SECTION LAN

LAN SYSTEM

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HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Information

INFOID:0000000012404614

- “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:0000000012404615

CAUTION:

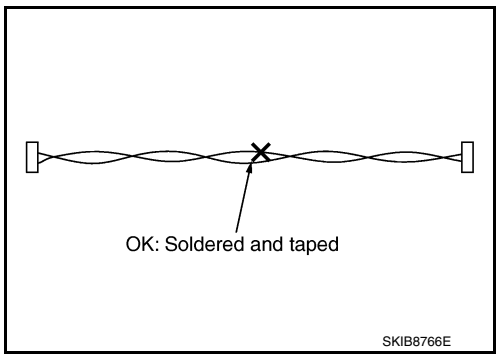
Follow the instructions listed below. Failure to do this may cause damage to parts:

- **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.**

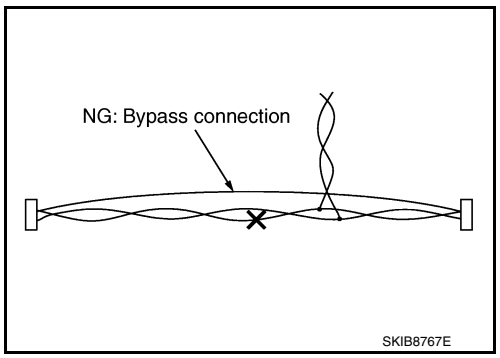
Precautions for Harness Repair

INFOID:0000000012404616

- 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

INFOID:0000000012404617

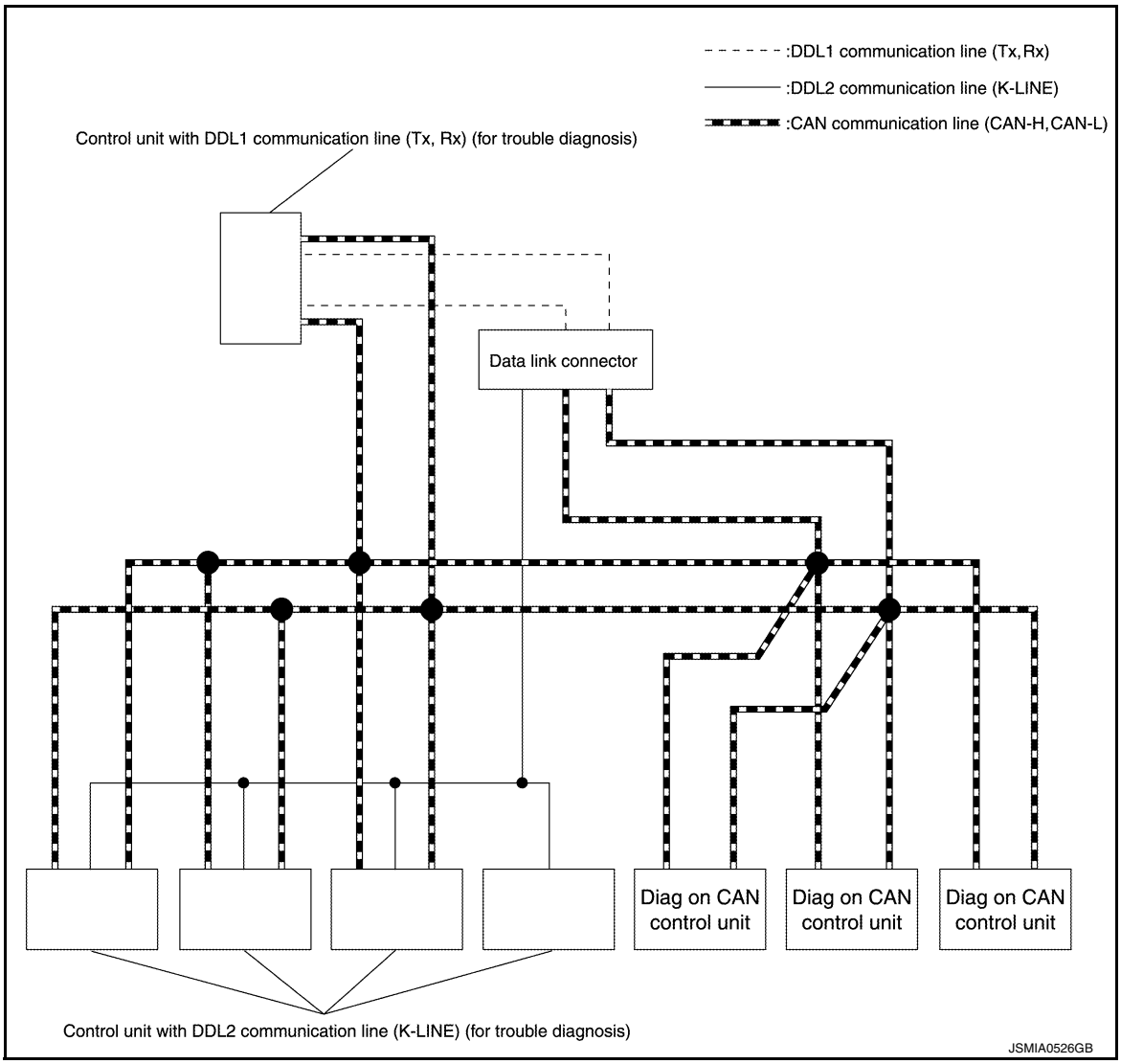
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information 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:0000000012404618

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.)

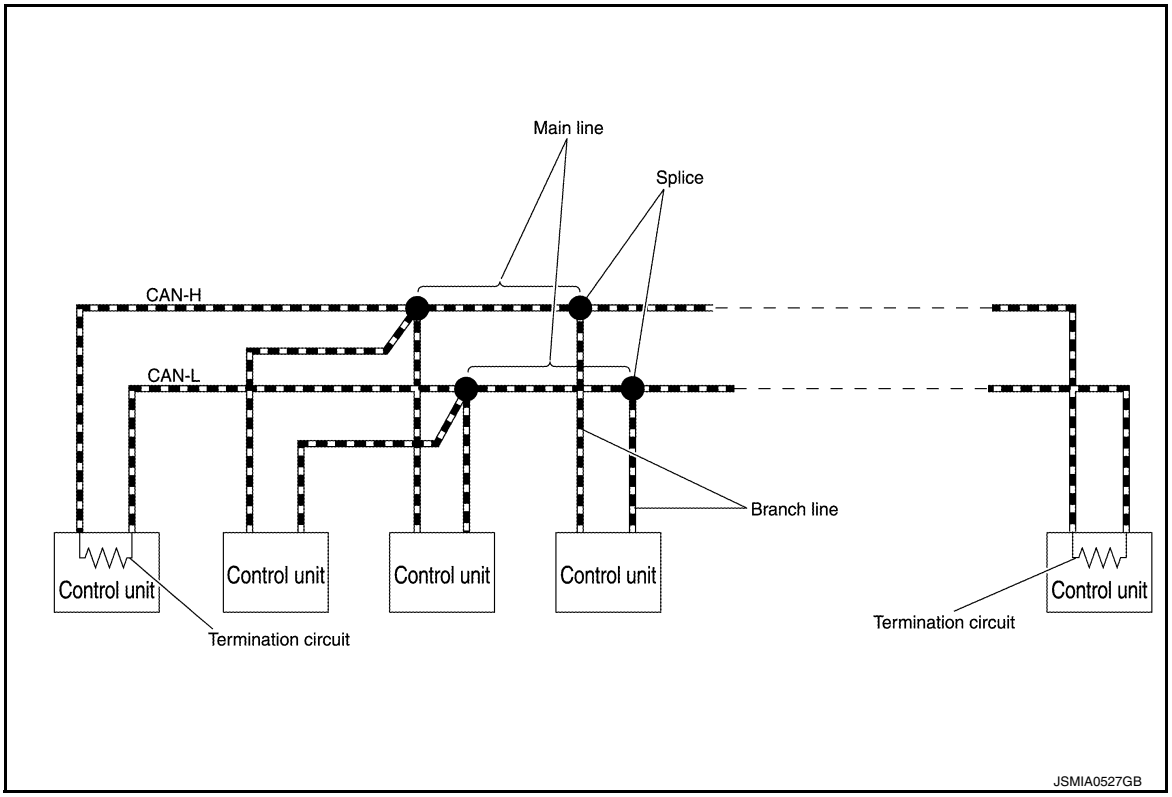
DESCRIPTION

“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

INFOID:0000000012404619



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:0000000012404620

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:0000000012404621

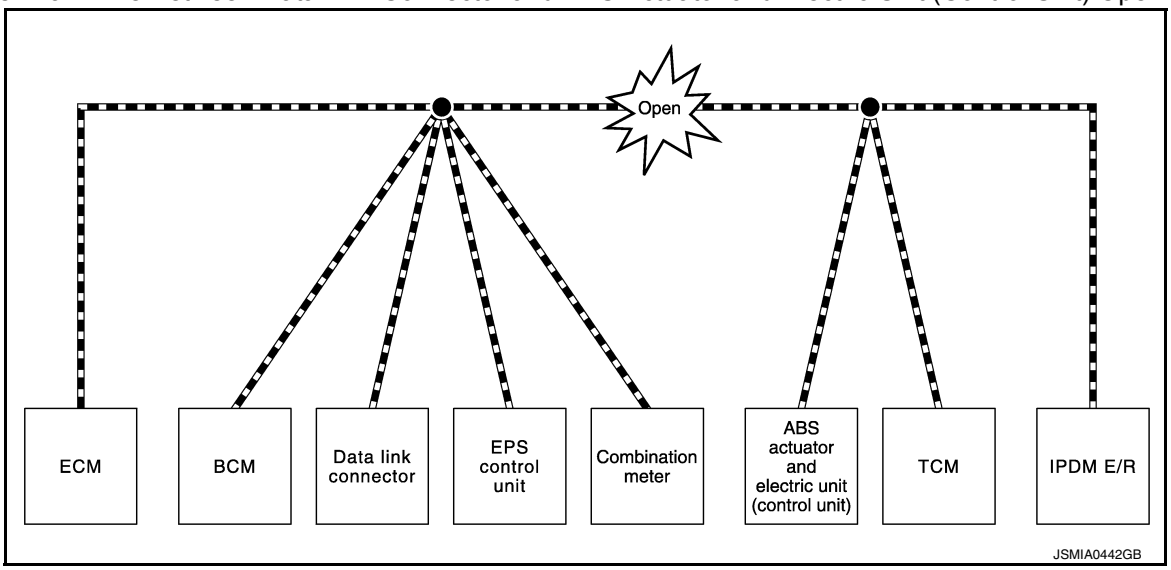
In CAN communication system, multiple control units mutually transmit and receive signals. Each control unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

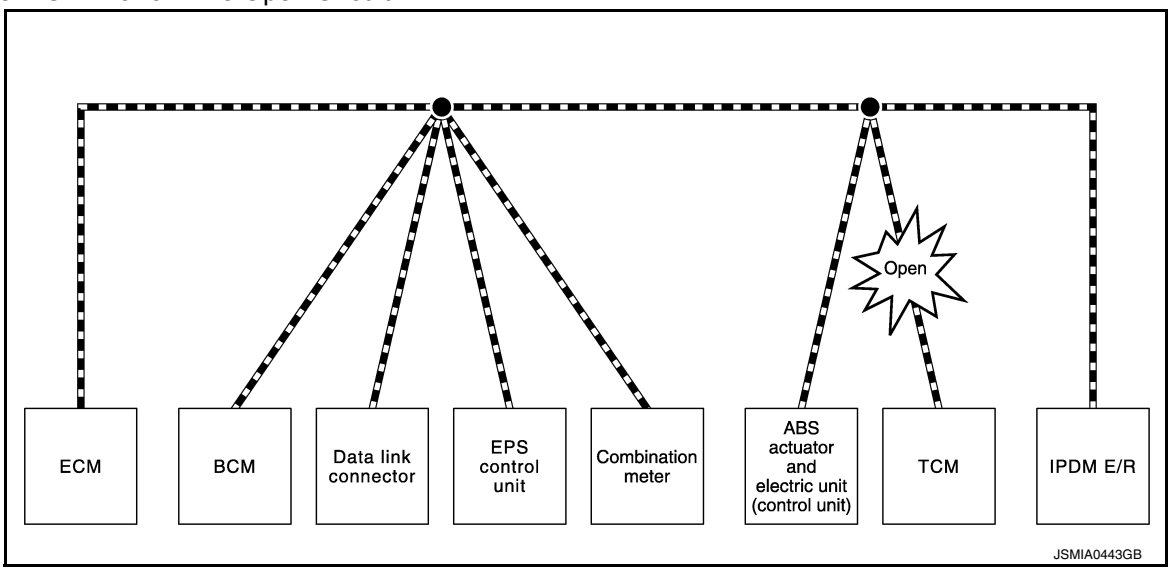
Each vehicle differs in symptom of each control unit under fail-safe mode and CAN communication line wiring.

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

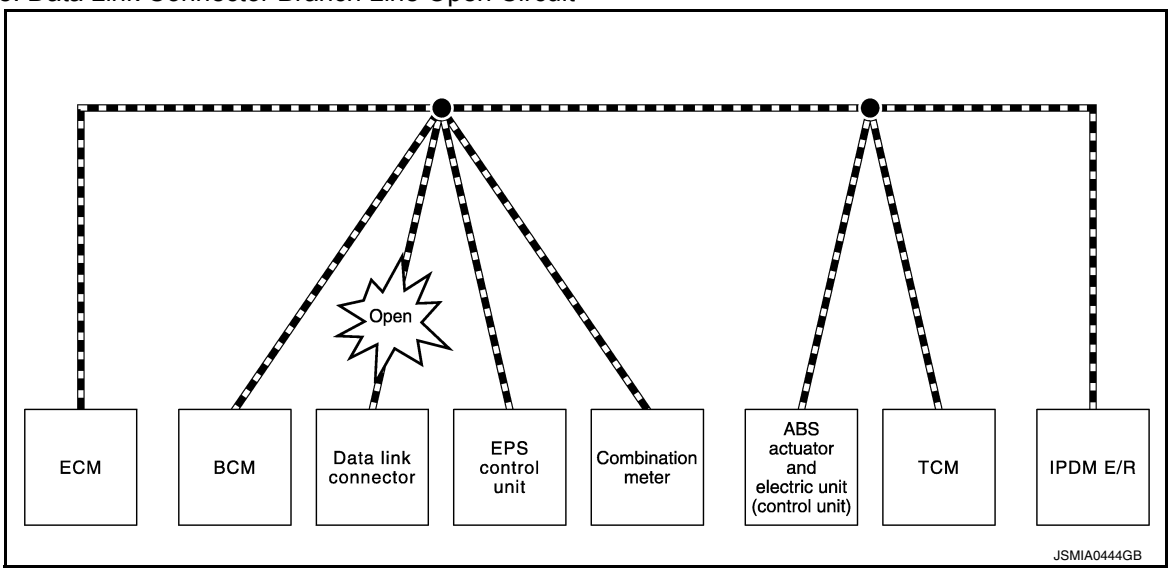


Unit name	Major symptom
ECM	Engine torque limiting is affected, and shift harshness increases.
BCM	Reverse warning buzzer does not sound.
EPS control unit	Normal operation.
Combination meter	• Shift position indicator and O/D OFF indicator turn OFF. • Warning lamps turn ON.
ABS actuator and electric 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.

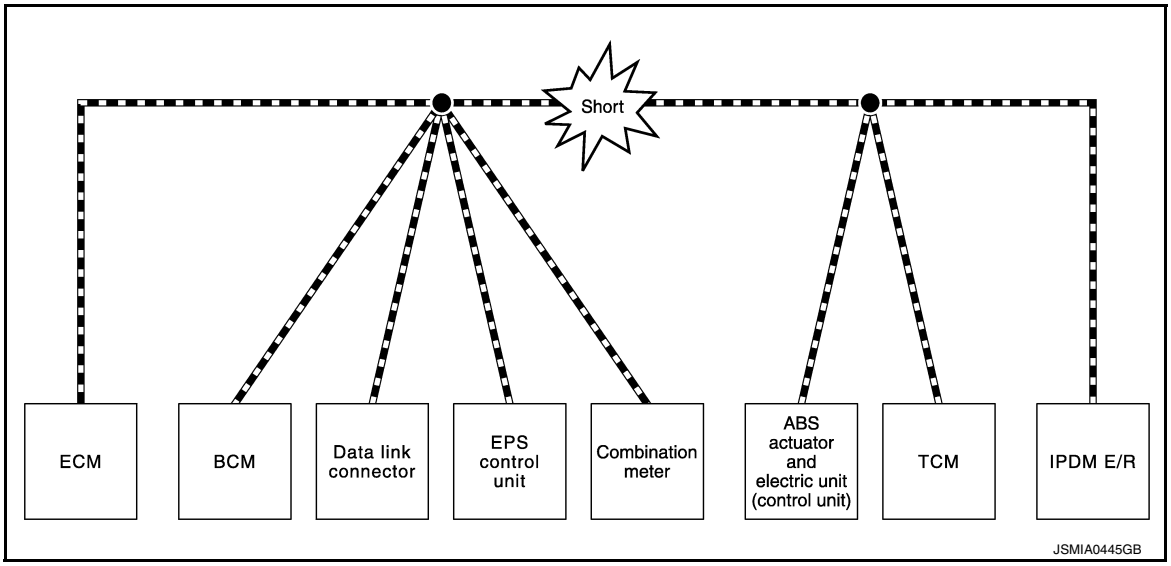
Example: Data Link Connector Branch Line Open Circuit



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:0000000012404622

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:0000000012404623

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:0000000012404624

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:0000000012404625

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.

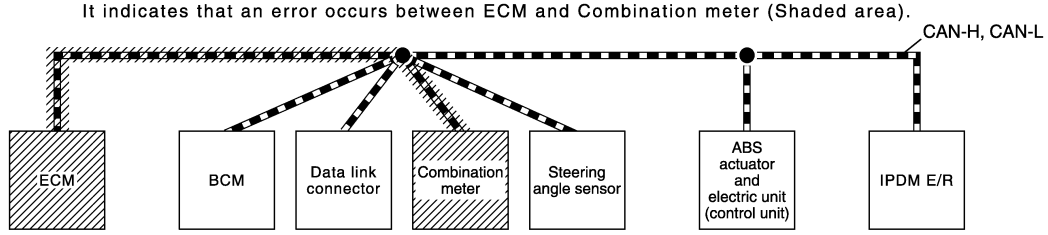
Example: Tachometer does not move even though the engine rotates.

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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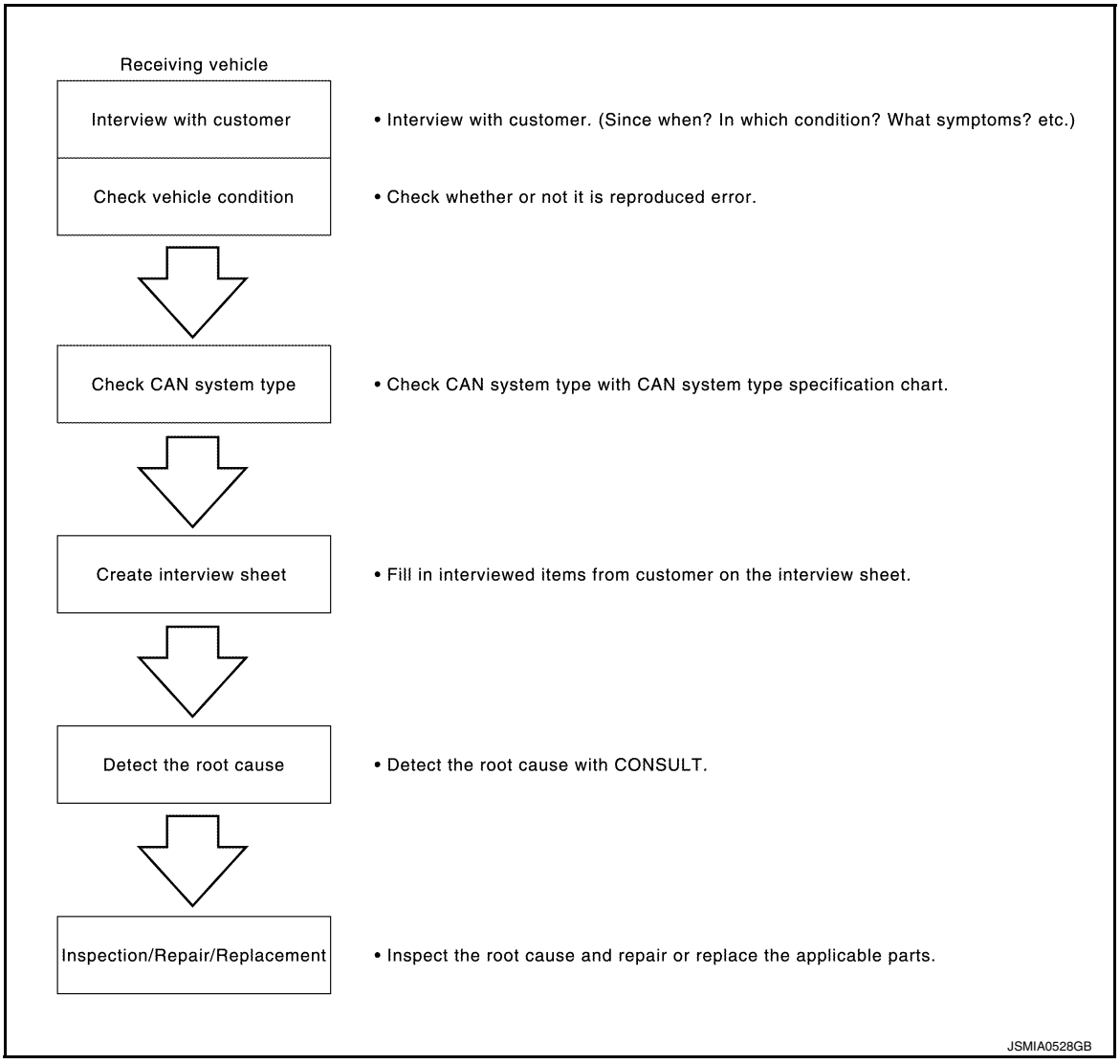
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

INFOID:0000000012404626

DESCRIPTION



DETAIL OF TROUBLE DIAGNOSIS FLOW CHART

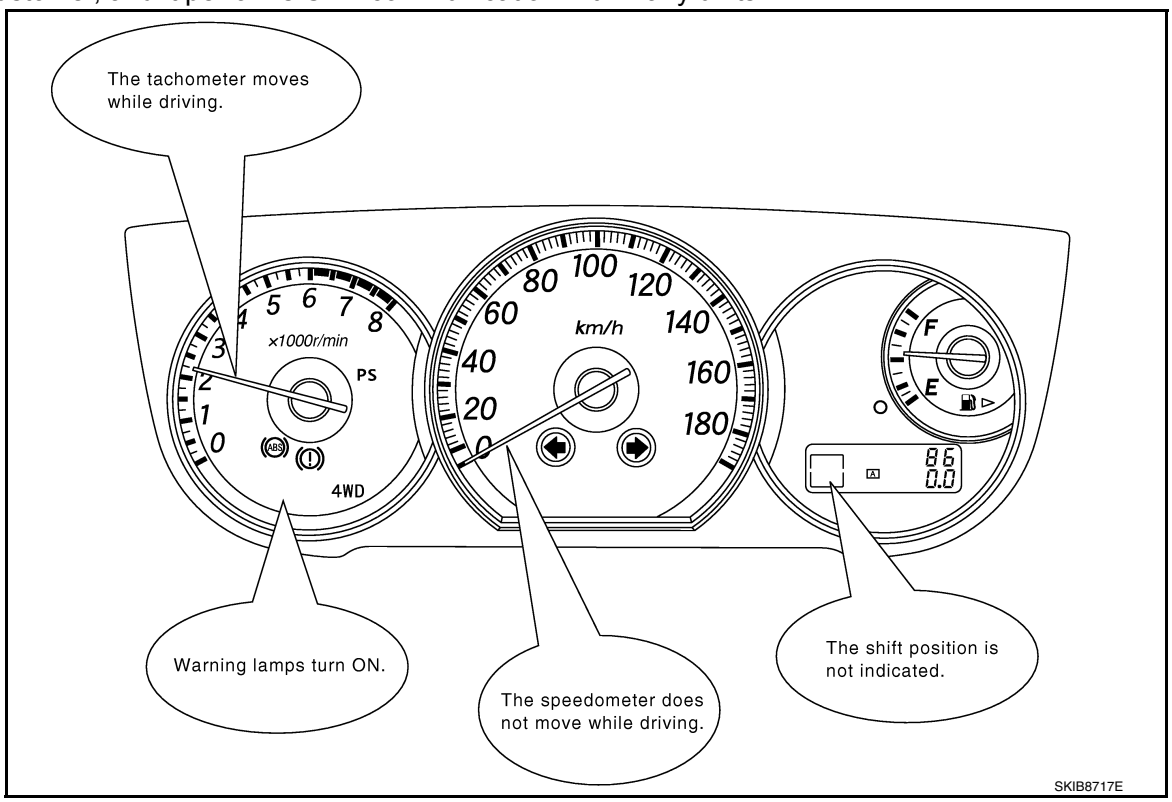
1.INTERVIEW WITH CUSTOMER

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

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

Notes for checking error symptoms:
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.

- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.
- Indication of the combination meter is important to detect the root cause because it is the most obvious to the customer, and it performs CAN communication with many units.



>> GO TO 2.

2. INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

NOTE:

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

>> GO TO 3.

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

Determine CAN system type based on vehicle equipment.

NOTE:

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

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

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

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

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

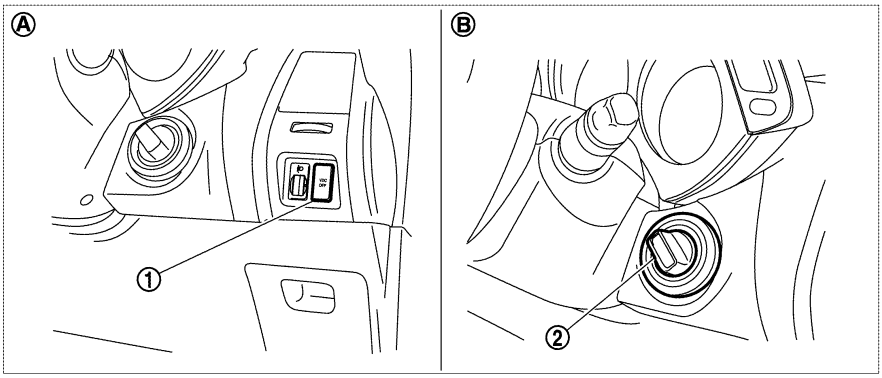
×: Applicable

Check the vehicle equipment with the vehicle identification number plate.

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 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

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

×: Applicable

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	×	×	×	×	×	×	×	×	×	×	×	×

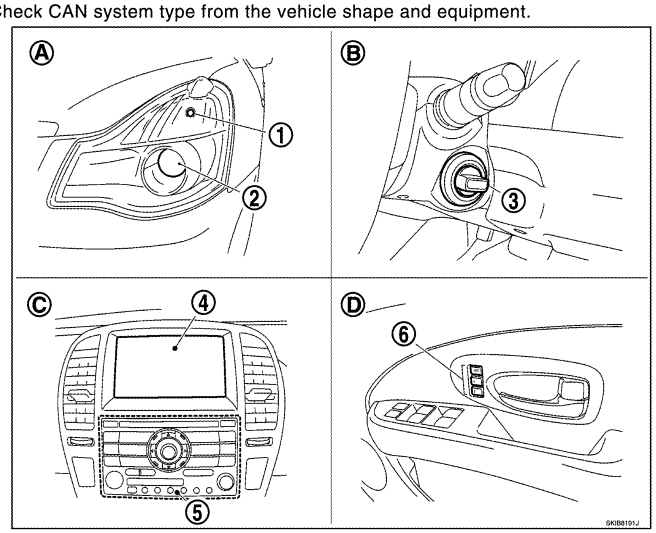
Check the vehicle equipment.
The number indicates the CAN system type of the vehicle.

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



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

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.

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

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>> GO TO 4.

4. CREATE INTERVIEW SHEET

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

NOTE:

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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>> GO TO 5.

5. DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects a root cause.

>> GO TO 6.

6. REPAIR OR REPLACE MALFUNCTIONING PART

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

CAN communication circuit>> Refer to LAN-49, "CAN Communication Circuit".
BSW communication circuit>> Refer to LAN-49, "BSW Communication Circuit".

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Information

INFOID:0000000012404627

- “CAN” of LAN Section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to LAN-17, "Trouble Diagnosis Flow Chart" of “CAN FUNDAMENTAL”.

Abbreviation List

INFOID:0000000012404628

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

Abbreviation	Unit name
A-BAG	Air bag diagnosis sensor unit
ABS	ABS actuator and electric unit (control unit)
ADP	Driver seat control unit
ASD-L	Sliding door control unit LH
ASD-R	Sliding door control unit RH
AV	AV control unit
AVM	Around view monitor control unit
BCM	BCM
BSW	BSW control module
DLC	Data link connector
ECM	ECM
EPS	Power steering control module
IPDM-E	IPDM E/R
M&A	Combination meter
PWBD	Automatic back door control module
RDR-L	Side radar LH
RDR-R	Side radar RH
STRG	Steering angle sensor
TCM	TCM

PRECAUTION

PRECAUTIONS

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

INFOID:0000000012404629

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.**

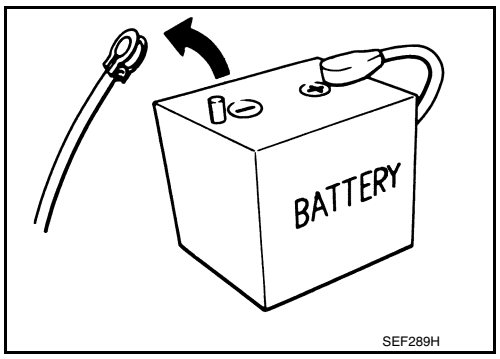
Precautions for Removing Battery Terminal

INFOID:0000000013042341

When disconnecting the battery terminal, pay attention to the following.

- Always use a 12V battery as power source.
- Never disconnect battery terminal while engine is running.
- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
- For vehicles with the engine listed below, remove the battery terminal after a lapse of the specified time:

D4D engine	: 20 minutes	YS23DDT	: 4 minutes
HRA2DDT	: 12 minutes	YS23DDTT	: 4 minutes
K9K engine	: 4 minutes	ZD30DDTi	: 60 seconds
M9R engine	: 4 minutes	ZD30DDTT	: 60 seconds
R9M engine	: 4 minutes		
V9X engine	: 4 minutes		
YD25DDTi	: 2 minutes		



NOTE:

ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.

- After high-load driving, if the vehicle is equipped with the V9X engine, turn the ignition switch OFF and wait for at least 15 minutes to remove the battery terminal.

NOTE:

- Turbocharger cooling pump may operate in a few minutes after the ignition switch is turned OFF.
- Example of high-load driving
  - Driving for 30 minutes or more at 140 km/h (86 MPH) or more.
  - Driving for 30 minutes or more on a steep slope.

- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

Precautions for Trouble Diagnosis

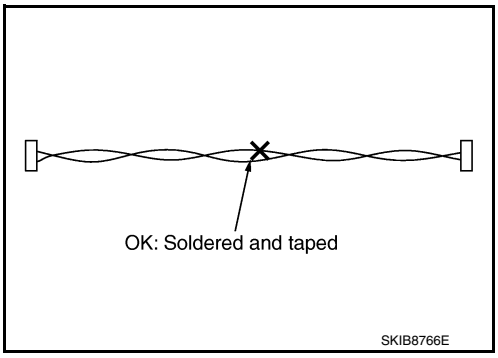
INFOID:0000000012404631

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.**

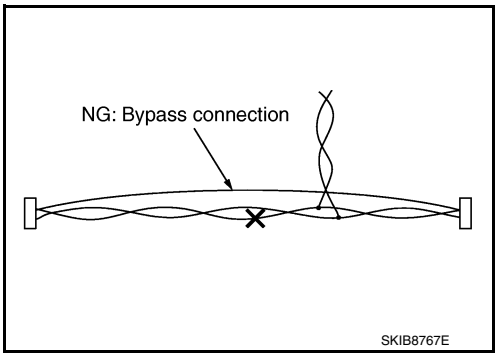
Precautions for Harness Repair

INFOID:0000000012404632

- 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.



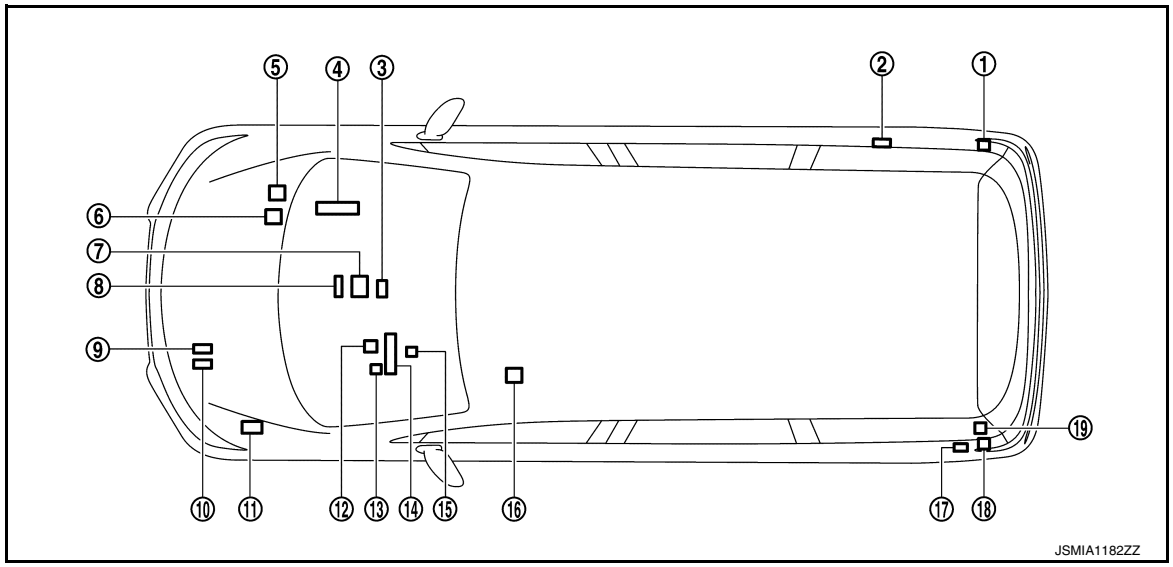
- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000012404633



1. Side radar RH
2. Sliding door control unit RH
3. Air bag diagnosis sensor unit
4. Around view monitor control unit
5. Power steering control module
6. ABS actuator and electric unit (control unit)
7. AV control unit
8. BSW control module
9. TCM
10. ECM
11. IPDM E/R
12. BCM
13. Data link connector
14. Combination meter
15. Steering angle sensor
16. Driver seat control unit
17. Sliding door control unit LH
18. Side radar LH
19. Automatic back door control module

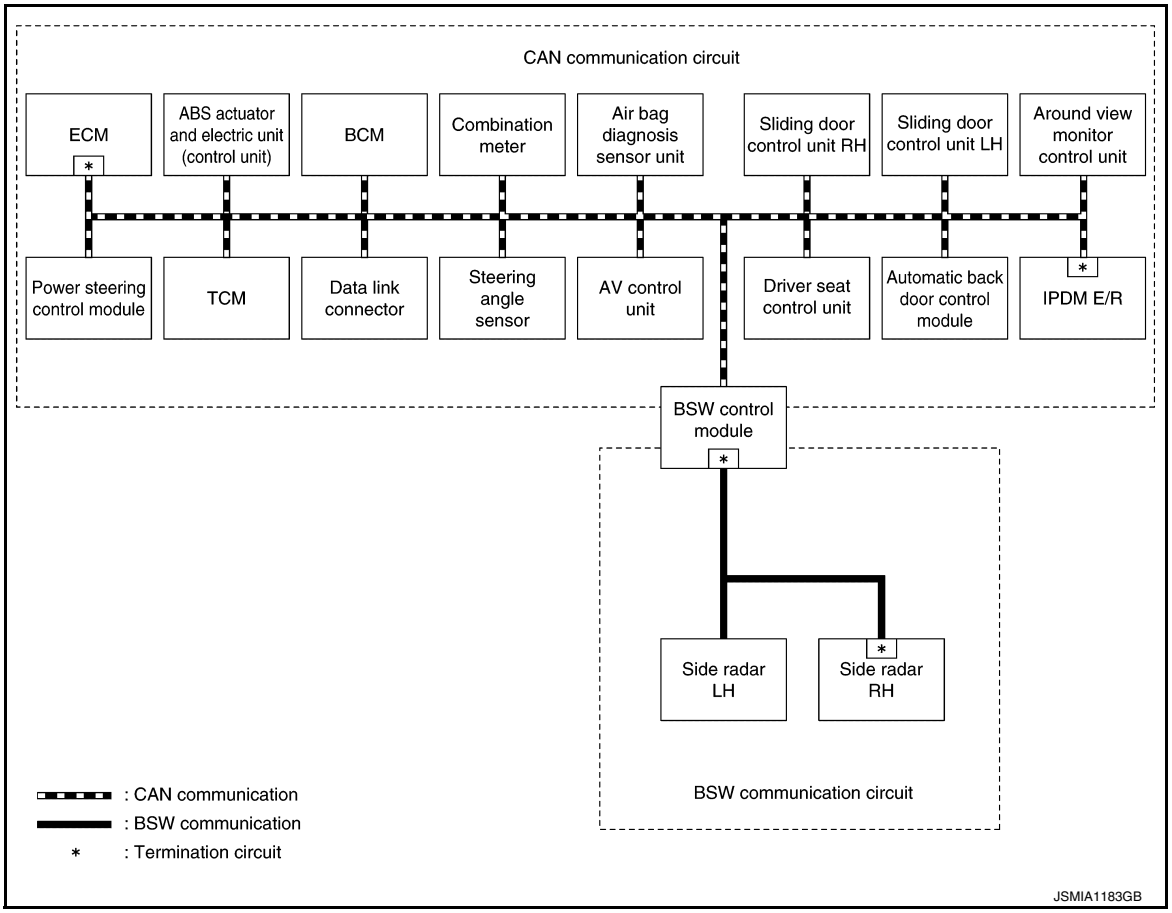
SYSTEM

CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

INFOID:0000000012404634

SYSTEM DIAGRAM

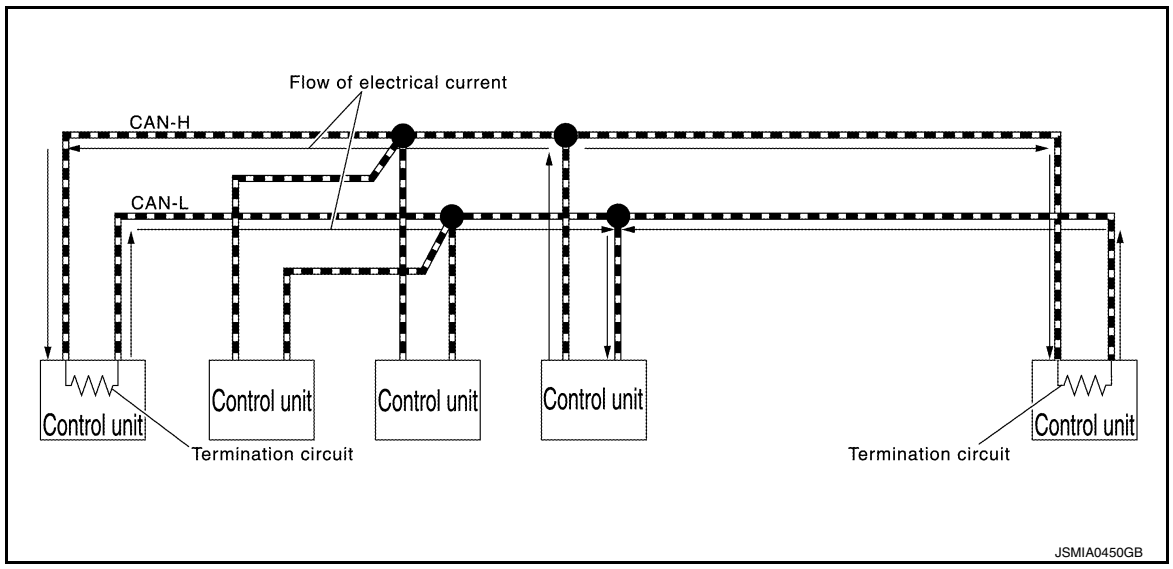


DESCRIPTION

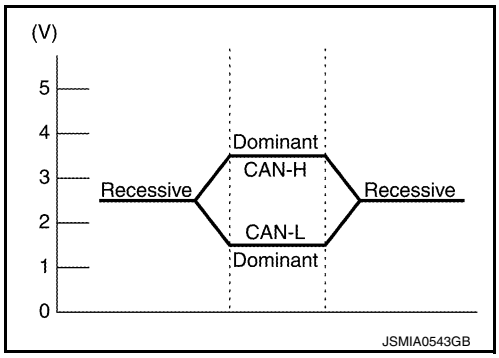
CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information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

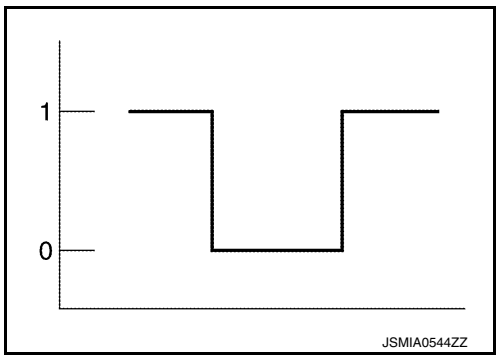
- Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line.



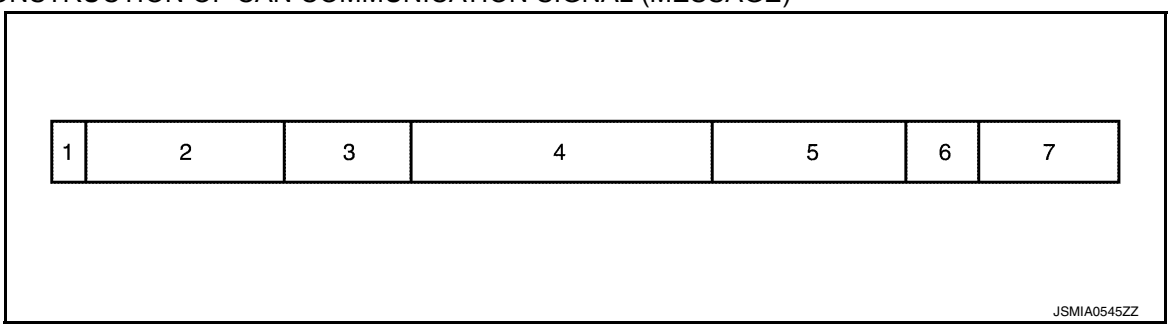
- The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.
  NOTE:
  A signal with no current passage is called “Recessive” and one with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



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



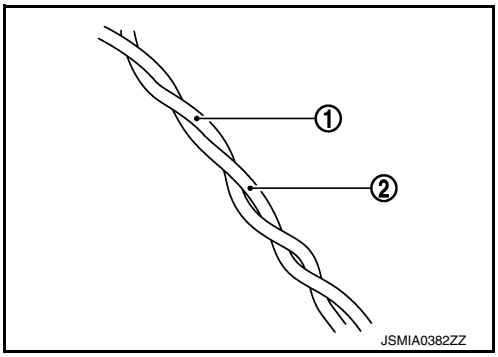
THE CONSTRUCTION OF CAN COMMUNICATION SIGNAL (MESSAGE)



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.

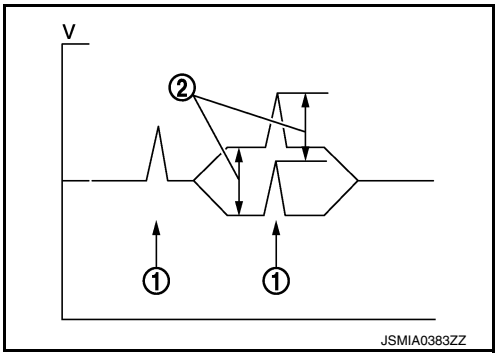
CAN Communication Line

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.

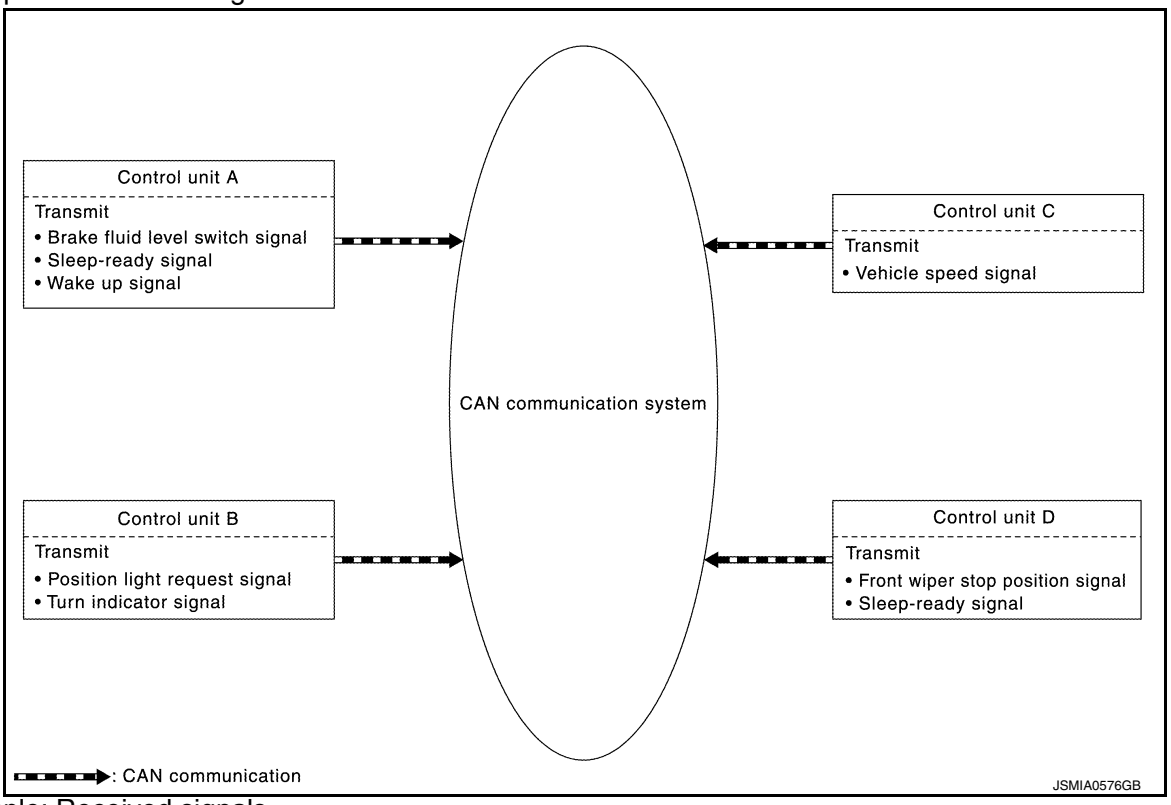
Since the CAN-H line and the CAN-L line are always adjacent to each other, the same degree of noise occurs, respectively, when a noise (1) occurs. Although the noise changes the voltage, the potential difference (2) between the CAN-H line and the CAN-L line is insensitive to noise. Therefore, noise-resistant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



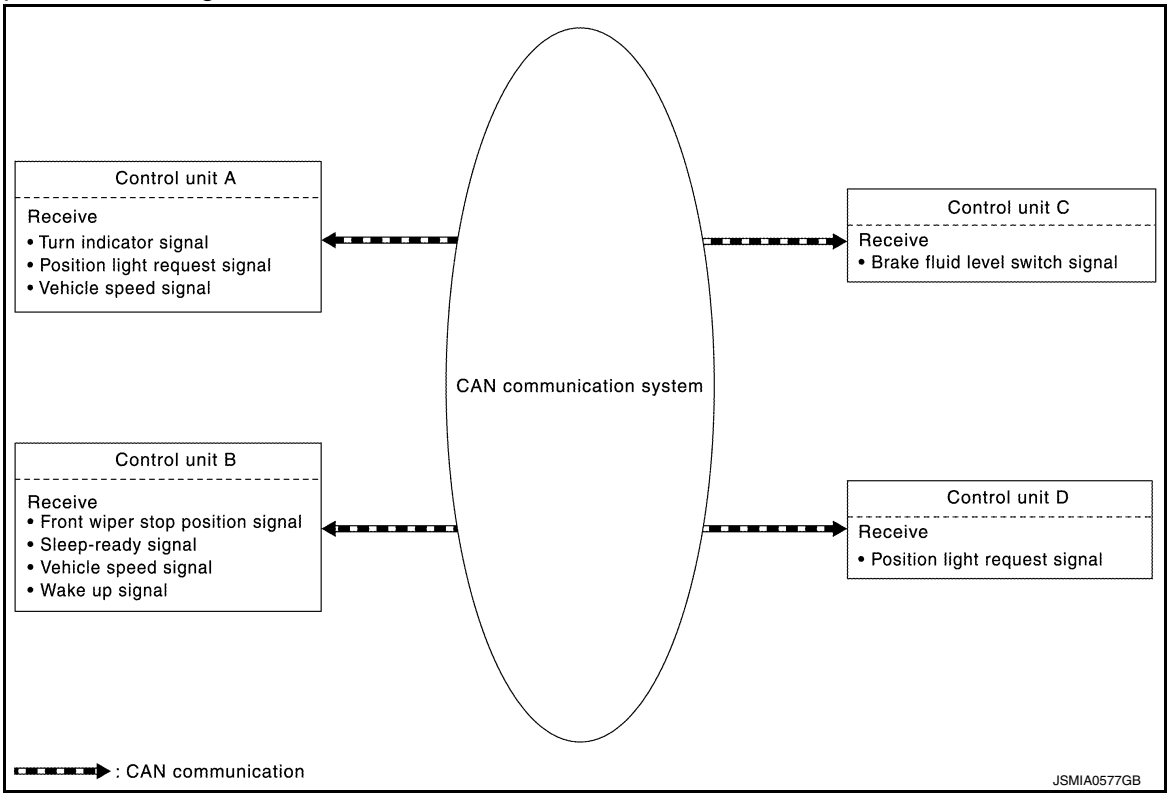
CAN Signal Communications

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

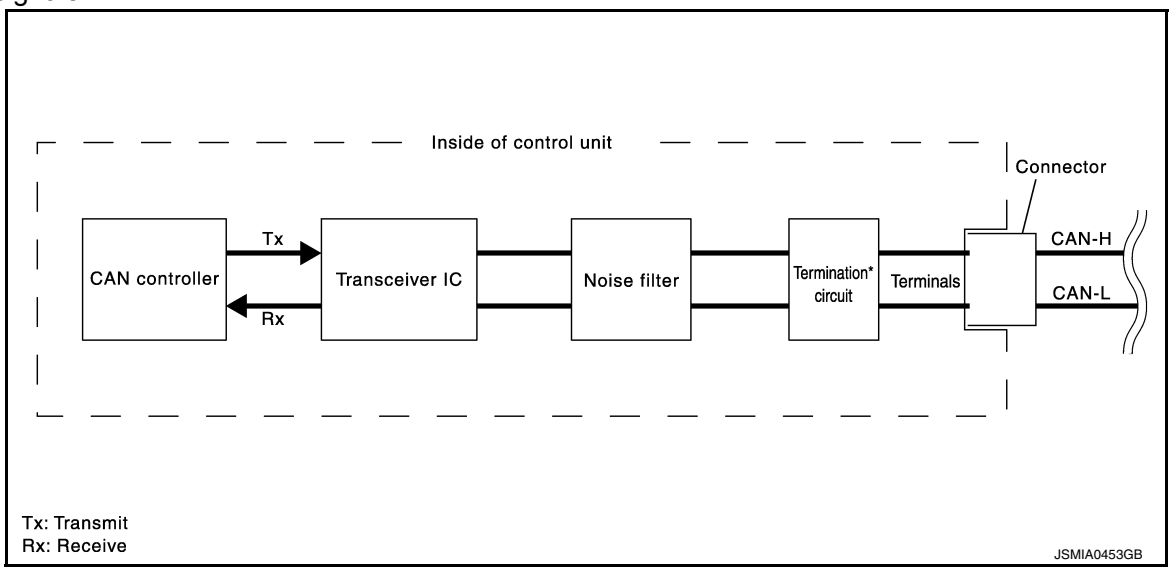


NOTE:
The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to LAN-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

INFOID:0000000012404635

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:0000000012404636

Determine CAN system type from the following specification chart.

NOTE:

Refer to LAN-17, "Trouble Diagnosis Flow Chart" for how to use CAN system specification chart.

Body type	4-door wagon					
Axle	2WD					
Engine	VQ35DE					
Transmission	CVT					
Brake control	VDC					
Color display (7 inches or 8 inches)			×		×	×
Automatic sliding door		×	×	×	×	×
Automatic drive positioner						×
Automatic back door				×	×	×
CAN system type	1	2	3	4	5	6
CAN communication control unit						
ECM	×	×	×	×	×	×
Power steering control module	×	×	×	×	×	×
ABS actuator and electric unit (control unit)	×	×	×	×	×	×
TCM	×	×	×	×	×	×
BCM	×	×	×	×	×	×

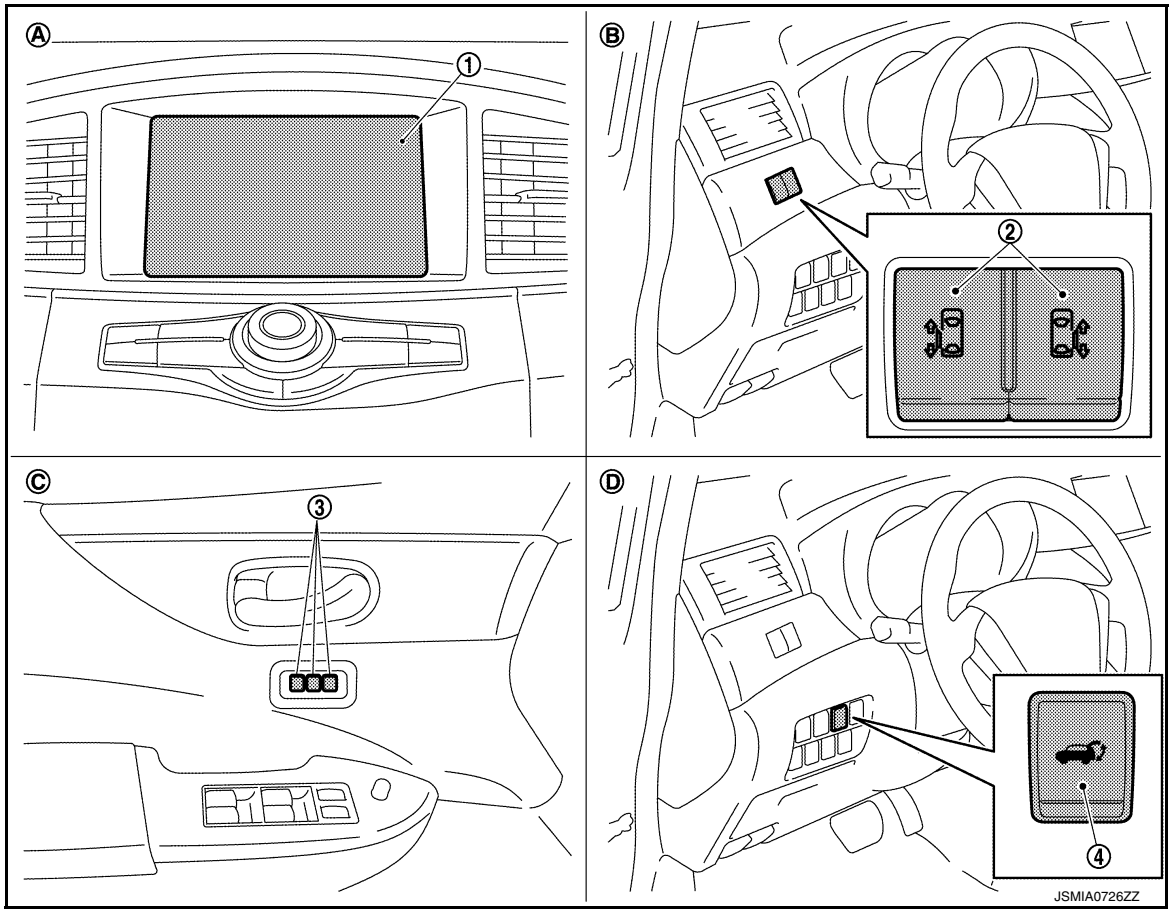
Body type	4-door wagon					
Axle	2WD					
Engine	VQ35DE					
Transmission	CVT					
Brake control	VDC					
Color display (7 inches or 8 inches)			×		×	×
Automatic sliding door		×	×	×	×	×
Automatic drive positioner						×
Automatic back door				×	×	×
CAN system type	1	2	3	4	5	6
Data link connector	×	×	×	×	×	×
Combination meter	×	×	×	×	×	×
Steering angle sensor	×	×	×	×	×	×
Air bag diagnosis sensor unit	×	×	×	×	×	×
AV control unit			×		×	×
Around view monitor control unit						×
BSW control module						×
Sliding door control unit RH		×	×	×	×	×
Driver seat control unit						×
Sliding door control unit LH		×	×	×	×	×
Automatic back door control module				×	×	×
IPDM E/R	×	×	×	×	×	×
BSW communication control unit						
BSW control module						×
Side radar LH						×
Side radar RH						×

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



1. Color display (7 inches or 8 inches)
2. Sliding door open/close switch
3. Seat memory switch
4. Automatic back door switch
A. With color display (7 inches or 8 inches)
B. With automatic sliding door
C. With automatic drive positioner
D. With automatic back door

CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

INFOID:0000000012404637

Refer to LAN-16, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart.

NOTE:

Refer to LAN-22, "Abbreviation List" for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	EPS	ABS	TCM	BCM	M&A	STRG	AV	AVM	BSW	ASD-R	ADP	ASD-L	PWBD	IPDM-E
A/C compressor request signal	T														R
Accelerator pedal position signal	T		R	R											
ASCD operation signal	T			R											
ASCD status signal	T					R									
Closed throttle position signal	T			R											
Cooling fan speed request signal	T														R
Engine and CVT integrated control signal	T			R											
	R			T											
Engine coolant temperature signal	T					R									

Signal name/Connecting unit	ECM	EPS	ABS	TCM	BCM	M&A	STRG	AV	AVM	BSW	ASD-R	ADP	ASD-L	PWBD	IPDM-E
Engine speed signal	T		R	R		R				R					
Engine status signal	T	R			R	R		R							
Fuel consumption monitor signal	T					R		R							
Fuel filler cap warning display signal	T					R									
Malfunctioning indicator lamp signal	T					R									
Starter motor relay cut off signal	T				R										R
EPS operation signal	R	T													
Hydraulic pump electric power steering warning lamp signal		T				R									
ABS operation signal			T	R											
ABS warning lamp signal			T			R									
Brake warning lamp signal			T			R									
TCS operation signal			T	R											
VDC OFF indicator lamp signal			T			R									
VDC operation signal			T	R											
VDC warning lamp signal			T			R									
Vehicle speed signal	R	R			R	T		R			R	R	R	R	R
			T	R	R	R			R	R	R	R	R	R	
Current gear position signal			R	T											
CVT self-diagnosis signal	R			T											
Input shaft revolution signal	R			T											
N range signal			R	T											
OD OFF indicator signal				T		R									
Output shaft revolution signal	R			T											
P range signal			R	T	R										
R range signal			R	T											
Shift position signal	R		R	T		R				R	R	R	R		
A/C ON signal	R				T										
ACC signal					T							R			
Automatic back door request signal					T									R	
Automatic sliding door operate request signal					T						R				
					T								R		
Back door lock status signal					T									R	
Blower fan ON signal	R				T										
Buzzer output signal					T	R									
						R				T					
Dimmer signal					T	R				R					
Door lock/unlock status signal					T	R									
Door switch signal					T	R						R			R
Door unlock signal					T							R			
Front fog light request signal					T										R
Front wiper request signal					T										R
Handle position signal					T							R			

Signal name/Connecting unit	ECM	EPS	ABS	TCM	BCM	M&A	STRG	AV	AVM	BSW	ASD-R	ADP	ASD-L	PWBD	IPDM-E
High beam request signal					T	R									R
Horn reminder signal					T										R
Ignition switch ON signal	R				T						R	R	R		R
					R										T
Interlock/PNP switch signal					T										R
					R										T
Key ID signal					T							R			
Low beam request signal					T										R
Low tire pressure warning lamp signal					T	R									
Oil pressure warning lamp signal	T					R									
Position light request signal					T	R									R
Rear window defogger control signal					T										R
	R														T
Sleep wake up signal					T	R					R	R	R	R	R
Starter control relay signal					T										R
Starter relay status signal					T	R									R
					R										T
Starter signal					T							R			
Stop lamp switch signal				R	T										
System setting signal					R			T				R			
					T			R							
								R				T			
Theft warning horn request signal					T										R
TPMS malfunction warning lamp signal					T	R									
Turn indicator signal					T	R				R					
Brake fluid level switch signal			R			T									
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									
Odometer signal					R	T									
Overdrive control switch signal				R		T									
Parking brake switch signal					R	T									
Seat belt buckle switch signal (driver side)					R	T									
Sleep-ready signal					R	T									
					R						T				
					R								T		
					R									T	
					R										T
Wake up signal					R	T									
					R						T				
					R								T		
					R									T	

Signal name/Connecting unit	ECM	EPS	ABS	TCM	BCM	M&A	STRG	AV	AVM	BSW	ASD-R	ADP	ASD-L	PWBD	IPDM-E
Wake up signal					R										T
Steering angle sensor malfunction signal		R					T								
Steering angle sensor signal		R	R				T	R	R						
Camera OFF signal								T	R						
Camera switch signal								T	R						
View change signal								R	T						
BSW warning lamp signal						R				T					
Door lock and unlock request signal					R						T				
					R								T		
Sliding door unlock request signal					R						T				
					R								T		
Hazard request signal					R									T	
Detention switch signal					R							R			T
Front wiper stop position signal					R										T
High beam status signal	R														T
Low beam status signal	R														T
Push-button ignition switch status signal					R										T
Starter motor relay/Starter motor control relay control signal	R														T

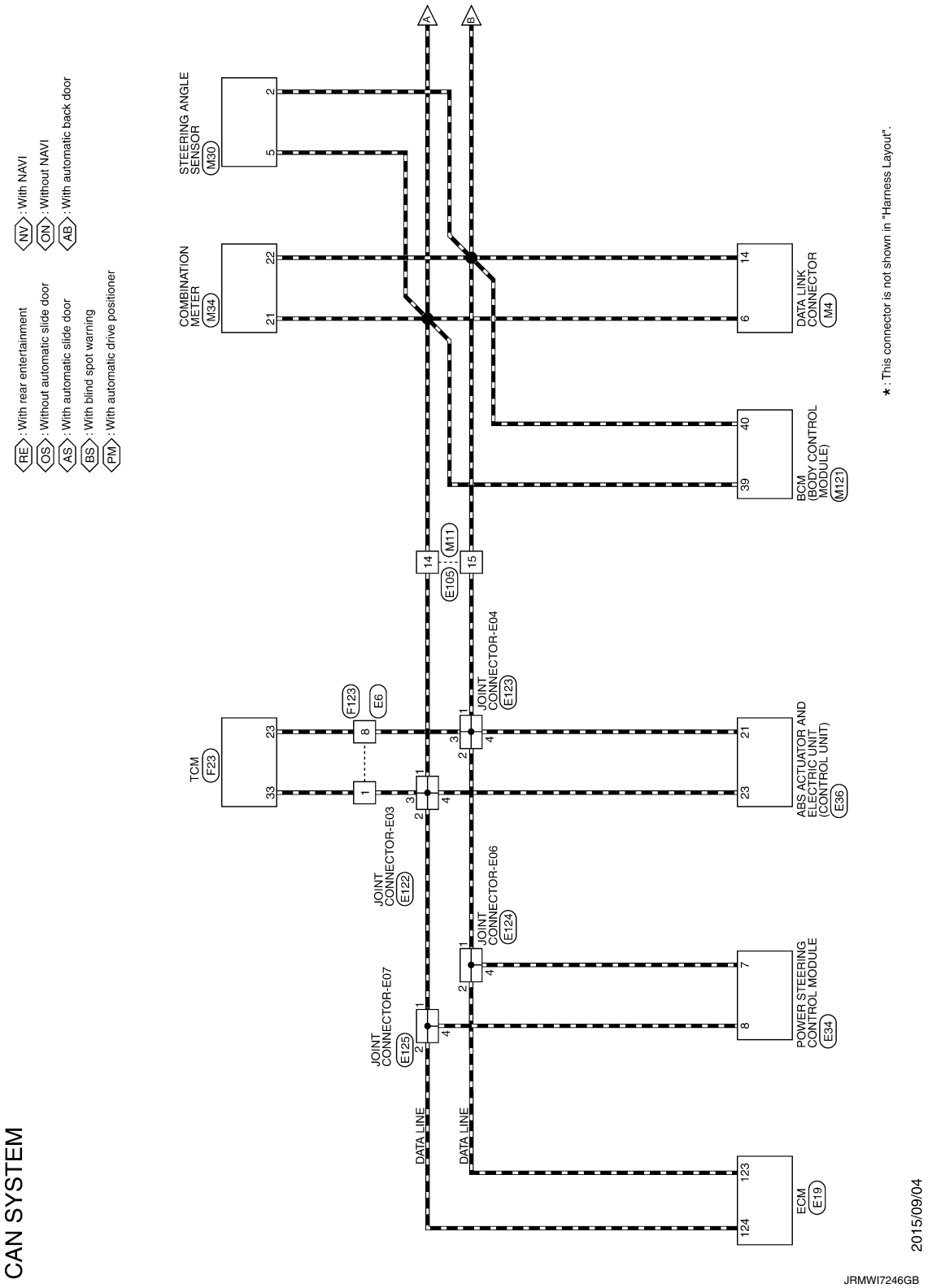
NOTE:
CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

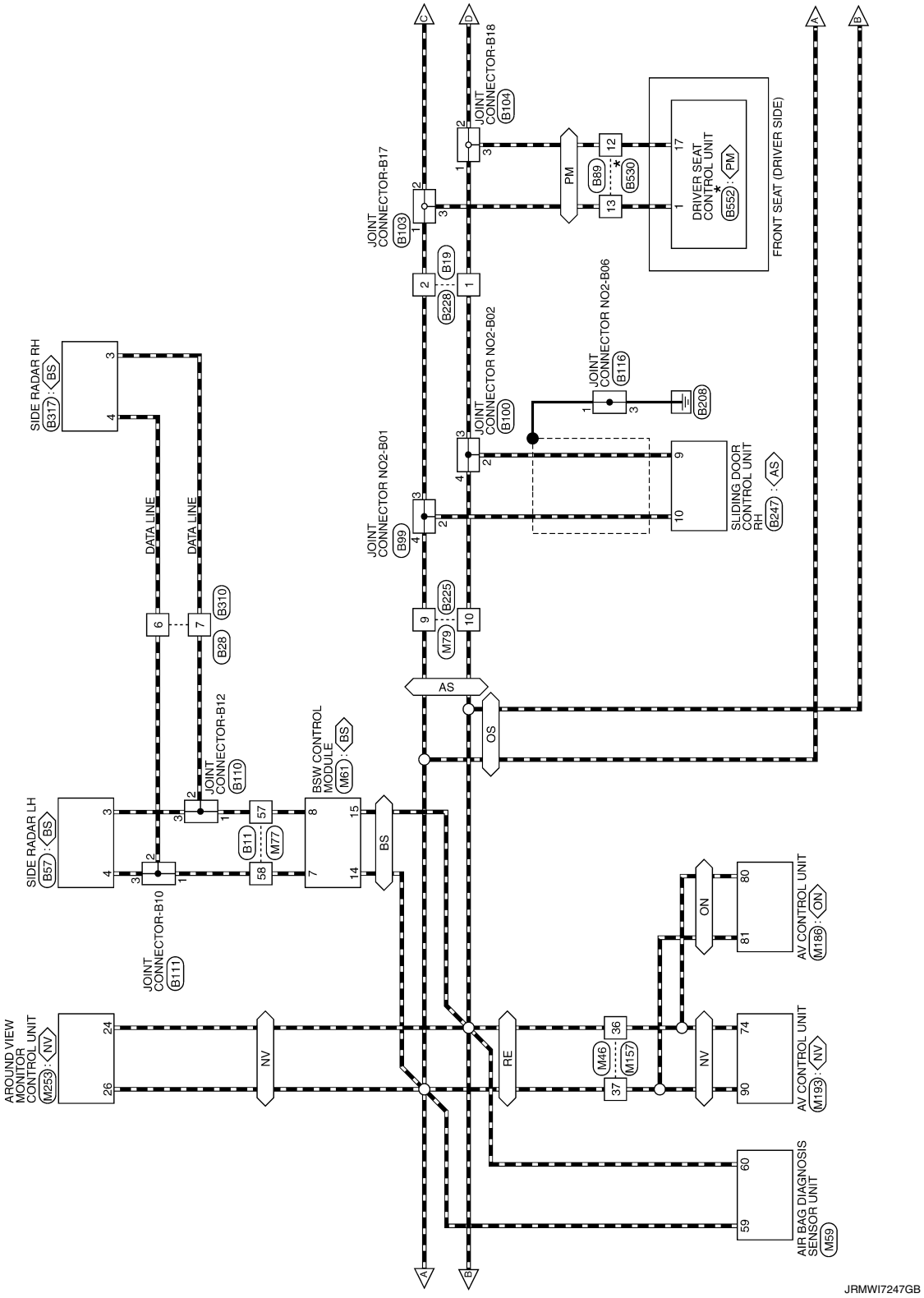
WIRING DIAGRAM

CAN SYSTEM

Wiring Diagram

INFOID:0000000012404638




JOINT CONNECTOR-B18
JOINT CONNECTOR (B104)
JOINT CONNECTOR-B17
JOINT CONNECTOR (B103)
PM
B89
B530
DRIVER SEAT CONTROL UNIT
B552 : PM
FRONT SEAT (DRIVER SIDE)
B228
B19
JOINT CONNECTOR NO2-B02
JOINT CONNECTOR (B100)
JOINT CONNECTOR NO2-B06
JOINT CONNECTOR (B116)
B208
JOINT CONNECTOR NO2-B01
JOINT CONNECTOR (B99)
SLIDING DOOR CONTROL UNIT RH
B247 : AS
B225
M79
SIDE RADAR RH
B317 : BS
DATA LINE
DATA LINE
B310
B28
AS
OS
JOINT CONNECTOR-B12
JOINT CONNECTOR (B110)
BSW CONTROL MODULE
M61 : BS
SIDE RADAR LH
B57 : BS
B11
M77
BS
JOINT CONNECTOR-B10
JOINT CONNECTOR (B111)
ON
AV CONTROL UNIT
M186 : ON
AROUND VIEW MONITOR CONTROL UNIT
M253 : NV
NV
RE
M46
M157
AV CONTROL UNIT
M193 : NV
AIR BAG DIAGNOSIS SENSOR UNIT
M59
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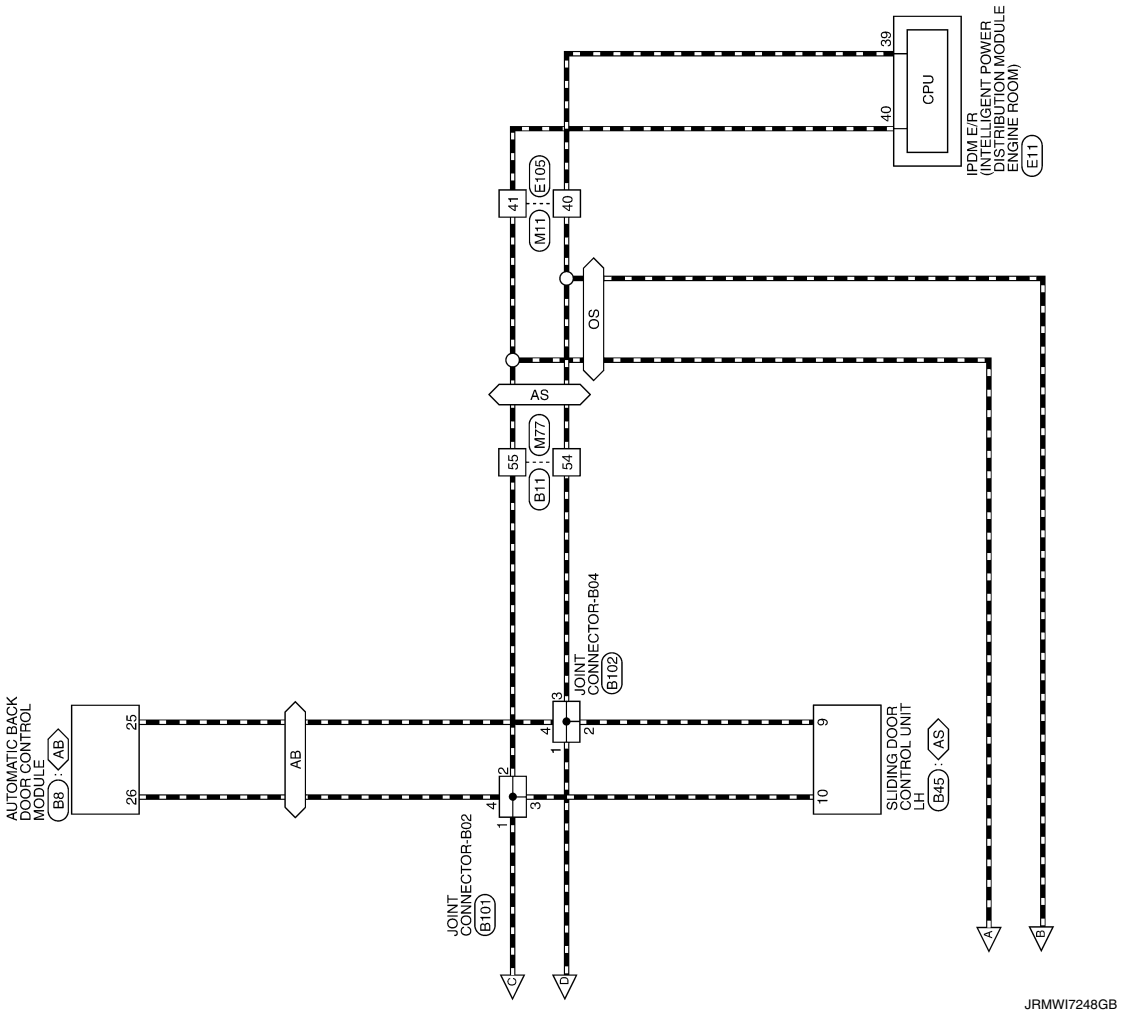
IPDM E/R
(INTELLIGENT POWER
DISTRIBUTION MODULE
ENGINE ROOM)
E11
CPU
39
40
E105
M11
41
40
OS
AS
M77
55
54
B11
JOINT
CONNECTOR-B04
B102
3
4
2
1
AUTOMATIC BACK
DOOR CONTROL
MODULE
B8
AB
25
26
AB
SLIDING DOOR
CONTROL UNIT
LH
B45
AS
9
10
JOINT
CONNECTOR-B02
B101
2
4
1
3
C
D
A
B
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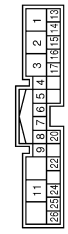
CAN SYSTEM

Connector No.	B8
Connector Name	AUTOMATIC BACK DOOR CONTROL MODULE
Connector Type	TH20FW-TB6



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SB	+B
2	BR	LATCH MTR CLOSE
3	L	LATCH MTR OPEN
4	P	INSIDE CLOSE SW
5	W	BUZZER
6	B	NAM-FUNC-FLG
7	P	+B
8	B	GROUND
9	GR	+B
11	B	GROUND
13	W	TOUCH SENS RH
14	P	TOUCH SENS GND
15	GR	TOUCH SENS LH
16	L	DRIVER SW
17	G	MAIN SW
20	R	CLOSE SW
22	W	HALF LATCH SW
24	G	OPEN SW
25	P	CAN-L
26	L	CAN-H

Connector No.	B11
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS19

Terminal No.	Color Of Wire	Signal Name [Specification]
10	GR	-
12	G	-
13	P	-
15	L	-
29	GR	-
30	W	-
31	P	-
37	SHIELD	-
38	R	-
39	B	-
40	W	-
51	Y	-
52	B	-
53	G	-
54	P	-
55	L	-
57	Y	-
58	L	-
59	GR	-
60	Y	-
61	Y	-
62	BR	-
63	L	-
64	W	-
65	R	-
66	SHIELD	-
67	B	-
68	W	-
69	SHIELD	-
70	W/R	-
71	B/R	-
72	BR	-
74	L	-
75	SB	-
77	V	-
78	LG	-
79	GR	-
80	BR	-
81	SB	-
82	V	-
87	G	-
88	V	-
89	G	-
90	Y	-
91	LG	-
92	L	-

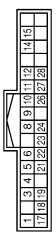
Connector No.	B19
Connector Name	WIRE TO WIRE
Connector Type	NS08FW-CS

Terminal No.	Color Of Wire	Signal Name [Specification]
1	P	-
2	L	-
6	R	-
8	G	-

Connector No.	B28
Connector Name	WIRE TO WIRE
Connector Type	TH16FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	V	-
2	W/R	-
3	B/R	-
4	SHIELD	-
5	B/W	-
6	L	-
7	Y	-
8	B/W	-
9	R	-
10	W	-
11	W	-
12	GR	-

Connector No.	B45
Connector Name	SLIDING DOOR CONTROL UNIT LH
Connector Type	TH32FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	MAIN SW
3	R	KNOB LOCK
4	GR	A-SIGN
5	L	HALF LATCH
6	P	IGN
8	W	BUZZER
9	P	CAN-L
10	L	CAN-H
11	P	ENCODER POWER
12	GR	ELEC B
14	GR	ONETOUCH OPEN SW
15	R	NEUTRAL SW
17	GR	FUEL LID SW
18	W	FULL SW
19	P	DRIVER SW
21	G	B-SIGN
22	W	HANDLE
23	B	SW GND
24	G	TOUCH SENS

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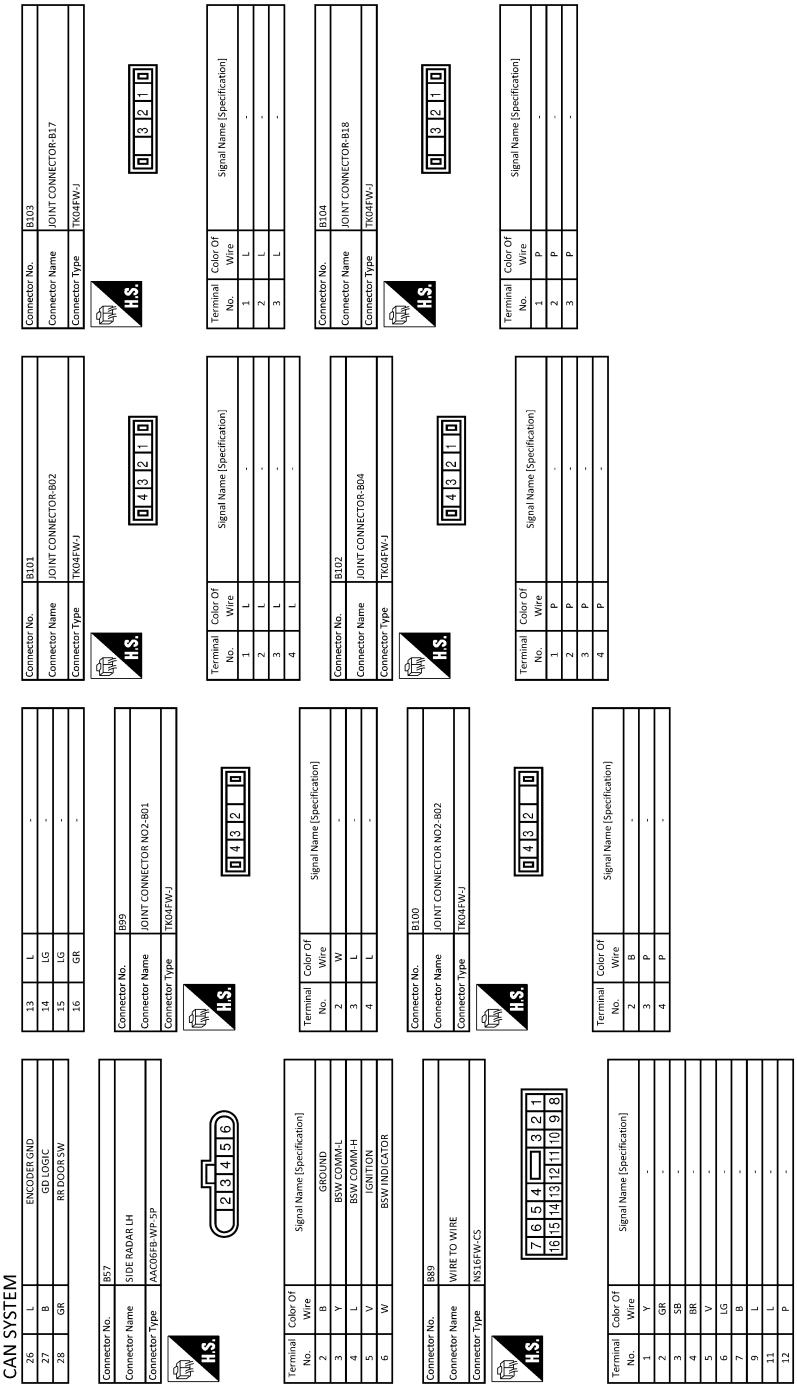

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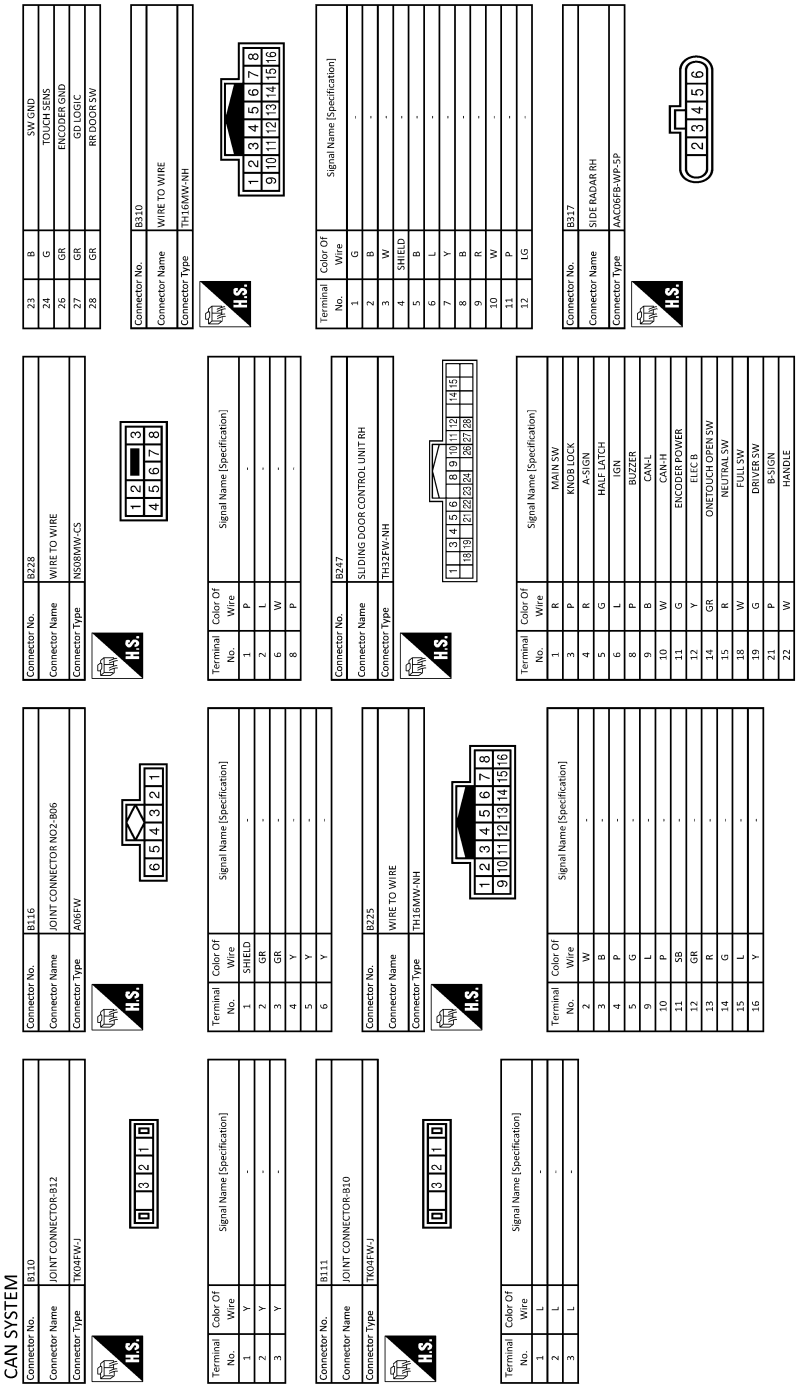

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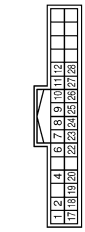
CAN SYSTEM

Terminal No.	Color Of Wire	Signal Name [Specification]
2	B	GROUND
3	Y	BSW COMM-L
4	L	BSW COMM-H
5	G	IGNITION
6	W	BSW INDICATOR

Connector No.	B530
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS

Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
2	R/G	-
3	R/W	-
4	W/R	-
5	W/L	-
6	Y	-
7	LG	-
9	P	-
11	R	-
12	V	-
13	R/Y	-
14	G	-
15	P	-
16	L/P	-

Connector No.	B552
Connector Name	DRIVER SEAT CONTROL UNIT
Connector Type	TH32FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R/Y	CAN-H
2	R	UART (TX/RX)
4	R/L	PULSE (RECLINER)
6	R/W	ADDRESS 2
7	R/G	IND-2
8	SB	SLIDE SW (BACKWARD)
9	L	RECLINER SW (BACKWARD)
10	L/B	FRONT LIFTER SW (DOWNWARD)
11	L/W	REAR LIFTER SW (DOWNWARD)
12	L/R	SENSOR POWER SUPPLY
17	V	CAN-L
18	B/W	PULSE (SLIDE)
19	B/R	PULSE (FRONT LIFTER)
20	B/L	PULSE (REAR LIFTER)
22	W/L	ADDRESS 1
23	W/R	IND-1
24	V/W	SLIDE SW (FORWARD)
25	Y/B	RECLINER SW (FORWARD)
26	Y/R	FRONT LIFTER SW (UPWARD)
27	Y/L	REAR LIFTER SW (UPWARD)
28	G	SET SW

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TK16MGY-1V

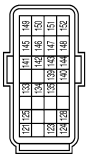
Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	G	-
3	Y	-
4	V	-
5	GR	-
6	V	-
7	G	-
8	P	-
9	R	-
10	W	-
11	G	-
12	BR	-
13	SB	-
14	B	-
15	W	-
16	R	-

Connector No.	E11
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH08FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
39	P	-
40	L	-
41	B	-
42	SB	-

43	LG	-
44	W	-
45	Y	-
46	O	-

Connector No.	E19
Connector Name	ECM
Connector Type	RH24FB-RZ8-L-LH



Terminal No.	Color Of Wire	Signal Name [Specification]
121	LG	EVAP CONTROL SYSTEM PRESSURE SENSOR
123	P	CAN COMMUNICATION LINE (CAN-L)
124	L	CAN COMMUNICATION LINE (CAN-H)
125	W	SENSOR POWER SUPPLY
128	Y	FUEL TANK TEMPERATURE SENSOR
133	BR	IGNITION SWITCH
134	Y	ASCD STEERING SWITCH
135	BR	SENSOR GROUND
139	SB	STOP LAMP SWITCH
140	BR	BRAKE PEDAL POSITION SWITCH
141	V	EVAP CANISTER VENT CONTROL VALVE
142	GR	SENSOR POWER SUPPLY
143	O	ACCELERATOR PEDAL POSITION SENSOR 2
144	G	SENSOR GROUND
145	L	POWER SUPPLY FOR ECM
146	P	SENSOR POWER SUPPLY
147	B	ECM GROUND
148	V	SENSOR GROUND
149	B	ECM GROUND
150	W	ACCELERATOR PEDAL POSITION SENSOR 1
151	B	SENSOR GROUND
152	B	ECM GROUND

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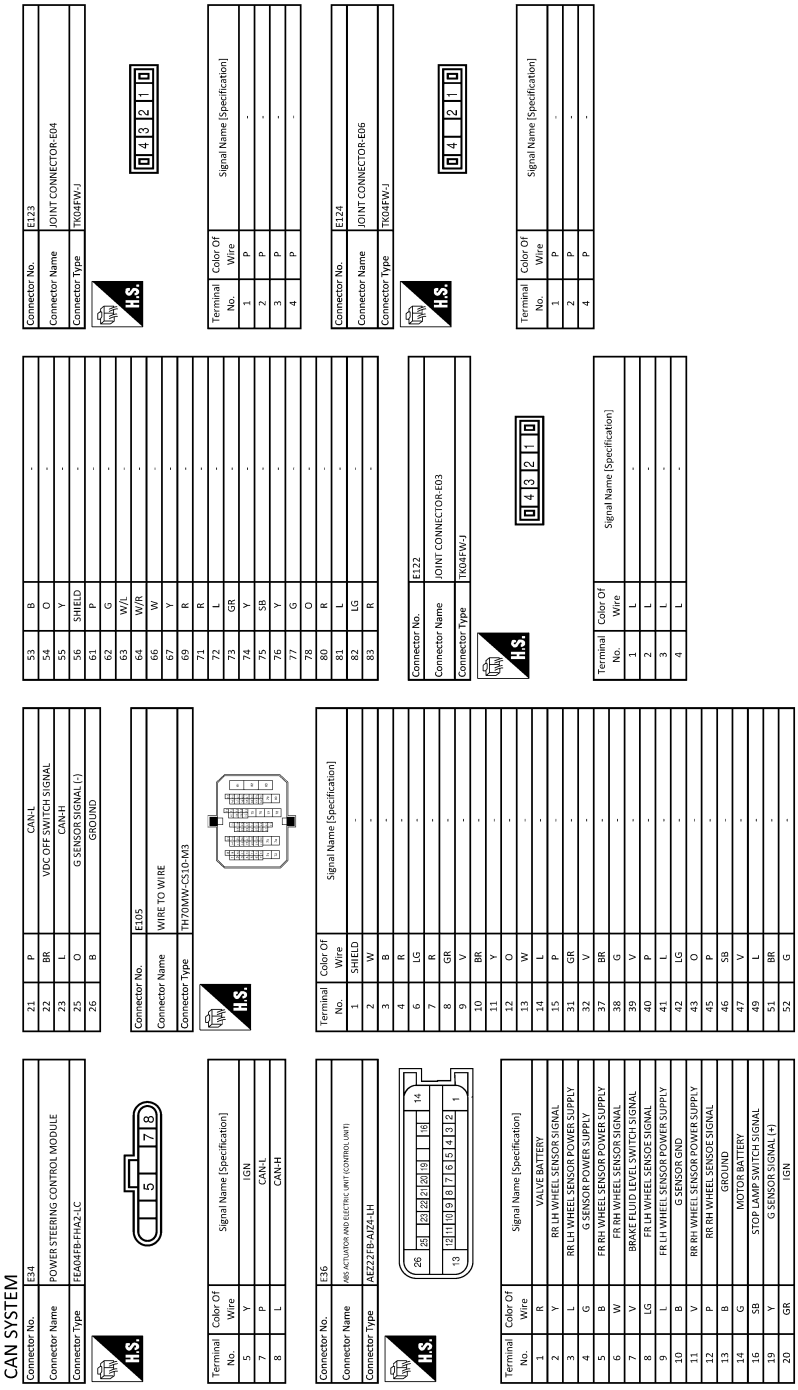

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CAN SYSTEM

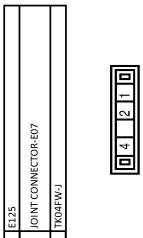
Connector No.	E125
Connector Name	JOINT CONNECTOR-E07
Connector Type	TK04FW-J

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	L	-
4	L	-

Connector No.	F23
Connector Name	TCM
Connector Type	RH40FB-RZ8-L-RH

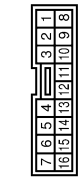
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	L_RANGE_SW
4	G/O	D_RANGE_SW
5	P/L	N_RANGE_SW
6	P/B	R_RANGE_SW
7	BR/W	P_RANGE_SW
11	W/R	SENSOR GROUND
12	V	CVT FLUID TEMPERATURE SENSOR
14	W	G SENSOR
16	V/W	SECONDARY PRESSURE SENSOR
17	LG	PRIMARY PRESSURE SENSOR
23	P	CAN-L
24	BR	INPUT SPEED SENSOR
26	L/O	SENSOR POWER
30	R/Y	LINE PRESSURE SOLENOID VALVE
33	L	CAN-H
34	LG/R	OUTPUT SPEED SENSOR
35	LG	PRIMARY SPEED SENSOR
37	L/W	SELECT SOLENOID VALVE
38	V/R	TORQUE CONVERTER CLUTCH SOLENOID VALVE
39	W/B	SECONDARY PRESSURE SOLENOID VALVE
40	B/R	PRIMARY PRESSURE SOLENOID VALVE
41	B	GROUND
42	B	GROUND
45	LG	BATTERY POWER SUPPLY
46	LG	BATTERY POWER SUPPLY
47	Y	IGNITION POWER SUPPLY
48	Y	IGNITION POWER SUPPLY

Connector No.	F123
Connector Name	WIRE TO WIRE
Connector Type	TK16FGY-1V

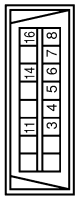
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	W	-
3	G/R	-
4	P/B	-
5	R	-
6	L/R	-
7	P	-
8	P	-
9	W/R	-
10	Y/B	-
11	BR/W	-
12	BR	-
13	G	-
14	B	-
15	L/O	-
16	R	-

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD16FW

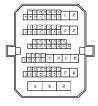
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
3	LG	-
4	GR	-
5	GR	-
6	L	-
7	R	-
8	G	-
11	SB	-
14	P	-
16	P	-

Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH17DFW-CS10-M3

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	SHIELD	-
2	W	-
3	B	-
4	R	-
6	G	-
7	R	-
8	G	-
9	B	-
10	R	-
11	W	-
12	L	- [Without automatic drive positioner]

12	LG	- [With automatic drive positioner]
13	G	- [Without automatic drive positioner]
13	Y	- [With automatic drive positioner]
14	L	-
15	P	-
31	R	-
32	LG	-
37	BR	- [With automatic drive positioner]
37	W	- [Without automatic drive positioner]
38	R	-
39	BE	- [Without automatic drive positioner]
39	Y	- [With automatic drive positioner]
40	P	-
41	L	-
42	G	-
43	W	-
45	P	-
46	V	-
47	R	-
49	G	-
51	G	-
52	W	-
53	B	-
54	LG	-
55	L	-
56	SHIELD	-
61	R	-
62	W	-
63	B	-
64	W	-
66	W	-
67	BR	-
69	P	-
71	R	-
72	L	-
73	LG	-
74	Y	-
75	Y	-
76	V	-
77	P	-
78	BR	-
80	Y	-
81	W	-
82	L	-
83	R	-

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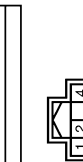
CAN SYSTEM

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH08FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	GR	-
2	P	-
4	G	-
5	L	-

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

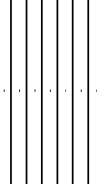


Terminal No.	Color Of Wire	Signal Name [Specification]
1	O	BATTERY POWER SUPPLY [With automatic drive positioner]
1	P	BATTERY POWER SUPPLY [Without automatic drive positioner]
2	G	IGNITION SIGNAL [Without automatic drive positioner]
2	Y	IGNITION SIGNAL [With automatic drive positioner]
3	B	GROUND
4	B	GROUND
5	B	ILLUMINATION CONTROL SIGNAL [Without automatic drive positioner]
5	B/P	ILLUMINATION CONTROL SIGNAL [With automatic drive positioner]
8	G	TRIP RESET SWITCH SIGNAL [Without automatic drive positioner]
8	SB	TRIP RESET SWITCH SIGNAL [With automatic drive positioner]
10	P	METER CONTROL SWITCH GROUND
11	G	ENTER SWITCH SIGNAL
12	BR	SELECT SWITCH SIGNAL [Without automatic drive positioner]
12	R	SELECT SWITCH SIGNAL [With automatic drive positioner]
13	W	ILLUMINATION CONTROL SWITCH SIGNAL [Without automatic drive positioner]
13	Y	ILLUMINATION CONTROL SWITCH SIGNAL [With automatic drive positioner]
14	G	ILLUMINATION CONTROL SWITCH SIGNAL [Without automatic drive positioner]
14	V	ILLUMINATION CONTROL SWITCH SIGNAL [With automatic drive positioner]
15	BR	AIR BAG SIGNAL
16	L	ENGINE COOLANT TEMPERATURE SIGNAL
18	L	AMBIENT SENSOR SIGNAL [Without automatic drive positioner]
18	LG	AMBIENT SENSOR SIGNAL [With automatic drive positioner]
19	R	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
20	G	AMBIENT SENSOR GROUND [Without automatic drive positioner]
20	Y	AMBIENT SENSOR GROUND [With automatic drive positioner]
21	L	CAN-H
22	P	CAN-L
23	B	GROUND
24	B	FUEL LEVEL SENSOR GROUND
25	BR	ALTERNATOR SIGNAL [With automatic drive positioner]
25	W	ALTERNATOR SIGNAL [Without automatic drive positioner]
26	BR	PARKING BRAKE SWITCH SIGNAL
27	BE	BRAKE FLUID LEVEL SWITCH SIGNAL [Without automatic drive positioner]
27	Y	BRAKE FLUID LEVEL SWITCH SIGNAL [With automatic drive positioner]
28	V	SECURITY SIGNAL
29	G	WASHER LEVEL SWITCH SIGNAL
31	SB	VEHICLE SPEED SIGNAL [8-PULSE]
32	P	OVERDRIVE CONTROL SWITCH SIGNAL
34	O	FUEL LEVEL SENSOR SIGNAL
35	BR	SEAT BELT BUCKLE SWITCH SIGNAL [DRIVER SIDE] [With automatic drive positioner]
35	P	SEAT BELT BUCKLE SWITCH SIGNAL [DRIVER SIDE] [Without automatic drive positioner]
36	BR	PASSENGER SEAT BELT WARNING SIGNAL

Connector No.	M46
Connector Name	WIRE TO WIRE
Connector Type	TH40MW-NH

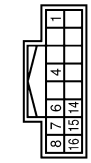
Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	-
3	B	-
4	SHIELD	-
5	L	-
6	P	-
7	B	-
8	Y	-
9	L	-
10	B	-
11	GR	-
12	P	-
13	G	-
14	LG	-
15	SB	-
16	GR	-
17	P	-
18	GR	-
19	G	-
20	Y	-
21	GR	-
23	B/W	-
24	B	-
25	SHIELD	-
26	GR	-
27	B	-
28	W	-
30	LG	-
31	SB	-
33	P	-
34	LG	-
35	R	-
36	P	-
37	L	-
38	BE	-
39	LG	-
40	SB	-

Connector No.	M59
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX



Terminal No.	Color Of Wire	Signal Name [Specification]
1	BE	-
2	GR	-
3	LG	-
4	Y	-
5	V	-
6	V	-
7	LG	-
8	BR	-
9	Y	-
18	B	-
19	W	-
22	GR	-
23	R	-
24	LG	-
25	LG	-
51	W	-
52	B	-
53	W	-
54	B	-
57	W	-
59	L	-
60	P	-

Connector No.	M61
Connector Name	BSW CONTROL MODULE
Connector Type	TH16FW-NH



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R	-
4	P	-
6	B	-
7	L	-
8	Y	-
14	L	-
15	P	-
16	G	-

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CAN SYSTEM

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-CS19

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
10	P	-
12	BE	-
13	W	-
15	R	-
29	W	-
30	P	-
31	BE	-
37	SHIELD	-
38	B	- [Without around view monitor]
38	W	- [With around view monitor]
39	B	- [With around view monitor]
39	W	- [Without around view monitor]
40	R	-
51	LG	-
52	B	-
53	BE	-
54	P	-
55	L	-
57	Y	-
58	L	-
59	BE	-
60	G	-
61	LG	-
62	SB	-
63	BE	-
64	R	-
65	G	-
66	SHIELD	-
67	B	-
68	W	-
69	SHIELD	-
70	B	-
71	W	-
72	G	-
74	GR	-
75	G	-
77	W	-
78	R	-
79	W	-
80	G	-
81	L	-
82	W	-
87	V	-
88	LG	-
89	GR	-
90	R	- [With automatic drive positioner]
90	Y	- [Without automatic drive positioner]
91	LG	-
92	BR	-

Connector No.	M79
Connector Name	WIRE TO WIRE
Connector Type	TH16FW-NH

H.S.

8	7	6	5	4	3	2	1
16	15	14	13	12	11	10	9

Terminal No.	Color Of Wire	Signal Name [Specification]
2	GR	-
3	B	-
4	P	-
5	BR	-
9	L	-
10	P	-
11	W	-
12	R	-
13	BE	-
14	W	-
15	G	-
16	P	-

Connector No.	M121
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH

H.S.

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

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	REAR WINDOW DEF RELAY CONT
2	R	COMBI SW INPUT 5
3	G	COMBI SW INPUT 4
4	BE	COMBI SW INPUT 3
5	G	COMBI SW INPUT 2
6	W	COMBI SW INPUT 1
7	W	KEY CYL UNLOCK SW
8	GR	PW SW COMM [With automatic slide door]
8	Y	KEY CYL LOCK SW [Without automatic slide door]
9	GR	STOP LAMP SW 1
12	GR	DOOR LK & UNLK SW LOCK
13	BR	DOOR LK & UNLK SW UNLOCK
14	L	OPTICAL SENS
15	W	REAR WINDOW DEF SW
16	Y	DIMMER
17	O	SENS PWR SPLY
18	R	RECEIV/SENS GND
21	GR	NATS ANT AMP.
23	W	SECURITY IND CONT
25	P	NATS ANT AMP.
27	O	A/C ON
28	BR	BLOWER FAN ON
29	P	HAZARD SW
30	L	BK DOOR OPNR SW
31	G	DR DOOR UNLK SENS
32	R	COMBI SW OUTPUT 5
33	W	COMBI SW OUTPUT 4
34	P	COMBI SW OUTPUT 3
35	GR	COMBI SW OUTPUT 2
36	R	COMBI SW OUTPUT 1
37	G	DETENT SW
38	BE	RECEIVER COMM
39	L	CAN-H
40	P	CAN-L

Connector No.	M157
Connector Name	WIRE TO WIRE
Connector Type	TH40FW-NH

H.S.

8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47

Terminal No.	Color Of Wire	Signal Name [Specification]
2	W	-
3	B	-
4	SHIELD	-
5	SB	-
6	BR	-
7	Y	-
8	LG	-
9	B	-
10	L	-
11	W	-
12	P	-
13	BE	-
14	LG	-
15	SB	-
16	GR	-
17	V	-
18	O	-
19	G	-
20	SB	-
21	B	-
23	B	-
24	B	-
25	SHIELD	-
26	B	-
27	R	-
28	W	-
30	LG	-
31	SB	-
33	BE	-
34	W	-
35	R	-
36	P	-
37	L	-
38	P	-
39	L	-
40	V	-

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CAN SYSTEM

Connector No.	M186
Connector Name	AV CONTROL UNIT
Connector Type	TH32FW-NH

76	77	78	79	80	81	82				87	88		90	91
92	93	94	95	96						103	104	105	106	107

Terminal No.	Color Of Wire	Signal Name [Specification]
76	LG	AV COMMUNICATION SIGNAL (L)
77	V	AV COMMUNICATION SIGNAL (H)
78	LG	AV COMMUNICATION SIGNAL (L)
79	SB	AV COMMUNICATION SIGNAL (H)
80	P	CAN-L
81	L	CAN-H
82	R	SWITCH GROUND
87	R	SOUND SIGNAL [TEL VOICE, VOICE GUIDANCE] (+)
88	W	SOUND SIGNAL [TEL VOICE, VOICE GUIDANCE] (-)
90	BR	HEADPHONE SOUND SIGNAL RH (+)
91	Y	HEADPHONE SOUND SIGNAL RH (-)
92	P	VEHICLE SPEED SIGNAL [8-P PULSE]
93	R	PARKING BRAKE SIGNAL
94	W	REVERSE SIGNAL
95	G	IGNITION SIGNAL
96	W	DISK EJECT SIGNAL
102	W	AUX SOUND SIGNAL GROUND
103	B	AUX SOUND SIGNAL LH (+)
104	R	AUX SOUND SIGNAL RH (+)
105	GR	SHIELD
106	P	HEADPHONE SOUND SIGNAL LH (+)
107	L	HEADPHONE SOUND SIGNAL LH (-)

Connector No.	M193
Connector Name	AV CONTROL UNIT
Connector Type	TH32FW-NH

					65		67	68		71	72	73	74	75	76
79	80	81	82	83	84				87	88	89	90	91	92

Terminal No.	Color Of Wire	Signal Name [Specification]
65	R	PARKING BRAKE SIGNAL
67	W	COMPOSITE IMAGE SIGNAL (GROUND FOR FRONT DISPLAY UNIT)
68	R	COMPOSITE IMAGE SIGNAL (FOR FRONT DISPLAY UNIT)
71	SHIELD	SHIELD
72	W	MICROPHONE VCC
73	B	COMMUNICATION SIGNAL (CONT->DISP)
74	P	CAN-L
75	LG	AV COMMUNICATION SIGNAL (L)
76	LG	AV COMMUNICATION SIGNAL (L)
79	BE	DIMMER SIGNAL
80	G	IGNITION SIGNAL
81	W	REVERSE SIGNAL
82	P	VEHICLE SPEED SIGNAL [8-PULSE]
83	SHIELD	SHIELD
84	B	COMPOSITE IMAGE SYNCHRONIZING SIGNAL
87	B	MICROPHONE SIGNAL
88	SHIELD	SHIELD
89	W	COMMUNICATION SIGNAL (DISP->CONT)
90	L	CAN-H
91	SB	AV COMMUNICATION SIGNAL (H)
92	V	AV COMMUNICATION SIGNAL (H)

Connector No.	M253
Connector Name	AROUND VIEW MONITOR CONTROL UNIT
Connector Type	TH40FW-NH

4	6	8	10	12	14	16	18	20				34	36	
3	5	7	9	11	13	15	17	19				33	35	40

Terminal No.	Color Of Wire	Signal Name [Specification]
3	SHIELD	SIELD
4	B	CAMERA IMAGE SIGNAL
5	B	FRONT CAMERA GROUND
6	R	FRONT CAMERA POWER SUPPLY
7	SHIELD	SIELD
8	W	FRONT CAMERA IMAGE SIGNAL
9	B	SIDE CAMERA PASSENGER SIDE GROUND
10	R	SIDE CAMERA PASSENGER SIDE POWER SUPPLY
11	SHIELD	SIELD
12	W	SIDE CAMERA PASSENGER SIDE IMAGE SIGNAL
13	B	SIDE CAMERA DRIVER SIDE GROUND
14	R	SIDE CAMERA DRIVER SIDE POWER SUPPLY
15	SHIELD	SIELD
16	W	SIDE CAMERA DRIVER SIDE IMAGE SIGNAL
17	B	REAR CAMERA GROUND
18	R	REAR CAMERA POWER SUPPLY
19	SHIELD	SIELD
20	W	REAR CAMERA IMAGE SIGNAL
24	P	CAN-L
26	L	CAN-H
32	LG	REVERSE SIGNAL
39	B	GROUND
40	G	IGNITION SIGNAL

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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

INFOID:0000000012404639

NOTE:
Refer to LAN-17, "Trouble Diagnosis Flow Chart" for how to use interview sheet.

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:0000000012404640

MAIN LINE

Malfunction area	Reference
Main line between power steering control module and ABS actuator and electric unit (control unit)	LAN-51, "Diagnosis Procedure"
Main line between ABS actuator and electric unit (control unit) and data link connector	LAN-52, "Diagnosis Procedure"
Main line between data link connector and air bag diagnosis sensor unit	LAN-53, "Diagnosis Procedure"
Main line between air bag diagnosis sensor unit and sliding door control unit RH	LAN-54, "Diagnosis Procedure"
Main line between sliding door control unit RH and sliding door control unit LH	LAN-55, "Diagnosis Procedure"
Main line between sliding door control unit RH and driver seat control unit	LAN-56, "Diagnosis Procedure"
Main line between driver seat control unit and sliding door control unit LH	LAN-57, "Diagnosis Procedure"

BRANCH LINE

Malfunction area	Reference
ECM branch line circuit	LAN-58, "Diagnosis Procedure"
Power steering control module branch line circuit	LAN-59, "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-60, "Diagnosis Procedure"
TCM branch line circuit	LAN-61, "Diagnosis Procedure"
BCM branch line circuit	LAN-62, "Diagnosis Procedure"
Data link connector branch line circuit	LAN-63, "Diagnosis Procedure"
Combination meter branch line circuit	LAN-64, "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-65, "Diagnosis Procedure"
Air bag diagnosis sensor unit branch line circuit	LAN-66, "Diagnosis Procedure"
AV control unit branch line circuit	LAN-67, "Diagnosis Procedure"
Around view monitor control unit	LAN-68, "Diagnosis Procedure"
BSW control module branch line circuit	LAN-69, "Diagnosis Procedure"
Sliding door control unit RH branch line circuit	LAN-70, "Diagnosis Procedure"
Driver seat control unit branch line circuit	LAN-71, "Diagnosis Procedure"
Sliding door control unit LH branch line circuit	LAN-72, "Diagnosis Procedure"
Automatic back door control module branch line circuit	LAN-73, "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-74, "Diagnosis Procedure"

SHORT CIRCUIT

Malfunction area	Reference
CAN communication circuit	LAN-77, "Diagnosis Procedure"

BSW Communication Circuit

INFOID:0000000012404641

BRANCH LINE

Malfunction area	Reference
Side radar LH branch line circuit	LAN-75, "Diagnosis Procedure"
Side radar RH branch line circuit	LAN-76, "Diagnosis Procedure"

SHORT CIRCUIT OR OPEN CIRCUIT

Malfunction area	Reference
BSW communication circuit	LAN-79, "Diagnosis Procedure"

MAIN LINE BETWEEN EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404642

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- Power steering control module
- ABS actuator and electric unit (control unit)

4. Check the continuity between the power steering control module harness connector and the ABS actuator and electric unit (control unit) harness connector.

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404643

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404644

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404645

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404646

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit LH.
2. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B45	10	Existed
	1		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 sliding door control unit RH and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B19 and sliding door control unit LH.

MAIN LINE BETWEEN ASD-R AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000012404647

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B89 and B530.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B89	13	Existed
	1		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 sliding door control unit RH and the driver seat control unit.
NO >> Repair the main line between the harness connectors B19 and B89.

MAIN LINE BETWEEN ADP AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404648

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- Harness connectors B530 and B89
- Sliding door control unit LH

4. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B89	13	B45	10	Existed
	12		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 driver seat control unit and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B89 and the sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404649

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404650

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404651

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404652

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404653

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404654

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404655

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404656

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404657

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "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:0000000012404658

1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M157
- Harness connector M46

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models without navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M186	81	80	Approx. 54 – 66

- Models with navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M193	90	74	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio with separate display: AV-205, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio without navigation: AV-361, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation: AV-580, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio with separate display: AV-242, "Removal and Installation"
- BOSE audio without navigation: AV-398, "Removal and Installation"
- BOSE audio with navigation: AV-610, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404659

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the around view monitor 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 around view monitor control unit.
2. 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.		
M253	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the around view monitor control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-583, "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-631, "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.

BSW BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404660

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BSW 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 BSW control module.
2. Check the resistance between the BSW control module harness connector terminals.

BSW control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M61	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BSW control module branch line (CAN communication circuit side).

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BSW control module. Refer to DAS-77, "BSW CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BSW control module. Refer to DAS-86, "Removal and Installation".
YES (Past error)>>Error was detected in the BSW control module branch line (CAN communication circuit side).
NO >> Repair the power supply and the ground circuit.

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404661

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404662

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B530
- Harness connector B89

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B552	1	17	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-60, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-113, "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.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404663

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404664

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door 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 automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B8	26	25	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to DLK-244, "AUTOMATIC BACK DOOR CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to DLK-494, "Removal and Installation".
YES (Past error)>>Error was detected in the automatic back door control module branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404665

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404666

1.CHECK CONNECTOR

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

Is the 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.		
B57	4	3	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-77, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-87, "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:0000000012404667

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 B310
- Harness connector B28

Is the 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.		
B317	4	3	Approx. 108 – 132

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-78, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-87, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404668

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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.

BSW COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404669

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit has no malfunction.

Is the CAN communication circuit normal?

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

2.CONNECTOR INSPECTION

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

- BSW control module
- Side radar LH
- Side radar RH
- Harness connector M77
- Harness connector B11
- Harness connector B28
- Harness connector B310

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.

- BSW control module
- Side radar RH

2. Check the continuity between the BSW control module harness connector and the side radar RH harness connector.

BSW control module harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M61	7	B317	4	Existed
	8		3	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the BSW control module branch line (BSW communication circuit side).

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the connector of side radar LH.
2. Check the continuity between the BSW control module harness connector terminals.

BSW control module harness connector			Continuity
Connector No.	Terminal No.		
M61	7	8	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BSW control module harness connector and the ground.

BSW control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M61	7		Not existed
	8		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the BSW control module and the side radar RH.
2. Check the resistance between the BSW control module terminals.

BSW control module		Resistance (Ω)
Terminal No.		
7	8	Approx. 108 – 132

3. Check the resistance between the side radar RH terminals.

Side radar RH		Resistance (Ω)
Terminal No.		
4	3	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the BSW control module and/or the side radar RH.

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>>Replace the side radar LH.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

DTC/CIRCUIT DIAGNOSIS

MAIN LINE BETWEEN EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404670

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404671

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404672

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404673

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404674

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404675

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404676

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404677

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404678

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404679

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404680

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404681

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "Work Flow".

Is the inspection result normal?

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

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404682

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404683

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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 EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404684

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- Power steering control module
- ABS actuator and electric unit (control unit)

4. Check the continuity between the power steering control module harness connector and the ABS actuator and electric unit (control unit) harness connector.

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404685

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404686

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404687

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404688

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit LH.
2. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B45	10	Existed
	1		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 sliding door control unit RH and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B19 and sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404689

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404690

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404691

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404692

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404693

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404694

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404695

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404696

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404697

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "Work Flow".

Is the inspection result normal?

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

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404698

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404699

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404700

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404701

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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 EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404702

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404703

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404704

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404705

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404706

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit LH.
2. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B45	10	Existed
	1		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 sliding door control unit RH and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B19 and sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404707

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404708

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404709

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404710

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404711

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404712

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404713

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404714

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404715

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "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:0000000012404716

1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M157
- Harness connector M46

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models without navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M186	81	80	Approx. 54 – 66

- Models with navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M193	90	74	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio with separate display: AV-205, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio without navigation: AV-361, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation: AV-580, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio with separate display: AV-242, "Removal and Installation"
- BOSE audio without navigation: AV-398, "Removal and Installation"
- BOSE audio with navigation: AV-610, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404717

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404718

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404719

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404720

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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 EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404721

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404722

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404723

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404724

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404725

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit LH.
2. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B45	10	Existed
	1		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 sliding door control unit RH and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B19 and sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404726

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404727

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404728

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404729

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404730

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404731

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404732

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404733

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404734

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "Work Flow".

Is the inspection result normal?

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

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404735

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404736

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404737

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door 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 automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B8	26	25	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to DLK-244, "AUTOMATIC BACK DOOR CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to DLK-494, "Removal and Installation".
YES (Past error)>>Error was detected in the automatic back door control module branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404738

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404739

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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 EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404740

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404741

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404742

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404743

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404744

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit LH.
2. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B45	10	Existed
	1		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 sliding door control unit RH and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B19 and sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404745

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404746

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404747

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404748

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404749

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404750

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404751

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404752

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404753

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "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:0000000012404754

1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M157
- Harness connector M46

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models without navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M186	81	80	Approx. 54 – 66

- Models with navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M193	90	74	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio with separate display: AV-205, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio without navigation: AV-361, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation: AV-580, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio with separate display: AV-242, "Removal and Installation"
- BOSE audio without navigation: AV-398, "Removal and Installation"
- BOSE audio with navigation: AV-610, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404755

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404756

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404757

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door 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 automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B8	26	25	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to DLK-244, "AUTOMATIC BACK DOOR CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to DLK-494, "Removal and Installation".
YES (Past error)>>Error was detected in the automatic back door control module branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404758

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404759

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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 EPS AND ABS CIRCUIT

Diagnosis Procedure

INFOID:0000000012404760

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- Power steering control module
- ABS actuator and electric unit (control unit)

4. Check the continuity between the power steering control module harness connector and the ABS actuator and electric unit (control unit) harness connector.

Power steering control module harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	8	E36	23	Existed
	7		21	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the power steering control module and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the power steering control module and the ABS actuator and electric unit (control unit).

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000012404761

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
- Harness connector M11

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- ABS actuator and electric unit (control unit)
- Harness connectors E105 and M11

2. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	23	E105	14	Existed
	21		15	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M11	14	M4	6	Existed
	15		14	Existed

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the ABS actuator and electric unit (control unit) and the data link connector.
NO >> Repair the main line between the harness connector M11 and the data link connector.

MAIN LINE BETWEEN DLC AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:0000000012404762

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

With automatic slide door
- Harness connector M79
- Harness connector B225

Without automatic slide door
- Harness connector M11
- Harness connector E105

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

- With automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M79	9	Existed
	14		10	Existed

- Without automatic slide door

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M11	41	Existed
	14		40	Existed

Is the inspection result normal?

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

MAIN LINE BETWEEN A-BAG AND ASD-R CIRCUIT

Diagnosis Procedure

INFOID:0000000012404763

1.CHECK CONNECTOR

1. Turn the ignition 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 M79
- Harness connector B225

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M79 and B225.
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.	
M4	6	M79	9	Existed
	14		10	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the air bag diagnosis sensor unit and the harness connector M79.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of sliding door control unit RH.
2. Check the continuity between the harness connector and the sliding door control unit RH harness connector.

Harness connector		Sliding door control unit RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B225	9	B247	10	Existed
	10		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 air bag diagnosis sensor unit and the sliding door control unit RH.
NO >> Repair the main line between the harness connector B225 and the sliding door control unit RH.

MAIN LINE BETWEEN ASD-R AND ADP CIRCUIT

Diagnosis Procedure

INFOID:0000000012404764

1.CHECK CONNECTOR

1. Turn the ignition 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 B228
- Harness connector B19

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.

- Sliding door control unit RH
- Harness connectors B228 and B19

2. Check the continuity between the sliding door control unit RH harness connector and the harness connector.

Sliding door control unit RH harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B247	10	B228	2	Existed
	9		1	Existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the sliding door control unit RH and the harness connector B228.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B89 and B530.
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B19	2	B89	13	Existed
	1		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 sliding door control unit RH and the driver seat control unit.
NO >> Repair the main line between the harness connectors B19 and B89.

MAIN LINE BETWEEN ADP AND ASD-L CIRCUIT

Diagnosis Procedure

INFOID:0000000012404765

1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors B530 and B89
- Sliding door control unit LH
4. Check the continuity between the harness connector and the sliding door control unit LH harness connector.

Harness connector		Sliding door control unit LH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
B89	13	B45	10	Existed
	12		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 driver seat control unit and the sliding door control unit LH.
NO >> Repair the main line between the harness connector B89 and the sliding door control unit LH.

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404766

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	124	123	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to EC-175, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the EC-513, "Removal and Installation".
YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404767

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the power steering 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 power steering control module.
2. Check the resistance between the power steering control module harness connector terminals.

Power steering control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	8	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the power steering control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the power steering control module. Refer to STC-22, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-32, "Removal and Installation".
YES (Past error)>>Error was detected in the power steering control module branch line.
NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404768

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	23	21	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-117, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-139, "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.

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404769

1.CHECK CONNECTOR

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

- TCM
- Harness connector F123
- Harness connector E6

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-167, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-192, "Removal and Installation".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404770

1.CHECK 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.		
M121	39	40	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-92, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-99, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404771

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

Data link connector			Resistance (Ω)
Connector No.	Terminal No.		
M4	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404772

1.CHECK 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.		
M34	21	22	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-77, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-96, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404773

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M30	5	2	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-40, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-142, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404774

WARNING:

Always observe the following items for preventing accidental activation.

- **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-39, "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:0000000012404775

1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M157
- Harness connector M46

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models without navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M186	81	80	Approx. 54 – 66

- Models with navigation system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M193	90	74	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio with separate display: AV-205, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio without navigation: AV-361, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation: AV-580, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio with separate display: AV-242, "Removal and Installation"
- BOSE audio without navigation: AV-398, "Removal and Installation"
- BOSE audio with navigation: AV-610, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404776

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the around view monitor 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 around view monitor control unit.
2. 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.		
M253	26	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the around view monitor control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to AV-583, "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-631, "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.

BSW BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404777

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the BSW 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 BSW control module.
2. Check the resistance between the BSW control module harness connector terminals.

BSW control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M61	14	15	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the BSW control module branch line (CAN communication circuit side).

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BSW control module. Refer to DAS-77, "BSW CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BSW control module. Refer to DAS-86, "Removal and Installation".
YES (Past error)>>Error was detected in the BSW control module branch line (CAN communication circuit side).
NO >> Repair the power supply and the ground circuit.

ASD-R BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404778

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit RH.
2. Check the resistance between the sliding door control unit RH harness connector terminals.

Sliding door control unit RH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B247	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Replace the body No. 2 harness.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit RH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit RH. Refer to DLK-499, "RH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit RH branch line.
NO >> Repair the power supply and the ground circuit.

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404779

1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B530
- Harness connector B89

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B552	1	17	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-60, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-113, "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.

ASD-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404780

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of sliding door control unit LH.
2. Check the resistance between the sliding door control unit LH harness connector terminals.

Sliding door control unit LH harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B45	10	9	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the sliding door control unit LH branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the sliding door control unit LH. Refer to DLK-245, "SLIDING DOOR CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the sliding door control unit LH. Refer to DLK-499, "LH : Removal and Installation".
YES (Past error)>>Error was detected in the sliding door control unit LH branch line.
NO >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404781

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the automatic back door 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 automatic back door control module.
2. Check the resistance between the automatic back door control module harness connector terminals.

Automatic back door control module harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B8	26	25	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the automatic back door control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to DLK-244, "AUTOMATIC BACK DOOR CONTROL MODULE : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to DLK-494, "Removal and Installation".
YES (Past error)>>Error was detected in the automatic back door control module branch line.
NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404782

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 E105
- Harness connector M11
- Harness connector M77 (With automatic sliding door)
- Harness connector B11 (With automatic sliding door)

Is the 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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-33, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-34, "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.

RDR-L BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000012404783

1.CHECK CONNECTOR

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

Is the 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.		
B57	4	3	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-77, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-87, "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:0000000012404784

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the 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 B310
- Harness connector B28

Is the 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.		
B317	4	3	Approx. 108 – 132

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-78, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-87, "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.

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404785

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector		Ground	Continuity
Connector No.	Terminal No.		
M4	6		Not existed
	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair the root cause.

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)
Terminal No.		
124	123	Approx. 108 – 132

3. Check the resistance between the IPDM E/R terminals.

IPDM E/R		Resistance (Ω)
Terminal No.		
40	39	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

5.CHECK SYMPTOM

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

Inspection result

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

6.CHECK UNIT REPRODUCTION

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

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit.
   NOTE:
   ECM and IPDM E/R 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.

BSW COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:0000000012404786

1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit has no malfunction.

Is the CAN communication circuit normal?

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

2.CONNECTOR INSPECTION

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

- BSW control module
- Side radar LH
- Side radar RH
- Harness connector M77
- Harness connector B11
- Harness connector B28
- Harness connector B310

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.

- BSW control module
- Side radar RH

2. Check the continuity between the BSW control module harness connector and the side radar RH harness connector.

BSW control module harness connector		Side radar RH harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M61	7	B317	4	Existed
	8		3	Existed

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the BSW control module branch line (BSW communication circuit side).

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the connector of side radar LH.
2. Check the continuity between the BSW control module harness connector terminals.

BSW control module harness connector			Continuity
Connector No.	Terminal No.		
M61	7	8	Not existed

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair the root cause.

5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BSW control module harness connector and the ground.

BSW control module harness connector		Ground	Continuity
Connector No.	Terminal No.		
M61	7		Not existed
	8		Not existed

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair the root cause.

6.CHECK TERMINATION CIRCUIT

1. Remove the BSW control module and the side radar RH.
2. Check the resistance between the BSW control module terminals.

BSW control module		Resistance (Ω)
Terminal No.		
7	8	Approx. 108 – 132

3. Check the resistance between the side radar RH terminals.

Side radar RH		Resistance (Ω)
Terminal No.		
4	3	Approx. 108 – 132

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the BSW control module and/or the side radar RH.

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>>Replace the side radar LH.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.