4
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
27	P	CAN-L
41	L	CAN-H

Connector No.	E73
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	AAH28FW-TK7
Connector Color	WHITE



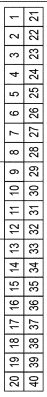
Terminal No.	Color of Wire	Signal Name
63	L	CAN-H
64	P	CAN-L

Connector No.	E83
Connector Name	ECM (WITH CUMMINS 5.0L)
Connector Type	1-928-405-452
Connector Color	BLACK



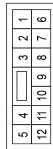
Terminal No.	Color of Wire	Signal Name
16	P	CAN-L
33	L	CAN-H

Connector No.	M197
Connector Name	TCU
Connector Type	TH40FB-NH
Connector Color	BLACK



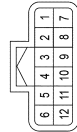
Terminal No.	Color of Wire	Signal Name
6	L	CAN-H
7	P	CAN-L

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	P	-
8	L	-

Connector No.	E51
Connector Name	WIRE TO WIRE
Connector Type	RH12FB
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	-
6	L	-
7	R	-

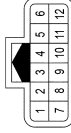
AAMIA3742GB

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

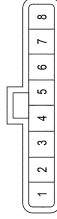
[CAN]

Connector No.	C108
Connector Name	WIRE TO WIRE
Connector Type	RH12MB
Connector Color	BLACK



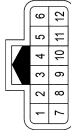
Terminal No.	Color of Wire	Signal Name
1	L	-
6	L	-
7	R	-
12	R	-

Connector No.	C116
Connector Name	SIDE RADAR LH
Connector Type	JAD08FB-5P
Connector Color	BLACK



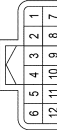
Terminal No.	Color of Wire	Signal Name
6	L	-
7	R	-

Connector No.	C20
Connector Name	WIRE TO WIRE
Connector Type	RH12MB
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	-
6	L	-
7	R	-
12	R	-

Connector No.	C23
Connector Name	WIRE TO WIRE
Connector Type	RH12FB
Connector Color	BLACK



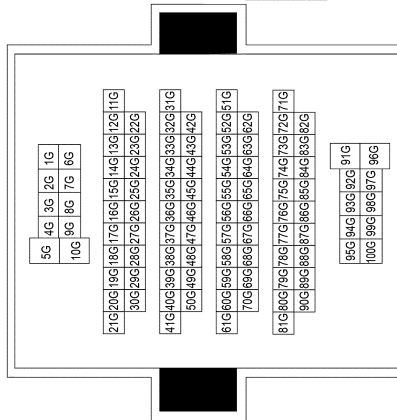
Terminal No.	Color of Wire	Signal Name
1	L	-
6	L	-
7	R	-
12	R	-

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Type	TH20FW-TB6
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
13	L	CAN-H
14	P	CAN-L

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
51G	R	-
52G	L	-
80G	R	-
81G	L	-

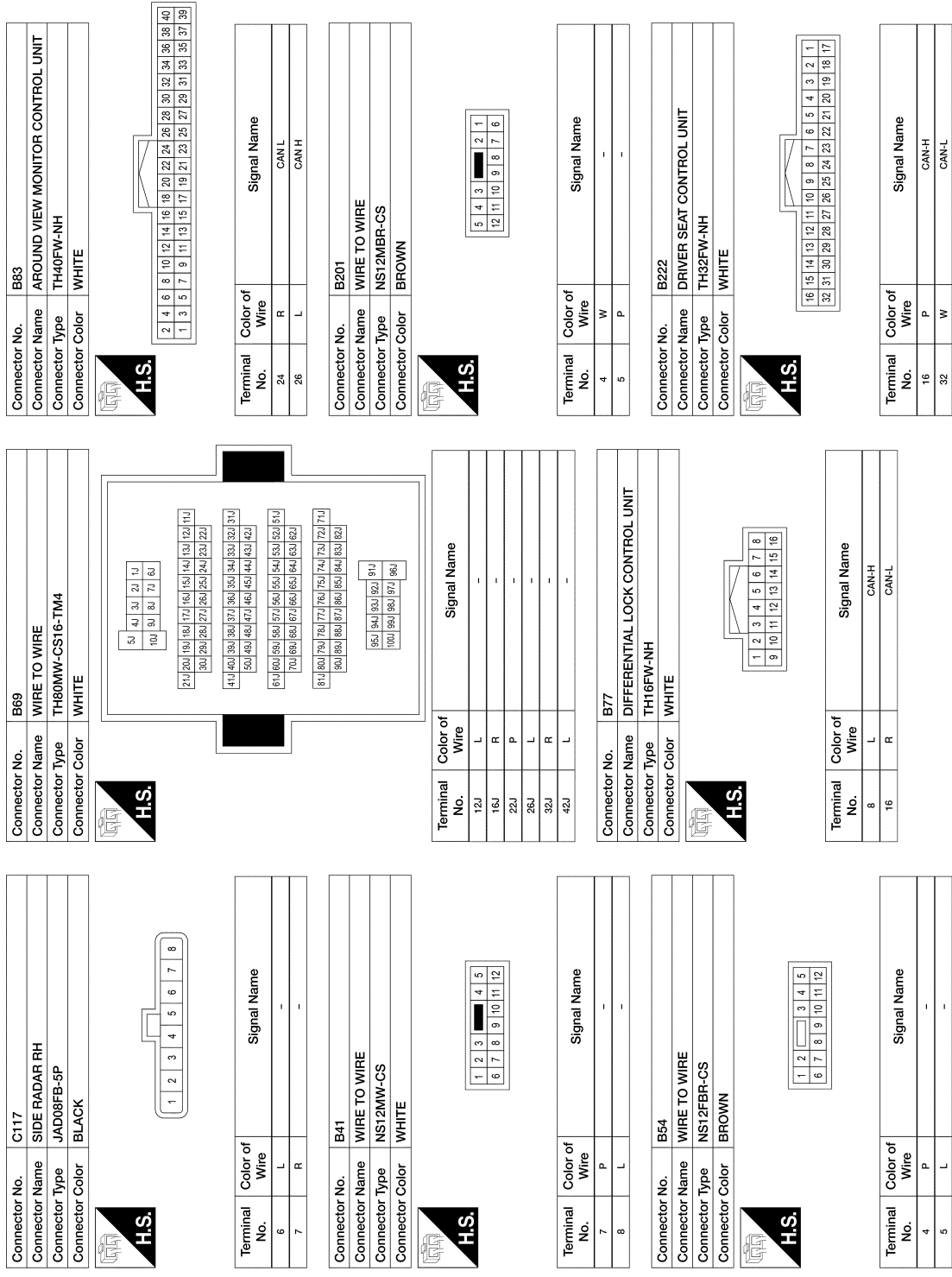
AAMIA3743GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITH NAVIGATION WITH BLIND SPOT WARNING SYSTEMS)

< WIRING DIAGRAM >

[CAN]



AAMIA3744GB

# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

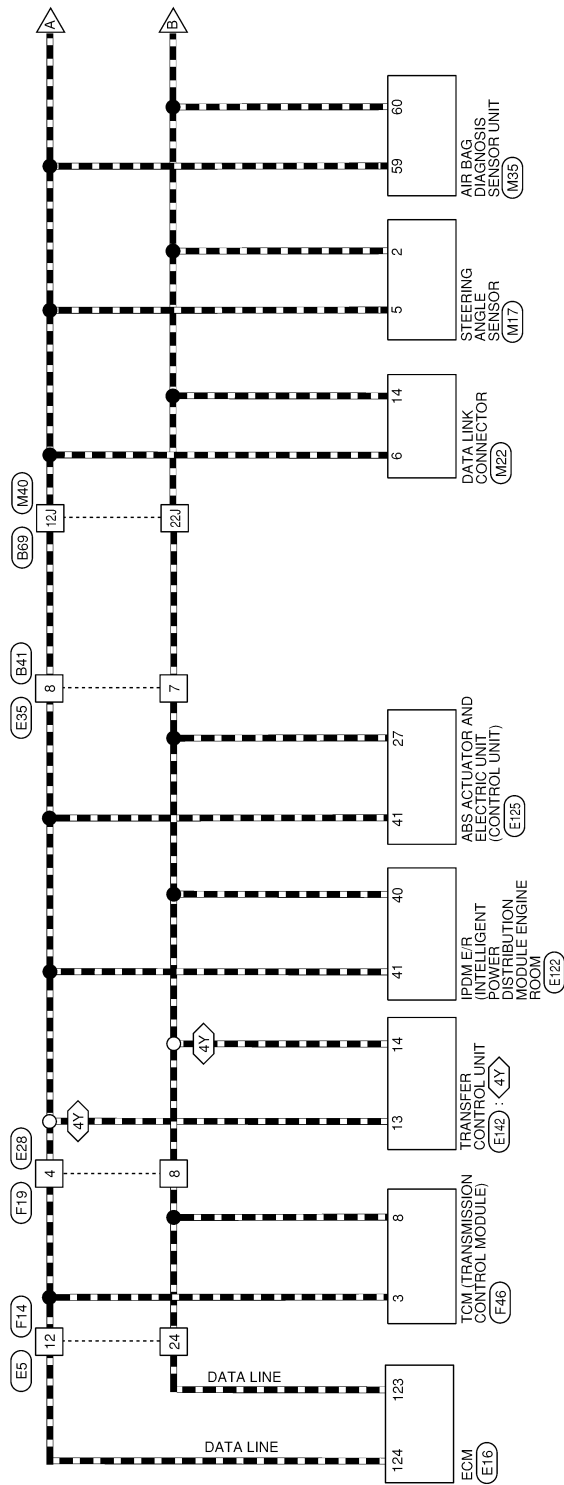
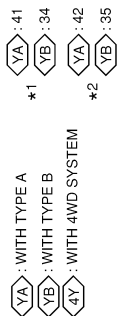
[CAN]

## CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

### Wiring Diagram

INFOID:000000013924193

#### CAN SYSTEM - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

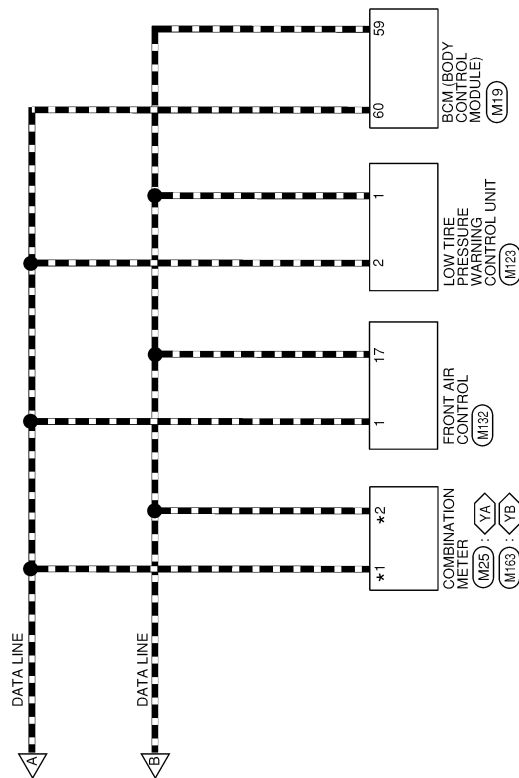


A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]



AAMWA2129GB



# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

[CAN]

< WIRING DIAGRAM >

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

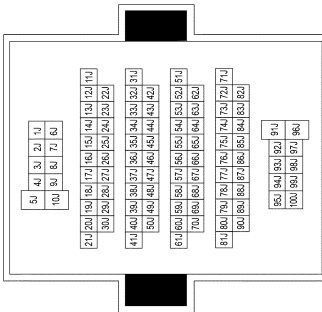
Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	Y	TO ENGINE ROOM HARNESS
2	V	TO ENGINE ROOM HARNESS
3	L	TO ENGINE ROOM HARNESS
4	L/G	TO ENGINE ROOM HARNESS
5	R/G	TO ENGINE ROOM HARNESS
6	SB	TO ENGINE ROOM HARNESS
7	P	TO ENGINE ROOM HARNESS
8	L	TO ENGINE ROOM HARNESS
9	SHIELD	TO ENGINE ROOM HARNESS
10	W/G	TO ENGINE ROOM HARNESS
11	L	TO ENGINE ROOM HARNESS
12	BR	TO ENGINE ROOM HARNESS

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	TO ENGINE ROOM HARNESS
2	V	TO ENGINE ROOM HARNESS
3	L	TO ENGINE ROOM HARNESS
4	L/G	TO ENGINE ROOM HARNESS
5	R/G	TO ENGINE ROOM HARNESS
6	SB	TO ENGINE ROOM HARNESS
7	P	TO ENGINE ROOM HARNESS
8	L	TO ENGINE ROOM HARNESS
9	SHIELD	TO ENGINE ROOM HARNESS
10	W/G	TO ENGINE ROOM HARNESS
11	L	TO ENGINE ROOM HARNESS
12	BR	TO ENGINE ROOM HARNESS

54J	L	TO MAIN HARNESS
55J	R	TO MAIN HARNESS
56J	W	TO MAIN HARNESS
57J	L/G	TO MAIN HARNESS
58J	O	TO MAIN HARNESS
59J	-	TO MAIN HARNESS
60J	SHIELD	TO MAIN HARNESS
61J	G	TO MAIN HARNESS
62J	-	TO MAIN HARNESS
63J	R/W	TO MAIN HARNESS
64J	L/W	TO MAIN HARNESS
65J	SHIELD	TO MAIN HARNESS
66J	B	TO MAIN HARNESS
67J	SHIELD	TO MAIN HARNESS
68J	O/V	TO MAIN HARNESS
69J	SHIELD	TO MAIN HARNESS
70J	BR	TO MAIN HARNESS
71J	L/W	TO MAIN HARNESS
72J	-	TO MAIN HARNESS
73J	-	TO MAIN HARNESS
74J	SHIELD	TO MAIN HARNESS
75J	L/G/B	TO MAIN HARNESS
76J	R	TO MAIN HARNESS
77J	SHIELD	TO MAIN HARNESS
78J	GR/B	TO MAIN HARNESS
79J	B	TO MAIN HARNESS
80J	W	TO MAIN HARNESS
81J	SHIELD	TO MAIN HARNESS
82J	L/R	TO MAIN HARNESS
83J	-	TO MAIN HARNESS
84J	-	TO MAIN HARNESS
85J	Y/B	TO MAIN HARNESS
86J	G	TO MAIN HARNESS
87J	B/R	TO MAIN HARNESS
88J	SHIELD	TO MAIN HARNESS
89J	GR/R	TO MAIN HARNESS
90J	L	TO MAIN HARNESS
91J	L/B	TO MAIN HARNESS
92J	SB	TO MAIN HARNESS
93J	B	TO MAIN HARNESS
94J	L	TO MAIN HARNESS
95J	L/G	TO MAIN HARNESS
96J	R	TO MAIN HARNESS
97J	B/Y	TO MAIN HARNESS
98J	L/B	TO MAIN HARNESS
99J	W/L	TO MAIN HARNESS
100J	SB	TO MAIN HARNESS

Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE



1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

Terminal No.	Color of Wire	Signal Name
1	L/R	TO ENGINE CONTROL HARNESS
2	BR	TO ENGINE CONTROL HARNESS
3	V	TO ENGINE CONTROL HARNESS
4	L/O	TO ENGINE CONTROL HARNESS
5	W	TO ENGINE CONTROL HARNESS
6	P	TO ENGINE CONTROL HARNESS
7	Y/R	TO ENGINE CONTROL HARNESS
8	BR	TO ENGINE CONTROL HARNESS
9	W/L	TO ENGINE CONTROL HARNESS
10	L/Y	TO ENGINE CONTROL HARNESS
11	SB	TO ENGINE CONTROL HARNESS
12	L	TO ENGINE CONTROL HARNESS
13	W/R	TO ENGINE CONTROL HARNESS
14	Y	TO ENGINE CONTROL HARNESS
15	B	TO ENGINE CONTROL HARNESS
16	B	TO ENGINE CONTROL HARNESS
17	Y/R	TO ENGINE CONTROL HARNESS
18	B	TO ENGINE CONTROL HARNESS
19	B/R	TO ENGINE CONTROL HARNESS
20	GR	TO ENGINE CONTROL HARNESS
21	W/R	TO ENGINE CONTROL HARNESS
22	B	TO ENGINE CONTROL HARNESS
23	B	TO ENGINE CONTROL HARNESS
24	P	TO ENGINE CONTROL HARNESS

A B C D E F G H I J K L N O P

LAN

AAMIA4285GB


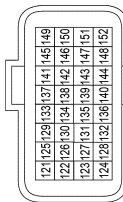
# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]


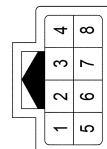
## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

Connector No.	E16
Connector Name	ECM (WITH VK56VD)
Connector Type	MAA24FB-MEA8-RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
121	O/B	FTPREF
122	-	-
123	P	CAN-L
124	L	CAN-H
125	SB	ACV3-FOR-FTPREF
126	-	-
127	-	-
128	V/W	TF
129	-	-
130	R/W	FPCK
131	-	-
132	-	-
133	W	IGNSW
134	G/Y	ASCDSW
135	B/Y	ASCDSW
136	GR	FPCIL(SIDE)
137	R/W	VEL-CAN-L
138	W	VEL-CAN-H
139	R/G	BREAK
140	G/Y	BNCDSW
141	Y	CDCV
142	L/W	AVCC2-AFS2
143	O	AFS2
144	P/L	GND-APS2
145	W	VBR
146	W/G	AVCC1-AFS1
147	B	GND
148	R	GND-FTPRES/TF
149	B	GND
150	W/R	AFS1
151	R/Y	GND-APS1
152	B	GND

Connector No.	E28
Connector Name	WIRE TO WIRE
Connector Type	RH08MB
Connector Color	BLACK


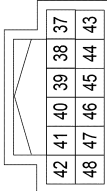
Terminal No.	Color of Wire	Signal Name
1	V	TO ENGINE CONTROL HARNESS
2	G	TO ENGINE CONTROL HARNESS
3	-	TO ENGINE CONTROL HARNESS
4	L	TO ENGINE CONTROL HARNESS
5	R	TO ENGINE CONTROL HARNESS
6	SB	TO ENGINE CONTROL HARNESS
7	L	TO ENGINE CONTROL HARNESS
8	P	TO ENGINE CONTROL HARNESS

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS
Connector Color	WHITE


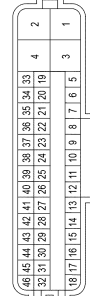
Terminal No.	Color of Wire	Signal Name
1	Y	TO BODY HARNESS
2	V	TO BODY HARNESS
3	L	TO BODY HARNESS
4	W	TO BODY HARNESS
5	R/G	TO BODY HARNESS
6	SB	TO BODY HARNESS
7	P	TO BODY HARNESS
8	L	TO BODY HARNESS
9	SHIELD	TO BODY HARNESS
10	B	TO BODY HARNESS
11	R	TO BODY HARNESS
12	BR	TO BODY HARNESS

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
37	-	-
38	-	-
39	L/Y	WIPER AUTO STOP SW
40	P	CAN-L
41	L	CAN-H
42	BR	DTL RLY
43	-	-
44	W/B	START CONT
45	GR	FUEL RLY CONT
46	Y	HOOD SW
47	-	-
48	R/W	HORN RLY CONT

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ42FB-SJ24
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	G	ABS SOL
2	B	GND 1
3	B	GND 2
4	W	MTR POWER 1
5	-	-
6	-	-
7	-	-

8	-	-	-
9	BR	-	YG CAN-H
10	LG	-	YG CAN-L
11	-	-	-
12	-	-	-
13	P/B	-	LBL
14	-	-	-
15	-	-	-
16	-	-	-
17	R/B	-	STP2
18	GR	-	IGN 1
19	V	-	FR SENS-
20	SB	-	FL SENS+
21	R	-	RR SENS-
22	V	-	RL SENS+
23	-	-	-
24	-	-	-
25	-	-	-
26	-	-	-
27	P	-	CAN-L
28	-	-	-
29	-	-	-
30	-	-	-
31	-	-	-
32	-	-	-
33	LG	-	FR SENS+
34	LG	-	FL SENS-
35	BR	-	RR SENS+
36	P	-	RL SENS-
37	R/G	-	STP
38	-	-	-
39	G	-	VDC OFF
40	-	-	-
41	L	-	CAN-H
42	-	-	-
43	G/W	-	HDC ON
44	-	-	-
45	-	-	-
46	W	-	STPO

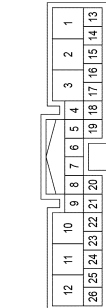
# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

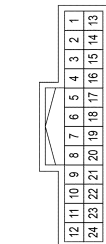
## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Type	TH20FV-TB6
Connector Color	WHITE



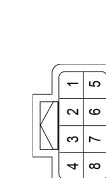
**H.S.**

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Type	TH24FW-NH
Connector Color	WHITE



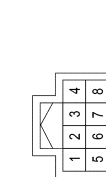
**H.S.**

Connector No.	F19
Connector Name	WIRE TO WIRE
Connector Type	RH08FB
Connector Color	BLACK



**H.S.**

Connector No.	M17
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FV-NH
Connector Color	WHITE



**H.S.**

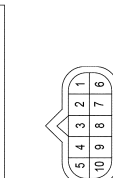
Terminal No.	Color of Wire	Signal Name
1	Y/R	ECU POWER
2	B	GND
3	B	GND
4	GR	IGN SW
5	L/O	ROTARY POSITION SENSOR 5V SUPPLY
6	Y	ROTARY POSITION SENSOR RETURN
7	-	-
8	-	-
9	Y/R	4WD SHIFT SWITCH 5V SUPPLY
10	G	MOTOR POWER
11	L	MOTOR A
12	BR	MOTOR B
13	L	CAN-H
14	P	CAN-L
15	W/R	ROTARY POSITION SENSOR INPUT
16	-	-
17	-	-
18	G/W	2WD MODE SW
19	O	4H MODE SW
20	R	4LO MODE SW
21	BR	RANGE 2 SENSOR INPUT
22	L/R	RANGE 1 SENSOR INPUT
23	V	MODE SENSOR INPUT
24	-	-
25	-	-
26	-	-

Terminal No.	Color of Wire	Signal Name
1	L/R	TO ENGINE ROOM HARNESS
2	BR	TO ENGINE ROOM HARNESS
3	V	TO ENGINE ROOM HARNESS
4	L/O	TO ENGINE ROOM HARNESS
5	W	TO ENGINE ROOM HARNESS
6	P	TO ENGINE ROOM HARNESS
7	Y/R	TO ENGINE ROOM HARNESS
8	BR	TO ENGINE ROOM HARNESS
9	W/L	TO ENGINE ROOM HARNESS
10	L/Y	TO ENGINE ROOM HARNESS
11	SB	TO ENGINE ROOM HARNESS
12	L	TO ENGINE ROOM HARNESS
13	W/R	TO ENGINE ROOM HARNESS
14	Y	TO ENGINE ROOM HARNESS
15	B	TO ENGINE ROOM HARNESS
16	B	TO ENGINE ROOM HARNESS
17	Y/R	TO ENGINE ROOM HARNESS
18	B	TO ENGINE ROOM HARNESS
19	B/R	TO ENGINE ROOM HARNESS
20	GR	TO ENGINE ROOM HARNESS
21	V/R	TO ENGINE ROOM HARNESS
22	SHIELD	TO ENGINE ROOM HARNESS
23	SHIELD	TO ENGINE ROOM HARNESS
24	P	TO ENGINE ROOM HARNESS

Terminal No.	Color of Wire	Signal Name
1	V	TO ENGINE ROOM HARNESS
2	LG	TO ENGINE ROOM HARNESS
3	-	TO ENGINE ROOM HARNESS
4	L	TO ENGINE ROOM HARNESS
5	R	TO ENGINE ROOM HARNESS
6	SB	TO ENGINE ROOM HARNESS
7	L	TO ENGINE ROOM HARNESS
8	P	TO ENGINE ROOM HARNESS

Terminal No.	Color of Wire	Signal Name
1	B	STRG ANGLE SENS GND
2	P	CAN-L
3	-	-
4	O/L	STRG ANGLE SENS POWER
5	L	CAN-H
6	-	-
7	-	-
8	-	-

Connector No.	F46
Connector Name	TCM (TRANSMISSION CONTROL MODULE) (WITH VK56VD)
Connector Type	RK10FG
Connector Color	GREEN



**H.S.**

Terminal No.	Color of Wire	Signal Name
1	Y/R	VIGN
2	P	BATT
3	L	CAN-H
4	BR	K-LINE
5	B	GND
6	Y/R	VIGN
7	R	REV LAMP RELAY
8	P	CAN-L
9	B/R	STARTER RELAY
10	B	GND

A B C D E F G H I J K L N O P

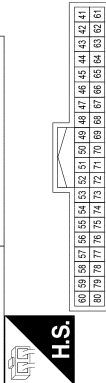
# CAN SYSTEM (WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

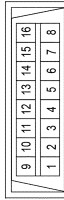
## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK



78	O/B	COMBI SW OUT 2
79	R/W	COMBI SW OUT 1
80	-	-

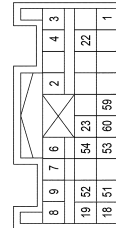
Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW
Connector Color	WHITE



3	Y	DR1 (+)
4	Y/B	DR1 & DR2 (-)
6	O	AS1 (+)
7	G	AS1 (-)
8	P	AS2 (+)
9	Y	AS2 (-)
18	G/R	ECZS (+)
19	G/R/B	ECZS (-)
22	SHIELD	ECZS GND
23	O	AIRBAG WARN LAMP
51	LG/B	DOOR SAT RH+
52	Y/B	DOOR SAT RH-
53	L	DOOR SAT LH-
54	W	DOOR SAT LH+
59	L	CAN-H
60	P	CAN-L

Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	LG	M-CAN-L
4	B	BODY GND
5	B	ENG GND
6	L	CAN-H
7	BR	K-LINE
8	G/R	IGN SW
9	-	-
10	-	-
11	SB	M-CAN-H
12	R	CAN-L
13	L	CAN-H
14	P	CAN-L
15	-	-
16	Y	BATTERY

Connector No.	M35
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX
Connector Color	YELLOW



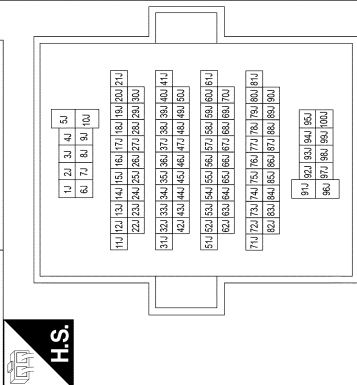
Terminal No.	Color of Wire	Signal Name
1	R	IGN
2	B	GND

Terminal No.	Color of Wire	Signal Name
41	YL	TRAILER LIGHT CHECK RELAY OUT
42	RY	CARGO LAMP OUT
43	-	-
44	-	LOCK LED
45	-	-
46	-	-
47	-	-
48	R	HIGH SIDE START SW LED
49	-	-
50	-	-
51	-	-
52	W	AUDIO DONGLE
53	-	-
54	W/L	PW UART
55	W/B	L&R SENSOR K-LINE
56	-	-
57	-	-
58	-	-
59	P	CAN-L
60	L	CAN-H
61	O	REAR DEFOGGER RELAY OUT
62	W	STARTER RELAY OUT
63	-	IKEY LINK SIGNAL
64	P	BUZZER OUT
65	-	-
66	W	BLOWER FAN RELAY OUT
67	G	IGN ELEC RELAY OUT 2
68	L	MR OUTPUT
69	R/B	AT DEVICE OUT
70	P	IGN USM OUT 1
71	O	DR REQUEST SW
72	G	AS REQUEST SW
73	-	-
74	-	DOOR LEV/C LOCK SW
75	L/W	COMBI SW OUT 5
76	P	COMBI SW OUT 4
77	L	COMBI SW OUT 3

AAMTA4288GB

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITHOUT DRIVER ASSISTANCE SYSTEM

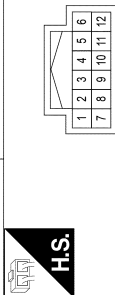
Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
28J	L	TO BODY HARNESS
29J	G/O	TO BODY HARNESS
30J	SB	TO BODY HARNESS
31J	L/G	TO BODY HARNESS
32J	R	TO BODY HARNESS
33J	BG	TO BODY HARNESS
34J	Y	TO BODY HARNESS
35J	P	TO BODY HARNESS
36J	G/R	TO BODY HARNESS
37J	LG	TO BODY HARNESS
38J	SB	TO BODY HARNESS
39J	Y	TO BODY HARNESS
40J	SB	TO BODY HARNESS
41J	L	TO BODY HARNESS
42J	L	TO BODY HARNESS
43J	W	TO BODY HARNESS
44J	BR	TO BODY HARNESS
45J	BG	TO BODY HARNESS
46J	P	TO BODY HARNESS
47J	O	TO BODY HARNESS
48J	V	TO BODY HARNESS
49J	BR	TO BODY HARNESS
50J	G/W	TO BODY HARNESS
51J	-	TO BODY HARNESS
52J	SHIELD	TO BODY HARNESS
53J	R	TO BODY HARNESS
54J	L	TO BODY HARNESS
55J	R	TO BODY HARNESS
56J	W	TO BODY HARNESS
57J	R	TO BODY HARNESS
58J	B	TO BODY HARNESS
59J	-	TO BODY HARNESS
60J	SHIELD	TO BODY HARNESS
61J	G	TO BODY HARNESS
62J	-	TO BODY HARNESS
63J	R/W	TO BODY HARNESS
64J	L/W	TO BODY HARNESS
65J	SHIELD	TO BODY HARNESS
66J	B	TO BODY HARNESS
67J	SHIELD	TO BODY HARNESS
68J	W	TO BODY HARNESS
69J	SHIELD	TO BODY HARNESS
70J	B/R	TO BODY HARNESS
71J	L/W	TO BODY HARNESS
72J	-	TO BODY HARNESS
73J	-	TO BODY HARNESS
74J	SHIELD	TO BODY HARNESS
75J	R	TO BODY HARNESS
76J	O	TO BODY HARNESS
77J	SHIELD	TO BODY HARNESS
78J	W	TO BODY HARNESS
79J	B	TO BODY HARNESS
80J	W	TO BODY HARNESS

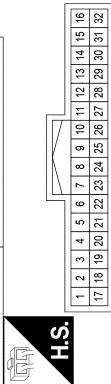
81J	SHIELD	TO BODY HARNESS
82J	L/R	TO BODY HARNESS
83J	-	TO BODY HARNESS
84J	-	TO BODY HARNESS
85J	W	TO BODY HARNESS
86J	G	TO BODY HARNESS
87J	W	TO BODY HARNESS
88J	SHIELD	TO BODY HARNESS
89J	R	TO BODY HARNESS
90J	L	TO BODY HARNESS
91J	L/B	TO BODY HARNESS
92J	SB	TO BODY HARNESS
93J	B	TO BODY HARNESS
94J	LG	TO BODY HARNESS
95J	L	TO BODY HARNESS
96J	G	TO BODY HARNESS
97J	B/Y	TO BODY HARNESS
98J	L/B	TO BODY HARNESS
99J	W/L	TO BODY HARNESS
100J	Y	TO BODY HARNESS

Connector No.	M123
Connector Name	LOW TIRE PRESSURE WARNING CONTROL UNIT
Connector Type	TH12FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H
3	-	-
4	-	-
5	-	-
6	-	-
7	W	IGN SW
8	-	-
9	-	-
10	B	GND
11	Y	+B
12	-	-

Connector No.	M132
Connector Name	FRONT AIR CONTROL
Connector Type	TH32FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	B	GND
3	SB	BAT
4	L	ILL+
5	-	-
6	-	-
7	-	-
8	-	-
9	W	IGN2(ACC)
10	P	FAN GATE
11	Y	RR DEF ON
12	G	LIN SIG
13	W	VACTR
14	-	-
15	W	WATER VALVE OPEN(WITH VK56VD)
16	-	-
17	P	CAN-L
18	B	GND(POWER)
19	G	IGN
20	GR	ILL-
21	R	SENS GND
22	P	INTAKE SENS
23	-	-
24	-	-
25	Y	COMP ON
26	L/W	FAN FB
27	B/W	RR DEF F/B
28	-	-
29	B	ACTR GND
30	W	FAN ON
31	L	WATER VALVE CLOSE(WITH VK56VD)
32	-	-

A B C D E F G H I J K L M N O P

# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

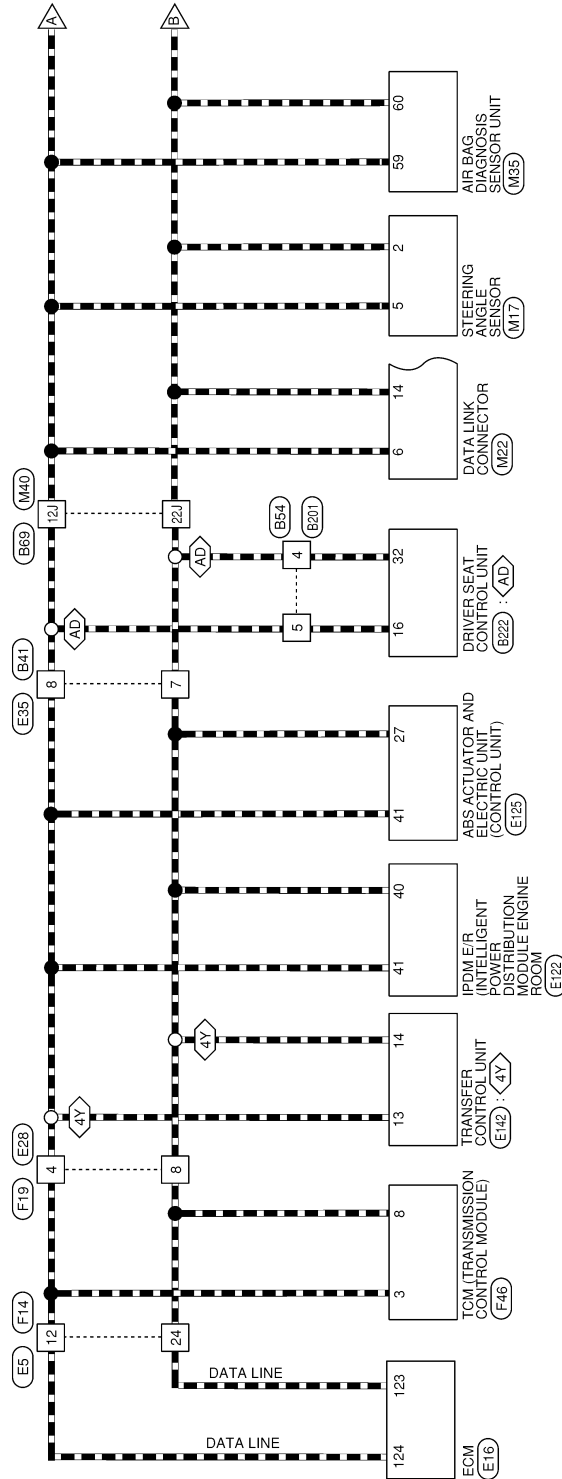
## CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

### Wiring Diagram

INFOID:000000013924192

- ◊AD◊ : WITH AUTOMATIC DRIVE POSITIONER
- ◊DL◊ : WITH ELECTRONIC LOCKING REAR DIFFERENTIAL
- ◊SL◊ : WITH SONAR SYSTEM
- ◊TH◊ : WITH TELEMATICS SYSTEM
- ◊WA◊ : WITH AUDIO AMPLIFIER
- ◊VM◊ : WITHOUT AUDIO AMPLIFIER
- ◊VD◊ : WITH AROUND VIEW MONITOR
- ◊4Y◊ : WITH 4WD SYSTEM

### CAN SYSTEM - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

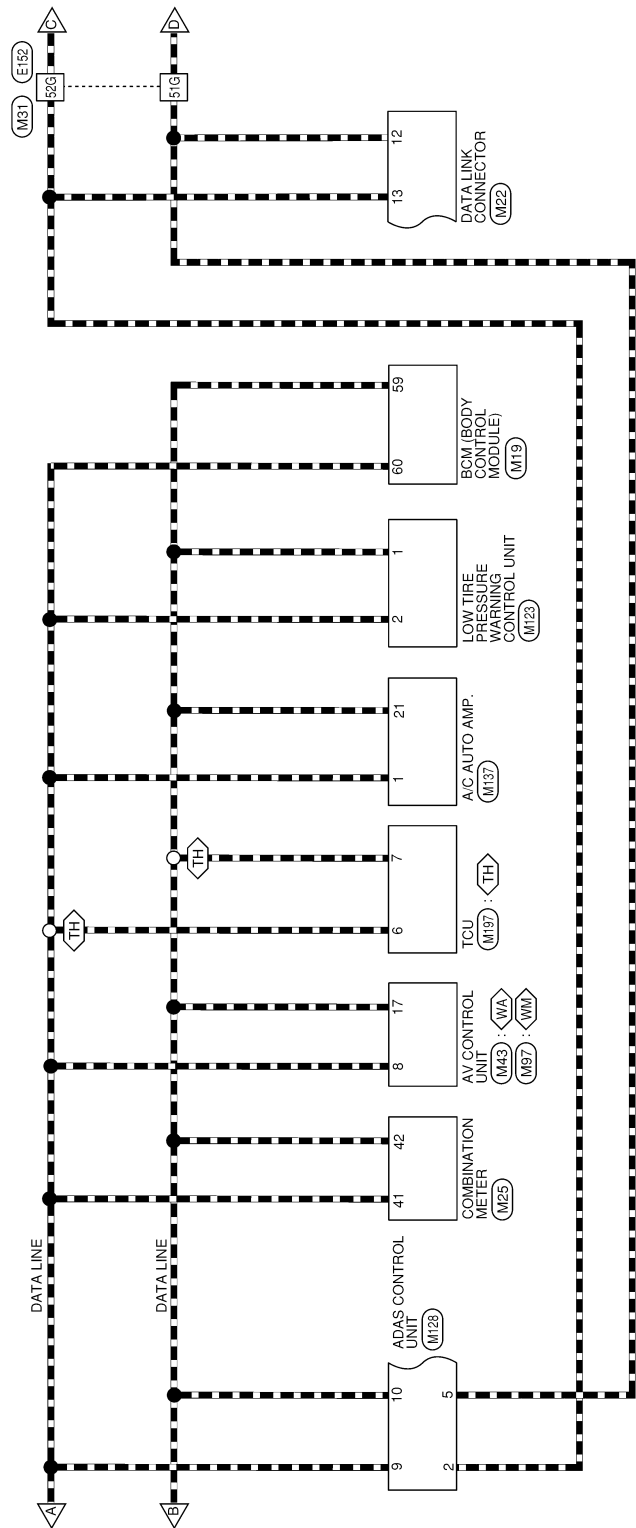


AAMWA2125GB

# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]



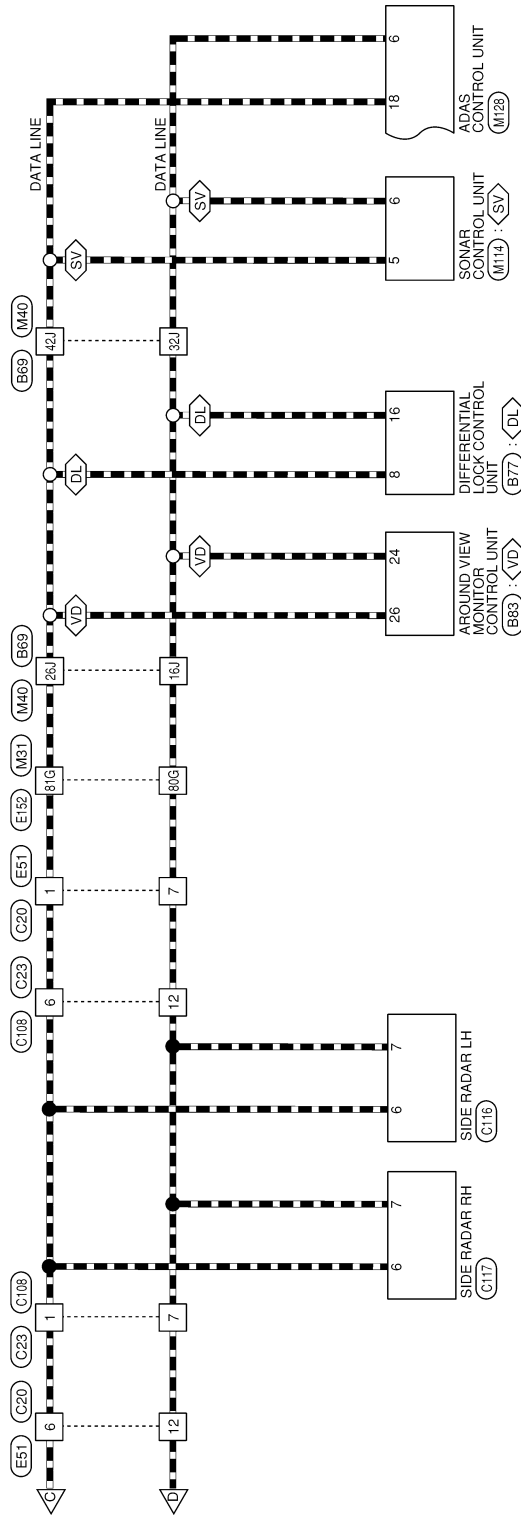
AAMWA2126GB

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]



AAMWA2127GB



# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	B41
Connector Name	WIRE TO WIRE
Connector Type	NS12MW-CS
Connector Color	WHITE



1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	Y	TO ENGINE ROOM HARNESS
2	V	TO ENGINE ROOM HARNESS
3	L	TO ENGINE ROOM HARNESS
4	L/G	TO ENGINE ROOM HARNESS
5	R/G	TO ENGINE ROOM HARNESS
6	SB	TO ENGINE ROOM HARNESS
7	P	TO ENGINE ROOM HARNESS
8	L	TO ENGINE ROOM HARNESS
9	SHIELD	TO ENGINE ROOM HARNESS
10	W/G	TO ENGINE ROOM HARNESS
11	L	TO ENGINE ROOM HARNESS
12	BR	TO ENGINE ROOM HARNESS

Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Type	NS12FBR-CS
Connector Color	BROWN



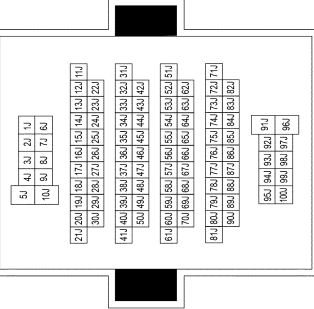
1	2	3	4	5		
6	7	8	9	10	11	12

Terminal No.	Color of Wire	Signal Name
1	L	TO FRONT SEAT LH HARNESS
2	BR	TO FRONT SEAT LH HARNESS
3	B	TO FRONT SEAT LH HARNESS
4	P	TO FRONT SEAT LH HARNESS
5	L	TO FRONT SEAT LH HARNESS
6	L/B	TO FRONT SEAT LH HARNESS
7	Y/L	TO FRONT SEAT LH HARNESS
8	BR/Y	TO FRONT SEAT LH HARNESS
9	V	TO FRONT SEAT LH HARNESS
10	L/G/B	TO FRONT SEAT LH HARNESS
11	SB	TO FRONT SEAT LH HARNESS

AAMI4274GB

12	Y/G/R	TO FRONT SEAT LH HARNESS
----	-------	--------------------------

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
26J	L	TO MAIN HARNESS
27J	R	TO MAIN HARNESS
28J	L	TO MAIN HARNESS
29J	G/O	TO MAIN HARNESS
30J	SB	TO MAIN HARNESS
31J	LG	TO MAIN HARNESS
32J	R	TO MAIN HARNESS
33J	L	TO MAIN HARNESS
34J	Y	TO MAIN HARNESS
35J	P	TO MAIN HARNESS
36J	G/R	TO MAIN HARNESS
37J	L/G/B	TO MAIN HARNESS
38J	SB	TO MAIN HARNESS
39J	Y/L	TO MAIN HARNESS
40J	BR	TO MAIN HARNESS
41J	L	TO MAIN HARNESS
42J	L	TO MAIN HARNESS
43J	SB	TO MAIN HARNESS
44J	BR	TO MAIN HARNESS
45J	BG	TO MAIN HARNESS
46J	P/Y	TO MAIN HARNESS
47J	Y/G/R	TO MAIN HARNESS
48J	V	TO MAIN HARNESS
49J	BR/Y	TO MAIN HARNESS
50J	G/W	TO MAIN HARNESS
51J	-	TO MAIN HARNESS
52J	SHIELD	TO MAIN HARNESS
53J	R	TO MAIN HARNESS
54J	L	TO MAIN HARNESS
55J	R	TO MAIN HARNESS
56J	W	TO MAIN HARNESS
57J	L/G	TO MAIN HARNESS
58J	O	TO MAIN HARNESS
59J	-	TO MAIN HARNESS
60J	SHIELD	TO MAIN HARNESS
61J	G	TO MAIN HARNESS
62J	-	TO MAIN HARNESS
63J	R/W	TO MAIN HARNESS
64J	L/W	TO MAIN HARNESS
65J	SHIELD	TO MAIN HARNESS
66J	B	TO MAIN HARNESS
67J	SHIELD	TO MAIN HARNESS
68J	O/L	TO MAIN HARNESS
69J	SHIELD	TO MAIN HARNESS
70J	BR	TO MAIN HARNESS
71J	L/W	TO MAIN HARNESS
72J	-	TO MAIN HARNESS
73J	-	TO MAIN HARNESS
74J	SHIELD	TO MAIN HARNESS
75J	L/G/B	TO MAIN HARNESS
76J	R	TO MAIN HARNESS
77J	SHIELD	TO MAIN HARNESS

Terminal No.	Color of Wire	Signal Name
78J	G/R/B	TO MAIN HARNESS
79J	B	TO MAIN HARNESS
80J	W	TO MAIN HARNESS
81J	SHIELD	TO MAIN HARNESS
82J	L/R	TO MAIN HARNESS
83J	-	TO MAIN HARNESS
84J	-	TO MAIN HARNESS
85J	Y/B	TO MAIN HARNESS
86J	G	TO MAIN HARNESS
87J	B/R	TO MAIN HARNESS
88J	SHIELD	TO MAIN HARNESS
89J	G/R	TO MAIN HARNESS
90J	L	TO MAIN HARNESS
91J	L/B	TO MAIN HARNESS
92J	SB	TO MAIN HARNESS
93J	B	TO MAIN HARNESS
94J	L	TO MAIN HARNESS
95J	LG	TO MAIN HARNESS
96J	R	TO MAIN HARNESS
97J	B/Y	TO MAIN HARNESS
98J	L/B	TO MAIN HARNESS
99J	W/L	TO MAIN HARNESS
100J	SB	TO MAIN HARNESS

A B C D E F G H I J K L N O P

LAN

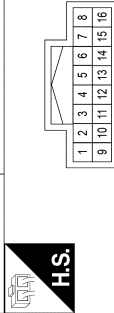
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	B77
Connector Name	DIFFERENTIAL LOCK CONTROL UNIT
Connector Type	TH16FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y	SOLENOID (+)
2	V	SOLENOID (-)
3	-	-
4	-	-
5	G/O	DIFF LOCK ON SW
6	-	-
7	P	IGN
8	L	CAN-H
9	BR	SOL BATT
10	B	GND
11	B	GND
12	L	DIFF LOCK POSITION SW
13	-	-
14	O	DIFF LOCK OFF SW
15	Y/R	VBATT
16	R	CAN-L

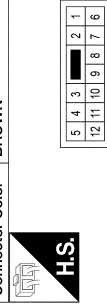
Connector No.	B83
Connector Name	AROUND VIEW MONITOR CONTROL UNIT
Connector Type	TH40FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	SHIELD	VIDEO OUTPUT GND
4	G	VIDEO OUTPUT SIGNAL
5	L/G	FV POWER GND

6	L	FV POWER 6.2V
7	SHIELD	FV VIDEO GND
8	W/G	FV VIDEO SIGNAL
9	O/L	SV1 POWER GND
10	O	SV1 POWER 6.2V
11	SHIELD	SV1 VIDEO GND
12	L/G	SV1 VIDEO SIGNAL
13	B	SV2 POWER GND
14	W	SV2 POWER 6.2V
15	SHIELD	SV2 VIDEO GND
16	R	SV2 VIDEO SIGNAL
17	L/W	RV POWER GND
18	R/W	RV POWER 6.2V
19	L	RV VIDEO GND
20	R	RV VIDEO SIGNAL
21	-	-
22	-	-
23	-	-
24	R	CAN-L
25	-	-
26	L	CAN-H
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	G/W	REVERSE
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	B	GND
40	G/R	IGN

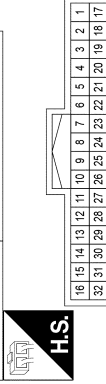
Connector No.	B201
Connector Name	WIRE TO WIRE
Connector Type	NS12MBR-CS
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	BR	TO BODY HARNESS
2	W	TO BODY HARNESS
3	B	TO BODY HARNESS

4	W	TO BODY HARNESS
5	P	TO BODY HARNESS
6	R	TO BODY HARNESS
7	Y	TO BODY HARNESS
8	G	TO BODY HARNESS
9	V	TO BODY HARNESS
10	GR	TO BODY HARNESS
11	L	TO BODY HARNESS
12	SB	TO BODY HARNESS

Connector No.	B222
Connector Name	DRIVER SEAT CONTROL UNIT
Connector Type	TH32FW-NH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	-	-
4	-	-
5	W	POWER SUPPLY (ENCODER)
6	R	REAR LIFTER SW (DOWNWARD)
7	Y	FRONT LIFTER SW (DOWNWARD)
8	BR	RECLINER SW (BACKWARD)
9	SB	SLIDE SW (BACKWARD)
10	G	IND 2
11	GR	ADDRESS 2
12	W	PULSE (TELESCOPI)
13	G	PULSE (RECLINER)
14	-	-
15	SB	URAT (TX/RX)
16	P	CAN-H
17	-	-
18	-	-
19	-	-
20	-	-
21	L	SET SW
22	V	REAR LIFTER SW (UPWARD)
23	G	FRONT LIFTER SW (UPWARD)
24	P	RECLINER SW (FORWARD)
25	L	SLIDE SW (FORWARD)
26	Y	IND 1
27	V	ADDRESS 1
28	BR	PULSE(TILT)

29	R	PULSE (REAR LIFTER)
30	Y	PULSE (FRONT LIFTER)
31	LG	PULSE (SLIDE)
32	W	CAN-L

Connector No.	C20
Connector Name	WIRE TO WIRE
Connector Type	RH12MB
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	L	TO ENGINE ROOM HARNESS
2	B	TO ENGINE ROOM HARNESS
3	Y	TO ENGINE ROOM HARNESS
4	W	TO ENGINE ROOM HARNESS
5	LG	TO ENGINE ROOM HARNESS
6	L	TO ENGINE ROOM HARNESS
7	R	TO ENGINE ROOM HARNESS
8	-	TO ENGINE ROOM HARNESS
9	-	TO ENGINE ROOM HARNESS
10	-	TO ENGINE ROOM HARNESS
11	-	TO ENGINE ROOM HARNESS
12	R	TO ENGINE ROOM HARNESS

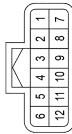
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

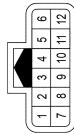
Connector No.	C23
Connector Name	WIRE TO WIRE
Connector Type	RH12FB
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
1	L	TO SIDE RADAR SUB HARNESS
2	B	TO SIDE RADAR SUB HARNESS
3	-	TO SIDE RADAR SUB HARNESS
4	-	TO SIDE RADAR SUB HARNESS
5	LG	TO SIDE RADAR SUB HARNESS
6	L	TO SIDE RADAR SUB HARNESS
7	R	TO SIDE RADAR SUB HARNESS
8	Y	TO SIDE RADAR SUB HARNESS
9	-	TO SIDE RADAR SUB HARNESS
10	-	TO SIDE RADAR SUB HARNESS
11	W	TO SIDE RADAR SUB HARNESS
12	R	TO SIDE RADAR SUB HARNESS

Connector No.	C108
Connector Name	WIRE TO WIRE
Connector Type	RH12MB
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
1	L	TO CHASSIS HARNESS
2	B	TO CHASSIS HARNESS
3	-	TO CHASSIS HARNESS
4	-	TO CHASSIS HARNESS
5	LG	TO CHASSIS HARNESS
6	L	TO CHASSIS HARNESS
7	R	TO CHASSIS HARNESS
8	R	TO CHASSIS HARNESS
9	-	TO CHASSIS HARNESS
10	-	TO CHASSIS HARNESS
11	W	TO CHASSIS HARNESS

AAIMIA4276CB

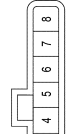
Connector No.	R
Connector Name	TO CHASSIS HARNESS
Connector Type	C116
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	-	-
4	W	SIGNAL
5	LG	IGN
6	L	CAN-H
7	R	CAN-L
8	B	GND

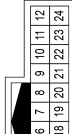
Connector No.	C117
Connector Name	SIDE RADAR RH
Connector Type	JAD08FB-5P
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	B	ADDRESS
4	R	SIGNAL
5	LG	IGN
6	L	CAN-H
7	R	CAN-L
8	B	GND

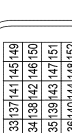
Connector No.	E5
Connector Name	WIRE TO WIRE
Connector Type	TH24MW-NH
Connector Color	WHITE



H.S.

Terminal No.	Color of Wire	Signal Name
1	L/R	TO ENGINE CONTROL HARNESS
2	BR	TO ENGINE CONTROL HARNESS
3	V	TO ENGINE CONTROL HARNESS
4	L/O	TO ENGINE CONTROL HARNESS
5	W	TO ENGINE CONTROL HARNESS
6	P	TO ENGINE CONTROL HARNESS
7	Y/R	TO ENGINE CONTROL HARNESS
8	BR	TO ENGINE CONTROL HARNESS
9	WL	TO ENGINE CONTROL HARNESS
10	L/Y	TO ENGINE CONTROL HARNESS
11	SB	TO ENGINE CONTROL HARNESS
12	L	TO ENGINE CONTROL HARNESS
13	W/R	TO ENGINE CONTROL HARNESS
14	Y	TO ENGINE CONTROL HARNESS
15	B	TO ENGINE CONTROL HARNESS
16	B	TO ENGINE CONTROL HARNESS
17	Y/R	TO ENGINE CONTROL HARNESS
18	B	TO ENGINE CONTROL HARNESS
19	B/R	TO ENGINE CONTROL HARNESS
20	GR	TO ENGINE CONTROL HARNESS
21	V/R	TO ENGINE CONTROL HARNESS
22	B	TO ENGINE CONTROL HARNESS
23	B	TO ENGINE CONTROL HARNESS
24	P	TO ENGINE CONTROL HARNESS

Connector No.	E16
Connector Name	ECM (WITH VK56VD)
Connector Type	MAA24FB-MEAB-RH
Connector Color	BLACK



H.S.

Terminal No.	Color of Wire	Signal Name
121	O/B	FTPREF
122	-	-
123	P	CAN-L
124	L	CAN-H
125	SB	ACW3-FOR-FTPREF
126	-	-
127	-	-
128	V/W	TF
129	-	-
130	R/W	FPCKK
131	-	-
132	-	-
133	W	IGNSW
134	G/Y	ASCDISW
135	B/Y	GND-ASCD
136	GR	FPCL(SIDE)
137	R/W	VEL-CAN-L
138	W	VEL-CAN-H
139	R/G	BREAK
140	G/Y	BNSW
141	Y	GDCV
142	L/W	AVCC2-APS2
143	O	APS2
144	P/L	GND-APS2
145	W	VBR
146	W/G	AVCC1-APS1
147	B	GND
148	R	GND-FTPRES/TF
149	B	GND
150	W/R	APS1
151	R/Y	GND-APS1
152	B	GND

A B C D E F G H I J K L N O P

LAN


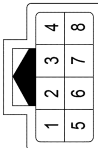
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]


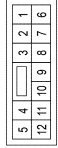
## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	E28
Connector Name	WIRE TO WIRE
Connector Type	RH08MB
Connector Color	BLACK


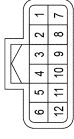
Terminal No.	Color of Wire	Signal Name
1	V	TO ENGINE CONTROL HARNESS
2	G	TO ENGINE CONTROL HARNESS
3	-	TO ENGINE CONTROL HARNESS
4	L	TO ENGINE CONTROL HARNESS
5	R	TO ENGINE CONTROL HARNESS
6	SB	TO ENGINE CONTROL HARNESS
7	L	TO ENGINE CONTROL HARNESS
8	P	TO ENGINE CONTROL HARNESS

Connector No.	E35
Connector Name	WIRE TO WIRE
Connector Type	NS12FW-CS
Connector Color	WHITE


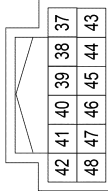
Terminal No.	Color of Wire	Signal Name
1	Y	TO BODY HARNESS
2	V	TO BODY HARNESS
3	L	TO BODY HARNESS
4	W	TO BODY HARNESS
5	R/G	TO BODY HARNESS
6	SB	TO BODY HARNESS
7	P	TO BODY HARNESS
8	L	TO BODY HARNESS
9	SHIELD	TO BODY HARNESS
10	B	TO BODY HARNESS
11	R	TO BODY HARNESS
12	BR	TO BODY HARNESS

Connector No.	E51
Connector Name	WIRE TO WIRE
Connector Type	RH12FB
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	L	TO CHASSIS HARNESS
2	B	TO CHASSIS HARNESS
3	R	TO CHASSIS HARNESS
4	W	TO CHASSIS HARNESS
5	G	TO CHASSIS HARNESS
6	L	TO CHASSIS HARNESS
7	R	TO CHASSIS HARNESS
8	-	TO CHASSIS HARNESS
9	-	TO CHASSIS HARNESS
10	-	TO CHASSIS HARNESS
11	-	TO CHASSIS HARNESS
12	R	TO CHASSIS HARNESS



Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
37	-	-
38	-	-
39	L/Y	WIPER AUTO STOP SW
40	P	CAN-L
41	L	CAN-H
42	BR	DTRL RLY
43	-	-
44	W/B	START CONT
45	GR	FUEL RLY CONT

46	Y	HOOD SW
47	-	-
48	R/W	HORN RLY CONT

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ42FB-SJZ4
Connector Color	BLACK

Terminal No.	Color of Wire	Signal Name
1	G	ABS SOL
2	B	GND 1
3	B	GND 2
4	W	MTR POWER 1
5	-	-
6	-	-
7	-	-
8	-	-
9	BR	YG CAN-H
10	LG	YG CAN-L
11	-	-
12	-	-
13	P/B	LBL
14	-	-
15	-	-
16	-	-
17	R/B	STP2
18	GR	IGN 1
19	V	FR SENS-
20	SB	FL SENS+
21	R	RR SENS-
22	V	RL SENS+
23	-	-
24	-	-
25	-	-
26	-	-
27	P	CAN-L
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	LG	FR SENS+

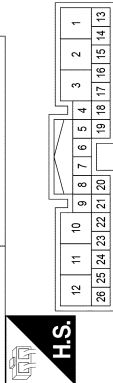
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

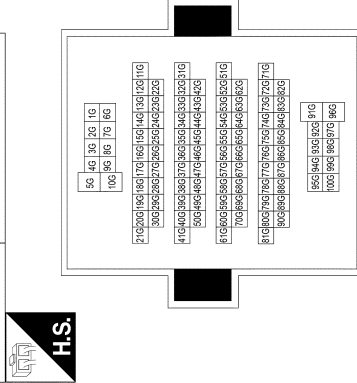
[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Type	TH20FV-TB6
Connector Color	WHITE



Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	Y/R	ECU POWER
2	B	GND
3	B	GND
4	GR	IGN SW
5	L/O	ROTARY POSITION SENSOR 5V SUPPLY
6	Y	ROTARY POSITION SENSOR RETURN
7	-	-
8	-	-
9	Y/R	4WD SHIFT SWITCH 5V SUPPLY
10	G	MOTOR POWER
11	L	MOTOR A
12	BR	MOTOR B
13	L	CAN-H
14	P	CAN-L
15	W/R	ROTARY POSITION SENSOR INPUT
16	-	-
17	-	-
18	G/W	2WD MODE SW
19	O	4H MODE SW
20	R	4L MODE SW
21	BR	RANGE 2 SENSOR INPUT
22	L/R	RANGE 1 SENSOR INPUT
23	V	MODE SENSOR INPUT
24	-	-
25	-	-
26	-	-

Terminal No.	Color of Wire	Signal Name
1G	G	TO MAIN HARNESS
2G	B/R	TO MAIN HARNESS
3G	W/B	TO MAIN HARNESS
4G	BR/W	TO MAIN HARNESS
5G	BR	TO MAIN HARNESS
6G	R/W	TO MAIN HARNESS
7G	Y	TO MAIN HARNESS
8G	G	TO MAIN HARNESS
9G	R	TO MAIN HARNESS
10G	W	TO MAIN HARNESS
11G	R/G	TO MAIN HARNESS
12G	W/B	TO MAIN HARNESS
13G	BR	TO MAIN HARNESS
14G	Y/B	TO MAIN HARNESS
15G	G/W	TO MAIN HARNESS
16G	G	TO MAIN HARNESS
17G	G/Y	TO MAIN HARNESS
18G	G/Y	TO MAIN HARNESS
19G	Y/W	TO MAIN HARNESS
20G	G/Y	TO MAIN HARNESS
21G	B/Y	TO MAIN HARNESS
22G	G/R	TO MAIN HARNESS - (WITH CUMMINS V8)
22G	G/Y	TO MAIN HARNESS - (WITH VK56VD)
23G	Y/R	TO MAIN HARNESS

24G	G/B	TO MAIN HARNESS
25G	R/W	TO MAIN HARNESS
26G	R	TO MAIN HARNESS
27G	LG	TO MAIN HARNESS
28G	G/B	TO MAIN HARNESS
29G	G/B	TO MAIN HARNESS
30G	BR/Y	TO MAIN HARNESS
31G	P	TO MAIN HARNESS
32G	P	TO MAIN HARNESS
33G	Y/L	TO MAIN HARNESS
34G	GR	TO MAIN HARNESS
35G	G/R	TO MAIN HARNESS
36G	SB	TO MAIN HARNESS
37G	R/W	TO MAIN HARNESS
38G	BR	TO MAIN HARNESS
39G	BR	TO MAIN HARNESS
40G	-	TO MAIN HARNESS
41G	R/G	TO MAIN HARNESS
42G	O	TO MAIN HARNESS
43G	B	TO MAIN HARNESS
44G	R/Y	TO MAIN HARNESS
46G	G	TO MAIN HARNESS
46G	LG	TO MAIN HARNESS
47G	R	TO MAIN HARNESS
48G	W	TO MAIN HARNESS
49G	-	TO MAIN HARNESS
50G	BR	TO MAIN HARNESS
51G	R	TO MAIN HARNESS
52G	L	TO MAIN HARNESS
53G	W	TO MAIN HARNESS
54G	W	TO MAIN HARNESS
55G	G	TO MAIN HARNESS
56G	W	TO MAIN HARNESS
57G	Y	TO MAIN HARNESS
58G	BG	TO MAIN HARNESS
59G	BG	TO MAIN HARNESS
60G	BG	TO MAIN HARNESS
61G	B	TO MAIN HARNESS
62G	W	TO MAIN HARNESS
63G	R	TO MAIN HARNESS
64G	W/L	TO MAIN HARNESS
65G	W/R	TO MAIN HARNESS
66G	BG	TO MAIN HARNESS
67G	BG	TO MAIN HARNESS
68G	B	TO MAIN HARNESS
69G	Y	TO MAIN HARNESS
70G	L	TO MAIN HARNESS
71G	R/W	TO MAIN HARNESS
72G	L/W	TO MAIN HARNESS
73G	SHIELD	TO MAIN HARNESS
74G	W	TO MAIN HARNESS
75G	R	TO MAIN HARNESS
76G	R/G	TO MAIN HARNESS

77G	G	TO MAIN HARNESS
78G	W	TO MAIN HARNESS
79G	-	TO MAIN HARNESS
80G	R	TO MAIN HARNESS
81G	L	TO MAIN HARNESS
82G	R	TO MAIN HARNESS
83G	L	TO MAIN HARNESS
84G	L	TO MAIN HARNESS
85G	W/B	TO MAIN HARNESS
86G	B/R	TO MAIN HARNESS
87G	W/B	TO MAIN HARNESS
88G	P	TO MAIN HARNESS
89G	L	TO MAIN HARNESS
90G	G	TO MAIN HARNESS
91G	G	TO MAIN HARNESS
92G	W/W	TO MAIN HARNESS
93G	BR	TO MAIN HARNESS
94G	G	TO MAIN HARNESS
95G	G	TO MAIN HARNESS
96G	W	TO MAIN HARNESS
97G	R	TO MAIN HARNESS
98G	W/B	TO MAIN HARNESS
99G	BR	TO MAIN HARNESS
100G	GR/W	TO MAIN HARNESS

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN


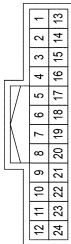
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >


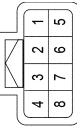
[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM


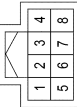
Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Type	TH24FV-NH
Connector Color	WHITE

Connector No.	F19
Connector Name	WIRE TO WIRE
Connector Type	RH08FB
Connector Color	BLACK


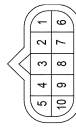



Connector No.	M17
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FV-NH
Connector Color	WHITE


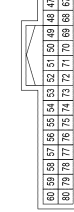



Terminal No.	Color of Wire	Signal Name
1	L/R	TO ENGINE ROOM HARNESS
2	BR	TO ENGINE ROOM HARNESS
3	V	TO ENGINE ROOM HARNESS
4	L/O	TO ENGINE ROOM HARNESS
5	W	TO ENGINE ROOM HARNESS
6	P	TO ENGINE ROOM HARNESS
7	V/R	TO ENGINE ROOM HARNESS
8	BR	TO ENGINE ROOM HARNESS
9	W/L	TO ENGINE ROOM HARNESS
10	L/Y	TO ENGINE ROOM HARNESS
11	SB	TO ENGINE ROOM HARNESS
12	L	TO ENGINE ROOM HARNESS
13	W/R	TO ENGINE ROOM HARNESS
14	Y	TO ENGINE ROOM HARNESS
15	B	TO ENGINE ROOM HARNESS
16	B	TO ENGINE ROOM HARNESS
17	V/R	TO ENGINE ROOM HARNESS
18	B	TO ENGINE ROOM HARNESS
19	B/R	TO ENGINE ROOM HARNESS
20	GR	TO ENGINE ROOM HARNESS
21	V/R	TO ENGINE ROOM HARNESS
22	SHIELD	TO ENGINE ROOM HARNESS
23	SHIELD	TO ENGINE ROOM HARNESS
24	P	TO ENGINE ROOM HARNESS

Connector No.	F46
Connector Name	TCM (TRANSMISSION CONTROL MODULE) (WITH VK56VD)
Connector Type	RK10FG
Connector Color	GREEN

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH
Connector Color	BLACK

54	W/L	PW UART
55	W/B	L/R SENSOR K-LINE
56	-	-
57	-	-
58	-	-
59	P	CAN-L
60	L	CAN-H
61	O	REAR DEFROGGER RELAY OUT
62	W	STARTER RELAY OUT
63	-	IKEY LINK SIGNAL
64	P	BUZZER OUT
65	-	-
66	W	BLOWER FAN RELAY OUT
67	G	IGN ELEC RELAY OUT 2
68	L	MR OUTPUT
69	R/B	AT DEVICE OUT
70	P	IGN USM OUT 1
71	O	DR REQUEST SW
72	G	AS REQUEST SW
73	-	-
74	-	DOOR LEV/C LOCK SW
75	L/W	COMBI SW OUT 5
76	P	COMBI SW OUT 4
77	L	COMBI SW OUT 3
78	O/B	COMBI SW OUT 2
79	R/W	COMBI SW OUT 1
80	-	-

Terminal No.	Color of Wire	Signal Name
41	Y/L	TRAILER LIGHT CHECK RELAY OUT
42	R/Y	CARGO LAMP OUT
43	-	-
44	-	LOCK LED
45	-	-
46	-	-
47	-	-
48	R	HIGH SIDE START SW LED
49	-	-
51	-	-
52	W	AUDIO DONGLE
53	-	-

Terminal No.	Color of Wire	Signal Name
1	Y/R	VIGN
2	P	BATT
3	L	CAN-H
4	BR	K-LINE
5	B	GND
6	Y/R	VIGN
7	R	REV LAMP RELAY
8	P	CAN-L
9	B/R	STARTER RELAY
10	B	GND

AAMIA42796B

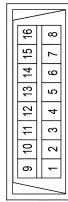
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	M22
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	-	-
3	LG	M-CAN-L
4	B	BODY GND
5	B	ENG GND
6	L	CAN-H
7	BR	K-LINE
8	G/R	IGN SW
9	-	-
10	-	-
11	SB	M-CAN-H
12	R	CAN-L
13	L	CAN-H
14	P	CAN-L
15	-	-
16	Y	BATTERY



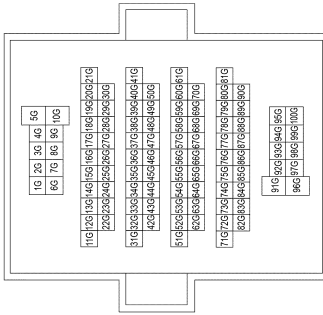
Connector No.	M25
Connector Name	COMBINATION METER (WITH TYPE A)
Connector Type	TH12FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
41	L	CAN-H
42	R	CAN-L
43	Y/W	ILL CONT OUT
44	GR	FUEL SENSOR GND
45	P	BAT
46	L	IGN

AAMIA4280CB

47	B	M-CAN-H
48	BRY	M-CAN-L
49	-	-
50	-	-
51	LG	FUEL SENSOR
52	SB	G1

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
20G	G/Y	TO ENGINE ROOM HARNESS
21G	B/Y	TO ENGINE ROOM HARNESS
22G	G/R	TO ENGINE ROOM HARNESS (WITH CUMMINS VD)
22G	G/Y	TO ENGINE ROOM HARNESS (WITH VK56VD)
23G	Y/R	TO ENGINE ROOM HARNESS
24G	G/B	TO ENGINE ROOM HARNESS
25G	R/W	TO ENGINE ROOM HARNESS
26G	R	TO ENGINE ROOM HARNESS
27G	LG	TO ENGINE ROOM HARNESS
28G	G/B	TO ENGINE ROOM HARNESS
29G	G/B	TO ENGINE ROOM HARNESS
30G	BRY	TO ENGINE ROOM HARNESS
31G	R	TO ENGINE ROOM HARNESS
32G	R	TO ENGINE ROOM HARNESS
33G	Y/L	TO ENGINE ROOM HARNESS
34G	GR	TO ENGINE ROOM HARNESS
35G	G/R	TO ENGINE ROOM HARNESS
36G	SB	TO ENGINE ROOM HARNESS
37G	R/W	TO ENGINE ROOM HARNESS
38G	BR	TO ENGINE ROOM HARNESS
39G	BR	TO ENGINE ROOM HARNESS
40G	-	TO ENGINE ROOM HARNESS
41G	R/G	TO ENGINE ROOM HARNESS
42G	O	TO ENGINE ROOM HARNESS
43G	G	TO ENGINE ROOM HARNESS
44G	R/Y	TO ENGINE ROOM HARNESS
45G	G	TO ENGINE ROOM HARNESS
46G	LG	TO ENGINE ROOM HARNESS
47G	R	TO ENGINE ROOM HARNESS
48G	W	TO ENGINE ROOM HARNESS
48G	-	TO ENGINE ROOM HARNESS
50G	BR	TO ENGINE ROOM HARNESS
51G	R	TO ENGINE ROOM HARNESS
52G	L	TO ENGINE ROOM HARNESS
53G	W	TO ENGINE ROOM HARNESS
54G	W	TO ENGINE ROOM HARNESS
55G	G	TO ENGINE ROOM HARNESS
56G	W	TO ENGINE ROOM HARNESS
57G	Y	TO ENGINE ROOM HARNESS
58G	BG	TO ENGINE ROOM HARNESS
59G	BG	TO ENGINE ROOM HARNESS
60G	BG	TO ENGINE ROOM HARNESS
61G	O	TO ENGINE ROOM HARNESS
62G	W	TO ENGINE ROOM HARNESS
63G	O	TO ENGINE ROOM HARNESS
64G	W/L	TO ENGINE ROOM HARNESS
65G	W/R	TO ENGINE ROOM HARNESS
66G	BG	TO ENGINE ROOM HARNESS
67G	O	TO ENGINE ROOM HARNESS
68G	B	TO ENGINE ROOM HARNESS
69G	Y	TO ENGINE ROOM HARNESS
70G	L	TO ENGINE ROOM HARNESS

Terminal No.	Color of Wire	Signal Name
71G	R/W	TO ENGINE ROOM HARNESS
72G	L/W	TO ENGINE ROOM HARNESS
73G	SHIELD	TO ENGINE ROOM HARNESS
74G	W	TO ENGINE ROOM HARNESS
75G	R	TO ENGINE ROOM HARNESS
76G	R/G	TO ENGINE ROOM HARNESS
77G	BG	TO ENGINE ROOM HARNESS
78G	P	TO ENGINE ROOM HARNESS
79G	-	TO ENGINE ROOM HARNESS
80G	R	TO ENGINE ROOM HARNESS
81G	L	TO ENGINE ROOM HARNESS
82G	R	TO ENGINE ROOM HARNESS
83G	L	TO ENGINE ROOM HARNESS
84G	L	TO ENGINE ROOM HARNESS
85G	W	TO ENGINE ROOM HARNESS
86G	B/R	TO ENGINE ROOM HARNESS
87G	W	TO ENGINE ROOM HARNESS
88G	G	TO ENGINE ROOM HARNESS
89G	P	TO ENGINE ROOM HARNESS
90G	G	TO ENGINE ROOM HARNESS
91G	P	TO ENGINE ROOM HARNESS
92G	V/W	TO ENGINE ROOM HARNESS
93G	BR	TO ENGINE ROOM HARNESS
94G	B	TO ENGINE ROOM HARNESS
95G	G	TO ENGINE ROOM HARNESS
96G	R	TO ENGINE ROOM HARNESS
97G	R	TO ENGINE ROOM HARNESS
98G	W/B	TO ENGINE ROOM HARNESS
99G	R	TO ENGINE ROOM HARNESS
100G	GR/W	TO ENGINE ROOM HARNESS

A B C D E F G H I J K L N O P

LAN

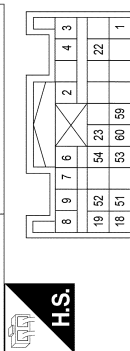
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

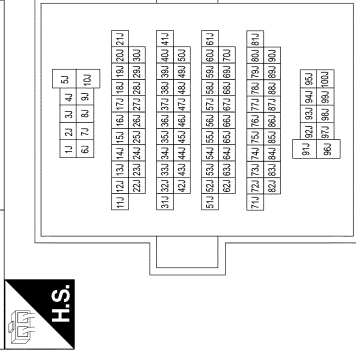
## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	M35
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
1	R	IGN
2	B	GND
3	Y	DR1 (+)
4	Y/B	DR1 (-)
6	O	AS1 (+)
7	G	AS1 (-)
8	P	AS2 (+)
9	Y	AS2 (-)
18	GR/R	ECZS (+)
19	GR/B	ECZS (-)
22	SHIELD	ECZS GND
23	O	AIRBAG WARN LAMP
51	LG/B	DOOR SAT RH+
52	Y/B	DOOR SAT RH-
53	L	DOOR SAT LH+
54	W	DOOR SAT LH-
59	L	CAN-H
60	P	CAN-L

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CST6-TM4
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1J	G	TO BODY HARNESS
2J	R/Y	TO BODY HARNESS
3J	L	TO BODY HARNESS
4J	L/B	TO BODY HARNESS
5J	B	TO BODY HARNESS
6J	BR	TO BODY HARNESS
7J	BG	TO BODY HARNESS
8J	SB	TO BODY HARNESS
9J	BR	TO BODY HARNESS
10J	R	TO BODY HARNESS
11J	O/B	TO BODY HARNESS
12J	L	TO BODY HARNESS
13J	W	TO BODY HARNESS
14J	Y	TO BODY HARNESS
15J	-	TO BODY HARNESS
16J	R	TO BODY HARNESS
17J	G	TO BODY HARNESS
18J	SB	TO BODY HARNESS
19J	O	TO BODY HARNESS
20J	O/B	TO BODY HARNESS
21J	Y	TO BODY HARNESS
22J	P	TO BODY HARNESS
23J	W	TO BODY HARNESS
24J	W/R	TO BODY HARNESS
25J	P	TO BODY HARNESS
26J	L	TO BODY HARNESS
27J	R	TO BODY HARNESS

81J	SHIELD	TO BODY HARNESS
82J	L/R	TO BODY HARNESS
83J	-	TO BODY HARNESS
84J	-	TO BODY HARNESS
85J	W	TO BODY HARNESS
86J	G	TO BODY HARNESS
87J	W	TO BODY HARNESS
88J	SHIELD	TO BODY HARNESS
89J	R	TO BODY HARNESS
90J	L	TO BODY HARNESS
91J	L/B	TO BODY HARNESS
92J	SB	TO BODY HARNESS
93J	B	TO BODY HARNESS
94J	LG	TO BODY HARNESS
95J	L	TO BODY HARNESS
96J	G	TO BODY HARNESS
97J	B/Y	TO BODY HARNESS
98J	L/B	TO BODY HARNESS
99J	W/L	TO BODY HARNESS
100J	Y	TO BODY HARNESS

28J	L	TO BODY HARNESS
29J	GO	TO BODY HARNESS
30J	SB	TO BODY HARNESS
31J	L/G	TO BODY HARNESS
32J	R	TO BODY HARNESS
33J	BG	TO BODY HARNESS
34J	Y	TO BODY HARNESS
35J	P	TO BODY HARNESS
36J	GR	TO BODY HARNESS
37J	LG	TO BODY HARNESS
38J	SB	TO BODY HARNESS
39J	Y	TO BODY HARNESS
40J	SB	TO BODY HARNESS
41J	L	TO BODY HARNESS
42J	L	TO BODY HARNESS
43J	W	TO BODY HARNESS
44J	BR	TO BODY HARNESS
45J	BG	TO BODY HARNESS
46J	P	TO BODY HARNESS
47J	O	TO BODY HARNESS
48J	V	TO BODY HARNESS
49J	BR	TO BODY HARNESS
50J	GW	TO BODY HARNESS
51J	-	TO BODY HARNESS
52J	SHIELD	TO BODY HARNESS
53J	R	TO BODY HARNESS
54J	L	TO BODY HARNESS
55J	R	TO BODY HARNESS
56J	W	TO BODY HARNESS
57J	R	TO BODY HARNESS
58J	B	TO BODY HARNESS
59J	-	TO BODY HARNESS
60J	SHIELD	TO BODY HARNESS
61J	G	TO BODY HARNESS
62J	-	TO BODY HARNESS
63J	R/W	TO BODY HARNESS
64J	L/W	TO BODY HARNESS
65J	SHIELD	TO BODY HARNESS
66J	B	TO BODY HARNESS
67J	SHIELD	TO BODY HARNESS
68J	W	TO BODY HARNESS
69J	SHIELD	TO BODY HARNESS
70J	B/R	TO BODY HARNESS
71J	L/W	TO BODY HARNESS
72J	-	TO BODY HARNESS
73J	-	TO BODY HARNESS
74J	SHIELD	TO BODY HARNESS
75J	R	TO BODY HARNESS
76J	O	TO BODY HARNESS
77J	SHIELD	TO BODY HARNESS
78J	W	TO BODY HARNESS
79J	B	TO BODY HARNESS
80J	W	TO BODY HARNESS




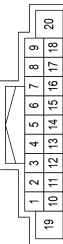
# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

[CAN]

< WIRING DIAGRAM >

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM


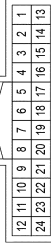
Connector No.	M43
Connector Name	AV CONTROL UNIT (WITH AUDIO AMPLIFIER)
Connector Type	NH18FW-CS2
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	G/W	AMP ON
2	L	FR SP LH+
3	W	FR SP LH-
4	L	RR SP LH+
5	BR	RR SP LH-
6	-	-
7	R	ACC
8	L	CAN-H
9	L	ILL (+)
10	SHIELD	PRE AMP SHIELD
11	B	FR SP RH+
12	Y	FR SP RH-
13	B/W	RR SP RH+
14	P	RR SP RH-
15	-	-
16	-	-
17	P	CAN-L
18	G	SPEED SIG
19	W	BAT
20	B	GND

1	-	-
2	L/W	FR SP LH+
3	L/R	FR SP LH-
4	SB	RR SP LH+
5	B/Y	RR SP LH-
6	-	-
7	R	ACC
8	L	CAN-H
9	L	ILL (+)
10	-	-
11	W/B	FR SP RH+
12	L/B	FR SP RH-
13	O/L	RR SP RH+
14	R/L	RR SP RH-
15	-	-
16	-	-
17	P	CAN-L
18	G	SPEED SIG
19	W	BAT
20	B	GND



Connector No.	M114
Connector Name	SONAR CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	W/L	FRONT INNER RIGHT SENSOR SIGNAL
2	W/R	FRONT INNER LEFT SENSOR SIGNAL
3	O	FRONT OUTER LEFT SENSOR SIGNAL
4	BG	FRONT OUTER RIGHT SENSOR SIGNAL
5	L	CAN-H
6	R	CAN-L
7	-	-
8	-	-
9	L	REAR INNER RIGHT SENSOR SIGNAL
10	O	REAR OUTER RIGHT SENSOR SIGNAL
11	-	-
12	G/R	IGN
13	W	FRONT SENSOR GND
14	BG	REAR SENSOR GND


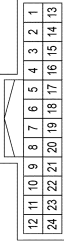
15	B	SYSTEM GND
16	G	SWITCH INPUT
17	G/B	STATUS LED
18	G	SPEAKER 2 (FRONT) SIGNAL -
19	W	SPEAKER POWER
20	-	-
21	Y	REAR INNER LEFT SENSOR SIGNAL
22	B	REAR OUTER LEFT SENSOR SIGNAL
23	-	-
24	G/W	REVERSE POSITION INPUT

Connector No.	M123
Connector Name	LOW TIRE PRESSURE WARNING CONTROL UNIT
Connector Type	TH12FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	P	CAN-L
2	L	CAN-H
3	-	-
4	-	-
5	-	-
6	-	-
7	W	IGN SW
8	-	-
9	-	-
10	B	GND
11	Y	+B
12	-	-

Connector No.	M128
Connector Name	ADAS CONTROL UNIT
Connector Type	TH24FW-NH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	B	GND
2	L	ITS CAN-H
3	G	IGN
4	GR	BUZZER OUTPUT
5	R	ITS CAN-L
6	R	CAN-L
7	G/R	SW LED
8	-	-
9	L	CAN-H
10	P	CAN-L
11	G	SW 1
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	G/B	LED1
18	L	CAN-H
19	-	-
20	-	-
21	-	-
22	-	-
23	L/G	BSW SW
24	-	-

AAM1A4282GB

Connector No.	M97
Connector Name	AV CONTROL UNIT (WITHOUT AUDIO AMPLIFIER)
Connector Type	NH18FW-CS2
Connector Color	WHITE




A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P

LAN

# CAN SYSTEM (WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEMS)

< WIRING DIAGRAM >

[CAN]

## CAN SYSTEM CONNECTORS - WITH VK56VD AND WITH DRIVER ASSISTANCE SYSTEM

Connector No.	M137
Connector Name	A/C AUTO AMP.
Connector Type	TH40FV-NH
Connector Color	WHITE

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40



39	LG	PTC2
40	SB	PTC3

Connector No.	M197
Connector Name	TCU
Connector Type	TH40FB-NH
Connector Color	BLACK

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21



37	P	ECALL SW
38	-	-
39	-	-
40	-	-

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	B	GND
3	SB	BAT
4	BR	TX (FR CONT)
5	-	-
6	-	-
7	W	AMB SENS
8	BR	STRG HEATER SW
9	G	SUN SENS
10	-	-
11	-	-
12	W	WATER VALVE OPEN
13	W	IGN2(ACC)
14	P	FAN GATE
15	Y	RR DEF ON
16	G	LIN SIG
17	W	VACTR
18	-	-
19	G/R	PTC1
20	P	STRG HEATER RLY
21	P	CAN-L
22	B	P-GND
23	G	IGN
24	V	RX (FR CONT)
25	-	-
26	R	SENS GND
27	G	INCAR SENS
28	P	INTAKE SENS
29	-	-
30	-	-
31	-	-
32	L	WATER VALVE CLOSE
33	Y	COMP ON
34	L/W	FAN FB
35	B/W	RR DEF F/B
36	-	-
37	B	ACTR GND
38	W	FAN ON

AAMTA4283GB

Terminal No.	Color of Wire	Signal Name
1	Y	BAT
2	R	ACC
3	R	ACC OUT
4	-	-
5	W/L	LED A
6	L	CAN-H
7	P	CAN-L
8	-	-
9	-	-
10	G/R	IGN
11	SHIELD	MIC OUT GND
12	W	MIC OUT SIGNAL
13	-	-
14	-	-
15	-	-
16	SHIELD	MIC GND
17	W	MIC SIGNAL
18	R	MIC VCC
19	-	-
20	-	-
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	SB	M-CAN H
27	LG	M-CAN L
28	B	GND
29	B	GND
30	-	-
31	W	AUDIO HU OUT+
32	R	AUDIO HU OUT-
33	-	-
34	-	-
35	-	-
36	-	-

# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN]

## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

#### Interview Sheet

INFOID:0000000012555439

**NOTE:**

Refer to [LAN-51. "Trouble Diagnosis Flow Chart"](#) for how to use interview sheet.

CAN Communication System Diagnosis Interview Sheet	
Date received:	<input type="text"/>
Type:	<input type="text"/>
VIN No.:	<input type="text"/>
Model:	<input type="text"/>
First registration:	<input type="text"/>
Mileage:	<input type="text"/>
CAN system type:	<input type="text"/>
Symptom (Results from interview with customer)	
<input type="text"/>	
Condition at inspection	
Error symptom : Present / Past	
<input type="text"/>	

SKIB8898E

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MALFUNCTION AREA CHART

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DTC/CIRCUIT DIAGNOSIS

### MALFUNCTION AREA CHART

#### CAN Communication Circuit

INFOID:000000012555440

#### MAIN LINE

##### Diesel Engine Models

Malfunction area	Reference
Main line between transfer control unit and ABS actuator and electric unit (control unit)	<a href="#">LAN-119. "Diagnosis Procedure"</a>
Main line between ABS actuator and electric unit (control unit) and IPDM E/R	<a href="#">LAN-120. "Diagnosis Procedure"</a>
Main line between IPDM E/R and TCM	<a href="#">LAN-121. "Diagnosis Procedure"</a>
Main line between TCM and driver seat control unit	<a href="#">LAN-122. "Diagnosis Procedure"</a>
Main line between TCM and data link connector	<a href="#">LAN-123. "Diagnosis Procedure"</a>
Main line between driver seat control unit and data link connector	<a href="#">LAN-124. "Diagnosis Procedure"</a>
Main line between data link connector and steering angle sensor	<a href="#">LAN-125. "Diagnosis Procedure"</a>
Main line between steering angle sensor and air bag diagnosis sensor unit	<a href="#">LAN-126. "Diagnosis Procedure"</a>
Main line between air bag diagnosis sensor unit and CAN gateway	<a href="#">LAN-127. "Diagnosis Procedure"</a>
Main line between air bag diagnosis sensor unit and ADAS control unit	<a href="#">LAN-128. "Diagnosis Procedure"</a>
Main line between CAN gateway and combination meter	<a href="#">LAN-129. "Diagnosis Procedure"</a>
Main line between ADAS control unit and combination meter	<a href="#">LAN-130. "Diagnosis Procedure"</a>
Main line between air bag diagnosis sensor unit and combination meter	<a href="#">LAN-131. "Diagnosis Procedure"</a>
Main line between combination meter and AV control unit	<a href="#">LAN-132. "Diagnosis Procedure"</a>
Main line between AV control unit and TCU	<a href="#">LAN-133. "Diagnosis Procedure"</a>
Main line between AV control unit and low tire pressure warning control unit	<a href="#">LAN-134. "Diagnosis Procedure"</a>
Main line between TCU and low tire pressure warning control unit	<a href="#">LAN-135. "Diagnosis Procedure"</a>
Main line between combination meter and low tire pressure warning control unit	<a href="#">LAN-136. "Diagnosis Procedure"</a>
Main line between low tire pressure warning control unit and front air control or A/C auto amp.	<a href="#">LAN-137. "Diagnosis Procedure"</a>
Main line between front air control and PTC heater control unit	<a href="#">LAN-138. "Diagnosis Procedure"</a>
Main line between data link connector and around view monitor control unit	<a href="#">LAN-139. "Diagnosis Procedure"</a>
Main line between data link connector and differential lock control unit	<a href="#">LAN-140. "Diagnosis Procedure"</a>
Main line between data link connector and sonar control unit	<a href="#">LAN-141. "Diagnosis Procedure"</a>
Main line between around view monitor control unit and differential lock control unit	<a href="#">LAN-143. "Diagnosis Procedure"</a>
Main line between around view monitor control unit and sonar control unit	<a href="#">LAN-142. "Diagnosis Procedure"</a>
Main line between differential lock control unit and sonar control unit	<a href="#">LAN-144. "Diagnosis Procedure"</a>

##### Gasoline Engine Models

# MALFUNCTION AREA CHART

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

Malfunction area	Reference
Main line between TCM and transfer control unit	<a href="#">LAN-154, "Diagnosis Procedure"</a>
Main line between TCM and IPDM E/R	<a href="#">LAN-155, "Diagnosis Procedure"</a>
Main line between transfer control unit and IPDM E/R	<a href="#">LAN-156, "Diagnosis Procedure"</a>
Main line between IPDM E/R and ABS actuator and electric unit (control unit)	<a href="#">LAN-157, "Diagnosis Procedure"</a>
Main line between ABS actuator and electric unit (control unit) and driver seat control unit	<a href="#">LAN-158, "Diagnosis Procedure"</a>
Main line between ABS actuator and electric unit (control unit) and data link connector	<a href="#">LAN-159, "Diagnosis Procedure"</a>
Main line between driver seat control unit and data link connector	<a href="#">LAN-124, "Diagnosis Procedure"</a>
Main line between data link connector and steering angle sensor	<a href="#">LAN-125, "Diagnosis Procedure"</a>
Main line between steering angle sensor and air bag diagnosis sensor unit	<a href="#">LAN-126, "Diagnosis Procedure"</a>
Main line between air bag diagnosis sensor unit and combination meter	<a href="#">LAN-131, "Diagnosis Procedure"</a>
Main line between air bag diagnosis sensor unit and ADAS control unit	<a href="#">LAN-128, "Diagnosis Procedure"</a>
Main line between ADAS control unit and combination meter	<a href="#">LAN-130, "Diagnosis Procedure"</a>
Main line between combination meter and AV control unit	<a href="#">LAN-132, "Diagnosis Procedure"</a>
Main line between combination meter and front air control or A/C auto amp.	<a href="#">LAN-161, "Diagnosis Procedure"</a>
Main line between AV control unit and TCU	<a href="#">LAN-133, "Diagnosis Procedure"</a>
Main line between AV control unit and front air control or A/C auto amp.	<a href="#">LAN-163, "Diagnosis Procedure"</a>
Main line between TCU and front air control or A/C auto amp.	<a href="#">LAN-162, "Diagnosis Procedure"</a>
Main line between front air control or A/C auto amp. and low tire pressure warning control unit	<a href="#">LAN-164, "Diagnosis Procedure"</a>

## BRANCH LINE

Malfunction area	Reference
ECM branch line circuit	<a href="#">LAN-165, "Diagnosis Procedure"</a>
Transfer control unit branch line circuit	<a href="#">LAN-166, "Diagnosis Procedure"</a>
ABS actuator and electric unit (control unit) branch line circuit	<a href="#">LAN-167, "Diagnosis Procedure"</a>
IPDM E/R branch line circuit	<a href="#">LAN-168, "Diagnosis Procedure"</a>
TCM branch line circuit	<a href="#">LAN-169, "Diagnosis Procedure"</a>
Driver seat control unit branch line circuit	<a href="#">LAN-170, "Diagnosis Procedure"</a>
Data link connector branch line circuit	<a href="#">LAN-171, "Diagnosis Procedure"</a>
Data link connector branch line circuit (CAN communication circuit 1)	<a href="#">LAN-172, "Diagnosis Procedure"</a>
Data link connector branch line circuit (CAN communication circuit 2)	<a href="#">LAN-173, "Diagnosis Procedure"</a>
Data link connector branch line circuit (CAN communication circuit)	<a href="#">LAN-174, "Diagnosis Procedure"</a>
Steering angle sensor branch line circuit	<a href="#">LAN-176, "Diagnosis Procedure"</a>
Air bag diagnosis sensor unit	<a href="#">LAN-177, "Diagnosis Procedure"</a>
CAN gateway branch line circuit (CAN communication circuit 1)	<a href="#">LAN-178, "Diagnosis Procedure"</a>
CAN gateway branch line circuit (CAN communication circuit 2)	<a href="#">LAN-179, "Diagnosis Procedure"</a>
ADAS control unit branch line circuit (CAN communication circuit)	<a href="#">LAN-180, "Diagnosis Procedure"</a>
Combination meter branch line circuit	<a href="#">LAN-182, "Diagnosis Procedure"</a>
AV control unit branch line circuit	<a href="#">LAN-183, "Diagnosis Procedure"</a>

# MALFUNCTION AREA CHART

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

Malfunction area	Reference
TCU branch line circuit	<a href="#">LAN-184, "Diagnosis Procedure"</a>
Low tire pressure warning control unit branch line circuit	<a href="#">LAN-185, "Diagnosis Procedure"</a>
Front air control or A/C auto amp. branch line circuit	<a href="#">LAN-186, "Diagnosis Procedure"</a>
PTC heater control unit branch line circuit	<a href="#">LAN-187, "Diagnosis Procedure"</a>
Around view monitor control unit branch line circuit	<a href="#">LAN-191, "Diagnosis Procedure"</a>
Differential lock control unit branch line circuit	<a href="#">LAN-193, "Diagnosis Procedure"</a>
Sonar control unit branch line circuit	<a href="#">LAN-195, "Diagnosis Procedure"</a>
BCM branch line circuit	<a href="#">LAN-188, "Diagnosis Procedure"</a>

## SHORT CIRCUIT

Malfunction area	Reference
CAN communication circuit	<a href="#">LAN-197, "Diagnosis Procedure"</a>
CAN communication circuit 1	<a href="#">LAN-199, "Diagnosis Procedure"</a>
CAN communication circuit 2	<a href="#">LAN-201, "Diagnosis Procedure"</a>

## ITS Communication Circuit

INFOID:0000000012555441

## MAIN LINE

Malfunction area	Reference
Main line between data link connector and side radar RH	<a href="#">LAN-145, "Diagnosis Procedure"</a>
Main line between side radar RH and side radar LH	<a href="#">LAN-147, "Diagnosis Procedure"</a>
Main line between side radar LH and around view monitor control unit	<a href="#">LAN-148, "Diagnosis Procedure"</a>
Main line between around view monitor control unit and differential lock control unit	<a href="#">LAN-143, "Diagnosis Procedure"</a>
Main line between around view monitor control unit and sonar control unit	<a href="#">LAN-142, "Diagnosis Procedure"</a>
Main line between side radar LH and differential lock control unit	<a href="#">LAN-150, "Diagnosis Procedure"</a>
Main line between side radar LH and sonar control unit	<a href="#">LAN-152, "Diagnosis Procedure"</a>
Main line between differential lock control unit and sonar control unit	<a href="#">LAN-144, "Diagnosis Procedure"</a>

## BRANCH LINE

Malfunction area	Reference
Data link connector branch line circuit (ITS communication circuit)	<a href="#">LAN-175, "Diagnosis Procedure"</a>
ADAS control unit branch line circuit (ITS communication circuit)	<a href="#">LAN-181, "Diagnosis Procedure"</a>
Side radar RH branch line circuit	<a href="#">LAN-189, "Diagnosis Procedure"</a>
Side radar LH branch line circuit	<a href="#">LAN-190, "Diagnosis Procedure"</a>
Around view monitor control unit branch line circuit	<a href="#">LAN-191, "Diagnosis Procedure"</a>
Differential lock control unit branch line circuit	<a href="#">LAN-193, "Diagnosis Procedure"</a>
Sonar control unit branch line circuit	<a href="#">LAN-195, "Diagnosis Procedure"</a>

## SHORT CIRCUIT OR OPEN CIRCUIT

Malfunction area	Reference
ITS communication circuit	<a href="#">LAN-203, "Diagnosis Procedure"</a>

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000012555442

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000012555443

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013043279

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013043281

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013043280

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013043282

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000012555444

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013043283

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013043285

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013404667

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.



# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013043286

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013404689

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013043284

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the combination meter.

NO >> Repair the main line between the air bag diagnosis sensor unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013043288

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

**Is the inspection result normal?**

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013043289

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013043290

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.
- NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013043291

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013043287

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Low tire pressure warning control unit
4. Check the continuity between the combination meter harness connector and the low tire pressure warning control unit harness connector.

Combination meter harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M123	2	Existed
	45		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the low tire pressure warning control unit.

NO >> Repair the main line between the combination meter and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013043292

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

### Diagnosis Procedure

INFOID:000000013043293

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control
  - PTC heater control unit
4. Check the continuity between the front air control harness connector and the PTC heater control unit harness connector.

Front air control harness connector		PTC heater control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	E131	1	Existed
	17		9	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control and the PTC heater control unit.

NO >> Repair the main line between the front air control and the PTC heater control unit.

# MAIN LINE BETWEEN DLC AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000012555445

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of around view monitor control unit.
2. Check the continuity between the harness connector and the around view monitor control unit harness connector.

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B83	26	Existed
	16J		24	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69 and the around view monitor control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000012555446

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of differential lock control unit.
2. Check the continuity between the harness connector and the differential lock control unit harness connector.

Harness connector		Differential lock control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B77	8	Existed
	16J		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the differential lock control unit.

NO >> Repair the main line between the harness connector B69 and the differential lock control unit.

# MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013043295

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69
  - Sonar control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector M40 and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000012555452

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000012555447

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector M40 and B69.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000012555448

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.



# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000012555449

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:0000000013448011

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000012555451

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013043303

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000012555450

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.



# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

LAN

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

### Diagnosis Procedure

INFOID:000000013653604

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.

# MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013653401

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the IPDM E/R harness connector.

Harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E122	41	Existed
	8		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the IPDM E/R.

NO >> Repair the main line between the harness connector E28 and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013653803

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

#### Is the inspection result normal?

YES (Present error)>>>Check CAN system type decision again.

YES (Past error)>>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >>> Repair the main line between the transfer control unit and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013654179

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013653900

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013653901

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.



# MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013654038

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the combination meter harness connector and the front air control or the A/C auto amp. harness connector.
  - With manual air conditioning system (Combination meter type A)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M132	1	Existed
	42		17	Existed

- With manual air conditioning system (Combination meter type B)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M163	34	M132	1	Existed
	35		17	Existed

- With automatic air conditioning system

Combination meter harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M137	1	Existed
	42		21	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the front air control or the A/C auto amp.

NO >> Repair the main line between the combination meter and the front air control or the A/C auto amp.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013654039

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.

# MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AV AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013654040

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector.
  - With audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M137	1	Existed
	17		21	Existed

- Without audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M137	1	Existed
	17		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the A/C auto amp.

NO >> Repair the main line between the AV control unit and the A/C auto amp.

LAN

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013654044

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.
- NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555453

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000012555468

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555456

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555454

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.



# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555455

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555467

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555460

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit.  
NO >> Repair the data link connector branch line.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000012555461

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).  
NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000012555462

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013480902

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013469438

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555466

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555458

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000012555470

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000012555471

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013464183

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013464184

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555464

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555459

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555457

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.



# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555473

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555463

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# PTC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## PTC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013407804

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the PTC heater control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of PTC heater control unit
2. Check the resistance between the PTC heater control unit harness connector terminals.

PTC heater control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	1	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the PTC heater control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the PTC heater control unit. Refer to [HAC-206, "PTC HEATER CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the PTC heater control unit.  
YES (Past error)>>Error was detected in the PTC heater control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555472

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555474

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555475

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555476

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AVM BRANCH LINE CIRCUIT

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555469

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

[CAN]

< DTC/CIRCUIT DIAGNOSIS >

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000012555465

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

[CAN]

## < DTC/CIRCUIT DIAGNOSIS >

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000012555477

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

### 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

### 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000012555478

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:0000000012555479

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000012555480

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

### 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

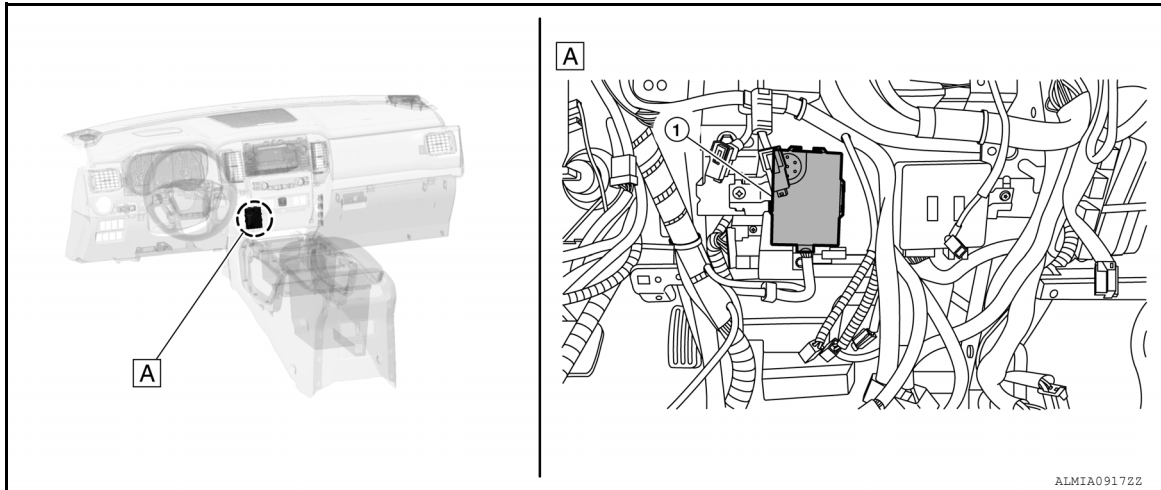
< SYSTEM DESCRIPTION >

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:000000012555482



**A** Behind cluster lid C

**1** CAN gateway

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

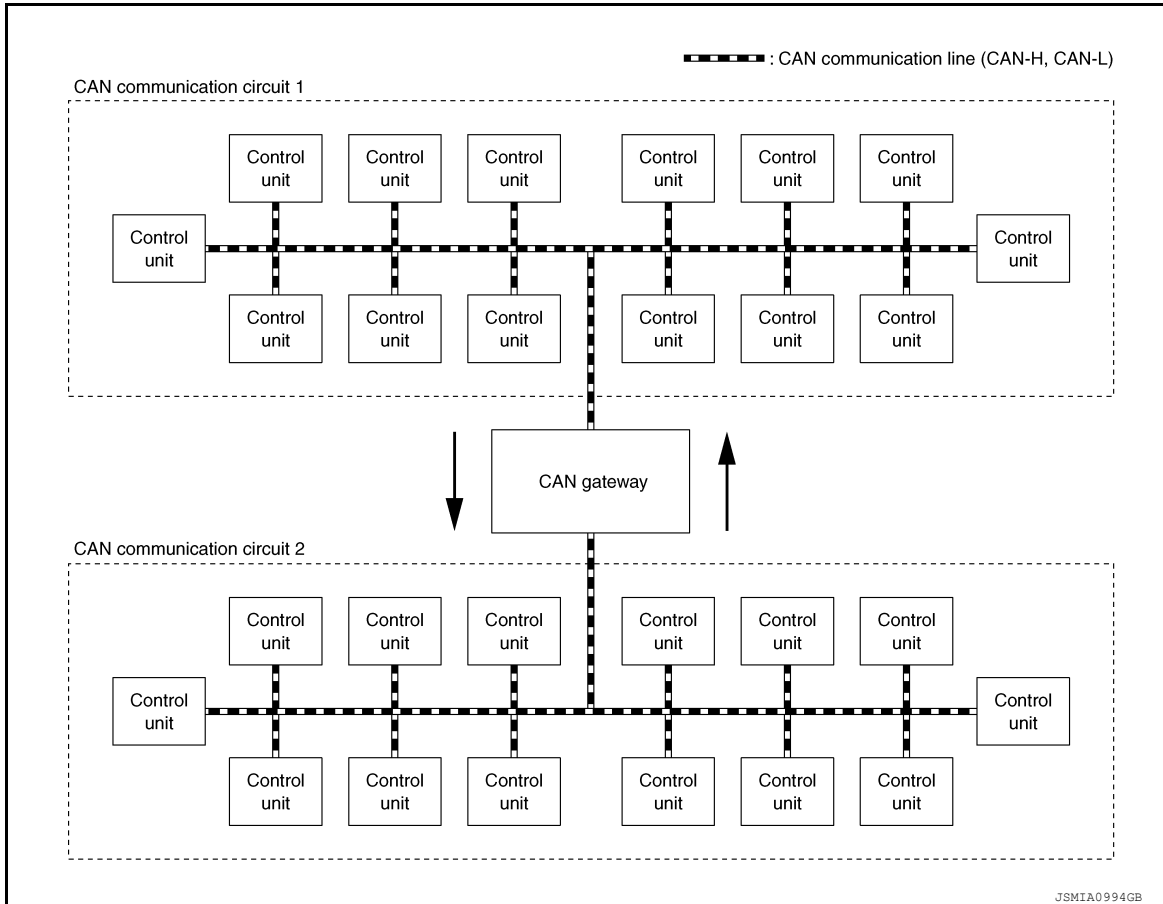
N  
O  
P

SYSTEM

System Description

INFOID:000000012555483

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- The CAN gateway system communicates between two CAN communication circuits.
- This system selects and transmits only necessary information.

# DIAGNOSIS SYSTEM (CAN GATEWAY)

< SYSTEM DESCRIPTION >

[CAN GATEWAY]

## DIAGNOSIS SYSTEM (CAN GATEWAY)

### CONSULT Function

INFOID:000000012555484

#### CAUTION:

After disconnecting the CONSULT vehicle interface (VI) from the data link connector, the ignition must be cycled OFF → ON (for at least 5 seconds) → OFF. If this step is not performed, the BCM may not go to "sleep mode", potentially causing a discharged battery and no-start condition.

### APPLICATION ITEM

CONSULT performs the following functions via CAN communication with CAN gateway.

Diagnosis mode	Function Description
Ecu Identification	The CAN gateway part number is displayed.
Self Diagnostic Result	Displays the diagnosis results judged by CAN gateway.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.
Configuration	<ul style="list-style-type: none"><li>• Read and save the vehicle specification.</li><li>• Write the vehicle specification when replacing CAN gateway.</li></ul>

### ECU IDENTIFICATION

The CAN gateway part number is displayed.

### SELF DIAGNOSTIC RESULT

Refer to [LAN-210, "DTC Index"](#).

- When "CRNT" is displayed on self-diagnosis result
  - The system is presently malfunctioning.
- When "PAST" is displayed on self-diagnosis result
  - System malfunction in the past is detected, but the system is presently normal.

### Freeze Frame Data (FFD)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

Item name	Display item
IGN counter (0 – 39)	<p>The number of times that ignition switch is turned ON after the DTC is detected is displayed.</p> <ul style="list-style-type: none"><li>• When "0" is displayed: It indicates that the system is presently malfunctioning.</li><li>• When except "0" is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal.</li></ul> <p><b>NOTE:</b> Each time when ignition switch is turned OFF to ON, numerical number increases in 1 → 2 → 3...38 → 39. When the operation number of times exceeds 39, the number do not increase and "39" is displayed until self-diagnosis result is erased.</p>

### CAN DIAG SUPPORT MONITOR

The results of transmit/receive diagnosis of CAN communication can be read.

### CONFIGURATION

Function	Description
Read / Write Configuration	Before Replace ECU <ul style="list-style-type: none"><li>• Reads the vehicle configuration of current CAN gateway.</li><li>• Saves the read vehicle configuration.</li></ul>
	After Replace ECU <ul style="list-style-type: none"><li>• Writes the vehicle configuration with saved data.</li></ul>
Manual Configuration	Writes the vehicle configuration with manual selection.

#### CAUTION:

- Follow the instructions listed below. Failure to do this may cause malfunctions to the CAN gateway.:
- When replacing CAN gateway, you must perform "Read / Write Configuration" or "Manual Configuration" with CONSULT.
  - Complete the procedure of "Read / Write Configuration" or "Manual Configuration" in order.
  - If you set incorrect "Read / Write Configuration" or "Manual Configuration", incidents might occur.
  - Configuration is different for each vehicle model. Confirm configuration of each vehicle model.

## DIAGNOSIS SYSTEM (CAN GATEWAY)

< SYSTEM DESCRIPTION >

[CAN GATEWAY]

- 
- Never perform “Read / Write Configuration” or “Manual Configuration” except for new CAN gateway.



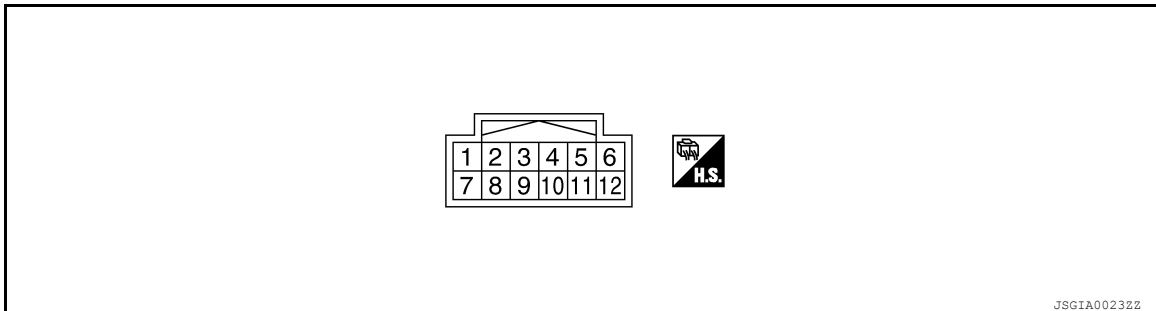
# ECU DIAGNOSIS INFORMATION

## CAN GATEWAY

Reference Value

INFOID:0000000012555485

### TERMINAL LAYOUT



### PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard value	Reference value (Approx.)
+	-	Signal name	Input/ Output			
1 (L)	—	CAN-H (CAN communication circuit 1)	Input/ Output	—	—	—
3 (BG)	Ground	Battery power supply	Input	Ignition switch OFF	6 - 16 V	Battery voltage
4 (L)	—	CAN-H (CAN communication circuit 2)	Input/ Output	—	—	—
5 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
6 (L)	—	CAN-H (CAN communication circuit 2)	Input/ Output	—	—	—
7 (P)	—	CAN-L (CAN communication circuit 1)	Input/ Output	—	—	—
9 (G)	Ground	Ignition power supply	Input	Ignition switch ON	4.5 V - 16 V	Battery voltage
10 (R)	—	CAN-L (CAN communication circuit 2)	Input/ Output	—	—	—
11 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
12 (R)	—	CAN-L (CAN communication circuit 2)	Input/ Output	—	—	—

LAN

### DTC Inspection Priority Chart

INFOID:0000000012555486

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	<ul style="list-style-type: none"> <li>B2600: CONFIG ERROR</li> <li>U1010: CONTROL UNIT(CAN)</li> </ul>
2	U1000: CAN COMM CIRCUIT

# CAN GATEWAY

< ECU DIAGNOSIS INFORMATION >

[CAN GATEWAY]

## DTC Index

INFOID:000000012555487

DTC		Reference
No DTC is detected. Further testing may be required.		—
U1000: CAN COMM CIRCUIT		<a href="#">LAN-215</a>
U1010: CONTROL UNIT(CAN)		<a href="#">LAN-216</a>
B2600: CONFIG ERROR	WRONG DATA	<a href="#">LAN-217</a>
	NOT CONFIGURED	

# CAN GATEWAY SYSTEM

< WIRING DIAGRAM >

[CAN GATEWAY]

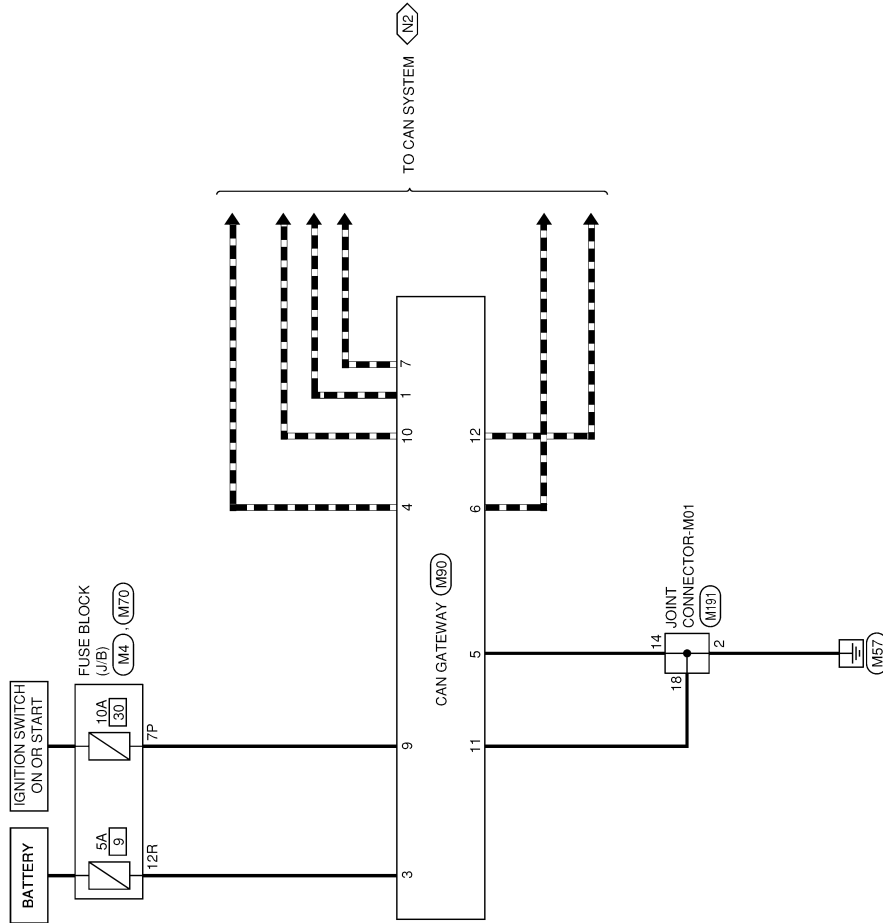
## WIRING DIAGRAM

### CAN GATEWAY SYSTEM

#### Wiring Diagram

INFOID:0000000012555488

◊N2◊ : WITH NAVIGATION WITHOUT BLIND SPOT WARNING SYSTEMS



CAN GATEWAY SYSTEM

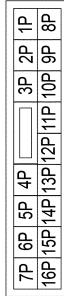
LAN

N  
O  
P

AAMWA1960GB

## CAN GATEWAY SYSTEM CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FW-CS
Connector Color	WHITE



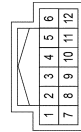
Terminal No.	7P	Color of Wire	G	Signal Name	-
--------------	----	---------------	---	-------------	---

Connector No.	M70
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS16FBR-CS
Connector Color	BROWN



Terminal No.	12R	Color of Wire	BG	Signal Name	-
--------------	-----	---------------	----	-------------	---

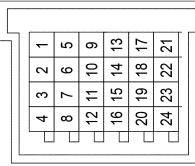
Connector No.	M90
Connector Name	CAN GATEWAY
Connector Type	TH12FW-NH
Connector Color	WHITE



Terminal No.	1	Color of Wire	L	Signal Name	-
2	-	-	-	-	-
3	BG	BG	BG	-	-

4	L	-
5	B	-
6	L	-
7	P	-
8	-	-
9	G	-
10	R	-
11	B	-
12	R	-

Connector No.	M191
Connector Name	JOINT CONNECTOR-M01
Connector Type	NH24FW-J
Connector Color	WHITE



Terminal No.	2	Color of Wire	B	Signal Name	-
14	B	B	B	-	-
18	B	B	B	-	-

# ADDITIONAL SERVICE WHEN REPLACING CAN GATEWAY

< BASIC INSPECTION >

[CAN GATEWAY]

## BASIC INSPECTION

### ADDITIONAL SERVICE WHEN REPLACING CAN GATEWAY

#### Description

INFOID:0000000012555489

#### BEFORE REPLACEMENT

When replacing CAN gateway, save or print current vehicle specification with CONSULT configuration before replacement.

#### NOTE:

If "Before Replace ECU" of "Read / Write Configuration" can not be used, use the "Manual Configuration" after replacing CAN gateway.

#### AFTER REPLACEMENT

#### CAUTION:

Follow the instructions listed below. Failure to do this may cause malfunctions to the CAN gateway.:

- When replacing CAN gateway, you must perform "Read / Write Configuration" or "Manual Configuration" with CONSULT.
- Complete the procedure of "Read / Write Configuration" or "Manual Configuration" in order.
- If you set incorrect "Read / Write Configuration" or "Manual Configuration", incidents might occur.
- Configuration is different for each vehicle model. Confirm configuration of each vehicle model.
- Never perform "Read / Write Configuration" or "Manual Configuration" except for new CAN gateway.

#### Work Procedure

INFOID:0000000012555490

#### 1.SAVING VEHICLE SPECIFICATION

##### ⓂCONSULT Configuration

Perform "Before Replace ECU" of "Read / Write Configuration" to save or print current vehicle specification. Refer to [LAN-213. "Description"](#).

#### NOTE:

If "Before Replace ECU" of "Read / Write Configuration" can not be used, use the "Manual Configuration" after replacing CAN gateway.

>> GO TO 2.

#### 2.REPLACE CAN GATEWAY

Replace CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).

>> GO TO 3.

#### 3.WRITING VEHICLE SPECIFICATION

##### ⓂCONSULT Configuration

Perform "After Replace ECU" of "Read / Write Configuration" or "Manual Configuration" to write vehicle specification. Refer to [LAN-214. "Work Procedure"](#).

>> WORK END

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## CONFIGURATION (CAN GATEWAY)

### Work Procedure

INFOID:000000012555491

#### 1. WRITING MODE SELECTION

---

④CONSULT Configuration  
Select "Re/programming, Configuration" of CAN gateway.

When writing saved data>>GO TO 2.  
When writing manually>>GO TO 3.

#### 2. PERFORM "AFTER REPLACE ECU" OF "READ / WRITE CONFIGURATION"

---

④CONSULT Configuration  
Perform "After Replace ECU" of "Read / Write Configuration".

>> GO TO 4.

#### 3. PERFORM "MANUAL CONFIGURATION"

---

④CONSULT Configuration

1. Select "Manual Configuration".
2. Touch "Next".
3. Touch "OK".
4. Check that the configuration has been successfully written and touch "End".

>> GO TO 4.

#### 4. CHECK ALL ECU SELF-DIAGNOSIS RESULTS

---

1. Erase all ECU self-diagnosis results using CONSULT.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON and wait for 2 seconds or more.
4. Check that all ECU self-diagnosis results have no DTC (e.g. U1000 and U1001) of CAN communication.

>> WORK END

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### DTC Description

INFOID:000000013189918

#### DESCRIPTION

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to [LAN-70. "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis contents)	DTC detection condition	
U1000	CAN COMM CIRCUIT (CAN communication circuit)	Diagnosis condition	Ignition switch ON
		Signal (terminal)	CAN communication signal
		Threshold	CAN gateway is not transmitting or receiving CAN communication signal
		Diagnosis delay time	Continuously for 2 seconds or more

#### POSSIBLE CAUSE

CAN communication system

#### FAIL-SAFE

Only the CAN signal transmission of control unit which cannot communicate cannot be transmitted

#### DTC CONFIRMATION PROCEDURE

##### 1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT.
3. Check DTC.

Is DTC U1000 detected?

YES >> Proceed to [LAN-215. "Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: [GI-43. "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:000000013189919

##### 1. PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [LAN-215. "DTC Description"](#).
4. Check DTC.

Is DTC U1000 detected again?

YES >> Perform trouble diagnosis procedure for CAN communication system. Refer to [LAN-51. "Trouble Diagnosis Flow Chart"](#).

NO >> INSPECTION END

## U1010 CONTROL UNIT (CAN)

### DTC Description

INFOID:000000013189920

#### DESCRIPTION

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to [LAN-70, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis contents)	DTC detection condition	
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	Diagnosis condition	Ignition switch ON
		Signal (terminal)	—
		Threshold	CAN controller initial diagnosis abnormality of CAN gateway
		Diagnosis delay time	Continuously for 2 seconds or more

#### POSSIBLE CAUSE

CAN gateway

#### FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

#### DTC CONFIRMATION PROCEDURE

### 1. PERFORM DTC CONFIRMATION PROCEDURE

#### With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT.
3. Check DTC.

#### Is DTC U1010 detected?

- YES >> Proceed to [LAN-216, "Diagnosis Procedure"](#).  
 NO-1 >> To check malfunction symptom before repair: [GI-43, "Intermittent Incident"](#).  
 NO-2 >> Confirmation after repair: INSPECTION END

#### Diagnosis Procedure

INFOID:000000013189921

### 1. PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [LAN-216, "DTC Description"](#).
4. Check DTC.

#### Is DTC U1010 detected again?

- YES >> Replace CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).  
 NO >> INSPECTION END



# B2600 CONFIG ERROR

< DTC/CIRCUIT DIAGNOSIS >

[CAN GATEWAY]

## B2600 CONFIG ERROR

### DTC Description

INFOID:000000013189922

### DTC DETECTION LOGIC

DTC	CONSULT screen terms (Trouble diagnosis contents)		DTC detection condition	
			Diagnosis condition	Ignition switch ON
B2600	CONFIG ERROR (Configuration error)	WRONG DATA (Wrong data)	Signal (terminal)	—
			Threshold	Configuration data abnormality of CAN gateway
			Diagnosis delay time	Continuously for 2 seconds or more
			Diagnosis condition	Ignition switch ON
		NOT CONFIGURED (Not configured)	Signal (terminal)	—
			Threshold	No data are stored in the CAN gateway
			Diagnosis delay time	Continuously for 2 seconds or more
			Diagnosis condition	Ignition switch ON

### POSSIBLE CAUSE

- Configuration is incomplete
- CAN gateway

### FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

### DTC CONFIRMATION PROCEDURE

#### 1. PERFORM DTC CONFIRMATION PROCEDURE

④ With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT.
3. Check DTC.

#### Is DTC B2600 detected?

YES-1 ("CONFIG ERROR WRONG DATA" is detected.)>>Proceed to [LAN-217, "WRONG DATA : Diagnosis Procedure"](#).

YES-2 ("CONFIG ERROR NOT CONFIGURED" is detected.)>>Proceed to [LAN-217, "NOT CONFIGURED : Diagnosis Procedure"](#).

NO-1 >> To check malfunction symptom before repair: [GI-43, "Intermittent Incident"](#).

NO-2 >> Confirmation after repair: INSPECTION END

### WRONG DATA

#### WRONG DATA : Diagnosis Procedure

INFOID:000000013189923

#### 1. PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to [LAN-217, "DTC Description"](#).
4. Check DTC.

#### Is DTC B2600 detected again?

YES >> Replace CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).

NO >> INSPECTION END

### NOT CONFIGURED

#### NOT CONFIGURED : Diagnosis Procedure

INFOID:000000013189924

#### 1. PERFORM CONFIGURATION OF CAN GATEWAY

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## B2600 CONFIG ERROR

< DTC/CIRCUIT DIAGNOSIS >

[CAN GATEWAY]

---

Perform CAN gateway configuration. Refer to [LAN-214, "Work Procedure"](#).

>> GO TO 2.

### 2. PERFORM DTC CONFIRMATION PROCEDURE AGAIN

---

1. Turn ignition switch ON.
2. Perform DTC confirmation procedure again. Refer to [LAN-217, "DTC Description"](#).
3. Check DTC.

Is DTC B2600 detected again?

- YES >> Replace CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).  
NO >> INSPECTION END

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN GATEWAY]

## POWER SUPPLY AND GROUND CIRCUIT

### Diagnosis Procedure

INFOID:000000012555501

#### 1.CHECK FUSE

Check that the following fuse are not blown.

Signal name	Fuse No.
Battery power supply	9
Ignition power supply	30

#### Is the fuse fusing?

YES >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.

NO >> GO TO 2.

#### 2.CHECK POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the connector of CAN gateway.
3. Check voltage between CAN gateway harness connector and ground.

Terminals		Condition	Standard voltage	Reference voltage (Approx.)
(+)	(-)			
CAN gateway		Ignition switch		
Connector	Terminal			
M90	3	OFF	6 - 16 V	Battery voltage
	9	ON	4.5 - 16 V	Battery voltage

#### Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

#### 3.CHECK GROUND CIRCUIT

Check continuity between CAN gateway harness connector and ground.

CAN gateway		Ground	Continuity
Connector	Terminal		
M90	5		Existed
	11		

#### Does continuity exist?

YES >> INSPECTION END

NO >> Repair harness or connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## REMOVAL AND INSTALLATION

### CAN GATEWAY

#### Removal and Installation

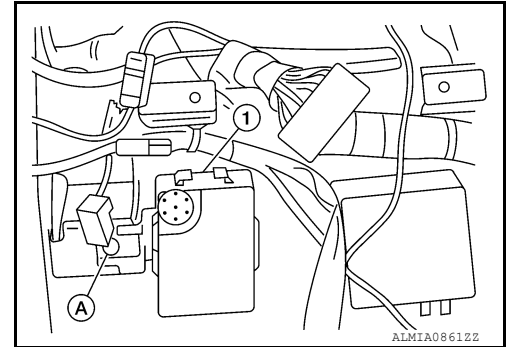
INFOID:000000012555502

**CAUTION:**

Before replacing CAN gateway, perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification. Refer to [LAN-213, "Description"](#).

**REMOVAL**

1. Disconnect the battery or batteries. Refer to [PG-174, "Battery Disconnect"](#).
2. Remove the cluster lid C. Refer to [IP-14, "Exploded View"](#).
3. Remove the CAN gateway screw (A).
4. Disconnect the harness connector from the CAN gateway.
5. Remove the CAN gateway (1).

**INSTALLATION**

Installation is in the reverse order of removal.

**CAUTION:**

To prevent malfunction, be sure to perform “After Replace ECU” of “Read / Write Configuration” or “Manual Configuration” when replacing CAN gateway. Refer to [LAN-214, "Work Procedure"](#).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013482954

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013482955

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013482957

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013482959

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.



# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013482960

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013482965

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the combination meter.

NO >> Repair the main line between the air bag diagnosis sensor unit and the combination meter.

# MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013482970

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Low tire pressure warning control unit
4. Check the continuity between the combination meter harness connector and the low tire pressure warning control unit harness connector.

Combination meter harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M123	2	Existed
	45		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the low tire pressure warning control unit.

NO >> Repair the main line between the combination meter and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013482971

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

# MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

### Diagnosis Procedure

INFOID:000000013482972

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control
  - PTC heater control unit
4. Check the continuity between the front air control harness connector and the PTC heater control unit harness connector.

Front air control harness connector		PTC heater control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	E131	1	Existed
	17		9	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control and the PTC heater control unit.

NO >> Repair the main line between the front air control and the PTC heater control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482984

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482986

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482987

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.



# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482988

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482990

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit.  
NO >> Repair the data link connector branch line.

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482995

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013482996

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1.** CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2.** CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483001

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483004

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483005

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# PTC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## PTC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483006

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the PTC heater control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of PTC heater control unit
2. Check the resistance between the PTC heater control unit harness connector terminals.

PTC heater control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	1	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the PTC heater control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the PTC heater control unit. Refer to [HAC-206, "PTC HEATER CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the PTC heater control unit.  
YES (Past error)>>Error was detected in the PTC heater control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483007

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483013

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483026

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483027

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483029

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483031

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483032

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.



# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483033

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483035

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483038

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483040

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.

NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483043

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483047

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69
  - Sonar control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector M40 and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483056

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483058

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483059

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483060

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483063

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483064

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483067

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483068

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483069

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483070

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483073

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483074

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483076

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483077

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483079

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483084

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013483086

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.



# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013483087

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

### 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483104

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483105

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013483106

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483108

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483109

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.



# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:0000000013483110

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483111

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483113

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483116

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:0000000013483117

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483119

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483121

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483125

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69
  - Sonar control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector M40 and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.



# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483134

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

- YES (Past error)>>Error was detected in the ECM branch line.  
 NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483136

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483137

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483138

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483139

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483141

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483142

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

LAN

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483145

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483146

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483147

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483148

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483151

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483152

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483153

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483154

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483155

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483157

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483162

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013483164

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013483165

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

### 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483223

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483224

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483226

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483228

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483229

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483231

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483233

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483235

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483237

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.  
NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483240

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013483248

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013483249

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483252

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483253

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483255

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483256

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483257

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483262

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483263

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483264

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483265

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1.** CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2.** CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483268

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483269

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483270

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483271

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483273

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483274

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483276

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483277

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483278

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity	
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector		Resistance (Ω)	
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.  
NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar LH branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483281

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483282

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483285

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483388

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483389

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013483390

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.



# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483392

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483393

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483394

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483396

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483398

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483400

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013483401

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483403

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483405

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013483413

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013483414

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483417

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483418

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483420

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483421

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483422

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483423

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483427

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483428

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483429

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483430

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483433

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483434

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483435

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483436

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483437

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013483438

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483439

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483441

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483442

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.



# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483443

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483446

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483447

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483450

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483536

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483537

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013483538

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483540

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483541

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483542

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483543

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483545

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483548

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.



# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013483549

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483551

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483553

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN DLC AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483555

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of around view monitor control unit.
2. Check the continuity between the harness connector and the around view monitor control unit harness connector.

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B83	26	Existed
	16J		24	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69 and the around view monitor control unit.

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483558

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483566

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483568

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483569

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.



# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483570

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483571

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483573

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483574

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483577

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483578

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483579

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483580

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.



M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000013483583

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483584

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483585

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483586

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483587

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483589

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483592

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483594

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013483596

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013483597

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013483600

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483601

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.



# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013483602

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483604

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483605

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483606

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483608

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483610

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483612

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013483613

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.
- NO >> Repair the main line between the AV control unit and the TCU.



# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483615

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483617

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483622

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013483625

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013483626

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483627

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.



# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483630

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483632

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483633

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483634

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483635

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the driver seat control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013494611

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013494606

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483641

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483642

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

#### Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013494612

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013494613

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483647

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483648

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483649

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483650

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483651

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483653

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013494614

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013494615

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483656

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483658

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013494616

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132



# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013494617

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483675

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013483676

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483677

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483679

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483681

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.



# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483682

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483687

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the combination meter.

NO >> Repair the main line between the air bag diagnosis sensor unit and the combination meter.

# MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN M&A AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483692

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Low tire pressure warning control unit
4. Check the continuity between the combination meter harness connector and the low tire pressure warning control unit harness connector.

Combination meter harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M123	2	Existed
	45		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the low tire pressure warning control unit.

NO >> Repair the main line between the combination meter and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483693

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

# MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## MAIN LINE BETWEEN HVAC AND PTC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483694

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control
  - PTC heater control unit
4. Check the continuity between the front air control harness connector and the PTC heater control unit harness connector.

Front air control harness connector		PTC heater control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	E131	1	Existed
	17		9	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control and the PTC heater control unit.

NO >> Repair the main line between the front air control and the PTC heater control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483706

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483707

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483708

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483709

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483710

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483712

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit.  
NO >> Repair the data link connector branch line.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483717

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483718

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1.** CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2.** CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483723

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483726

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483727

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# PTC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## PTC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483728

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the PTC heater control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of PTC heater control unit
2. Check the resistance between the PTC heater control unit harness connector terminals.

PTC heater control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	1	9	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the PTC heater control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the PTC heater control unit. Refer to [HAC-206, "PTC HEATER CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the PTC heater control unit.  
YES (Past error)>>Error was detected in the PTC heater control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483729

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483735

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013483822

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013483823

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483824

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483826

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.



# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483828

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483829

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483830

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483832

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483835

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

**Is the inspection result normal?**

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013494648

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.

NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483840

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013494649

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69
  - Sonar control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector M40 and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.



# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483853

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483854

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483855

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483856

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483857

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483860

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483861

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

LAN

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483864

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483865

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483866

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483867

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483870

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483871

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483873

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483874

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483876

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483881

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013483883

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013483884

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013483970

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013483971

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483972

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483974

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483976

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483977

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483978

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483980

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483983

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483985

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.
- NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483988

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013494653

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of differential lock control unit.
2. Check the continuity between the harness connector and the differential lock control unit harness connector.

Harness connector		Differential lock control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B77	8	Existed
	16J		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the differential lock control unit.

NO >> Repair the main line between the harness connector B69 and the differential lock control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484001

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484002

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484003

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484004

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484005

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013484008

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013484009

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

LAN

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484012

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484013

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

#### Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013484014

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013484015

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

LAN

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484018

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484019

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484021

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484022

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484024

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484028

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013484031

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013484032

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 10)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013483738

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013483739

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483740

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013483741

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483743

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483744

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483745

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013483746

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.



# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483748

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483751

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013483752

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483754

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483756

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## MAIN LINE BETWEEN DLC AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483760

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69
  - Sonar control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector M40 and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483769

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483770

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483771

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483772

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483773

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483774

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483776

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).  
NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483777

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483780

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483781

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.



# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013483782

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013483783

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483786

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483787

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483788

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483789

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483790

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483792

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
 YES (Past error)>>Error was detected in the BCM branch line.  
 NO >> Repair the power supply and the ground circuit.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483797

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013483799

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013483800

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 11)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013483904

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013483905

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013483906

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483908

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483910

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013483911

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483913

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013483915

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013483917

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013483919

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.
- NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013483922

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013483930

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013483931

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013483934

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483935

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483936

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483937

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483938

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483939

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483944

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483945

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).  
NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483946

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483947

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483950

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013483951

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483952

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483953

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483955

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483956

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483958

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
 YES (Past error)>>Error was detected in the BCM branch line.  
 NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483959

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483960

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013483963

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483964

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013483967

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 12)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013484101

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013484102

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013484103

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484105

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484107

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484108

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013484109

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:0000000013484111

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:0000000013484114

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013484116

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.  
NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484119

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013484122

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of differential lock control unit.
2. Check the continuity between the harness connector and the differential lock control unit harness connector.

Harness connector		Differential lock control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B77	8	Existed
	16J		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the differential lock control unit.

NO >> Repair the main line between the harness connector B69 and the differential lock control unit.

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013484126

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484132

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484133

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484134

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484135

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484136

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013484139

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013484140

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484143

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484144

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013484145

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013484146

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484149

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484150

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.



# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013484152

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484153

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484155

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484159

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484160

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.
- NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the sonar control unit branch line.
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013484162

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.



# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013484163

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 13)]

### 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013484035

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013484036

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013484037

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484039

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484041

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.



# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484042

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484044

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013484046

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013484048

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013484050

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.

NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484053

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013484061

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.



# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013484062

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013484064

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484066

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484067

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484068

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484069

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484070

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484075

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484076

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484077

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484078

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484081

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484082

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484083

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484084

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.



# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484086

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484087

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484089

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484090

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484091

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484093

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.
- NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the differential lock control unit branch line.
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013484095

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132



# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013484098

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 14)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013484169

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013484170

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013484171

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013484172

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484174

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.



# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484175

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013484176

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484178

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013484180

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013484182

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013484183

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013484185

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013484187

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.



# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013484195

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013484196

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013484199

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484200

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484201

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484202

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484203

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484204

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484205

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484209

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484210

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484211

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484212

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484215

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013484216

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).

NO >> Repair the power supply and the ground circuit.

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484217

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484218

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484219

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484220

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484221

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484223

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484224

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.



# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484225

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013484228

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013484229

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013484232

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 15)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013491581

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).



# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491582

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491583

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491584

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491586

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491587

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491588

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013491589

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.
- NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491591

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.



# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491594

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491595

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491597

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491599

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

# MAIN LINE BETWEEN DLC AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN DLC AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491601

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of around view monitor control unit.
2. Check the continuity between the harness connector and the around view monitor control unit harness connector.

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B83	26	Existed
	16J		24	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69 and the around view monitor control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013491604

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491612

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491613

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491614

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491615

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491616

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491617

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013491619

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013491620

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491623

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491624

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.



# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013491625

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013491626

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000013491629

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491630

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491631

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491632

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491633

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491635

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491638

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491640

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013491642

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013491643

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 16)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013491656

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491657

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491658

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN TCM AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491660

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491662

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491663

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491665

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491667

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.



# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491669

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN AV AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491671

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - Low tire pressure warning control unit
4. Check the continuity between the AV control unit harness connector and the low tire pressure warning control unit harness connector.
  - With audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M123	2	Existed
	17		1	Existed

- Without audio amplifier

AV control unit harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M123	2	Existed
	17		1	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the low tire pressure warning control unit.

NO >> Repair the main line between the AV control unit and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491674

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013491681

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013491682

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013491683

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013491685

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.



# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491687

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491688

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491689

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491690

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491691

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491696

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491697

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).



# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491698

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491699

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1.** CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2.** CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491702

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491703

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491704

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491705

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491707

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491708

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491710

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491711

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491712

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity	
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector		Resistance (Ω)	
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491714

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491715

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491716

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132



# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491719

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 17)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

### Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013491720

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491721

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491722

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491723

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491725

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.



# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491726

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491727

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013491728

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

LAN

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491730

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491733

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491734

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.
- NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491736

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491738

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.



# MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN DLC AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013491741

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of differential lock control unit.
2. Check the continuity between the harness connector and the differential lock control unit harness connector.

Harness connector		Differential lock control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B77	8	Existed
	16J		16	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the differential lock control unit.

NO >> Repair the main line between the harness connector B69 and the differential lock control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013494777

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491751

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491752

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491753

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491754

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491755

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491756

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013491758

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).  
NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013491759

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491762

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491763

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013491764

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013491765

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491768

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491769

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.



# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491770

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491771

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491772

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491774

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
 YES (Past error)>>Error was detected in the BCM branch line.  
 NO >> Repair the power supply and the ground circuit.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491778

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013494778

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013491781

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013491782

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 18)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013491851

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491852

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491853

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491854

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.



# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491856

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491857

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491858

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491860

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491862

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491864

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491865

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491867

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.



# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491869

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013491874

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013491877

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013491878

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491879

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491882

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.



# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491883

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491884

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491885

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491886

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491887

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491891

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491892

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491893

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491894

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491897

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491898

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491899

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491900

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

- YES (Past error)>>Error was detected in the AV control unit branch line.  
 NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491901

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491902

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491903

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491905

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491906

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491907

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491908

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491910

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491911

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132



# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491914

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 19)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013491916

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491917

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491918

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491919

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491921

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.



# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491922

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491923

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491925

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491927

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491929

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491930

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491932

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

LAN

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491934

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.



# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013491941

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013491942

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Date link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013491943

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013491945

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491947

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491948

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491949

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491950

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491951

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491952

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491956

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491957

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491958

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491959

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

#### Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.



# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491962

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491963

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491964

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491965

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491966

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491967

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491968

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491970

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491971

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491972

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491974

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the differential lock control unit branch line.

NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491975

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491976

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491979

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 20)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:000000013491982

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491983

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491984

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491985

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491987

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491988

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.



# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491989

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN A-BAG AND CGW CIRCUIT

### Diagnosis Procedure

INFOID:000000013491990

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
4. Check the continuity between the steering angle sensor harness connector and the CAN gateway harness connector.

Steering angle sensor harness connector		CAN gateway harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M90	1	Existed
	2		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the CAN gateway.

NO >> Repair the main line between the air bag diagnosis sensor unit and the CAN gateway.

# MAIN LINE BETWEEN CGW AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN CGW AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491992

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - CAN gateway
  - Combination meter
4. Check the continuity between the CAN gateway harness connector and the combination meter harness connector.

CAN gateway harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M90	1	M25	46	Existed
	7		45	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the CAN gateway and the combination meter.

NO >> Repair the main line between the CAN gateway and the combination meter.

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491995

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491996

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491998

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013492000

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.
- NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN DLC AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN DLC AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013492002

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M40	26J	Existed
	12		16J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M40.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of around view monitor control unit.
2. Check the continuity between the harness connector and the around view monitor control unit harness connector.

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B69	26J	B83	26	Existed
	16J		24	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69 and the around view monitor control unit.



# MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013492006

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector M40 and B69.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013492007

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492013

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492014

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492015

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492016

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492017

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492018

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013492020

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).

NO >> Repair the data link connector branch line (CAN communication circuit 1 side).

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013492021

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).

NO >> Repair the data link connector branch line (CAN communication circuit 2 side).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492024

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492025

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

### Diagnosis Procedure

INFOID:000000013492026

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.

NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M90	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the CAN gateway branch line (CAN communication circuit 1 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

### Diagnosis Procedure

INFOID:000000013492027

#### 1. CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

- YES >> Perform a diagnosis of the indicated DTC.
- NO >> GO TO 2.

#### 2. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Repair the terminal and connector.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair the CAN gateway branch line (CAN communication circuit 2 side).

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to [LAN-219, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the CAN gateway. Refer to [LAN-220, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
- NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492030

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492031

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.



# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492032

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492033

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492034

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492036

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
 YES (Past error)>>Error was detected in the BCM branch line.  
 NO >> Repair the power supply and the ground circuit.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492039

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492040

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013492041

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## CAN COMMUNICATION CIRCUIT 1

### Diagnosis Procedure

INFOID:000000013492043

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ECM and/or the BCM.

#### 5. CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT 1

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

---

## Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.

### **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.

### **NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

## Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

## CAN COMMUNICATION CIRCUIT 2

### Diagnosis Procedure

INFOID:000000013492044

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the CAN gateway.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 21)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.

**NOTE:**

CAN gateway has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013491785

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the transfer control unit harness connector and the ABS actuator and electric unit (control unit) harness connector.

Transfer control unit harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E125	41	Existed
	14		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the transfer control unit and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN ABS AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013491786

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ABS actuator and electric unit (control unit)
  - IPDM E/R
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the IPDM E/R harness connector.

ABS actuator and electric unit (control unit) harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E122	41	Existed
	27		40	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the IPDM E/R.



# MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN IPDM-E AND TCM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491787

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - TCM
4. Check the continuity between the IPDM E/R harness connector and the TCM harness connector.

IPDM E/R harness connector		TCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E73	63	Existed
	40		64	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the TCM.

NO >> Repair the main line between the IPDM E/R and the TCM.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN TCM AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013491788

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B54
  - Harness connector B201

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector E35 and B41
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E73	63	E35	8	Existed
	64		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491790

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491791

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013491792

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491794

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013491796

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013491798

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.



# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013491799

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN TCU AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013491801

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - Low tire pressure warning control unit
4. Check the continuity between the TCU harness connector and the low tire pressure warning control unit harness connector.

TCU harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M123	2	Existed
	7		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the low tire pressure warning control unit.

NO >> Repair the main line between the TCU and the low tire pressure warning control unit.

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013491803

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Low tire pressure warning control unit
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the low tire pressure warning control unit harness connector and the front air control harness connector or the A/C auto amp. harness connector.
  - With manual air conditioning system

Low tire pressure warning control unit harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M132	1	Existed
	11		17	Existed

- With automatic air conditioning system

Low tire pressure warning control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M123	2	M197	1	Existed
	11		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the low tire pressure warning control unit and the front air control or the A/C auto amp.

NO >> Repair the main line between the low tire pressure warning control unit and the front air control harness connector or the A/C auto amp. harness connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013491809

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector M40 and B69.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:0000000013491811

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013491812

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013491813

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.



# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013494779

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491816

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491817

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491818

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491819

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491820

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491821

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491825

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491826

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).  
NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491827

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491828

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491831

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013491832

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491833

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491834

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.



# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491835

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491836

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491837

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491839

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
 YES (Past error)>>Error was detected in the BCM branch line.  
 NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491840

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491841

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491842

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.



# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491843

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013491844

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491845

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013491848

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 22)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013844658

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the IPDM E/R harness connector.

Harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E122	41	Existed
	8		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the IPDM E/R.

NO >> Repair the main line between the harness connector E28 and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013844659

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013844660

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013844663

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013844664

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013844665

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the combination meter.

NO >> Repair the main line between the air bag diagnosis sensor unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013844666

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the combination meter harness connector and the front air control or the A/C auto amp. harness connector.
  - With manual air conditioning system (Combination meter type A)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M132	1	Existed
	42		17	Existed

- With manual air conditioning system (Combination meter type B)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M163	34	M132	1	Existed
	35		17	Existed

- With automatic air conditioning system

Combination meter harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M137	1	Existed
	42		21	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the inspection result normal?

YES (Present error)>>>Check CAN system type decision again.

YES (Past error)>>>Error was detected in the main line between the combination meter and the front air control or the A/C auto amp.

NO >>> Repair the main line between the combination meter and the front air control or the A/C auto amp.



# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013844667

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844643

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844644

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844645

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844646

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844647

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit.  
NO >> Repair the data link connector branch line.

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844648

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844649

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.



# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844650

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844651

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844652

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013844654

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013844655

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 23)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

### 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

### 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013923141

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the IPDM E/R harness connector.

Harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E122	41	Existed
	8		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the IPDM E/R.

NO >> Repair the main line between the harness connector E28 and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923142

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).



# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923143

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923144

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923145

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923170

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923171

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923173

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN AV AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923175

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector.
  - With audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M137	1	Existed
	17		21	Existed

- Without audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M137	1	Existed
	17		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the A/C auto amp.

NO >> Repair the main line between the AV control unit and the A/C auto amp.



# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923148

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923177

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923176

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923179

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923149

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923150

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923151

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923152

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924093

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924094

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923154

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923155

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923161

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

LAN

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923162

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923156

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923163

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923157

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923158

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923159

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923164

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923165

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity	
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector		Resistance (Ω)	
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923166

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923160

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923169

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 24)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND IPDM-E CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923261

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the IPDM E/R harness connector.

Harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E122	41	Existed
	8		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the IPDM E/R.

NO >> Repair the main line between the harness connector E28 and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923262

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013923334

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.



# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923341

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923264

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923265

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923266

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923267

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923268

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013923349

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923351

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.



# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923270

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923271

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923272

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923273

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923274

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923275

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.



# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923276

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923277

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Past error)>>Replace the TCM. Refer to the following.

- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
- 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923320

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924074

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924075

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923279

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923280

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:0000000013923281

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).

NO >> Repair the power supply and the ground circuit.



# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923282

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923283

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923284

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923324

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923285

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923286

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923287

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923288

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.



# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923289

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923290

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.
- NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the sonar control unit branch line.
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923291

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923292

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 25)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923383

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.



# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923384

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

LAN

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923362

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923363

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923364

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923365

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN A-BAG AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923366

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the combination meter.

NO >> Repair the main line between the air bag diagnosis sensor unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN M&A AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923367

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the combination meter harness connector and the front air control or the A/C auto amp. harness connector.
  - With manual air conditioning system (Combination meter type A)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M132	1	Existed
	42		17	Existed

- With manual air conditioning system (Combination meter type B)

Combination meter harness connector		Front air control harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M163	34	M132	1	Existed
	35		17	Existed

- With automatic air conditioning system

Combination meter harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M137	1	Existed
	42		21	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the inspection result normal?

YES (Present error)>>>Check CAN system type decision again.

YES (Past error)>>>Error was detected in the main line between the combination meter and the front air control or the A/C auto amp.

NO >> Repair the main line between the combination meter and the front air control or the A/C auto amp.



# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923368

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923369

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923381

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923370

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923371

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923372

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## DLC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923373

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit.  
NO >> Repair the data link connector branch line.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923374

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923375

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923376

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923377

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923378

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923379

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923380

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 26)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923434

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.



# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923435

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923400

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923401

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923402

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923403

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923404

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923405

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.



# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923406

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN AV AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923407

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector.
  - With audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M137	1	Existed
	17		21	Existed

- Without audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M137	1	Existed
	17		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the A/C auto amp.

NO >> Repair the main line between the AV control unit and the A/C auto amp.

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923408

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923409

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923410

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923411

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.



# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923412

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923433

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923413

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923414

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923415

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924062

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924063

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923417

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.



# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923418

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

#### Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

#### Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923419

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923420

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923421

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923422

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923423

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923424

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923425

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.



# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923426

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923427

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923428

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

YES-1 >> Models with blind spot warning system: GO TO 2.

YES-2 >> Models without blind spot warning system: GO TO 4.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923429

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
 NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
 NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

LAN

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923430

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 27)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013923436

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923437

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

#### Is the inspection result normal?

YES (Present error)>>>Check CAN system type decision again.

YES (Past error)>>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >>> Repair the main line between the transfer control unit and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923438

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923439

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923440

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923441

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923442

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.



# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923443

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923444

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN AV AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923445

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector.
  - With audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M137	1	Existed
	17		21	Existed

- Without audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M137	1	Existed
	17		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the A/C auto amp.

NO >> Repair the main line between the AV control unit and the A/C auto amp.

LAN

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923446

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923447

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923448

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013923477

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.



# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923450

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923451

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923452

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923453

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923454

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924012

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013924013

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).



# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923456

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923457

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1.** CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2.** CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923458

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923459

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923460

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923461

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923462

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923463

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.



# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923464

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923465

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923466

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923470

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

- 2. Disconnect the connector of differential lock control unit.
- 3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.
- NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the differential lock control unit branch line.
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923468

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923469

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.



# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 28)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

### Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923479

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.  
NO >> Repair the main line between the harness connector E28 and the transfer control unit.

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923480

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

LAN

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923481

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013923515

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923516

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923483

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923484

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.



# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923485

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923486

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923487

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013923517

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.
- NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923518

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923489

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.
- NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923490

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.



# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923491

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923492

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

# MAIN LINE BETWEEN RDR-L AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

NO >> Repair the main line between the harness connector E51 and E152.

## 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES >> GO TO 7.

NO >> Repair the main line between the harness connector B69.

## 7.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
P

LAN

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923493

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923494

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923495

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923496

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923497

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Past error)>>Replace the TCM. Refer to the following.

- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
- 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923513

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923978

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923979

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923499

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923500

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923501

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923502

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923503

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923504

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923514

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923505

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923506

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923507

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923508

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923509

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923510

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.



# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923511

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923512

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 29)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923519

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923520

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923521

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).



# MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923522

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B69 and M40.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B69	12J	Existed
	7		22J	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector B41 and B69.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

---

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923523

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923524

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923525

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923526

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923527

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN AV AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923528

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector.
  - With audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M137	1	Existed
	17		21	Existed

- Without audio amplifier

AV control unit harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M137	1	Existed
	17		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the A/C auto amp.

NO >> Repair the main line between the AV control unit and the A/C auto amp.



# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923529

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923530

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Date link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923531

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013923532

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923554

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923533

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.



# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923534

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923535

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923536

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923537

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923976

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923977

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923539

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923540

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.



# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923541

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923542

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923543

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923544

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923545

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923546

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923547

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923548

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.



# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923549

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923550

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923553

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923551

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923552

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.



# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 30)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923556

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923557

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923558

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013923559

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923560

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923561

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

LAN

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923562

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.



# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923563

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923564

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923565

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013923566

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923567

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923568

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

- YES (Present error)>>Check CAN system type decision again.
- YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.
- NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923569

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.



# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923570

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013923595

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923596

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Around view monitor control unit
  - Harness connector B69 and M40
2. Check the continuity between the around view monitor control unit harness connector and the harness connector.

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B83	26	B69	42J	Existed
	24		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the around view monitor control unit harness connector and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.

NO >> Repair the main line between the harness connectors M40 and the sonar control unit.

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923572

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923573

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923574

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923575

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.



# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923576

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923577

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923973

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).  
NO >> Repair the data link connector branch line (CAN communication circuit side).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:0000000013923974

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923579

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56. "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923580

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

---

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

---

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923581

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923582

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.



# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923583

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the combination meter branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923584

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923585

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923586

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923587

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88. "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202. "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118. "Removal and Installation"](#)
- Manual air conditioner: [HAC-229. "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923588

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923589

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106, "SIDE RADAR RH: Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923590

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.



# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923594

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit blanch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

## AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

### 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923591

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the sonar control unit branch line.

NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923592

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	6 14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance (Ω)
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

---

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

### 5.CHECK SYMPTOM

---

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

### 6.CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923593

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

## ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 31)]

---

### 6. CHECK UNIT REPRODUCTION

---

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.



# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:0000000013923683

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923684

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

#### Is the inspection result normal?

YES (Present error)>>>Check CAN system type decision again.

YES (Past error)>>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >>> Repair the main line between the transfer control unit and the IPDM E/R.

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923685

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013923686

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923687

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923688

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923689

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923690

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.



# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923691

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923692

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013923693

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

LAN

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923694

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923695

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923696

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Date link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923697

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.



# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013923725

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.

# MAIN LINE BETWEEN RDR-L AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923726

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923699

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923700

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923701

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E125	41	27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923702

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923703

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the TCM branch line.

NO >> Repair the power supply and the ground circuit.



# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923704

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923972

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923975

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).

NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923706

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923707

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

- YES >> Replace the main harness.  
NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923708

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923709

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923710

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
NO >> Repair the power supply and the ground circuit.



# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923711

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
  2. Check the resistance between the AV control unit harness connector terminals.
- With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

NO >> Repair the power supply and the ground circuit.

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923712

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923713

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923714

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:0000000013923715

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923716

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar RH branch line.

NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923717

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923724

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.



# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the differential lock control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923718

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923719

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923720

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 32)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## DTC/CIRCUIT DIAGNOSIS

### MAIN LINE BETWEEN TCM AND 4WD CIRCUIT

#### Diagnosis Procedure

INFOID:000000013923925

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector F19
  - Harness connector E28

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - TCM
  - Harness connector F19 and E28
2. Check the continuity between the TCM harness connector and the harness connector.

TCM harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
F46	3	F19	4	Existed
	8		8	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the TCM and the harness connector F19.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and the transfer control unit harness connector.

Harness connector		Transfer control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E28	4	E142	13	Existed
	8		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCM and the transfer control unit.

NO >> Repair the main line between the harness connector E28 and the transfer control unit.



# MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN 4WD AND IPDM-E CIRCUIT

### Diagnosis Procedure

INFOID:000000013923926

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Transfer control unit
  - IPDM E/R
4. Check the continuity between the transfer control unit harness connector and the IPDM E/R harness connector.

Transfer control unit harness connector		IPDM E/R harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E142	13	E122	41	Existed
	14		40	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the transfer control unit and the IPDM E/R.

NO >> Repair the main line between the transfer control unit and the IPDM E/R.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN IPDM-E AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923927

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - IPDM E/R
  - ABS actuator and electric unit (control unit)
4. Check the continuity between the IPDM E/R harness connector and the ABS actuator and electric unit (control unit) harness connector.

IPDM E/R harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E122	41	E125	41	Existed
	40		27	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the IPDM E/R and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ABS AND ADP CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN ABS AND ADP CIRCUIT

### Diagnosis Procedure

INFOID:000000013923928

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector E35
  - Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - ABS actuator and electric unit (control unit)
  - Harness connector E35 and B41
2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E125	41	E35	8	Existed
	27		7	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E35.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B54 and B201.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B41	8	B54	5	Existed
	7		4	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.

NO >> Repair the main line between the harness connector B41 and B54.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN ADP AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923929

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Harness connector B54 and B201
  - Harness connector B69 and M40
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B54	5	B69	12J	Existed
	4		22J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector B54 and B69.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector and data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	12J	M22	6	Existed
	22J		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the data link connector.

NO >> Repair the main line between the harness connector M40 and the data link connector.

# MAIN LINE BETWEEN DLC AND STRG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN DLC AND STRG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923930

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
4. Check the continuity between the data link connector and the steering angle sensor harness connector.

Data link connector		Steering angle sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M17	5	Existed
	14		2	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the steering angle sensor.

NO >> Repair the main line between the data link connector and the steering angle sensor.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN STRG AND A-BAG CIRCUIT

### Diagnosis Procedure

INFOID:000000013923931

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - Combination meter
4. Check the continuity between the steering angle sensor harness connector and the combination meter harness connector.
  - Diesel engine models

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	46	Existed
	2		45	Existed

- Gasoline engine models (Combination meter type A)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M25	41	Existed
	2		42	Existed

- Gasoline engine models (Combination meter type B)

Steering angle sensor harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M163	34	Existed
	2		35	Existed

#### NOTE:

Check the combination meter type to confirm the service information. Refer to [MWI-5. "Information"](#).

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the steering angle sensor and the air bag diagnosis sensor unit.

NO >> Repair the main line between the steering angle sensor and the air bag diagnosis sensor unit.

# MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN A-BAG AND ICC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923932

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Steering angle sensor
  - ADAS control unit
4. Check the continuity between the steering angle sensor harness connector and the ADAS control unit harness connector.

Steering angle sensor harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M17	5	M128	9	Existed
	2		10	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the ADAS control unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the ADAS control unit.

LAN

# MAIN LINE BETWEEN ICC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN ICC AND M&A CIRCUIT

### Diagnosis Procedure

INFOID:000000013923933

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - ADAS control unit
  - Combination meter
4. Check the continuity between the ADAS control unit harness connector and the combination meter harness connector.
  - Diesel engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	46	Existed
	10		45	Existed

- Gasoline engine models

ADAS control unit harness connector		Combination meter harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M128	9	M25	41	Existed
	10		42	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the combination meter.

NO >> Repair the main line between the ADAS control unit and the combination meter.



# MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN M&A AND AV CIRCUIT

### Diagnosis Procedure

INFOID:000000013923934

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Combination meter
  - AV control unit
4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
  - Diesel engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M43	8	Existed
	45		17	Existed

- Diesel engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	46	M97	8	Existed
	45		17	Existed

- Gasoline engine models (With audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M43	8	Existed
	42		17	Existed

- Gasoline engine models (Without audio amplifier)

Combination meter harness connector		AV control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	41	M97	8	Existed
	42		17	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the AV control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# MAIN LINE BETWEEN AV AND TCU CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN AV AND TCU CIRCUIT

### Diagnosis Procedure

INFOID:000000013923935

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - AV control unit
  - TCU
4. Check the continuity between the AV control unit harness connector and the TCU harness connector.
  - With audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M43	8	M197	6	Existed
	17		7	Existed

- Without audio amplifier

AV control unit harness connector		TCU harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M97	8	M197	6	Existed
	17		7	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the AV control unit and the TCU.

NO >> Repair the main line between the AV control unit and the TCU.

# MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN TCU AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:000000013923936

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - TCU
  - A/C auto amp. (with automatic air conditioning system)
4. Check the continuity between the TCU harness connector and the A/C auto amp. harness connector.

TCU harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M197	6	M137	1	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the TCU and the A/C auto amp.

NO >> Repair the main line between the TCU and the A/C auto amp.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN HVAC AND TPMS CIRCUIT

### Diagnosis Procedure

INFOID:000000013923937

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
  - ECM
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
  - Low tire pressure warning control unit
4. Check the continuity between the front air control harness connector or the A/C auto amp. harness connector and the low tire pressure warning control unit harness connector.
  - With manual air conditioning system

Front air control harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M132	1	M123	2	Existed
	17		1	Existed

- With automatic air conditioning system

A/C auto amp. harness connector		Low tire pressure warning control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M137	1	M123	2	Existed
	21		1	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

NO >> Repair the main line between the front air control or the A/C auto amp. and the low tire pressure warning control unit.

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

### Diagnosis Procedure

INFOID:000000013923938

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M31
  - Harness connector E152
  - Harness connector E51
  - Harness connector C20
  - Harness connector C23
  - Harness connector C108

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M31 and E152.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	13	M31	52G	Existed
	12		51G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the data link connector and the harness connector M31.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E51 and C20.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E152	52G	E51	6	Existed
	51G		12	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector E152 and E51.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors C23 and C108.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C20	6	C23	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector C20 and C23.

A

B

C

D

E

F

G

H

I

J

K

L

LAN

N

O

P

# MAIN LINE BETWEEN DLC AND RDR-R CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the side radar RH harness connector.
2. Check the continuity between the harness connector and the side radar RH harness connector.

Harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C108	1	C117	6	Existed
	7		7	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the data link connector and the side radar RH.

NO >> Repair the main line between the harness connector C108 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN RDR-R AND RDR-L CIRCUIT

### Diagnosis Procedure

INFOID:000000013923939

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector C23 and C108.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar RH and the side radar LH.

NO >> Repair the main line between the harness connector C108.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

### Diagnosis Procedure

INFOID:000000013923966

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector C108
  - Harness connector C23
  - Harness connector C20
  - Harness connector E51
  - Harness connector E152
  - Harness connector M31
  - Harness connector M40
  - Harness connector B69

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector C108 and C23.
2. Check the continuity between the harness connectors.

Connector No.	Terminal No.	Terminal No.	Continuity
C108	1	6	Existed
	7	12	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector C108.

#### 3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors C20 and E51.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
C23	6	C20	1	Existed
	12		7	Existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair the main line between the harness connector C23 and C20.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors E152 and M31.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E51	1	E152	81G	Existed
	7		80G	Existed

Is the inspection result normal?

YES >> GO TO 5.

NO >> Repair the main line between the harness connector E51 and E152.



# MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## 5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M40 and B69.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M31	81G	M40	26J	Existed
	80G		16J	Existed

Is the inspection result normal?

YES >> GO TO 6.

NO >> Repair the main line between the harness connector M31 and M40.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit.

NO >> Repair the main line between the harness connector B69.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN AVM AND DIFF CIRCUIT

### Diagnosis Procedure

INFOID:000000013923968

#### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the harness connector M40 and B69.
4. Check the continuity between the harness connectors.

Connector No.	Terminal No.		Continuity
B69	26J	42J	Existed
	16J	32J	Existed

#### Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the differential lock control unit.

NO >> Repair the main line between the harness connector B69.

# MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## MAIN LINE BETWEEN DIFF AND SONAR CIRCUIT

### Diagnosis Procedure

INFOID:000000013923941

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector B69
  - Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
  - Differential lock control unit
  - Harness connector B69 and M40
2. Check the continuity between the differential lock control unit harness connector and the harness connector.

Differential lock control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B77	8	B69	42J	Existed
	16		32J	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the differential lock control unit and the harness connector B69.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sonar control unit.
2. Check the continuity between the harness connector and the sonar control unit harness connector.

Harness connector		Sonar control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	42J	M114	5	Existed
	32J		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the differential lock control unit and the sonar control unit.

NO >> Repair the main line between the harness connector M40 and the sonar control unit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# ECM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923942

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ECM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
  2. Check the resistance between the ECM harness connector terminals.
- Diesel engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E93	33	16	Approx. 108 – 132

- Gasoline engine models

ECM harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
E16	124	123	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ECM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- CUMMINS 5.0L: [EC-1198, "Diagnosis Procedure"](#)
- VK56VD: [EC-1457, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ECM. Refer to the following.
- CUMMINS 5.0L: [EC-1254, "Removal and Installation"](#)
  - VK56VD: [EC-1932, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the ECM branch line.

- NO >> Repair the power supply and the ground circuit.

# 4WD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923943

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of transfer control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of transfer control unit.
2. Check the resistance between the transfer control unit harness connector terminals.

Transfer control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E142	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the transfer control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the transfer control unit. Refer to [DLN-88, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the transfer control unit. Refer to [DLN-100, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the transfer control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923944

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Resistance ( $\Omega$ )
Connector No.	Terminal No.	
E125	41                      27	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to [BRC-140. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-163. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.  
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923945

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E122	41	40	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the IPDM E/R branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-42, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-43, "Removal and Installation of IPDM E/R"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923946

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCM.
  2. Check the resistance between the TCM harness connector terminals.
- Diesel engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E73	63	64	Approx. 54 – 66

- Gasoline engine models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F46	13	14	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to the following.

- 6AT RE6R01A: [TM-208, "Diagnosis Procedure"](#)
- 7AT RE7R01B: [TM-437, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Past error)>>Replace the TCM. Refer to the following.
- 6AT RE6R01A: [TM-222, "Removal and Installation"](#)
  - 7AT RE7R01B: [TM-464, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the TCM branch line.  
NO >> Repair the power supply and the ground circuit.



# ADP BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ADP BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923947

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Driver seat control unit
  - Harness connector B201
  - Harness connector B54

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of driver seat control unit.
2. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B222	16	32	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

#### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-76, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-140, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the driver seat control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923969

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit side).

NO >> Repair the data link connector branch line (CAN communication circuit side).

# DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## DLC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923970

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the data link connector for damage, bend and loose connection (connector side and harness side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M22	13	12	Approx. 54 – 66

Is the measurement value within the specification?

- YES (Present error)>>Check CAN system type decision again.  
YES (Past error)>>Error was detected in the data link connector branch line circuit (ITS communication circuit).  
NO >> Repair the data link connector branch line (ITS communication circuit).

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## STRG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923949

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the steering angle sensor for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M17	5	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the steering angle sensor branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-56, "Wiring Diagram"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-165, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the steering angle sensor branch line.  
NO >> Repair the power supply and the ground circuit.

# A-BAG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## A-BAG BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923950

#### **WARNING:**

- Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)
- Never use unspecified tester or other measuring device.

#### **1**.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

#### **2**.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to [SRC-32, "Work Flow"](#).

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923951

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M128	9	10	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (CAN communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (CAN communication circuit side).  
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ICC BRANCH LINE CIRCUIT (ITS COMMUNICATION CIRCUIT)

### Diagnosis Procedure

INFOID:000000013923952

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	
M128	2	18
	5	6

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the ADAS control unit branch line (ITS communication circuit side).

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to [DAS-48. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the ADAS control unit. Refer to [DAS-49. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the ADAS control unit branch line (ITS communication circuit side).  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

## M&A BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923953

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the combination meter for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
  2. Check the resistance between the combination meter harness connector terminals.
- Diesel engine models

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	46	45	Approx. 54 – 66

- Gasoline engine models (Combination meter type A)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	41	42	Approx. 54 – 66

- Gasoline engine models (Combination meter type B)

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M163	34	35	Approx. 54 – 66

**NOTE:**

Check the combination meter type to confirm the service information. Refer to [MWI-5, "Information"](#).

Is the measurement value within the specification?

- YES >> GO TO 3.  
 NO >> Repair the combination meter branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to the following.

- TYPE A: [MWI-87, "COMBINATION METER : Diagnosis Procedure"](#)
- TYPE B: [MWI-167, "COMBINATION METER : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to the following.
- TYPE A: [MWI-108, "Removal and Installation"](#)
  - TYPE B: [MWI-186, "Removal and Installation"](#)
- YES (Past error)>>Error was detected in the combination meter branch line.  
 NO >> Repair the power supply and the ground circuit.



# AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923954

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.
  - With audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M43	8	17	Approx. 54 – 66

- Without audio amplifier

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M97	8	17	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the AV control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Navigation without amplifier: [AV-131, "Diagnosis Procedure"](#)
- Navigation with amplifier: [AV-234, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Navigation without amplifier: [AV-157, "Removal and Installation"](#)
  - Navigation with amplifier: [AV-277, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the AV control unit branch line.

- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
N  
O  
P

LAN

# TCU BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## TCU BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923955

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the TCU for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M197	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the TCU branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to [AV-435, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the TCU. Refer to [AV-439, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the TCU branch line.  
NO >> Repair the power supply and the ground circuit.

# TPMS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## TPMS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923956

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the low tire pressure warning control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

Low tire pressure warning control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M123	2	1	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the low tire pressure warning control unit.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to [WT-53, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the low tire pressure warning control unit. Refer to [WT-74, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923957

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the following harness connectors.
  - Front air control (with manual air conditioning system)
  - A/C auto amp. (with automatic air conditioning system)
2. Check the resistance between the front air control harness connector or the A/C auto amp. harness connector terminals.
  - With manual air conditioning system

Front air control harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M132	1	17	Approx. 54 – 66

- With automatic air conditioning system

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M137	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the front air control or the A/C auto amp. branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-88, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- Manual air conditioner: [HAC-202, "FRONT A/C CONTROL : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the front air control or the A/C auto amp. Refer to the following.

- Automatic air conditioner: [HAC-118, "Removal and Installation"](#)
- Manual air conditioner: [HAC-229, "Removal and Installation"](#)

YES (Past error)>>Error was detected in the front air control or the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

# BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923958

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M19	60	59	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the BCM branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-72. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-79. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

# RDR-R BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## RDR-R BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923959

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar RH
  - ADAS control unit

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to [DAS-108. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 4.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar RH.
3. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C117	6	7	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Repair the side radar RH branch line.

#### 5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to [DAS-106. "SIDE RADAR RH : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the side radar RH. Refer to [DAS-120. "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the side radar RH branch line.  
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## RDR-L BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923960

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Side radar LH
  - ADAS control unit

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of side radar LH.
3. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
C116	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the side radar LH branch line.

#### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to [DAS-106, "SIDE RADAR LH : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to [DAS-120, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the side radar LH branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
LAN  
N  
O  
P

# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## AVM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923965

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - Around view monitor control unit
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the around view monitor control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.



# AVM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B83	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Repair the around view monitor control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to [AV-357, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to [AV-360, "Removal and Installation"](#).

YES (Past error)>>Error was detected in the around view monitor control unit branch line.

NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## DIFF BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923961

#### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Differential lock control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of differential lock control unit.
3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the differential lock control unit branch line.

#### 4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5. CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# DIFF BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

- 2. Disconnect the connector of differential lock control unit.
- 3. Check the resistance between the differential lock control unit harness connector terminals.

Differential lock control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B77	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.
- NO >> Repair the differential lock control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the differential lock control unit. Refer to [DLN-273, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the differential lock control unit. Refer to [DLN-281, "Removal and Installation"](#).
- YES (Past error)>>Error was detected in the differential lock control unit branch line.
- NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## SONAR BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000013923962

#### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
  - CAN gateway (Models without blind spot warning system)
  - ADAS control unit (Models with blind spot warning system)
  - Sonar control unit

Is the inspection result normal?

- YES-1 >> Models with blind spot warning system: GO TO 2.  
YES-2 >> Models without blind spot warning system: GO TO 4.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
M128	2	18	Existed
	5	6	Existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause (ITS communication circuit side).

#### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of ADAS control unit.
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit blanch line.

#### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M90	4	6	Existed
	10	12	Existed

Is the inspection result normal?

- YES >> GO TO 5.  
NO >> Check the harness and repair the root cause (CAN communication circuit 2 side).

#### 5.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.

# SONAR BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M114	5	6	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 6.  
NO >> Repair the sonar control unit branch line.

## 6. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to [SN-57, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the sonar control unit. Refer to [SN-66, "Removal and Installation"](#).  
YES (Past error)>>Error was detected in the sonar control unit branch line.  
NO >> Repair the power supply and the ground circuit.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923963

#### 1. CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M22	6	14	Not existed

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	6		Not existed
	14		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4. CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.
  - Diesel engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
33	16	Approx. 108 – 132

- Gasoline engine models

ECM		Resistance ( $\Omega$ )
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance ( $\Omega$ )
Terminal No.		
60	59	Approx. 108 – 132

# CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.

**NOTE:**

ECM and BCM have a termination circuit. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P

# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## ITS COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000013923964

#### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on ITS communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair the terminal and connector.

#### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
M22	13	Not existed
	12	

Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Check the harness and repair the root cause.

#### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M22	13		Not existed
	12		Not existed

Is the inspection result normal?

- YES >> GO TO 4.  
NO >> Check the harness and repair the root cause.

#### 4.CHECK ADAS CONTROL UNIT TERMINATION CIRCUIT

1. Remove the ADAS control unit.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
2	18	Approx. 108 – 132
5	6	Approx. 108 – 132

Is the measurement value within the specification?

- YES >> GO TO 5.  
NO >> Replace the ADAS control unit.

#### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

- Reproduced>>GO TO 6.  
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.



# ITS COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 33)]

## 6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.

**NOTE:**

ADAS control unit has two termination circuits. Check other units first.

4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

**NOTE:**

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L

LAN

N  
O  
P