# SECTION LAN SYSTEM

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## PRECAUTIONS

#### [CAN] PRECAUTIONS PFP:00001 A Precautions for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT **BELT PRE-TENSIONER**" AKS00CG9 The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along В 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. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front C air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the SRS 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, all maintenance must be performed by an authorized NISSAN/INFINITI dealer. F Improper maintenance, 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 SRS section. F 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 CONSULT-II AKSODARN When connecting CONSULT-II to data link connector, connect them through CONSULT-II CONVERTER. Н **CAUTION:** If CONSULT-II is used with no connection of CONSULT-II CONVERTER, malfunctions might be detected in self-diagnosis depending on control unit which carry out CAN communication. CHECK POINTS FOR USING CONSULT-II 1 Has CONSULT-II been used without connecting CONSULT-II CONVERTER on this vehicle? If YES, GO TO 2. If NO, GO TO 5. Is there any indication other than indications relating to CAN communication system in the self-diagnosis 2. results? LAN If YES, GO TO 3. If NO, GO TO 4. L 3. Based on self-diagnosis results unrelated to CAN communication, carry out the inspection. 4 Malfunctions may be detected in self-diagnosis depending on control units carrying out CAN communication. Therefore, erase the self-diagnosis results. Diagnose CAN communication system. Refer to LAN-5. "TROUBLE DIAGNOSES WORK FLOW" . Μ 5. **Precautions for Trouble Diagnosis** AKS000BF **CAN SYSTEM** Do not apply voltage of 7.0 V or higher to the measurement terminals. Use the tester with its open terminal voltage being 7.0 V or less. Be sure to turn ignition switch OFF and disconnect the battery cable from the negative terminal before checking the circuit.

#### Precautions for Harness Repair CAN SYSTEM

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- Solder the repaired parts, and wrap with tape. [Frays of twisted line must be within 110 mm (4.33 in).]
  - nections for the repair parts.
  - Do not perform bypass wire connections for the repair parts. (The spliced wire will become separated and the characteristics of twisted line will be lost.)

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	[CAN]
ROUBLE DIAGNOSES WORK FLOW	PFP:00004
hen Displaying CAN Communication System Errors HEN A MALFUNCTION IS DETECTED BY CAN COMMUNICATION SYSTEM	AKS00CBK
CAN communication line is open. (CAN H, CAN L, or both)	
CAN communication line is shorted. (Ground, between CAN lines, or other harnesses)	
I he areas related to CAN communication of unit is malfunctioning.	
HEN A MALFUNCTION IS DETECTED EXCEPT CAN COMMUNICATION SYSTEM	core related
to CAN communication are removed and installed, malfunction may be detected (or DTC othe communication may be detected).	r than CAN
Fuse blown out (removed): CAN communication of the unit may be stopped at such time.	
Low voltage: If the voltage decreases because of battery discharge when IGN is ON, malfunct detected by self-diagnosis according to the units.	tion may be
	<ul> <li>ROUBLE DIAGNOSES WORK FLOW</li> <li>hen Displaying CAN Communication System Errors En A MALFUNCTION IS DETECTED BY CAN COMMUNICATION SYSTEM</li> <li>CAN communication line is open. (CAN H, CAN L, or both)</li> <li>CAN communication line is shorted. (Ground, between CAN lines, or other harnesses)</li> <li>The areas related to CAN communication of unit is malfunctioning.</li> <li>HEM AMALFUNCTION IS DETECTED EXCEPT CAN COMMUNICATION SYSTEM</li> <li>Removal and installation of parts: When the units that perform CAN communication or the sens to CAN communication are removed and installed, malfunction may be detected (or DTC othe communication may be detected).</li> <li>Fuse blown out (removed): CAN communication of the unit may be stopped at such time.</li> <li>Low voltage: If the voltage decreases because of battery discharge when IGN is ON, malfunct detected by self-diagnosis according to the units.</li> </ul>

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#### **TROUBLE DIAGNOSIS FLOW CHART**

Depending on the control unit which performs CAN communication, "U1010" may be indicated as the result of self-diagnosis. Replace the control unit if "U1010" is indicated.



- Step 1: Refer to <u>LAN-7, "SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)"</u>.
- Step 2: Refer to LAN-8, "ACQUISITION OF DATA BY CONSULT-II" .
- Step 3: Refer to LAN-9, "HOW TO USE CHECK SHEET TABLE" .
- Step 4: Refer to LAN-10, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced" .
- Step 5: Check and repair according to system diagnosis.

## [CAN]

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#### Diagnosis Procedure SELECTING CAN SYSTEM TYPE (HOW TO USE SPECIFICATION TABLE)

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Determine CAN system type from the equipment of the vehicle to select applicable check sheet.

· ·	ecting your (	CAN syster	m type fron	n the follow	ing table.		
Body type			Se	dan			ר   ר
Axle	21	VD	A	ND	21	VD	
Engine			VQ	35DE			Check basic specification of the vehicle.
Transmission		A/T M/T					
Brake control			V	DC			J
Intelligent Key system		×		×			Select " ×" if it is model with Intelligent Key
Automatic drive positioner		×		×		×	Select "×" if it is model with Automatic drive
CAN system type	1	2	3	4	5	6	positioner system.
CAN system trouble diagnosis	XX-XX	XX·XX	XX-XX	XX:XX	XX-XX	XX·XX	sequentially selecting from the top of
< : Applicable							the specification table?
							The number is "CAN system type" of
							the applicable vehicle.
							In the case of this example:
							It corresponds to type 3.
							PKIB8623E

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#### **ACQUISITION OF DATA BY CONSULT-II**

Attach the data acquired by CONSULT-II on the check sheet determined according to CAN system type.



#### HOW TO USE CHECK SHEET TABLE



- "No indication": Put a check mark to it if the unit name described in step 1 is not displayed on "SELECT SYSTEM" screen of CONSULT-II. (Unit communicating with CONSULT-II via CAN communication line) "–": Column not used (Unit communicating with CONSULT-II excluding CAN communication line)
- 3. "NG": Display "NG" when malfunction is detected in the initial diagnosis of the diagnosed unit. Replace the unit if "NG" is displayed.
  - "-": Column not used (Initial diagnosis is not performed.)
- "UNKWN": Display "UNKWN" when the diagnosed unit does not transmit the data normally. Put a check mark to it if "UNKWN" is displayed on CONSULT-II.
   "-": Column not used (Transmit diagnosis is not performed.)
- 5. "UNKWN": Display "UNKWN" when the diagnosed unit does not receive the data normally. Put a check mark to it if "UNKWN" is displayed on CONSULT-II.

#### "-": Column not used (It is not necessary for CAN communication trouble diagnosis.)

#### NOTE:

CAN communication diagnosis checks if CAN communication works normally. (Contents of data are not diagnosed.)

- When the initial conditions are reproduced, refer to <u>LAN-10</u>, "Example of Filling in Check Sheet When Initial Conditions Are Reproduced".
- When the initial conditions are not reproduced, refer to <u>LAN-13</u>, "Example of Filling in Check Sheet When <u>Initial Conditions Are Not Reproduced</u>".

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#### Example of Filling in Check Sheet When Initial Conditions Are Reproduced CAN DIAG SUPPORT MNTR CAN DIAG SUPPORT MNTE ENGINE ENGINE PRSNT PRSNT TRANSMIT DIAG INITIAL DIAG OK OK TRANSMIT DIAG OK TCM OK TCM OK VDC/TCS/ABS OK VDC/TCS/ABS OK OK METER/M&A METER/M&A OK ICC UNKWN ICC UNKWN BCM/SEC UNKWN IPDM E/R BCN UNKWN OK IPDM E/B AWD/4WD/e4WD OK AWD/4WD/e4WD OK EPS UNKWN Scroll Down PRINT PRINT Scroll Up MODE BACK LIGHT COPY MODE BACK LIGHT COPY Check sheet table CAN DIAG SUPPORT MNTR SELECT SYSTEM S SELF-DIAG RESULTS Initial Transm /DC/TCS/ /ABS METER /M&A BCM /SEC WD/4WD /e4WD IPDM E/R iagnosi iagno ECM тсм STRG CAN COMM CIRCUITICAN COMM CIRCUI \_ \_ ENGINE \_ NG UNKW UNKWI UNKW UNKWI UNKW JNKW (U1000) CAN COMM CIRCUI (U1001) \_ -\_ NG UNKW UNKW UNKW UNKWI UNKW \_ (U1000) CAN COMM CIRCU \_ \_ ABS NG \_ \_ UNKW UNKW INKW UNKWI UNKWI UNKWI \_ (U1000) CAN COMM CIRCUI \_ \_ UNKWN \_ \_ \_ \_ NG UNKW ALL MODE AWD UNKW UNKW (U1000) CAN COMM CIRCUI BCM NG \_ \_ \_ UNKWN \_ \_ \_ UNKW JNKW UNKW lo ind**ic**a (U1000) CAN COMM CIRCUI \_ IPDM E/R \_ UNKWN UNKW \_ \_ \_ UNKWM \_ \_ \_ (U1000) SELECT SYSTEM ENGINE A/T ABS AIR BAG ALL MODE AWD/4WD IPDM F/B BACK LIGHT COPY PKIC4701E

1. Put a check mark to "No indication" if some of unit names listed on the column of diagnosis system selection screen of a check sheet table are not displayed on "SELECT SYSTEM" screen attached to the check sheet.

#### NOTE:

Put a check mark to "No indication" of BCM because BCM is not displayed on "SELECT SYSTEM" screen.

2. Confirm the unit name that "UNKWN" is displayed from the copy of "CAN DIAG SUPPORT MNTR" screen of "ENGINE" attached to the check sheet, and then put a check mark to the check sheet table.

#### NOTE:

In "CAN DIAG SUPPORT MNTR" screen, "UNKWN" is displayed on "ICC", "BCM/SEC" and "EPS". But put a check mark to "BCM/SEC" because "UNKWN" is listed on the column of reception diagnosis of the check sheet table.



3. Confirm the unit name that "UNKWN" is displayed on the copy of "CAN DIAG SUPPORT MNTR" screen of "A/T", "ABS", "ALL MODE AWD/4WD" and "IPDM E/R" as well as "ENGINE". And then, put a check mark to the check sheet table.

NOTE:

- For "A/T", "UNKWN" is displayed on "ICC/e4WD". But, do not put a check mark to their columns of reception diagnosis of the check sheet table because "UNKWN" is not listed.
- For "ABS", "UNKWN" is not displayed. Do not put a check to it.
- For "ALL MODE AWD/4WD", "UNKWN" is displayed on "TCM". But, do not put a check mark to their columns of reception diagnosis of the check sheet table because "UNKWN" is not listed.
- For "IPDM E/R", "UNKWN" is displayed on "BCM/SEC". Put a check mark to it.

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#### NOTE:

There is a case that some of "CAN DIAG SUPPORT MNTR" and "SELF-DIAG RESULTS" are not needed for diagnosis. In the case, "UNKWN" and "CAN COMM CIRCUIT [U1000]" in "Check sheet results (example)" change to "–". Then, ignore check marks on the check sheet table.

- 4. Perform system diagnosis for possible causes identified.
- 5. Perform diagnosis again after inspection and repair. Make sure that repair is completely performed, and then end the procedure.

Start CAN system trouble diagnosis if this procedure can be confirmed. Refer to <u>LAN-21</u>, "CAN Communication Unit".

#### Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced



- For "A/T", "NO DTC IS DETECTED" is displayed. Do not put a check mark to it.
- For "ABS", "NO DTC IS DETECTED" is displayed. Do not put a check mark to it.
- For "ALL MODE AWD/4WD", "NO DTC IS DETECTED" is displayed. Do not put a check mark to it.
- For "BCM", "NO DTC IS DETECTED" is displayed. Do not put a check mark to it.
- For "IPDM E/R", "CAN COMM CIRCUIT [U1000]" is displayed. Put a check mark to it.

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#### NOTE:

There is a case that some of "CAN DIAG SUPPORT MNTR" and "SELF-DIAG RESULTS" are not needed for diagnosis. In the case, "UNKWN" and "CAN COMM CIRCUIT [U1000]" in "Check sheet results (example)" change to "–". Then, ignore check marks on the check sheet table.

2. For the selected possible causes, it is expected that malfunctions have been found in the past.

#### CAN Diagnostic Support Monitor DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR ECM

(Example)	CAN DIAG SUPPORT MNTR	CAN DIAG SUPPORT MNTR
· · · /	ENGINE	ENGINE
	PRSNT	PRSNT
	INITIAL DIAG OK	TRANSMIT DIAG OK
	TRANSMIT DIAG OK	TCM OK
	TCM OK	VDC/TCS/ABS OK
	VDC/TCS/ABS OK	METER/M&A OK
	METER/M&A OK	ICC UNKWN
	ICC UNKWN	BCM/SEC OK
	BCM/SEC OK	IPDM E/R OK
	IPDM E/R OK	AWD/4WD/e4WD OK
	AWD/4WD/e4WD OK	EPS UNKWN
	PRINT Scroll Down	PRINT Scroll Up
	MODE BACK LIGHT COPY	MODE BACK LIGHT COPY

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present	E
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG	
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN	F
	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN	
ENGINE	VDC/TCS/ABS	Make sure of normal reception from VDC/TCS/ABS control unit.	OK/UNKWN	
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN	G
	ICC	ICC is not diagnosed.	UNKWN	
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN	Н
	IPDM E/R	Make sure of normal reception from IPDM E/R.	OK/UNKWN	
	AWD/4WD/e4WD	Make sure of normal reception from AWD control unit.	OK/UNKWN	
	EPS	EPS is not diagnosed.	UNKWN	

Display Results (Present)

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

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## [CAN]

# DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN

mnle)	CAN D	IAG SU			
inplo)		Δ			
		~			
			PR	SNT	
	INITIAL DIAG OK		INITIAL DIAG		
	TRANSMIT DIAG OK				
	ECM OK				
	VDC/TCS/ABS		S/ABS OK		
	METER/	R/M&A OK			
	ICC/e4W	/D	UNF	(WN	
	AWD/4W	D/4WD OK			
	PR	INT			
	MODE	BACK	LIGHT	COPY	SKIB2335E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
A/T	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	VDC/TCS/ABS	Make sure of normal reception from VDC/TCS/ABS control unit.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ICC/e4WD	ICC/e4WD is not diagnosed.	UNKWN
	AWD/4WD	Make sure of normal reception from AWD control unit.	OK/UNKWN

**Display Results (Present)** 

• OK: Normal

NG: Malfunction

• UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

#### **DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN** (Ex FOR INTELLIGENT KEY UNIT

CAN	DIAG SU	PPORT M	NTR		
	INTELLIG	ENT KEY			A
		PRSNT	PAST		
TRANSM	IT DIAG	ОК	OK		
ECM		OK	OK		
METER/	M&A	OK	OK		P
BCM/SE	С	OK	OK		
					C
PR	INT				
MODE	BACK	LIGHT	COPY	SKIB2359E	
	CAN ECM METER/ BCM/SE	CAN DIAG SU INTELLIG ECM METER/M&A BCM/SEC PRINT MODE BACK	CAN DIAG SUPPORT M           INTELLIGENT KEY           PRSNT           TRANSMIT DIAG         OK           BCM/SEC         OK           BCM/SEC         OK           BCM/SEC         OK           METER/M&A         OK           BCM/SEC         OK	CAN DIAG SUPPORT MNTR           INTELLIGENT KEY           PRSNT         PAST           TRANSMIT DIAG         OK         OK           ECM         OK         OK           METER/M&A         OK         OK           BCM/SEC         OK         OK           PRSNT         PAST         OK           METER/MA         OK         OK           BCM/SEC         OK         OK           OK         OK         OK           MODE         BACK         LIGHT	CAN DIAG SUPPORT MNTR           INTELLIGENT KEY           PRSNT         PAST           TRANSMIT DIAG         OK         OK           ECM         OK         OK           METER/M&         OK         OK           BCM/SEC         OK         OK           PRINT         V         V           PRINT         V         SKIB2359E

[CAN]

"SELECT SYS- TEM" screen	"CAN DIAG SUP- PORT MNTR" screen	Description	Present	past
INTELLIGENT KEY	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN	
	ECM	Make sure of normal reception from ECM.	OK/UNKWN	OK/0/1, 30/
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN	010/0/1~39/-
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN	

#### **Display Results (Present)**

• OK: Normal

• UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

#### **Display Results (Past)**

- OK: Normal
- 0: There is malfunction now. .
- 1 ~ 39: Displays when it is normal at present and finds malfunction in the past. It increases like  $0 \rightarrow 1 \rightarrow 2...38 \rightarrow 39$  after returning to the • normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.
- -: Undiagnosed •

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#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR VDC/TCS/ABS CONTROL UNIT AWD models

(Example)	CAN D	IAG SU	PPORT	MNTR	
		AB	BS		
			PR	SNT	
	INITIAL I	DIAG	C	ĸ	
	TRANS	IT DIAG	0	ĸ	
	ECM		0	ĸ	
	TCM		0	ĸ	
	METER/	M&A	0	ĸ	
	STRG		0	ĸ	
	AWD/4W	/D	0	ĸ	
	PR	INT			
	MODE	BACK	LIGHT	COPY	SKIB2336E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
ABS	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	STRG	Make sure of normal reception from steering angle sensor.	OK/UNKWN
	AWD/4WD	Make sure of normal reception from AWD control unit.	OK/UNKWN

#### **Display Results (Present)**

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

#### 2WD models



"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
	ECM	Make sure of normal reception from ECM.	OK/UNKWN
ABS	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	STRG	Make sure of normal reception from steering angle sensor.	OK/UNKWN
	ICC	ICC is not diagnosed.	UNKWN

#### **Display Results (Present)**

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR AWD CONTROL UNIT

(Example)	CAN E	IAG SU	PPORT	MNTR	
( ··· [· ··/	ALI	MODE	AWD/4	WD	
			PRS	SNT	
	INITIAL	DIAG	0	К	
	TRANS	/IT DIAG	0	К	
	VDC/TC	S/ABS	OK		
	ECM	I OK		К	
	TCM	M UNKWN		(WN	
	METER/M&A		OK		
	PR	INT			
	MODE	BACK	LIGHT	COPY	PKIA8948E

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SKIB1625E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
ALL MODE AWD/	VDC/TCS/ABS	Make sure of normal reception from VDC/TCS/ABS control unit.	OK/UNKWN
4WD	ECM	Make sure of normal reception from ECM.	OK/UNKWN
	ТСМ	TCM is not diagnosed.	UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN

**Display Results (Present)** 

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN	(Example)	CAN DIAG SUPP	PORT MNTR	
		BCN	/	
			PRSNT	
		INITIAL DIAG	ОК	
		TRANSMIT DIAG	ОК	
		ECM	ОК	
		IPDM E/R	ОК	
		METER/M&A	ОК	
		I-KEY	ОК	
		L		
		PRINT		
		MODE BACK L	IGHT COPY	

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
RCM	ECM	Make sure of normal reception from ECM.	OK/UNKWN
DCIM	IPDM E/R	Make sure of normal reception from IPDM E/R.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	I-KEY	Make sure of normal reception from Intelligent Key unit.	OK/UNKWN

#### **Display Results (Present)**

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

## [CAN]

## DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR DRIVER SEAT CONTROL UNIT

AUTO DRIVE POS. AUTO DRIVE POS. PRSNT INITIAL DIAG OK TRANSMIT DIAG OK BCM/SEC OK METER/M&A OK TCM OK PRINT PRINT MODE BACK LIGHT COPY SK/B2360E						
AUTO DRIVE POS.  PRSNT INITIAL DIAG OK TRANSMIT DIAG OK BCM/SEC OK METER/M&A OK TCM OK  PRINT PRINT MODE BACK LIGHT COPY SK/B2360E	ample)	CAN	DIAG SU	PPORT M	INTR	
PRSNT INITIAL DIAG OK TRANSMIT DIAG OK BCM/SEC OK METER/M&A OK TCM OK PRINT PRINT MODE BACK LIGHT COPY SK/B2360E			AUTO DR	IVE POS.		
INITIAL DIAG OK TRANSMIT DIAG OK BCM/SEC OK METER/M&A OK TCM OK PRINT MODE BACK LIGHT COPY				PR	SNT	
TRANSMIT DIAG     OK       BCM/SEC     OK       METER/M&A     OK       TCM     OK       PRINT		INITIAL I	DIAG	C	ĸ	
BCM/SEC OK METER/M&A OK TCM OK PRINT MODE BACK LIGHT COPY		TRANS	IT DIAG	С	ĸ	
METER/M&A OK TCM OK PRINT MODE BACK LIGHT COPY		BCM/SE	С	С	К	
PRINT COPY SKIB2360E		METER/	M&A	С	К	
PRINT SKIB2360E		TCM		С	К	
PRINT MODE BACK LIGHT COPY						
PRINT MODE BACK LIGHT COPY						
PRINT MODE BACK LIGHT COPY						
PRINT MODE BACK LIGHT COPY						
MODE BACK LIGHT COPY SKIB2360E		PR	INT			
30023002		MODE	BACK	LIGHT	COPY	SKIB2360E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present
	INITIAL DIAG	Make sure that microcomputer in ECU works normally.	OK/NG
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN
AUTO DRIVE POS.	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN
	METER/M&A	Make sure of normal reception from combination meter.	OK/UNKWN
	ТСМ	Make sure of normal reception from TCM.	OK/UNKWN

**Display Results (Present)** 

- OK: Normal
- NG: Malfunction
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.

#### DESCRIPTION OF "CAN DIAG SUPPORT MNTR" SCREEN FOR IPDM E/R

(Example)	CAN D	IAG SU	PPORT	MNTR	
,		IPDN	1 E/R		
		-	PRSNT	PAST	
	TRANSM	/IT DIAG	ОК	ОК	
	ECM		OK	OK	
	BCM/SE	С	OK	ОК	
	PR	INT			
	MODE	BACK	LIGHT	COPY	SKIB0595E

"SELECT SYSTEM" screen	"CAN DIAG SUPPORT MNTR" screen	Description	Present	Past
	TRANSMIT DIAG	Make sure of normal transmission.	OK/UNKWN/-	
IPDM E/R	ECM	Make sure of normal reception from ECM.	OK/UNKWN/-	OK/0/1~39/-
	BCM/SEC	Make sure of normal reception from BCM.	OK/UNKWN/-	

#### **Display Results (Present)**

- OK: Normal
- UNKWN: The diagnosed unit does not transmit or receive the applicable data normally.
- -: There is no received unit or the unit is not in the condition that reception diagnosis is performed.

#### Display Results (Past)

- OK: Normal
- 0: There is malfunction now.
- 1 ~ 39: Displays when it is normal at present and finds malfunction in the past. It increases like 0→1→2...38→39 after returning to the normal condition whenever IGN OFF→ON. If it is over 39, it is fixed to 39 until the self-diagnostic results are erased. It returns to 0 when malfunction is detected again in the process.
- -: Undiagnosed

## **CAN COMMUNICATION**

#### System 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.

## **CAN Communication Unit**

Go to CAN system, when selecting your CAN system type from the following table.

	Sedan					
21	2WD AWD			21	VD	
	VQ35DE					
	A/T M/T					
	VDC					
	×		×			
	×		×		×	
1	2	3	4	5	6	
LAN-33	LAN-60	LAN-93	LAN-122	LAN-157	LAN-182	
	2V	2WD A A X 1 2 LAN-33 LAN-60	Se           2WD         AV           VQ:         VQ:           A/T         VQ:           A/T         VQ:           X         VQ:           X         X           1         2           LAN-33         LAN-60	Sedan           2WD         AWD           2WD         VQ35DE           A/T         X           A/T         X           X         X           X         X           X         X           X         X           X         X           X         X           A/T         X           X         X           X         X           X         X     <	Sedan         2WD       AWD       2W         2WD       VQ35DE       2W         VQ35DE       VQ35DE       M         A/T       X/T       M         A/T       X       M         A/T       X       X         A/T       X       X	

×:Applicable

#### TYPE 1 System Diagram



#### Input/output Signal Chart

						T: Transmi	it R: Receive
Signals	ECM	ТСМ	VDC/TCS/ ABS control unit	Combina- tion meter	BCM	Steering angle sensor	IPDM E/R
A/C compressor request signal	Т						R
A/C switch signal	R				Т		
A/T CHECK indicator lamp signal		Т		R			
A/T position indicator signal		Т	R	R			
A/T self-diagnosis signal	R	Т					
Accelerator pedal position signal	Т	R	R				

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Signals	ECM	ТСМ	VDC/TCS/ ABS control unit	Combina- tion meter	BCM	Steering angle sensor	IPDM E/R
ASCD CRUISE lamp signal	Т			R			
ASCD OD cancel request signal	Т	R					
ASCD operation signal	Т	R					
ASCD SET lamp signal	Т			R			
Battery voltage signal	Т	R					
Blower fan motor switch signal	R				Т		
Buzzer output signal				R	Т		
Closed throttle position signal	Т	R					
Cooling fan motor operation signal	Т						R
Door switch signal				R	Т		R
Engine coolant temperature signal	Т			R			
Engine speed signal	Т	R	R	R			
Front fog lights request signal					Т		R
Front wiper request signal					Т		R
Front wiper stop position signal					R		Т
Fuel level sensor signal	R			Т			
High beam request signal				R	Т		R
High beam status signal	R						Т
Hood switch signal					R		Т
Horn chirp signal					Т		R
Low beam request signal					Т		R
Low beam status signal	R						Т
Malfunction indicator lamp signal	Т			R			
Manual mode indicator signal		Т		R			
Manual mode shift down signal		R		Т			
Manual mode shift up signal		R		Т			
Manual mode signal		R		Т			
Not manual mode signal		R		Т			
Oil pressure switch signal				R			Т
Output shaft revolution signal	R	Т					
Position lights request signal				R	Т		R
Rear window defogger control sig- nal	R						Т
Rear window defogger switch sig- nal					Т		R
Seat belt buckle switch signal				Т	R		
Sleep request 1 signal				R	Т		
Sleep request 2 signal					Т		R
Snow mode switch signal	R			Т			
Steering angle sensor signal			R			Т	
Stop lamp switch signal		R		Т			<u> </u>
Theft warning horn request signal					Т		R
Tire pressure signal				R	Т		<u> </u>
Turbine revolution signal	R	Т					

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Signals	ECM	ТСМ	VDC/TCS/ ABS control unit	Combina- tion meter	BCM	Steering angle sensor	IPDM E/R	
Turn indicator signal				R	Т			
Vehicle aread signal			Т	R				
venicie speed signal	R	R		Т	R			
Wake up request 1 signal					Т		R	
Wake up request 2 signal					Т		R	
Wide open throttle position signal	Т	R						
					1			•

#### **TYPE 2**

## System Diagram



## Input/output Signal Chart

							T:	Transmit	R: Receive	
Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/ R	LAN
A/C compressor request signal	Т								R	
A/C switch signal	R					Т				
A/T CHECK indicator lamp signal		Т			R					M
A/T position indicator signal		Т		R	R			R*		
A/T self-diagnosis signal	R	Т								
Accelerator pedal position signal	Т	R		R						
ASCD CRUISE lamp signal	Т				R					
ASCD OD cancel request signal	Т	R								
ASCD operation signal	Т	R								
ASCD SET lamp signal	Т				R					
Battery voltage signal	Т	R								
Blower fan motor switch signal	R					Т				
Buzzer output signal					R	Т				
Closed throttle position signal	Т	R								
Cooling fan motor operation signal	Т								R	
Door lock/unlock status signal			R			Т				

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Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/ R
Door lock/unlock/trunk open request signal			т			R			
Door switch signal			R		R	Т		R	R
Engine coolant temperature signal	Т				R				
Engine speed signal	Т	R	R	R	R				
Front fog lights request signal						Т			R
Front wiper request signal						Т			R
Front wiper stop position signal						R			Т
Fuel level sensor signal	R				Т				
Hazard and horn request signal			Т			R			
High beam request signal					R	Т			R
High beam status signal	R								Т
Hood switch signal						R			Т
Horn chirp signal						Т			R
Key fob door unlock signal						Т		R	
Key switch signal						Т		R	
Low beam request signal						Т			R
Low beam status signal	R								Т
Malfunction indicator lamp signal	Т				R				
Manual mode indicator signal		Т			R				
Manual mode shift down signal		R			Т				
Manual mode shift up signal		R			Т				
Manual mode signal		R			Т				
Not manual mode signal		R			Т				
Oil pressure switch signal					R				Т
Output shaft revolution signal	R	Т							
Panic alarm request signal			Т			R			
Position lights request signal					R	Т			R
Power window open request signal			Т			R			
Rear window defogger control sig- nal	R								т
Rear window defogger switch signal						Т			R
Seat belt buckle switch signal					Т	R			
Sleep request 1 signal					R	Т			
Sleep request 2 signal						Т			R
Snow mode switch signal	R				Т				
Starter permission signal			Т			R			
Steering angle sensor signal				R			Т		
Stop lamp switch signal		R			Т				
Theft warning horn request signal						Т			R
Tire pressure signal					R	Т			
Turbine revolution signal	R	Т							

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Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/ R
Turn indicator signal					R	Т			
Vehicle speed signal				Т	R				
venicie speed signal	R	R	R		Т	R		R	
Wake up request 1 signal						Т			R
Wake up request 2 signal						Т			R
Wide open throttle position signal	Т	R							

\*: P range and R range only

## **TYPE 3** System Diagram



#### **Input/output Signal Chart**

							T: Transmit	R: Receive	
Signals	ECM	тсм	VDC/ TCS/ABS control unit	AWD con- trol unit	Combi- nation meter	ВСМ	Steering angle sensor	IPDM E/R	L
A/C compressor request signal	Т							R	M
A/C switch signal	R					Т			IVI
A/T CHECK indicator lamp signal		Т			R				
A/T position indicator signal		Т	R		R				
A/T self-diagnosis signal	R	Т							
Accelerator pedal position signal	Т	R	R	R					
ASCD CRUISE lamp signal	Т				R				
ASCD OD cancel request signal	Т	R							
ASCD operation signal	Т	R							
ASCD SET lamp signal	Т				R				
AWD warning lamp signal				Т	R				
Battery voltage signal	Т	R							
Blower fan motor switch signal	R					Т			
Buzzer output signal					R	Т			

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Signals	ECM	ТСМ	VDC/ TCS/ABS control unit	AWD con- trol unit	Combi- nation meter	BCM	Steering angle sensor	IPDM E/R
Closed throttle position signal	Т	R						
Cooling fan motor operation signal	Т							R
Door switch signal					R	Т		R
Engine coolant temperature signal	Т				R			
Engine speed signal	Т	R	R	R	R			
Front fog lights request signal						Т		R
Front wiper request signal						Т		R
Front wiper stop position signal						R		Т
Fuel level sensor signal	R				Т			
High beam request signal					R	Т		R
High beam status signal	R							Т
Hood switch signal						R		Т
Horn chirp signal						Т		R
Low beam request signal						Т		R
Low beam status signal	R							Т
Malfunction indicator lamp signal	Т				R			
Manual mode indicator signal		Т			R			
Manual mode shift down signal		R			Т			
Manual mode shift up signal		R			Т			
Manual mode signal		R			Т			
Not manual mode signal		R			Т			
Oil pressure switch signal					R			Т
Output shaft revolution signal	R	Т						
Parking brake switch signal				R	Т			
Position lights request signal					R	Т		R
Rear window defogger control sig- nal	R							Т
Rear window defogger switch sig- nal						Т		R
Seat belt buckle switch signal					Т	R		
Sleep request 1 signal					R	Т		
Sleep request 2 signal						Т		R
SNOW mode switch signal	R			R	Т			
Steering angle sensor signal			R				Т	
Stop lamp switch signal		R	Т	R	Т			
Theft warning horn request signal						Т		R
Tire pressure signal					R	Т		
Turbine revolution signal	R	Т						
Turn indicator signal	<u> </u>				R	Т		
			Т	R	R			
Vehicle speed signal	R	R			т	R		
Wake up request 1 signal						Т		R

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Signals	ECM	ТСМ	VDC/ TCS/ABS control unit	AWD con- trol unit	Combi- nation meter	BCM	Steering angle sensor	IPDM E/R	A
Wake up request 2 signal						Т		R	В
Wide open throttle position signal	Т	R							-

#### TYPE 4

## System Diagram



#### Input/output Signal Chart

#### T: Transmit R: Receive

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Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/R	J
A/C compressor request sig- nal	Т									R	LA
A/C switch signal	R						Т				
A/T CHECK indicator lamp signal		т				R					L
A/T position indicator signal		Т		R		R			R*		-
A/T self-diagnosis signal	R	Т									M
Accelerator pedal position sig- nal	т	R		R	R						-
ASCD CRUISE lamp signal	Т					R					-
ASCD OD cancel request sig- nal	Т	R									-
ASCD operation signal	Т	R									-
ASCD SET lamp signal	Т					R					-
AWD warning lamp signal					Т	R					-
Battery voltage signal	Т	R									-
Blower fan motor switch sig- nal	R						Т				-
Buzzer output signal						R	Т				-
Closed throttle position signal	Т	R									-

Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/R
Cooling fan motor operation signal	Т									R
Door lock/unlock status signal			R				Т			
Door lock/unlock/trunk open request signal			Т				R			
Door switch signal			R			R	Т		R	R
Engine coolant temperature signal	Т					R				
Engine speed signal	Т	R	R	R	R	R				
Front fog lights request signal							Т			R
Front wiper request signal							Т			R
Front wiper stop position sig- nal							R			т
Fuel level sensor signal	R					Т				
Hazard and horn request sig- nal			Т				R			
High beam request signal						R	Т			R
High beam status signal	R									Т
Hood switch signal							R			Т
Horn chirp signal							Т			R
Key fob door unlock signal							Т		R	
Key switch signal							Т		R	
Low beam request signal							Т			R
Low beam status signal	R									Т
Malfunction indicator lamp signal	Т					R				
Manual mode indicator signal		Т				R				
Manual mode shift down sig- nal		R				т				
Manual mode shift up signal		R				Т				
Manual mode signal		R				Т				
Not manual mode signal		R				Т				
Oil pressure switch signal						R				Т
Output shaft revolution signal	R	Т								
Panic alarm request signal			Т				R			
Parking brake switch signal					R	Т				
Position lights request signal						R	Т			R
Power window open request signal			Т				R			
Rear window defogger control signal	R									Т
Rear window defogger switch signal							Т			R
Seat belt buckle switch signal						Т	R			
Sleep request 1 signal						R	Т			

Signals	ECM	ТСМ	Intelli- gent Key unit	VDC/ TCS/ ABS control unit	AWD control unit	Combi- nation meter	BCM	Steer- ing angle sensor	Driver seat control unit	IPDM E/R	A
Sleep request 2 signal							Т			R	· L
SNOW mode switch signal	R				R	Т					
Starter permission signal			Т				R				С
Steering angle sensor signal				R				Т			
Stop Jamp quitch signal		R				Т					
Stop lamp switch signal				Т	R						L
Theft warning horn request signal							Т			R	
Tire pressure signal						R	Т				· [
Turbine revolution signal	R	Т									
Turn indicator signal						R	Т				F
				Т	R	R					
venicie speed signal	R	R	R			Т	R		R		
Wake up request 1 signal							Т			R	
Wake up request 2 signal							Т			R	-
Wide open throttle position signal	т	R									F

\*: P range and R range only

#### TYPE 5 System Dia



## Input/output Signal Chart

Signals	ECM	VDC/TCS/ ABS control unit	Combination meter	BCM	Steering angle sensor	IPDM E/R
A/C compressor request signal	Т					R
A/C switch signal	R			Т		
Accelerator pedal position signal	Т	R				
ASCD CRUISE lamp signal	Т		R			
ASCD SET lamp signal	Т		R			

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2005 G35 Sedan

T: Transmit R: Receive

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Signals	ECM	VDC/TCS/ ABS control unit	Combination meter	BCM	Steering angle sensor	IPDM E/R
Blower fan motor switch signal	R			Т		
Buzzer output signal			R	Т		
Cooling fan motor operation signal	Т					R
Door switch signal			R	Т		R
Engine coolant temperature signal	Т		R			
Engine speed signal	Т	R	R			
Front fog lights request signal				Т		R
Front wiper request signal				Т		R
Front wiper stop position signal				R		Т
Fuel level sensor signal	R		Т			
High beam request signal			R	Т		R
High beam status signal	R					Т
Hood switch signal				R		Т
Horn chirp signal				Т		R
Low beam request signal				Т		R
Low beam status signal	R					Т
Malfunction indicator lamp signal	Т		R			
Oil pressure switch signal			R			Т
Position lights request signal			R	Т		R
Rear window defogger control signal	R					Т
Rear window defogger switch signal				Т		R
Seat belt buckle switch signal			Т	R		
Sleep request 1 signal			R	Т		
Sleep request 2 signal				Т		R
Steering angle sensor signal		R			Т	
Theft warning horn request signal				Т		R
Tire pressure signal			R	Т		
Turn indicator signal			R	Т		
		Т	R			
venicie speed signal	R		Т	R		
Wake up request 1 signal				Т		R
Wake up request 2 signal				Т		R



## Input/output Signal Chart

						T: Transmit	R: Receive	G
Signals	ECM	VDC/TCS/ ABS control unit	Combina- tion meter	BCM	Steering angle sensor	Driver seat con- trol unit	IPDM E/R	Н
A/C compressor request signal	Т						R	
A/C switch signal	R			Т				1
Accelerator pedal position signal	Т	R						
ASCD CRUISE lamp signal	Т		R					
ASCD SET lamp signal	Т		R					J
Blower fan motor switch signal	R			Т				
Buzzer output signal			R	Т				
Cooling fan motor operation signal	Т						R	
Door lock/unlock/trunk open request signal				R				
Door switch signal			R	Т		R	R	L
Engine coolant temperature signal	Т		R					
Engine speed signal	Т	R	R					в.Л
Front fog lights request signal				Т			R	IVI
Front wiper request signal				Т			R	
Front wiper stop position signal				R			Т	
Fuel level sensor signal	R		Т					
High beam request signal			R	Т			R	
High beam status signal	R						Т	
Hood switch signal				R			Т	
Horn chirp signal				Т			R	
Key fob door unlock signal				Т		R		
Key switch signal				Т		R		
Low beam request signal				Т			R	
Low beam status signal	R						Т	
Malfunction indicator lamp signal	Т		R					

Signals	ECM	VDC/TCS/ ABS control unit	Combina- tion meter	BCM	Steering angle sensor	Driver seat con- trol unit	IPDM E/R
Oil pressure switch signal			R				Т
Position lights request signal			R	Т			R
Rear window defogger control signal	R						Т
Rear window defogger switch signal				Т			R
Seat belt buckle switch signal			Т	R			
Sleep request 1 signal			R	Т			
Sleep request 2 signal				Т			R
Steering angle sensor signal		R			Т		
Theft warning horn request signal				Т			R
Tire pressure signal			R	Т			
Turn indicator signal			R	Т			
Vehicle speed signal		Т	R				
	R		Т	R		R	
Wake up request 1 signal				Т			R
Wake up request 2 signal				Т			R

\*: P range and R range only

## **CAN SYSTEM (TYPE 1)**

# [CAN]

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#### **System 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.

#### **Component Parts and Harness Connector Location**



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## CAN SYSTEM (TYPE 1)

## Schematic

AKS0092D



TKWM3871E

## **CAN SYSTEM (TYPE 1)**



TKWM3872E

## LAN-CAN-02



TKWM2113E
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### LAN-CAN-03 A

DATA LINE



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REFER TO THE FOLLOWING. B1 -SUPER MULTIPLE JUNCTION (SMJ)

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### Check Sheet

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

SELECT SV				С	AN DIAG	SUPPO	RT MNT	R				
	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULTS
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCU (U1001)
¥Л	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN		_	-	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	Ι	UNKWN	Ι	UNKWN	-	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN	_	-	UNKWN	Ι	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
PDM E/R	No indication	-	UNKWN	UNKWN	_	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
Symptoms	:											
			Attach SELECT	copy of SYSTEM	л				Attach SELECT	n copy of SYSTEI	м	



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#### CHECK SHEET RESULTS (EXAMPLE)

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

#### Case 1

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Check harness between TCM and VDC/TCS/ABS control unit. Refer to <u>LAN-50, "Inspection Between TCM</u> and <u>VDC/TCS/ABS Control Unit Circuit"</u>.

				С	AN DIAG	SUPPO	RT MNT	R				
SELECT SYS	STEM screen	Initial	Tronomit			Rece	eive diagr	nosis				
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	TILOULIU
ENGINE	_	NG	UNKWN	_	UNKWN	UNK	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	—			_	—	Ι	CAN COMM CIRCUIT (U 1000)	_
ABS	_	NG	UNKWN			—	UNKWN	_	UNKWN	Ι	CAN COMM CIRCUIT (UN00)	_
BCM	No indication	NG	UNKWN		-	-	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	-	UNKWN	UNK	-	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U 1000)	_
					_							
												PRIC4557E



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#### Case 2

Check harness between VDC/TCS/ABS control unit and data link connector. Refer to <u>LAN-51</u>, "Inspection <u>A</u><u>Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit</u>".

				C	AN DIAG	SUPPO	RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagi	nosis			SELF-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN		UNKWN	-	UNK	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN		-	-	-	CAN COMM CIRCUIT (U 1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	—		—		—	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN		1	—	UNKWN	—	Ι	UNKWN	CAN COMM CIRCUIT (U1000)	1
IPDM E/R	No indication	Ι	UNKWN		-	-	—	UNKWN		—	CAN COMM CIRCUIT (UN00)	_



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Check ECM circuit. Refer to LAN-52, "ECM Circuit Inspection" .

			1	C	AN DIAG		RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagr	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG		-				UNKWN	-	UNKWN	CAN COMIN CIRCUIT (U N00)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN		—	UNKWN	UNKWN	—		Ι	CAN COMIN CIRCUIT (U N00)	_
ABS	_	NG	UNKWN		UNKWN	-	UNKWN	-	UNKWN	-	CAN COMIN CIRCUIT (U N00)	-
BCM	No indication	NG	UNKWN		-	-	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN		-	-	_	UNKWN	-	Ι	CAN COMIN CIRCUIT (U 1000)	-
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#### Case 4

Check TCM circuit. Refer to LAN-52, "TCM Circuit Inspection" .

				C	AN DIAG		RT MNT	R				
SELECT SYS	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	Rece VDC/TCS /ABS	eive diagi METER /M&A	nosis BCM /SEC	STRG	IPDM E/B	SELF-DIAG	RESULTS
ENGINE	-	NG	UNKWN	_		UNKWN	UNKWN	UNKWN	_	UNKWN		CAN COMM CIRCUIT
A/T	-	NG	UNKWN		-			-	-	_	CAN COMM CIRCUIT	_
ABS	-	NG	UNKWN	UNKWN		_	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	_	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	—	-	UNKWN	_	—	CAN COMM CIRCUIT (U1000)	-



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Check VDC/TCS/ABS control unit circuit. Refer to LAN-53, "VDC/TCS/ABS Control Unit Circuit Inspection" .

				С	AN DIAG	SUPPC	RT MNT	R				
SELECT SY	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	-	NG	UNKWN	UNKWN	_		UNKWN	-	_	-	CAN COMM CIRCUIT (UN00)	_
ABS	-	N	UNK			-		-		-	CAN COMM CIRCUIT (UN00)	—
всм	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	_	UNKWN	UNKWN	_	—	_	UNKWN	—	_	CAN COMM CIRCUIT (U1000)	_
			-							-		
												PKIC4561E



#### Case 6

Check data link connector circuit. Refer to LAN-53, "Data Link Connector Circuit Inspection" .

				С	AN DIAG	SUPPO	RT MNT	R				
SELECT SYS	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	_	_	—	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	_	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	_	UNKWN	-	—	CAN COMM CIRCUIT (U1000)	—



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Check combination meter circuit. Refer to LAN-54, "Combination Meter Circuit Inspection" .

				С	AN DIAG	SUPPC	RT MNT	R				
SELECT SY	STEM screen	Initial	Tronomit			Rece	eive diagr	nosis			SELE-DIAG	BESUITS
02220101		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	_	UNKWN		-	_	_	CAN COMM CIRCUIT (UN00)	_
ABS		NG	UNKWN	UNKWN	UNKWN	_		-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	_	_		—	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	-	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_



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#### Case 8

Check BCM circuit. Refer to LAN-54, "BCM Circuit Inspection" .

				C	AN DIAG	i SUPPO	RT MNT	R				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagr	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	_	NG	UNKWN	UNKWN		UNKWN	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	—	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	—	-	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	-	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	_



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Check steering angle sensor circuit. Refer to LAN-55, "Steering Angle Sensor Circuit Inspection" .

		1									I	
				<u>с</u>	AN DIAG	SUPPC	RT MNT	R .				
SELECT SYS	STEM screen	Initial	Transmit			Rece	eive diagi	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T		NG	UNKWN	UNKWN	—	UNKWN	UNKWN	1	_		CAN COMM CIRCUIT (U1000)	-
ABS	1	NG	UNKWN	UNKWN	UNKWN	_	UNKWN	-		-	CAN COMM CIRCUIT (U1000)	1
BCM	No indication	NG	UNKWN	UNKWN	—	—	UNKWN	1	_	UNKWN	CAN COMM CIRCUIT (U1000)	1
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	-
												PKIC4565E



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#### Case 10

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Check IPDM E/R circuit. Refer to LAN-55, "IPDM E/R Circuit Inspection" .

				C	AN DIAG	SUPPO	RT MNT	R				
SELECT SY	STEM screen	Initial	Transmit			Rece	eive diagr	nosis			SELF-DIAG	RESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	-	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	-	-		CAN COMM CIRCUIT (U1000)	-
ABS	_	NG	UNKWN	UNKWN	UNKWN	-	UNKWN		UNKWN	I	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	_	UNKWN	1	Ι	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	—	-	—	UNKWN	Ι	Ι	CAN COMM CIRCUIT (UN00)	_



#### Case 11

Check CAN communication circuit. Refer to LAN-56, "CAN Communication Circuit Inspection" .

												]
	STEM sereen		-		AN DIAG	Rece	eive diagr	n nosis				
SELECT ST	STEW Screen	Initial diagnosis	Iransmit diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULIS
ENGINE	-	NG	UNKWN	-	UNKWN	UNK	UNKWN	UNKWN	-		CAN COMIN CIRCUIT (U N00)	CAN COMM CIRCUIT (U 1001)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	-	-	-	CAN COMIN CIRCUIT (U N00)	_
ABS	-	<b>N</b> ∕6	UNKWN	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U 1000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	-	-	UNKWN	—	—	CAN COMM CIRCUIT (U N00)	_
			-									
												PKIC4567E

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-59</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

				C	AN DIAG	SUPPC	RT MNT	R				
SELECT SY	STEM screen	Initial	Transmit			Rece	eive diagr	nosis			SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-			UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMY CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	—	UNKWN	UNKWN	-		-	CAN COMM CIRCUIT (U1000)	—
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	—	UNKWN	-	—	CAN COMM CIRCUIT (U1000)	_
			-	-							(01000)	

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-59</u>, "IPDM E/R Ignition Relay Circuit Inspection".

				С	AN DIAG	SUPPC	RT MNT	R				
SELECT SYS	STEM screen	Initial	Tronomit			Rece	eive diagr	nosis				BESUITS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	-	NG	UNKWN	I	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	-	—	UNKWN	—	-	—	-	CAN COMM CIRCUIT (UN00)	_
ABS	-	NG	UNKWN	-	UNKWN	-	-	-	-	-	CAN COMM CIRCUIT (UN00)	_
BCM	No indication	NG	UNKWN	UNKWN	-	-	UNKWN	-	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	—	UNKWN	—	_	CAN COMM CIRCUIT (U1000)	_

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# Inspection Between TCM and VDC/TCS/ABS Control Unit Circuit 1. CHECK CONNECTOR

AKS0092G

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- 2. Check continuity between A/T assembly harness connector F42 terminals 3 (L). 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3(L) 24H(L)
  - 8 (R) 25H (P)
- : Continuity should exist.
- : Continuity should exist.

#### OK or NG

OK >> GO TO 3. NG >> Repair harness.

### $\mathbf{3}$ . CHECK HARNESS FOR OPEN CIRCUIT



#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.

#### Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit AKS0092H

#### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Disconnect ECM connector and VDC/TCS/ABS control unit connector. 3.
- 4 Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M03	61 (L)	Mg	6 (L)	Yes
10193	63 (P)	IVIO	14 (P)	Yes

#### OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .
- NG >> Repair harness.





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A/T assembly connector

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8 3, 8 [CAN]

SMJ harness connector

24H ,25H

SMJ O CONNECTOR

SKIB0240E

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### **ECM Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of ECM for damage, bend and loose connection (control module side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) - 86 (P)

: Approx. 108 – 132  $\Omega$ 

#### OK or NG

- OK >> Replace ECM.
- NG >> Repair harness between ECM and A/T assembly.



### **TCM Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of A/T assembly for damage, bend and loose connection (control module side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

: Approx. 54 – 66 Ω

#### OK or NG

- OK >> Replace control valve with TCM.
- NG >> Repair harness between A/T assembly and harness connector F102.



[CAN]

AKS0092J

[CAN
VDC/TCS/ABS Control Unit Circuit Inspection
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).</li> <li><u>OK or NG</u></li> <li>OK &gt;&gt; GO TO 2.</li> </ol>
NG >> Repair terminal or connector.
2. CHECK HARNESS FOR OPEN CIRCUIT
<ol> <li>Disconnect VDC/TCS/ABS control unit connector.</li> <li>Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).</li> </ol>
61 (L) - 63 (P): Approx. 54 - 66 ΩOK or NG $OK >>$ Replace VDC/TCS/ABS control unit.VDC/TCS/ABS control unit.OK >> Replace VDC/TCS/ABS control unit. $61$ $63$
data link connector.
Data Link Connector Circuit Inspection
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of data link connector for damage, bend and loose connection (connect side and barpage side).</li> </ol>
OK or NG OK >> GO TO 2. NG >> Repair terminal or connector.
2. CHECK HARNESS FOR OPEN CIRCUIT
Check resistance between data link connector M8 terminals 6 (L) and 14 (P).
6 (L) – 14 (P) : Approx. 54 – 66 Ω Data link connector
OK or NG OK >> Diagnose again. Refer to <u>LAN-5, "TROUBLE DIAG-</u> <u>NOSES WORK FLOW"</u> .
NG >> Repair harness between data link connector and combination meter.

### **Combination Meter Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- 2. Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

#### 4 (L) – 5 (P)

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace combination meter.
- NG >> Repair harness between combination meter and data link connector.



### **BCM Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

39 (L) – 40 (P)

: Approx. 54 – 66 Ω

#### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16</u>, "Removal and Installation of <u>BCM</u>".
- NG >> Repair harness between BCM and data link connector.



AKS0092L

[CAN]

		[CAN]
Steering Angle Sensor Cir 1. снеск соллестог	cuit Inspection	
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the b</li></ol>	om the negative terminal. of steering angle sensor for dam ector.	age, bend and loose connection (sensor
2. CHECK HARNESS FOR OPEN	I CIRCUIT	
<ol> <li>Disconnect steering angle sens</li> <li>Check resistance between steering angle sens</li> <li>Check resistance between steering angle</li> <li>4 (L) – 5 (P)</li> <li>OK or NG</li> <li>OK &gt;&gt; Replace steering angle</li> <li>NG &gt;&gt; Repair harness betwee link connector.</li> </ol>	or connector. ering angle sensor harness con- 5 (P). <b>: Approx. 54 – 66</b> Ω sensor. n steering angle sensor and data	Steering angle sensor connector
PDM E/R Circuit Inspection	on	AKS00920
<ol> <li>Turn Ignition Switch OFF.</li> <li>Disconnect the battery cable from the b</li></ol>	om the negative terminal. connectors for damage, bend an	d loose connection (control module side
- Harness connector B1 $\frac{OK \text{ or NG}}{OK} >> GO TO 2.$	aatar	
- Harness connector B1 <u>OK or NG</u> OK >> GO TO 2. NG >> Repair terminal or conn 2. CHECK HARNESS FOR OPEN	ector.	

NG >> Repair harness between IPDM E/R and data link connector.



### **CAN Communication Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, sensor side, control unit side and harness side).
- ECM
- A/T assembly
- VDC/TCS/ABS control unit
- Combination meter
- BCM
- Steering angle sensor
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) – 86 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

#### $\mathbf{3}$ . CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

- 94 (L) Ground
- 86 (P) Ground : Cor
- : Continuity should not exist.
  - : Continuity should not exist.

#### OK or NG

NG

OK >> GO TO 4.

- >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102





### Revision: 2005 July

## 2005 G35 Sedan



**LAN-57** 

- 1. Disconnect harness connector B2.
- 2. Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

#### OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector B1 and harness connector B2.



SMJ harness connector

52J, 51J

SMJ

O CONNECTOR

### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- : Continuity should not exist.
- 52J (L) Ground 51J (P) - Ground
- : Continuity should not exist.

#### OK or NG

- OK >> GO TO 8.
- NG >> Repair harness between harness connector B1 and harness connector B2.

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- Check continuity between IPDM E/R harness connector E9 ter-2. minals 48 (L) and 49 (P).

#### 48 (L) - 49 (P)

#### OK or NG

- OK >> GO TO 9.
- >> Repair harness between IPDM E/R and harness con-NG nector E106.



### 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- : Continuity should not exist.
- 49 (P) Ground
- : Continuity should not exist.

: Continuity should not exist.

#### OK or NG

OK >> GO TO 10.

NG >> Repair harness between IPDM E/R and harness connector E106.



SKIB2315E

#### 10. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT А Remove ECM and IPDM E/R from vehicle. 1. 2 Check resistance between ECM terminals 94 and 86. 94 - 86: Approx. 108 – 132 $\Omega$ ECM and IPDM E/R 3. Check resistance between IPDM E/R terminals 48 and 49. 48 – 49 : Approx. 108 – 132 Ω OK or NG OK >> GO TO 11. NG >> Replace ECM and/or IPDM E/R. F 11. снеск сумртом Fill in described symptoms on the column "Symptom" in the check sheet. 1. F 2. Connect all the connectors, and then make sure that the symptom is reproduced. OK or NG OK >> GO TO 12. >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" NG 12. CHECK UNIT REPRODUCIBILITY Н Perform the following procedure for each unit, and then perform reproducibility test. Turn ignition switch OFF. 1. 2. Disconnect the battery cable from the negative terminal. 3. Disconnect the unit connector. J 4. Connect the battery cable to the negative terminal. 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.) LAN 6. Make sure that the same symptom is reproduced. A/T assembly VDC/TCS/ABS control unit Combination meter BCM Steering angle sensor М ECM IPDM E/R Check results Reproduced>>Install removed unit, and then check the other unit. Not reproduced>>Replace removed unit. IPDM E/R Ignition Relay Circuit Inspection AKS0092Q Check the following. If no malfunction is found, replace the IPDM E/R. IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection". Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN "ON" AND/OR "START"" .

### **System 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.

### **Component Parts and Harness Connector Location**



AKS00C9M



TKWM3874E

AKS00C90

Wiring Diagram — CAN —





TKWM3875E

### [CAN]

### LAN-CAN-05 A



TKWM2467E

### LAN-CAN-06

DATA LINE



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3876E

### **Check Sheet**

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

SELECT SYS	TEM screen	Initial											
3ELEUT 515	I EIVI SCIEEN	Initial					Receive	diagnosis					
		diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULIS
NGINE	_	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (U1001)
/T	_	NG	UNKWN	UNKWN	_	_	UNKWN	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_
TELLIGENT KEY	No indication	_	UNKWN	UNKWN	_	_	-	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_
BS	_	NG	UNKWN	UNKWN	UNKWN	-	_	UNKWN	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
СМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
ITO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	-	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
DM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT	_
			Atta SELE	ach copy CT SYS	v of STEM				S	Attach ELECT	copy of SYSTEI	М	

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#### CHECK SHEET RESULTS (EXAMPLE)

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

#### Case 1

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Check harness between TCM and VDC/TCS/ABS control unit. Refer to <u>LAN-80, "Inspection Between TCM</u> and <u>VDC/TCS/ABS Control Unit Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen	1-14-1	T				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	_	NG	UNKWN	_	UNKWN	—	UNKWN		UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
¥Τ	-	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U N00)	-
NTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U 1000)	-
ВСМ	No indication	NG	UNKWN	UNIMN	-	UNKWN	-	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—		-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	-
PDM E/R	No indication	—	UNKWN	UNIMN	_	-	-	_	UNKWN	_	-	CAN COMM CIRCUIT (UN00)	-



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Check harness between VDC/TCS/ABS control unit and data link connector. Refer to <u>LAN-81, "Inspection</u> <u>Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit"</u>.

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	FM scroon						Receive	diagnosis					BESHITS
	LWISCICCI	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (U1001)
A/T	_	NG	UNKWN	UNKWN	_	-	UNKWN	UNKWN	-	_	-	CAN COMM CIRCUIT (U N00)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	_	_	-	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U N00)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNIWN	—	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNI	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	-
IPDM E/R	No indication	_	UNKWN	UNIMN	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT (UN00)	_



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Check harness between data link connector and driver seat control unit. Refer to <u>LAN-82</u>, "Inspection <u>A</u> <u>Between Data Link Connector and Driver Seat Control Unit Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	TEM screen	1	Transit				Receive	diagnosis				SELE-DIA(	BESUITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIX	
ENGINE	—	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	-		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN		—	UNKWN	UNKWN	1	—	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	-	—	—	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	—	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	—	UNKWN	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	-	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U N00)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	—	-	-	UNKWN	—	-	CAN COMM CIRCUIT (UN00)	—



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Check ECM circuit. Refer to LAN-82, "ECM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	TEM scroop						Receive	diagnosis					DEQUITO
SELECT STS	I EIWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	_	NG	UNKWN	-	UNKWN	—	UNKWN	UNKWN	UNKWN	_		CAN COMM CIRCUIT (UN00)	CAN COMM CIRCUIT (UN01)
A/T	—	NG	UNKWN	UNKWN	—	-	UNKWN	UNKWN	_	_	_	CAN COMIN CIRCUIT (U N00)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	-	_	-	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U N00)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U 1000)	_
BCM	No indication	NG	UNKWN	UNIWN	_	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	-	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	-	—	-	—	UNKWN	—	-	CAN COMM CIRCUIT (U N00)	_



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#### Case 5

Check TCM circuit. Refer to LAN-83, "TCM Circuit Inspection" .

					NTR	PPORT M	DIAG SU	CAN					
					diagnosis	Receive				- ··		TEM screen	
IG RESULTS	SELF-DIAG	IPDM E/R	STRG	BCM /SEC	METER /M&A	VDC/TCS /ABS	I-KEY	тсм	ECM	l ransmit diagnosis	Initial diagnosis		SELECT STS
T CAN COMM CIRCUIT (U 1001)	CAN COMM CIRCUIT (U N00)	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	_	UNKWN	NG	_	ENGINE
т —	CAN COMM CIRCUIT (U N00)	-	-	_	UNKWN	UNKWN	_	-	UNIWN	UNKWN	NG	_	A/T
т —	CAN COMM CIRCUIT (U1000)	-	-	UNKWN	UNKWN	—	—	-	UNKWN	UNKWN	—	No indication	INTELLIGENT KEY
т <u> </u>	CAN COMM CIRCUIT (U1000)	-	UNKWN	-	UNKWN	-	-	UNKWN	UNKWN	UNKWN	NG	-	ABS
т —	CAN COMM CIRCUIT (U1000)	UNKWN	-	-	UNKWN	-	UNKWN	-	UNKWN	UNKWN	NG	No indication	BCM
т —	CAN COMM CIRCUIT (U N00)	_	_	UNKWN	UNKWN	—	—	UNIWN	-	UNKWN	NG	No indication	AUTO DRIVE POS.
т —	CAN COMM CIRCUIT (U1000)	_	_	UNKWN	_	_	_	_	UNKWN	UNKWN	—	No indication	IPDM E/R



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Check Intelligent Key unit circuit. Refer to LAN-83, "Intelligent Key Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	FM screen	Le Mar I	Transit				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	—	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	_	UNKWN	UNKWN	-	_	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	1	UNKWN	UNKWN	-		-	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U 1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN			UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	—
BCM	No indication	NG	UNKWN	UNKWN		UNKWN		UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	1		UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	1	UNKWN	UNKWN	-	-	-	-	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	—
													PKIC4575E


#### Case 7

Check VDC/TCS/ABS control unit circuit. Refer to LAN-84, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					CAN	DIAG SUI	PPORT M	NTR					
SELECT SYS	TEM screen	la Mal	T				Receive	diagnosis				SELE-DIAC	BESUITS
SELECT OTO	LWISCICCI	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERO
ENGINE	-	NG	UNKWN		UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	_	NG	UNKWN	UNKWN	_	_	UNKWN	UNKWN	_	_	_	CAN COMM CIRCUIT (UN00)	_
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	_	_	_	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
ABS	_	V	UNKWN	UNKWN	UNKWN	_	_	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (UN00)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	—	—	—	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	—



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Check data link connector circuit. Refer to LAN-84, "Data Link Connector Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	TEM screen		<b>-</b>				Receive	diagnosis					BESHITS
GELEOTOTO	LINISCICCI	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	—	NG	UNKWN	—	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	-	—	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	-	—	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
													PKIC4577E



#### Case 9

Check combination meter circuit. Refer to LAN-85, "Combination Meter Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM scroop						Receive	diagnosis					
SELECT STO		Initial diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	A NEGOLI G
ENGINE	_	NG	UNKWN	—	UNKWN	-	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
A/T	_	NG	UNKWN	UNKWN	-	_	UNKWN	UNKWN	_	_	-	CAN COMIN CIRCUIT (U N00)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	-	_	—	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	_	—	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U N00)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_



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Check BCM circuit. Refer to LAN-85, "BCM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	TEM scroon						Receive	diagnosis					DEQUITO
SELECT STS	I EIVI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN		UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (U1001)
A/T	_	NG	UNKWN	UNKWN	_	-	UNKWN	UNKWN	-	_	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	—	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U N00)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	—	—	—	-	UNKWN	—	-	CAN COMM CIRCUIT (U N00)	_



#### Case 11

Check steering angle sensor circuit. Refer to LAN-86, "Steering Angle Sensor Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM scroop						Receive	diagnosis					DEQUITO
SELECT STS		Initial diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	THEOULIO
ENGINE	_	NG	UNKWN	—	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN		_	-	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	_	—	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	—
ABS	_	NG	UNKWN	UNKWN	UNKWN	-	_	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	_	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_



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Check driver seat control unit circuit. Refer to LAN-86, "Driver Seat Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT MI	NTR					
	EM screen						Receive of	diagnosis					RESULTS
	LIVI SCIECIT	linitial diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		TIESOEIS
ENGINE	-	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	—
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	_	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	—
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	—	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U 1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_		UNKWN	_	—	CAN COMM CIRCUIT (U1000)	_
													PKIC4581E



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#### Case 13

#### Check IPDM E/R circuit. Refer to LAN-87, "IPDM E/R Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	EM scroop						Receive	diagnosis					
SELECT STO	LIVISCIEEN	Initial diagnosis	Transmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	A NEGULI G
ENGINE	_	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	-		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	-	_	UNKWN	UNKWN	_	-	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	—	—	—	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	—
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	_	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	-		CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	_	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	-	UNKWN	_	-		_



#### Case 14

Check CAN communication circuit. Refer to LAN-88, "CAN Communication Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	EM screen	1	Transit				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	_	NG	UNKWN	-	UNIOWN	_	UNKWN	UNION	UNIÓWN		UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCUIT (U 1001)
A/T		NG	UNKWN	UNHWN	_	—	UNKWN	UNKWN	_	-	_	CAN COMIN CIRCUIT (U 1000)	_
INTELLIGENT KEY	No indication	Ι	UNKWN	UNKWN	-	—	_	UNKWN	UNKWN	1	_	CAN COMM CIRCUIT (U N00)	-
ABS	-	۶	UNKWN	UNKWN	UNKWN	—	—	UNKWN				CAN COMM CIRCUIT (U 1000)	-
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	—	—	UNKWN	UNKWN	-	-	CAN COMIN CIRCUIT (U N00)	-
IPDM E/R	No indication	Ι	UNKWN	UNKWN	-	—	—	—	UNKWN	—	-	CAN COMM CIRCUIT (U N00)	—
												• · · ·	

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-92</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	FM screen	1	Transit				Receive	diagnosis				SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	-	NG	UNKWN	—	UNIWN	-	UNI	UNKWN	UNKWN	-	UNKWN	CAN COMIN CIRCUIT (U N00)	CAN COMP CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-	_	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	—	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	—	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNIWN	_	-	UNKWN	UNKWN	-	-	CAN COMIN CIRCUIT (U N00)	—
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	-	—	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	—

#### Case 16

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-92</u>, "IPDM E/R Ignition Relay Circuit Inspection".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	FM screen	Initial	Transmit		_	_	Receive	diagnosis				SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN		—	—	UNKWN		_		-	CAN COMM CIRCUIT (U 1000)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	_	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	-	UNKWN	-	-	-	-	-	-	CAN COMM CIRCUIT (U 1000)	-
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	—	—	_	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	—

# Inspection Between TCM and VDC/TCS/ABS Control Unit Circuit 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- 2. Check continuity between A/T assembly harness connector F42 terminals 3 (L). 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3(L) 24H(L)
  - 8 (R) 25H (P)
- : Continuity should exist.
- : Continuity should exist.

#### OK or NG

OK >> GO TO 3. NG >> Repair harness.

## $\mathbf{3}$ . CHECK HARNESS FOR OPEN CIRCUIT



#### OK or NG

Connector

M72

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.

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### Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit

### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Disconnect ECM connector and VDC/TCS/ABS control unit connector. 3.
- 4 Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
Mos	61 (L)	Mg	6 (L)	Yes
10195	63 (P)	IVIO	14 (P)	Yes

#### OK or NG

- OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .
- NG >> Repair harness.





A/T assembly connector

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SMJ harness connector

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Inspection Between Data Link Connector and Driver Seat Control Unit Circuit

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector M12
- Harness connector B1

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect harness connector M12.
- 2. Check continuity between data link connector (A) and harness connector (B).

	A		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
Mo	6 (L)	M12	52J (L)	Yes
M8	14 (P)	IVI I Z	51J (P)	Yes



OK or NG

OK >> GO TO 3.

NG >> Repair harness.

### $\mathbf{3}$ . Check harness for open circuit

- 1. Disconnect harness connector B6.
- Check continuity between harness connector B1 terminals 52J (L), 51J (P) and harness connector B6 terminals 3 (L), 19 (P).
  - 52J (L) 3 (L)
  - 51J (P) 19 (P)

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW". NG >> Repair harness.



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### 1. CHECK CONNECTOR

**ECM Circuit Inspection** 

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of ECM for damage, bend and loose connection (control module side and harness side).

: Continuity should exist.

: Continuity should exist.

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.



- 1. Disconnect ECM connector.
- 2 Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) - 86 (P)

: Approx. 108 – 132 Ω

#### OK or NG

- OK >> Replace ECM.
- NG >> Repair harness between ECM and A/T assembly.



**TCM Circuit Inspection** 

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Check terminals and connector of A/T assembly for damage, bend and loose connection (control module 3. G side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- 2. Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

#### 3(L) - 8(R)

#### : Approx. 54 – 66 $\Omega$

#### OK or NG

- OK >> Replace control valve with TCM.
- NG >> Repair harness between A/T assembly and harness connector F102.

## Intelligent Key Unit Circuit Inspection

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (unit side 3. and harness side).

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## **LAN-83**



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## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect Intelligent Key unit connector.
- 2. Check resistance between Intelligent Key unit harness connector M75 terminals 2 (L) and 3 (P).

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace Intelligent Key unit.
- NG >> Repair harness between Intelligent Key unit and VDC/ TCS/ABS control unit.



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## VDC/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

#### 1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

#### 61 (L) - 63 (P)

#### : Approx. 54 – 66 $\Omega$

#### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and data link connector.



### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Check terminals and connector of data link connector for damage, bend and loose connection (connector side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



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3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

: **Approx. 54 – 66** Ω

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>
- NG >> Repair harness between BCM and data link connector.



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## Steering Angle Sensor Circuit Inspection

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector.
- Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

#### : Approx. 54 – 66 Ω

#### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and data link connector.



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## **Driver Seat Control Unit Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control unit side, connector side and harness side).
- Driver seat control unit connector
- Harness connector B6
- Harness connector B321

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## LAN-86

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect driver seat control unit connector.
- 2. Check resistance between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) – 19 (LG)

#### : Approx. 54 – 66 Ω

OK or NG

- OK >> Replace driver seat control unit.
- NG >> Repair harness between driver seat control unit and harness connector B2.



## **IPDM E/R Circuit Inspection**

#### **1. CHECK CONNECTOR**

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side  $_{\rm G}$  and harness side).
- IPDM E/R connector
- Harness connector B2
- Harness connector E106

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

#### 48 (L) - 49 (P)

#### : Approx. 108 – 132 $\Omega$

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and harness connector B6.



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## **CAN Communication Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, meter side, sensor side, control unit side and harness side).
- ECM
- A/T assembly
- Intelligent Key unit
- VDC/TCS/ABS control unit
- Combination meter
- BCM
- Steering angle sensor
- Driver seat control unit
- IPDM E/R
- Between ECM and IPDM E/R
- Between ECM and driver seat control unit

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- 2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) - 86 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

### 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

94 (L) – Ground

: Continuity should not exist.

86 (P) – Ground

: Continuity should not exist.

#### OK or NG

OK >> GO TO 4.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102







Harness between data link connector and harness connector M12

### 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B6 and harness connector B2.
- Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

#### OK or NG

OK >> GO TO 7.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- 52J (L) Ground
- : Continuity should not exist. : Continuity should not exist.
- 51J (P) Ground

#### OK or NG

- OK >> GO TO 8.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect driver seat control unit connector.
- Check continuity between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) – 19 (LG)

### : Continuity should not exist.

#### OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between driver seat control unit and harness connector B321.







### 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between driver seat control unit harness connector B324 terminals 3 (OR), 19 (LG) and ground.

- 3 (OR) Ground
- 19 (LG) Ground

: Continuity should not exist.

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between driver seat control unit and harness connector B321.

## 10. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- 2 Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

48 (L) - 49 (P)

nals 48 (L), 49 (P) and ground.

48 (L) - Ground

49 (P) - Ground

>> GO TO 12.

nector E106.

#### : Continuity should not exist.

#### OK or NG

OK or NG OK

NG

OK >> GO TO 11.

NG >> Repair harness between IPDM E/R and harness connector E106.



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Driver seat control unit connector

3,19

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## 11. CHECK HARNESS FOR SHORT CIRCUIT



## 12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

- Remove ECM and IPDM E/R from vehicle. 1.
- 2. Check resistance between ECM terminals 94 and 86.

94 - 86 : Approx. 108 – 132  $\Omega$ 

3. Check resistance between IPDM E/R terminals 48 and 49.

48 - 49

: Approx. 108 – 132  $\Omega$ 

#### OK or NG

OK >> GO TO 13.

NG >> Replace ECM and/or IPDM E/R.



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- 1. Fill in described symptoms on the column "Symptom" in the check sheet.
- 2. Connect all the connectors, and then make sure that the symptom is reproduced.

OK or NG

OK >> GO TO 14.

NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"

### 14. CHECK UNIT REPRODUCIBILITY

Perform the following procedure for each unit, and then perform reproducibility test.

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the unit connector.
- 4. Connect the battery cable to the negative terminal.
- 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)
- 6. Make sure that the same symptom is reproduced.
- A/T assembly
- Intelligent Key unit
- VDC/TCS/ABS control unit
- Combination meter
- BCM
- Steering angle sensor
- Driver seat control unit
- ECM
- IPDM E/R

#### Check results

Reproduced>>Install removed unit, and then check the other unit. Not reproduced>>Replace removed unit.

### **IPDM E/R Ignition Relay Circuit Inspection**

Check the following. If no malfunction is found, replace the IPDM E/R.

IPDM E/R power supply circuit. Refer to <u>PG-26, "IPDM E/R Power/Ground Circuit Inspection"</u>.

 Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON"</u> <u>AND/OR "START"</u>.

#### AKS00CA1

### System 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.

#### Component Parts and Harness Connector Location



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[CAN]

PFP:23710

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## Schematic

AKS00AU5



TKWM3877E

#### [CAN] Wiring Diagram — CAN — AKS00AU6 А LAN-CAN-07 : DATA LINE В VDC/TCS/ABS CONTROL UNIT (M93) CAN-L CAN-H С 61 63 P D Е 🗆 L 🔳 24H 🔳 L ⊐≖⊏∟∣Ĵ F (F102) (M72) NEXT PAGE G 25H **D** 🗏 P IK. Ē F Н R 8 ſr J 3 BR P Ì 94 86 A/T ASSEMBLY LAN CAN-H CAN-L TCM (TRANSMISSION CONTROL MODULE) CAN-H CAN-L (F42) ECM (F108) (F502) L Μ REFER TO THE FOLLOWING. (F102) -SUPER MULTIPLE $\begin{pmatrix} 1 \\ 6 \end{pmatrix}$ 4 5 9 10 F42 DGY 12345678910 (F502) GY JUNCTION (SMJ) (M93), (F108) -ELECTRICAL UNITS \*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3878E

## LAN-CAN-08



TKWM2471E

### [CAN]

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## LAN-CAN-09 A

DATA LINE



 5251
 5049484746455

 60595857565554333
 E9

 W
 H.S.

REFER TO THE FOLLOWING. (B1) -SUPER MULTIPLE JUNCTION (SMJ)

TKWM3879E

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## **Check Sheet**

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#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

					CAN	DIAG SU	PPORT M Receive	NTR diagnosis					
SELECT SYS	TEM screen	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	B RESULTS
NGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRC (U1001)
/Т	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_
BS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
L MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	UNKWN	—	UNKWN	_	_	_	CAN COMM CIRCUIT (U1000)	_
СМ	No indication	NG	UNKWN	UNKWN	_	_	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
DM E/R	No indication	_	UNKWN	UNKWN	_	_		_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	-
			Atta SELE	ach copy CT SYS	v of STEM				S	Attach SELECT	copy of SYSTEI	М	



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### **CHECK SHEET RESULTS (EXAMPLE)**

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

#### Case 1

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Check harness between TCM and VDC/TCS/ABS control unit. Refer to <u>LAN-111, "Inspection Between TCM</u> and <u>VDC/TCS/ABS Control Unit Circuit"</u>.

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	FFM screen	1-11-1	<b>T</b>				Receive	diagnosis					RESULTS
		diagnosis	diagnosis	ECM	ТСМ	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	_	NG	UNKWN	1	UNKWN	UNKWN	UNKWN	UNIWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	Ι	UNIWN	UNKWN	UNIWN	_	_	_	CAN COMM CIRCUIT (U N00)	_
ABS	_	NG	UNKWN	UNIWN	UNIWN	1	UNKWN	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT (U N00)	_
ALL MODE AWD/4WD	_	NG	UNKWN	Ι	Ι	UNKWN	_	UNKWN	_	—	—	CAN COMIN CIRCUIT (U N00)	_
BCM	No indication	NG	UNKWN	UNIWN	Ι	1	_	UNKWN	_	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	—	UNKWN	UNIWN	-	-	_	—	UNKWN	_	_	CAN COMM CIRCUIT (U N00)	_
													PKIC4586E



### [CAN]

#### Case 2

Check harness between VDC/TCS/ABS control unit and data link connector. Refer to <u>LAN-112</u>, "Inspection <u>A</u> <u>Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit</u>".

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TFM screen	1	<b>T</b>				Receive	diagnosis				SELE-DIA	BESUITS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNIÓWN	UNIWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNIWN	-	-	-	CAN COMM CIRCUIT (U 1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNIWN	-		-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	_	NG	UNKWN	-	-	-	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U 1000)	_
BCM	No indication	NG	UNKWN	UNIWN	-	—	-	UNKWN	Ι	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNIWN	-	—	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-



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Check ECM circuit. Refer to LAN-113, "ECM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen		<b>-</b>				Receive	diagnosis					
	EW SUCCI	lnitial diagnosis	lransmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERO
ENGINE	-	NG	UNIOWN	-	UNIÓWN	UNIÓWN	UNIÓWN	UNIWN	UNKWN	-		CAN COMM CIRCUIT (U N00)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNIWN	_	UNKWN	UNKWN	UNKWN	-	-	1	CAN COMM CIRCUIT (UN00)	-
ABS	_	NG	UNKWN	UNIWN	UNKWN	-	UNKWN	UNKWN	-	UNKWN	Ι	CAN COMM CIRCUIT (UN00)	—
ALL MODE AWD/4WD	_	NG	UNKWN	UNIWN	-	UNKWN	-	UNKWN	-	-	1	CAN COMM CIRCUIT (U 1000)	_
ВСМ	No indication	NG	UNKWN	UNIWN	—	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNIWN	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	_
													PKIC4588E



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#### Case 4

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Check TCM circuit. Refer to LAN-113, "TCM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen						Receive	diagnosis					
OLLEOT OTO		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERO
ENGINE	-	NG	UNKWN	-	UNUWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (UN00)	CAN COMU CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-		UNKWN	UNIWN	-	-	-	CAN COMM CIRCUIT (UN00)	-
ABS	-	NG	UNKWN	UNKWN	UNIOWN	-	UNKWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	_	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	—	UNKWN	UNKWN	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
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Check VDC/TCS/ABS control unit circuit. Refer to LAN-114, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen	1	T				Receive	diagnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	GEEI DIRC	
ENGINE	_	NG	UNKWN	_	UNKWN	UNIÓWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	—	UNIWN	UNKWN	UNKWN	-	-	_	CAN COMM CIRCUIT (U N00)	_
ABS	_	¥	UNIWN	UNIWN	UNIWN	_	UNKWN	UNIWN	-	UNKWN	_	CAN COMM CIRCUIT (U N00)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	_	UNIWN	_	UNKWN	-	-	_	CAN COMM CIRCUIT (U N00)	_
всм	No indication	NG	UNKWN	UNKWN	—	—	—	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	-	-	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	_
													PKIC4590E



#### Case 6

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Check AWD control unit circuit. Refer to LAN-114, "AWD Control Unit Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT S	STEM screen						Receive	diagnosis					
SELECT S	STEW Screen	Initial diagnosis	Iransmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNIOWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNIÓWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/	wd —	NG	UNIWN	-	-	-	-	-	-	-	_	CAN COMM CIRCUIT (U 1000)	-
BCM	No indicatior	NG	UNKWN	UNKWN	-	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indicatior	-	UNKWN	UNKWN	-	-	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_



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Check data link connector circuit. Refer to LAN-115, "Data Link Connector Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR							
	TEM coroon		_				Receive	diagnosis							
SELECT STS	I EIWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC			
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)		
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_		
ABS	_	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	UNKWN	—	CAN COMM CIRCUIT (U1000)	—		
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_		
всм	No indication	NG	UNKWN	UNKWN	—	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—		
IPDM E/R	No indication		UNKWN	UNKWN	_	-	-	1	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	_		
													PKIC4592E		



#### Case 8

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Check combination meter circuit. Refer to LAN-115, "Combination Meter Circuit Inspection" .

					CAN	DIAG SU	PPORT MI	NTR					
SELECT SVS	TEM screen						Receive	diagnosis					
OLLEOT OTO	I LIN BOICCIT	diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERS
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNIWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNIWN	-	-	1	CAN COMM CIRCUIT (U 1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNIWN	-	UNKWN		CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WE	-	NG	UNKWN	UNKWN	—	UNKWN	—	UNIWN	—		Ι	CAN COMM CIRCUIT (UN00)	_
всм	No indication	NG	UNKWN	UNKWN	_	_	-	UNIWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_



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Check BCM circuit. Refer to LAN-116, "BCM Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen						Receive	diagnosis					
SELECT STS		Initial diagnosis	Iransmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	UNKWN	—	CAN COMM CIRCUIT (U1000)	—
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	—	CAN COMM CIRCUIT (U1000)	—
ВСМ	No indication	NG	UNKWN	UNKWN	-	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	_	UNKWN	-	—	CAN COMM CIRCUIT (UN00)	_
													PKIC4594E


#### Case 10

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Check steering angle sensor circuit. Refer to LAN-116, "Steering Angle Sensor Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYST	TEM screen						Receive	diagnosis					
		lnitial diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERO
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	-	UNI	-	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	—	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_



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#### Check IPDM E/R circuit. Refer to LAN-117, "IPDM E/R Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
	TEM coroon		_				Receive	diagnosis					
SELECT STS	I EIWI SCIEEII	Initial diagnosis	Transmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULIS
ENGINE	-	NG	UNKWN		UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	_	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	
ABS	_	NG	UNKWN	UNKWN	UNKWN	—	UNKWN	UNKWN	-	UNKWN		CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	—	UNKWN	-	UNKWN	-	-		CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	—	-	UNKWN	-	-		CAN COMM CIRCUIT (U1000)	
IPDM E/R	No indication	-	UNKWN	UNKWN	—	—	-	_	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	_
													PKIC4596E



#### Case 12

Check CAN communication circuit. Refer to LAN-117, "CAN Communication Circuit Inspection" .

					CAN	DIAG SU	PPORT M	NTR					
SELECT SYS	TEM screen						Receive	diagnosis					
OLLEON ONO	EW SUCCI	Initial diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNIWN	-	UNIMUN	UNKWN	UNKWN	UNIWN	UNKWN	-		CAN COMM CIRCUIT (UN00)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNIMON	-	UNIWN	UNKWN	UNIWN	-	-	-	CAN COMM CIRCUIT (UN00)	-
ABS	-	V	UNIMON	UNIMON	UNIWN	-	UNKWN	UNIWN	-		-	CAN COMM CIRCUIT (UN00)	-
ALL MODE AWD/4WD	_	NG	UNIWN	-	-	-	-	—	-	—	—	CAN COMM CIRCUIT (UN00)	_
BCM	No indication	NG	UNKWN	UNKWN	-	-	-	UNKWN	-	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	_	UNKWN	—	—	CAN COMM CIRCUIT (UN00)	_

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#### Case 13

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-121</u>, "IPDM E/R Ignition Relay <u>A</u> <u>Circuit Inspection</u>".

					CAN	DIAG SUI	PPORT M	NTR					
SELECT SVS	EM screen						Receive	diagnosis					
OLLEOT OTO	LIN SOLCON	lnitial diagnosis	Iransmit diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNIOWN		UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (UN00)	CAN COMM CIRCUIT (UN01)
A/T	-	NG	UNKWN	UNKWN	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	UNKWN	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	-	-	_	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	_	_	-	UNKWN	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	-

#### Case 14

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-121</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

					CAN	DIAG SUI	PPORT M	NTR					
SELECT SYS	TFM screen	l e Mart	T				Receive	diagnosis				SELE-DIAG	BESUITS
022201010	EW SOCCET	lnitial diagnosis	diagnosis	ECM	тсм	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	_	-	UNKWN	UNKWN	-	-	_	-	CAN COMM CIRCUIT (UN00)	-
ABS	-	NG	UNKWN	_	UNKWN	-	UNKWN	-	-	_	-	CAN COMM CIRCUIT (UN00)	-
ALL MODE AWD/4WD	-	NG	UNKWN	_	-	UNKWN	-	-	-	-	-	CAN COMM CIRCUIT (UN00)	-
всм	No indication	NG	UNKWN	UNKWN	-	-	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	_	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	—

## Inspection Between TCM and VDC/TCS/ABS Control Unit Circuit

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- 2. Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P). A/T assembly connector
  - 3(L) 24H(L)
  - 8 (R) 25H (P)

: Continuity should exist.

: Continuity should exist.

#### OK or NG

>> GO TO 3. OK

NG >> Repair harness.

### ${\mathfrak B}_{\cdot}$ check harness for open circuit



#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.

#### Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit AKS00G8J

### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Disconnect ECM connector and VDC/TCS/ABS control unit connector. 3.
- 4 Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
Moa	61 (L)	Mg	6 (L)	Yes
10195	63 (P)	IVIO	14 (P)	Yes

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.





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8 3, 8



SMJ harness connector

24H ,25H

O CONNECTOR

SKIB0240E

SMJ

ECM Circuit Inspection 1. CHECK CONNECTOR	AKS00AUA
<ol> <li>Turn ignition switch OFF.</li> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of ECM for damage, bend and loose connection (control mo harness side).</li> <li><u>OK or NG</u></li> <li>OK &gt;&gt; GO TO 2.</li> <li>NG &gt;&gt; Repair terminal or connector.</li> </ol>	odule side and
2. CHECK HARNESS FOR OPEN CIRCUIT	
<ol> <li>Disconnect ECM connector.</li> <li>Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).</li> </ol>	
94 (L) - 86 (P)       : Approx. 108 - 132 Ω       Bat I       ECM connecto	r
OK or NG       Image: Connect	TOR 86
	J
TCM Circuit Inspection 1. снеск соллестог	AKS00AUB
1. Turn ignition switch OFF.	
<ol> <li>Disconnect the battery cable from the negative terminal.</li> <li>Check terminals and connector of A/T assembly for damage, bend and loose connection (c side and harness side)</li> </ol>	control module
OK or NG	
OK >> GO TO 2. NG >> Repair terminal or connector.	
2. CHECK HARNESS FOR OPEN CIRCUIT	
<ol> <li>Disconnect A/T assembly connector.</li> <li>Check resistance between A/T assembly harness connector</li> <li>E42 terminals 3 (L) and 8 (P)</li> </ol>	
1 + 2 + 1 + 1 + 1 + 1 + 1 + 2 + 1 + 2 + 2	
3 (L) – 8 (R) : Approx. 54 – 66 Ω A/T assembly conne	ctor

### VDC/TCS/ABS Control Unit Circuit Inspection

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

: Approx. 54 – 66  $\Omega$ 

#### 61 (L) – 63 (P)

#### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and data link connector.



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### AWD Control Unit Circuit Inspection

#### **1. CHECK CONNECTOR**

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

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect AWD control unit connector.
- 2. Check resistance between AWD control unit harness connector M10 terminals 8 (L) and 16 (P).

#### 8 (L) – 16 (P)

: Approx. 54 – 66 Ω

#### OK or NG

- OK >> Replace AWD control unit.
- NG >> Repair harness between AWD control unit and data link connector.



[CAN]

1.	CHECK CONNECTOR	
1. 2. 3. <u>OK</u> N	Turn ignition switch OFF. Disconnect the battery cable from the negative terminal. Check terminals and connector of data link connector for dam side and harness side). <u>(Cor NG</u> WK >> GO TO 2. IG >> Repair terminal or connector.	age, bend and loose connection (connector
2.	CHECK HARNESS FOR OPEN CIRCUIT	
Che and	eck resistance between data link connector M8 terminals 6 d 14 (P). 6 (L) – 14 (P) ; Approx. 54 – 66 Ω	(L) BAT
OK	K or NG	
Oł NC	<ul> <li>&gt;&gt; Diagnose again. Refer to <u>LAN-5, "TROUBLE DIA</u> <u>NOSES WORK FLOW"</u>.</li> <li>&gt;&gt; Repair harness between data link connector and com nation meter.</li> </ul>	<u>G-</u> bi-

### **Combination Meter Circuit Inspection**

**Data Link Connector Circuit Inspection** 

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- J Check terminals and connector of combination meter for damage, bend and loose connection (meter side 3. and harness side).

#### OK or NG

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- OK >> GO TO 2.
- NG >> Repair terminal or connector.

### 2. CHECK HARNESS FOR OPEN CIRCUIT

- Disconnect combination meter connector. 1.
- 2. Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

### : Approx. 54 – 66 $\Omega$

#### OK or NG

- OK >> Replace combination meter.
- NG >> Repair harness between combination meter and data link connector.



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### **BCM Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

#### 39 (L) – 40 (P)

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> Repair harness between BCM and data link connector.



### **Steering Angle Sensor Circuit Inspection**

#### **1. CHECK CONNECTOR**

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector.
- 2. Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

: Approx. 54 – 66  $\Omega$ 

#### OK or NG

- OK >> Replace steering angle sensor.
- NG >> Repair harness between steering angle sensor and data link connector.



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#### **IPDM E/R Circuit Inspection** AKS00AUH **1. CHECK CONNECTOR** 1. Turn ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Check following terminals and connectors for damage, bend and loose connection (control module side 3. and harness side). IPDM E/R connector Harness connector B2 \_ Harness connector E106 Harness connector M12 Harness connector B1 OK or NG OK >> GO TO 2. NG >> Repair terminal or connector. 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect IPDM E/R connector.
- 2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

#### 48 (L) - 49 (P)

: Approx. 108 – 132  $\Omega$ 

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and VDC/TCS/ABS control unit.



### **CAN Communication Circuit Inspection**

#### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, control unit side, meter side, sensor side and harness side).
- ECM
- A/T assembly
- VDC/TCS/ABS control unit
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- IPDM E/R
- Between ECM and IPDM E/R

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- 2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) – 86 (P)

#### : Continuity should not exist.

OK or NG

#### OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

## 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

94 (L) – Ground

: Continuity should not exist. : Continuity should not exist.

86 (P) – Ground

#### OK or NG

OK >> GO TO 4.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102





1.

Disconnect following connectors.

#### VDC/TCS/ABS control unit connector AWD control unit connector Combination meter connector BCM connector Steering angle sensor connector Harness connector M12 2 Check continuity between data link connector M8 terminals 6 (L) and 14 (P). BAT 6 (L) – 14 (P) : Continuity should not exist. Data link connector 14---OK or NG 16 OK >> GO TO 5. NG >> Check the following harnesses. If any harness is damaged, repair the harness. Ω • Harness between data link connector and harness connector M72 PKIA9865E Harness between data link connector and VDC/TCS/ ABS control unit Harness between data link connector and AWD control unit Harness between data link connector and combination meter Harness between data link connector and BCM Harness between data link connector and steering angle sensor Harness between data link connector and harness connector M12 5. CHECK HARNESS FOR SHORT CIRCUIT Check continuity between data link connector M8 terminals 6 (L), 14 ð (P) and ground. LAN 6 (L) – Ground : Continuity should not exist. Data link connector 14 (P) – Ground : Continuity should not exist. -14 6 OK or NG OK >> GO TO 6. NG >> Check the following harnesses. If any harness is dam-Ω aged, repair the harness. Μ Harness between data link connector and harness PKIA9872 connector M72 Harness between data link connector and VDC/TCS/ABS control unit Harness between data link connector and AWD control unit Harness between data link connector and combination meter Harness between data link connector and BCM Harness between data link connector and steering angle sensor Harness between data link connector and harness connector M12

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- 1. Disconnect harness connector B2.
- 2. Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

#### OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector B1 and harness connector B2.



### 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- : Continuity should not exist.
- 52J (L) Ground 51J (P) - Ground
- : Continuity should not exist.

#### OK or NG

- OK >> GO TO 8.
- NG >> Repair harness between harness connector B1 and harness connector B2.

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- Check continuity between IPDM E/R harness connector E9 ter-2. minals 48 (L) and 49 (P).

#### 48 (L) - 49 (P)

#### : Continuity should not exist.

#### OK or NG

OK >> GO TO 9.

>> Repair harness between IPDM E/R and harness con-NG nector E106.



### 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- 49 (P) Ground
- : Continuity should not exist. : Continuity should not exist.

#### OK or NG

OK >> GO TO 10.

NG >> Repair harness between IPDM E/R and harness connector E106.





#### 10. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT А Remove ECM and IPDM E/R from vehicle. 1. 2 Check resistance between ECM terminals 94 and 86. 94 - 86: Approx. 108 – 132 $\Omega$ ECM and IPDM E/R 3. Check resistance between IPDM E/R terminals 48 and 49. 48 - 49 : Approx. 108 – 132 Ω OK or NG OK >> GO TO 11. NG >> Replace ECM and/or IPDM E/R. F **11.** снеск **сумртом** Fill in described symptoms on the column "Symptom" in the check sheet. 1. F 2. Connect all the connectors, and then make sure that the symptom is reproduced. OK or NG OK >> GO TO 12. NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" 12. CHECK UNIT REPRODUCIBILITY Н Perform the following procedure for each unit, and then perform reproducibility test. Turn ignition switch OFF. 1. 2. Disconnect the battery cable from the negative terminal. 3. Disconnect the unit connector. J 4. Connect the battery cable to the negative terminal. 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.) LAN 6. Make sure that the same symptom is reproduced. A/T assembly VDC/TCS/ABS control unit AWD control unit Combination meter BCM Μ Steering angle sensor ECM IPDM E/R Check results Reproduced>>Install removed unit, and then check the other unit. Not reproduced>>Replace removed unit. IPDM E/R Ignition Relay Circuit Inspection AKS00AUJ Check the following. If no malfunction is found, replace the IPDM E/R. IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection". Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN "ON" AND/OR "START"" .

### **System 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.

### Component Parts and Harness Connector Location



2005 G35 Sedan



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Wiring Diagram — CAN —





TKWM3881E

### LAN-CAN-11 A



TKWM2475E

### LAN-CAN-12

DATA LINE



\*: THIS CONNECTOR IS NOT SHOWN IN "HARNESS LAYOUT", PG SECTION.

TKWM3882E

### Check Sheet

### [CAN]

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#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

SELECT SYSTEM screen         Initial diagnosis         Transmit diagnosis         Teceive diagnosis           ENGINE         —         NG         UNKWN         —         UNKWN         VDC/TCS         AWD/4WD         METER MSC         STRG           A/T         —         NG         UNKWN         Interested unkwn </th <th>STRG         IPDM E/R           /N         —         UNKWN           /N         —         —           /N         —         —</th> <th>CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)</th> <th>G RESULTS  CAN COMM CIRCUT (U1001)</th>	STRG         IPDM E/R           /N         —         UNKWN           /N         —         —	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)	G RESULTS  CAN COMM CIRCUT (U1001)							
diagnosis       ECM       TCM       I-KEY       VDC/TCS/AWD/AWD       METER / SEC       STRG         INGINE       -       NG       UNKWN       -       UNKWN       -	STRG         IPDM E/R           /N         —         UNKWN           /N         —         —           UNKWN         —         —           UNKWN         —         —           UNKWN         —         —           /N         —         —           /N         —         —	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUT (U1001) — — — — — — — — —							
ENGINE       -       NG       UNKWN       -       UNKWN       UNKWN <td>Image: matrix instant state         Unkwn           Image: matrix instant state         Image: matrix instant state           Image: matrix instate         Image: matrix instant state  &lt;</td> <td>CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)</td> <td>CAN COMM CIRCUI (U1001) — — — — — — — — — —</td>	Image: matrix instant state         Unkwn           Image: matrix instant state         Image: matrix instant state           Image: matrix instate         Image: matrix instant state  <	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUI (U1001) — — — — — — — — — —							
VT         -         NG         UNKWN         UNKWN         -         -         UNKWN         UNKWN         UNKWN         -         -         -         Image: Constraint of the state of the	 IN UNKWN - - UNKWN IN IN	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
TTELLIGENT KEY       No indication       -       UNKWN       UNKWN       -       -       UNKWN       UNKWN       -       -       UNKWN       UNKWN       -       UNKWN       UNKWN       -       UNKWN       UNKWN       -       UNKWN       UNKWN       UNKWN       -       -       UNKWN       UNKWN       -       -       UNKWN       UNKWN       -       -       UNKWN       -       -       -       UNKWN       -       -       -       UNKWN       -       -       -       UNKWN       -<	/N — — — /	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
ABS - NG UNKWN UNKWN UNKWN UNKWN UNKWN - UNKWN UNKWN - UNKWN - UNKWN - UNKWN 3CM No indication NG UNKWN UNKWN - UNKWN UNKWN UNKWN JTO DRIVE POS. No indication NG UNKWN - UNKWN UNKWN UNKWN PDM E/R No indication - UNKWN UNKWN UNKWN UNKWN Symptoms :	UNKWN — — UNKWN /N — — /N — —	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
L MODE AWD/4WD — NG UNKWN UNKWN — UNKWN — UNKWN — UNKWN — UNKWN — CM No indication NG UNKWN UNKWN — UNKWN — UNKWN UNKWN — - ITO DRIVE POS. No indication NG UNKWN — UNKWN — UNKWN UNKWN — 'DM E/R No indication — UNKWN UNKWN — UNKWN UNKWN — Symptoms :	 - UNKWN /N /N	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
3CM       No indication       NG       UNKWN       UNKWN       -       -       UNKWN       -       -       -       UNKWN       -	- UNKWN /N /N	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
UTO DRIVE POS. No indication NG UNKWN - UNKWN - UNKWN - UNKWN UNKWN - PDM E/R No indication - UNKWN UNKWN UNKWN UNKWN - Symptoms :	/N /N	CAN COMM CIRCUIT (U1000) CAN COMM CIRCUIT (U1000)								
PDM E/R No indication - UNKWN UNKWN UNKWN - Symptoms :	/N — —	CAN COMM CIRCUIT (U1000)	_							
Symptoms :										
Attach copy of Attach SELECT SYSTEM SELECT	Attach copy of SELECT SYSTEM SELECT SYSTEM									



#### **CHECK SHEET RESULTS (EXAMPLE)**

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

#### Case 1

Check harness between TCM and VDC/TCS/ABS control unit. Refer to LAN-143, "Inspection Between TCM and VDC/TCS/ABS Control Unit Circuit" .

					(	CAN DIAC	G SUPPO	RT MNT	۶					
SELECT SYST	TFM screen	Initial	Transmit				Re	ceive diag	gnosis				SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	-	บทเรไทท	UNKWN	UNKWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T	_	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (UN00)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	UNKWN	-	_	CAN COMM CIRCUIT (UN00)	—
ABS	_	NG	UNKWN	UNKWN	UNKWN	_	-	UNKWN	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U 1000)	_
ALL MODE AWD/4WD	—	NG	UNKWN	-	-	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (UN00)	-
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	_



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Check harness between VDC/TCS/ABS control unit and data link connector. Refer to <u>LAN-144</u>, "Inspection <u>Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit</u>".

					C	CAN DIAC	SUPPO	RT MNT	F					
SELECT SYS	FM screen	1.00.1	<b>T</b>				Re	ceive dia	gnosis					BESHITS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	—	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN		—	—	CAN COMM CIRCUIT (UN00)	_
INTELLIGENT KEY	No indication	I	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (UN00)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	-	UNKWN	—	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	—	—	—	—	—	UNKWN	-	—	—	CAN COMM CIRCUIT (UN00)	_
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	-	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	—	—	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (UN00)	_
IPDM E/R	No indication	_	UNKWN		_	_	-	_	-	UNKWN	_	-	CAN COMM CIRCUIT (UN00)	_



Check harness between data link connector and driver seat control unit. Refer to <u>LAN-145</u>, "Inspection A <u>Between Data Link Connector and Driver Seat Control Unit Circuit</u>".

					(	CAN DIAC	SUPPO	RT MNT	٦					
SELECT SYST	FM screen	le Well	Transit				Re	ceive dia	gnosis				SELE-DIAG	BESUITS
012201 0101		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	—	-	UNKWN	UNKWN	UNKWN	-	-	1	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	-	—	—	UNKWN	UNKWN	-	1	CAN COMM CIRCUIT (U1000)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	—
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (UN00)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	-	-	_	UNKWN	-	_	CAN COMM CIRCUIT	_



Check ECM circuit. Refer to LAN-145, "ECM Circuit Inspection" .

					C	CAN DIAC	SUPPC	RT MNT	٦					
SELECT SYS	FM screen	le Well	Transmit				Re	ceive dia	gnosis				SELE-DIAG	BESULTS
011101010	NE – NG U			ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	—	NG	UNKWN	-	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCL (U1001)
A/T	-	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U 1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U 1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U 1000)	-
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	_	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U 1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN		_	_	_	_	_	UNKWN	_	_		_



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#### Case 5

Check TCM circuit. Refer to LAN-146, "TCM Circuit Inspection" .

					(	CAN DIAC	G SUPPO	RT MNTF	3					
	EM screen						Re	ceive diag	inosis					DEQUITO
SELECT OTO	LWISCIEEN	Initial diagnosis	Iransmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAC	I NEGOLI G
ENGINE	_	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN		—	UNKWN	UNKWN		-	-	-	CAN COMM CIRCUIT (U 1000)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	I	-	-	_	UNKWN	UNKWN	-	Ι	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN		-	-	UNKWN	UNKWN	-	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	I	-	UNKWN	_	UNKWN	-	-	Ι	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	_	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U 1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	-	_	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_



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Check Intelligent Key unit circuit. Refer to LAN-146, "Intelligent Key Unit Circuit Inspection" .

					C	CAN DIAG	SUPPO	RT MNTE	3					
SELECT SYST	EM screen	1	<b>-</b>				Re	ceive diag	nosis					BESINTS
	LINI SOICCIT	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		THEODERO
ENGINE	_	NG	UNKWN	—	UNKWN		UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T		NG	UNKWN	UNKWN	-		UNKWN	UNKWN	UNKWN	_	—	Ι	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	Ι		-	—	UNKWN	UNKWN	—	Ι	CAN COMIN CIRCUIT (U N00)	_
ABS	-	NG	UNKWN	UNKWN	UNKWN		-	UNKWN	UNKWN	_	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	Ι		UNKWN	—	UNKWN	_	—	Ι	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN			_	—	UNKWN	_	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	-	_	—	UNKWN	UNKWN	—	Ι	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
														PKIC4605E



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#### Case 7

А Check VDC/TCS/ABS control unit circuit. Refer to LAN-147, "VDC/TCS/ABS Control Unit Circuit Inspection" .

					C	CAN DIAG	SUPPO	RT MNT	٦							
	EM screen						Re	ceive diag	gnosis							
SELECT OTO	LWISCIEEN	Initial diagnosis     Iransmit diagnosis     ECM     TCM     I-KEY     VDC/TCS /ABS     AWD/4WD /e4WD     METER /M&A     BCM /SEC     STRG     IPDM E/R       NG     I.NK/MNI														
ENGINE	_	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)		
A/T	—	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	_	-	CAN COMM CIRCUIT (U 1000)	-		
INTELLIGENT KEY	No indication	_	UNKWN	UNKWN	-	-	-	-	UNKWN	UNKWN	-	-	CAN COMM¢CIRCUIT (UN00) CAN COMM CIRCUIT (U1000) CAN COMM¢CIRCUIT			
ABS	-	V	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000) – CAN COMM CIRCUIT (UN00) –			
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	_	-	CAN COMIN CIRCUIT (U1000) CAN COMIN CIRCUIT (U1000)			
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT			
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-		
IPDM E/R	No indication	—	UNKWN	UNKWN	_	-	-	_	-	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	-		



Check AWD control unit circuit. Refer to LAN-147, "AWD Control Unit Circuit Inspection" .

					(	CAN DIAG	SUPPO	RT MNT	٦					
SELECT SYST	TEM screen	1.00.1	<b>T</b>				Re	ceive dia	gnosis					BESINTS
		diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	—	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	—	-	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	—	—	—	UNKWN	UNKWN	_	Ι	CAN COMM CIRCUIT (U1000)	_
ABS	—	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	-	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	—	NG	UNKWN	-	—	—	—	—	-	-	_	Ι	CAN COMM CIRCUIT (U N00)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	_	Ι	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	_	-	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_



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#### Case 9

Check data link connector circuit. Refer to LAN-148, "Data Link Connector Circuit Inspection" .

					C	CAN DIAG	SUPPO	RT MNT	٦					
	FM screen						Re	ceive diag	gnosis					DEQUITO
SELECT STO	IE – NG			ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAC	THEOLIG
ENGINE	-	NG	UNKWN	_	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	—	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	Ι		—	-	UNKWN	UNKWN	-	Ι	CAN COMM CIRCUIT (U1000)	-
ABS	—	NG	UNKWN	UNKWN	UNKWN		—	UNKWN	UNKWN	-	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	Ι		UNKWN	—	UNKWN	-	-	Ι	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN		UNKWN	—	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	_	UNKWN	_	_	_	UNKWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	-	-	-	UNKWN	-	Ι	CAN COMM CIRCUIT (U1000)	-



Check combination meter circuit. Refer to LAN-148, "Combination Meter Circuit Inspection" .

					(	CAN DIAC	SUPPC	RT MNT	3					
	TEM coroon		_				Re	ceive dia	inosis					
GELEOTOTO	LWISCIEEN	Initial diagnosis	ial Transmit losis diagnosis ECM TCM I-KEY VDC/TCS AWD/4WD METER BCM /SEC STRG G UNKWN - UNKWN - UNKWN UNKWN UNKWN UNKWN -								IPDM E/R	SELI-DIAC	A RESULTS	
ENGINE	—	NG	UNKWN	-	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	—	NG	UNKWN	UNKWN	—	—	UNKWN	UNKWN	UNKWN	—	-	-	CAN COMM CIRCUIT (U 1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	—	—	—	UNKWN	UNKWN	-	1	CAN COMM CIRCUIT (U 1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	—	UNKWN	1	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	—	UNKWN	—	UNKWN	—	-	1	CAN COMM CIRCUIT (U 1000)	_
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	_	_	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U 1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	_	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	_
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#### Case 11

Check BCM circuit. Refer to LAN-149, "BCM Circuit Inspection" .

					(	CAN DIAG	SUPPO	RT MNTF	3					
	EM screen						Re	ceive diag	inosis					
SELECT OF S	LIVI Screen	Initial diagnosis	Iransmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAC	
ENGINE	_	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T		NG	UNKWN	UNKWN	l		UNKWN	UNKWN	UNKWN	-	-	—	CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	I		-	ļ	UNKWN	UNKWN	-	—	CAN COMM CIRCUIT (U N00)	_
ABS		NG	UNKWN	UNKWN	UNKWN		-	UNKWN	UNKWN		UNKWN	—	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD		NG	UNKWN	UNKWN	I		UNKWN	l	UNKWN	-	-	—	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	1	UNKWN	-		UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-		UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	—
IPDM E/R	No indication	—	UNKWN	UNKWN	-	—	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT	-



Check steering angle sensor circuit. Refer to LAN-149, "Steering Angle Sensor Circuit Inspection" .

					(	CAN DIAC	SUPPC	RT MNT	٦					
	TEM screen						Re	ceive dia	gnosis					DEQUITO
GELEOTOTO	LWISCIEEN	Initial diagnosis	Is diagnosis ECM TCM I-KEY VDC/TCS AWD/4WD METER BCM /SEC STRG IPDI /ABS /e4WD /M&A /SEC STRG IPDI UNKWN — UNKWN — UNKWN UNKWN UNKWN — UNKW									IPDM E/R	SELI-DIAC	
ENGINE	—	NG	UNKWN	_	UNKWN	—	UNKWN	UNKWN	UNKWN	UNKWN		UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	_	NG	UNKWN	UNKWN	_	—	UNKWN	UNKWN	UNKWN	_	l		CAN COMM CIRCUIT (U1000)	_
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	—	—	—	UNKWN	UNKWN	1	1	CAN COMM CIRCUIT (U1000)	_
ABS	_	NG	UNKWN	UNKWN	UNKWN	—	—	UNKWN	UNKWN	-		1	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	_	NG	UNKWN	UNKWN	-	—	UNKWN	—	UNKWN	_	l	1	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	_		UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	_	_	UNKWN	UNKWN		_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	_	UNKWN		_	CAN COMM CIRCUIT (U1000)	_
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#### Case 13

Check driver seat control unit circuit. Refer to LAN-150, "Driver Seat Control Unit Circuit Inspection" .

					C	CAN DIAC	G SUPPO	RT MNT	3					
	EM screen						Re	ceive diag	nosis					DEQUITO
OLLOT 010	LWISCIEEN	Iransmit diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAC	I NEGOLI G	
ENGINE	—	NG	UNKWN	-	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	-	—	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	—	UNKWN	UNKWN	—	-	-	-	UNKWN	UNKWN	-	Ι	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	—	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U 1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	-	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-



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#### Check IPDM E/R circuit. Refer to LAN-151, "IPDM E/R Circuit Inspection" .

					C	CAN DIAG	SUPPO	RT MNT	۲					
SELECT SYS	EM screen	1	<b>T</b>				Re	ceive dia	gnosis				SEL E-DIAG	BESINTS
022201010	Livisoreen	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	—	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
A/T		NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	—	-	-	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	1	—	—	UNKWN	UNKWN	-	1	CAN COMM CIRCUIT (U1000)	_
ABS	1	NG	UNKWN	UNKWN	UNKWN	-	—	UNKWN	UNKWN	—	UNKWN	l	CAN COMM CIRCUIT (U1000)	_
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	—	—	UNKWN	—	UNKWN	—	—		CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	—	UNKWN	—	—	UNKWN	—	—		CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	UNKWN	-	—	—	UNKWN	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT (UN00)	_



#### Case 15

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Check CAN communication circuit. Refer to LAN-151, "CAN Communication Circuit Inspection" .

					(	CAN DIAC	G SUPPO	RT MNT	٦					
SELECT SYST	EM screen	1	<b>-</b>				Re	ceive dia	gnosis				SELE-DIAG	BESUITS
	LINGOICCIT	diagnosis	diagnosis	ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNK	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCUIT (U 1001)
A/T	-	NG	UNKWN		-	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U 1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN		_	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U 1000)	-
ABS	-	V	UNKWN		UNKWN	-	-	UNKWN	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U 1000)	-
ALL MODE AWD/4WD	—	NG	UNKWN	-	I	—	-	—	-	—	—		CAN COMM CIRCUIT (UN00)	_
всм	No indication	NG	UNKWN	UNKWN	1	UNKWN	-	—	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	-	_	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U 1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	-	-	-	UNKWN	_	_	CAN COMM CIRCUIT	-

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Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-156</u>, "IPDM E/R Ignition Relay <u>A</u> <u>Circuit Inspection</u>".

					C	CAN DIAG								
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis										
				ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAG RESOLIS	
ENGINE	—	NG	UNKWN	_	UNKWN	_	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U 1000)	CAN COMM CIRCUIT (U1001)
A/T	-	NG	UNKWN	UNKWN	-	-	UNKWN	UNKWN	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
ABS	-	NG	UNKWN	UNKWN	UNKWN	-	-	UNKWN	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ALL MODE AWD/4WD	-	NG	UNKWN	UNKWN	-	-	UNKWN	-	UNKWN	-	-	-	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	-	-	-	UNKWN	UNKWN	-	-	CAN COMN CIRCUIT (U N00)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	-	-	-	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-

#### Case 17

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Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-156</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR													
		Initial T diagnosis di	Transmit diagnosis	Receive diagnosis											
				ECM	тсм	I-KEY	VDC/TCS /ABS	AWD/4WD /e4WD	METER /M&A	BCM /SEC	STRG	IPDM E/R			
ENGINE	_	NG	UNKWN	-	UNKWN	-	UNKWN	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)	
A/T	-	NG	UNKWN	-	-	-	UNKWN	UNKWN	_	-	_	-	CAN COMIN CIRCUIT (U N00)	-	
INTELLIGENT KEY	No indication	-	UNKWN	UNKWN	-	-	-	-	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-	
ABS	_	NG	UNKWN	-	UNKWN	-	-	UNKWN	_	-	_	-	CAN COMM CIRCUIT (U N00)	-	
ALL MODE AWD/4WD	_	NG	UNKWN	-	-	-	UNKWN	-	_	-	_	-	CAN COMM CIRCUIT (U N00)	-	
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	-	
AUTO DRIVE POS.	No indication	NG	UNKWN	-	UNKWN	_	_	-	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	-	
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	_	_	_	UNKWN	_	_	CAN COMM CIRCUIT	-	

# Inspection Between TCM and VDC/TCS/ABS Control Unit Circuit

### 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector F102
- Harness connector M72

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector and harness connector F102.
- Check continuity between A/T assembly harness connector F42 terminals 3 (L), 8 (R) and harness connector F102 terminals 24H (L), 25H (P).
  - 3 (L) 24H (L)
  - 8 (R) 25H (P)

: Continuity should exist.

: Continuity should exist.

61 (L)

63 (P)

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness.

### 3. CHECK HARNESS FOR OPEN CIRCUIT

24H (L)

25H (P)



M93

#### OK or NG

M72

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.

### Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit

Yes

Yes

### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and VDC/TCS/ABS control unit connector.
- Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		Continuity		
Connector	Terminal	Connector	Terminal	Continuity	
Moa	61 (L)	Mg	6 (L)	Yes	
10190	63 (P)	IVIO	14 (P)	Yes	

#### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW"

NG >> Repair harness.





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SMJ harness connector

24H ,25H

O CONNECTOR

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SMJ
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# Inspection Between Data Link Connector and Driver Seat Control Unit Circuit

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector M12
- Harness connector B1

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect harness connector M12.
- 2. Check continuity between data link connector (A) and harness connector (B).

	A		В	Continuity
Connector	Terminal	Connector	Terminal	Continuity
Mo	6 (L)	M12	52J (L)	Yes
IVIO	14 (P)	IVI I Z	51J (P)	Yes



OK >> GO TO 3.

NG >> Repair harness.

### 3. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect harness connector B6.
- Check continuity between harness connector B1 terminals 52J (L), 51J (P) and harness connector B6 terminals 3 (L), 19 (P).
  - 52J (L) 3 (L)
  - 51J (P) 19 (P)

### OK or NG

OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" . NG >> Repair harness.



### ECM Circuit Inspection 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of ECM for damage, bend and loose connection (control module side and harness side).

: Continuity should exist.

: Continuity should exist.

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

### 94 (L) – 86 (P)

: Approx. 108 – 132 Ω

### OK or NG

- OK >> Replace ECM.
- NG >> Repair harness between ECM and A/T assembly.



# **TCM Circuit Inspection**

### **1. CHECK CONNECTOR**

1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of A/T assembly for damage, bend and loose connection (control module side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect A/T assembly connector.
- Check resistance between A/T assembly harness connector F42 terminals 3 (L) and 8 (R).

#### 3 (L) - 8 (R)

: Approx. 54 – 66  $\Omega$ 

### OK or NG

OK >> Replace control valve with TCM.

NG >> Repair harness between A/T assembly and harness connector F102.



### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of Intelligent Key unit for damage, bend and loose connection (unit side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



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# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect Intelligent Key unit connector.
- 2. Check resistance between Intelligent Key unit harness connector M75 terminals 2 (L) and 3 (P).

**: Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace Intelligent Key unit.
- NG >> Repair harness between Intelligent Key unit and VDC/ TCS/ABS control unit.



# VDC/TCS/ABS Control Unit Circuit Inspection

### 1. CHECK CONNECTOR

### 1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection <sub>G</sub> (control unit side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

#### 61 (L) – 63 (P)

#### : **Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and data link connector.



### 1. CHECK CONNECTOR

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

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.



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- 1. Disconnect AWD control unit connector.
- 2. Check resistance between AWD control unit harness connector M10 terminals 8 (L) and 16 (P).

: **Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace AWD control unit.
- NG >> Repair harness between AWD control unit and data link connector.



# Data Link Connector Circuit Inspection

# 1. CHECK CONNECTOR

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- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of data link connector for damage, bend and loose connection (connector side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (P).

### 6 (L) - 14 (P)

: Approx. 54 – 66 Ω

### OK or NG

- OK >> Diagnose again. Refer to <u>LAN-5, "TROUBLE DIAG-</u> <u>NOSES WORK FLOW"</u>
- NG >> Repair harness between data link connector and combination meter.



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# **Combination Meter Circuit Inspection**

### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

- 1. Disconnect steering angle sensor connector.
- 2. Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

: **Approx. 54 – 66** Ω

### OK or NG

- OK >> Replace steering angle sensor.
- NG >> Repair harness between steering angle sensor and data link connector.



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# Driver Seat Control Unit Circuit Inspection

# 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control unit side, connector side and harness side).
- Driver seat control unit connector
- Harness connector B6
- Harness connector B321

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect driver seat control unit connector.
- Check resistance between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

: Approx. 54 – 66  $\Omega$ 

### 3 (OR) – 19 (LG)

### OK or NG

- OK >> Replace driver seat control unit.
- NG >> Repair harness between driver seat control unit and harness connector B2.



<ol> <li>Check following terminals and connectors for damage, bend and harness side).</li> </ol>	and loose connection (control module side
<ul> <li>IPDM E/R connector</li> </ul>	
<ul> <li>Harness connector B2</li> </ul>	
<ul> <li>Harness connector E106</li> </ul>	
OK or NG	
OK >> GO TO 2. NG >> Repair terminal or connector.	
2. CHECK HARNESS FOR OPEN CIRCUIT	
1. Disconnect IPDM E/R connector.	
<ol> <li>Check resistance between IPDM E/R harness connector E9 t minals 48 (L) and 49 (P).</li> </ol>	er-
<b>48 (L) – 49 (P)</b> : Approx. 108 – 132 Ω	IPDM E/R connector
OK or NG	
NG >> Repair harness between IPDM E/R and harness of nector B6.	on- Ω
CAN Communication Circuit Inspection	AKSOOCAJ

# 1. CHECK CONNECTOR

**IPDM E/R Circuit Inspection** 

Disconnect the battery cable from the negative terminal.

1. CHECK CONNECTOR

Turn ignition switch OFF.

1.

2.

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

LAN-151

- ECM
- A/T assembly
- Intelligent Key unit
- VDC/TCS/ABS control unit
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- Driver seat control unit
- IPDM E/R
- Between ECM and IPDM E/R
- Between ECM and driver seat control unit
- OK or NG
  - OK >> GO TO 2.
- NG >> Repair terminal or connector.

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# $\overline{2}$ . CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- ECM connector
- A/T assembly connector
- Harness connector F102
- 2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

### 94 (L) – 86 (P)

### : Continuity should not exist.

OK or NG

### OK >> GO TO 3.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102

# 3. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

94 (L) – Ground

: Continuity should not exist. : Continuity should not exist.

86 (P) – Ground

### OK or NG

OK >> GO TO 4.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between ECM and A/T assembly
  - Harness between ECM and harness connector F102







### OK or NG

- OK >> GO TO 6. NG >> Check the
  - >> Check the following harnesses. If any harness is damaged, repair the harness.
    - Harness between data link connector and harness connector M72
    - Harness between data link connector and Intelligent Key unit
    - Harness between data link connector and VDC/TCS/ABS control unit
    - Harness between data link connector and AWD control unit
    - Harness between data link connector and combination meter
    - Harness between data link connector and BCM
    - Harness between data link connector and steering angle sensor
    - Harness between data link connector and harness connector M12



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# 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B6 and harness connector B2.
- Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P) : Continuity should not exist.

### OK or NG

OK >> GO TO 7.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

# 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- 52J (L) Ground
- : Continuity should not exist. : Continuity should not exist.
- 51J (P) Ground

### OK or NG

- OK >> GO TO 8.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

### 8. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect driver seat control unit connector.
- Check continuity between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) – 19 (LG)

### : Continuity should not exist.

#### OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between driver seat control unit and harness connector B321.







# 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between driver seat control unit harness connector B324 terminals 3 (OR), 19 (LG) and ground.

- 3 (OR) Ground
  - : Continuity should not exist. : Continuity should not exist.
- 19 (LG) Ground

### OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between driver seat control unit and harness connector B321.

# 10. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- 2 Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

48 (L) - 49 (P)

nals 48 (L), 49 (P) and ground.

48 (L) - Ground

49 (P) - Ground

>> GO TO 12.

nector E106.

### : Continuity should not exist.

### OK or NG

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OK >> GO TO 11.

NG >> Repair harness between IPDM E/R and harness connector E106.



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Driver seat control unit connector

3,19

19

# 11. CHECK HARNESS FOR SHORT CIRCUIT



# 12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

- Remove ECM and IPDM E/R from vehicle. 1.
- 2. Check resistance between ECM terminals 94 and 86.

94 - 86 : Approx. 108 – 132  $\Omega$ 

3. Check resistance between IPDM E/R terminals 48 and 49.

48 - 49

: Approx. 108 – 132  $\Omega$ 

LAN-155

### OK or NG

OK >> GO TO 13.

NG >> Replace ECM and/or IPDM E/R.





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- 1. Fill in described symptoms on the column "Symptom" in the check sheet.
- 2. Connect all the connectors, and then make sure that the symptom is reproduced.

OK or NG

OK >> GO TO 14.

NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"

# 14. CHECK UNIT REPRODUCIBILITY

Perform the following procedure for each unit, and then perform reproducibility test.

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the unit connector.
- 4. Connect the battery cable to the negative terminal.
- 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.)
- 6. Make sure that the same symptom is reproduced.
- A/T assembly
- Intelligent Key unit
- VDC/TCS/ABS control unit
- AWD control unit
- Combination meter
- BCM
- Steering angle sensor
- Driver seat control unit
- ECM
- IPDM E/R

### Check results

Reproduced>>Install removed unit, and then check the other unit. Not reproduced>>Replace removed unit.

# **IPDM E/R Ignition Relay Circuit Inspection**

Check the following. If no malfunction is found, replace the IPDM E/R.

- IPDM E/R power supply circuit. Refer to <u>PG-26, "IPDM E/R Power/Ground Circuit Inspection"</u>.
- Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY IGNITION SW. IN "ON"</u> <u>AND/OR "START"</u>.

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## **System 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.

### **Component Parts and Harness Connector Location**



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# Schematic





TKWM3883E

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TKWM3884E

# LAN-CAN-14



TKWM2747E



## [CAN]

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DATA LINE



TKWM3885E

# **Check Sheet**

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

Check shee	t table										
				CAN	DIAG SU	PPORT N	INTR				
SELECT SYS	STEM screen	Initial	Transmit			Receive	diagnosis			SELE-DIAG	RESULTS
		diagnosis	diagnosis	ECM	VDC/TCS	METER	BCM	STRG	IPDM		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	_	NG	UNKWN	UNKWN	—	UNKWN	-	UNKWN	—	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	-	_	CAN COMM CIRCUIT	_
		s	Attach cc ELECT S	ppy of YSTEM				Atta	ch copy of CT SYSTE	EM	
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### **CHECK SHEET RESULTS (EXAMPLE)**

### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

### Case 1

Check harness between VDC/TCS/ABS control unit and data link connector. Refer to <u>LAN-173</u>, "Inspection <u>Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit</u>".

				CAN	DIAG SU	PPORT M	INTR				
SELECT SV	STEM screen	Initial	Tronomit			Receive	diagnosis			SELE-DIAG	
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		TLOOLIO
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMIN CIRCUIT (UN01)
ABS		NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	—	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	_	Ι	UNKWN	—	_	CAN COMM CIRCUIT (U N00)	_
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### Case 2

Check ECM circuit. Refer to LAN-173, "ECM Circuit Inspection" .

				CAN	DIAG SU	PPORT N	INTR				
	STEM scroon	Initial	Tronomit			Receive	diagnosis				BESHITS
OLLEOT OT		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG		_				-		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (UN00)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	CAN COMM CIRCUIT	_
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### Case 3

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Check VDC/TCS/ABS control unit circuit. Refer to LAN-174, "VDC/TCS/ABS Control Unit Circuit Inspection" .

				CAN	DIAG SU	PPORT M	INTR				
SELECT SY	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	Receive METER /M&A	diagnosis BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	_	NG	UNKWN	_		UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	_	N/G	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
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### Case 4

Check data link connector circuit. Refer to LAN-174, "Data Link Connector Circuit Inspection" .

				CAN	DIAG SU	PPORT N	1NTR					
	STEM screen	Initial	Tronomit			Receive	diagnosis			SELE-DIAG BESULTS		
SELECT ST		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R			
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)	
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_	
ВСМ	No invication	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_	
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-	



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### Case 5

Check combination meter circuit. Refer to LAN-175, "Combination Meter Circuit Inspection" .

		I								1		
					DIAG SU	PPORT N	INTR			-		
SELECT SY	STEM screen	Initial	Transmit		VDOTOO	Receive				SELF-DIAG	RESULTS	
		diagnosis	diagnosis	ECM	/ABS	METER /M&A	/SEC	STRG	E/R			
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)	
ABS	-	NG	UNKWN	UNKWN	_	UNKWN	—	UNKWN	-	CAN COMM CIRCUIT (U1000)	Ι	
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	—	_	UNKWN	CAN COMM CIRCUIT (U1000)	-	
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	Ι	
											PKIC4621E	



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### Case 6

Check BCM circuit. Refer to LAN-175, "BCM Circuit Inspection" .

			CAN	DIAG SU	PPORT N	1NTR					
STEM screen	Initial	Tronomit			Receive	diagnosis			SELE-DIAG BESULTS		
	diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI -DIAC	TILOULIO	
_	NG	UNKWN	-	UNKWN	UNKWN		_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)	
Ι	NG	UNKWN	UNKWN	_	UNKWN	—	UNKWN	-	CAN COMM CIRCUIT (U1000)	_	
No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_	
No indication	-	UNKWN	UNKWN	-		UNKWN	-	-	CAN COMM CIRCUIT (UN00)	_	
	STEM screen	STEM screen Initial diagnosis — NG — NG No intration NG No indication —	STEM screen Initial diagnosis - NG UNKWN - NG UNKWN No instant NG UNKWN No indication - UNKWN	STEM screen Initial diagnosis CAN Initial diagnosis ECM - NG UNKWN - NG UNKWN UNKWN No instation NG UNKWN UNKWN No indication - UNKWN UNKWN	STEM screen       Initial diagnosis       Transmit diagnosis       VDC/TCS         -       NG       UNKWN       -       UNKWN         -       NG       UNKWN       UNKWN       -         No instant       NG       UNKWN       UNKWN       -         No instant       NG       UNKWN       UNKWN       -         No instant       -       UNKWN       UNKWN       -	CAN DIAG SUPPORT M CAN DIAG SUPPORT M Received diagnosisInitial diagnosisTransmit diagnosisReceived KMA-NGUNKWN-UNKWN-NGUNKWNUNKWN-UNKWNNo instantNGUNKWNUNKWN-UNKWNNo instant-UNKWNUNKWN-UNKWNNo instant-UNKWNUNKWN	CAN DIAG SUPPORT MNTRCAN DIAG SUPPORT MNTRReceive diagnosisInitial diagnosisTransmit diagnosisVDC/TCS FCMMETER /M&ABCM /SEC-NGUNKWN-UNKWNUNKWNUNKWN-NGUNKWNUNKWNUNKWN-UNKWN-No indicationNGUNKWNUNKWN-UNKWN-UNKWNNo indication-UNKWNUNKWN-UNKWN-	CAN DIAG SUPPORT MNTRCAN DIAG SUPPORT MNTRReceive diagnosisInitial diagnosisTransmit diagnosisReceive diagnosisPNGUNKWNVDC/TCS (ABS)METER (M&A)BCM (SEC)STRGPNGUNKWNPUNKWNUNKWNPNo indicationNGUNKWNUNKWNPUNKWNPNo indicationPUNKWNUNKWNPPUNKWN	CAN DIAG SUPPORT MNTR         STEM screen       Initial diagnosis       Transmit diagnosis         Transmit diagnosis       VDC/TCS       METER /M&A       BCM /SEC       STRG       IPDM E/R         -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       UNKWN       -       -       UNKWN       -       -       UNKWN       -       -       UNKWN       - <td>CAN DIAG SUPPORT MNTR       SELF-DIAG         Initial diagnosis       Transmit diagnosis       CAN       Processes       SELF-DIAG         -       NG       UNKWN       -       UNKWN       STRG       IPDM E/R       SELF-DIAG         -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       -       UNKWN       CAN COMM CIRCUIT (U1000)         -       NG       UNKWN       UNKWN       -       UNKWN       -       UNKWN       CAN COMM CIRCUIT (U1000)         No indication       NG       UNKWN       UNKWN       -       UNKWN       -       CAN COMM CIRCUIT (U1000)         No indication       NG       UNKWN       UNKWN       -       UNKWN       -       CAN COMM CIRCUIT (U1000)         No indication       -       UNKWN       UNKWN       -       -       UNKWN       CAN COMM CIRCUIT (U1000)         No indication       -       UNKWN       -       -       UNKWN       -       -</td>	CAN DIAG SUPPORT MNTR       SELF-DIAG         Initial diagnosis       Transmit diagnosis       CAN       Processes       SELF-DIAG         -       NG       UNKWN       -       UNKWN       STRG       IPDM E/R       SELF-DIAG         -       NG       UNKWN       -       UNKWN       UNKWN       UNKWN       -       UNKWN       CAN COMM CIRCUIT (U1000)         -       NG       UNKWN       UNKWN       -       UNKWN       -       UNKWN       CAN COMM CIRCUIT (U1000)         No indication       NG       UNKWN       UNKWN       -       UNKWN       -       CAN COMM CIRCUIT (U1000)         No indication       NG       UNKWN       UNKWN       -       UNKWN       -       CAN COMM CIRCUIT (U1000)         No indication       -       UNKWN       UNKWN       -       -       UNKWN       CAN COMM CIRCUIT (U1000)         No indication       -       UNKWN       -       -       UNKWN       -       -	



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### Case 7

Check steering angle sensor circuit. Refer to LAN-176, "Steering Angle Sensor Circuit Inspection" .

[				CAN	DIAG SU		INTR				
					211101 00	Receive	diagnosis				
SELECT SY	STEM screen	Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULIS
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNK	-	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
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### Case 8

Check IPDM E/R circuit. Refer to LAN-176, "IPDM E/R Circuit Inspection" .

				CAN	DIAG SU	PPORT N	INTR				
SELECT SYS	STEM screen	Initial	Tronomit			Receive	diagnosis			SELE-DIAG	RESULTS
SELECT STC		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_		CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	-	UNKWN	_	_	CAN COMM CIRCUIT (U 1000)	_



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### Case 9

Check CAN communication circuit. Refer to LAN-177, "CAN Communication Circuit Inspection" .

SELECT SYSTEM screen       Initial diagnosis       Transmit diagnosis       Initial diagnosis       Transmit diagnosis       SELECT SYSTEM screen       SELECT SY	TS
ENGINE - NG UNKWN - UNKWN UNKWN - UNKWN CAN COMM CIRCUIT CAN COM (U1000) (U1 ADC	
	IV CIRCUI
ABS -   N A U   U   U   U   U   U   U   U   U   U	_
BCM No instation NG UNKWN UNKWN - UNKWN - UNKWN CAN COMM CIRCUIT	_
IPDM E/R No indication - UNKWN UNKWN UNKWN CAN COMM CIRCUIT	_

#### Case 10

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-181</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection"</u>.

				CAN							
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis			Receive					
				ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELI-DIAG NESOLIS	
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	-
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	—	—	UNKWN	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	—	UNKWN	UNKWN	_	-	UNKWN	—	-	CAN COMM CIRCUIT (U1000)	_
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### Case 11

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-181, "IPDM E/R Ignition Relay</u> <u>A</u> <u>Circuit Inspection"</u>.

SELECT SYSTEM screen		CAN DIAG SUPPORT MNTR									
		Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	- SELF-DIAG RESU	B RESULTS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	_	NG	UNKWN	_	_	_	-	_	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	_	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_

# Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit

### 1. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and VDC/TCS/ABS control unit connector.
- 4. Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		Continuity	
Connector	ctor Terminal Connector			
Mos	61 (L)	M8	6 (L)	Yes
1035	63 (P)	WO	14 (P)	Yes

### OK or NG

OK >> Connect all the connectors and diagnose again. Refer to LAN-5, "TROUBLE DIAGNOSES WORK FLOW" .

NG >> Repair harness.

# **ECM Circuit Inspection**

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- ECM connector
- Harness connector F102
- Harness connector M72

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.



- 1. Disconnect ECM connector.
- 2. Check resistance between ECM harness connector F108 terminals 94 (L) and 86 (P).

### 94 (L) – 86 (P)

: Approx. 108 – 132 Ω

### OK or NG

- OK >> Replace ECM.
- NG >> Repair harness between ECM and VDC/TCS/ABS Control Unit.



# **VDC/TCS/ABS Control Unit Circuit Inspection**

### 1. CHECK CONNECTOR

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[CAN]

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

#### 61 (L) - 63 (P)

#### : Approx. 54 – 66 $\Omega$

### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and data link connector.



### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- Check terminals and connector of data link connector for damage, bend and loose connection (connector side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.



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3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and harness side).

### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

: **Approx. 54 – 66** Ω

OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> Repair harness between BCM and data link connector.



AKS00D8M

### Steering Angle Sensor Circuit Inspection 1. CHECK CONNECTOR

### 1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect steering angle sensor connector.
- Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

#### : Approx. 54 – 66 Ω

### OK or NG

OK >> Replace steering angle sensor.

NG >> Repair harness between steering angle sensor and data link connector.



### 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side and harness side).
- IPDM E/R connector
- Harness connector B2
- Harness connector E106
- Harness connector M12
- Harness connector B1

### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

# LAN-176

beconnect Steering angle sensor connector 45 Ω PKIA9864E

AKS00D80

1. Disconnect IPDM E/R connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

2. Check resistance between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

#### 48 (L) – 49 (P)

: **Approx. 108 – 132** Ω

#### OK or NG

- OK >> Replace IPDM E/R.
- NG >> Repair harness between IPDM E/R and data link connector.



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**CAN Communication Circuit Inspection** 

### 1. CHECK CONNECTOR

#### 1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control module side, G meter side, sensor side, control unit side and harness side).
- ECM
- VDC/TCS/ABS control unit
- Combination meter
- BCM
- Steering angle sensor
- IPDM E/R
- Between ECM and IPDM E/R

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector and harness connector F102.
- Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) – 86 (P)

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 3.
- NG >> Repair harness between ECM and harness connector F102.



# $\overline{3}$ . CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

- 94 (L) Ground 86 (P) – Ground
- : Continuity should not exist.

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 4.
- NG >> Repair harness between ECM and harness connector F102.

# 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- VDC/TCS/ABS control unit connector
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) – 14 (P)

#### : Continuity should not exist.

### OK or NG

OK >> GO TO 5.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and VDC/TCS/ ABS control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and harness connector M12

LAN-178





# 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

- 6 (L) Ground 14 (P) – Ground
- : Continuity should not exist.

: Continuity should not exist.

OK or NG

- OK >> GO TO 6.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and harness connector M12

### 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B2.
- Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P)

#### : Continuity should not exist.

### OK or NG

- OK >> GO TO 7.
- NG >> Repair harness between harness connector B1 and harness connector B2.



# 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

52J (L) – Ground 51J (P) – Ground : Continuity should not exist. : Continuity should not exist.

#### OK or NG

- OK >> GO TO 8.
- NG >> Repair harness between harness connector B1 and harness connector B2.





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- 1. Disconnect IPDM E/R connector.
- Check continuity between IPDM E/R harness connector E9 terminals 48 (L) and 49 (P).

### 48 (L) – 49 (P) : Continuity should not exist.

### OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between IPDM E/R and harness connector E106.



# 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
  - 49 (P) Ground
- : Continuity should not exist.
- : Continuity should not exist.

### OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between IPDM E/R and harness connector E106.



# 10. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT

- 1. Remove ECM and IPDM E/R from vehicle.
- 2. Check resistance between ECM terminals 94 and 86.

94 - 86

: Approx. 108 – 132 Ω

: Approx. 108 – 132  $\Omega$ 

3. Check resistance between IPDM E/R terminals 48 and 49.

48 – 49

### OK or NG

OK >> GO TO 11.

NG >> Replace ECM and/or IPDM E/R.



# 11. СНЕСК ЗУМРТОМ

- 1. Fill in described symptoms on the column "Symptom" in the check sheet.
- 2. Connect all the connectors, and then make sure that the symptom is reproduced.

### OK or NG

OK >> GO TO 12.

NG >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced"

11. e ECM and/or IPDM
| 12     | 2. CHECK UNIT REPRODUCIBILITY  | А |
|--------|--|---|
| Pe     | form the following procedure for each unit, and then perform reproducibility test.   |   |
| 1.     | Turn ignition switch OFF.  |   |
| 2.     | Disconnect the battery cable from the negative terminal.   | В |
| 3.     | Disconnect the unit connector.   |   |
| 4.     | Connect the battery cable to the negative terminal.  | 0 |
| 5.     | Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.) | C |
| 6.     | Make sure that the same symptom is reproduced.   | D |
| _      | VDC/TCS/ABS control unit   | D |
| -      | Combination meter  |   |
| _      | BCM  | Е |
| _      | Steering angle sensor  |   |
| _      | ECM  |   |
| -      | IPDM E/R   | F |
| Ch     | eck results  |   |
| R<br>N | eproduced>>Install removed unit, and then check the other unit.<br>ot reproduced>>Replace removed unit.  | G |
| IPI    | DM E/R Ignition Relay Circuit Inspection   |   |
| Ch     | eck the following. If no malfunction is found, replace the IPDM E/R.   | Н |
| •      | IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection"  |   |
| •      | Ignition power supply circuit. Refer to <u>PG-10, "IGNITION POWER SUPPLY — IGNITION SW. IN "ON"</u> <u>AND/OR "START""</u> .                       |   |

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## **System 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.

## **Component Parts and Harness Connector Location**



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AKS00D8S







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AKS00D8T

## Wiring Diagram — CAN —



REFER TO THE FOLLOWING. (F102) -SUPER MULTIPLE JUNCTION (SMJ) (M93), (F108) -ELECTRICAL UNITS

TKWM3887E

AKS00D8U

## [CAN]





TKWM2879E

## LAN-CAN-18

DATA LINE



TKWM3888E

## **Check Sheet**

## [CAN]

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#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

SELECT SYSTEM sories       SELF-DIAG RESULTS         GINE       -       NG       UNKWN       -       UNKWN       -       UNKWN       CAN COMM CIRCUT (U1001)       -       -       -       UNKWN       -       UNKWN       -       UNKWN       -       UNKWN       -       -       -       CAN COM ORECUT       -				C/	AN DIAG SU	PPORT MN	TR				
diagnosis         ECM         Video         NIER         SEC         STRG         IP/IN           GINE         -         NG         UNKWN         -         UNKWN         -         UNKWN         CAN COMM CIRCUT (U1001)         CAN COMM CIRCUT (U1001)         CAN COMM CIRCUT (U1001)         -           s         -         NG         UNKWN         UNKWN         -         UNKWN         -         CAN COMM CIRCUT (U1001)         -           M         No indication         NG         UNKWN         UNKWN         -         UNKWN         -         CAN COMM CIRCUT (U1001)         -           TO DRIVE POS         No indication         NG         UNKWN         -         -         UNKWN         -         -         CAN COMM CIRCUT (U1000)         -           TO DRIVE POS         No indication         NG         UNKWN         -         -         UNKWN         -         -         CAN COMM CIRCUT (U1000)         -           YME/R         No indication         -         UNKWN         -         -         UNKWN         -         -         CAN COMM CIRCUT (U1000)         -           YME/R         No indication         -         UNKWN         -         -         UNKWN         -         -<	SELECT SYSTEM scree	n Initial	Transmit		VDC/TCS	Receive	diagnosis			SELF-DIAG	RESULTS
Gine         -         NG         UNKWN         -         UNKWN         UNKWN         -         UNKWN         CAN COMM CIRCUIT         CAN COMM CIRCUIT         -           s         -         NG         UNKWN         UNKWN         -		diagnosis	diagnosis	ECM	/ABS	/M&A	/SEC	STRG	E/R		
s       -       NG       UNKWN       -       UNKWN       -       UNKWN       -       CAN COMM CHRCHT       -         M       No indication       NG       UNKWN       UNKWN       -       UNKWN       -       -       UNKWN       -       -       (J1000)       -       -       (J1001)       -       -       -       (J1001)       -       -       -       (J1001)       -       -       -       -       CAN COMM CIRCUT       - <td< th=""><th>NGINE —</th><th>NG</th><th>UNKWN</th><th>_</th><th>UNKWN</th><th>UNKWN</th><th>UNKWN</th><th>-</th><th>UNKWN</th><th>U1000)</th><th>U1001)</th></td<>	NGINE —	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	-	UNKWN	U1000)	U1001)
M       No indication       NG       UNKWN       UNKWN       -       UNKWN       -       -       Chan Columo CilcUit       -       -       (11000)       -       -       (11000)       -       -       Chan Columo CilcUit       -       -       -       UNKWN       -       -       -	35 -	NG	UNKWN	UNKWN	_	UNKWN	-	UNKWN	-	U1000)	_
TO DRIVE POS. No indication NG UNKWN UNKWN UNKWN UNKUN UNKWN UNKUN UNKWN UNKUN UNKWN UNKUN UNKWN UNKUN UNKUN UNKUN UNKUN UNKWN UNKUN UNKUN	M No indic	ation NG	UNKWN	UNKWN	_	UNKWN	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
M E/R       No indication       -       UNKWN       -       -       CAN COMM CIRCUIT	JTO DRIVE POS. No indic	ation NG	UNKWN	_	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
ymptoms : Attach copy of SELECT SYSTEM Attach copy of SELECT SYSTEM	DM E/R No indic	ation —	UNKWN	UNKWN	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
Attach copy of SELECT SYSTEM SELECT SYSTEM											
Attach copy of SELECT SYSTEM				·							
		s	Attach co SELECT S	ppy of YSTEM				Atta SELEC	ch copy o CT SYSTE	f EM	



## **CHECK SHEET RESULTS (EXAMPLE)**

#### NOTE:

If a check mark is put on "NG" on "INITIAL DIAG (Initial diagnosis)", replace the control unit.

#### Case 1

В Check harness between VDC/TCS/ABS control unit and data link connector. Refer to LAN-200, "Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit" .

				C/	AN DIAG SU	PPORT MN	TR				
SELECT SYSTI	EM screen	Initial	Tranemit			Receive	diagnosis			SELF-DIAC	RESULTS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	-	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
ВСМ	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	-	UNKWN	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_		_
											PKIC4628E
	ctioning pa	ırt	VDOTO						Steering		

CAN L

Combination

meter

Driver seat

control unit

Data link

connector

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ECM

IPDM E/R

PKIC4173E

## Case 2

Check harness between data link connector and driver seat control unit. Refer to <u>LAN-200</u>, "Inspection <u>Between Data Link Connector and Driver Seat Control Unit Circuit</u>".

				CA	AN DIAG SU	PPORT MN	TR				
	Macroon		-			Receive	diagnosis				
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	ULLI DIA	
ENGINE	—	NG	UNKWN	—	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	Ι	NG	UNKWN	UNKWN	—	UNKWN	—	UNKWN		CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	_	UNKWN	UNKWN	-	—	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	1	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_



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## Case 3

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Check ECM circuit. Refer to LAN-201, "ECM Circuit Inspection" .

			1	C/	AN DIAG SU	PPORT MN	TR				
SELECT SYST	FM screen	1-24-1	Transit			Receive	diagnosis			SELE-DIAC	BESUITS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	-	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	-	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	_	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS	No indication	NG	UNKWN	-	_	UNKWN	UNKWN	-	_	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-



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## Case 4

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Check VDC/TCS/ABS control unit circuit. Refer to LAN-201, "VDC/TCS/ABS Control Unit Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	EM screen	Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	Receive METER /M&A	diagnosis BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	—	V	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	_	UNKWN	UNKWN	_	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	_	_	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
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#### Case 5

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Check data link connector circuit. Refer to LAN-202, "Data Link Connector Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	Miscreen	1-141-1	T			Receive	diagnosis			SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	-	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	Ι	NG	UNKWN	UNKWN	-	UNKWN	_	UNKWN	Ι	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	_	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_



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## Case 6

Check combination meter circuit. Refer to LAN-202, "Combination Meter Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	-M screen					Receive	diagnosis			SELE-DIAC	BESUITS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	ULLI DIA	
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	_	UNKWN	—	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	—	—	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
											PKIC4633E



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## Case 7

Check BCM circuit. Refer to LAN-203, "BCM Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	Miscreen	1-141-1	Transit			Receive	diagnosis			SELE-DIAG	BESULTS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	Ι	UNKWN		CAN COMM CIRCUIT (U1000)	_
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	Ι	—	UNKWN	UNKWN	Ι	Ι	CAN COMM CIRCUIT (U1000)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	1	CAN COMM CIRCUIT (U N00)	_



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## Case 8

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Check steering angle sensor circuit. Refer to LAN-203, "Steering Angle Sensor Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	EM screen	Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	Receive METER /M&A	diagnosis BCM /SEC	STRG	IPDM E/R	SELF-DIAG	RESULTS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	_	NG	UNKWN	UNKWN	_	UNKWN	_	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	—	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	—	UNKWN	UNKWN	—	—	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	-	UNKWN	UNKWN	_	-	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
											PKIC4635E



#### Case 9

Check driver seat control unit circuit. Refer to LAN-204, "Driver Seat Control Unit Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	Miscreen					Receive	diagnosis			SELE-DIAG	BESUITS
		diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	OLLI DIAC	
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	Ι	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	Ι	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U N00)	-
IPDM E/R	No indication	-	UNKWN	UNKWN	-	-	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-



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## Case 10

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Check IPDM E/R circuit. Refer to LAN-205, "IPDM E/R Circuit Inspection" .

				CA	AN DIAG SU	PPORT MN	TR				
SELECT SYSTE	EM screen	Initial diagnosis	Transmit diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SELF-DIAC	RESULTS
ENGINE	-	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	_	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	_
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	_	_	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	_	-	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	—
IPDM E/R	No increation	_	UNKWN	UNKWN	-	-	UNKWN	_	_	CAN COMM CIRCUIT (U1000)	_
											PKIC4637E



#### Case 11

Check CAN communication circuit. Refer to LAN-205, "CAN Communication Circuit Inspection" .

	CAN DIAG SUPPORT MNTR										
SELECT SYSTEM screen		Initial diagnosis	Transmit diagnosis	Receive diagnosis							
				ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	—	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (UN01)
ABS	—	¥	UNKWN	UNKWN	_	UNKWN	Ι	UNKWN		CAN COMM CIRCUIT (U 1000)	-
всм	No indication	NG	UNKWN	UNKWN	_	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	Ι	—	UNKWN	UNKWN	—	Ι	CAN COMM CIRCUIT (U 1000)	
IPDM E/R	No indication	I	UNKWN	UNKWN	-	_	UNKWN	_	I	CAN COMM CIRCUIT (U N00)	1
											DKIC 4639E

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## Case 12

Check IPDM E/R ignition relay circuit continuously sticks "OFF". Refer to <u>LAN-209</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

	CAN DIAG SUPPORT MNTR										
SELECT SYSTEM screen				Receive diagnosis							
		Initial Transmit diagnosis diagnosis	diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R	SEL -DIA NEGOLIG	
ENGINE	_	NG	UNKWN	_	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U 1001)
ABS	-	NG	UNKWN	UNKWN	-	UNKWN	-	UNKWN	_	CAN COMM CIRCUIT (U1000)	-
всм	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	_
AUTO DRIVE POS.	No indication	NG	UNKWN	-	-	UNKWN	UNKWN	-	—	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	—	UNKWN	UNKWN	-	_	UNKWN	-	—	CAN COMM CIRCUIT (U1000)	_

#### Case 13

Check IPDM E/R ignition relay circuit continuously sticks "ON". Refer to <u>LAN-209</u>, "IPDM E/R Ignition Relay <u>Circuit Inspection</u>".

	CAN DIAG SUPPORT MNTR										
SELECT SYSTEM screen		Ascreen		Receive diagnosis							
	di		diagnosis	ECM	VDC/TCS /ABS	METER /M&A	BCM /SEC	STRG	IPDM E/R		
ENGINE	—	NG	UNKWN	-	UNKWN	UNKWN	UNKWN	_	UNKWN	CAN COMM CIRCUIT (U1000)	CAN COMM CIRCUIT (U1001)
ABS	—	NG	UNKWN	-	-	_	-	_	_	CAN COMM CIRCUIT (U 1000)	-
BCM	No indication	NG	UNKWN	UNKWN	-	UNKWN	-	-	UNKWN	CAN COMM CIRCUIT (U1000)	-
AUTO DRIVE POS.	No indication	NG	UNKWN	-	_	UNKWN	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	_
IPDM E/R	No indication	_	UNKWN	UNKWN	-	_	UNKWN	-	-	CAN COMM CIRCUIT (U1000)	-

Inspection Between VDC/TCS/ABS Control Unit and Data Link Connector Circuit

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect ECM connector and VDC/TCS/ABS control unit connector.
- 4. Check continuity between VDC/TCS/ABS control unit harness connector (A) and data link connector (B).

	A		Continuity		
Connector	Terminal	Connector	Terminal	Continuity	
MO2	61 (L)	Mg	6 (L)	Yes	
10193	63 (P)	IVIO	14 (P)	Yes	



# OK or NG



## Inspection Between Data Link Connector and Driver Seat Control Unit Circuit

AKS00G5M

## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector M12
- Harness connector B1

## OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect harness connector M12.
- 2. Check continuity between data link connector (A) and harness connector (B).

	A		Continuity	
Connector	Terminal	Connector	Terminal	Continuity
Mg	6 (L)	M12	52J (L)	Yes
INIO	14 (P)	IVITZ	51J (P)	Yes

#### OK or NG

OK >> GO TO 3.

NG >> Repair harness.





3. Check terminals and connector of VDC/TCS/ABS control unit for damage, bend and loose connection (control unit side and harness side).

#### OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.

# $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect VDC/TCS/ABS control unit connector.
- 2. Check resistance between VDC/TCS/ABS control unit harness connector M93 terminals 61 (L) and 63 (P).

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace VDC/TCS/ABS control unit.
- NG >> Repair harness between VDC/TCS/ABS control unit and data link connector.



Data link connector

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## Data Link Connector Circuit Inspection

## 1. CHECK CONNECTOR

1. Turn ignition switch OFF.

- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of data link connector for damage, bend and loose connection (connector side and harness side).

## OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

Check resistance between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) - 14 (P)

: Approx. 54 – 66 Ω

#### OK or NG

- OK >> Diagnose again. Refer to <u>LAN-5, "TROUBLE DIAG-</u> <u>NOSES WORK FLOW"</u>.
- NG >> Repair harness between data link connector and combination meter.



## 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of combination meter for damage, bend and loose connection (meter side and harness side).

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## LAN-202

#### AKS00D8Z

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## $\overline{2}$ . CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect combination meter connector.
- 2. Check resistance between combination meter harness connector M19 terminals 4 (L) and 5 (P).

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace combination meter.
- NG >> Repair harness between combination meter and data link connector.



## **BCM Circuit Inspection**

## **1. CHECK CONNECTOR**

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of BCM for damage, bend and loose connection (control module side and  $_{\rm G}$  harness side).

#### OK or NG

OK >> GO TO 2. NG >> Repair ter

S >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect BCM connector.
- 2. Check resistance between BCM harness connector M1 terminals 39 (L) and 40 (P).

#### 39 (L) – 40 (P)

## : **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace BCM. Refer to <u>BCS-16, "Removal and Installa-</u> tion of <u>BCM"</u>.
- NG >> Repair harness between BCM and data link connector.



## **1. CHECK CONNECTOR**

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check terminals and connector of steering angle sensor for damage, bend and loose connection (sensor side and harness side).

## OK or NG

- OK >> GO TO 2.
- NG >> Repair terminal or connector.



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- 1. Disconnect steering angle sensor connector.
- 2. Check resistance between steering angle sensor harness connector M22 terminals 4 (L) and 5 (P).

: **Approx. 54 – 66** Ω

#### OK or NG

- OK >> Replace steering angle sensor.
- NG >> Repair harness between steering angle sensor and data link connector.



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## Driver Seat Control Unit Circuit Inspection 1. CHECK CONNECTOR

- 1. Turn ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check following terminals and connectors for damage, bend and loose connection (control unit side, connector side and harness side).
- Driver seat control unit connector
- Harness connector B6
- Harness connector B321

#### OK or NG

OK >> GO TO 2.

NG >> Repair terminal or connector.

## 2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect driver seat control unit connector.
- Check resistance between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

: Approx. 54 – 66  $\Omega$ 

#### 3 (OR) – 19 (LG)

#### OK or NG

- OK >> Replace driver seat control unit.
- NG >> Repair harness between driver seat control unit and harness connector B2.



>> GO TO 2.

-	Combination	mete
---	-------------	------

- Driver seat control unit
- IPDM E/R
- Between ECM and IPDM E/R

- Between ECM and driver seat control unit

>> Repair terminal or connector.

OK or NG

OK NG

Turn ignition switch OFF.

minals 48 (L) and 49 (P).

nector B6.

>> Replace IPDM E/R.

48 (L) - 49 (P)

**IPDM E/R Circuit Inspection** 

**1. CHECK CONNECTOR** 

1.

**CAN Communication Circuit Inspection** 

- 2. Disconnect the battery cable from the negative terminal.
- Check following terminals and connectors for damage, bend and loose connection (control module side, 3. meter side, sensor side, control unit side and harness side).
- FCM

OK or NG

OK

NG

- VDC/TCS/ABS control unit

1. CHECK CONNECTOR

- er

- Steering angle sensor

- BCM



1. Turn ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Check following terminals and connectors for damage, bend and loose connection (control module side 3. and harness side). IPDM E/R connector Harness connector B2 Harness connector E106 OK or NG OK >> GO TO 2. NG >> Repair terminal or connector. 2. CHECK HARNESS FOR OPEN CIRCUIT Disconnect IPDM E/R connector. 1. 2

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## $\overline{2}$ . CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect ECM connector and harness connector F102.
- 2. Check continuity between ECM harness connector F108 terminals 94 (L) and 86 (P).

#### 94 (L) – 86 (P)

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 3.
- NG >> Repair harness between ECM and harness connector F102.



## **3. CHECK HARNESS FOR SHORT CIRCUIT**

Check continuity between ECM harness connector F108 terminals 94 (L), 86 (P) and ground.

- 94 (L) Ground : Continu
- 86 (P) Ground
- : Continuity should not exist. : Continuity should not exist.

- OK or NG
- OK >> GO TO 4.
- NG >> Repair harness between ECM and harness connector F102.



## 4. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect following connectors.
- VDC/TCS/ABS control unit connector
- Combination meter connector
- BCM connector
- Steering angle sensor connector
- Harness connector M12
- Check continuity between data link connector M8 terminals 6 (L) and 14 (P).

#### 6 (L) – 14 (P)

: Continuity should not exist.

#### OK or NG

- OK >> GO TO 5.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and VDC/TCS/ ABS control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and harness connector M12



## LAN-206

## 5. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between data link connector M8 terminals 6 (L), 14 (P) and ground.

- 6 (L) Ground
  - ound : Continuity should not exist. round : Continuity should not exist.
- 14 (P) Ground

OK or NG

- OK >> GO TO 6.
- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between data link connector and harness connector M72
  - Harness between data link connector and VDC/TCS/ABS control unit
  - Harness between data link connector and combination meter
  - Harness between data link connector and BCM
  - Harness between data link connector and steering angle sensor
  - Harness between data link connector and harness connector M12

## 6. CHECK HARNESS FOR SHORT CIRCUIT

- 1. Disconnect harness connector B6 and harness connector B2.
- Check continuity between harness connector B1 terminals 52J (L) and 51J (P).

#### 52J (L) – 51J (P)

#### : Continuity should not exist.

## OK or NG

OK >> GO TO 7.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2

## 7. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between harness connector B1 terminals 52J (L), 51J (P) and ground.

- 52J (L) Ground
  - : Continuity should not exist.
  - 51J (P) Ground

: Continuity should not exist.

#### OK or NG

OK >> GO TO 8.

- NG >> Check the following harnesses. If any harness is damaged, repair the harness.
  - Harness between harness connector B1 and harness connector B6
  - Harness between harness connector B1 and harness connector B2





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Data link connector

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- 1. Disconnect driver seat control unit connector.
- 2. Check continuity between driver seat control unit harness connector B324 terminals 3 (OR) and 19 (LG).

#### 3 (OR) – 19 (LG) : Continuity should not exist.

#### OK or NG

- OK >> GO TO 9.
- NG >> Repair harness between driver seat control unit and harness connector B321.



Driver seat control unit connector

3,19

3 19 [CAN]

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## 9. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between driver seat control unit harness connector B324 terminals 3 (OR), 19 (LG) and ground.

- 3 (OR) Ground
- : Continuity should not exist.
- 19 (LG) Ground
- : Continuity should not exist.

#### OK or NG

- OK >> GO TO 10.
- NG >> Repair harness between driver seat control unit and harness connector B321.

## 10. CHECK HARNESS FOR SHORT CIRCUIT

- Disconnect IPDM E/R connector. 1.
- Check continuity between IPDM E/R harness connector E9 ter-2. minals 48 (L) and 49 (P).

#### 48 (L) - 49 (P)

## : Continuity should not exist.

## OK or NG

- OK >> GO TO 11.
- NG >> Repair harness between IPDM E/R and harness connector E106.



## 11. CHECK HARNESS FOR SHORT CIRCUIT

Check continuity between IPDM E/R harness connector E9 terminals 48 (L), 49 (P) and ground.

- 48 (L) Ground
- : Continuity should not exist.
- 49 (P) Ground

: Continuity should not exist.

## OK or NG

OK >> GO TO 12.

NG >> Repair harness between IPDM E/R and harness connector E106.



#### 12. CHECK ECM AND IPDM E/R INTERNAL CIRCUIT А Remove ECM and IPDM E/R from vehicle. 1. 2 Check resistance between ECM terminals 94 and 86. 94 - 86: Approx. 108 – 132 $\Omega$ ECM and IPDM E/R 3. Check resistance between IPDM E/R terminals 48 and 49. 48 – 49 : Approx. 108 – 132 Ω OK or NG OK >> GO TO 13. NG >> Replace ECM and/or IPDM E/R. F 13. снеск сумртом 1. Fill in described symptoms on the column "Symptom" in the check sheet. F 2. Connect all the connectors, and then make sure that the symptom is reproduced. OK or NG OK >> GO TO 14. >> Refer to LAN-13, "Example of Filling in Check Sheet When Initial Conditions Are Not Reproduced" NG 14. CHECK UNIT REPRODUCIBILITY Н Perform the following procedure for each unit, and then perform reproducibility test. Turn ignition switch OFF. 1. 2. Disconnect the battery cable from the negative terminal. 3. Disconnect the unit connector. J 4. Connect the battery cable to the negative terminal. 5. Make sure that the symptom filled in the "Symptom" of the check sheet is reproduced. (Do not confuse it with the symptom related to removed unit.) LAN 6. Make sure that the same symptom is reproduced. VDC/TCS/ABS control unit Combination meter BCM Steering angle sensor Driver seat control unit М ECM IPDM E/R Check results Reproduced>>Install removed unit, and then check the other unit. Not reproduced>>Replace removed unit. IPDM E/R Ignition Relay Circuit Inspection AKS00D97 Check the following. If no malfunction is found, replace the IPDM E/R. IPDM E/R power supply circuit. Refer to PG-26, "IPDM E/R Power/Ground Circuit Inspection". Ignition power supply circuit. Refer to PG-10, "IGNITION POWER SUPPLY - IGNITION SW. IN "ON" AND/OR "START"" .