SECTION LAN

LAN SYSTEM

CONTENTS

CAN GATEWAY

CAN SYSTEM (TYPE 7)

CAN SYSTEM (TYPE 13)

CAN SYSTEM (TYPE 14)

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Information

INFOID:0000000009755444

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

PRECAUTION

PRECAUTIONS

Precautions for Trouble Diagnosis

INFOID:0000000009755435

CAUTION:

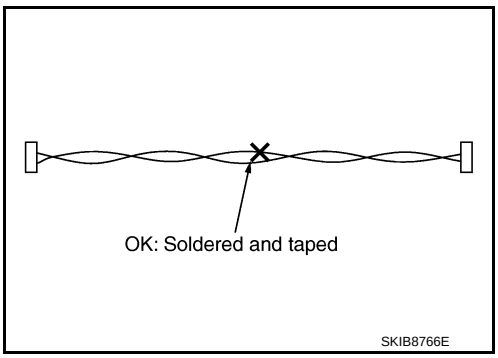
Follow the instructions listed below. Failure to do this may cause damage to parts:

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

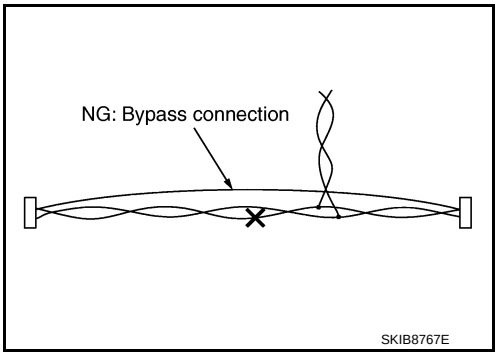
Precautions for Harness Repair

INFOID:0000000009755436

- Solder the repaired area and wrap tape around the soldered area.
  NOTE:
  A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.
  NOTE:
  Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



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

SYSTEM DESCRIPTION

SYSTEM

CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

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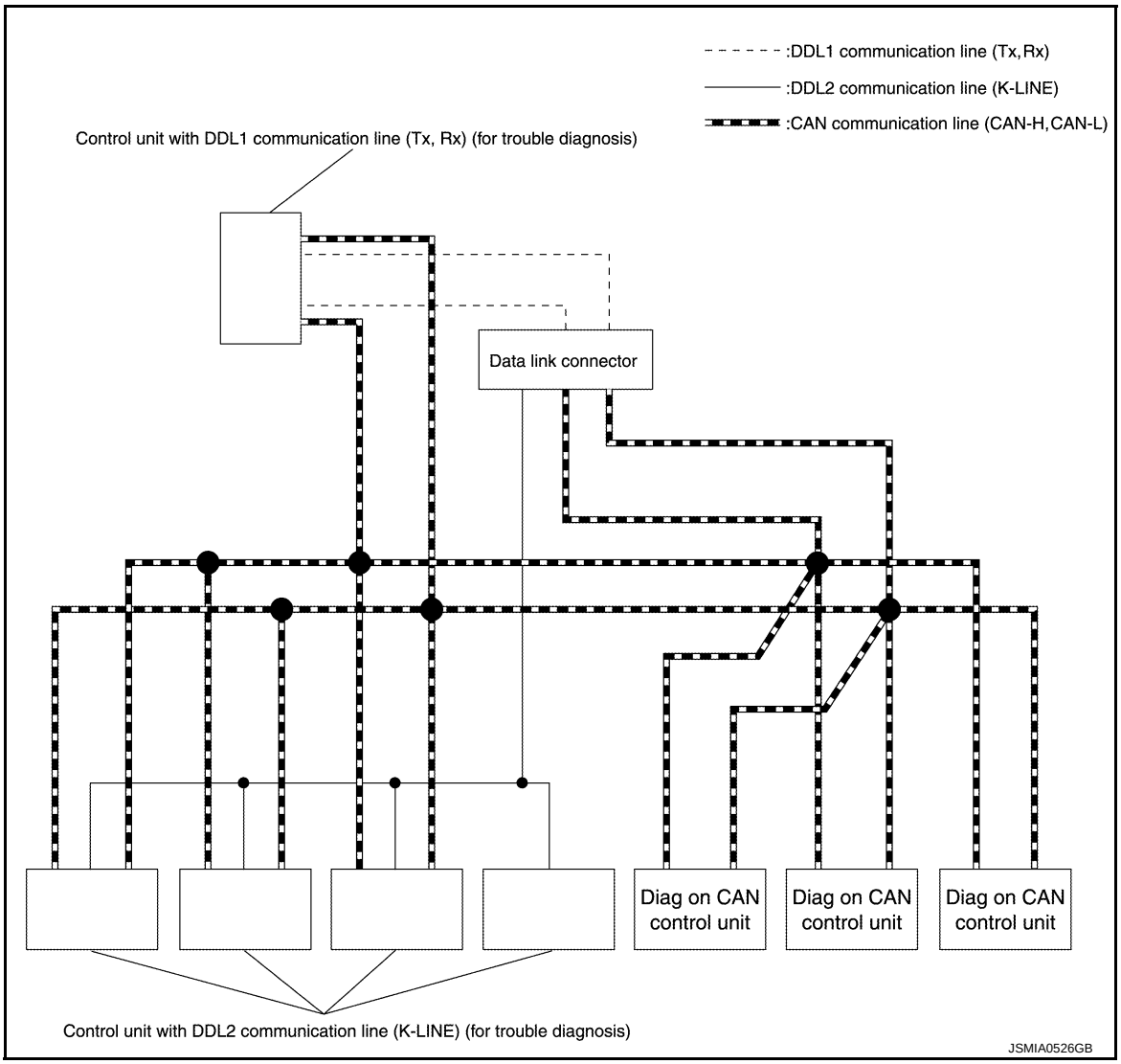
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information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

DIAG ON CAN

DIAG ON CAN : System Description

INFOID:0000000009755446

SYSTEM DIAGRAM



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

DESCRIPTION

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

TROUBLE DIAGNOSIS

Component Description

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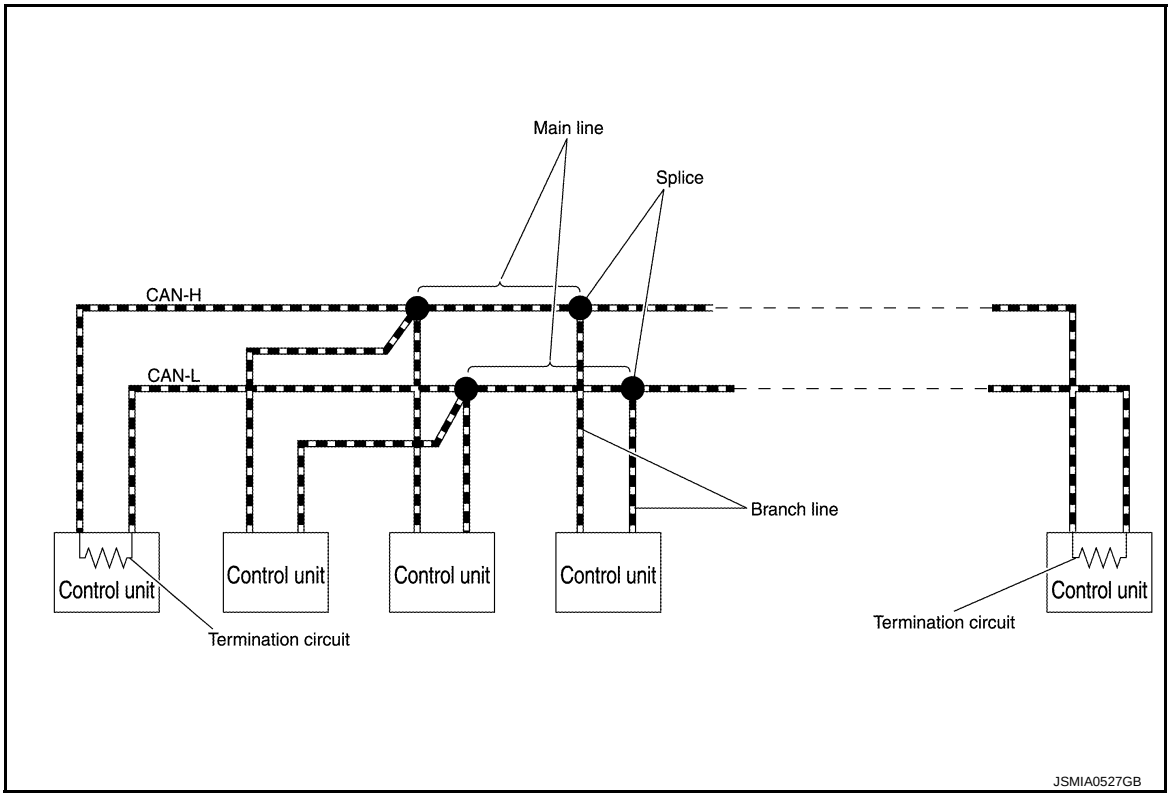


Component	Description
Main line	CAN communication line between splices
Branch line	CAN communication line between splice and a control unit
Splice	A point connecting a branch line with a main line
Termination circuit	Circuit connected across the CAN communication system. (Resistor)

Condition of Error Detection

INFOID:0000000009755448

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

CAN COMMUNICATION SYSTEM ERROR

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

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

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

NOTE:

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

Symptom When Error Occurs in CAN Communication System

INFOID:0000000009755449

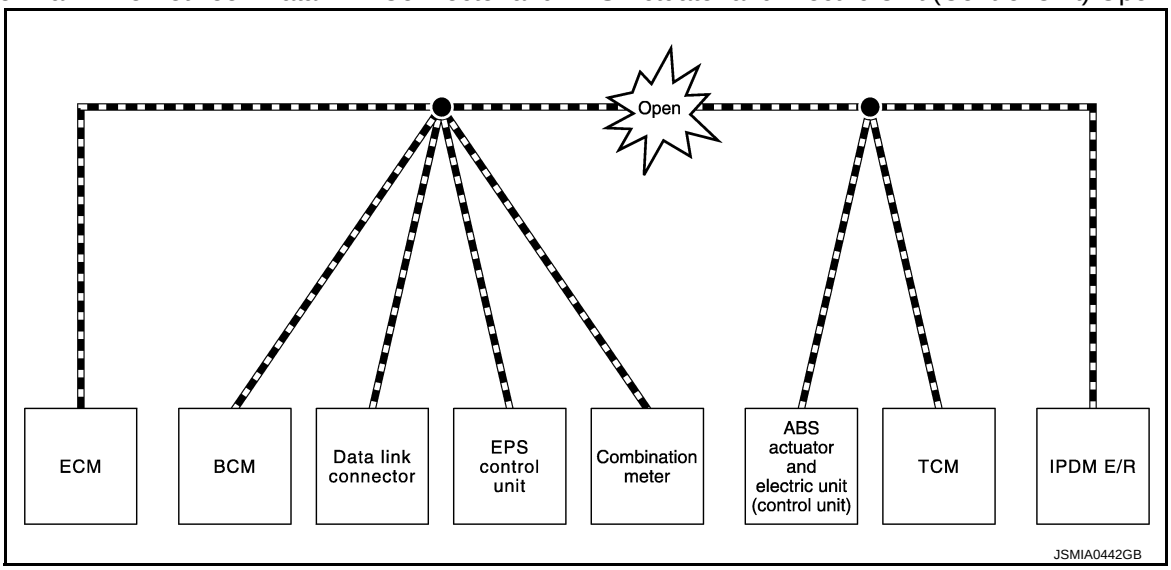
In CAN communication system, multiple control units mutually transmit and receive signals. Each control unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

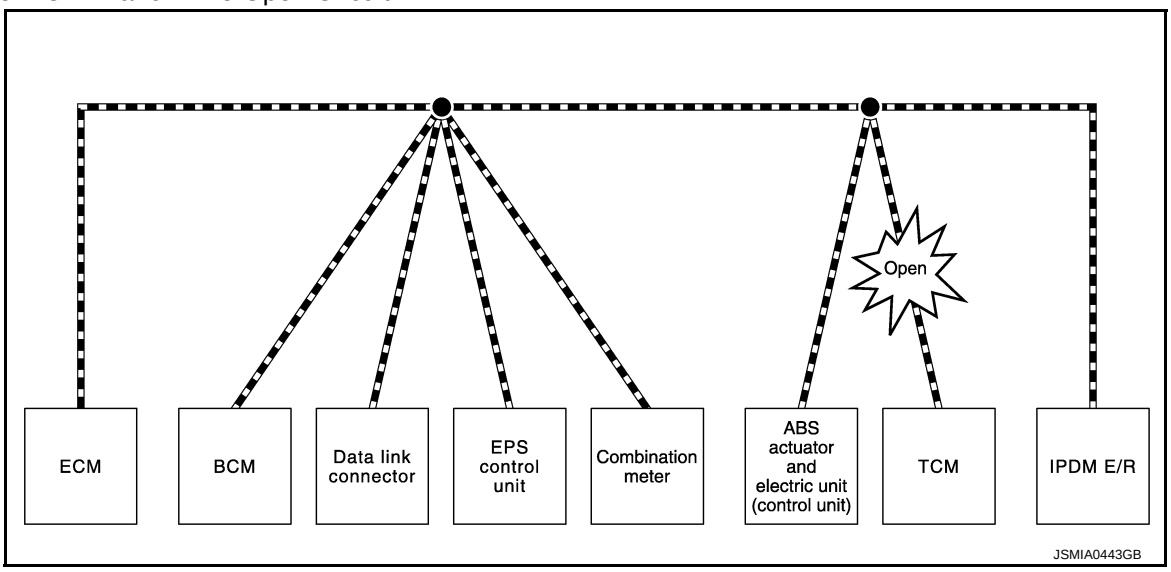
Each vehicle differs in symptom of each control unit under fail-safe mode and CAN communication line wiring.

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



Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	• Reverse warning buzzer does not sound. • The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.
EPS control unit	The steering effort increases.
Combination meter	• The shift position indicator and OD OFF indicator turn OFF. • The speedometer is inoperative. • The odo/trip meter stops.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, • The headlamps (Lo) turn ON. • The cooling fan continues to rotate.

Example: TCM Branch Line Open Circuit

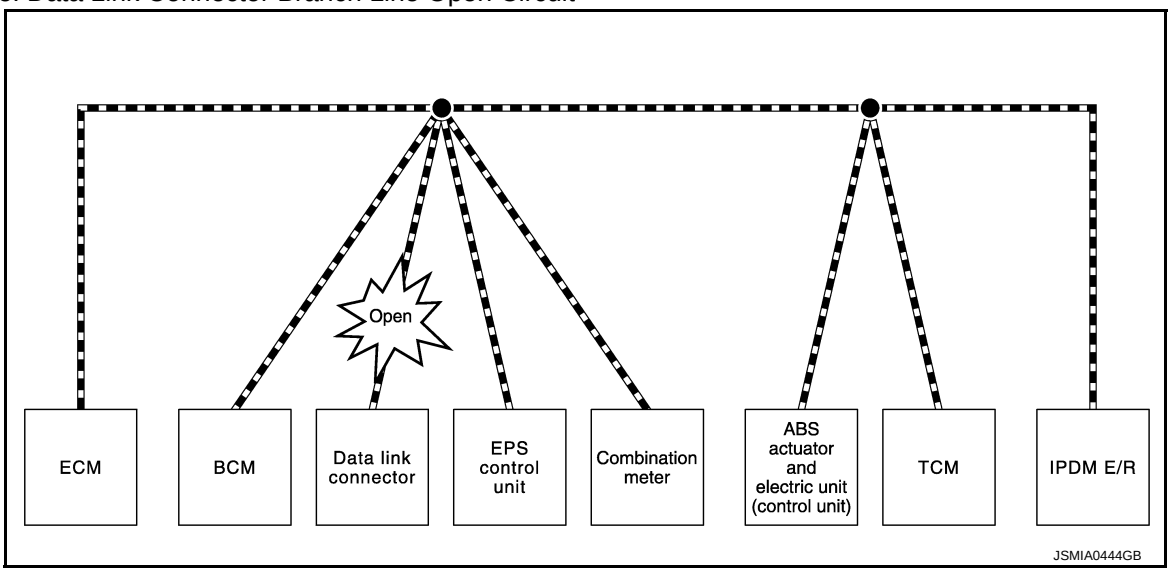


Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	Reverse warning buzzer does not sound.
EPS control unit	Normal operation.
Combination meter	• Shift position indicator and O/D OFF indicator turn OFF. • Warning lamps turn ON.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	Normal operation.

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

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

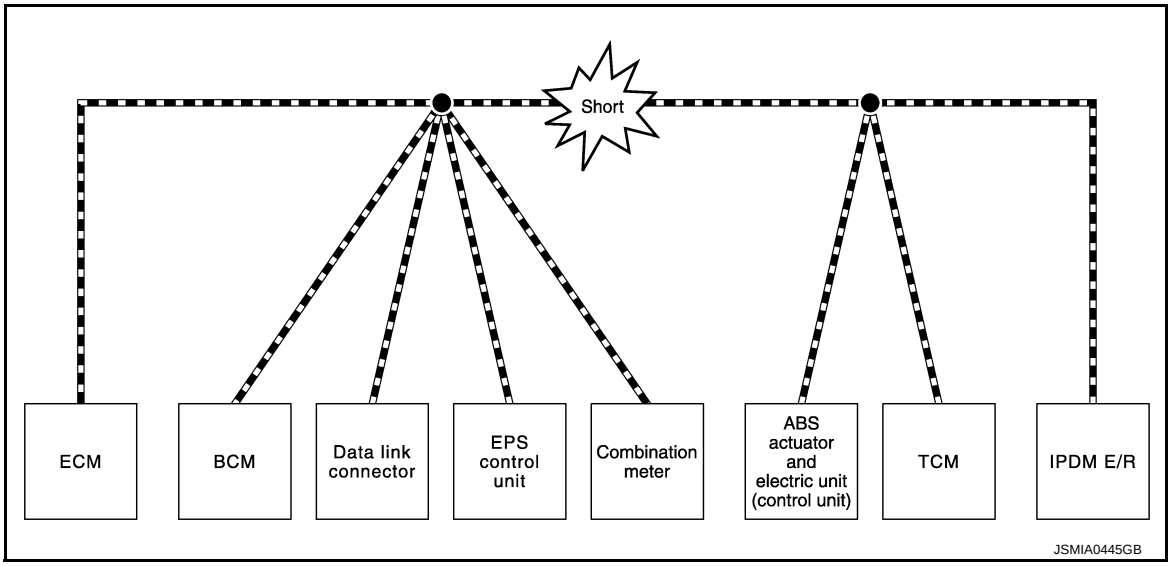
Example: Data Link Connector Branch Line Open Circuit



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

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

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



Unit name	Major symptom
ECM	• Engine torque limiting is affected, and shift harshness increases. • Engine speed drops.
BCM	• Reverse warning buzzer does not sound. • The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position. • The room lamp does not turn ON. • The engine does not start (if an error or malfunction occurs while turning the ignition switch OFF.) • The steering lock does not release (if an error or malfunction occurs while turning the ignition switch OFF.)
EPS control unit	The steering effort increases.
Combination meter	• The tachometer and the speedometer do not move. • Warning lamps turn ON. • Indicator lamps do not turn ON.
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, • The headlamps (Lo) turn ON. • The cooling fan continues to rotate.

CAN Diagnosis with CONSULT

INFOID:0000000009755450

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

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

Self-Diagnosis

INFOID:0000000009755451

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

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

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

CAN Diagnostic Support Monitor

INFOID:0000000009755452

MONITOR ITEM (CONSULT)

Example: CAN DIAG SUPPORT MNTR indication

Without PAST

BCM		
MONITOR ITEM	PRESENT	PAST
INITIAL DIAG	OK	-
TRANSMIT DIAG	OK	-
ECM	OK	-
METER/M&A	OK	-
TCM	OK	-
IPDM E/R	OK	-
I-KEY	OK	-

With PAST

ENGINE		
MONITOR ITEM	PRESENT	PAST
TRANSMIT DIAG	OK	OK
VDC/TCS/ABS	OK	5
METER/M&A	Not diagnosed	-
BCM/SEC	OK	OK
ICC	Not diagnosed	-
HVAC	Not diagnosed	-
TCM	OK	OK
EPS	OK	OK
IPDM E/R	OK	5
e4WD	Not diagnosed	-
AWD/4WD	Not diagnosed	-

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Without PAST

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

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

With PAST

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

How to Use CAN Communication Signal Chart

INFOID:0000000009755453

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

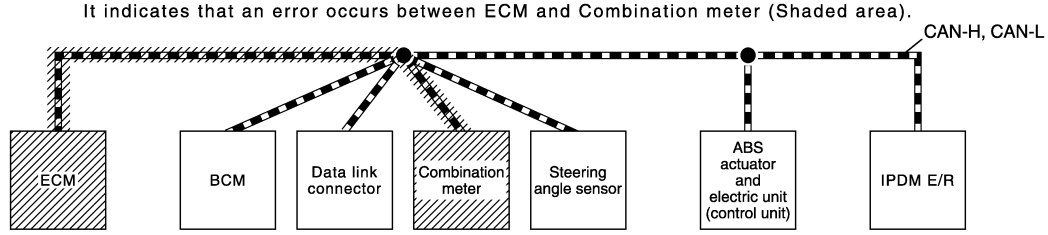
Example: Tachometer does not move even though the engine rotates.

T: Transmit R: Receive

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

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

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



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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

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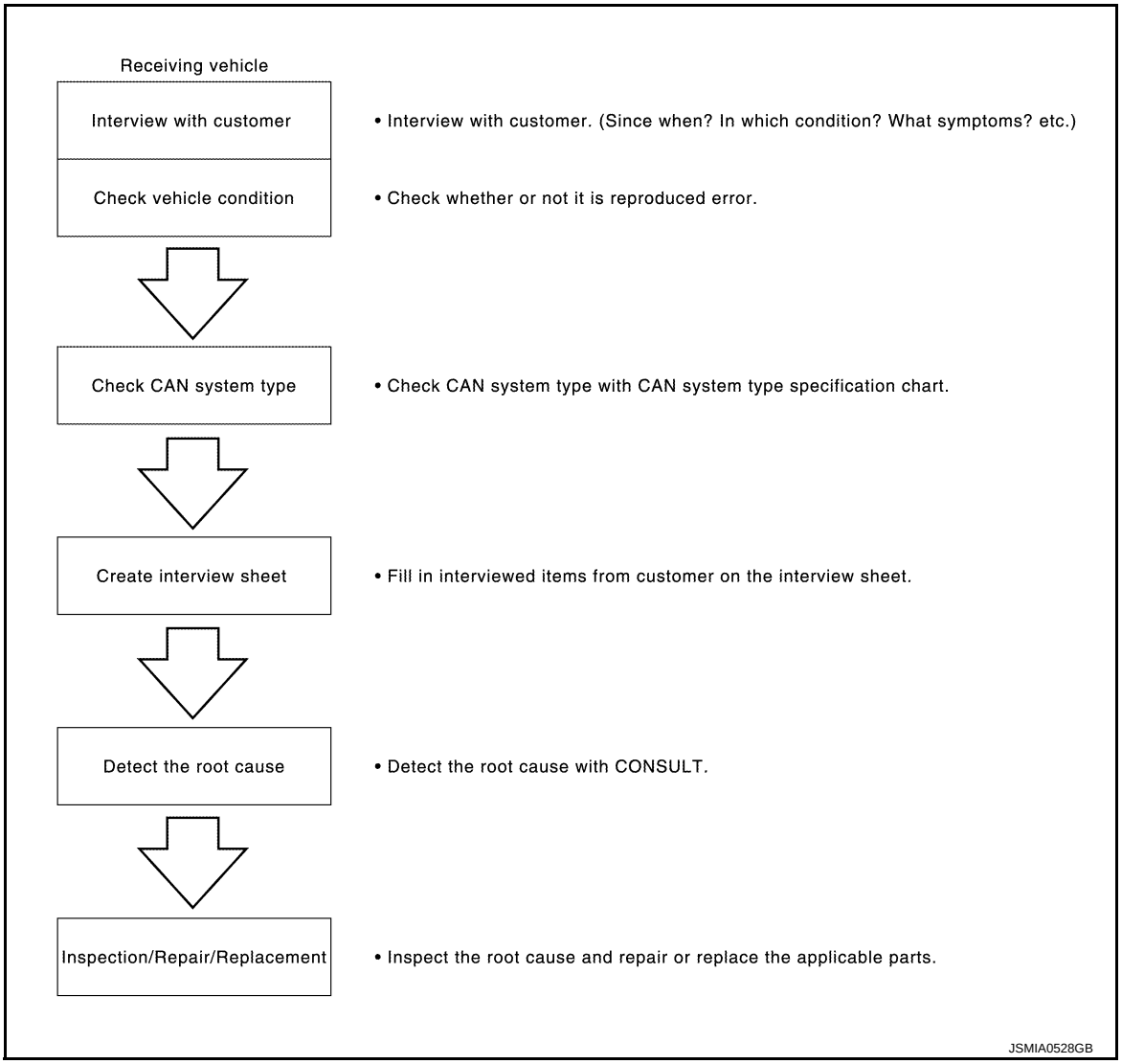


Trouble Diagnosis Procedure

INFOID:0000000009755454

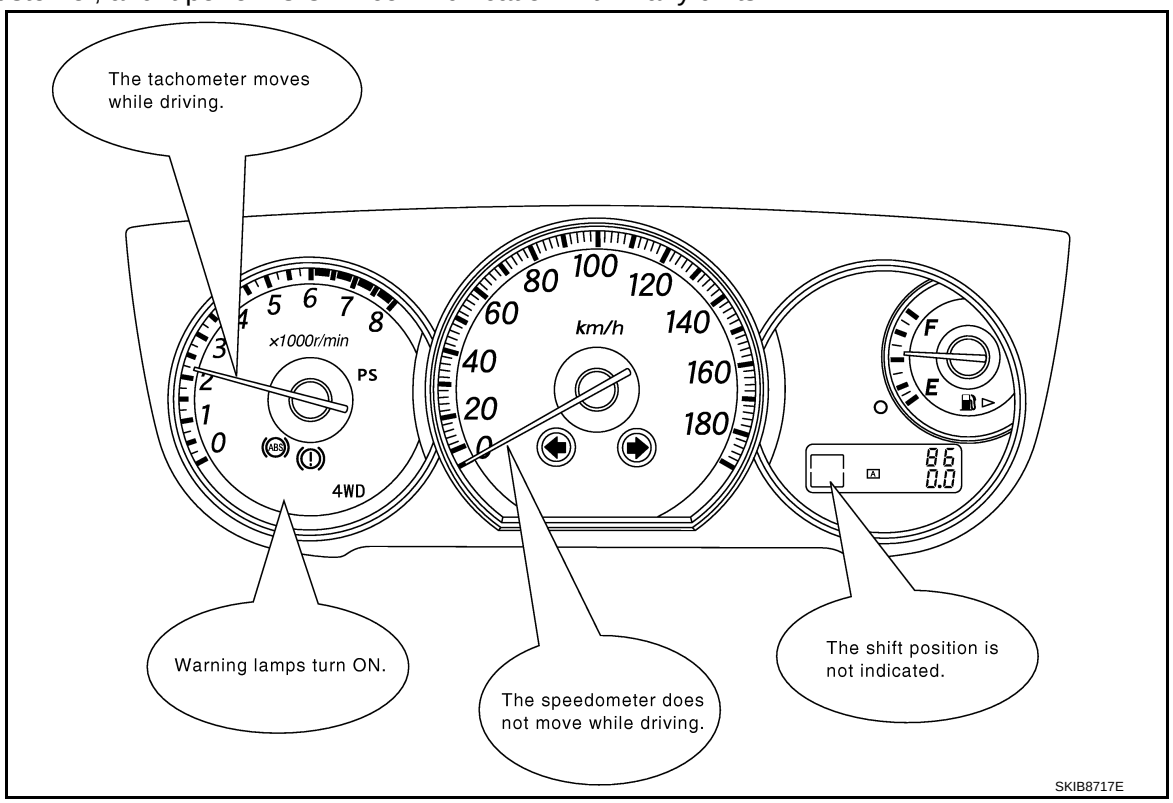
INTERVIEW WITH CUSTOMER

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

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

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

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



INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

NOTE:

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

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

Determine CAN system type based on vehicle equipment.

NOTE:

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

CAN System Type Specification Chart (Style A)

NOTE:

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

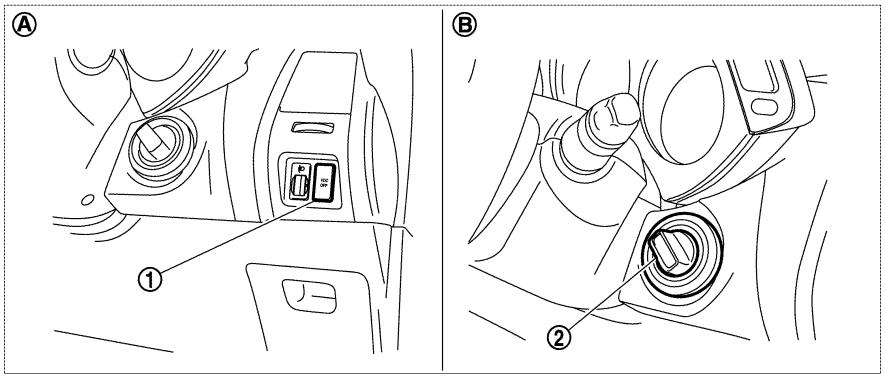
Example:
Vehicle is equipped as follows: Wagon, AWD, VQ35DE, CVT, VDC, and Intelligent Key system. (( )) shows an example of CAN system type.)

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

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

×: Applicable

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



In the above example,
- Checking VDC OFF switch leads to judge whether or not VDC is equipped.
- Checking the ignition knob leads to judge whether or not Intelligent Key system is equipped.

1. VDC OFF switch
2. Ignition knob
A. With VDC
B. With Intelligent Key system

For the above case, CAN system type is “6”.

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CAN System Type Specification Chart (Style B)
NOTE:

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

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

CAN System Specification Chart

Refer to the specification as shown in the chart.

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

×: Applicable

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

SPECIFICATION CHART B

Determine CAN system type from the following specification chart.

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

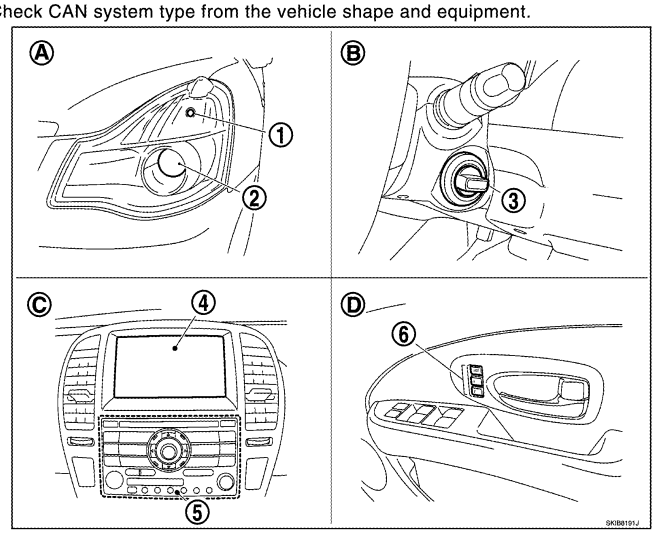
×: Applicable

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

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



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

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

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

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CREATE INTERVIEW SHEET

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

Interview Sheet (Example)

CAN Communication System Diagnosis Interview Sheet

Date received: 3, Feb. 2006

Type: DBA-KG11

VIN No.: KG11-005040

Model: BDRARGZG11EDA-E-J-

First registration: 10, Jan. 2001

Mileage: 62,140

CAN system type: Type 19

Symptom (Results from interview with customer)

- Headlamps suddenly turn ON while driving the vehicle.
- The engine does not restart after stopping the vehicle and turning the ignition switch OFF.
- The cooling fan continues rotating while turning the ignition switch ON.

Condition at inspection

Error Symptom: (Present) / Past

The engine does not start.
While turning the ignition switch ON,
- The headlamps (Lo) turn ON, and the cooling fan continues rotating.
- The interior lamp does not turn ON.

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DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Information

INFOID:0000000009239058

- “CAN” of LAN Section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to LAN-26, "Trouble Diagnosis Flow Chart" of “CAN FUNDAMENTAL”.

Abbreviation List

INFOID:0000000009239059

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

Abbreviation	Unit name
4WD	AWD control unit
A-BAG	Air bag diagnosis sensor unit
ABS	ABS actuator and electric unit (control unit)
ADP	Driver seat control unit
AFS	AFS control unit
APA	Accelerator pedal actuator
AV	Display control unit
AVM	Around view monitor control unit
BCM	BCM
BSW/BUZZER	Driver assistance buzzer control module
CCM	Chassis control module
CGW	CAN gateway
DAST1	Steering angle main control module
DLC	Data link connector
ECM	ECM
EPS/DAST3	Steering force control module
HBA	High beam assist control module
HVAC	A/C auto amp.
ICC	ADAS control unit
IPDM-E	IPDM E/R
LANE	Lane camera unit
LASER	ICC sensor
M&A	Combination meter
PSB	Pre-crash seat belt control unit (driver side)
RDR-L	Side radar LH
RDR-R	Side radar RH
SONAR	Sonar control unit
STRG	Steering angle sensor
TCM	TCM
TCU	TCU

PRECAUTION

PRECAUTIONS

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

INFOID:0000000009239060

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. 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 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 AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **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 “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

Always observe the following items for preventing accidental activation.

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

Precautions for Trouble Diagnosis

INFOID:0000000009239061

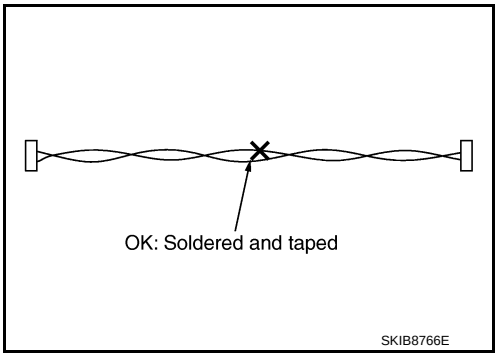
CAUTION:

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

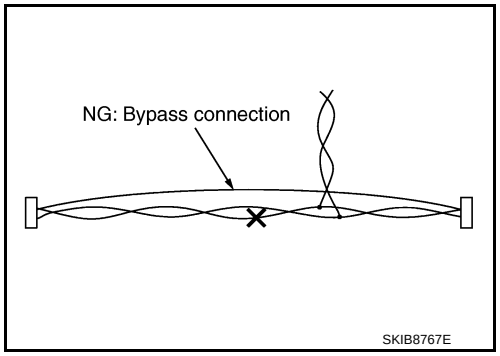
Precautions for Harness Repair

INFOID:0000000009239062

- Solder the repaired area and wrap tape around the soldered area.
  NOTE:
  A fray of twisted lines must be within 110 mm (4.33 in).



- Bypass connection is never allowed at the repaired area.
  NOTE:
  Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



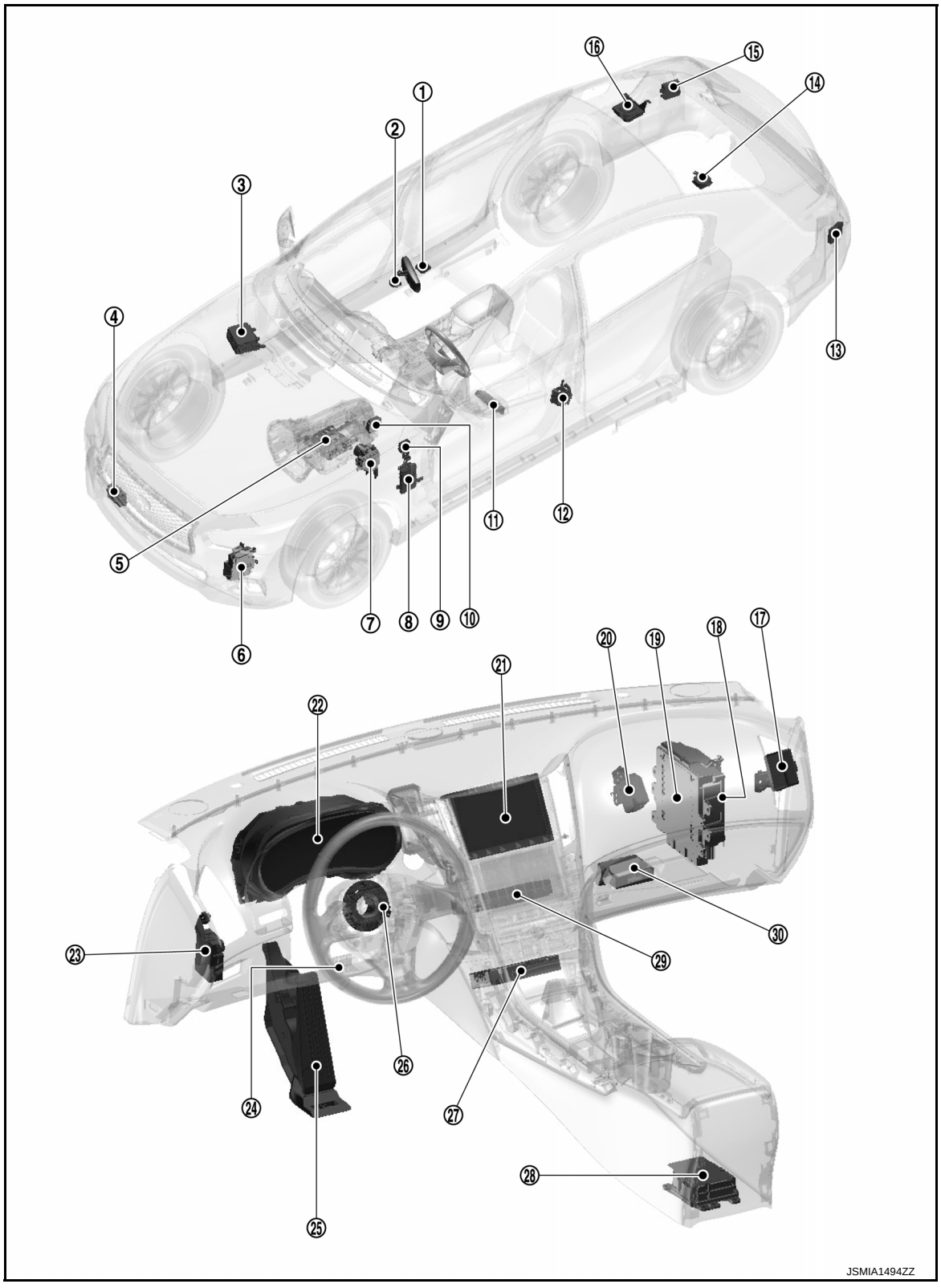
- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000009239063



① Lane camera unit	② High beam assist control module	③ IPDM E/R
④ ICC sensor	⑤ TCM	⑥ Steering angle main control module
⑦ ABS actuator and electric unit (control unit)	⑧ BCM	⑨ Chassis control module
⑩ AWD control unit	⑪ Driver seat control unit	⑫ Pre-crash seat belt control unit (driver side)
⑬ Side radar LH	⑭ ADAS control unit	⑮ Side radar RH
⑯ Around view monitor control unit	⑰ AFS control unit	⑱ Steering force control module
⑲ ECM	⑳ Driver assistance buzzer control module	㉑ Display control unit
㉒ Combination meter	㉓ CAN gateway	㉔ Data link connector
㉕ Accelerator pedal actuator	㉖ Steering angle sensor	㉗ TCU
㉘ Air bag diagnosis sensor unit	㉙ A/C auto amp.	㉚ Sonar control unit

SYSTEM

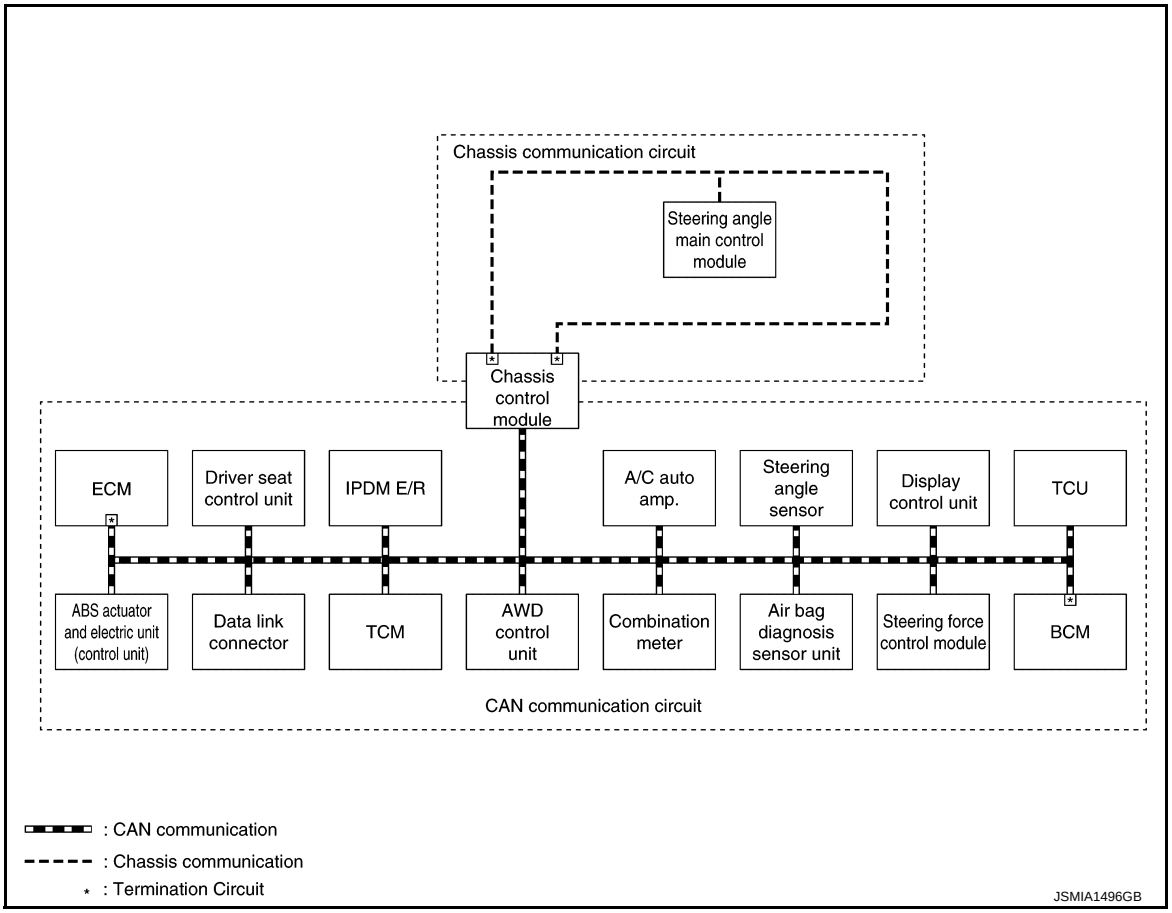
CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

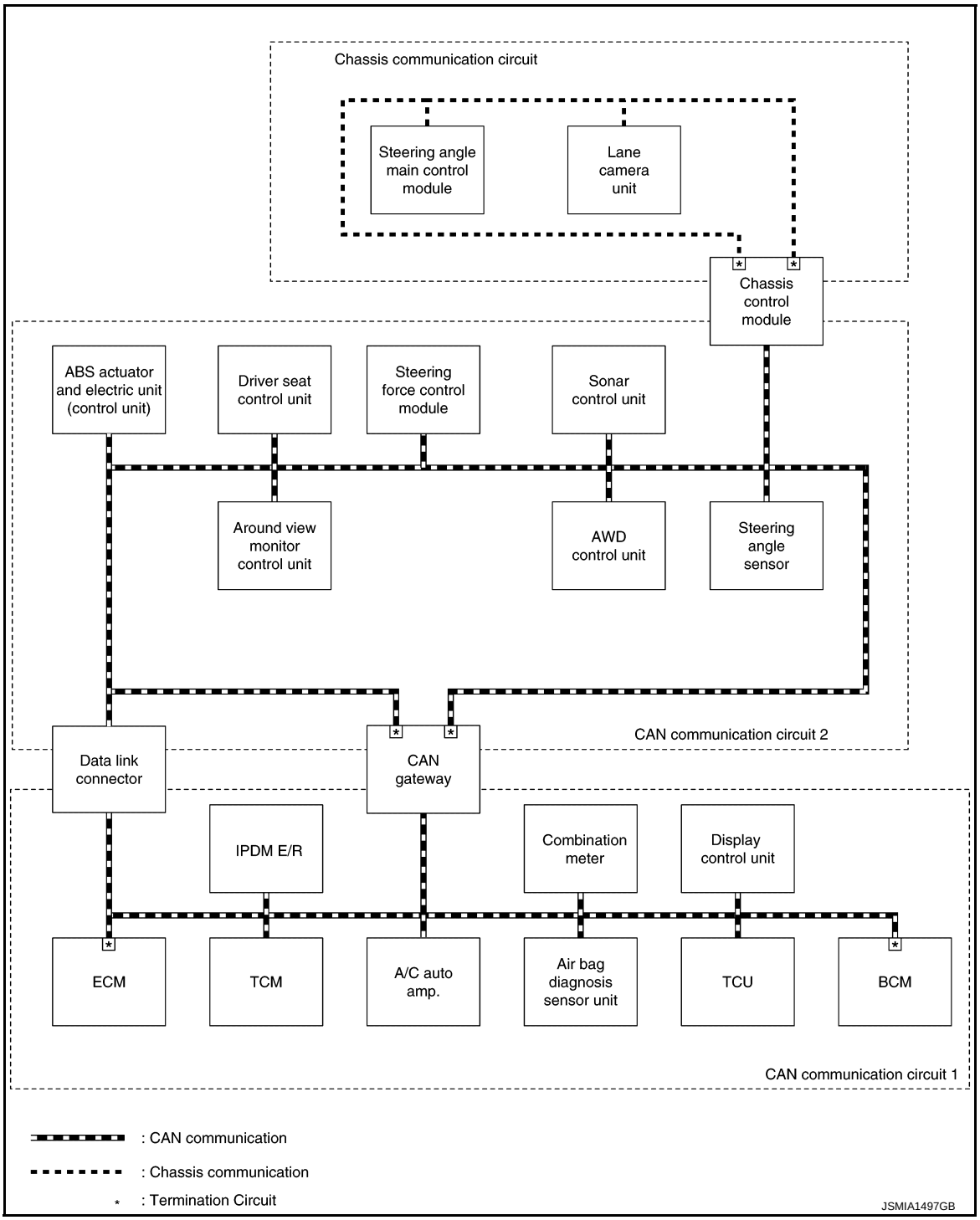
INFOID:0000000009725747

SYSTEM DIAGRAM

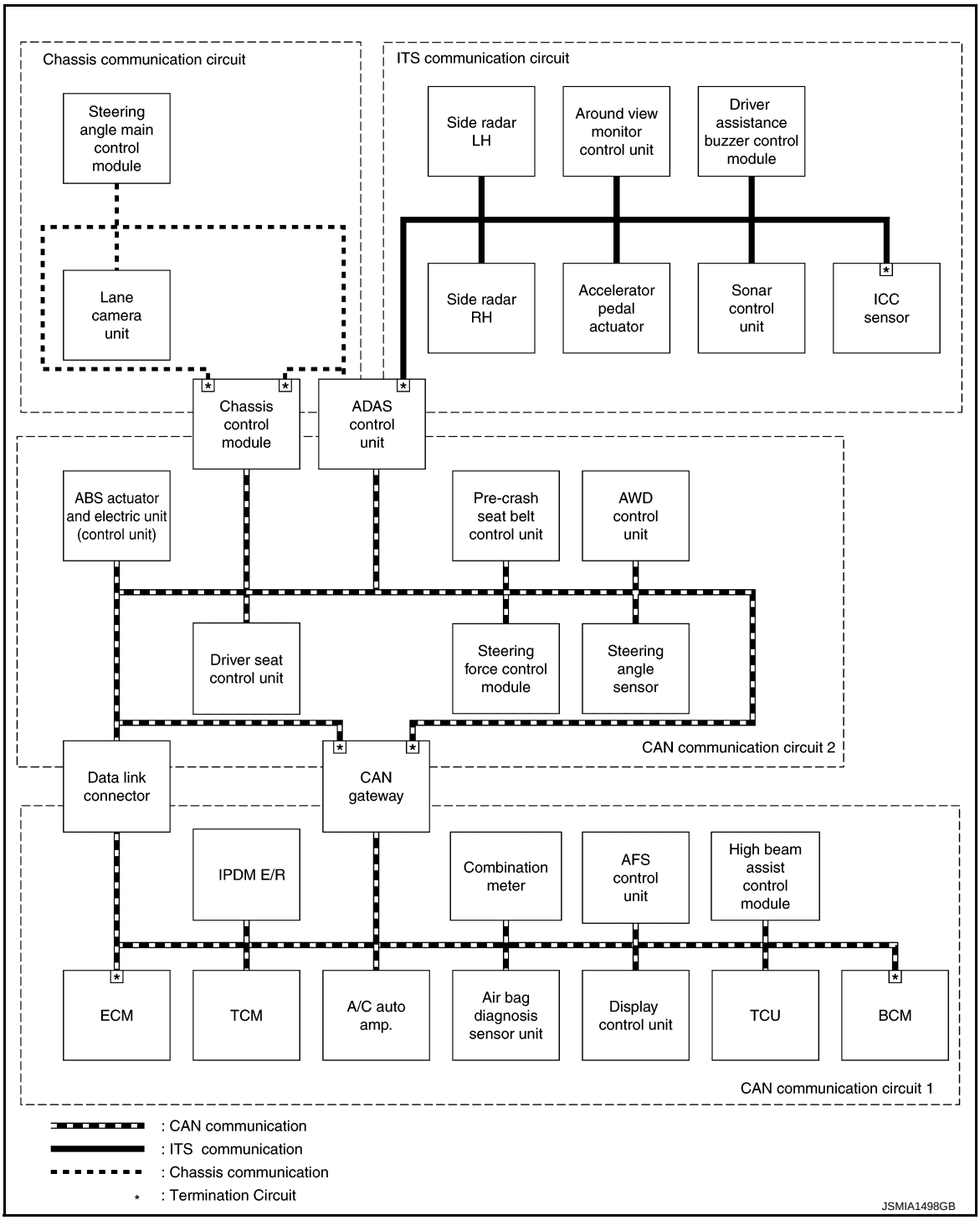
Without Around View Monitor



With Around View Monitor, Without ICC



With ICC

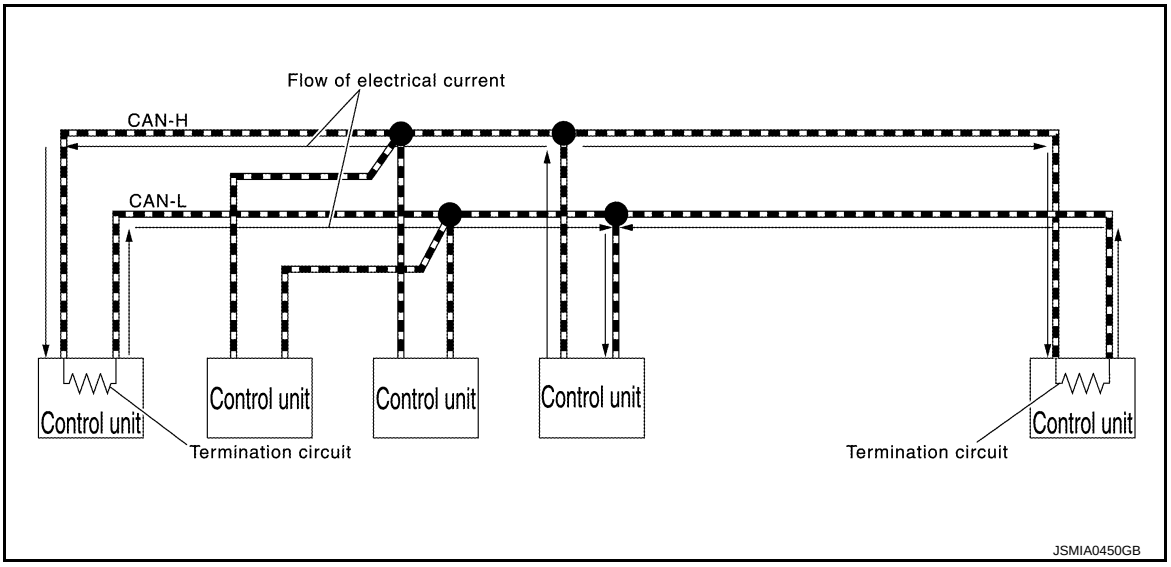


DESCRIPTION

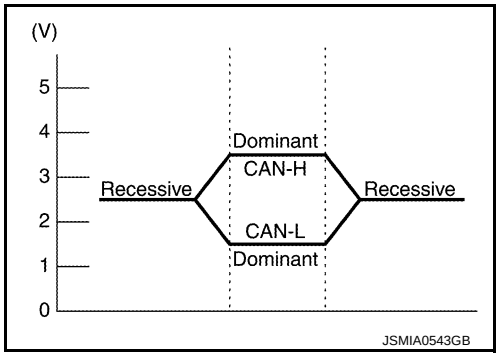
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information 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 Signal Generation

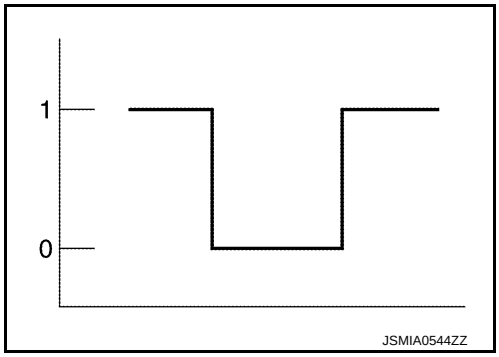
- Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line.



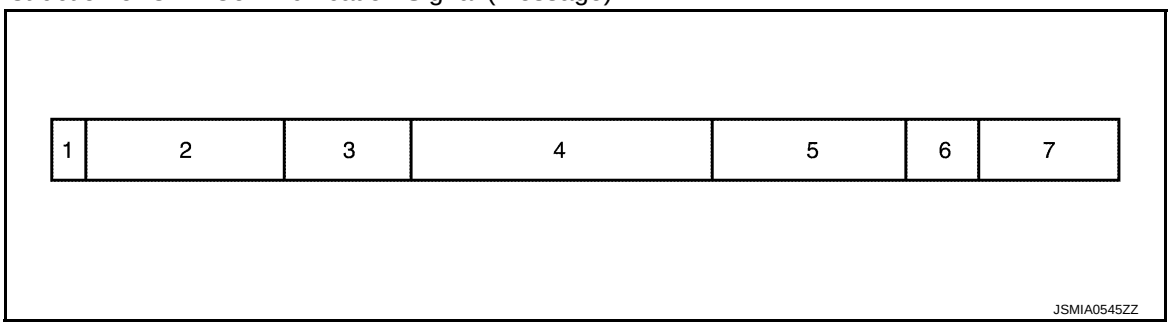
- The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.
  NOTE:
  A signal with no current passage is called “Recessive” and one with current passage is called “Dominant”.



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



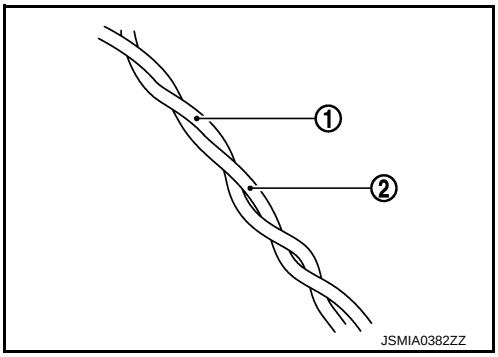
The Construction of CAN Communication Signal (Message)



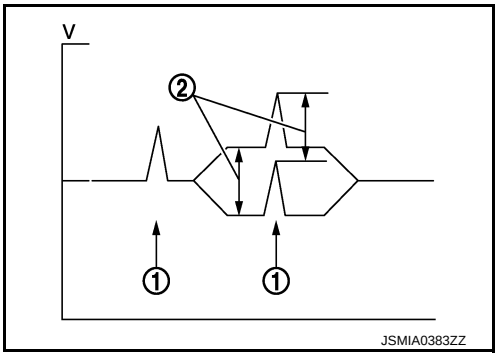
No.	Message name	Description
1	Start of frame (1 bit)	Start of message.
2	Arbitration of field (11 bit)	Priorities of message-sending are shown when there is a possibility that multiple messages are sent at the same time.
3	Control field (6 bit)	Signal quantity in data field is shown.
4	Data field (0-64 bit)	Actual signal is shown.
5	CRC field (16 bit)	• The transmitting control unit calculates sending data in advance and writes the calculated value in a message. • The receiving control unit calculates received data and judges that the data reception is normal when the calculated value is the same as the value written in the sent data.
6	ACK field (2 bit)	The completion of normal reception is sent to the transmitting unit.
7	End of frame (7 bit)	End of message.

CAN Communication Line

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



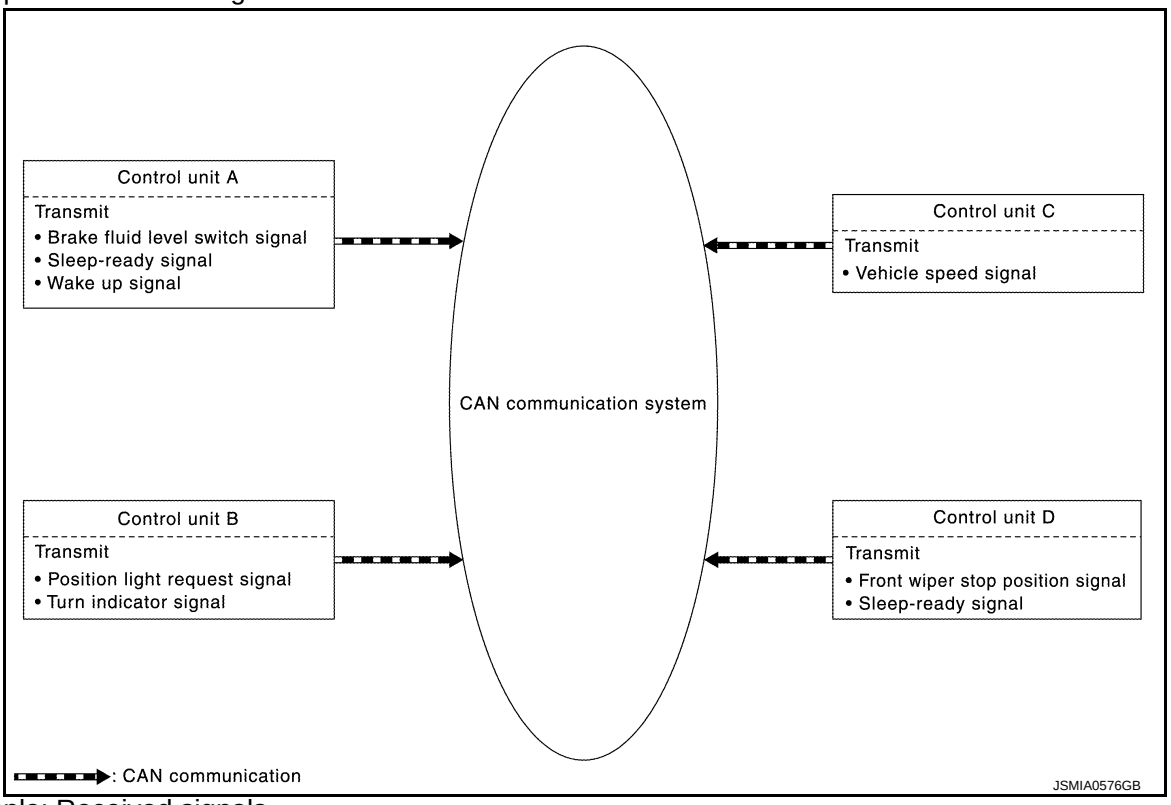
NOTE:
The CAN communication system has the characteristics of noise-resistant because this system produces digital signals by using the potential difference between the CAN-H line and the CAN-L line and has the twisted pair wire structure.
Since the CAN-H line and the CAN-L line are always adjacent to each other, the same degree of noise occurs, respectively, when a noise ① occurs. Although the noise changes the voltage, the potential difference ② between the CAN-H line and the CAN-L line is insensitive to noise. Therefore, noise-resistant signals can be obtained.



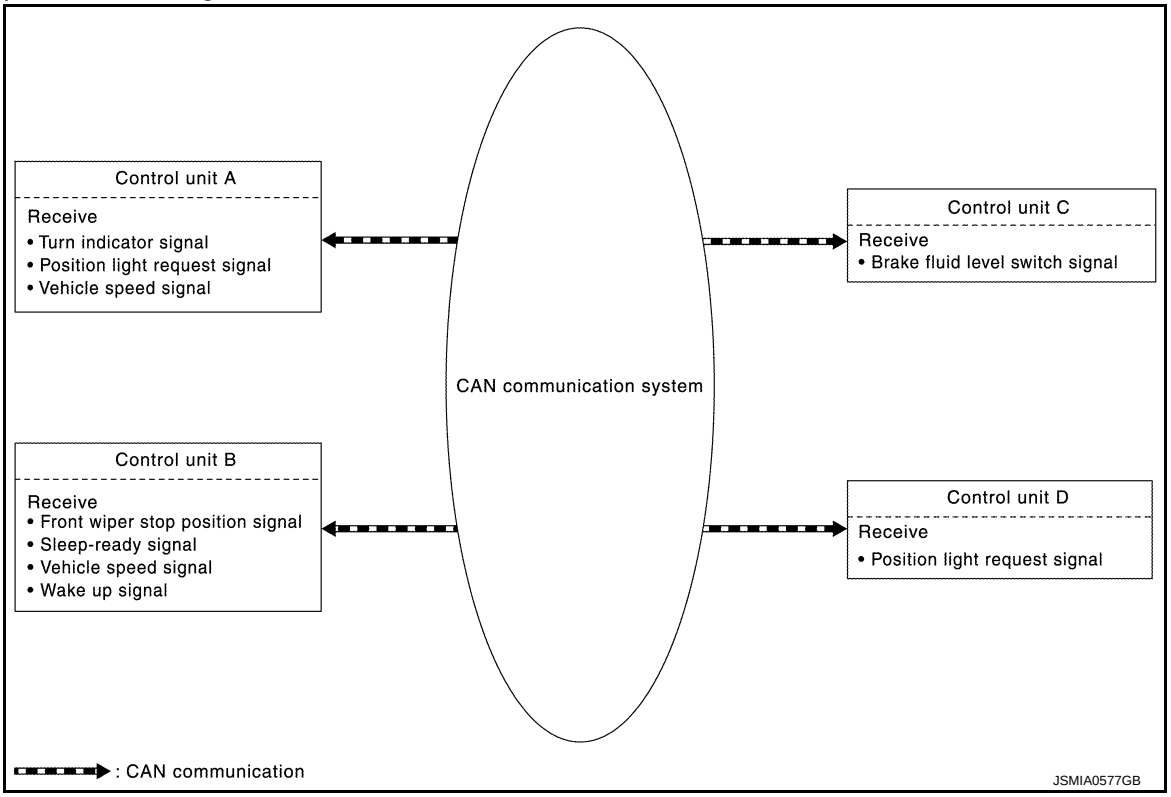
CAN Signal Communications

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

- Example: Transmitted signals



- Example: Received signals



NOTE:
The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to LAN-44, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

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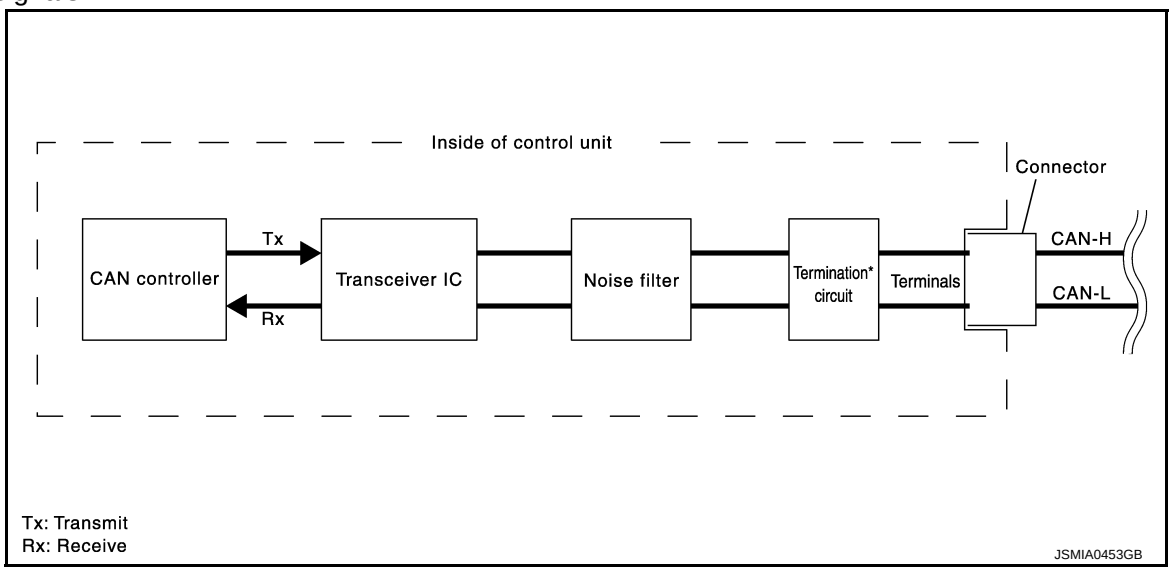
CAN communication control circuit is incorporated into the control unit and transmits/receives CAN communication signals.



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

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

CAN COMMUNICATION SYSTEM : CAN System Specification Chart

INFOID:0000000009239064

Determine CAN system type from the following specification chart.

NOTE:

Refer to LAN-26, "Trouble Diagnosis Procedure" for how to use CAN system specification chart.

Body type	Sedan													
Axle	2WD								AWD					
Engine	VQ37VHR													
Transmission	A/T													
Brake control	VDC													
Telematics system		×		×		×		×		×		×	×	×
Direct adaptive steering			×	×	×	×	×	×			×	×	×	×
Automatic drive positioner					×	×	×	×					×	×
ICC system							×	×						×
CAN system type	1	2	3	4	13	5	14	6	7	8	9	10	11	12
CAN communication unit														
ECM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Data link connector	×	×	×	×	×	×	×	×	×	×	×	×	×	×
IPDM E/R	×	×	×	×	×	×	×	×	×	×	×	×	×	×
TCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
CAN gateway					×	×	×	×					×	×

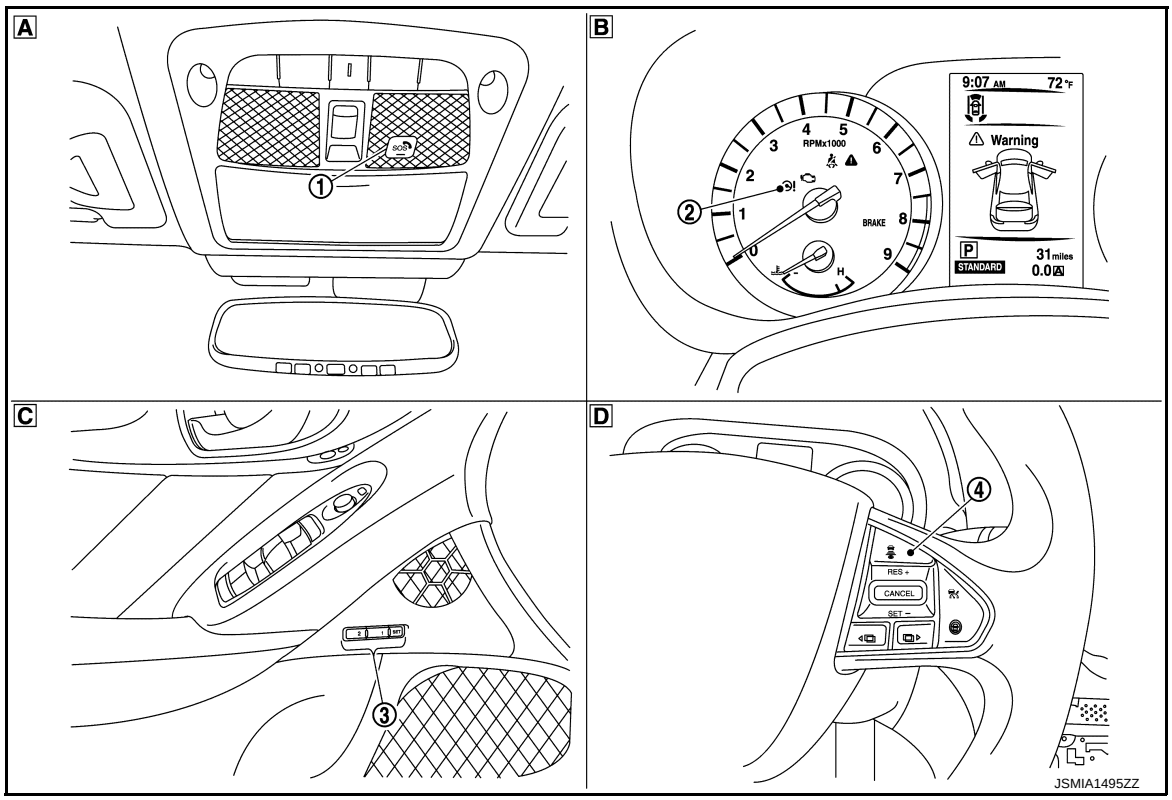
Body type	Sedan													
Axle	2WD								AWD					
Engine	VQ37VHR													
Transmission	A/T													
Brake control	VDC													
Telematics system		×		×		×		×		×		×	×	×
Direct adaptive steering			×	×	×	×	×	×			×	×	×	×
Automatic drive positioner					×	×	×	×					×	×
ICC system							×	×						×
CAN system type	1	2	3	4	13	5	14	6	7	8	9	10	11	12
A/C auto amp.	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Air bag diagnosis sensor unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
AFS control unit							×	×						×
Display control unit	×	×	×	×	×	×	×	×	×	×	×	×	×	×
High beam assist control module							×	×						×
TCU		×		×		×		×		×		×	×	×
BCM	×	×	×	×	×	×	×	×	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Driver seat control unit					×	×	×	×					×	×
Pre-crash seat belt control unit							×	×						×
ADAS control unit							×	×						×
Steering force control module			×	×	×	×	×	×			×	×	×	×
AWD control unit									×	×	×	×	×	×
Chassis control module	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×	×	×	×	×	×	×	×	×
Side radar LH							×	×						×
Side radar RH							×	×						×
Around view monitor control unit					×	×	×	×					×	×
Accelerator pedal actuator							×	×						×
Driver assistance buzzer control module							×	×						×
Sonar control unit					×	×	×	×					×	×
ICC sensor							×	×						×
Steering angle main control module			×	×	×	×	×	×			×	×	×	×
Lane camera unit							×	×						×
ITS communication unit														
ADAS control unit							×	×						×
Side radar LH							×	×						×
Side radar RH							×	×						×
Around view monitor control unit						×	×	×					×	×
Accelerator pedal actuator							×	×						×
Driver assistance buzzer control module							×	×						×
Sonar control unit						×	×	×					×	×
ICC sensor							×	×						×
Chassis communication unit														

Body type	Sedan													
Axle	2WD								AWD					
Engine	VQ37VHR													
Transmission	A/T													
Brake control	VDC													
Telematics system		×		×		×		×		×		×	×	×
Direct adaptive steering			×	×	×	×	×	×			×	×	×	×
Automatic drive positioner					×	×	×	×					×	×
ICC system							×	×						×
CAN system type	1	2	3	4	13	5	14	6	7	8	9	10	11	12
Steering angle main control module			×	×	×	×	×	×			×	×	×	×
Lane camera unit							×	×						×

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:
Check CAN system type from the vehicle shape and equipment.



① Telematics switch ② Power steering warning lamp ③ Seat memory switch
④ DISTANCE switch
A With telematics system B With direct adaptive steering C With automatic drive positioner
D With ICC system

CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

INFOID:0000000009239065

Refer to LAN-25, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart.

NOTE:
Refer to LAN-31, "Abbreviation List" for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
A/C compressor request signal	T			R																		
Accelerator pedal malfunction signal	T																			R		
Accelerator pedal position signal	T	R												R	R				R	R		
ASCD OD cancel request signal	T	R																				
ASCD operation signal	T	R																				
ASCD status signal	T		R																			
Closed throttle position signal	T	R																	R			
Cooling fan speed request signal	T			R																		
ECM malfunction signal	T																			R		
ECO drive indicator control signal	T		R																			
ECO pedal reaction force control signal	T																		R			
ECO pedal reaction force setting signal	T								R													
	R								T													
Engine and A/T integrated control signal	T	R																				
	R	T																				
Engine coolant temperature signal	T		R								R											
Engine speed signal	T	R	R			R								R	R			R	R	R		
Engine status signal	T		R		R				R	R								R				
Engine torque signal	T																			R		
Fuel consumption monitor signal	T		R						R													
Fuel filler cap warning display signal	T		R						R													
Brake pedal position switch	T																		R			
ICC prohibition signal	T																		R			
ICC steering switch signal	T																		R			
Malfunctioning indicator lamp signal	T		R							R												
Power generation command value signal	T			R																		
Stop lamp switch signal	T																		R			
		R			T																	
														R	T				R			
Wide open throttle position signal	T	R																				
A/T CHECK indicator lamp signal		T	R			R																

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
A/T self-diagnosis signal	R	T																				
Current gear position signal	R	T													R				R	R		
Input speed signal		T																	R			
Manual mode shift refusal signal		T	R																			
N range signal		T			R																	
NAVI shift control indication request signal	R	T																				
	T								R													
NAVI shift control status signal		T							R													
Next gear position signal	R	T																				
Output shaft revolution signal	R	T																	R			
P range signal		T			R																	
Shift position signal		T	R		R	R			R						R		R	R	R	R		
Shift schedule signal	R	T																				
TCM malfunction signal		T																		R		
Brake fluid level switch signal			T												R							
Combination meter malfunction signal			T																	R		
Distance to empty signal			T						R													
Fuel filler cap warning reset signal	R		T																			
Fuel level low warning signal			T						R													
Fuel level sensor signal	R		T																			
Manual mode downshift signal		R	T																			
Manual mode signal		R	T																			
Manual mode upshift signal		R	T																			
Market information signal			T																	R		
Non-manual mode signal		R	T																			
Odometer signal			T		R	R	R											R				
Paddle shifter downshift signal*2		R	T																			
Paddle shifter upshift signal*2		R	T																			
Parking brake switch signal			T		R				R					R	R				R	R		
Seat belt buckle switch signal (driver side)			T		R																	
Vehicle speed signal	R	R	T	R	R	R	R		R		R					R	R					
			R		R										T		R		R	R		R
A/C compressor feedback signal	R			T							R											

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
Detention switch signal				T	R												R					
Front wiper stop position signal				T	R																	
High beam status signal	R			T			R															
Hood switch signal				T	R																	
Low beam status signal	R			T		R	R															
Push-button ignition switch status signal				T	R																	
BCM malfunction signal					T															R		
Blower fan motor switch signal	R				T																	
Buzzer output signal			R		T																	
			R														T					
Daytime running light request signal				R	T																	
Dimmer signal			R		T														R			
Door lock status signal					T					R												
Door switch signal			R	R	T											R	R					R
Door unlock signal					T												R					
Front fog light request signal			R	R	T																	
Front wiper request signal				R	T														R	R*3		
Handle position signal					T												R					
High beam assist indicator lamp signal			R		T																	
High beam request signal			R	R	T																	
Horn reminder signal				R	T																	
Ignition switch ON signal				R	T											R						
				T	R																	
Ignition switch signal					T											R	R					
Interlock/PNP switch signal				R	T																	
				T	R																	
Low beam request signal				R	T																	
Low tire pressure warning lamp signal			R		T				R													
Key ID signal			R		T				R		R						R		R	R		
Meter display signal			R		T																	
			R																T			
Meter ring illumination request signal			R		T																	
Oil pressure switch signal			R		T					R												
				T	R																	
Position light request signal			R	R	T																	

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
Rear window defogger control signal				R	T																	
	R			T					R													
Shipping mode status signal			R		T																	
Sleep wake up signal			R	R	T					R		R				R	R					
Starter control relay signal				R	T																	
Starter relay status signal			R	R	T																	
				T	R																	
Starting mode signal					T												R					
Theft warning horn request signal				R	T																	
Tire pressure data signal			R		T				R													
TPMS malfunction warning lamp signal			R		T				R													
Trunk switch signal			R		T																	R
Turn indicator signal			R		T														R	R*3		
Turn signal switch signal*3					T														R	R	R	
AFS warning signal			R			T																
High beam assist request signal					R		T															
High beam assist system status signal					R		T															
Car crash information signal								T		R												
A/C switch operation signal									T		R											
AV system malfunction signal									T											R		
Camera switch signal									T													R
Curve signal		R							T													
Drive mode characteristics customizing signal									T											R		
Heated seat switch operation signal									T		R											
NAVI shift control switch signal		R							T													
Rear window defogger switch signal					R				T													
Road data signal		R							T													
System selection signal									T										R	R*3		
System setting signal					R				T								R					
					T				R													
									R								T					
User information signal			R						T		R						R		R	R		
Voice recognition signal									T		R											

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
Door lock/unlock request signal					R					T												
Sleep-ready signal					R					T												
				T	R																	
Wake up signal					R					T												
			T		R																	
				T	R																	
A/C display signal									R		T											
A/C evaporator temperature signal	R										T											
A/C ON signal	R										T											
Ambient sensor signal			R								T											
Ambient temperature signal[*3]											T								R	R	R	
Blower fan ON signal	R										T											
Heated seat switch indicator signal									R		T											
Target A/C evaporator temperature signal	R										T											
Steering angle sensor malfunction signal						R							T		R	R		R	R			
Steering angle sensor signal						R			R				T		R	R		R	R	R		R
															T					R		
Steering angle speed signal													T			R			R			
Steering calibration signal						R							T			R						
AWD warning lamp signal			R											T								
A/T shift schedule change demand signal		R													T							
ABS malfunction signal															T				R	R		
ABS operation signal		R													T	R			R	R		
ABS warning lamp signal			R							R					T				R			
Brake fluid pressure signal															T					R		
Brake switch signal															T					R		
Brake warning lamp signal			R												T							
			T							R												
Decel G signal															T					R		
EBD operation signal															T					R		
Engine torque request signal	R														T							
Front LH wheel speed signal														R	T			R		R		
Front RH wheel speed signal														R	T			R		R		
Rear LH wheel speed signal														R	T					R		R

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
Rear RH wheel speed signal														R	T					R		R
Side G signal		R													T			R	R	R		
Stop lamp switch signal															T					R		
TCS gear keep request signal		R													T							
TCS malfunction signal															T				R	R		
TCS operation signal															T				R	R		
VDC malfunction signal															T				R	R		
VDC OFF indicator lamp signal			R												T							
VDC OFF switch signal															T				R	R		
VDC operation signal															T				R	R		
VDC warning lamp signal			R							R					T							
Yaw rate signal															T			R	R	R		
Direct Adaptive Steering malfunction signal						R									R*3			T	R*3	R*3	R*3	
Power steering warning lamp signal			R															T				
Steering pinion angle signal						R									R			T	R*3	R*3	R*3	
Steering torque signal	R																	T				
FEB warning lamp signal			R																T			
FEB operation signal																R			T			
ICC operation signal	R																		T	R*1		
ICC sensor signal*3																			T	R	R	
ICC warning lamp signal			R																T			
Active Lane Control display signal*3			R																	T		
Active Trace Control display signal			R																	T		
Active Trace Control signal															R					T		
Brake fold status signal															R					T		
Brake fluid pressure control signal															R					T		
Brake hold request signal															R					T		
Chassis control malfunction signal			R																	T		
Drive mode display signal									R											T		
Drive mode signal		R							R						R			R	R	T		
	R	T																	R			
Driver assistance buzzer signal																			R	T		

Signal name	ECM	TCM	M&A	IPDM-E	BCM	AFS	HBA	A-BAG	AV	TCU	HVAC	CGW	STRG	4WD	ABS	PSB	ADP	EPS/DAST 3	ICC	CCM	SONAR	AVM
Interrupt display signal			R																	T		
Key link signal			R						R		R						R		R	T		
Log-in permit signal			R						R		R						R		R	T		
Steering angle value command signal*3																		R		T		
Tire display signal			R																	T		
Turn display signal			R																	T		
Vehicle display signal			R																	T		
Sonar status signal																					T	R
MOD beep sound output request signal																					R	T
View change signal									R													T

*1: With ICC system

*2: Models with paddle shifter

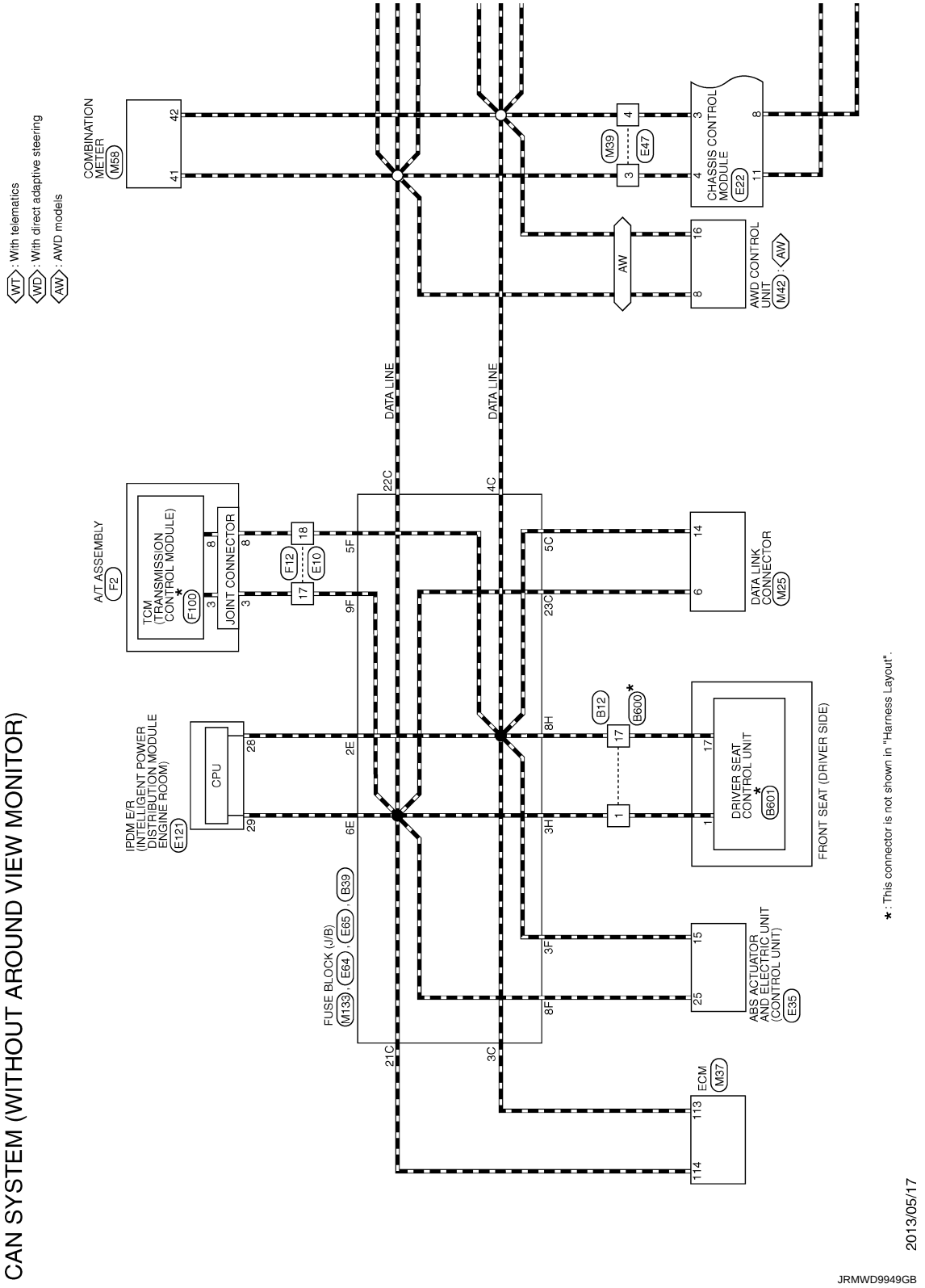
*3: With Direct Adaptive Steering and Active Lane Control

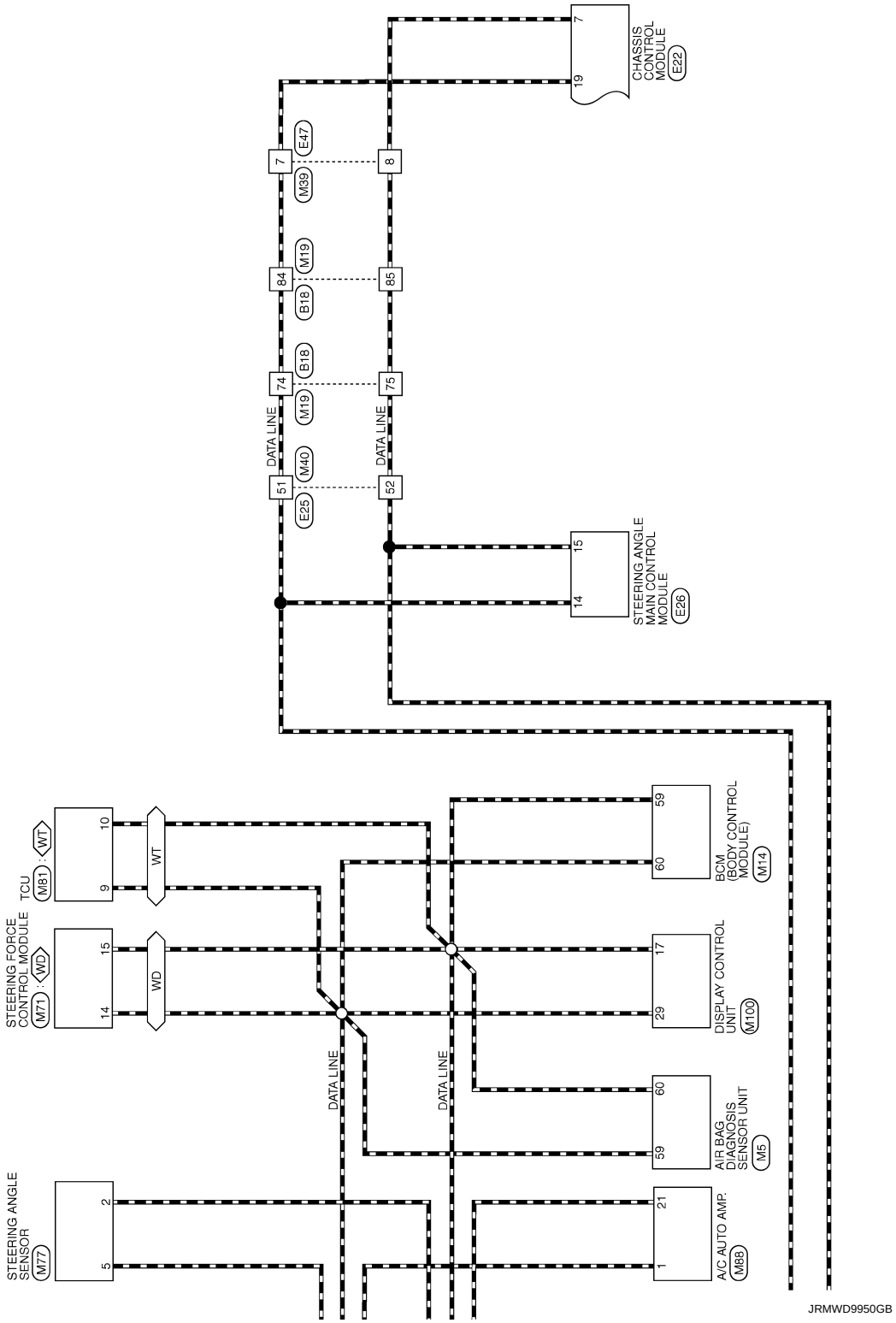
WIRING DIAGRAM

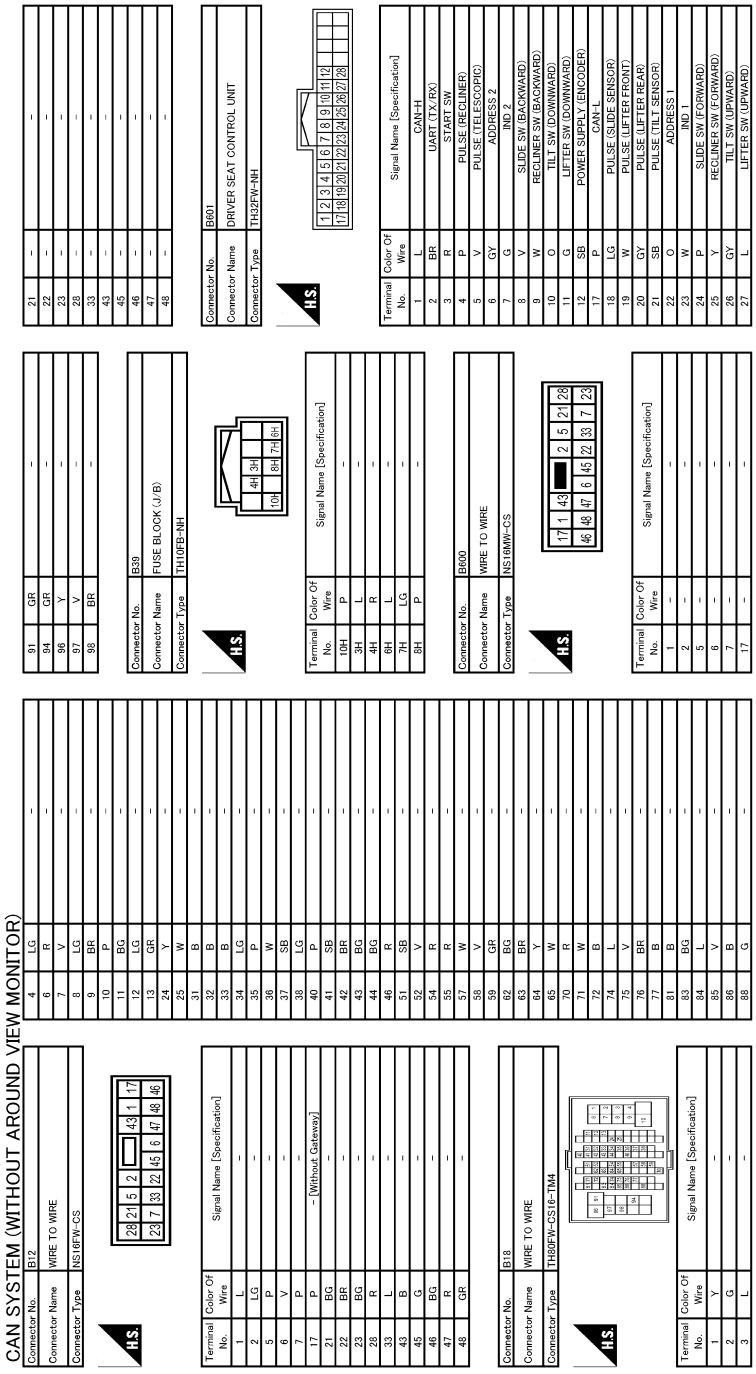
CAN SYSTEM (WITHOUT AROUND VIEW MONITOR SYSTEM)

Wiring Diagram

INFOID:0000000009239066




CHASSIS CONTROL MODULE E22
7
19
E47
M39
7
8
M19
B18
84
85
B18
M19
74
75
DATA LINE
DATA LINE
M40
E25
51
52
STEERING ANGLE MAIN CONTROL MODULE E26
15
14
TCU M81
WT
10
9
STEERING FORCE CONTROL MODULE M71
WD
15
14
BCM (BODY CONTROL MODULE) M14
59
60
DISPLAY CONTROL UNIT M100
17
29
AIR BAG DIAGNOSIS SENSOR UNIT M5
60
59
A/C AUTO AMP. M88
21
1
STEERING ANGLE SENSOR M77
2
5
DATA LINE
DATA LINE
JRMWD9950GB



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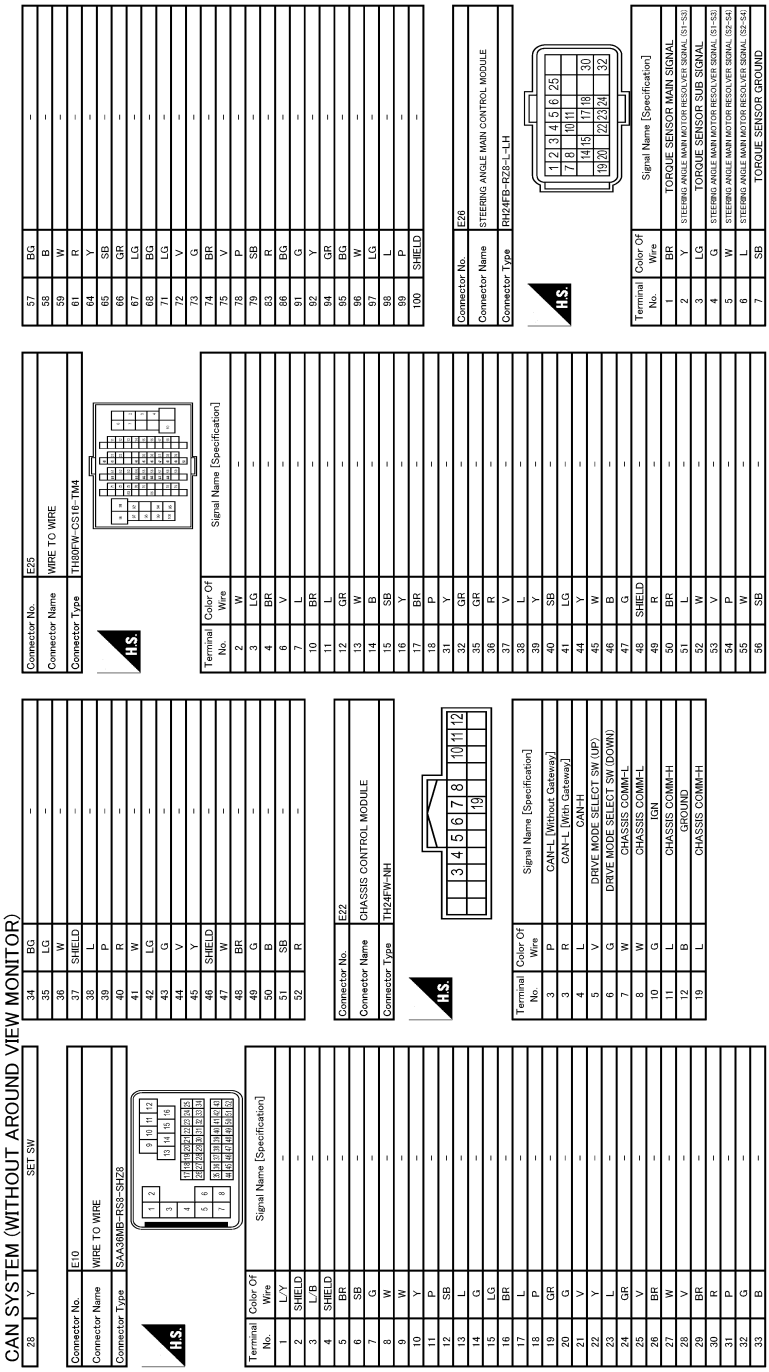

Terminal No.	Color Of Wire	Signal Name [Specification]
28	Y	SET SW
1	L/Y	–
2	SHIELD	–
3	L/B	–
4	SHIELD	–
5	BR	–
6	SB	–
7	G	–
8	W	–
9	W	–
10	Y	–
11	P	–
12	SB	–
13	L	–
14	G	–
15	LG	–
16	BR	–
17	L	–
18	P	–
19	GR	–
20	G	–
21	V	–
22	Y	–
23	L	–
24	GR	–
25	V	–
26	BR	–
27	W	–
28	V	–
29	BR	–
30	R	–
31	P	–
32	G	–
33	B	–
34	BG	–
35	LG	–
36	W	–
37	SHIELD	–
38	L	–
39	P	–
40	R	–
41	W	–
42	LG	–
43	G	–
44	V	–
45	Y	–
46	SHIELD	–
47	W	–
48	BR	–
49	G	–
50	B	–
51	SB	–
52	R	–

Terminal No.	Color Of Wire	Signal Name [Specification]
3	P	CAN-L [Without Gateway]
3	R	CAN-L [With Gateway]
4	L	CAN-H
5	V	DRIVE MODE SELECT SW (UP)
6	G	DRIVE MODE SELECT SW (DOWN)
7	W	CHASSIS COMM-L
8	W	CHASSIS COMM-L
10	G	IGN
11	L	CHASSIS COMM-H
12	B	GROUND
19	L	CHASSIS COMM-H

Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	–
3	LG	–
4	BR	–
6	V	–
7	L	–
10	BR	–
11	L	–
12	GR	–
13	W	–
14	B	–
15	SB	–
16	Y	–
17	BR	–
18	P	–
31	Y	–
32	GR	–
35	GR	–
36	R	–
37	V	–
38	L	–
39	Y	–
40	SB	–
41	LG	–
44	Y	–
45	W	–
46	B	–
47	G	–
48	SHIELD	–
49	R	–
50	BR	–
51	L	–
52	W	–
53	V	–
54	P	–
55	W	–
56	SB	–
57	BG	–
58	B	–
59	W	–
61	R	–
64	Y	–
65	SB	–
66	GR	–
67	LG	–
68	BG	–
71	LG	–
72	V	–
73	G	–
74	BR	–
75	V	–
78	P	–
79	SB	–
83	R	–
86	BG	–
91	G	–
92	Y	–
94	GR	–
95	BG	–
96	W	–
97	LG	–
98	L	–
99	P	–
100	SHIELD	–

Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	TORQUE SENSOR MAIN SIGNAL
2	Y	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL S1+SS
3	LG	TORQUE SENSOR SUB SIGNAL
4	G	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL S1+SS
5	W	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL S2+S4
6	L	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL S2+S4
7	SB	TORQUE SENSOR GROUND

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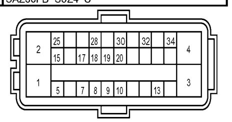
CAN SYSTEM (WITHOUT AROUND VIEW MONITOR)

8	P	TORQUE SENSOR POWER SUPPLY
10	R	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL (R1-R2)
11	BR	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL (R1-R2)
14	L	CHASSIS COMMUNICATION-H
15	W	CHASSIS COMMUNICATION-L
17	BG	BACK UP SIGNAL (FROM STEERING ANGLE SUB CONTROL MODULE)
18	SB	BACK UP SIGNAL (FROM STEERING FORCE CONTROL MODULE)
19	Y	FLEXRAY COMMUNICATION-H
20	GR	FLEXRAY COMMUNICATION-L
22	GR	BACK UP SIGNAL (TO STEERING ANGLE SUB CONTROL MODULE)
23	BR	CAN WAKE UP
24	P	BACK UP SIGNAL (TO STEERING FORCE CONTROL MODULE)
25	G	IGNITION POWER SUPPLY (FROM STEERING ANGLE SUB CONTROL MODULE)
30	B	GROUND
32	GR	GROUND
30	R	VDC OFF SW SIGNAL
32	SHIELD	VACUUM SENSOR GROUND
34	G	IGN

Connector No.	E35
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ30FB-SJZ4-U

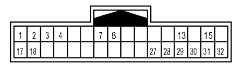
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	GROUND
2	B	GROUND
3	G	VALVE BATTERY
4	Y	MOTOR BATTERY
5	LG	STOP LAMP SW SIGNAL [With ICC]
5	V	STOP LAMP SW SIGNAL [With ASCD]
7	GR	RR LH WHEEL SENSOR SIGNAL
8	G	RR LH WHEEL SENSOR POWER SUPPLY
9	BR	FR RH WHEEL SENSOR SIGNAL
10	GR	FR RH WHEEL SENSOR POWER SUPPLY
13	R	VACUUM SENSOR SIGNAL
15	P	CAN-L [Without Gateway]
15	R	CAN-L [With Gateway]
17	Y	RR RH WHEEL SENSOR SIGNAL
18	V	RR RH WHEEL SENSOR POWER SUPPLY
19	SB	FR LH WHEEL SENSOR SIGNAL
20	BG	FR LH WHEEL SENSOR POWER SUPPLY
25	L	CAN-H
28	G	VACUUM SENSOR POWER SUPPLY

Connector No.	E47
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH

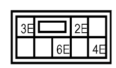
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	-
2	V	-
3	L	-
4	P	-[Without Gateway]
4	R	-[With Gateway]
7	L	-
8	W	-
13	G	-
15	BR	-
17	W	-
18	BG	-
27	LG	-
28	BR	-
29	W	-
30	Y	-
31	G	-
32	LG	-

Connector No.	E64
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-CS

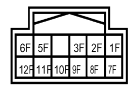
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2E	P	-
3E	V	-
4E	GR	-
6E	L	-

Connector No.	E65
Connector Name	FUSE BLOCK (J/B)
Connector Type	TH12FW-NH

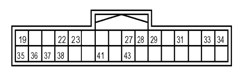
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
10F	W	-
11F	G	-
12F	W	-
1F	V	-
2F	BR	-
3F	P	-
5F	P	-
6F	L	-
7F	R	-
8F	L	-
9F	L	-

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH32FW-NH

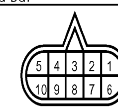
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
19	G	-
22	BG	-
23	LG	-
27	GR	-
28	P	-
29	L	-
31	G	-
33	SB	-
34	Y	-
35	G	-
36	SB	-
37	GR	-
38	BR	-
41	GR	-
43	V	-

Connector No.	F2
Connector Name	A/T ASSEMBLY
Connector Type	RK10FG-DGY

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	IGNITION POWER SUPPLY
2	P	BATTERY POWER SUPPLY (MEMORY BACK-UP)
3	L	CAN-H
4	LG	K-LINE
5	B	GROUND
6	GR	IGNITION POWER SUPPLY
7	BG	BACK-UP LAMP RELAY
8	P	CAN-L
9	GR	STARTER RELAY
10	B	GROUND

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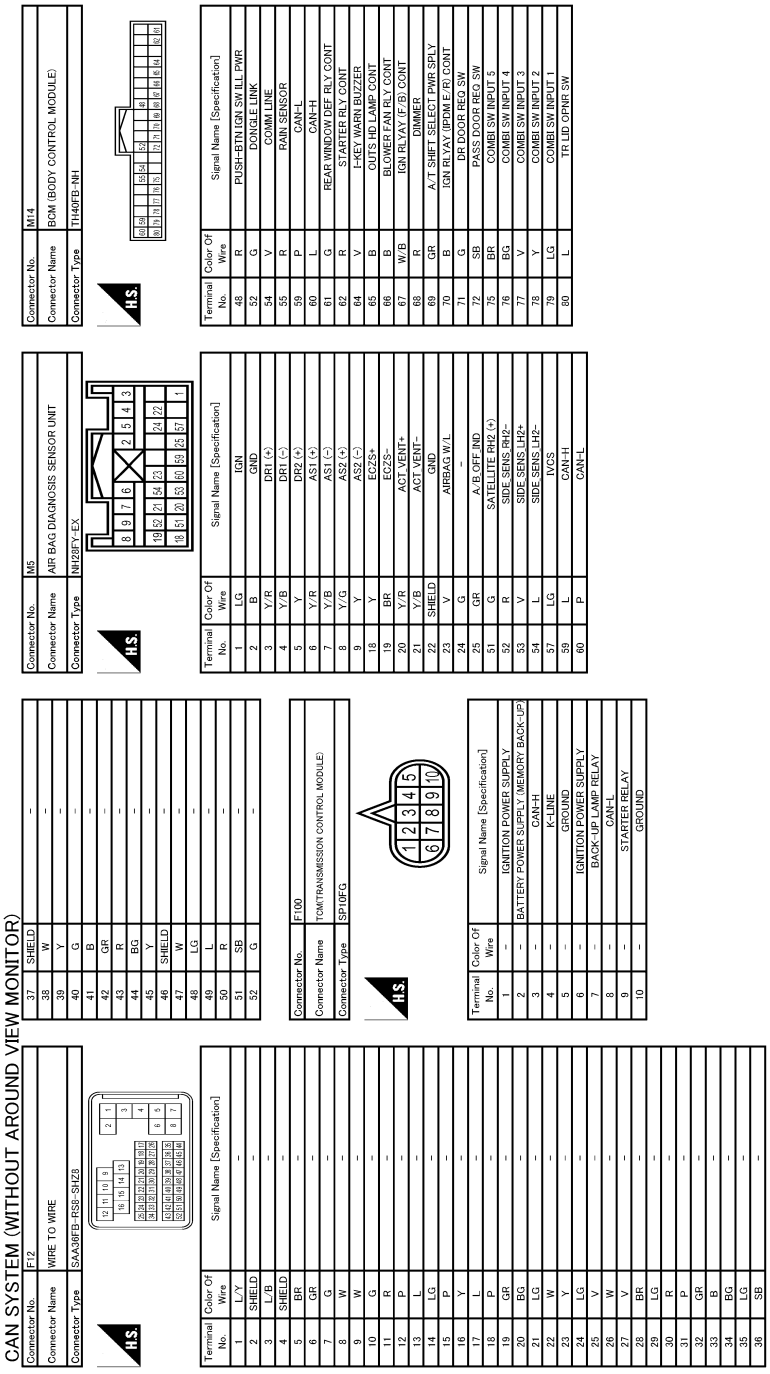


JRMWD9954GB

CAN SYSTEM (WITHOUT AROUND VIEW MONITOR)

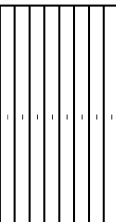
Connector No.	M19
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	–
2	G	–
3	SB	–
4	BR	–
6	R	–
7	W	–
8	V	–
9	BR	–
10	P	–
11	BR	–
12	LG	–
13	GR	–
24	Y	–
25	W	–
31	BR	–
32	B	–
33	B	–
34	V	–
35	P	–
36	W	–
37	SB	–
38	LG	–
40	P	–
41	G	–
42	BR	–
43	BR	–
44	BR	–
46	BG	–
51	Y	–
52	V	–
54	R	–
55	R	–
57	W	–
58	V	–
59	BG	–
62	BG	–
63	BR	–
64	Y	–
65	W	–
70	LG	–
71	W	–
72	B	–
74	L	–
75	W	–
76	BR	–
77	B	–
81	B	–
83	BG	–
84	L	–
85	W	–
86	B	–
88	G	–
91	GR	–
94	GR	–
96	W	–
97	V	–
98	BR	–

Connector No.	M25
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW

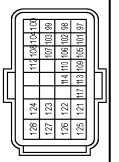
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
3	SB	AV COMM (L)
4	B	EARTH
5	B	EARTH
6	L	CAN-H
7	V	KLINE
8	W	IGN SW
11	LG	AV COMM (H)
12	R	CAN-L
13	L	CAN-H
14	P	CAN-L
16	W	POWER

Connector No.	M37
Connector Name	ECM
Connector Type	RH24FGY-RZ8-R-LH-Z

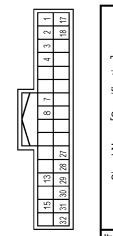
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
97	Y	ACCELERATOR PEDAL POSITION SENSOR 1
98	BR	ACCELERATOR PEDAL POSITION SENSOR 2
99	W	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 1)
100	G	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 1)
101	SB	ASCD STEERING SWITCH
101	SB	ICC STEERING SWITCH
102	LG	EVAP CONTROL SYSTEM PRESSURE SENSOR
103	L	SENSOR POWER SUPPLY (ACCELERATOR PEDAL POSITION SENSOR 2)
104	R	SENSOR GROUND (ACCELERATOR PEDAL POSITION SENSOR 2)
105	L	REFRIGERANT PRESSURE SENSOR
106	P	FUEL TANK TEMPERATURE SENSOR
107	GR	SENSOR GROUND (ASCD / ICC STEERING SWITCH)
108	Y	TRANSMISSION RANGE SWITCH
109	BR	ENGINE SPEED SIGNAL OUTPUT
110	V	GNDA PDPRES/FTPRES
112	V	CAN COMMUNICATION LINE
113	P	CAN COMMUNICATION LINE
114	L	DATA LINK CONNECTOR
117	V	EVAP CANISTER VENT CONTROL VALVE
121	LG	STOP LAMP SWITCH
122	SB	ECM GROUND
123	B	ECM GROUND
124	B	POWER SUPPLY FOR ECM
125	R	BRAKE PEDAL POSITION SWITCH
126	BG	ECM GROUND
127	B	ECM GROUND
128	B	

Connector No.	M39
Connector Name	WIRE TO WIRE
Connector Type	TH32FW-NH

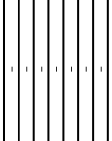
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	W/B	–
2	SB	–
3	L	–
4	P	–[Without Gateway]
4	R	–[With Gateway]
7	L	–
8	W	–
13	G	–
15	R	–
17	BR	–
18	BG	–
27	LG	–
28	BR	–
29	W/B	–
30	Y	–
31	W	–
32	LG	–

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	–
3	L	–
4	V	–

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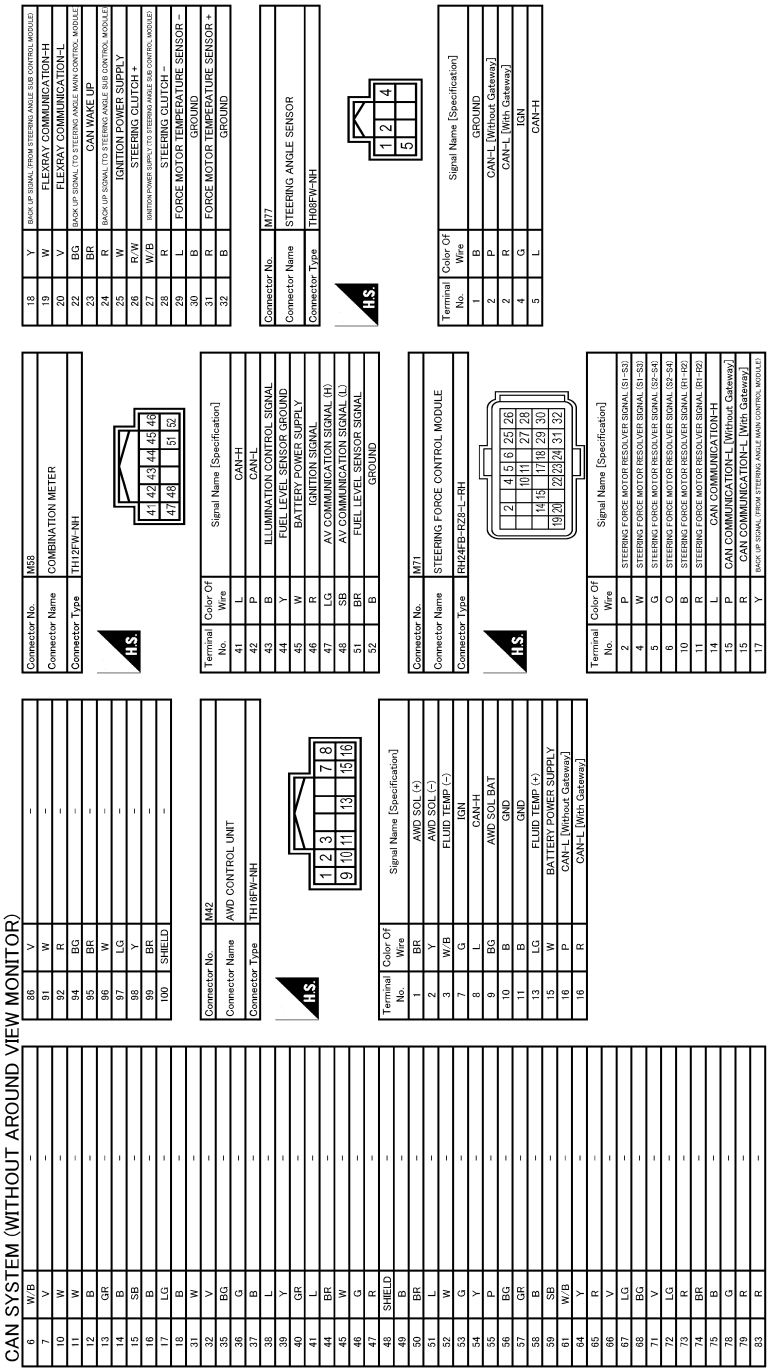

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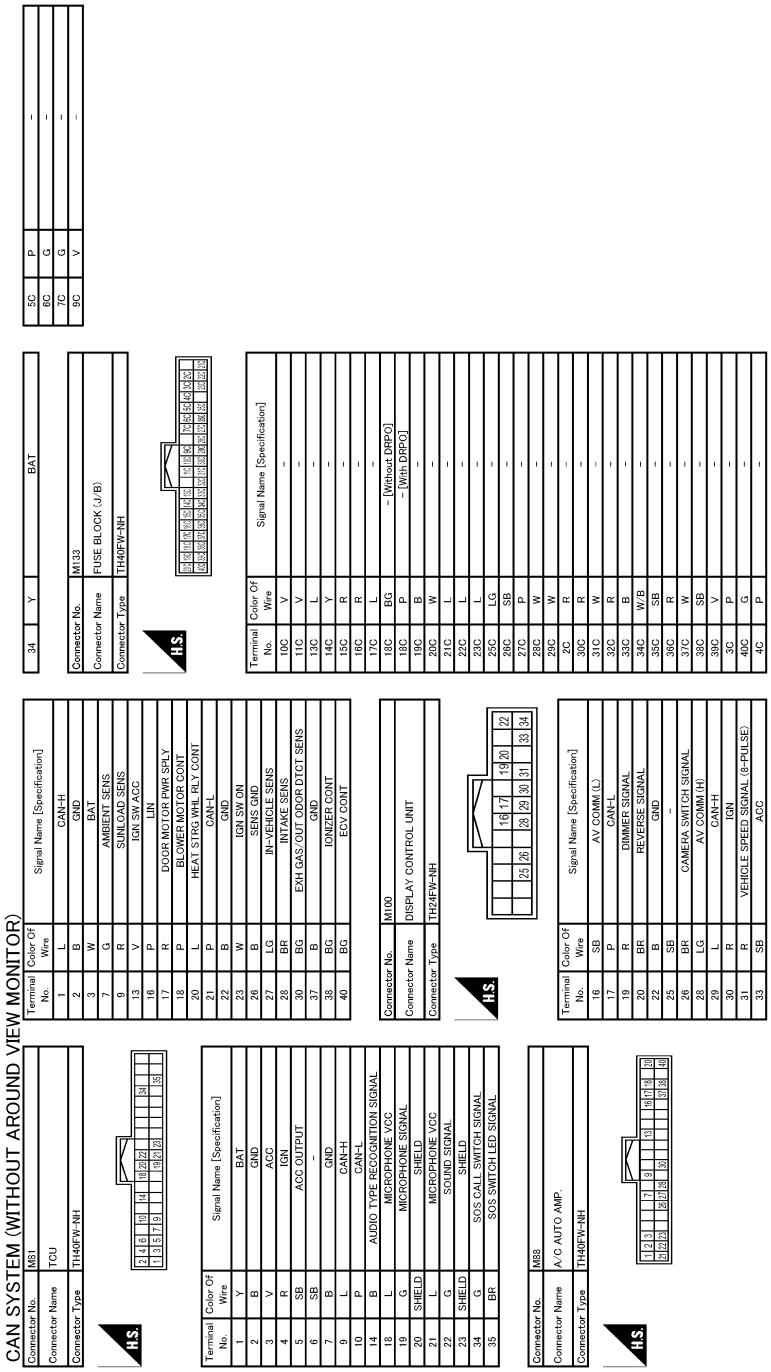

JRMWD9957GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)

Wiring Diagram

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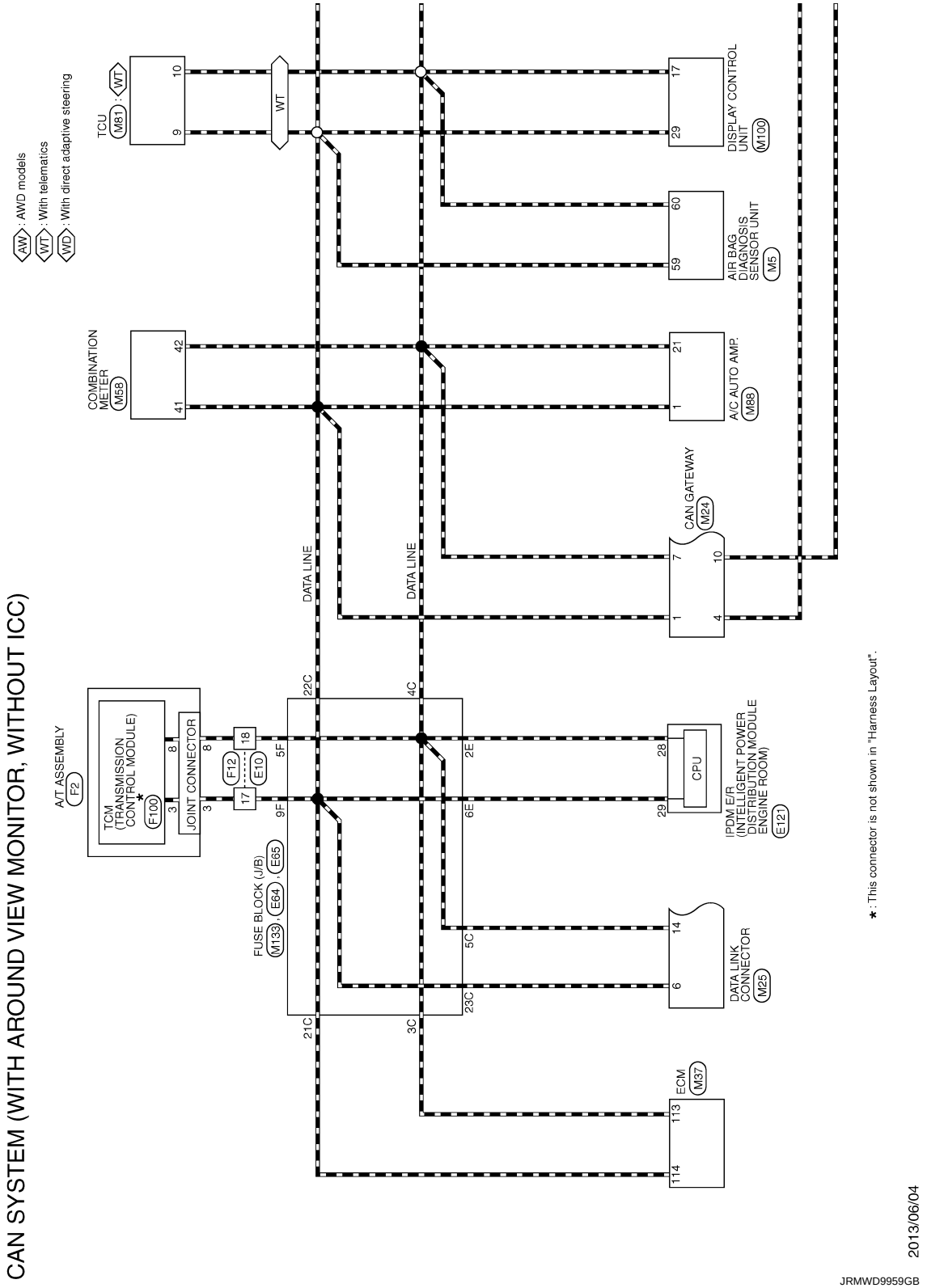
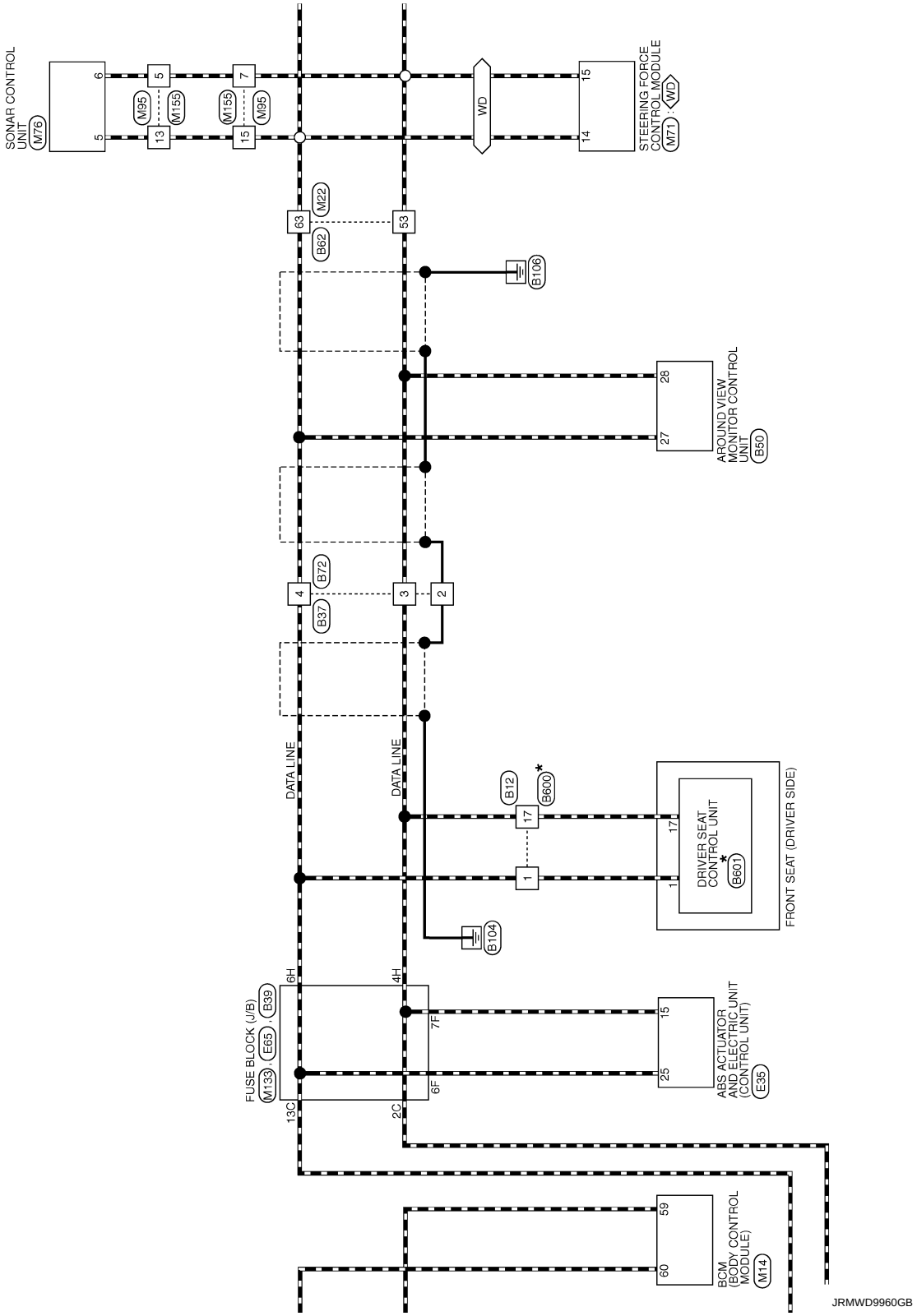
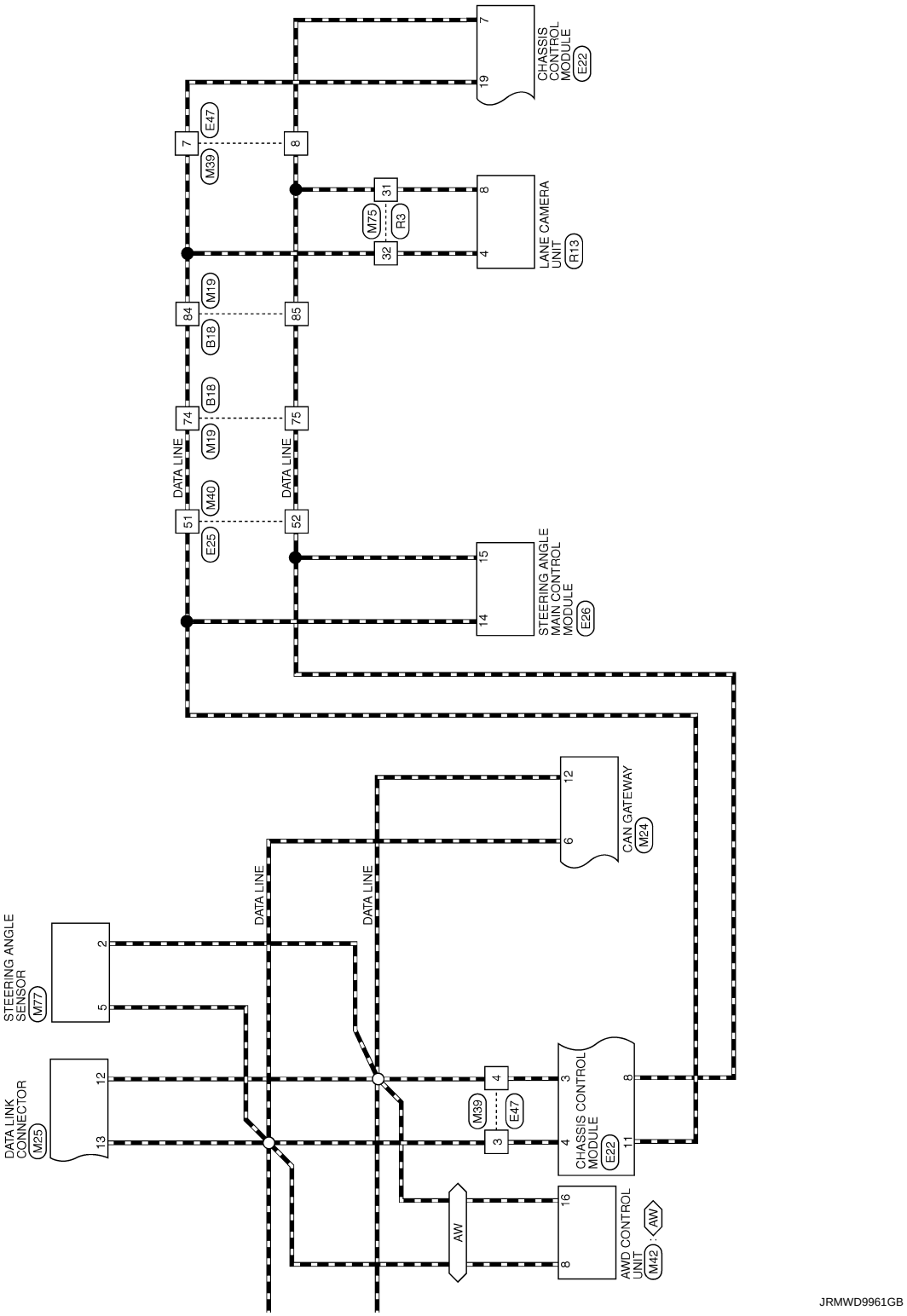
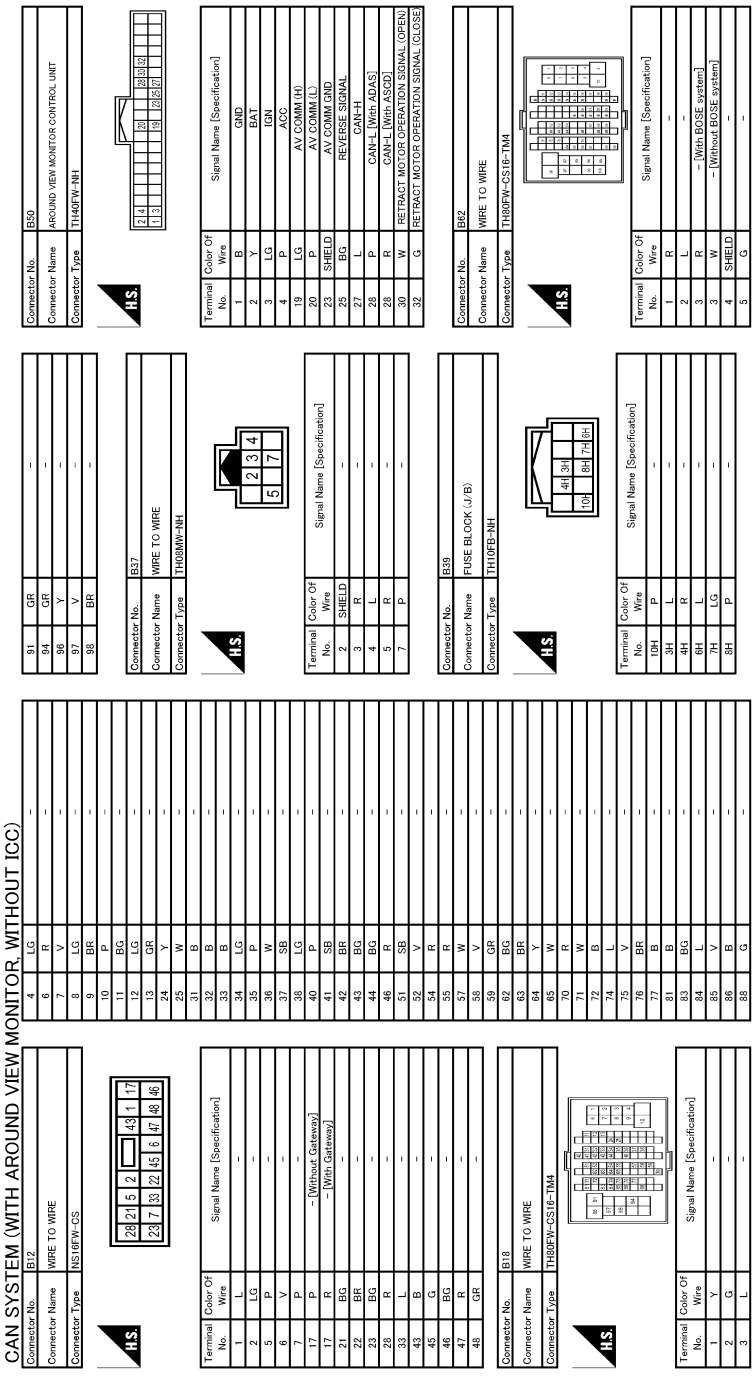



SONAR CONTROL UNIT M76
M95
M155
STEERING FORCE CONTROL MODULE M71 : WD
WD
M22
B62
B106
AROUND VIEW MONITOR CONTROL UNIT B50
B72
B37
DATA LINE
DATA LINE
B12
B600*
DRIVER SEAT CONTROL UNIT B601*
FRONT SEAT (DRIVER SIDE)
B104
FUSE BLOCK (J/B) M133, E65, B39
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E35
BCM (BODY CONTROL MODULE) M14
JRMWD9960GB


CHASSIS CONTROL MODULE E22
LANE CAMERA UNIT R13
STEERING ANGLE MAIN CONTROL MODULE E26
CAN GATEWAY M24
STEERING ANGLE SENSOR M77
DATA LINK CONNECTOR M25
CHASSIS CONTROL MODULE E22
AWD CONTROL UNIT M42
DATA LINE
AW
JRMWD9961GB



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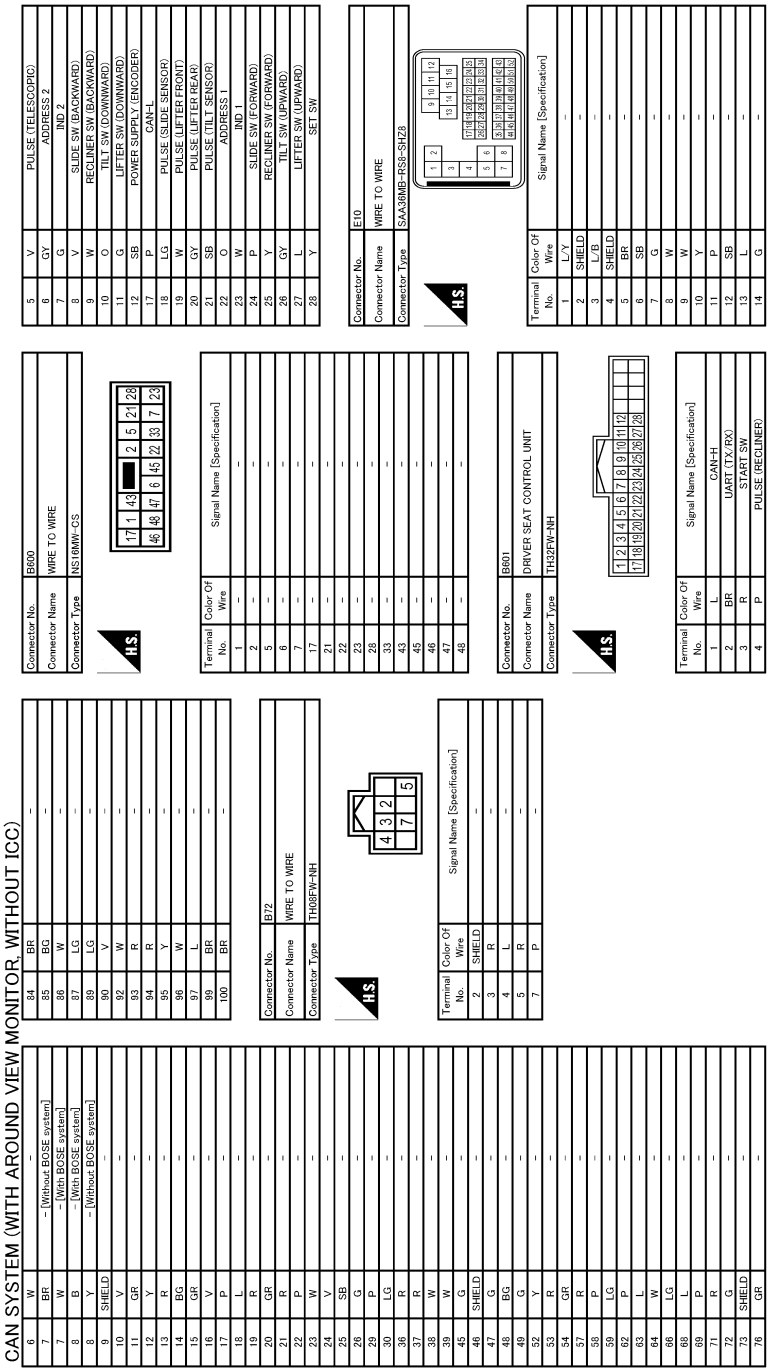


JRMWD9963GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)

15	LG	–
16	BR	–
17	L	–
18	P	–
19	GR	–
20	G	–
21	V	–
22	Y	–
23	L	–
24	GR	–
25	V	–
26	BR	–
27	W	–
28	V	–
29	BR	–
30	R	–
31	P	–
32	G	–
33	B	–
34	BG	–
35	LG	–
36	W	–
37	SHIELD	–
38	L	–
39	P	–
40	R	–
41	W	–
42	LG	–
43	G	–
44	V	–
45	Y	–
46	SHIELD	–
47	W	–
48	BR	–
49	G	–
50	B	–
51	SB	–
52	R	–

Connector No.	E22	
Connector Name	CHASSIS CONTROL MODULE	
Connector Type	TH24FW-NH	

H.S.

3	4	5	6	7	8	10	11	12
					19			

Terminal No.	Color Of Wire	Signal Name [Specification]
3	P	CAN-L [Without Gateway]
3	R	CAN-L [With Gateway]
4	L	CAN-H
5	V	DRIVE MODE SELECT SW (UP)
6	G	DRIVE MODE SELECT SW (DOWN)
7	W	CHASSIS COMM-L
8	W	CHASSIS COMM-L
10	G	IGN
11	L	CHASSIS COMM-H
12	B	GROUND
19	L	CHASSIS COMM-H

Connector No.	E25	
Connector Name	WIRE TO WIRE	
Connector Type	TH80FW-CS16-TM4	

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	–
3	LG	–
4	BR	–
6	V	–
7	L	–
10	BR	–
11	L	–
12	GR	–
13	W	–
14	B	–

15	SB	–
16	Y	–
17	BR	–
18	P	–
31	Y	–
32	GR	–
35	GR	–
36	R	–
37	V	–
38	L	–
39	Y	–
40	SB	–
41	LG	–
44	Y	–
45	W	–
46	B	–
47	G	–
48	SHIELD	–
49	R	–
50	BR	–
51	L	–
52	W	–
53	V	–
54	P	–
55	W	–
56	SB	–
57	BG	–
58	B	–
59	W	–
61	R	–
64	Y	–
65	SB	–
66	GR	–
67	LG	–
68	BG	–
71	LG	–
72	V	–
73	G	–
74	BR	–
75	V	–
78	P	–
79	SB	–
83	R	–
86	BG	–
91	G	–
92	Y	–
94	GR	–
95	BG	–
96	W	–
97	LG	–

98	L	–
99	P	–
100	SHIELD	–

Connector No.	E26
Connector Name	STEERING ANGLE MAIN CONTROL MODULE
Connector Type	RH24FB-RZ8-L-LH

H.S.

1	2	3	4	5	6	25
7	8		10	11		
	14	15		17	18	30
19	20		22	23	24	32

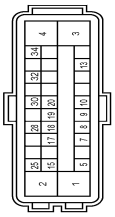
Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	TORQUE SENSOR MAIN SIGNAL
2	Y	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [S1-s3]
3	LG	TORQUE SENSOR SUB SIGNAL
4	G	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [S1-s3]
5	W	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [S2-s4]
6	L	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [S2-s4]
7	SB	TORQUE SENSOR GROUND
8	P	TORQUE SENSOR POWER SUPPLY
10	R	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [R1-R2]
11	BR	STEERING ANGLE MAIN MOTOR RESOLVER SIGNAL [R1-R2]
14	L	CHASSIS COMMUNICATION-H
15	W	CHASSIS COMMUNICATION-L
17	BG	BACK UP SIGNAL FROM STEERING ANGLE SUB CONTROL MODULE
18	SB	BACK UP SIGNAL [FROM STEERING TORQUE CONTROL MODULE]
19	Y	FLEXRAY COMMUNICATION-H
20	GR	FLEXRAY COMMUNICATION-L
22	GR	BACK UP SIGNAL [TO STEERING ANGLE SUB CONTROL MODULE]
23	BR	CAN WAKE UP
24	P	BACK UP SIGNAL [TO STEERING FORCE CONTROL MODULE]
25	G	IGNITION POWER SUPPLY FROM STEERING ANGLE SUB CONTROL MODULE
30	B	GROUND
32	GR	GROUND

JRMWD9964GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)

Connector No.	E35
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ30FB-SJZ4-U

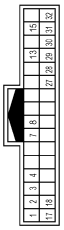
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	GROUND
2	B	GROUND
3	G	VALVE BATTERY
4	Y	MOTOR BATTERY
5	LG	STOP LAMP SW SIGNAL [With ICC]
5	V	STOP LAMP SW SIGNAL [With ASCD]
7	GR	RR LH WHEEL SENSOR SIGNAL
8	G	RR LH WHEEL SENSOR POWER SUPPLY
9	BR	FR RH WHEEL SENSOR SIGNAL
10	GR	FR RH WHEEL SENSOR POWER SUPPLY
13	R	VACUUM SENSOR SIGNAL
15	P	CAN-L [Without Gateway]
15	R	CAN-L [With Gateway]
17	Y	RR RH WHEEL SENSOR SIGNAL
18	V	RR RH WHEEL SENSOR POWER SUPPLY
19	SB	FR LH WHEEL SENSOR SIGNAL
20	BG	FR LH WHEEL SENSOR POWER SUPPLY
25	L	CAN-H
28	G	VACUUM SENSOR POWER SUPPLY
30	R	VDC OFF SW SIGNAL
32	SHIELD	VACUUM SENSOR GROUND
34	G	IGN

Connector No.	E47
Connector Name	WIRE TO WIRE
Connector Type	TH32MW-NH

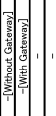
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	–
2	V	–
3	L	–
4	P	–[Without Gateway]
4	R	–[With Gateway]
7	L	–
8	W	–
13	G	–
15	BR	–
17	W	–
18	BG	–
27	LG	–
28	BR	–
29	W	–
30	Y	–
31	G	–
32	LG	–

Connector No.	E64
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS08FW-CS

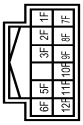
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2E	P	–
3E	V	–
4E	GR	–
6E	L	–

Connector No.	E65
Connector Name	FUSE BLOCK (J/B)
Connector Type	TH12FW-NH

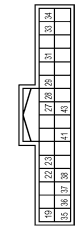
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
10F	W	–
11F	G	–
12F	W	–
1F	V	–
2F	BR	–
3F	P	–
5F	P	–
6F	L	–
7F	R	–
8F	L	–
9F	L	–

Connector No.	E121
Connector Name	RELAY, FR (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH32FW-NH

H.S.

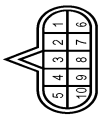


Terminal No.	Color Of Wire	Signal Name [Specification]
19	G	–
22	BG	–
23	LG	–
27	GR	–
28	P	–
29	L	–
31	G	–
33	SB	–
34	Y	–

35	G	–
36	SB	–
37	GR	–
38	BR	–
41	GR	–
43	V	–

Connector No.	F2
Connector Name	A/T ASSEMBLY
Connector Type	RK10FG-DGY

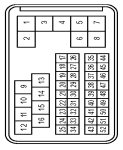
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	IGNITION POWER SUPPLY
2	P	BATTERY POWER SUPPLY (MEMORY BACK-UP)
3	L	CAN-H
4	LG	K-LINE
5	B	GROUND
6	GR	IGNITION POWER SUPPLY
7	BG	BACK-UP LAMP RELAY
8	P	CAN-L
9	GR	STARTER RELAY
10	B	GROUND

Connector No.	F12
Connector Name	WIRE TO WIRE
Connector Type	SAA36FB-RS8-SHZ8

H.S.



JRMWD9965GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/Y	–
2	SHIELD	–
3	L/B	–
4	SHIELD	–
5	BR	–
6	GR	–
7	G	–
8	W	–
9	W	–
10	G	–
11	R	–
12	P	–
13	L	–
14	LG	–
15	P	–
16	Y	–
17	L	–
18	P	–
19	GR	–
20	BG	–
21	LG	–
22	W	–
23	Y	–
24	LG	–
25	V	–
26	W	–
27	V	–
28	BR	–
29	LG	–
30	R	–
31	P	–
32	GR	–
33	B	–
34	BG	–
35	LG	–
36	SB	–
37	SHIELD	–
38	W	–
39	Y	–
40	G	–
41	B	–
42	GR	–
43	R	–
44	BG	–
45	Y	–
46	SHIELD	–
47	W	–
48	LG	–
49	L	–
50	R	–
51	SB	–
52	G	–

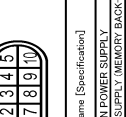
Connector No.	F100
Connector Name	TCM(TRANSMISSION CONTROL MODULE)
Connector Type	SP10FG

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	–	IGNITION POWER SUPPLY
2	–	BATTERY POWER SUPPLY (MEMORY BACK-UP)
3	–	CAN-H
4	–	K-LINE
5	–	GROUND
6	–	IGNITION POWER SUPPLY
7	–	BACK-UP LAMP RELAY
8	–	CAN-L
9	–	STARTER RELAY
10	–	GROUND

Connector No.	M5
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	LG	IGN
2	B	GND
3	Y/R	DR1 (+)
4	Y/B	DR1 (–)
5	Y	DR2 (+)
6	Y/R	AS1 (+)
7	Y/B	AS1 (–)
8	Y/G	AS2 (+)
9	Y	AS2 (–)
18	Y	ECZS+
19	BR	ECZS–
20	Y/R	ACT_VENT+
21	Y/B	ACT_VENT–
22	SHIELD	GND
23	V	AIRBAG W/L
24	G	–
25	GR	A/B OFF IND
51	G	SATELLITE RH2 (+)
52	R	SIDE SENS RH2–
53	V	SIDE SENS LH2+
54	L	SIDE SENS LH2–
57	LG	IVCS
59	L	CAN-H
60	P	CAN-L

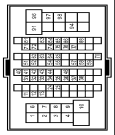
Connector No.	M14
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
48	R	PUSH-BTN IGN SW ILL PWR
52	G	DONGLE LINK
54	V	COMM LINE
55	R	RAIN SENSOR
59	P	CAN-L
60	L	CAN-H
61	G	REAR WINDOW DEF RLY CONT
62	R	STARTER RLY CONT
64	V	I-KEY WARN BUZZER
65	B	OUTS HD LAMP CONT
66	B	BLOWER FAN RLY CONT
67	W/B	IGN RLY1(A/T-F/B) CONT
68	R	DIMMER
69	GR	A/T SHIFT SELECT PWR SPLY
70	B	IGN RLY4(V-IPDM E/R) CONT
71	G	DR DOOR REQ SW
72	SB	PASS DOOR REQ SW
75	BR	COMBI SW INPUT 5
76	BG	COMBI SW INPUT 4
77	V	COMBI SW INPUT 3
78	Y	COMBI SW INPUT 2
79	LG	COMBI SW INPUT 1
80	L	TR LID OPNR SW

Connector No.	M19
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	–
2	G	–
3	SB	–
4	BR	–
6	R	–
7	W	–
8	V	–
9	BR	–
10	P	–
11	BR	–
12	LG	–
13	GR	–
24	Y	–
25	W	–
31	BR	–
32	B	–
33	B	–
34	V	–
35	P	–
36	W	–
37	SB	–
38	LG	–
40	P	–
41	G	–
42	BR	–

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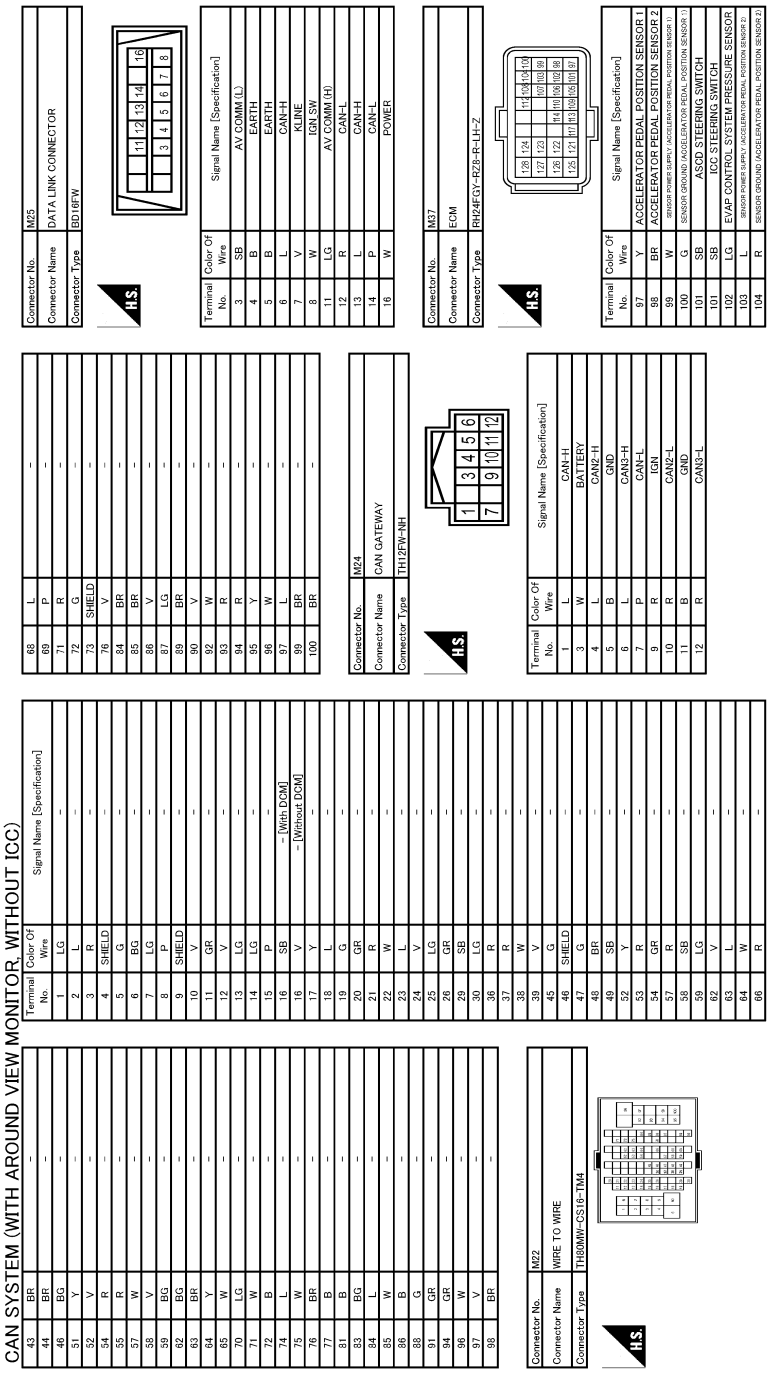

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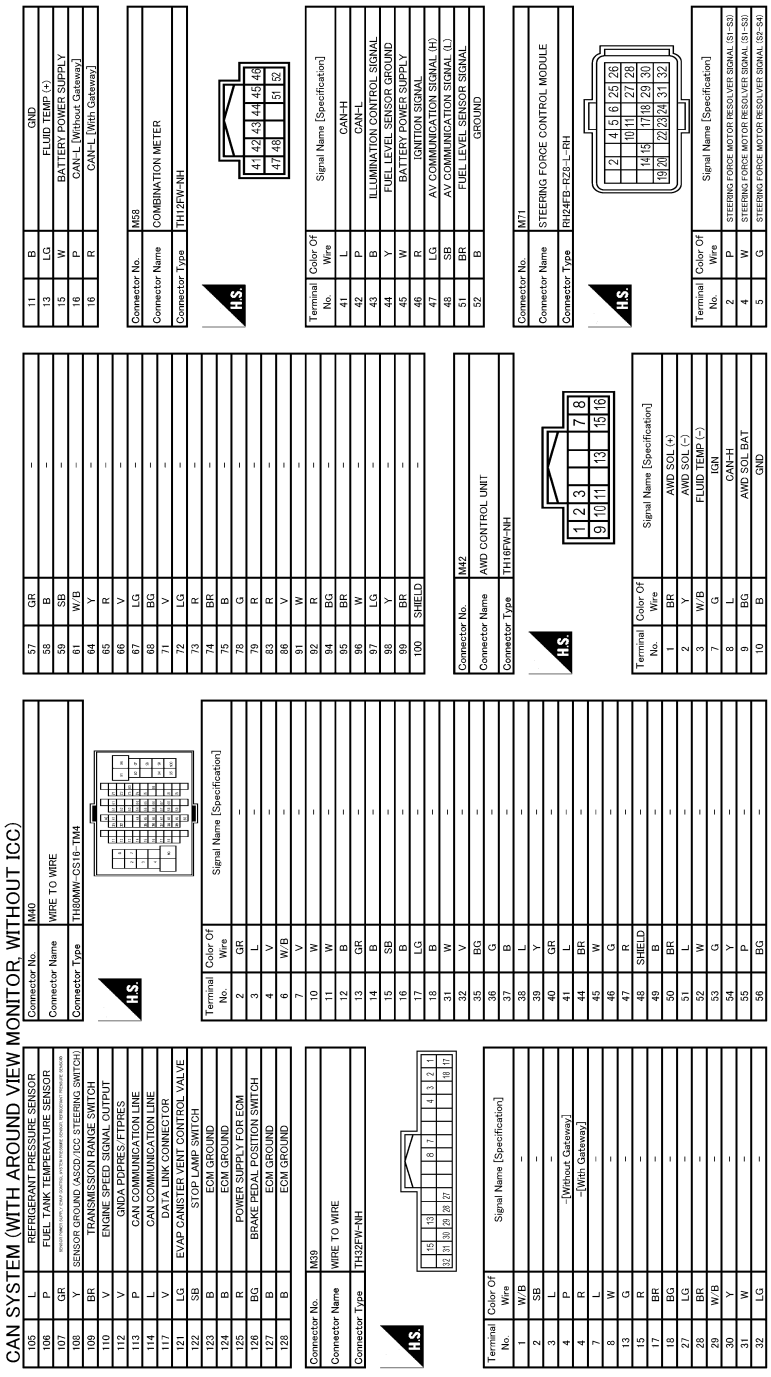

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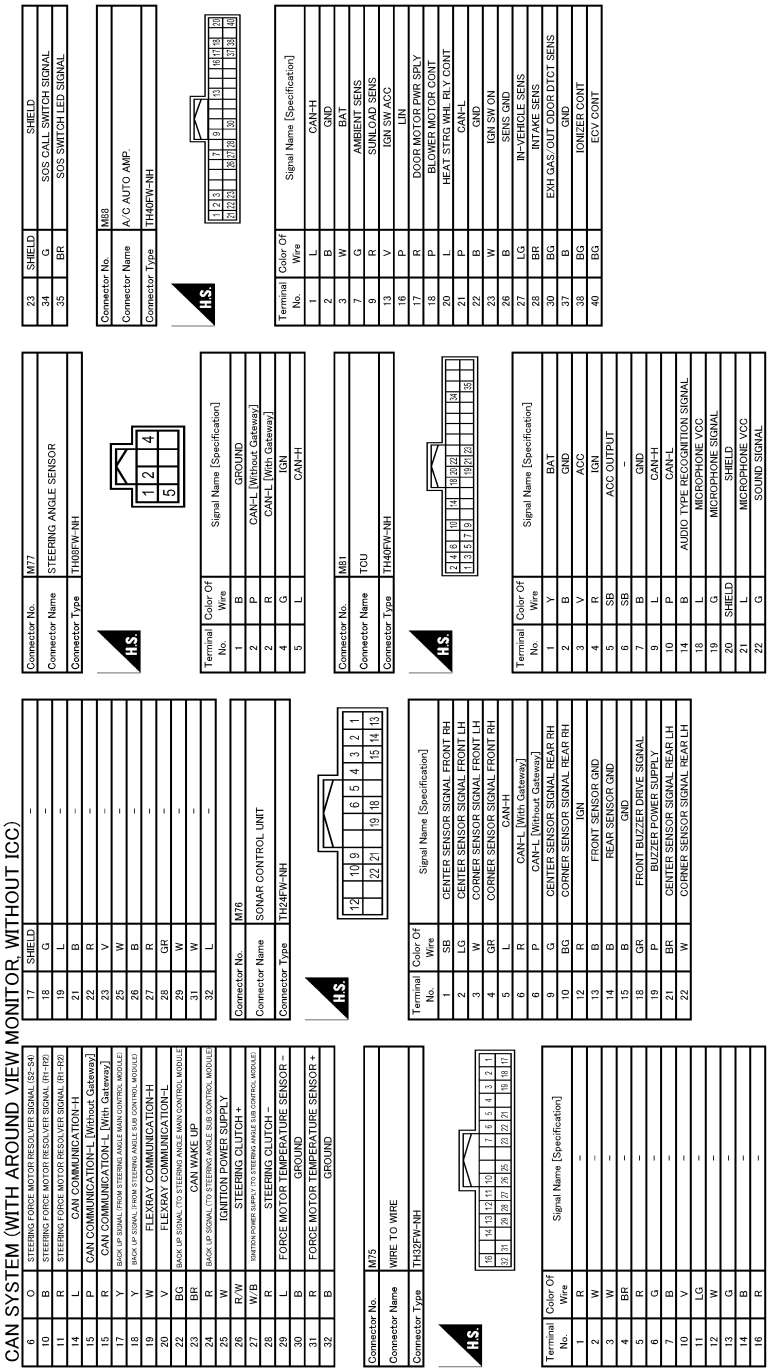
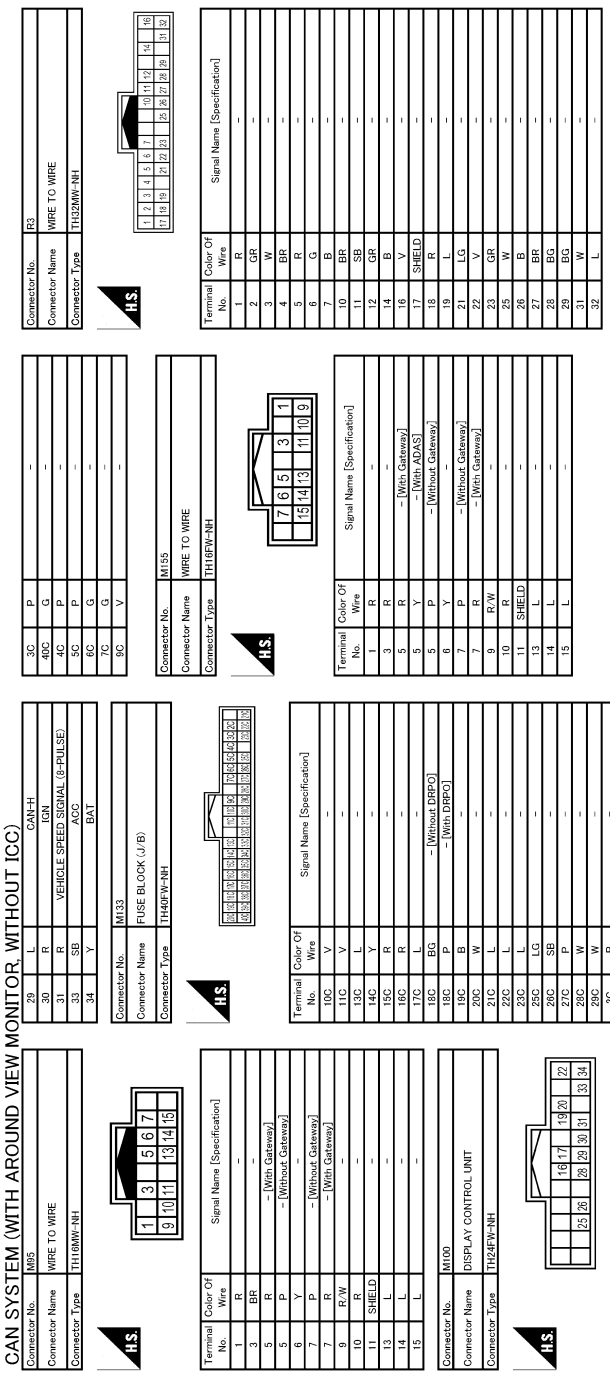


JRMWD9969GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)



JRMWD9970GB

CAN SYSTEM (WITH AROUND VIEW MONITOR, WITHOUT ICC)

Connector No.	R13
Connector Name	LANE CAMERA UNIT
Connector Type	TH08FW-NH

H.S.

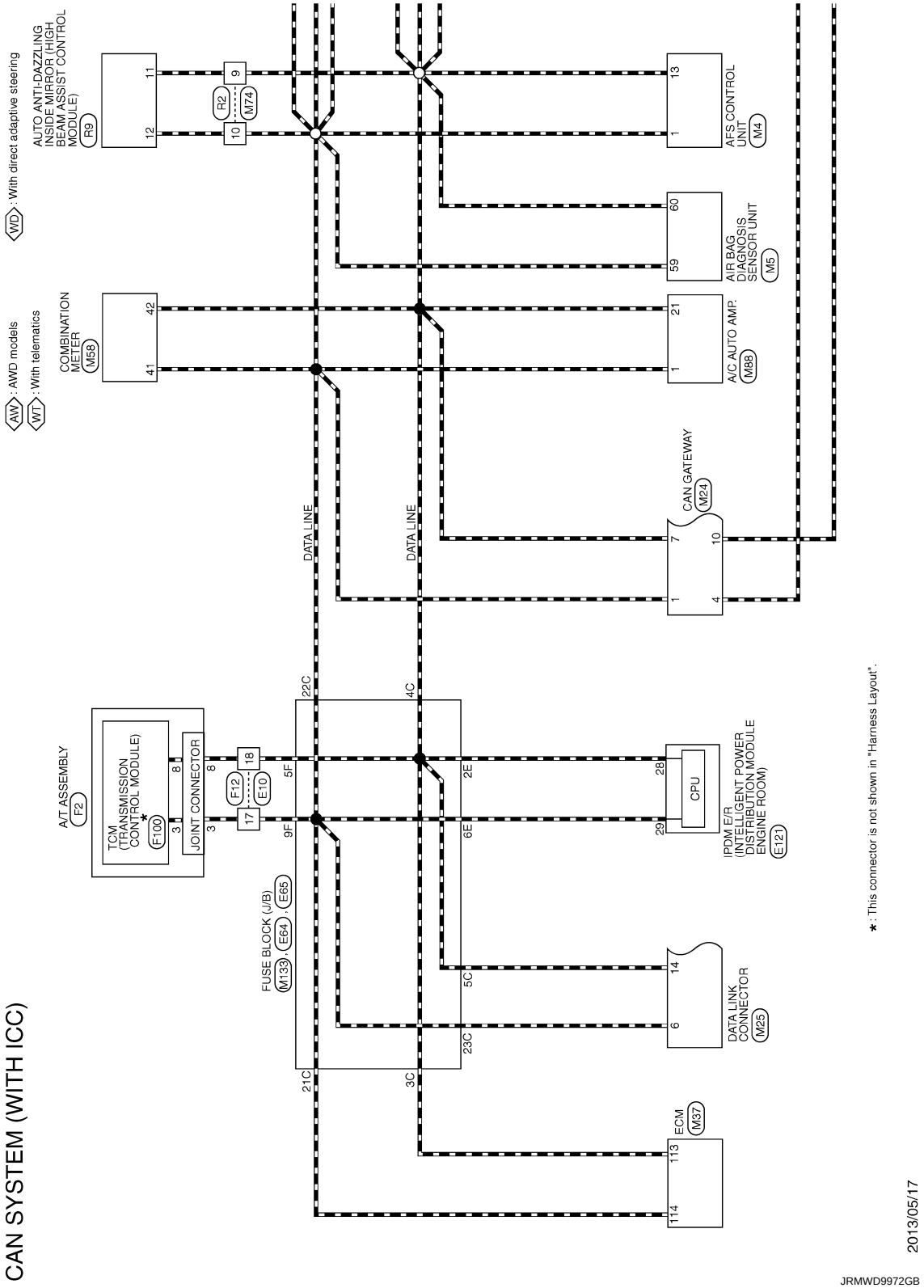
Terminal No.	Color Of Wire	Signal Name [Specification]
1	B	CAN GND
4	L	CAN-H
5	B	GND
7	V	IGN
8	W	CAN-L

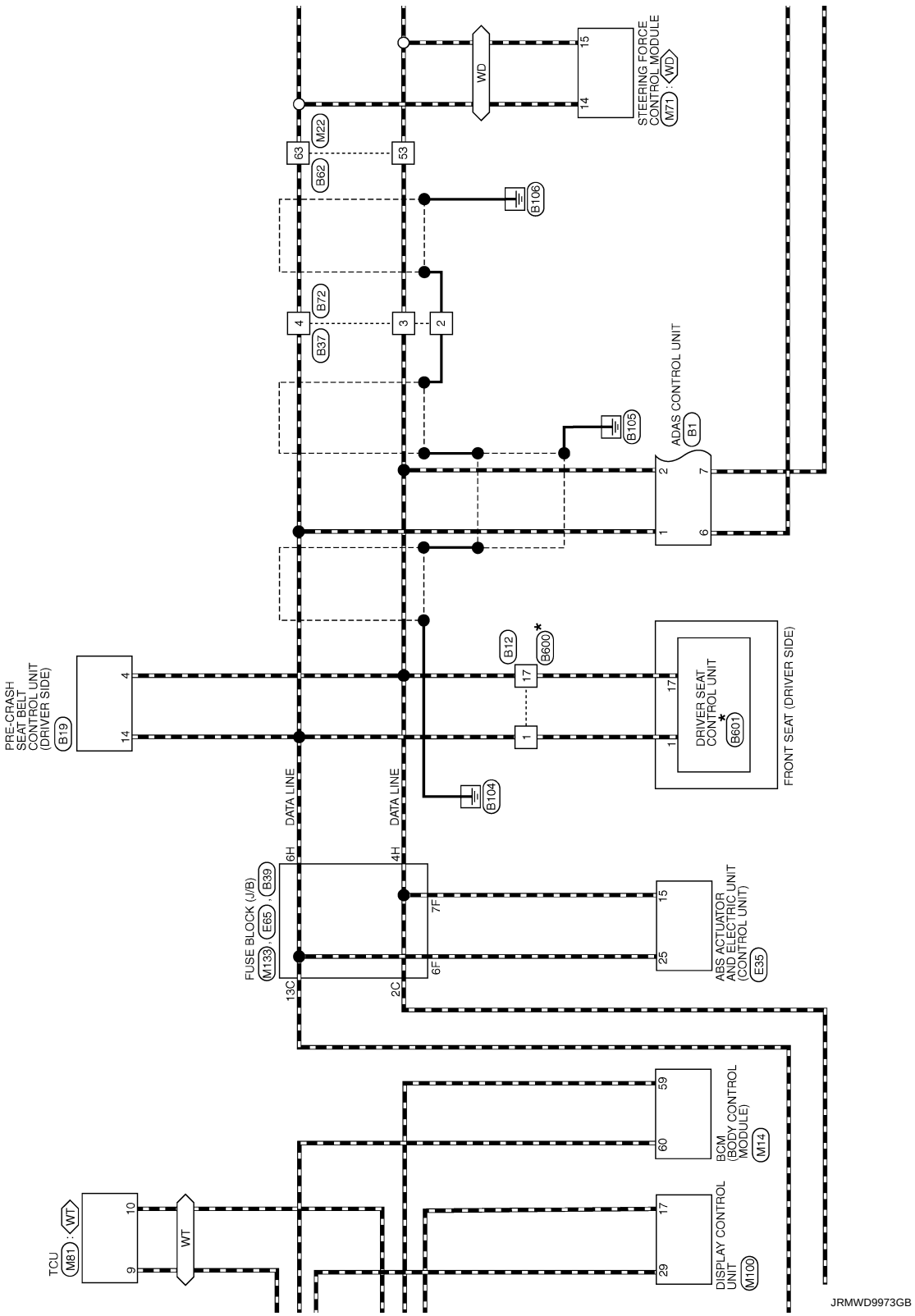
JRMWD9971GB

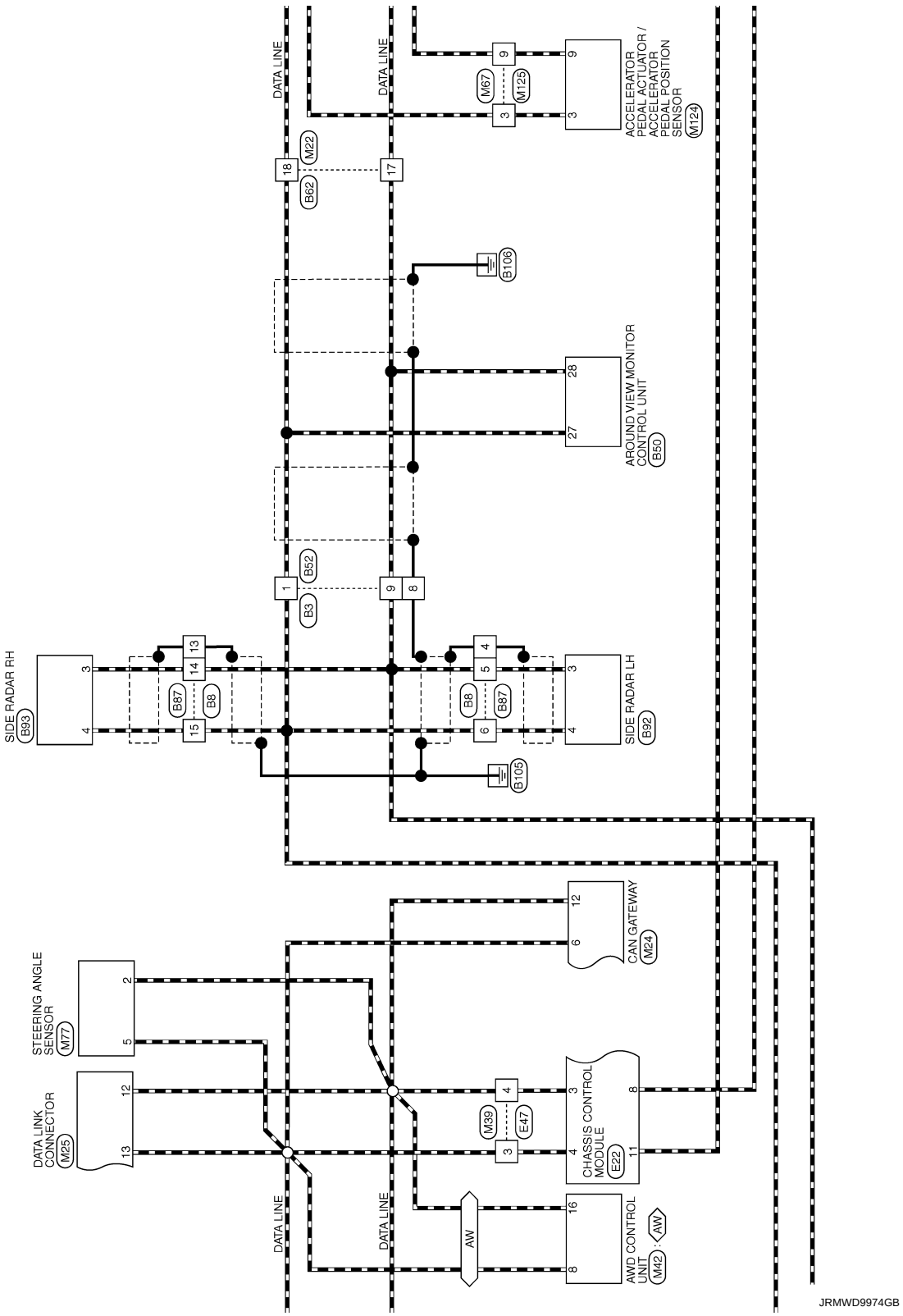
CAN SYSTEM (WITH ICC)

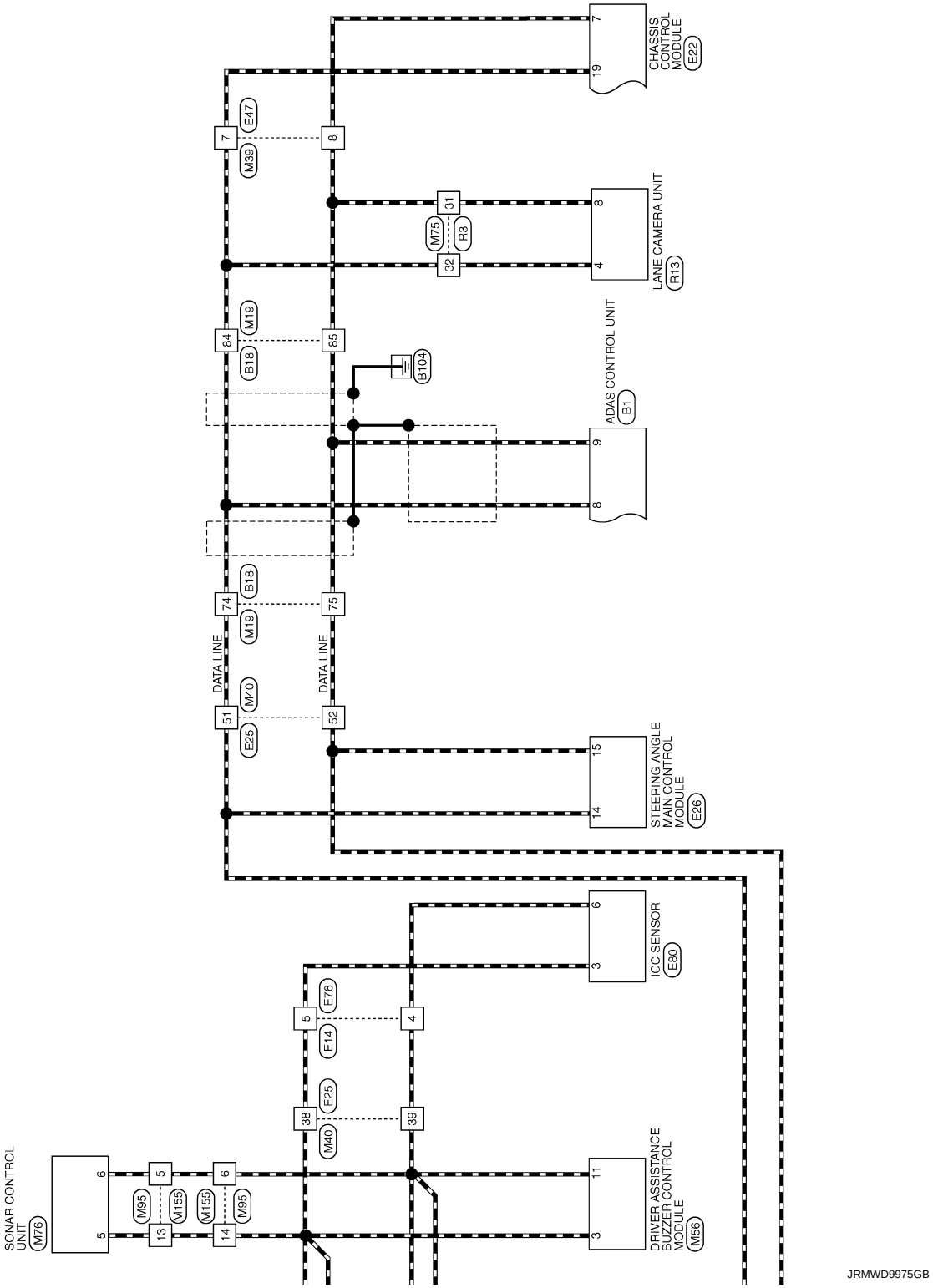
Wiring Diagram

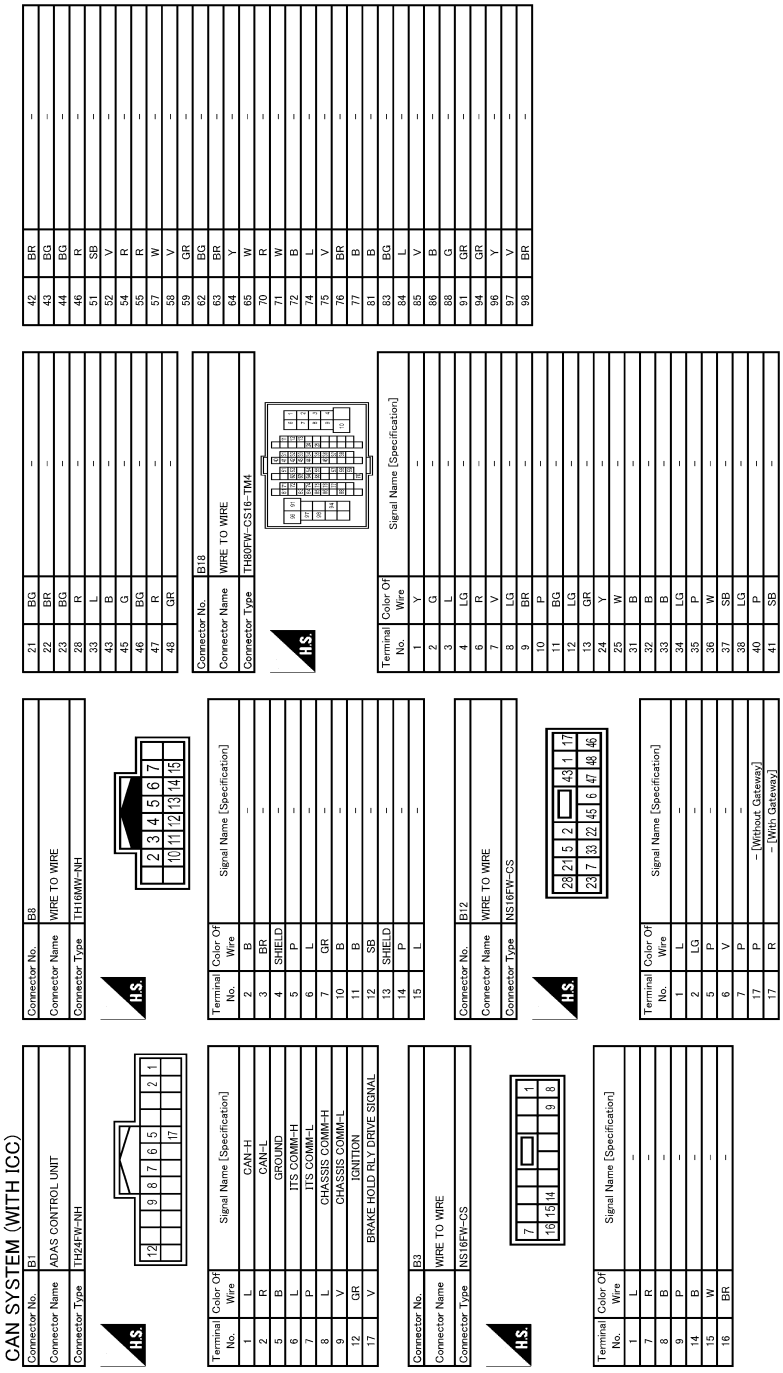
INFOID:0000000009755665



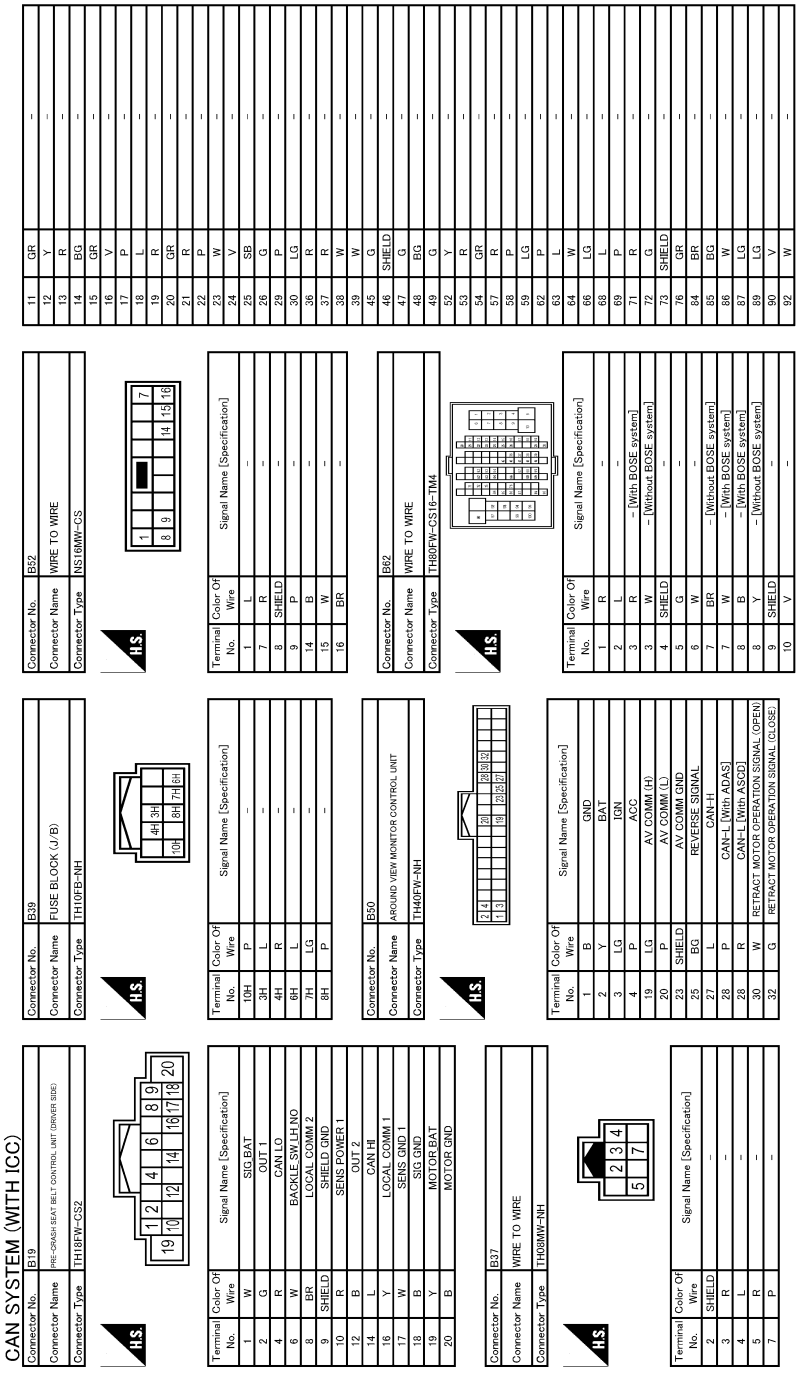

STEERING FORCE CONTROL MODULE (WD) : M71
WD
15
14
M22
63
B62
53
B106
B72
4
B37
3
2
ADAS CONTROL UNIT B1
B105
2
7
1
6
PRE-CRASH SEAT BELT CONTROL UNIT (DRIVER SIDE) B19
4
14
B12
17
B600
1
DRIVER SEAT CONTROL UNIT B601
17
1
FRONT SEAT (DRIVER SIDE)
B104
DATA LINE
DATA LINE
6H
4H
FUSE BLOCK (J/B) B39 : E65 : M133
7F
6F
13C
2C
15
25
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E35
59
60
BCM (BODY CONTROL MODULE) M14
TCU (WT) : M81
10
9
WT
17
29
DISPLAY CONTROL UNIT M100
JRMWD9973GB


DATA LINE
DATA LINE
M67
M125
ACCELERATOR PEDAL ACTUATOR / ACCELERATOR PEDAL POSITION SENSOR
M124
M22
B62
B106
AROUND VIEW MONITOR CONTROL UNIT
B50
B52
B3
SIDE RADAR RH
B93
B87
B8
B105
SIDE RADAR LH
B92
CAN GATEWAY
M24
STEERING ANGLE SENSOR
M77
DATA LINK CONNECTOR
M25
M39
E47
CHASSIS CONTROL MODULE
E22
AW
AWD CONTROL UNIT : AW
M42
JRMWD9974GB

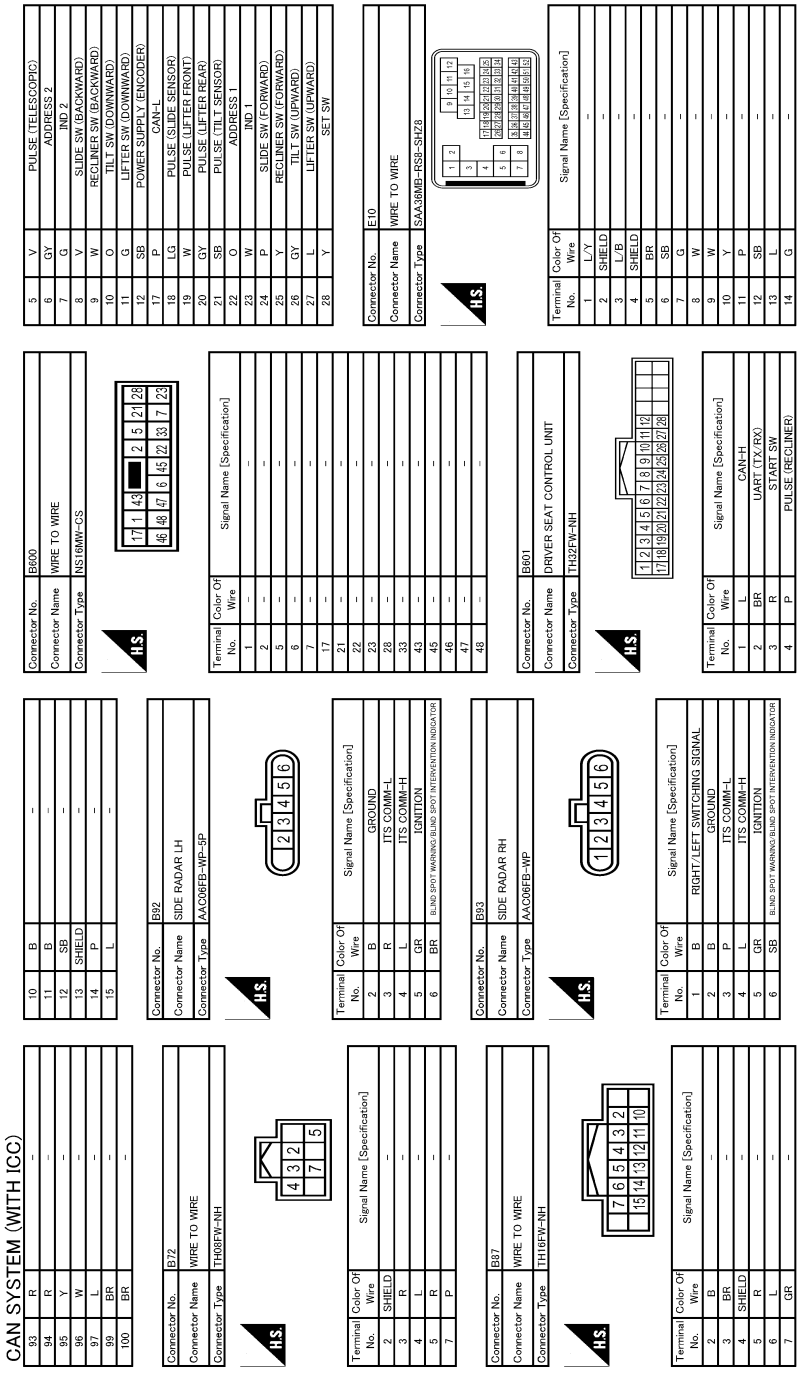

CHASSIS CONTROL MODULE E22
LANE CAMERA UNIT R13
ADAS CONTROL UNIT B1
STEERING ANGLE MAIN CONTROL MODULE E26
ICC SENSOR E80
DRIVER ASSISTANCE BUZZER CONTROL MODULE M56
SONAR CONTROL UNIT M76
DATA LINE
DATA LINE
E47
M39
M75
R3
M19
B18
B104
E25
M40
E76
E14
M95
M155
M156
M85
JRMWD9975GB



JRMWD9976GB



JRMWD9977GB



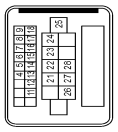
JRMWD9978GB

CAN SYSTEM (WITH ICC)

15	LG	–
16	BR	–
17	L	–
18	P	–
19	GR	–
20	G	–
21	V	–
22	Y	–
23	L	–
24	GR	–
25	V	–
26	BR	–
27	W	–
28	V	–
29	BR	–
30	R	–
31	P	–
32	G	–
33	B	–
34	BG	–
35	LG	–
36	W	–
37	SHIELD	–
38	L	–
39	P	–
40	R	–
41	W	–
42	LG	–
43	G	–
44	V	–
45	Y	–
46	SHIELD	–
47	W	–
48	BR	–
49	G	–
50	B	–
51	SB	–
52	R	–

H.S.

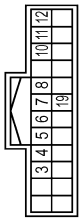
Connector No.	E14
Connector Name	WIRE TO WIRE
Connector Type	SAA18MB-RS10-SJ22



Terminal No.	Color Of Wire	Signal Name [Specification]
4	Y	–
5	L	–
6	B	–
7	BR	–
8	LG	–
9	W	–
11	V	–
12	R	–
13	B	–
14	P	–
15	GR	–
16	V	–
17	B	–
18	P	–
21	B	–
22	SHIELD	–
23	P	–
24	L	–
25	V	–
26	B	–
27	B	–
28	B	–

H.S.

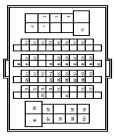
Connector No.	E22
Connector Name	CHASSIS CONTROL MODULE
Connector Type	TH24FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
3	P	CAN-L [Without Gateway]
3	R	CAN-L [With Gateway]
4	L	CAN-H
5	V	DRIVE MODE SELECT SW (UP)
6	G	DRIVE MODE SELECT SW (DOWN)
7	W	CHASSIS COMM–L
8	W	CHASSIS COMM–L
10	G	IGN
11	L	CHASSIS COMM–H
12	B	GROUND
19	L	CHASSIS COMM–H

H.S.

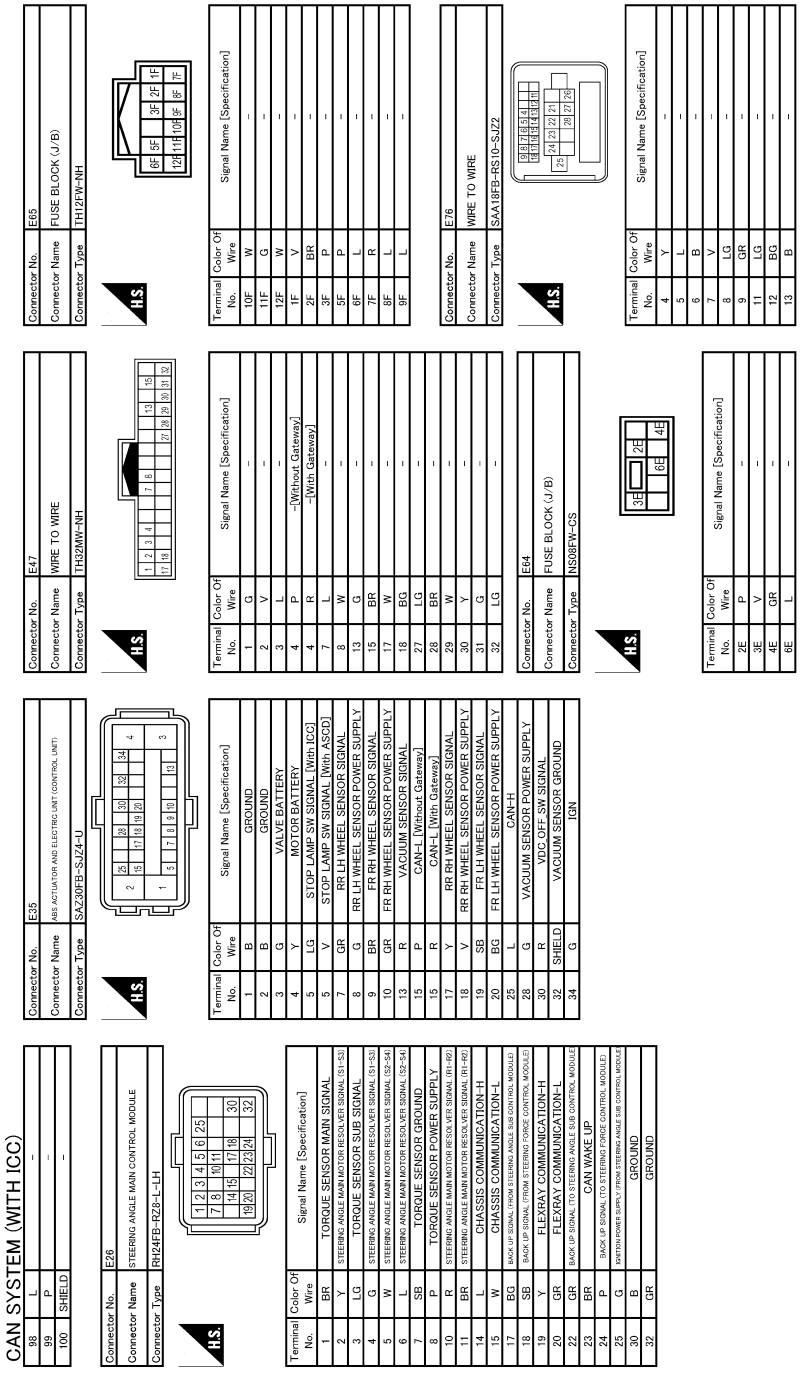
Connector No.	E25
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS16-TM4



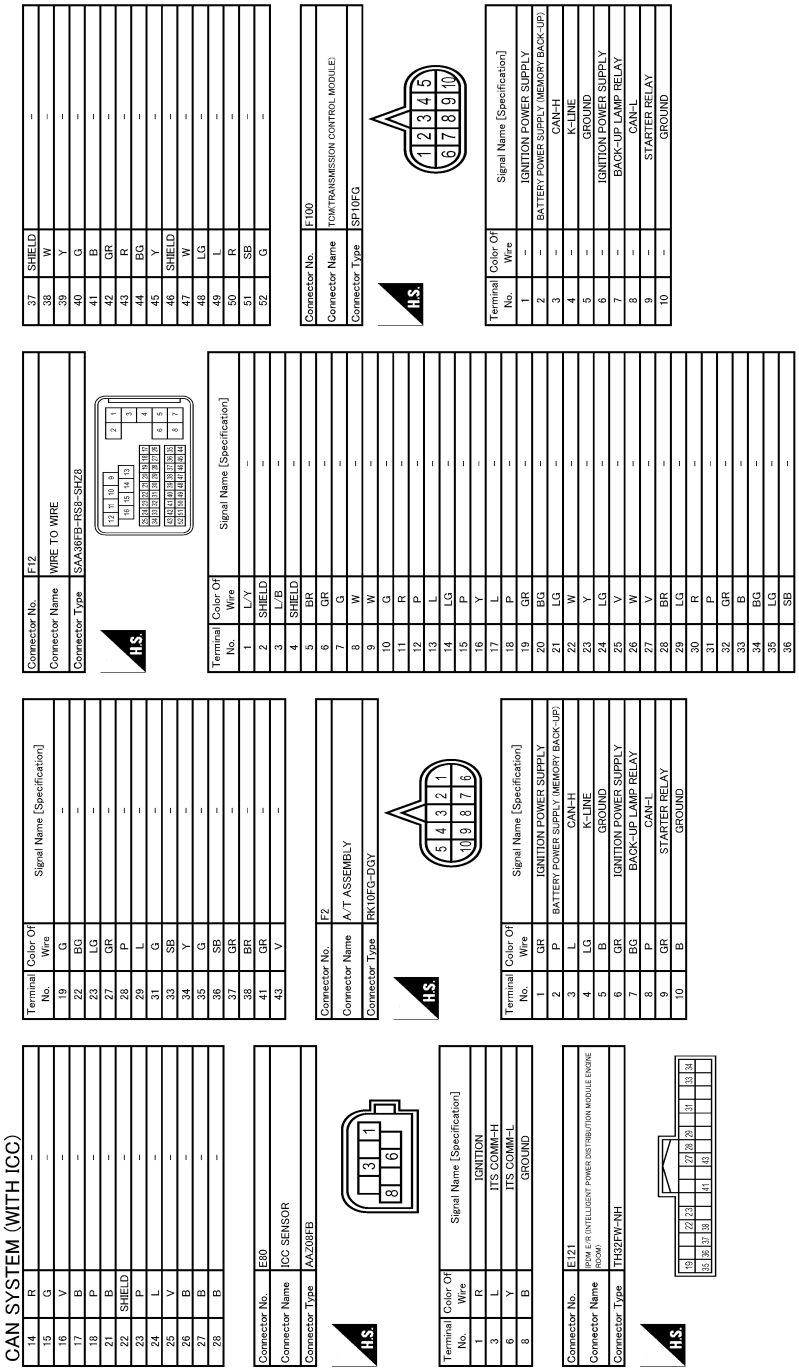
Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	–
3	LG	–
4	BR	–
6	V	–
7	L	–
10	BR	–
11	L	–
12	GR	–
13	W	–
14	B	–

15	SB	–
16	Y	–
17	BR	–
18	P	–
31	Y	–
32	GR	–
35	GR	–
36	R	–
37	V	–
38	L	–
39	Y	–
40	SB	–
41	LG	–
44	Y	–
45	W	–
46	B	–
47	G	–
48	SHIELD	–
49	R	–
50	BR	–
51	L	–
52	W	–
53	V	–
54	P	–
55	W	–
56	SB	–
57	BG	–
58	B	–
59	W	–
61	R	–
64	Y	–
65	SB	–
66	GR	–
67	LG	–
68	BG	–
71	LG	–
72	V	–
73	G	–
74	BR	–
75	V	–
78	P	–
79	SB	–
83	R	–
86	BG	–
91	G	–
92	Y	–
94	GR	–
95	BG	–
96	W	–
97	LG	–

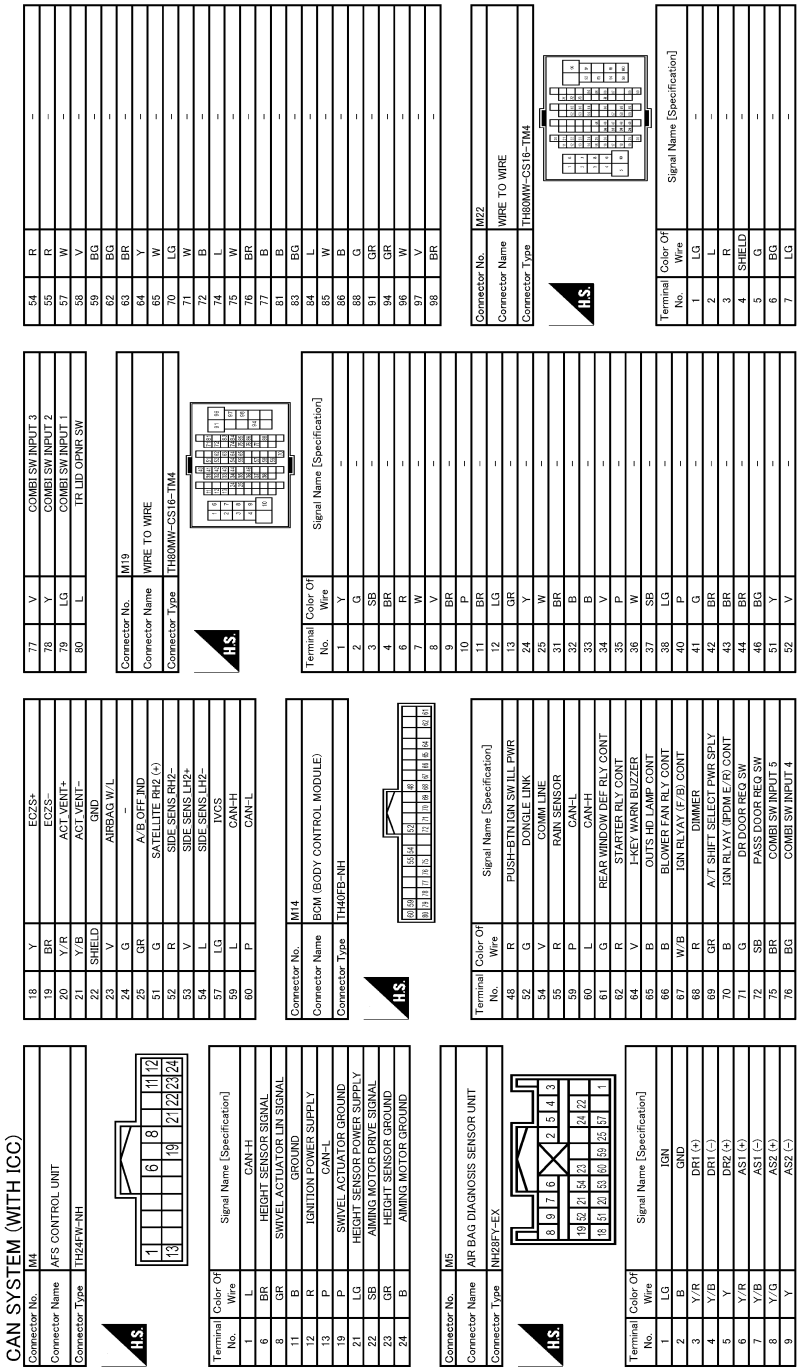
JRMWD9979GB



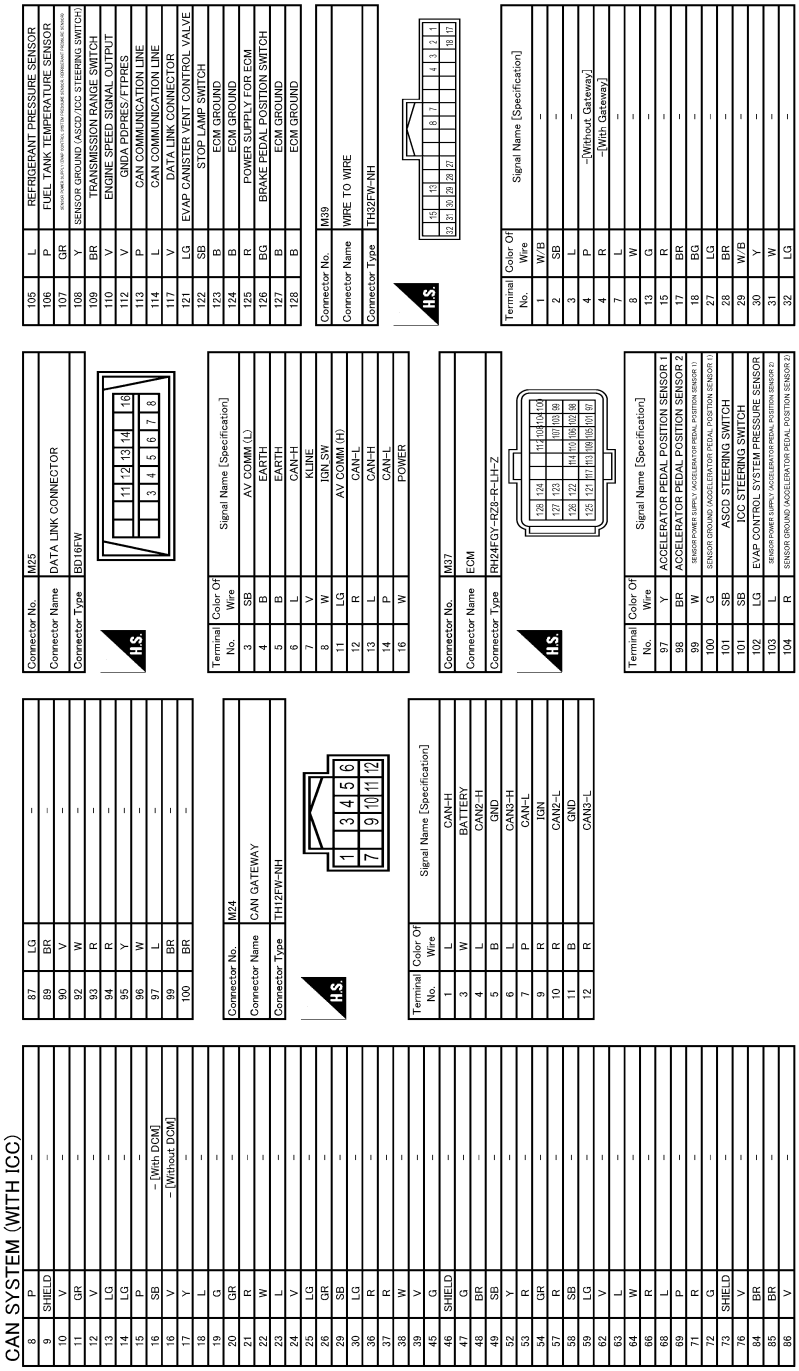
JRMWD9980GB



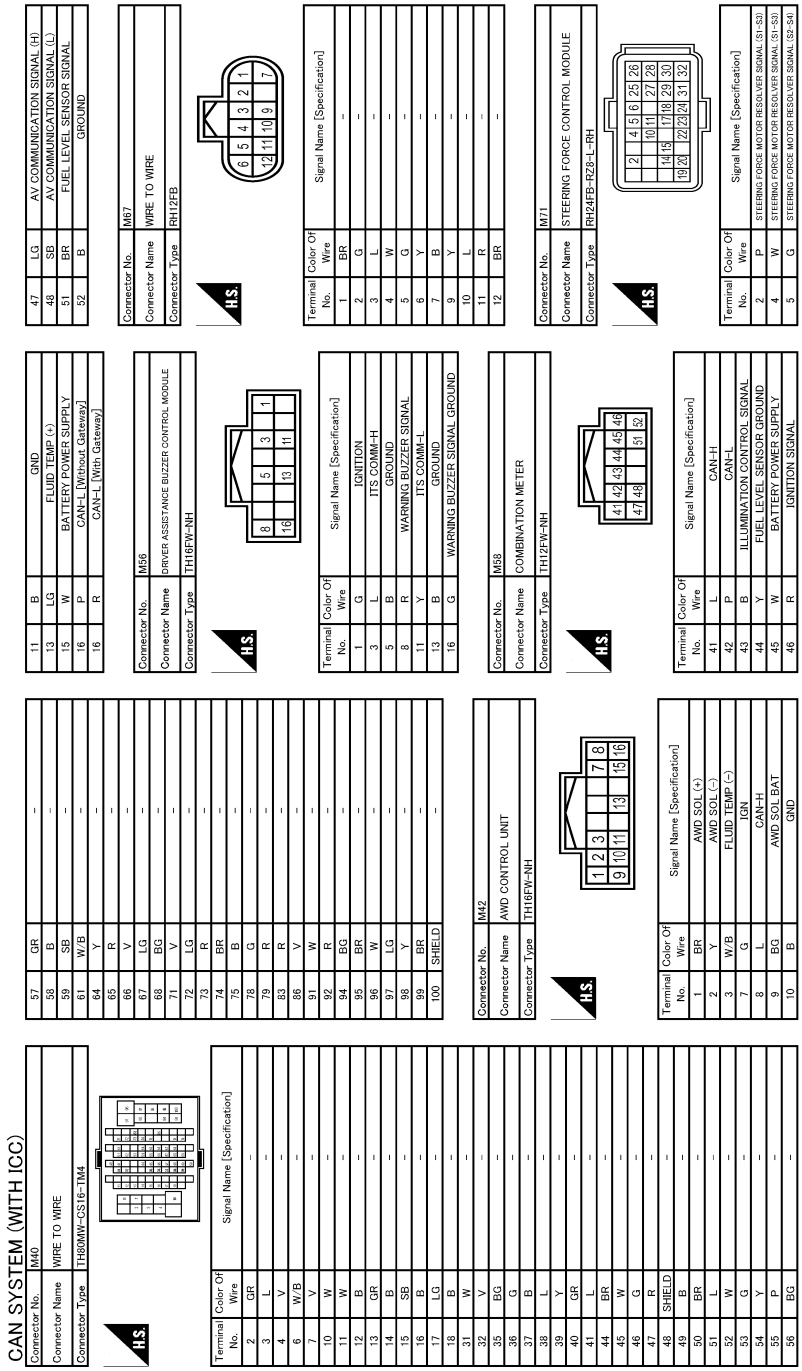
JRMWD9981GB



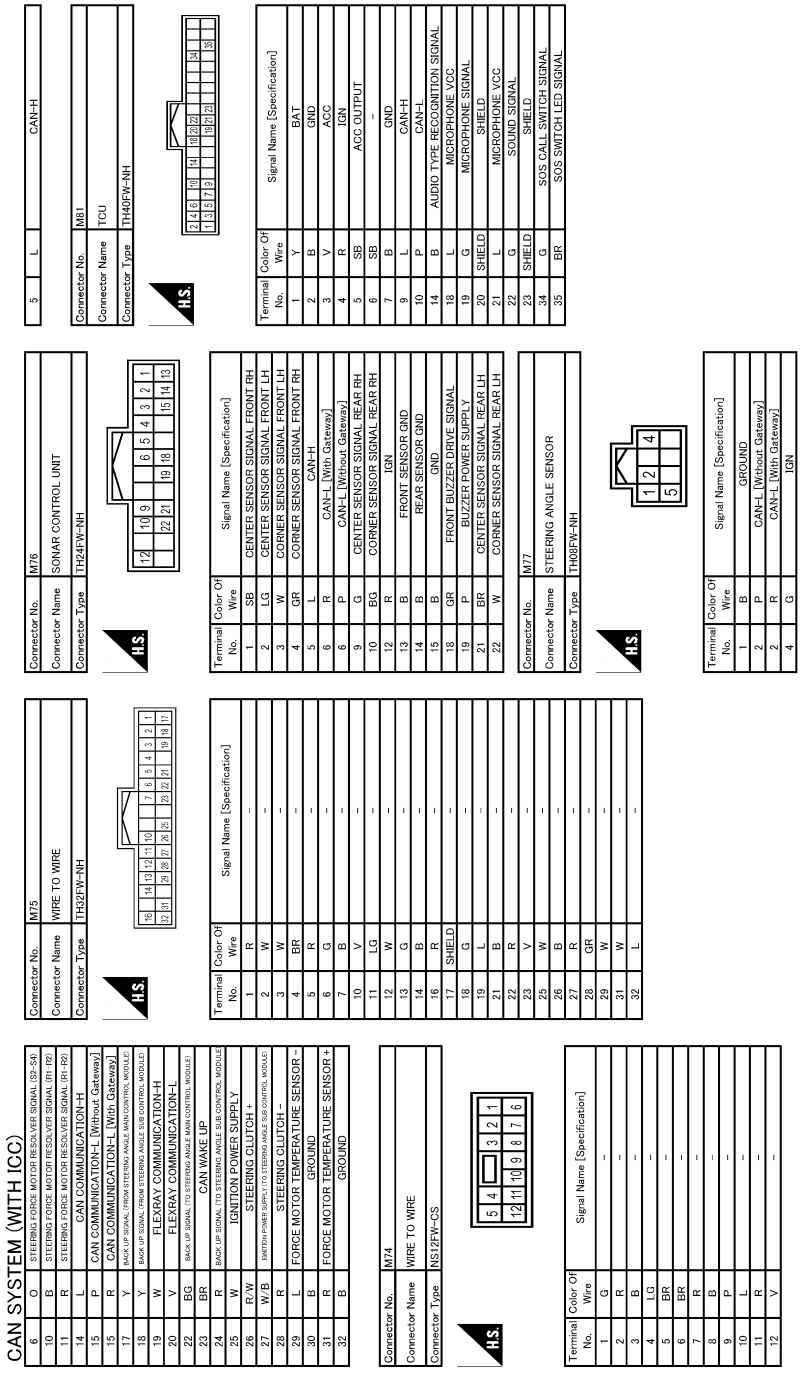
JRMWD9982GB

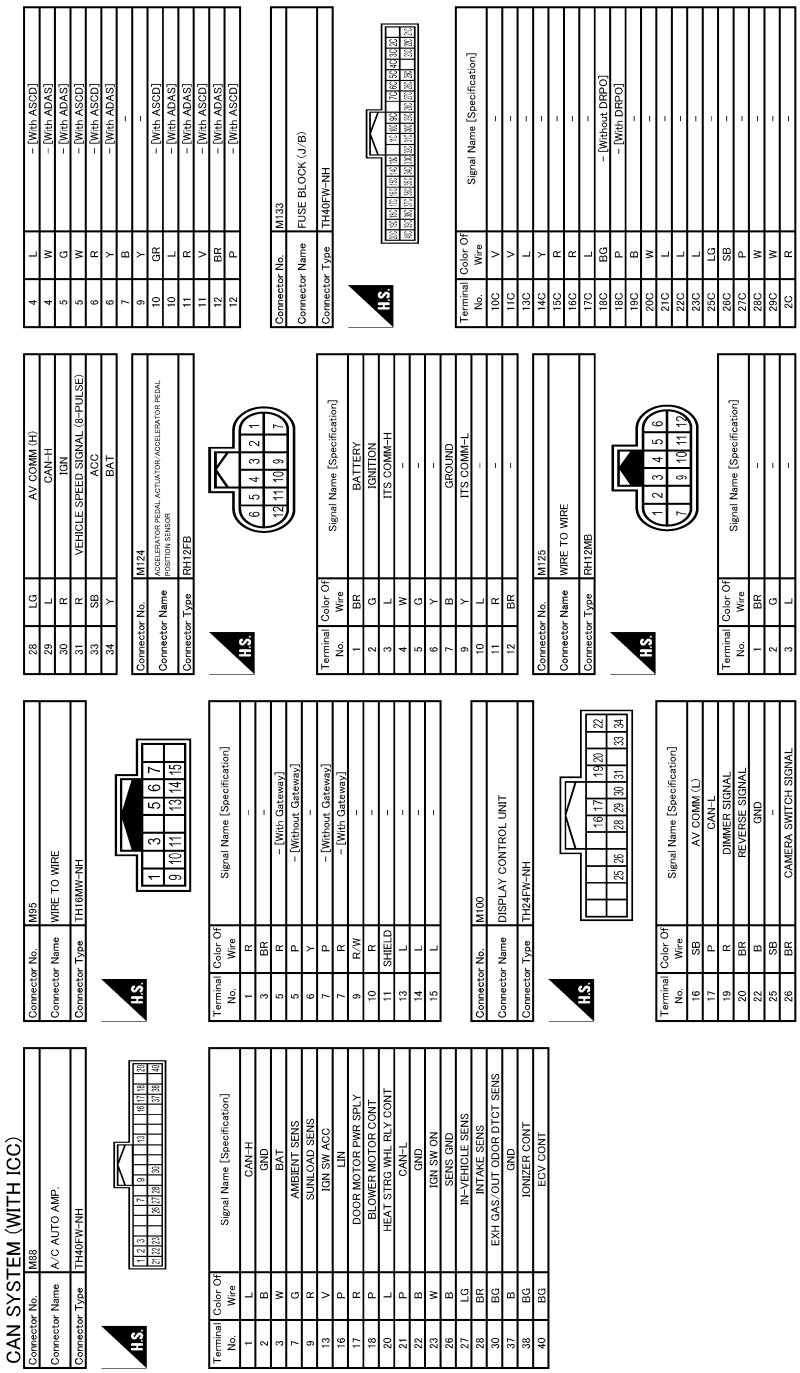


JRMWD9983GB

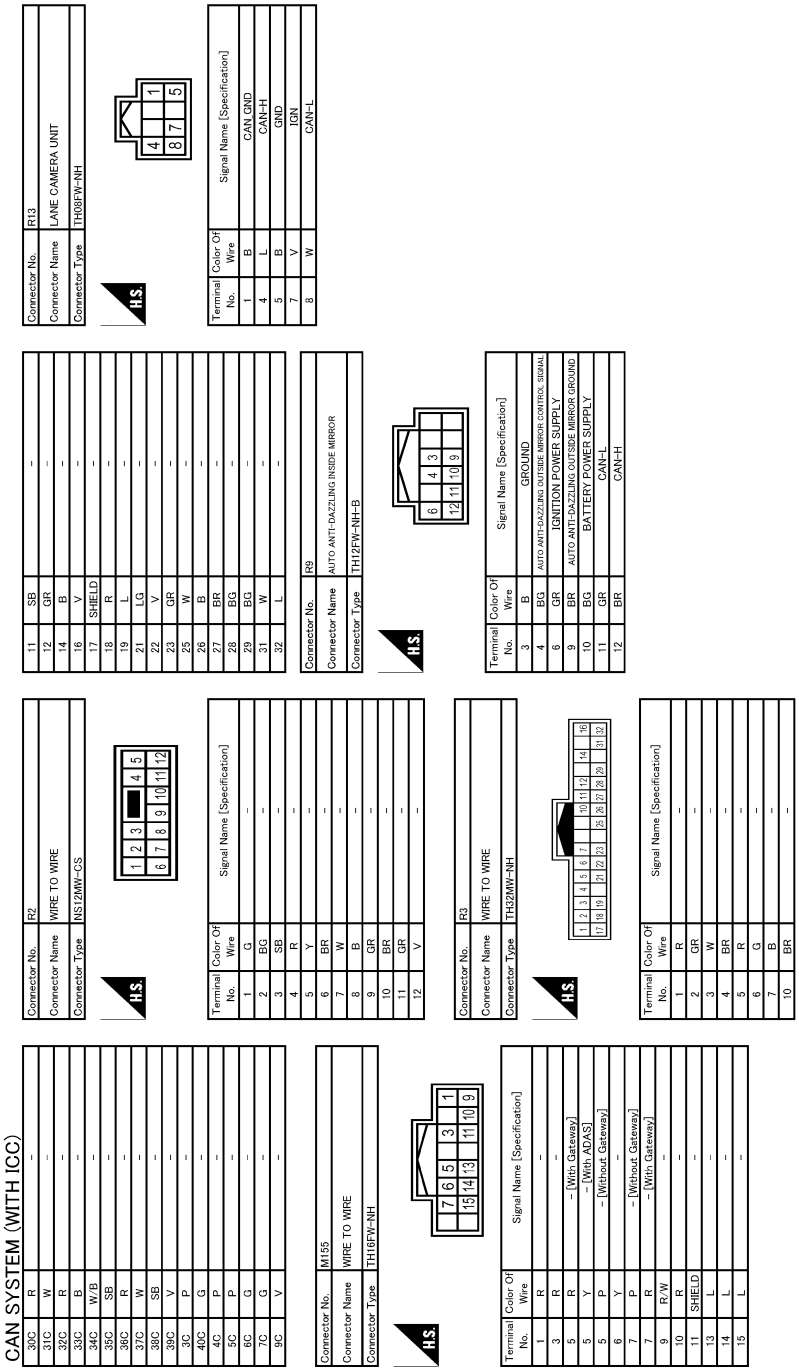


JRMWD9984GB


CAN SYSTEM (WITH ICC)
Connector No. M75
Connector Name WIRE TO WIRE
Connector Type TH32FW-NH
Connector No. M76
Connector Name SONAR CONTROL UNIT
Connector Type TH24FW-NH
Connector No. M74
Connector Name WIRE TO WIRE
Connector Type NS12FW-CS
Connector No. M77
Connector Name STEERING ANGLE SENSOR
Connector Type TH08FW-NH
Connector No. M81
Connector Name TCU
Connector Type TH40FW-NH
H.S.
JRMWD9985GB



JRMWD9986GB



JRMWD9987GB

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

INFOID:0000000009239068

CAN Communication System Diagnosis Interview Sheet

Date received:

Type: VIN No.:

Model:

First registration: Mileage:

CAN system type:

Symptom (Results from interview with customer)

Condition at inspection

Error symptom : Present / Past

SKIB8898E

DTC/CIRCUIT DIAGNOSIS

MALFUNCTION AREA CHART

CAN Communication Circuit

INFOID:0000000009239070

MAIN LINE

Malfunction area	Reference
Main line between data link connector and A/C auto amp.	LAN-93, "Diagnosis Procedure"
Main line between A/C auto amp. and display control unit	LAN-94, "Diagnosis Procedure"
Main line between ABS actuator and electric unit (control unit) and driver seat control unit	LAN-97, "Diagnosis Procedure"
Main line between driver seat control unit and around view monitor control unit	LAN-98, "Diagnosis Procedure"
Main line between around view monitor control unit and sonar control unit	LAN-99, "Diagnosis Procedure"
Main line between sonar control unit and data link connector	LAN-93, "Diagnosis Procedure"
Main line between driver seat control unit and ADAS control unit	LAN-102, "Diagnosis Procedure"
Main line between ADAS control unit and steering force control module	LAN-103, "Diagnosis Procedure"
Main line between steering force control module and data link connector	LAN-105, "Diagnosis Procedure"

BRANCH LINE

Malfunction area	Reference
ECM branch line circuit	LAN-110, "Diagnosis Procedure"
Data link connector	LAN-111, "Diagnosis Procedure"
Data link connector branch line circuit (CAN communication circuit 1)	LAN-112, "Diagnosis Procedure"
Data link connector branch line circuit (CAN communication circuit 2)	LAN-113, "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-114, "Diagnosis Procedure"
TCM branch line circuit	LAN-115, "Diagnosis Procedure"
CAN gateway branch line circuit (CAN communication circuit 1)	LAN-117, "Diagnosis Procedure"
CAN gateway branch line circuit (CAN communication circuit 2)	LAN-118, "Diagnosis Procedure"
A/C auto amp. branch line circuit	LAN-119, "Diagnosis Procedure"
Combination meter branch line circuit	LAN-120, "Diagnosis Procedure"
Air bag diagnosis sensor unit branch line circuit	LAN-121, "Diagnosis Procedure"
AFS control unit branch line circuit	LAN-122, "Diagnosis Procedure"
Display control unit branch line circuit	LAN-123, "Diagnosis Procedure"
High beam assist control module branch line circuit	LAN-124, "Diagnosis Procedure"
TCU branch line circuit	LAN-125, "Diagnosis Procedure"
BCM branch line circuit	LAN-126, "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-127, "Diagnosis Procedure"
Driver seat control unit branch line circuit	LAN-129, "Diagnosis Procedure"
Pre-crash seat belt control unit (driver side) branch line circuit	LAN-131, "Diagnosis Procedure"
ADAS control unit branch line circuit (CAN communication circuit 2)	LAN-132, "Diagnosis Procedure"
Steering force control module branch line circuit	LAN-134, "Diagnosis Procedure"
AWD control unit branch line circuit	LAN-135, "Diagnosis Procedure"
Chassis control module branch line circuit	LAN-136, "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-137, "Diagnosis Procedure"

SHORT CIRCUIT

Malfunction area	Reference
CAN communication circuit	LAN-147, "Diagnosis Procedure"
CAN communication circuit 1	LAN-149, "Diagnosis Procedure"
CAN communication circuit 2	LAN-151, "Diagnosis Procedure"

ITS Communication Circuit

INFOID:0000000009239071

MAIN LINE

Malfunction area	Reference
Main line between side radar LH and around view monitor control unit	LAN-106, "Diagnosis Procedure"
Main line between around view monitor control unit and sonar control unit	LAN-99, "Diagnosis Procedure"

BRANCH LINE

Malfunction area	Reference
Side radar LH branch line circuit	LAN-138, "Diagnosis Procedure"
Side radar RH branch line circuit	LAN-139, "Diagnosis Procedure"
Around view monitor control unit branch line circuit	LAN-140, "Diagnosis Procedure"
Accelerator pedal actuator branch line circuit	LAN-141, "Diagnosis Procedure"
Driver assistance buzzer control module	LAN-142, "Diagnosis Procedure"
Sonar control unit	LAN-144, "Diagnosis Procedure"
ICC sensor branch line circuit	LAN-143, "Diagnosis Procedure"

SHORT CIRCUIT OR OPEN CIRCUIT

Malfunction area	Reference
ITS communication circuit	LAN-155, "Diagnosis Procedure"

Chassis Communication Circuit

INFOID:0000000009755663

MAIN LINE

Malfunction area	Reference
Main line between steering angle main control module and lane camera unit	LAN-95, "Diagnosis Procedure"
Main line between steering angle main control module and ADAS control unit	LAN-107, "Diagnosis Procedure"
Main line between ADAS control unit and lane camera unit	LAN-109, "Diagnosis Procedure"

BRANCH LINE

Malfunction area	Reference
Steering angle main control module branch line circuit	LAN-145, "Diagnosis Procedure"
ADAS control unit branch line circuit (Chassis communication circuit)	LAN-133, "Diagnosis Procedure"
Lane camera unit branch line circuit	LAN-117, "Diagnosis Procedure"

SHORT CIRCUIT

Malfunction area	Reference
Chassis communication circuit	LAN-153, "Diagnosis Procedure"

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009239078

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009239082

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN DAST 1 AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009719311

1.CHECK CONNECTOR

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

- Harness connector M19
- Harness connector B18
- Harness connector M40
- Harness connector E25

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the harness connectors.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module and the harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M19 and B18.
2. Check the continuity between the harness connectors M40 and M19.

Side radar LH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M40 and M19.

4.CHECK CONNECTOR

Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B18	74	84	Existed
	75	85	Existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the main line between the harness connector B18.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and the lane camera unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009755672

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009719612

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B600 and B12
- Harness connectors B37 and B72

2. Check the continuity between the harness connector terminals.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B37	4	Existed
	17		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B50	27	Existed
	3		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the around view monitor control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009719613

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN SONAR AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000009719614

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- CAN gateway
- Harness connectors M155 and M95
4. Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M95	15	M25	13	Existed
	7		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the sonar control unit and the data link connector.
NO >> Repair the main line between the sonar control unit and data link connector.

MAIN LINE BETWEEN ADP AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009719615

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- CAN gateway
- Harness connectors B600 and B12
- ADAS control unit

4. Check the continuity between the harness connector and the ADAS control unit harness connector.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B1	1	Existed
	17		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND EPS/DAST 3 CIRCUIT

Diagnosis Procedure

INFOID:0000000009719617

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72
- Harness connector B62
- Harness connector M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B37 and B72

2. Check the continuity between the ADAS control unit harness connector and the harness connector.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	1	B37	4	Existed
	2		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B62 and M22.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B62	63	Existed
	3		53	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of steering force control module.
2. Check the continuity between the harness connector and the steering force control module.

Harness connector		Steering force control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M71	14	Existed
	53		15	Existed

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the steering force control module.
NO >> Repair the main line between the harness connector M22 and the steering force control module.

MAIN LINE BETWEEN EPS/DAST 3 AND STRG CIRCUIT

Diagnosis Procedure

INFOID:0000000009719795

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following harness connectors.

- CAN gateway
- Steering force control module

4. Check the continuity between the steering force control module harness connector and the data link connector.

Steering force control module harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M71	14	M25	13	Existed
	15		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering force control module and the data link connector.
NO >> Repair the main line between the steering force control module and the data link connector.

MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009719796

1.CHECK CONNECTOR

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

- Harness connector B3
- Harness connector B52

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B87 and B8
- Harness connectors B3 and B52

2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B87	6	B3	1	Existed
	5		9	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B52	1	B50	27	Existed
	9		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN DAST 1 AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009720262

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E25
- Harness connectors M40
- Harness connector M19
- Harness connectors B18
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the steering angle main control module harness connector and harness connector.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module harness connector and harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M19 and B18.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between harness connectors M40 and M19.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the harness connector B18 and ADAS control unit harness connector.

Harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

B18	74	B1	8	Existed
	75		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720263

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connector B18
- Harness connector M19

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B18 and M19

2. Check the continuity between the harness connector terminals.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	8	B18	84	Existed
	9		85	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ADAS control unit and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239089

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720267

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009720268

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009720269

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239108

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720264

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009239091

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009239092

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239093

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239098

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239095

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AFS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239107

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

AFS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	1	13	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-128, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-181, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239097

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

HBA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720270

1.CHECK CONNECTOR

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

- Auto anti- dazzling inside mirror (High beam assist control module)
- Harness connector R2
- Harness connector M74

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto anti - dazzling inside mirror (High beam assist control module).
2. Check the resistance between the auto anti - dazzling inside mirror (High beam assist control module) harness connector terminals.

Auto anti - dazzling inside mirror (High beam assist control module) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R9	12	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the anti - dazzling inside mirror (High beam assist control module) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the anti - dazzling inside mirror (High beam assist control module). Refer to EXL-128, "HIGH BEAM ASSIST CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the inside mirror. Refer to MIR-45, "Removal and Installation" (With automatic drive positioner system) or MIR-80, "Removal and Installation" (Without automatic drive positioner system).
YES (Past error)>>Error was detected in the anti - dazzling inside mirror (High beam assist control module) branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239096

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239102

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239106

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239109

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

PSB BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239111

1.CHECK CONNECTOR

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

- CAN gateway
- Pre-crash seat belt control unit (driver side)

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

Pre-crash seat belt control unit (driver side) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B19	14	4	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-62, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SBC-76, "Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009239110

1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CHASSIS COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009730064

1.CHECK CONNECTOR

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

- ADAS control unit
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	8	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line circuit (chassis communication circuit side).
NO >> Repair the power supply and the ground circuit.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720466

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239104

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009797489

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239103

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239112

1.CHECK CONNECTOR

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

- Side radar LH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B92	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-359, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

RDR-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239113

1.CHECK CONNECTOR

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

- Side radar RH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B93	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar RH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-360, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720502

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

APA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239114

1.CHECK CONNECTOR

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

- Accelerator pedal actuator / accelerator pedal position sensor
- Harness connector M125
- Harness connector M67

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator / accelerator pedal position sensor.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

Accelerator pedal actuator / accelerator pedal position sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M124	3	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the accelerator pedal actuator branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator / accelerator pedal position sensor. Refer to DAS-359, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

BSW/BUZZER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720553

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the drive assistance buzzer control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of drive assistance buzzer control module.
2. Check the resistance between the drive assistance buzzer control module harness connector terminals.

Drive assistance buzzer control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	3	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the drive assistance buzzer control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the drive assistance buzzer control module. Refer to DAS-361, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the drive assistance buzzer control module. Refer to DAS-389, "Removal and Installation".
YES (Past error)>>Error was detected in the drive assistance buzzer control module branch line.
NO >> Repair the power supply and the ground circuit.

LASER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239116

1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E76
- Harness connector E14
- Harness connector E25
- Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

ICC sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E80	3	6	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ICC sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-118, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-135, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720554

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009720555

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

LANE BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009239115

1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R13
- Harness connector M75
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of lane camera unit.
3. Check the resistance between the lane camera unit harness connector terminals.

Lane camera unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R13	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the lane camera unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-610, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-620, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009239117

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009239118

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009239119

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6. CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009239120

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

ITS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009720810

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1, CAN communication circuit 2 and ITS communication circuit have no malfunction.

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and CAN communication circuit 2.

2.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

ADAS control unit harness connector		ICC sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	6	E80	3	Existed
	7		6	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the harness between the ADAS control unit and the ICC sensor.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Around view monitor control unit
- Accelerator pedal actuator / accelerator pedal position sensor
- Driver assistance buzzer control module
- Sonar control unit
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
B1	6	7	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

ADAS control unit harness connector		Ground	Continuity
Connector No.	Terminal No.		
B1	6		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
6	7	Approx. 108 – 132

3. Check the resistance between the ICC sensor terminals.

ICC sensor		Resistance (Ω)
Terminal No.		
3	6	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.
   NOTE:
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

PRECAUTION

PRECAUTIONS

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

INFOID:0000000009755511

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. 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 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 AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision that would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **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 “SRS AIR BAG”.**
- **Never use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**

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

WARNING:

Always observe the following items for preventing accidental activation.

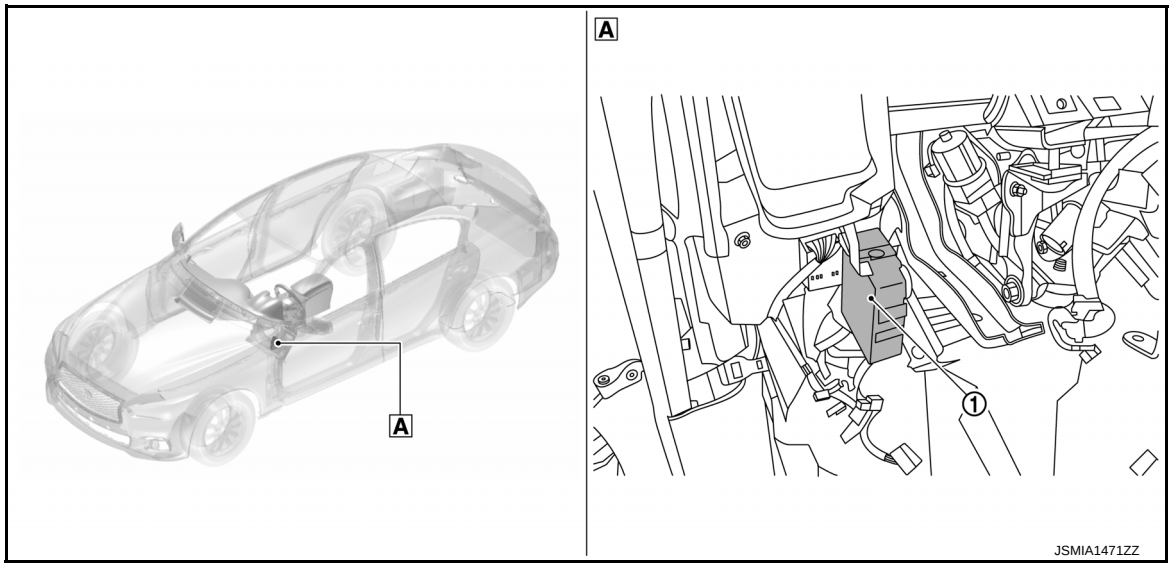
- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, never use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000009755485



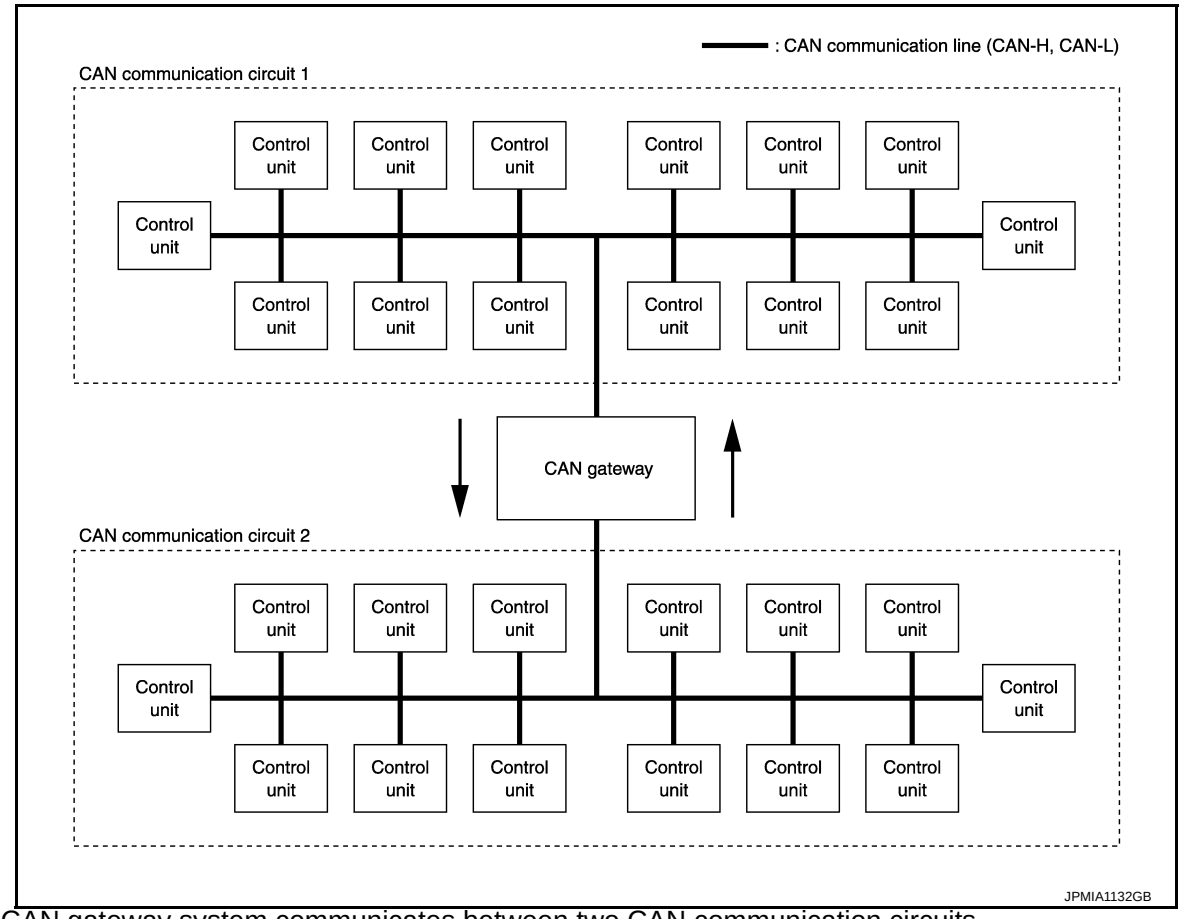
① CAN gateway

Ⓐ Over the instrument lower panel

SYSTEM

System Description

INFOID:0000000009755486



- The CAN gateway system communicates between two CAN communication circuits.
- This system selects and transmits only necessary information.

DIAGNOSIS SYSTEM (CAN GATEWAY)

CONSULT Function

INFOID:0000000009755487

APPLICATION ITEM

CONSULT performs the following functions via CAN communication with CAN gateway.

Diagnosis mode	Function Description
Self Diagnostic Result	Displays the diagnosis results judged by CAN gateway.
CAN Diag Support Monitor	The results of transmit/receive diagnosis of CAN communication can be read.
ECU Identification	The CAN gateway part number is displayed.
Configuration	• Read and save the vehicle specification. • Write the vehicle specification when replacing CAN gateway.

SELF DIAGNOSTIC RESULT

Refer to LAN-162, "DTC Index".

- When “CRNT” is displayed on “Self Diagnostic Result”
- The system is presently malfunctioning.
- When “PAST” is displayed on “Self Diagnostic Result”
- System malfunction in the past is detected, but the system is presently normal.

Freeze Frame Data (FFD)

When DTC is detected, a vehicle state shown below is recorded and displayed on CONSULT.

Item name	Display item
IGN COUNTER (0 – 39)	The number of times that ignition switch is turned ON after the DTC is detected is displayed. • When “0” is displayed: It indicates that the system is presently malfunctioning. • When except “0” is displayed: It indicates that system malfunction in the past is detected, but the system is presently normal. **NOTE:** Each time when ignition switch is turned OFF to ON, numerical number increases in 1 → 2 → 3...38 → 39. When the operation number of times exceeds 39, the number do not increase and “39” is displayed until self-diagnosis result is erased.

CAN DIAG SUPPORT MONITOR

The results of transmit/receive diagnosis of CAN communication can be read.

ECU IDENTIFICATION

The part number of CAN gateway is displayed.

CONFIGURATION

Configuration includes functions as follows.

Function		Description
Read / Write Configuration	Before Replace ECU	• Reads the vehicle configuration of current CAN gateway. • Saves the read vehicle configuration.
	After Replace ECU	Writes the vehicle configuration with saved data.
Manual Configuration		Writes the vehicle configuration with manual selection.

CAUTION:

Follow the instructions listed below. Failure to do this may cause malfunctions to the CAN gateway.:

- **When replacing CAN gateway, you must perform “Read / Write Configuration” or “Manual Configuration” with CONSULT.**
- **Complete the procedure of “Read / Write Configuration” or “Manual Configuration” in order.**
- **If you set incorrect “Read / Write Configuration” or “Manual Configuration”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **Never perform “Read / Write Configuration” or “Manual Configuration” except for new CAN gateway.**

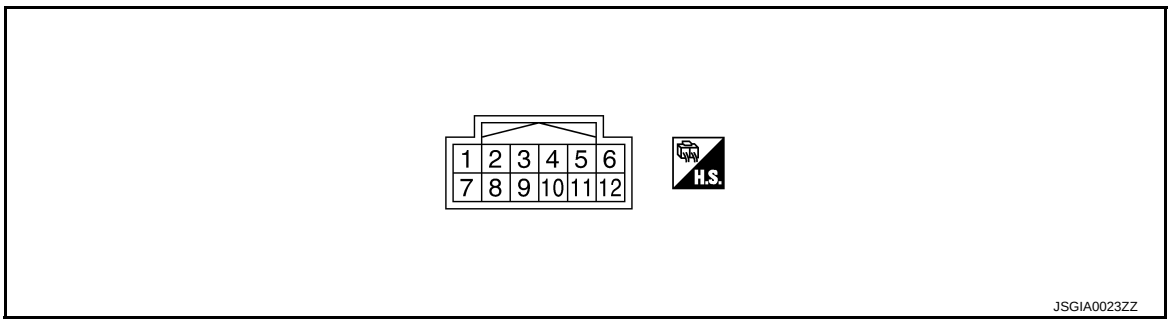
ECU DIAGNOSIS INFORMATION

CAN GATEWAY

Reference Value

INFOID:0000000009755488

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition	Standard	Reference value
+	–	Signal name	Input/ Output			
1 (L)	—	CAN-H (CAN communication circuit 1)	Input/ Output	—	—	—
3 (W)	5 (B) 11 (B)	Battery power supply	Input	Ignition switch OFF	6 – 16 V	Battery voltage
4 (L)	—	CAN-H (CAN communication circuit 2)	Input/ Output	—	—	—
6 (L)	—	CAN-H (CAN communication circuit 2)	Input/ Output	—	—	—
7 (P)	—	CAN-L (CAN communication circuit 1)	Input/ Output	—	—	—
9 (R)	5 (B) 11 (B)	Ignition power supply	Input	Ignition switch ON	4.5 – 16 V	Battery voltage
10 (R)	—	CAN-L (CAN communication circuit 2)	Input/ Output	—	—	—
12 (R)	—	CAN-L (CAN communication circuit 2)	Input/ Output	—	—	—

DTC Inspection Priority Chart

INFOID:0000000009755489

If some DTCs are displayed at the same time, perform inspections one by one based on the following priority chart.

Priority	DTC
1	• B2600: CONFIG ERROR • U1010: CONTROL UNIT(CAN)
2	U1000: CAN COMM CIRCUIT

DTC Index

INFOID:0000000009755490

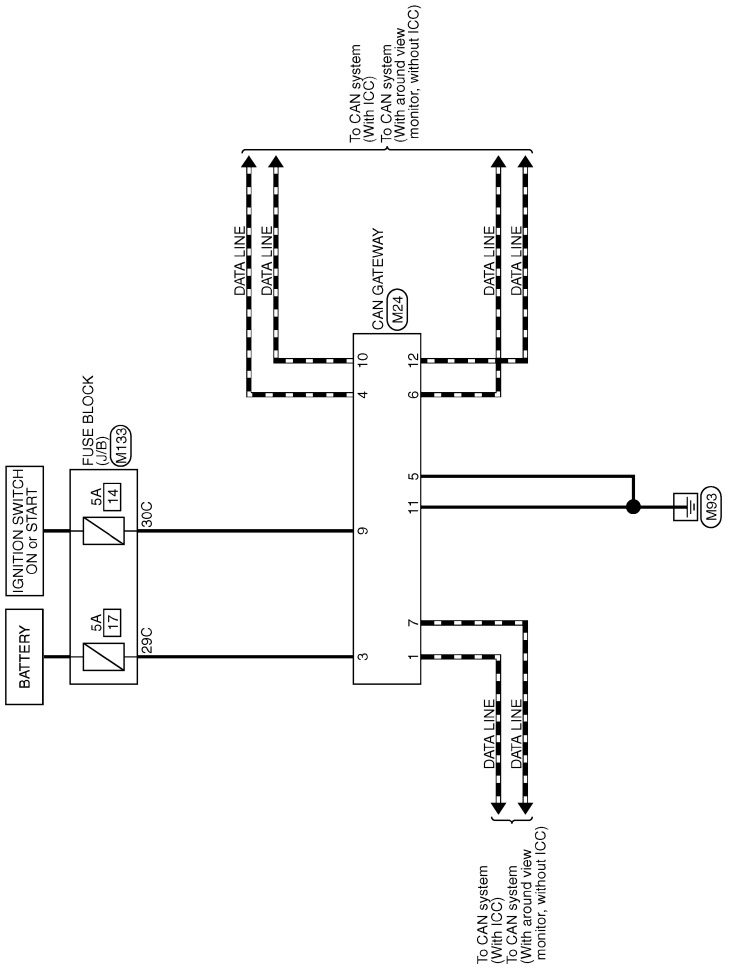
DTC	CONSULT display		Reference
—	No DTC is detected. Further testing may be required.		—
U1000	CAN COMM CIRCUIT		LAN-167, "DTC Description"
U1010	CONTROL UNIT(CAN)		LAN-168, "DTC Description"
B2600	CONFIG ERROR	WRONG DATA	LAN-169, "DTC Description"
		NOT CONFIGURED	

WIRING DIAGRAM

CAN GATEWAY SYSTEM

Wiring Diagram

INFOID:0000000009755491



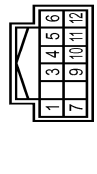
CAN GATEWAY SYSTEM

2013/05/17

JRMWD9988GB

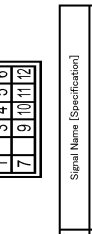
CAN GATEWAY SYSTEM

Connector No.	M24
Connector Name	CAN GATEWAY
Connector Type	TH12FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	CAN-H
3	W	BATTERY
4	L	CAN2-H
5	B	GND
6	L	CAN3-H
7	P	CAN-L
9	R	IGN
10	R	CAN2-L
11	B	GND
12	R	CAN3-L

Connector No.	M133
Connector Name	FUSE BLOCK (J/B)
Connector Type	TH40FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
10C	V	-
11C	V	-
13C	L	-
14C	Y	-
15C	R	-
16C	R	-
17C	L	-
18C	BG	– [Without DRPO]
18C	P	– [With DRPO]

19C	B
20C	W
21C	L
22C	L
23C	L
25C	LG
26C	SB
27C	P
28C	W
29C	W
2C	R
30C	R
31C	W
32C	R
33C	B
34C	W/B
35C	SB
36C	R
37C	W
38C	SB
39C	V
3C	P
40C	G
4C	P
5C	P
6C	G
7C	G
9C	V

JRMWD9989GB

BASIC INSPECTION

ADDITIONAL SERVICE WHEN REPLACING CAN GATEWAY

Description

INFOID:0000000009755492

BEFORE REPLACEMENT

When replacing CAN gateway, save or print current vehicle specification with CONSULT configuration before replacement.

NOTE:

If “Before Replace ECU” of “Read / Write Configuration” can not be used, use the “Manual Configuration” after replacing CAN gateway.

AFTER REPLACEMENT

CAUTION:

Follow the instructions listed below. Failure to do this may cause malfunctions to the CAN gateway.:

- **When replacing CAN gateway, you must perform “Read / Write Configuration” or “Manual Configuration” with CONSULT.**
- **Complete the procedure of “Read / Write Configuration” or “Manual Configuration” in order.**
- **If you set incorrect “Read / Write Configuration” or “Manual Configuration”, incidents might occur.**
- **Configuration is different for each vehicle model. Confirm configuration of each vehicle model.**
- **Never perform “Read / Write Configuration” or “Manual Configuration” except for new CAN gateway.**

Work Procedure

INFOID:0000000009755493

1. SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification.

NOTE:

If “Before Replace ECU” of “Read / Write Configuration” can not be used, use the “Manual Configuration” after replacing CAN gateway.

>> GO TO 2.

2. REPLACE CAN GATEWAY

Replace CAN gateway. Refer to LAN-172, "Removal and Installation".

>> GO TO 3.

3. WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “After Replace ECU” of “Read / Write Configuration” or “Manual Configuration” to write vehicle specification. Refer to LAN-166, "Work Procedure".

>> WORK END

CONFIGURATION (CAN GATEWAY)

Work Procedure

INFOID:0000000009755494

1.WRITING MODE SELECTION

CONSULT Configuration
Select “Re/programming, Configuration” of CAN gateway.

When writing saved data>>GO TO 2.
When writing manually>>GO TO 3.

2.PERFORM “AFTER REPLACE ECU” OF “READ / WRITE CONFIGURATION”

CONSULT Configuration
Perform “After Replace ECU” of “Read / Write Configuration”.

>> GO TO 4.

3.PERFORM “MANUAL CONFIGURATION”

CONSULT Configuration
1. Select “Manual Configuration”.
2. Identify the correct model and configuration list. Refer to LAN-166, "Configuration List"
   NOTE:
   If items are not displayed, go to step 4.
3. Confirm and/or change setting value for each item.
4. Touch “Next”.
5. Touch “OK”.
   NOTE:
   Make sure to select “OK” even if the indicated configuration of brand new CAN gateway is same as the desirable configuration. If not, configuration which is set automatically by selecting vehicle model can not be memorized.
6. Check that the configuration has been successfully written and touch “End”.

>> GO TO 4.

4.CHECK ALL ECU SELF-DIAGNOSIS RESULTS

1. Erase all ECU self-diagnosis results using CONSULT.
2. Turn the ignition switch OFF.
3. Turn the ignition switch ON and wait for 2 seconds or more.
4. Check that all ECU self-diagnosis results have no DTC (e.g. U1000 and U1001) of CAN communication.

>> WORK END

Configuration List

INFOID:0000000009790566

CAUTION:
Check vehicle specifications before servicing.

MANUAL SETTING ITEM		NOTE
Items	Setting value	
ENGINE TYPE	TYPE 1 ⇔ TYPE 2	• TYPE 1: VQ37VHR engine models • TYPE 2: OM651 engine models
ADP or PSB	WITHOUT ⇔ WITH	• WITHOUT: Without automatic drive positioner and pre-crash seat belt system • WITH: With automatic drive positioner or pre-crash seat belt system

⇔: Items which confirm vehicle specifications.

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Description

INFOID:0000000009755495

DESCRIPTION

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-44, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC DETECTION LOGIC

DTC	Trouble diagnosis (Trouble diagnosis contents)	Detecting condition
U1000	CAN COMM CIRCUIT (CAN communication circuit)	When CAN gateway cannot communicate CAN communication signal continuously for 2 seconds or more.

POSSIBLE CAUSE

CAN communication system

FAIL-SAFE

Only the CAN signal transmission of control unit which cannot communicate cannot be transmitted

DTC CONFIRMATION PROCEDURE

1. PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select “Self Diagnostic Result” mode of “CAN GATEWAY” using CONSULT.
3. Check DTC.

Is DTC U1000 detected?

YES >> Proceed to LAN-167, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: GI-43, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009755496

1. PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to LAN-167, "DTC Description".
4. Check DTC.

Is DTC U1000 displayed?

YES >> Perform trouble diagnosis procedure for CAN communication system. Refer to LAN-26, "Trouble Diagnosis Flow Chart".
NO >> INSPECTION END

U1010 CONTROL UNIT (CAN)

DTC Description

INFOID:0000000009755497

DESCRIPTION

CAN (Controller Area Network) is a serial communication line for real-time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independently). In CAN communication, control units are connected with 2 communication lines (CAN-H, CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-44, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC DETECTION LOGIC

DTC	Trouble diagnosis (Trouble diagnosis contents)	Detecting condition
U1010	CONTROL UNIT (CAN) [Control unit (CAN)]	When an error is detected during the initial diagnosis for CAN controller of CAN gateway.

POSSIBLE CAUSE

CAN gateway

FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT
1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select “Self Diagnostic Result” mode of “CAN GATEWAY” using CONSULT.
3. Check DTC.

Is DTC U1010 detected?

YES >> Proceed to LAN-168, "Diagnosis Procedure".
NO-1 >> To check malfunction symptom before repair: GI-43, "Intermittent Incident".
NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:0000000009755498

1.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to LAN-168, "DTC Description".
4. Check DTC.

Is DTC U1010 displayed?

YES >> Replace CAN gateway. Refer to LAN-172, "Removal and Installation".
NO >> INSPECTION END

B2600 CONFIG ERROR

DTC Description

INFOID:0000000009755499

DTC DETECTION LOGIC

DTC	Trouble diagnosis (Trouble diagnosis contents)		Detecting condition
B2600	CONFIG ERROR (Configuration error)	WRONG DATA (Wrong data)	When errors are detected in the configuration data stored in the CAN gateway.
		NOT CONFIGURED (Not configured)	When no data are stored in the CAN gateway.

POSSIBLE CAUSE

CAN gateway

FAIL-SAFE

Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

1. Turn ignition switch ON and wait at least 2 seconds or more.
2. Select “Self Diagnostic Result” mode of “CAN GATEWAY” using CONSULT.
3. Check DTC.

Is DTC B2600 detected?

YES-1 (“CONFIG ERROR WRONG DATA” is detected.)>>Proceed to LAN-169, "WRONG DATA : Diagnosis Procedure".

YES-2 (“CONFIG ERROR NOT CONFIGURED” is detected.)>>Proceed to LAN-169, "NOT CONFIGURED : Diagnosis Procedure".

NO-1 >> To check malfunction symptom before repair: GI-43, "Intermittent Incident".

NO-2 >> Confirmation after repair: INSPECTION END

WRONG DATA

WRONG DATA : Diagnosis Procedure

INFOID:0000000009755500

1.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.
2. Erase DTC.
3. Perform DTC confirmation procedure again. Refer to LAN-169, "DTC Description".
4. Check DTC.

Is DTC B2600 displayed?

YES >> Replace CAN gateway. Refer to LAN-172, "Removal and Installation".

NO >> INSPECTION END

NOT CONFIGURED

NOT CONFIGURED : Diagnosis Procedure

INFOID:0000000009755501

1.PERFORM CONFIGURATION OF CAN GATEWAY

Perform CAN gateway Configuration. Refer to LAN-166, "Work Procedure".

>> GO TO 2.

2.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

1. Turn ignition switch ON.

2. Perform DTC confirmation procedure again. Refer to LAN-169, "DTC Description".
3. Check DTC.

Is DTC B2600 displayed?

YES >> Replace CAN gateway. Refer to LAN-172, "Removal and Installation".
NO >> INSPECTION END

POWER SUPPLY AND GROUND CIRCUIT

Diagnosis Procedure

INFOID:0000000009755502

1.CHECK FUSE

Check that the following fuse are not blown.

Signal name	Fuse No.
Battery power supply	17
Ignition power supply	14

Is the fuse fusing?

YES >> Replace the blown fuse after repairing the affected circuit if a fuse is blown.
NO >> GO TO 2.

2.CHECK POWER SUPPLY CIRCUIT

1. Turn the ignition switch OFF.
2. Disconnect the connector of CAN gateway.
3. Check voltage between CAN gateway harness connector and ground.

Terminals			Condition	Voltage (Standard)	Voltage (Reference value)
(+)		(–)			
CAN gateway		Ground	Ignition switch		
Connector	Terminal				
M24	3		OFF	6 – 16 V	Battery voltage
	9		ON	4.5 – 16 V	Battery voltage

Is the measurement value normal?

YES >> GO TO 3.
NO >> Repair harness or connector.

3.CHECK GROUND CIRCUIT

Check continuity between CAN gateway harness connector and ground.

CAN gateway		Ground	Continuity
Connector	Terminal		
M24	5		Existed
	11		

Does continuity exist?

YES >> INSPECTION END
NO >> Repair harness or connector.

REMOVAL AND INSTALLATION

CAN GATEWAY

Removal and Installation

INFOID:0000000009755503

NOTE:
Before replacing CAN gateway, perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification. Refer to LAN-165, "Description".

REMOVAL

1. Remove instrument lower panel LH. Refer to IP-12, "Removal and Installation".
2. Disconnect CAN gateway connector.
3. Remove mounting screw to remove CAN gateway.

INSTALLATION

Install in the reverse order of removal.

CAUTION:
To prevent malfunction, be sure to perform “After Replace ECU” of “Read / Write Configuration” or “Manual Configuration” when replacing CAN gateway. Refer to LAN-165, "Description".

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789037

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789040

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789042

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789043

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789044

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789045

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789046

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789047

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789048

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789049

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789051

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789052

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798677

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789056

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790833

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789094

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789095

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789097

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789098

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789099

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789100

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789101

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789102

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789103

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789104

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789111

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789112

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789113

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798678

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789124

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790834

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789125

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789126

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789128

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789129

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789130

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789131

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789132

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789133

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789134

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789138

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789139

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789140

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789142

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798679

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789144

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789146

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790742

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790743

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789147

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789148

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789151

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789152

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789153

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789154

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789155

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789156

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789157

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789158

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789161

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789162

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789163

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789164

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798681

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789166

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789167

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789168

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789169

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789171

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789172

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009789173

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009789174

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B600 and B12
- Harness connectors B37 and B72

2. Check the continuity between the harness connector terminals.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B37	4	Existed
	17		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B50	27	Existed
	3		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the around view monitor control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009789175

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN SONAR AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789176

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- CAN gateway
- Harness connectors M155 and M95
4. Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M95	15	M25	13	Existed
	7		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the sonar control unit and the data link connector.
NO >> Repair the main line between the sonar control unit and data link connector.

MAIN LINE BETWEEN DAST 1 AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009797486

1.CHECK CONNECTOR

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

- Harness connector M19
- Harness connector B18
- Harness connector M40
- Harness connector E25

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the harness connectors.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module and the harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M19 and B18.
2. Check the continuity between the harness connectors M40 and M19.

Side radar LH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M40 and M19.

4.CHECK CONNECTOR

Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B18	74	84	Existed
	75	85	Existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the main line between the harness connector B18.

5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and the lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789179

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009790745

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790746

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789182

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789183

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009789184

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790748

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789186

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789187

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789188

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789189

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789190

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789191

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789192

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789193

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789194

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798682

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789196

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789197

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789198

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789199

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009790749

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009790750

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789201

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789203

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789204

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- A/C auto amp.
- Display control unit
4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009789206

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789210

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- CAN gateway
- Harness connectors B600 and B12
- ADAS control unit
4. Check the continuity between the harness connector and the ADAS control unit harness connector.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B1	1	Existed
	17		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND EPS/DAST 3 CIRCUIT

Diagnosis Procedure

INFOID:0000000009789211

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72
- Harness connector B62
- Harness connector M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B37 and B72

2. Check the continuity between the ADAS control unit harness connector and the harness connector.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	1	B37	4	Existed
	2		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B62 and M22.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B62	63	Existed
	3		53	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of steering force control module.
2. Check the continuity between the harness connector and the steering force control module.

Harness connector		Steering force control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M71	14	Existed
	53		15	Existed

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the steering force control module.
NO >> Repair the main line between the harness connector M22 and the steering force control module.

MAIN LINE BETWEEN EPS/DAST 3 AND STRG CIRCUIT

Diagnosis Procedure

INFOID:0000000009789212

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following harness connectors.

- CAN gateway
- Steering force control module

4. Check the continuity between the steering force control module harness connector and the data link connector.

Steering force control module harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M71	14	M25	13	Existed
	15		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering force control module and the data link connector.
NO >> Repair the main line between the steering force control module and the data link connector.

MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009789213

1.CHECK CONNECTOR

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

- Harness connector B3
- Harness connector B52

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B87 and B8
- Harness connectors B3 and B52

2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B87	6	B3	1	Existed
	5		9	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B52	1	B50	27	Existed
	9		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009789208

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN DAST 1 AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789214

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E25
- Harness connectors M40
- Harness connector M19
- Harness connectors B18
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the steering angle main control module harness connector and harness connector.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module harness connector and harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M19 and B18.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between harness connectors M40 and M19.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the harness connector B18 and ADAS control unit harness connector.

Harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

B18	74	B1	8	Existed
	75		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789215

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connector B18
- Harness connector M19

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B18 and M19

2. Check the continuity between the harness connector terminals.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	8	B18	84	Existed
	9		85	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ADAS control unit and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789216

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009789220

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790751

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789218

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789219

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009789221

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790752

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789222

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789223

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789224

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AFS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789225

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

AFS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	1	13	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-128, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-181, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789226

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

HBA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789227

1.CHECK CONNECTOR

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

- Auto anti- dazzling inside mirror (High beam assist control module)
- Harness connector R2
- Harness connector M74

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto anti - dazzling inside mirror (High beam assist control module).
2. Check the resistance between the auto anti - dazzling inside mirror (High beam assist control module) harness connector terminals.

Auto anti - dazzling inside mirror (High beam assist control module) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R9	12	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the anti - dazzling inside mirror (High beam assist control module) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the anti - dazzling inside mirror (High beam assist control module). Refer to EXL-128, "HIGH BEAM ASSIST CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the inside mirror. Refer to MIR-45, "Removal and Installation" (With automatic drive positioner system) or MIR-80, "Removal and Installation" (Without automatic drive positioner system).
YES (Past error)>>Error was detected in the anti - dazzling inside mirror (High beam assist control module) branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789228

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789229

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789230

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789231

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

PSB BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789232

1.CHECK CONNECTOR

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

- CAN gateway
- Pre-crash seat belt control unit (driver side)

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

Pre-crash seat belt control unit (driver side) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B19	14	4	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-62, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SBC-76, "Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009789233

1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CHASSIS COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009790754

1.CHECK CONNECTOR

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

- ADAS control unit
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	8	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line circuit (chassis communication circuit side).
NO >> Repair the power supply and the ground circuit.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789235

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798683

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789237

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789238

1.CHECK CONNECTOR

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

- Side radar LH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B92	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-359, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

RDR-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789239

1.CHECK CONNECTOR

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

- Side radar RH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B93	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar RH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-360, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789240

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

APA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789241

1.CHECK CONNECTOR

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

- Accelerator pedal actuator / accelerator pedal position sensor
- Harness connector M125
- Harness connector M67

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator / accelerator pedal position sensor.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

Accelerator pedal actuator / accelerator pedal position sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M124	3	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the accelerator pedal actuator branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator / accelerator pedal position sensor. Refer to DAS-359, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

BSW/BUZZER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789242

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the drive assistance buzzer control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of drive assistance buzzer control module.
2. Check the resistance between the drive assistance buzzer control module harness connector terminals.

Drive assistance buzzer control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	3	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the drive assistance buzzer control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the drive assistance buzzer control module. Refer to DAS-361, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the drive assistance buzzer control module. Refer to DAS-389, "Removal and Installation".
YES (Past error)>>Error was detected in the drive assistance buzzer control module branch line.
NO >> Repair the power supply and the ground circuit.

LASER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789243

1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E76
- Harness connector E14
- Harness connector E25
- Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

ICC sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E80	3	6	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ICC sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-118, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-135, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789244

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789245

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

LANE BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789246

1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R13
- Harness connector M75
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of lane camera unit.
3. Check the resistance between the lane camera unit harness connector terminals.

Lane camera unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R13	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the lane camera unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-610, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-620, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009790756

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009789247

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789248

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

ITS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789249

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1, CAN communication circuit 2 and ITS communication circuit have no malfunction.

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and CAN communication circuit 2.

2.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

ADAS control unit harness connector		ICC sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	6	E80	3	Existed
	7		6	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the harness between the ADAS control unit and the ICC sensor.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Around view monitor control unit
- Accelerator pedal actuator / accelerator pedal position sensor
- Driver assistance buzzer control module
- Sonar control unit
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
B1	6	7	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

ADAS control unit harness connector		Ground	Continuity
Connector No.	Terminal No.		
B1	6		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
6	7	Approx. 108 – 132

3. Check the resistance between the ICC sensor terminals.

ICC sensor		Resistance (Ω)
Terminal No.		
3	6	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.
   NOTE:
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789250

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789251

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789252

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789253

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789254

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789255

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789256

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789257

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789258

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789259

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789260

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789261

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789262

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798767

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789264

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789265

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789266

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789267

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789268

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789269

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789270

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789271

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789272

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789273

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789274

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789275

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789276

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789277

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789278

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789279

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798835

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789281

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789282

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009789283

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009789284

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789286

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789287

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789288

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789289

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789290

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789291

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789292

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789293

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789294

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789295

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789296

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789297

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009798836

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789299

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009789300

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789301

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009789303

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790539

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009790540

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- A/C auto amp.
- Display control unit
4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790544

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790545

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790546

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790547

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790548

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790549

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790550

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790551

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790836

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790552

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790553

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790554

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790555

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799537

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790557

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790558

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790559

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790560

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790564

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009790565

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009790567

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009790568

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B600 and B12
- Harness connectors B37 and B72

2. Check the continuity between the harness connector terminals.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B37	4	Existed
	17		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B50	27	Existed
	3		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the around view monitor control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009790569

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN SONAR AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790570

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- CAN gateway
- Harness connectors M155 and M95

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M95	15	M25	13	Existed
	7		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the sonar control unit and the data link connector.
NO >> Repair the main line between the sonar control unit and data link connector.

MAIN LINE BETWEEN DAST 1 AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009799540

1.CHECK CONNECTOR

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

- Harness connector M19
- Harness connector B18
- Harness connector M40
- Harness connector E25

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the harness connectors.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module and the harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M19 and B18.
2. Check the continuity between the harness connectors M40 and M19.

Side radar LH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M40 and M19.

4.CHECK CONNECTOR

Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B18	74	84	Existed
	75	85	Existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the main line between the harness connector B18.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and the lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790572

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009790760

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790690

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790574

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790575

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009790689

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790761

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790679

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790680

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790681

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790682

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790683

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790684

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790685

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790686

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790687

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790688

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799879

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790692

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790693

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790694

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790695

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009790766

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009790696

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790697

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790698

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009790699

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- A/C auto amp.
- Display control unit
4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009790701

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790705

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- CAN gateway
- Harness connectors B600 and B12
- ADAS control unit
4. Check the continuity between the harness connector and the ADAS control unit harness connector.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B1	1	Existed
	17		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND EPS/DAST 3 CIRCUIT

Diagnosis Procedure

INFOID:0000000009790706

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72
- Harness connector B62
- Harness connector M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B37 and B72

2. Check the continuity between the ADAS control unit harness connector and the harness connector.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	1	B37	4	Existed
	2		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B62 and M22.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B62	63	Existed
	3		53	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of steering force control module.
2. Check the continuity between the harness connector and the steering force control module.

Harness connector		Steering force control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M71	14	Existed
	53		15	Existed

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the steering force control module.
NO >> Repair the main line between the harness connector M22 and the steering force control module.

MAIN LINE BETWEEN EPS/DAST 3 AND STRG CIRCUIT

Diagnosis Procedure

INFOID:0000000009790707

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following harness connectors.

- CAN gateway
- Steering force control module

4. Check the continuity between the steering force control module harness connector and the data link connector.

Steering force control module harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M71	14	M25	13	Existed
	15		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering force control module and the data link connector.
NO >> Repair the main line between the steering force control module and the data link connector.

MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009790708

1.CHECK CONNECTOR

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

- Harness connector B3
- Harness connector B52

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B87 and B8
- Harness connectors B3 and B52

2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B87	6	B3	1	Existed
	5		9	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B52	1	B50	27	Existed
	9		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009790703

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN DAST 1 AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009790709

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E25
- Harness connectors M40
- Harness connector M19
- Harness connectors B18
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the steering angle main control module harness connector and harness connector.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module harness connector and harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M19 and B18.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between harness connectors M40 and M19.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the harness connector B18 and ADAS control unit harness connector.

Harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

B18	74	B1	8	Existed
	75		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790710

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connector B18
- Harness connector M19

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B18 and M19

2. Check the continuity between the harness connector terminals.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	8	B18	84	Existed
	9		85	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ADAS control unit and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790711

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009790768

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790712

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790713

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790714

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009790769

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790715

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790716

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790717

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790718

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AFS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790719

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

AFS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	1	13	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-128, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-181, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790720

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

HBA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790721

1.CHECK CONNECTOR

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

- Auto anti- dazzling inside mirror (High beam assist control module)
- Harness connector R2
- Harness connector M74

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto anti - dazzling inside mirror (High beam assist control module).
2. Check the resistance between the auto anti - dazzling inside mirror (High beam assist control module) harness connector terminals.

Auto anti - dazzling inside mirror (High beam assist control module) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R9	12	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the anti - dazzling inside mirror (High beam assist control module) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the anti - dazzling inside mirror (High beam assist control module). Refer to EXL-128, "HIGH BEAM ASSIST CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the inside mirror. Refer to MIR-45, "Removal and Installation" (With automatic drive positioner system) or MIR-80, "Removal and Installation" (Without automatic drive positioner system).
YES (Past error)>>Error was detected in the anti - dazzling inside mirror (High beam assist control module) branch line.
NO >> Repair the power supply and the ground circuit.

TCU BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790722

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

TCU harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M81	9	10	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the TCU branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-589, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-597, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790723

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790724

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790725

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

PSB BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790726

1.CHECK CONNECTOR

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

- CAN gateway
- Pre-crash seat belt control unit (driver side)

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

Pre-crash seat belt control unit (driver side) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B19	14	4	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-62, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SBC-76, "Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009790727

1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CHASSIS COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799544

1.CHECK CONNECTOR

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

- ADAS control unit
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	8	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line circuit (chassis communication circuit side).
NO >> Repair the power supply and the ground circuit.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790770

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790771

1.CHECK CONNECTOR

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

- AWD control unit
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of AWD control unit.
3. Check the resistance between the AWD control unit harness connector terminals.

AWD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M42	8	16	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the AWD control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-46, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-55, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799703

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790728

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790729

1.CHECK CONNECTOR

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

- Side radar LH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B92	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-359, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

RDR-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790730

1.CHECK CONNECTOR

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

- Side radar RH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B93	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar RH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-360, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790731

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

APA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790732

1.CHECK CONNECTOR

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

- Accelerator pedal actuator / accelerator pedal position sensor
- Harness connector M125
- Harness connector M67

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator / accelerator pedal position sensor.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

Accelerator pedal actuator / accelerator pedal position sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M124	3	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the accelerator pedal actuator branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator / accelerator pedal position sensor. Refer to DAS-359, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

BSW/BUZZER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790733

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the drive assistance buzzer control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of drive assistance buzzer control module.
2. Check the resistance between the drive assistance buzzer control module harness connector terminals.

Drive assistance buzzer control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	3	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the drive assistance buzzer control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the drive assistance buzzer control module. Refer to DAS-361, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the drive assistance buzzer control module. Refer to DAS-389, "Removal and Installation".
YES (Past error)>>Error was detected in the drive assistance buzzer control module branch line.
NO >> Repair the power supply and the ground circuit.

LASER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790734

1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E76
- Harness connector E14
- Harness connector E25
- Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

ICC sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E80	3	6	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ICC sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-118, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-135, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790735

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790736

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

LANE BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009790737

1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R13
- Harness connector M75
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of lane camera unit.
3. Check the resistance between the lane camera unit harness connector terminals.

Lane camera unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R13	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the lane camera unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-610, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-620, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009790762

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009790738

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790739

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

ITS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009790740

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1, CAN communication circuit 2 and ITS communication circuit have no malfunction.

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and CAN communication circuit 2.

2.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

ADAS control unit harness connector		ICC sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	6	E80	3	Existed
	7		6	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the harness between the ADAS control unit and the ICC sensor.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Around view monitor control unit
- Accelerator pedal actuator / accelerator pedal position sensor
- Driver assistance buzzer control module
- Sonar control unit
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
B1	6	7	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

ADAS control unit harness connector		Ground	Continuity
Connector No.	Terminal No.		
B1	6		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
6	7	Approx. 108 – 132

3. Check the resistance between the ICC sensor terminals.

ICC sensor		Resistance (Ω)
Terminal No.		
3	6	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.
   NOTE:
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009791194

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009791195

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009791196

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009791197

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B600 and B12
- Harness connectors B37 and B72

2. Check the continuity between the harness connector terminals.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B37	4	Existed
	17		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B50	27	Existed
	3		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the around view monitor control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009791198

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN SONAR AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000009791199

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- CAN gateway
- Harness connectors M155 and M95
4. Check the continuity between the harness connector and the data link connector.

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M95	15	M25	13	Existed
	7		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the sonar control unit and the data link connector.
NO >> Repair the main line between the sonar control unit and data link connector.

MAIN LINE BETWEEN DAST 1 AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009799761

1.CHECK CONNECTOR

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

- Harness connector M19
- Harness connector B18
- Harness connector M40
- Harness connector E25

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the harness connectors.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module and the harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M19 and B18.
2. Check the continuity between the harness connectors M40 and M19.

Side radar LH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M40 and M19.

4.CHECK CONNECTOR

Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B18	74	84	Existed
	75	85	Existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the main line between the harness connector B18.

5. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and the lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791201

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009791202

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009791203

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791204

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791205

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009791206

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009791207

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791208

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791209

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791210

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791212

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791213

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791214

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791215

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791216

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799837

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791219

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791220

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791221

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791222

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009791223

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009791224

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009791225

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000009791226

1.CHECK CONNECTOR

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

- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M65.
2. Check the continuity between the fuse block (J/B) terminals.

Fuse block (J/B)		Continuity
Terminal No.	Terminal No.	
23C	22C	Existed
5C	4C	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of A/C auto amp.
2. Check the continuity between the fuse block (J/B) harness connector and the A/C auto amp. harness connector.

Fuse block (J/B) harness connector		A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M133	22C	M88	1	Existed
	4C		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
NO >> Repair the main line between the fuse block (J/B) harness connector M133 and the A/C auto amp.

MAIN LINE BETWEEN HVAC AND AV CIRCUIT

Diagnosis Procedure

INFOID:0000000009791227

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- Display control unit

4. Check the continuity between the A/C auto amp. harness connector and the display control unit harness connector.

A/C auto amp. harness connector		Display control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M88	1	M100	29	Existed
	21		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the display control unit.
NO >> Repair the main line between the A/C auto amp. and the display control unit.

MAIN LINE BETWEEN ABS AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000009791229

1.CHECK CONNECTOR

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

- Harness connector B39 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Fuse block (J/B) harness connector B39
- ABS actuator and electric unit (control unit)

2. Check the continuity between the harness connector terminals.

ABS actuator and electric unit (control unit) harness connector		Fuse block (J/B) terminals	Continuity
Connector No.	Terminal No.	Terminal No.	
E35	25	6H	Existed
	15	4H	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the fuse block (J/B).

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Fuse block (J/B) harness connector		Driver seat control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B39	6H	B601	1	Existed
	4H		17	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the driver seat control unit.
NO >> Repair the main line between the harness connector B39 and the driver seat control unit.

MAIN LINE BETWEEN ADP AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009791233

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- CAN gateway
- Harness connectors B600 and B12
- ADAS control unit

4. Check the continuity between the harness connector and the ADAS control unit harness connector.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B12	1	B1	1	Existed
	17		2	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND EPS/DAST 3 CIRCUIT

Diagnosis Procedure

INFOID:0000000009791234

1.CHECK CONNECTOR

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

- Harness connector B37
- Harness connector B72
- Harness connector B62
- Harness connector M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B37 and B72

2. Check the continuity between the ADAS control unit harness connector and the harness connector.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	1	B37	4	Existed
	2		3	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B62 and M22.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B72	4	B62	63	Existed
	3		53	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of steering force control module.
2. Check the continuity between the harness connector and the steering force control module.

Harness connector		Steering force control module harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M71	14	Existed
	53		15	Existed

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the ADAS control unit and the steering force control module.
NO >> Repair the main line between the harness connector M22 and the steering force control module.

MAIN LINE BETWEEN EPS/DAST 3 AND STRG CIRCUIT

Diagnosis Procedure

INFOID:0000000009791235

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following harness connectors.

- CAN gateway
- Steering force control module

4. Check the continuity between the steering force control module harness connector and the data link connector.

Steering force control module harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M71	14	M25	13	Existed
	15		12	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering force control module and the data link connector.
NO >> Repair the main line between the steering force control module and the data link connector.

MAIN LINE BETWEEN RDR-L AND AVM CIRCUIT

Diagnosis Procedure

INFOID:0000000009791236

1.CHECK CONNECTOR

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

- Harness connector B3
- Harness connector B52

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Harness connectors B87 and B8
- Harness connectors B3 and B52

2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B87	6	B3	1	Existed
	5		9	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Around view monitor control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B52	1	B50	27	Existed
	9		28	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar LH and the around view monitor control unit control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN AVM AND SONAR CIRCUIT

Diagnosis Procedure

INFOID:0000000009791231

1.CHECK CONNECTOR

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

- Harness connectors B62
- Harness connectors M22

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Around view monitor control unit
- Harness connectors B62 and M22

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

- With around view monitor, without ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	63	Existed
	28		53	Existed

- With ICC

Around view monitor control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B50	27	B62	18	Existed
	28		17	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M95 and M155.
2. Check the continuity between the harness connectors.

- With around view monitor, without ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	63	M95	15	Existed
	53		7	Existed

- With ICC

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	18	M95	14	Existed
	17		6	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the around view monitor control unit and the sonar control unit.
NO >> Repair the main line between the harness connectors M22 and sonar control unit.

MAIN LINE BETWEEN DAST 1 AND ICC CIRCUIT

Diagnosis Procedure

INFOID:0000000009791237

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E25
- Harness connectors M40
- Harness connector M19
- Harness connectors B18
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Steering angle main control module
- Harness connectors E25 and M40

2. Check the continuity between the steering angle main control module harness connector and harness connector.

Steering angle main control module harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E26	14	E25	51	Existed
	15		52	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the steering angle main control module harness connector and harness connector E25.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M19 and B18.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M40	51	M19	74	Existed
	52		75	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between harness connectors M40 and M19.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ADAS control unit.
2. Check the continuity between the harness connector B18 and ADAS control unit harness connector.

Harness connector		ADAS control unit harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

B18	74	B1	8	Existed
	75		9	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the steering angle main control module and the ADAS control unit.
NO >> Replace the body harness.

MAIN LINE BETWEEN ICC AND LANE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791238

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connector B18
- Harness connector M19

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ADAS control unit
- Harness connectors B18 and M19

2. Check the continuity between the harness connector terminals.

ADAS control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	8	B18	84	Existed
	9		85	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M75 and R3.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M19	84	M75	32	Existed
	85		31	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ADAS control unit and the lane camera unit.
NO >> Repair the main line between the harness connectors M19 and lane camera unit.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791239

1.CHECK CONNECTOR

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

- ECM
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	114	113	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-188, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to EC-578, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the fuse block (J/B) harness connector M133.
2. Check the continuity between the ECM harness connector and the fuse block (J/B) harness connector.

ECM harness connector		Fuse block (J/B) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M37	114	M133	21C	Existed
	113		3C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the ECM harness connector M37 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009791241

1.CHECK CONNECTOR

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

- Data link connector
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	6	14	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side).
NO >> GO TO 3.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M25	6	M133	23C	Existed
	14		5C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the data link connector M25 and the harness connector M133.

DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009791242

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector branch line.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M25	13	12	Approx. 54 – 66

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side).
NO >> Repair the data link connector branch line.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791243

1.CHECK CONNECTOR

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

- IPDM E/R
- Harness connector E64 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	29	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-36, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-37, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

4.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the harness connector E64.
2. Check the continuity between the IPDM E/R harness connector and harness connector.

IPDM E/R harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E121	29	E64	6E	Existed
	28		2E	Existed

Is the measurement value within the specification?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the IPDM E/R harness connector E121 and harness connector E64.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791244

1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F12
- Harness connector E10
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

A/T assembly harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F2	3	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-218, "Exploded View"
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

A/T assembly harness connector side	TCM harness connector	Continuity
Terminal No.	Terminal No.	
3	3	Existed
8	8	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-181, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-218, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector E65.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

A/T assembly harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	

F2	3	E65	9F	Existed
	8		5F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the A/T assembly harness connector F2 and the harness connector E65.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

Diagnosis Procedure

INFOID:0000000009791245

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors of CAN gateway for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

CAN gateway harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M24	1	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the CAN gateway branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side).
NO >> Repair the power supply and the ground circuit.

CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009791246

1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M133 and fuse block (J/B) side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-171, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-172, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side).
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M133.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

CAN gateway harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M24	4	M133	13C	Existed
	10		2C	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the CAN gateway harness connector M24 and the harness connector M133.

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791247

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the A/C auto amp. for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M88	1	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-92, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-113, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791248

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M58	41	42	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to MWI-104, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-126, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791249

WARNING:

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness.

2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-36, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.
NO >> Replace parts whose air bag system has a malfunction.

AFS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791250

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

AFS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	1	13	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-128, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-181, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791251

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of display control unit.
2. Check the resistance between the display control unit harness connector terminals.

Display control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	29	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the display control unit.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the display control unit. Refer to AV-239, "DISPLAY CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the display control unit. Refer to AV-277, "Removal and Installation".
YES (Past error)>>Error was detected in the display control unit branch line.
NO >> Repair the power supply and the ground circuit.

HBA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791252

1.CHECK CONNECTOR

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

- Auto anti- dazzling inside mirror (High beam assist control module)
- Harness connector R2
- Harness connector M74

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of auto anti - dazzling inside mirror (High beam assist control module).
2. Check the resistance between the auto anti - dazzling inside mirror (High beam assist control module) harness connector terminals.

Auto anti - dazzling inside mirror (High beam assist control module) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R9	12	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the anti - dazzling inside mirror (High beam assist control module) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the anti - dazzling inside mirror (High beam assist control module). Refer to EXL-128, "HIGH BEAM ASSIST CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the inside mirror. Refer to MIR-45, "Removal and Installation" (With automatic drive positioner system) or MIR-80, "Removal and Installation" (Without automatic drive positioner system).
YES (Past error)>>Error was detected in the anti - dazzling inside mirror (High beam assist control module) branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791253

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M14	60	59	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-91, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-98, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791254

1.CHECK CONNECTOR

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

- ABS actuator and electric unit (control unit)
- Harness connector E65 and fuse block (J/B) side connector

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of ABS actuator and electric unit (control unit).
3. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E35	25	15	Approx. 54 - 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-154, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-178, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of harness connector E65.
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

- With around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	6F	Existed
	15		7F	Existed

- Without around view monitor system

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E35	25	E65	8F	Existed
	15		3F	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B)
NO >> Repair the harness between the ABS actuator and electric unit (control unit) harness connector E35 and the harness connector E65

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791255

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connectors B600 and B12
- Harness connectors B39 and fuse block (J/B) side connector (Models without around view monitor system)

Is the inspection result normal?

YES - 1>> Models with around view monitor system: GO TO 2.
YES - 2>> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (Models with around view monitor system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B601	1	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO - 1 >> Models without around view monitor system: GO TO 5.
NO - 2 >> Models with around view monitor system: Repair the driver seat control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-75, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector B39.
2. Check the continuity between the driver seat control unit harness connector B601 and the harness connector.

Driver seat control unit harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B601	1	B39	3H	Existed
	17		8H	Existed

Is the inspection result normal?

YES >> Replace the fuse block (J/B).
NO >> Repair the harness between the driver seat control unit harness connector B601 and the harness connector B39.

PSB BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791256

1.CHECK CONNECTOR

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

- CAN gateway
- Pre-crash seat belt control unit (driver side)

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

Pre-crash seat belt control unit (driver side) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B19	14	4	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-62, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SBC-76, "Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

Diagnosis Procedure

INFOID:0000000009791257

1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

ICC BRANCH LINE CIRCUIT (CHASSIS COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009791258

1.CHECK CONNECTOR

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

- ADAS control unit
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ADAS control unit.
2. Check the resistance between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B1	8	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-160, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-161, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line circuit (chassis communication circuit side).
NO >> Repair the power supply and the ground circuit.

EPS/DAST 3 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791259

1.CHECK CONNECTOR

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

- Steering force control module
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering force control module.
3. Check the resistance between the steering force control module harness connector terminals.

Steering force control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M71	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering force control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering force control module. Refer to STC-427, "Removal and Installation".
YES (Past error)>>Error was detected in the steering control module branch line.
NO >> Repair the power supply and the ground circuit.

CCM BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT)

Diagnosis Procedure

INFOID:0000000009799878

1.CHECK CONNECTOR

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

- Chassis control module
- Harness connectors E47
- Harness connectors M39
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of chassis control module.
3. Check the resistance between the chassis control module harness connector terminals.

Chassis control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E22	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the chassis control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to DAS-541, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-542, "Removal and Installation".
YES (Past error)>>Error was detected in the chassis control module branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791261

1.CHECK CONNECTOR

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

- Steering angle sensor
- CAN gateway (Models with around view monitor system)

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of steering angle sensor.
3. Check the resistance between the steering angle sensor harness connector terminals.

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M77	5	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle sensor branch line

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-123, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-180, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791262

1.CHECK CONNECTOR

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

- Side radar LH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

Side radar LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B92	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-359, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

RDR-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791263

1.CHECK CONNECTOR

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

- Side radar RH
- Harness connector B87
- Harness connector B8

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

Side radar RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B93	4	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar RH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-360, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-386, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791264

1.CHECK CONNECTOR

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

- Around view monitor control unit
- CAN gateway (Models without ICC)

Is the inspection result normal?

YES-1 >> Models without ICC: GO TO 2.
YES-2 >> Models with ICC: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models without ICC).
2. Disconnect the connector of around view monitor control unit.
3. Check the resistance between the around view monitor control unit harness connector terminals.

Around view monitor control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B50	27	28	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-435, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to AV-458, "Removal and Installation".
YES (Past error)>>Error was detected in the around view monitor control unit branch line.
NO >> Repair the power supply and the ground circuit.

APA BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791265

1.CHECK CONNECTOR

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

- Accelerator pedal actuator / accelerator pedal position sensor
- Harness connector M125
- Harness connector M67

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator / accelerator pedal position sensor.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

Accelerator pedal actuator / accelerator pedal position sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M124	3	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the accelerator pedal actuator branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator / accelerator pedal position sensor. Refer to DAS-359, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

BSW/BUZZER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791266

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the drive assistance buzzer control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of drive assistance buzzer control module.
2. Check the resistance between the drive assistance buzzer control module harness connector terminals.

Drive assistance buzzer control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M56	3	11	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the drive assistance buzzer control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the drive assistance buzzer control module. Refer to DAS-361, "DRIVER ASSISTANCE BUZZER CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the drive assistance buzzer control module. Refer to DAS-389, "Removal and Installation".
YES (Past error)>>Error was detected in the drive assistance buzzer control module branch line.
NO >> Repair the power supply and the ground circuit.

LASER BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791267

1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E76
- Harness connector E14
- Harness connector E25
- Harness connector M40

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

ICC sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E80	3	6	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ICC sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-118, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-135, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

SONAR BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791268

1.CHECK CONNECTOR

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

- Sonar control unit
- Harness connector M95
- Harness connector M155
- CAN gateway

Is the inspection result normal?

YES-1 >> Models with around view monitor system: GO TO 2.
YES-2 >> Models without around view monitor system: GO TO 3.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

CAN gateway harness connector			Continuity
Connector No.	Terminal No.		
M24	4	6	Existed
	10	12	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause (CAN communication circuit 2).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway (Models with around view monitor system).
2. Disconnect the connector of sonar control unit.
3. Check the resistance between the sonar control unit harness connector terminals.

Sonar control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M76	5	6	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the sonar control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sonar control unit. Refer to AV-435, "SONAR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sonar control unit. Refer to AV-462, "Removal and Installation".
YES (Past error)>>Error was detected in the sonar control unit branch line.
NO >> Repair the power supply and the ground circuit.

DAST 1 BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791269

1.CHECK CONNECTOR

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

- Steering angle main control module
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of steering angle main control module.
3. Check the resistance between the steering angle main control module harness connector terminals.

Steering angle main control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E26	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the steering angle main control module branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle main control module. Refer to STC-407, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle main control module. Refer to STC-428, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle main control module branch line.
NO >> Repair the power supply and the ground circuit.

LANE BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000009791270

1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R13
- Harness connector M75
- Chassis control module

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of chassis control module.
2. Check the continuity between the chassis control module harness connector terminals.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	11	Existed
	7	8	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (chassis communication circuit side).

3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of chassis control module.
2. Disconnect the connector of lane camera unit.
3. Check the resistance between the lane camera unit harness connector terminals.

Lane camera unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
R13	4	8	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the lane camera unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-610, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-620, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT 1

Diagnosis Procedure

INFOID:0000000009791271

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
114	113	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)
Terminal No.		
60	59	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   NOTE:
   ECM and BCM have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:0000000009791272

1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M25	13	12	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M25	13		Not existed
	12		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

CAN gateway		Resistance (Ω)
Terminal No.		
4	10	Approx. 108 – 132
6	12	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   NOTE:
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

CHASSIS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009791273

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and/or CAN communication circuit 2 have no malfunction.

Are the CAN communication 1 and/or CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on chassis communication circuit.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the chassis control module harness connector.

Chassis control module harness connector			Continuity
Connector No.	Terminal No.		
E22	19	7	Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Chassis control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M22	19		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK CHASSIS CONTROL MODULE TERMINATION CIRCUIT

1. Remove the chassis control module.
2. Check the resistance between the chassis control module terminals.

Chassis control module		Resistance (Ω)
Terminal No.		
19	7	Approx. 108 – 132
11	8	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 6.
NO >> Replace the chassis control module.

6.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 7.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

7.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of chassis communication circuit.
   NOTE:
   Chassis control module has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

ITS COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000009791274

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1, CAN communication circuit 2 and ITS communication circuit have no malfunction.

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and CAN communication circuit 2.

2.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

ADAS control unit harness connector		ICC sensor harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B1	6	E80	3	Existed
	7		6	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the harness between the ADAS control unit and the ICC sensor.

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Around view monitor control unit
- Accelerator pedal actuator / accelerator pedal position sensor
- Driver assistance buzzer control module
- Sonar control unit
2. Check the continuity between the ADAS control unit harness connector terminals.

ADAS control unit harness connector			Continuity
Connector No.	Terminal No.		
B1	6	7	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

ADAS control unit harness connector		Ground	Continuity
Connector No.	Terminal No.		
B1	6		Not existed
	7		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace [if shield line or fuse block (J/B) is short] the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

ADAS control unit		Resistance (Ω)
Terminal No.		
6	7	Approx. 108 – 132

3. Check the resistance between the ICC sensor terminals.

ICC sensor		Resistance (Ω)
Terminal No.		
3	6	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication circuit.
   NOTE:
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   NOTE:
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.