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< HOW TO USE THIS MANUAL >

HOW TO USE THIS MANUAL	А
HOW TO USE THIS SECTION	~
Information	В
 "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". 	С
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< PRECAUTION >

PRECAUTION PRECAUTIONS

Precautions for Trouble Diagnosis

CAUTION:

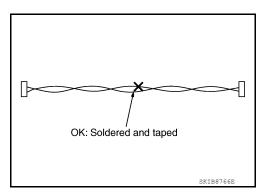
Follow the instructions listed below. Failure to do this may cause damage to parts:

- 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

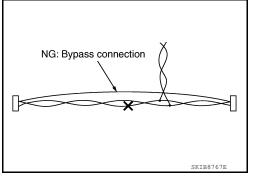
• Solder the repaired area and wrap tape around the soldered area. **NOTE:**

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. CAN COMMUNICATION SYSTEM : System Description

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with 2 D 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

SYSTEM

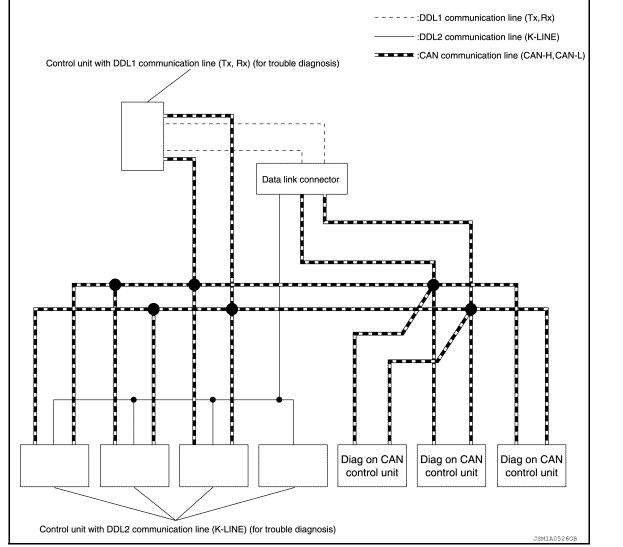
DIAG ON CAN : System Description

SYSTEM DESCRIPTION

SYSTEM DIAGRAM

< SYSTEM DESCRIPTION >

SYSTEM



[CAN FUNDAMENTAL]

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SYSTEM

< SYSTEM DESCRIPTION >

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

[CAN FUNDAMENTAL]

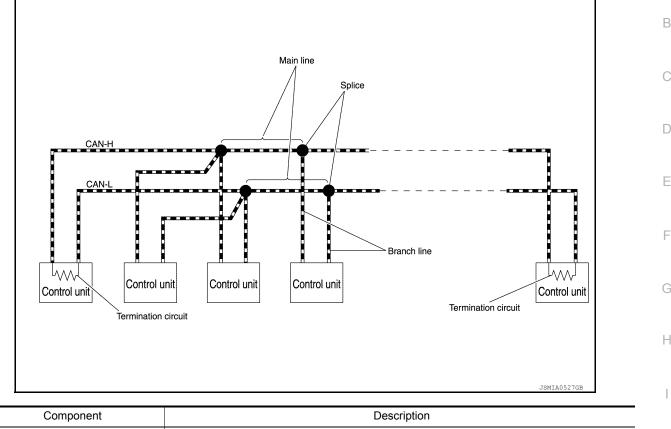
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TROUBLE DIAGNOSIS

Component Description

< SYSTEM DESCRIPTION >



Description	
CAN communication line between splices	
CAN communication line between splice and a control unit	J
A point connecting a branch line with a main line	
Circuit connected across the CAN communication system. (Resistor)	K
	CAN communication line between splices CAN communication line between splice and a control unit A point connecting a branch line with a main line

Condition of Error Detection

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 P 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.



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< SYSTEM DESCRIPTION >

Symptom When Error Occurs in CAN Communication System

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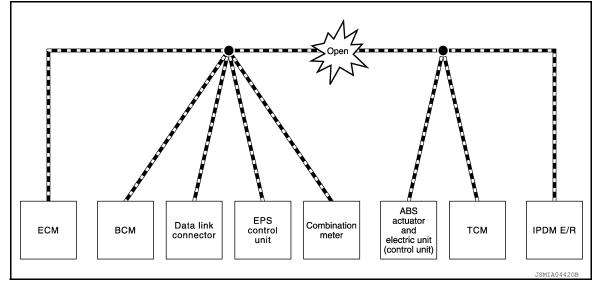
In CAN communication system, multiple control units mutually transmit and receive signals. Each control unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

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

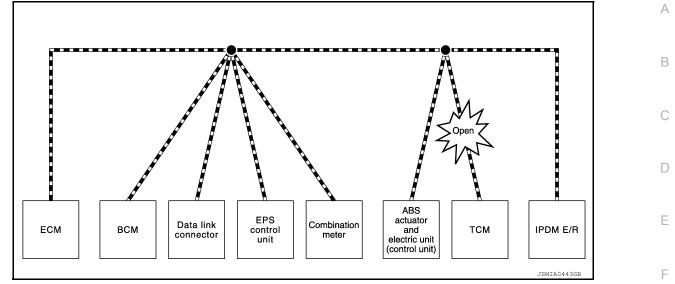
Example: Main Line Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Open Circuit



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.
ТСМ	No impact on operation.
IPDM E/R	When the ignition switch is ON,The headlamps (Lo) turn ON.The cooling fan continues to rotate.

< SYSTEM DESCRIPTION >

Example: TCM Branch Line Open Circuit



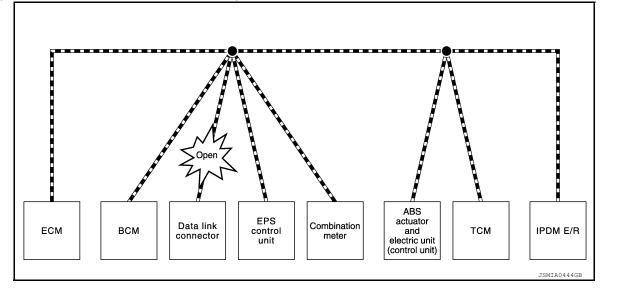
Unit name	Major symptom	-
ECM	Engine torque limiting is affected, and shift harshness increases.	G
BCM	Reverse warning buzzer does not sound.	-
EPS control unit	Normal operation.	-
Combination meter	Shift position indicator and O/D OFF indicator turn OFF.Warning lamps turn ON.	- H
ABS actuator and electric unit (control unit)	Normal operation.	-
ТСМ	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	K
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 commu- nication system enter fail-safe mode or are deactivated.	L

Example: Data Link Connector Branch Line Open Circuit





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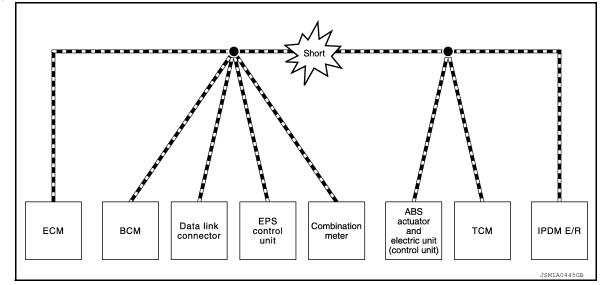
< SYSTEM DESCRIPTION >

Unit name	Major symptom
ECM	
BCM	
EPS control unit	
Combination meter	Normal operation.
ABS actuator and electric unit (control unit)	
ТСМ	
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.		
ТСМ	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

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

< SYSTEM DESCRIPTION >

Response to the system call

- Control unit diagnosis information
- Self-diagnosis
- CAN diagnostic support monitor

Self-Diagnosis

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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" C

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.		
01000		Except for ECM	When a control unit (except for ECM) is not transmitting or receiving CAN communication signal for 2 seconds or more.	Start the inspection. Re- fer to the applicable sec- tion of the indicated	
U1001	CAN COMM CIRCUIT	M/h an EONA is not the new itting an activity of OANI services		control unit.	
U1002	SYSTEM COMM		control unit is not transmitting or receiving CAN cation signal for 2 seconds or less.		
U1010	CONTROL UNIT(CAN)		error is detected during the initial diagnosis for troller of each control unit.	Replace the control unit indicating "U1010".	

CAN Diagnostic Support Monitor

MONITOR ITEM (CONSULT)

Example: CAN DIAG SUPPORT MNTR indication

With PAST

ENGINE

Not diagnosed

Not diagnosed

Not diagnosed

Not diagnosed

Not diagnosed

PAST

OK

OK

OK

OK

MONITOR ITEM PRESENT

OK

|OK

ΟK

OK

OK

TRANSMIT DIAG OK

VDC/TCS/ABS

METER/M&A

BCM/SEC

IPDM E/R

AWD/4WD

ICC

HVAC

тсм

EPS

e4WD

Without PAST

всм

OK

OK

OK

ΟK

OK

OK

MONITOR ITEM

TRANSMIT DIAG OK

INITIAL DIAG

METER/M&A

IPDM E/R

ECM

TCM

I-KEY

PRESENT

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Without PAST

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

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< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

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

With PAST

Item	PRESENT	PAST	Description
		OK	Normal at present and in the past
Transmission diagnosis	ОК	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.
		OK	Normal at present and in the past
Control unit name	ОК	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.)
(Reception diagnosis)	UNKWN	0	Unable to receive signals for 2 seconds or more at present.
	Not diagnosod		Diagnosis not performed.
	Not diagnosed –		No control unit for receiving signals. (No applicable optional parts)

< SYSTEM DESCRIPTION >

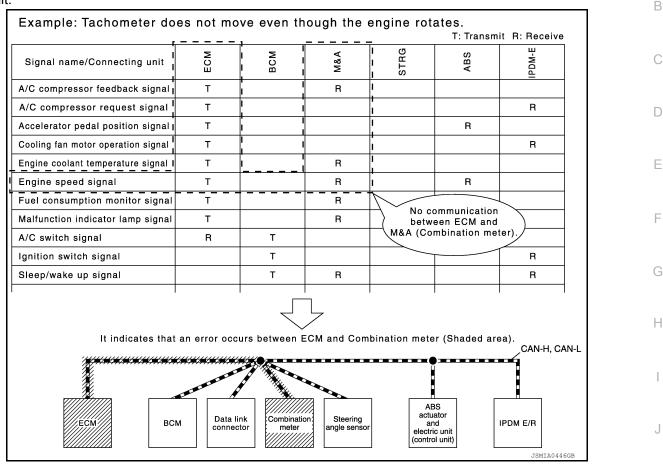
[CAN FUNDAMENTAL]

How to Use CAN Communication Signal Chart

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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.



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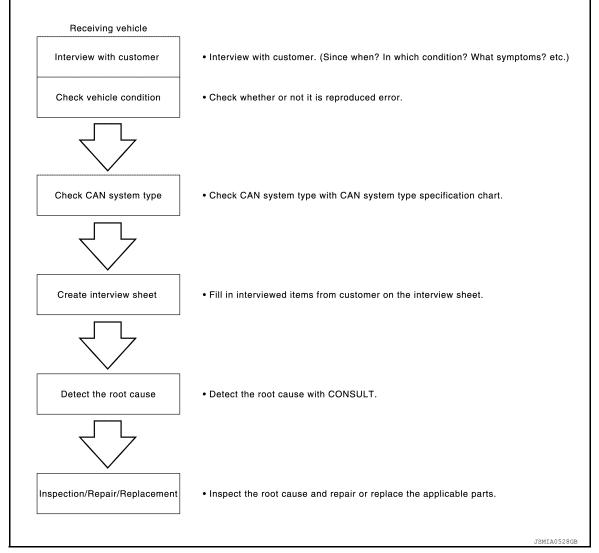
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BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

INFOID:000000011537024

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.

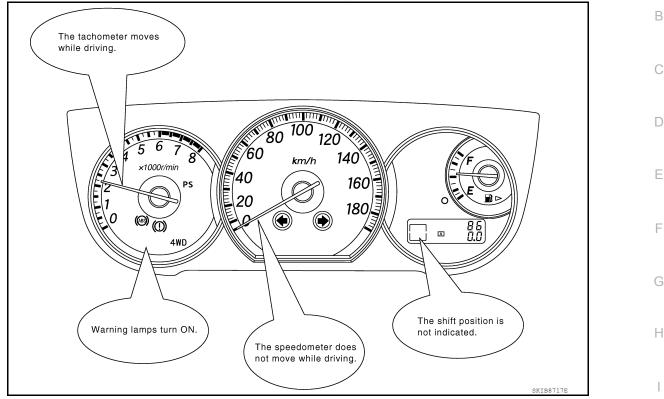
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< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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- When a CAN communication system error is present, multiple control units may malfunction or go into failsafe 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.

${f 3.}$ CHECK OF CAN SYSTEM TYPE (HOW TO USE CAN SYSTEM TYPE SPECIFICATION CHART)

Determine CAN system type based on vehicle equipment.

- 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)
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< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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

Example:

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

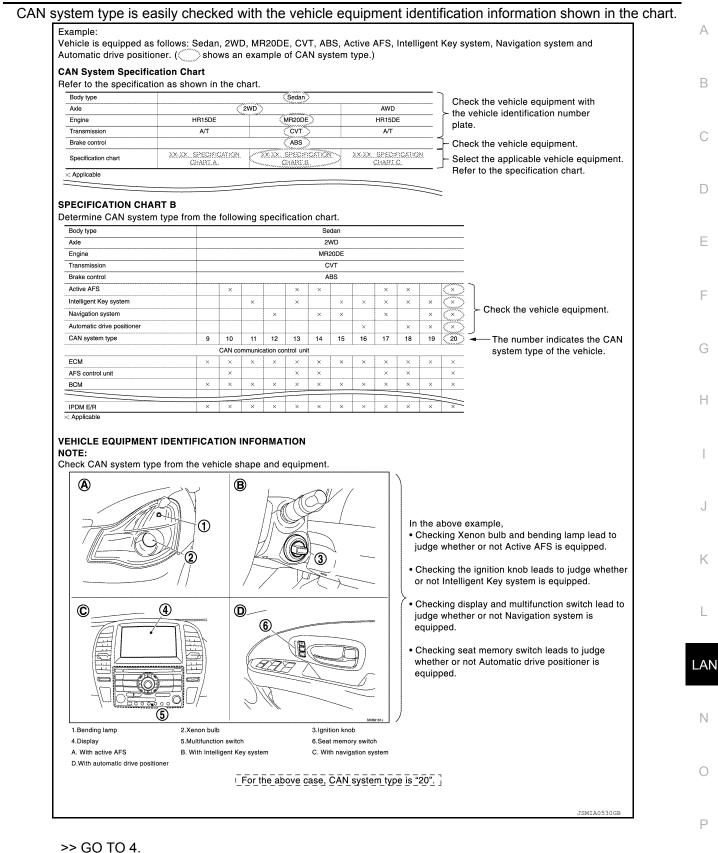
CAN System Specification Chart

Axle	Wagon AWD AWD				Check the vehicle			
			VD		A		equipment with the	
Engine	QR25DE (VQ35DE) A/T CVT ABS (VDC)				vehicle identification number plate.			
Transmission								
Brake control			BS		L		Check the vehicle	
Intelligent Key system		×		×		<u> </u>	equipment.	
CAN system type	1	2	3	4	5	6_	 The number indicates the CAN system type of the 	
	CAN communication control unit							
ECM	×	×	×	×	×	×	vehicle.	
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)	×	×	×	×	×	×		
ТСМ	Х	×	×	×	×	×		
IPDM E/R	Х	Х	×	X	×	×		
VEHICLE EQUIPMENT IDE NOTE: Check CAN system type fror								
		e shape and)	
NOTE: Check CAN system type from		e shape and	l equipment.				leads to judge whether not VDC is equipped. • Checking the ignition leads to judge whether	
NOTE: Check CAN system type from	n the vehicl	e shape and	d equipment.		tem type is		Checking VDC OFF s leads to judge whethen not VDC is equipped. Checking the ignition leads to judge whethen not Intelligent Key system	
NOTE: Check CAN system type from	n the vehicl	e shape and	d equipment.		tem type is		Checking VDC OFF s leads to judge whethen not VDC is equipped. Checking the ignition leads to judge whethen not Intelligent Key system	

CAN

< BASIC INSPECTION >

[CAN FUNDAMENTAL]



4.CREATE INTERVIEW SHEET

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

< BASIC INSPECTION >

Interview Sheet (Example)

CAN Communication S	System Diagnosis Interview Sheet
	Date received: 3, Feb. 2006
Type: DBA-KG11	VIN No.: KG11-005040
Model: BDRARGZG11ED	A-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 The engine does not restart af switch OFF.	while driving the vehicle. ter stopping the vehicle and turning the ignition
•The cooling fan continues rota	ting while turning the ignition switch ON.
Condition at inspection	
Error Symptom: Present / Past	
The engine does not start. While turning the ignition switch • The headlamps (Lo) turn ON, • The interior lamp does not turn	and the cooling fan continues rotating.
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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.

Maine line>>Refer to <u>LAN-40, "Main Line"</u>. Branch line>>Refer to <u>LAN-40, "Branch Line"</u>. Short line>>Refer to <u>LAN-40, "Short Circuit"</u>.

HOW TO USE THIS MANUAL HOW TO USE THIS SECTION

Information

- "CAN" of LAN Section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to <u>LAN-16</u>, "<u>Trouble Diagnosis Flow Chart</u>" of "CAN FUNDAMEN-TAL".

Abbreviation List

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

	Unit name	Abbreviation
	Air bag diagnosis sensor unit	A-BAG
	ABS actuator and electric unit (control unit)	ABS
	AV control unit	AV
	BCM	BCM
	Data link connector	DLC
_	ECM	ECM
	EPS control unit	EPS
	A/C auto amp.	HVAC
	IPDM E/R	IPDM-E
	Combination meter	M&A
	Steering angle sensor	STRG
	ТСМ	ТСМ

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PRECAUTION PRECAUTIONS

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

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, 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 the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

Precautions for Trouble Diagnosis

CAUTION:

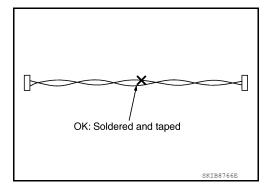
Follow the instructions listed below. Failure to do this may cause damage to parts:

- 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

• 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).



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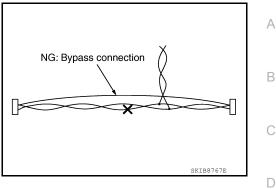
PRECAUTIONS

< PRECAUTION >

[CAN]

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.

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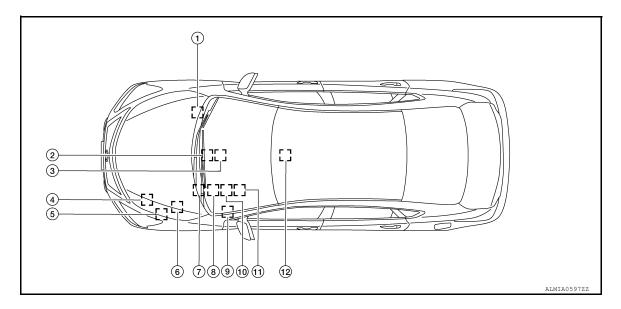
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SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

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- 1. ABS actuator and electric unit (control unit)
- 4. ECM
- 7. Data link connector
- 10. Combination meter

- AV control unit
- 5. IPDM E/R

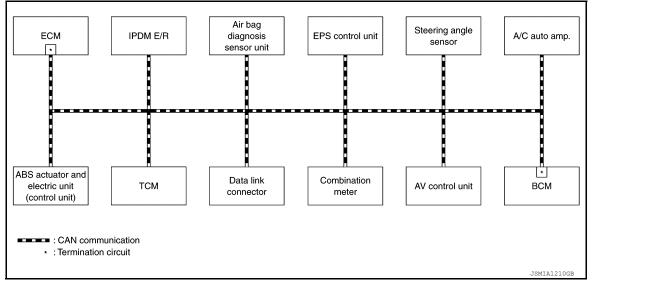
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- 8. EPS control unit
- 11. Steering angle sensor
- 3. A/C auto amp.
- 6. TCM
- 9. BCM
- 12. Air bag diagnosis sensor unit

SYSTEM CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

SYSTEM DIAGRAM

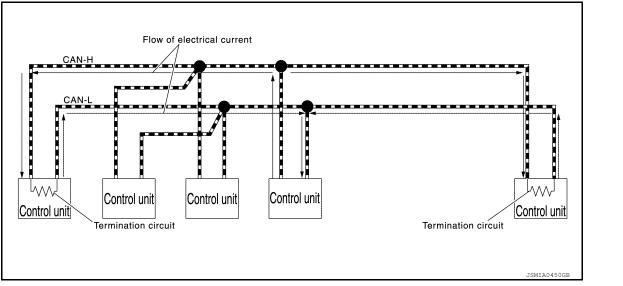


DESCRIPTION

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.



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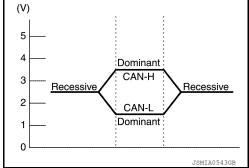
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< SYSTEM DESCRIPTION >

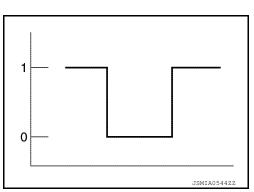
 The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.

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)

1	2	3	4	5	6	7
						JSMIA0545Z

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 pos- sibility 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 control unit.					
7	End of frame (7 bit)	End of message.					

CAN Communication Line

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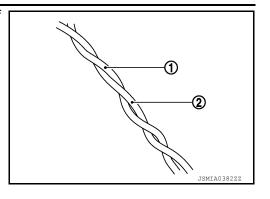
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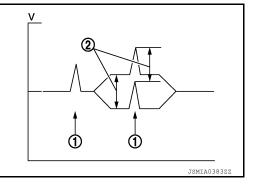
The CAN communication line is a twisted pair wire consisting of strands of CAN-H (1) and CAN-L (2) and has noise immunity.



NOTE:

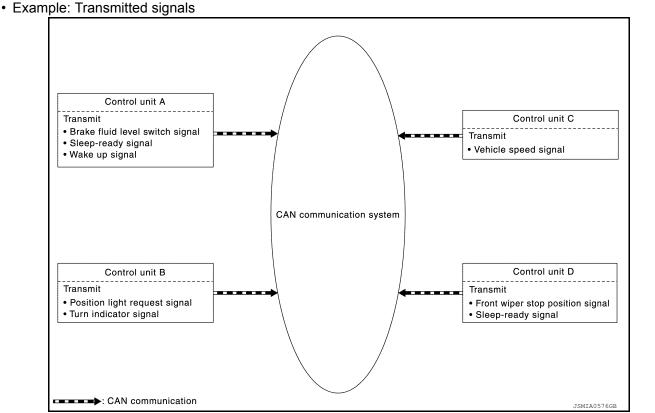
The CAN communication system has the characteristics of noise-resistant because this system produces digital signals by using the potential difference between the CAN-H line and the CAN-L line and has the twisted pair wire structure.

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

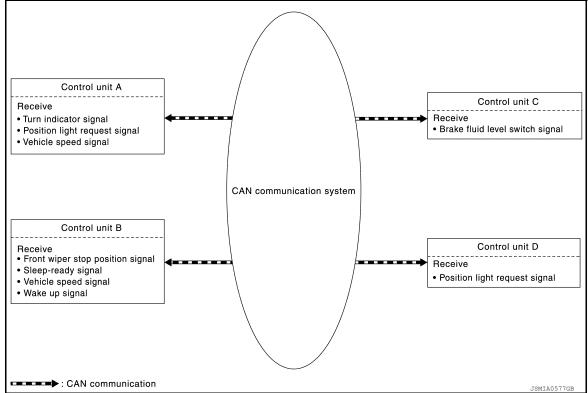
Each control unit of the CAN communication system transmits signals through the CAN communication control circuit included in the control unit and receives only necessary signals from each control unit to perform various kinds of control.





< SYSTEM DESCRIPTION >

· Example: Received signals

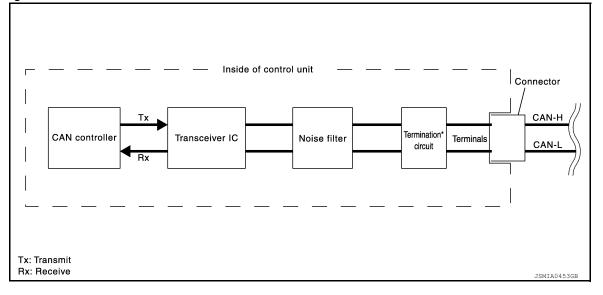


NOTE:

The above signal names and signal communications are provided for reference purposes. For CAN communications signals of this vehicle, refer to <u>LAN-30</u>, <u>"CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"</u>.

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

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.

SYSTEM

< SYSTEM DESCRIPTION >

Component		Syste	m description		
Noise filter	It eliminates noise of C	AN communication sig	nal.		
Termination circuit [*] (Resistance of approx. 120 Ω)	Generates a potential c	lifference between CA	N-H and CAN-L.		
*: These are the only control units wi	ired with both ends of C	CAN communication sy	stem.		
CAN COMMUNICATIO	N SYSTEM : 0	CAN System S	pecification	n Chart	INFOID:0000000011537034
Determine CAN system type f NOTE: Refer to <u>LAN-16, "Trouble Dia</u>	-			ecification cha	rt.
Body type			Sedan		
			00000		
Axle			FWD		
Axle Engine					
-	M/T		FWD MRA8DE	VT	
Engine			FWD MRA8DE	VT	
Engine Transmission	M/T		FWD MRA8DE C'	VT	×
Engine Transmission Brake control	M/T		FWD MRA8DE C' VDC	VT	×
Engine Transmission Brake control Navigation system	M/T	2	FWD MRA8DE C' VDC		
Engine Transmission Brake control Navigation system Automatic air conditioner		2 N communication unit	FWD MRA8DE C' VDC ×	×	×
Engine Transmission Brake control Navigation system Automatic air conditioner			FWD MRA8DE C' VDC ×	×	×
Engine Transmission Brake control Navigation system Automatic air conditioner CAN system type		N communication unit	FWD MRA8DE C' VDC × 3	× 4	× 5

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BCM
×: Applicable

TCM

Air bag diagnosis sensor unit

Data link connector

Combination meter

Steering angle sensor

EPS control unit

AV control unit

A/C auto amp.

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.

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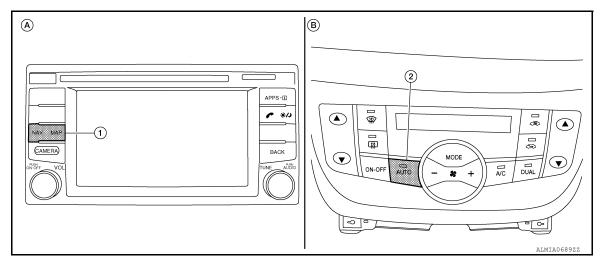
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1. NAVI switch

- 2. Automatic temperature control switch
- A. With navigation system
- B. With automatic air conditioner

CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

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Refer to <u>LAN-15</u>, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart.

NOTE:

- Refer to <u>LAN-21</u>, "Abbreviation List" for the abbreviations of the connecting units.
- CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.
- The AV control unit uses CAN communication only for communicating with the diagnostic tool (not with other connected control units).

Signal name	ECM	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	BCM
A/C compressor request signal	Т		R					R	
Accelerator pedal position signal	Т			R					
ASCD status signal	Т					R			
Closed throttle position signal	Т			R					
Cooling fan speed request signal	Т		R						
ECO mode indicator signal	Т					R		R	
ECO pedal guide signal	Т					R			
Engine and CVT integrated control signal	Т			R					
Engine and CVT integrated control signal	R			Т					
Engine coolant temperature signal	Т					R		R	
Engine speed signal	Т			R		R			
Engine status signal	Т	R			R	R			R
Fuel consumption monitor signal	Т					R			
Fuel filler cap warning display signal	Т					R			
Gear shift indicator signal	Т					R			
Malfunctioning indicator lamp signal	Т					R			
Malfunctioning indicator lamp signal	R			Т					
Power generation command value signal*1	Т		R						
SPORT mode indicator signal	Т					R			

T: Transmit R: Receive

Revision: December 2014

SYSTEM

< SYSTEM DESCRIPTION >

Signal name	ECM	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	BCM	А
ABS malfunction signal		Т		R						
ABS operation signal		Т		R						В
ABS warning lamp signal		Т				R				
Brake warning lamp signal		Т				R				С
Vehicle speed signal (ABS)		Т		R	R	R			R	
Detention switch signal			Т						R	
Front wiper stop position signal			Т						R	D
High beam status signal	R		Т							
Ignition switch ON signal			T R						R T	E
Low beam status signal	R		T							
			T						R	F
Oil pressure switch signal						R			Т	•
Push-button ignition switch status signal			Т						R	-
			R						Т	G
Rear window defogger control signal	R		Т							
						Т			R	H
Sleep-ready signal			Т						R	
~			Т						R	-
Starter control relay signal			R						Т	·
			Т						R	•
Starter relay status signal			R						Т	J
ECO mode signal	R			Т						
Input shaft revolution signal	R			Т						
N idle instruction signal	R			Т						K
	Т			R						
Output shaft revolution signal	R			Т						L
OD OFF indicator signal		R		Т		R				
Shift position signal				Т		R			R	
SPORT mode signal	R			Т						LA
EPS operation signal	R				Т					_
EPS warning lamp signal					Т	R				N
ECO mode switch signal	R*2			R		Т				
Fuel filler cap warning reset signal	R					Т				•
Odometer signal					_	Т		_	R	0
Overdrive control switch signal				R		Т				_
SPORT mode switch signal	R*2			R		Т				Р
Vehicle speed signal (Meter)	R		R		R	Т		R	R	
Wake up signal						Т			R	
Steering angle sensor signal		R					Т			•
Steering calibration signal		R					Т	_		_
A/C ON signal	R								Т	

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Signal name	ECM	ABS	IPDM-E	TCM	EPS	M&A	STRG	HVAC	BCM
Blower fan ON signal	R								Т
Buzzer output signal						R			Т
Dimmer signal						R			Т
Door switch signal			R			R			Т
Engine start operation indicator lamp signal						R			Т
Front fog light request signal			R			R			Т
Front wiper request signal			R						Т
High beam request signal			R			R			Т
Key warning lamp signal						R			Т
Low beam request signal			R			R			Т
Position light request signal			R			R			Т
Shift P warning lamp signal						R			Т
Sleep wake up signal			R			R			Т
Stop lamp switch signal				R					Т
Theft warning horn request signal			R						Т
Turn indicator signal				R		R			Т

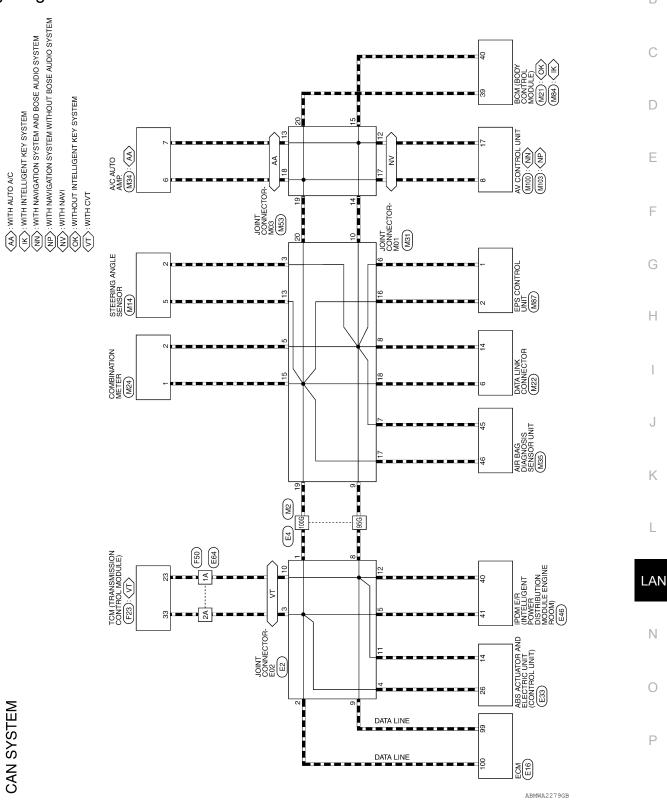
*1: With battery current sensor (with battery temperature sensor)

*2: M/T models

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CAN SYSTEM

Wiring Diagram



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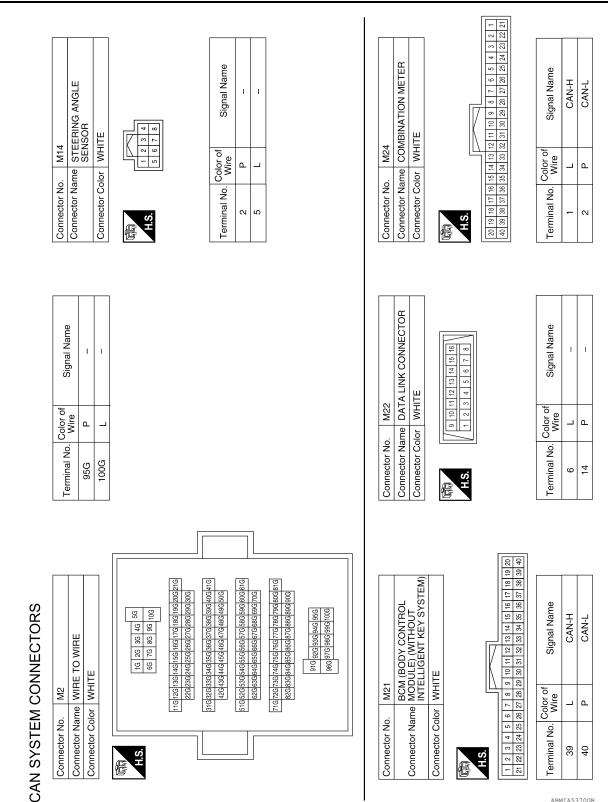
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Image: Second sector No. MS3 Connector No. MS3 Connector Name JOINT CONNECTOR-M03 Connector No. Connector Name JOINT CONNECTOR-M03 Connector Name BOM (BLACK) Connector Color Pint III Image: Second sec	8	٩	1						D F	ם ו	CAN-I	
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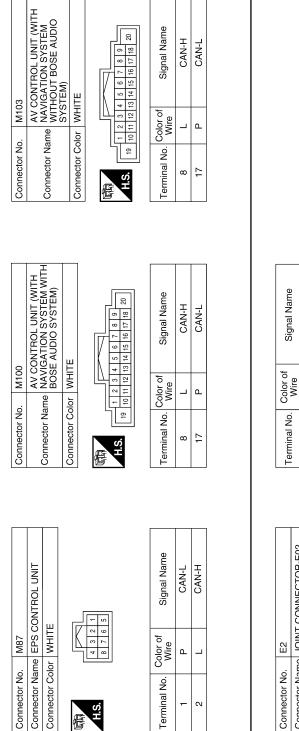
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CAN SYSTEM

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Signal Name

Terminal No.

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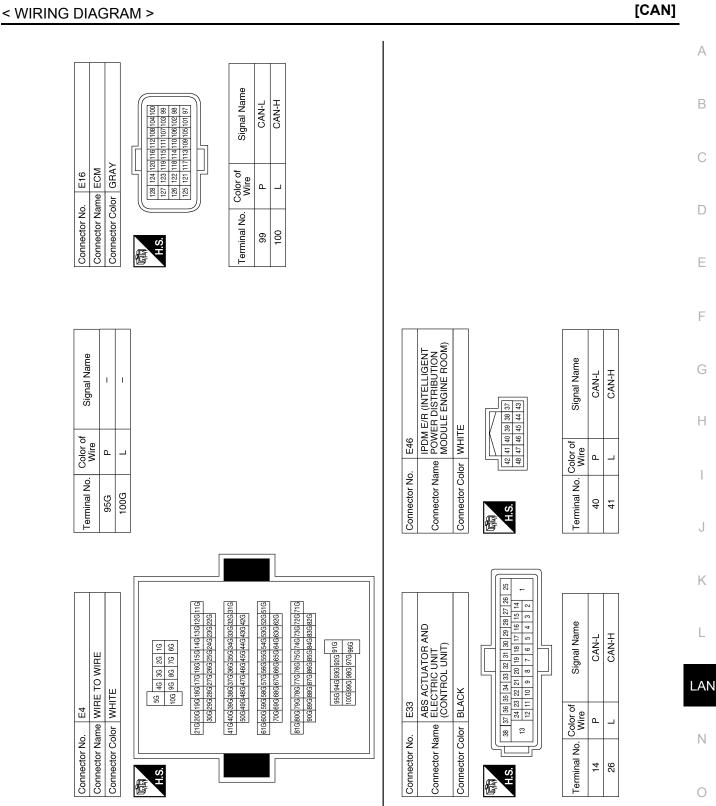
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E2	Connector Name JOINT CONNECTOR-E0	BLUE	12 11 10 9 8 7 6 5 4 3 2 1
Connector No.	Connector Name	Connector Color BLUE	時 H.S.

Signal Name	I	I	I	I
Color of Wire	L	_	Γ	L
Terminal No.	1	2	3	4

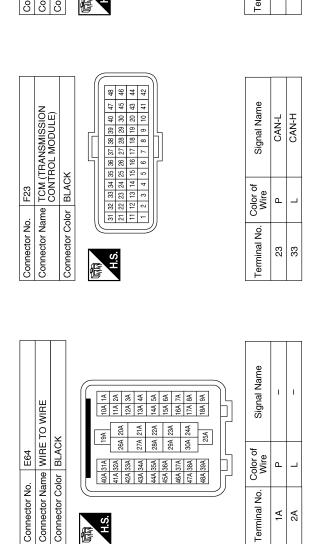
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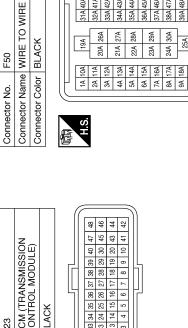


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Revision: December 2014



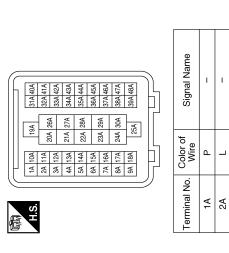


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DIAGNOSIS AND REPAIR WORKFLOW	
< BASIC INSPECTION >	[CAN]
BASIC INSPECTION	
DIAGNOSIS AND REPAIR WORKFLOW	
Interview Sheet	INFOID:0000000011537037
NOTE: Refer to <u>LAN-16, "Trouble Diagnosis Flow Chart"</u> for how to use interview sheet.	
CAN Communication 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

Main Line

INFOID:000000011537038

Malfunction area	Reference
Main line between IPDM E/R and data link connector	LAN-41, "Diagnosis Procedure"
Main line between data link connector and A/C auto amp.	LAN-42, "Diagnosis Procedure"
Main line between data link connector and AV control unit	LAN-43. "Diagnosis Procedure"

Branch Line

INFOID:000000011537039

Malfunction area	Reference
ECM branch line circuit	LAN-44, "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-45, "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-46. "Diagnosis Procedure"
TCM branch line circuit	LAN-47. "Diagnosis Procedure"
Air bag diagnosis sensor unit branch line circuit	LAN-48, "Diagnosis Procedure"
Data link connector branch line circuit	LAN-49. "Diagnosis Procedure"
EPS control unit branch line circuit	LAN-50. "Diagnosis Procedure"
Combination meter branch line circuit	LAN-51, "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-52, "Diagnosis Procedure"
AV control unit branch line circuit	LAN-53. "Diagnosis Procedure"
A/C auto amp. branch line circuit	LAN-54, "Diagnosis Procedure"
BCM branch line circuit	LAN-55, "Diagnosis Procedure"

Short Circuit

Malfunction area	Reference
CAN communication circuit	LAN-56, "Diagnosis Procedure"

N	AIN LINE BETV	VEEN IPDM-E A	ND DLC CIRCUI	-
DTC/CIRCUIT DIA	GNOSIS >			[CAN]
AIN LINE BE	TWEEN IPDM-	E AND DLC CII	RCUIT	
Diagnosis Proced	lure			INFOID:000000011537041
	TOR			
 Check the following and harness side) Harness connectore Harness connectore Sthe inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS Disconnect the following E/R Harness connectore 	attery cable from the n ng terminals and con b or E4 or M2 <u>t normal?</u> e terminal and connec S CONTINUITY (OPEN llowing harness connec	nectors for damage, tor. N CIRCUIT) ectors.		ection (connector side
IPDM E/R har	mess connector	Harness	connector	
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E46	41	E4	100G	Existed
E40	40		95G	Existed
3. CHECK HARNESS Check the continuity b	t normal? e main line between th CONTINUITY (OPE) etween the harness c	N CIRCUIT) onnector and the data		
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
	100G		6	Existed

Is the inspection result normal?

M2

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

95G

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

M22

14

NO >> Repair the main line between the harness connector M2 and the data link connector.

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Existed

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:000000011537042

[CAN]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- ECM
- A/C auto amp.
- 4. Check the continuity between the data link connector and the A/C auto amp. harness connector.

Data link	connector	A/C auto amp. harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M22	6	M34	6	Existed
	14	10134	7	Existed

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.

NO >> Repair the main line between the data link connector and the A/C auto amp.

DTC/CIRCUIT DIAG		I WEEN DEC AN		[CAN]
AIN LINE BET	WEEN DLC A	ND AV CIRCUI	Г	
iagnosis Proced	ure			INFOID:0000000115370
.CHECK HARNESS	CONTINUITY (OPEN	I CIRCUIT)		
 Disconnect the foll ECM AV control unit Check the continuit 	witch OFF. ttery cable from the ne lowing harness conne ity between the data li stem and BOSE audio	ctors. ink connector and the	AV control unit harnes	ss connector.
Data link	connector	AV control unit h	arness connector	Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M22	6	M100	8	Existed
10122	14	WITCO	17	Existed
With navigation sy	stem without BOSE a	udio system		
Data link	connector	AV control unit h	arness connector	
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
Maa	6	M102	8	Existed
M22	14	M103 17	17	Existed
YES (Past error)>>Er unit .	>Check CAN system fror was detected in the main line between the	he main line between		

MAIN LINE BETWEEN DLC AND AV CIRCUIT

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ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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.		
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the ECM. Refer to <u>EC-165, "Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation".

YES (Past error)>>Error was detected in the ECM branch line.

NO >> Repair the power supply and the ground circuit.

ABS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

ABS BRANCH LINE				А
Diagnosis Procedure	Diagnosis Procedure			
1. CHECK CONNECTOR				В
 Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 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 norm YES >> GO TO 2. NO >> Repair the term	inal and connector.			D
	or of ABS actuator and elec	ctric unit (control unit). Ind electric unit (control unit) harness connector termi-	E
ABS actuator	and electric unit (control unit) harr	ness connector	Resistance (Ω)	
Connector No.	Termir	nal No.	Resistance (52)	
E33	26	14	Approx. 54 – 66	G
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-64. "Diagnosis Procedure".				
Is the inspection result normal? YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-117, "Removal</u> and Installation".				
	as detected in the ABS actuer supply and the ground ci	uator and electric unit (contro rcuit.	ol unit) branch line.	K
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IPDM-E BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.

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

IPDM E/R harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E46	41	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.

• With Intelligent Key system: Refer to <u>BCS-69, "Diagnosis Procedure"</u>.

• Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to the following.

- With Intelligent Key system: Refer to BCS-76, "Removal and Installation".
- Without Intelligent Key system: Refer to BCS-133, "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.

TCM BRANCH LINE CIRCUIT

DTC/CIRCUIT DIAGNOS	IS >		[CAN]
FCM BRANCH LINE	E CIRCUIT		
Diagnosis Procedure			INFOID:000000011537047
.CHECK CONNECTOR			
	able from the negative terr		e connection (unit side and con-
Harness connector E64			
s the inspection result norma	al?		
YES >> GO TO 2.			
NO >> Repair the termin			
2. CHECK HARNESS FOR $($	OPEN CIRCUIT		
 Disconnect the connector Check the resistance bet 	TCM harness connector	onnector terminals.	
Connector No.	Termi	nal No.	Resistance (Ω)
F23	33	23	Approx. 54 – 66
s the measurement value wi YES >> GO TO 3. NO >> Repair the TCM	·	r	

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A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

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-38, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >		
DLC BRANCH LINE CIRCUIT		^
Diagnosis Procedure	INFOID:000000011537049	A
1.CHECK CONNECTOR	E	В
 Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the data link connector for damage, (connector side and harness side). 	bend and loose connection	С
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.	-	Ξ
Data link connector		

			Resistance (Ω)	F
Connector No.	Terminal No.			Г
M22	6	14	Approx. 54 – 66	
Is the measurement value wit	hin the specification?			G

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.

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EPS BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M87	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-22, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-39, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS	>		[CAN]
M&A BRANCH LINE (CIRCUIT		
Diagnosis Procedure			INFOID:000000011537051
1.CHECK CONNECTOR			
1. Turn the ignition switch OF	F		
2. Disconnect the battery cab	le from the negative terr		
3. Check the terminals and c (unit side and connector side	connectors of the combi	nation meter for damage,	bend and loose connection
Is the inspection result normal?			
YES >> GO TO 2.	-		
NO >> Repair the terminal			
2. CHECK HARNESS FOR OF	PEN CIRCUIT		
1. Disconnect the connector of		(k	
2. Check the resistance betwe	een the combination me	ter harness connector term	inals.
Comb	ination meter harness connec	tor	Bogistance (O)
Connector No.	Termir	nal No.	Resistance (Ω)
M24	1	2	Approx. 54 – 66
Is the measurement value within	n the specification?		
YES >> GO TO 3. NO >> Repair the combination	ation meter branch line.		
3.CHECK POWER SUPPLY A		-	
Check the power supply and th			
METER : Diagnosis Procedure			J MINI-JZ, COMBINATION
Is the inspection result normal?	· -		
YES (Present error)>>Replace			al and Installation".
YES (Past error)>>Error was (NO >> Repair the power s	detected in the combination supply and the ground cites and the ground		
	apply and the ground ch	ioun.	

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STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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.		
M14	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 <u>BRC-45, "Wiring Dia-</u> gram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-120, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNC	ISIS >		[CAN]
AV BRANCH LINE	CIRCUIT		
Diagnosis Procedure	1		INFOID:000000011537053
1.CHECK CONNECTOR			
	cable from the negative term nd connectors of the AV cont		end and loose connection (unit
Is the inspection result nor	mal?		
YES >> GO TO 2.			
	ninal and connector.		
2. CHECK HARNESS FO	R OPEN CIRCUIT		
	ctor of AV control unit. Detween the AV control unit ha n without BOSE audio system		nals.
	AV control unit harness connector		Resistance (Ω)
Connector No.	Termina	II No.	
M103	8	17	Approx. 54 – 66
- With navigation syster	n and BOSE audio system		
	AV control unit harness connector		Resistance (Ω)
Connector No.	Termina	Terminal No.	
M100	8	17	Approx. 54 – 66
Is the measurement value	within the specification?		<u>l</u>
YES >> GO TO 3.			
▲ '	control unit branch line.		
J. CHECK POWER SUPF	LY AND GROUND CIRCUIT		
	nd the ground circuit of the AV vithout BOSE audio system: R		ne following. NTROL UNIT : Diagnosis Pro-
	nd BOSE audio system: Refe	er to <u>AV-282, "AV CON</u> T	FROL UNIT : Diagnosis Proce-
Is the inspection result nor	mal?		
VES (Procent error)	place the AV control unit Def	or to the following	

YES (Present error)>>Replace the AV control unit. Refer to the following.

- With navigation system without BOSE audio system: Refer to <u>AV-209, "Removal and Installa-</u> LAN <u>tion"</u>.
- With navigation system and BOSE audio system: Refer to <u>AV-318</u>, "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.

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HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	6	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to <u>HAC-83, "A/C AUTO AMP. :</u> <u>Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-105, "Removal and Installation".

YES (Past error)>>Error was detected in the A/C auto amp. branch line.

NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

DTC/CIRCUIT DIAGNOS	\$>		[CAN]
SCM BRANCH LINE	CIRCUIT		
iagnosis Procedure			INFOID:000000011537055
.CHECK CONNECTOR			
	able from the negative terr		ose connection (unit side and
the inspection result norma	<u>al?</u>		
YES >> GO TO 2. NO >> Repair the termin	nal and connector.		
CHECK HARNESS FOR	OPEN CIRCUIT		
 Disconnect the connecto Check the resistance bet Without Intelligent Key sy 	ween the BCM harness co	onnector terminals.	
	BCM harness connector		Resistance (Ω)
Connector No.	Termir	al No.	
M21	39	40	Approx. 108 – 132
With Intelligent Key syste	em		
	BCM harness connector		
Connector No.	Termir	al No.	Resistance (Ω)
M84	39	40	Approx. 108 – 132
the measurement value wi (ES >> GO TO 3. NO >> Repair the BCM .CHECK POWER SUPPLY heck the power supply and With Intelligent Key system Without Intelligent Key system the inspection result norma	branch line. YAND GROUND CIRCUIT the ground circuit of the B : Refer to <u>BCS-69, "Diagn</u> em: Refer to <u>BCS-126, "D</u>	CM. Refer to the following osis Procedure".	g.
YES (Present error)>>Repla • With Intelligent • Without Intellig YES (Past error)>>Error wa	ace the BCM. Refer to the Key system: Refer to \underline{BCS} ent Key system: Refer to \underline{FCS} s detected in the BCM bra	S-76, "Removal and Insta 3CS-133, "Removal and I nch line.	
NO >> Repair the power	r supply and the ground cir	'Cuit.	

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CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

Data link connector			Continuity
Connector No.	Terminal No.		Continuity
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link connector			Continuity
Connector No.	Terminal No.	Ground	Continuity
M22	6	Gibunu	Not existed
	14	-	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

ECM Terminal No.		- Resistance (Ω)	

3. Check the resistance between the BCM terminals.

BCM		- Resistance (Ω)
Terminal No.		
39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

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

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Inspection result	
Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is	A
detected.	
6.CHECK UNIT REPRODUCTION	В
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.	С
Disconnect one of the unit connectors of CAN communication system.	
NOTE:	
ECM and BCM have a termination circuit. Check other units first.	D
 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.	Е
Inspection result	
Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.	F
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MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 1)]

DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000011537057

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E4
- Harness connector M2

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.

- IPDM E/R
- Harness connectors E4 and M2
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R har	less connector Harness c		connector	Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E46	41	E4	100G	Existed
L40	40	L4	95G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E4.

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.	Continuity
M2	100G		6	Existed
IVIZ	95G	M22	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 IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M2 and the data link connector.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

Diagnosis Procedure	INFOID:00000001153705
 Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the ECM for damage, bend and loose connector side). 	tion (unit side and
s the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector.	
2.CHECK HARNESS FOR OPEN CIRCUIT	
 Disconnect the connector of ECM. Check the resistance between the ECM harness connector terminals. 	
ECM harness connector	esistance (Ω)
Connector No. Terminal No.	
E16 100 99 App	
	rox. 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 <u>EC-165, "Diagnosis Pro- Is the inspection result normal?</u>	
s 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 <u>EC-165, "Diagnosis Pr</u>	

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< DTC/CIRCUIT DIAGNOSIS >

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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.		Resistance (32)
E33	26	14	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 <u>BRC-64, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-117, "Removal</u> <u>and Installation"</u>.

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

NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of IPDM E/R. 2. Check the resistance between the IPDM E/R harness connector terminals. Impose 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 the following. • With Intelligent Key system: Refer to <u>BCS-126</u> , "Diagnosis Procedure".	 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of IPDM E/R.
1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). 18 the 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) E46 41 40 Approx.54 - 66 Is the measurement value within the specification? YES >> GO TO 3. Resistance (Ω) YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. Refer to the following. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • • With Intelligent Key system: Refer to BCS-126. "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • • With Intelligent Key system: Refer to BCS-126. "Removal and Installation". • • With Intelligent Key system: Refe	 Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. CHECK HARNESS FOR OPEN CIRCUIT Disconnect the connector of IPDM E/R.
 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of IPDM E/R. 2. Check the resistance between the IPDM E/R harness connector terminals. IPDM E/R harness connector Resistance (Ω) Connector No. E46 41 40 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. With Intelligent Key system: Refer to BCS-126. "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. With Intelligent Key system: Refer to BCS-126. "Diagnosis Procedure". With Intelligent Key system: Refer to BCS-133. "Removal and Installation". With Untelligent Key system: Refer to BCS-133. "Removal and Installation". YES (Past error)>>Error was detected in the IPDM E/R branch line. 	 Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. CHECK HARNESS FOR OPEN CIRCUIT Disconnect the connector of IPDM E/R.
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. E46 41 40 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to <u>BCS-126. "Diagnosis Procedure"</u> . !S the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • Without Intelligent Key system: Refer to <u>BCS-76. "Removal and Installation"</u> . • Without Intelligent Key system: Refer to <u>BCS-76. "Removal and Installation"</u> . • Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u> . • Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u> . • Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u> . • Without Intelligent Key system: Refer	YES >> GO TO 2. NO >> Repair the terminal and connector. 2.CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of IPDM E/R.
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. E46 41 40 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to BCS-69, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>> Replace the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-76, "Removal and Installation".	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. E46 41 40 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to <u>BCS-69</u> , "Diagnosis Procedure". • Without Intelligent Key system: Refer to <u>BCS-126</u> , "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to <u>BCS-76</u> , "Removal and Installation". • Without Intelligent Key system: Refer to <u>BCS-133</u> , "Removal and Installation". • Without Intelligent Key system: Refer to <u>BCS-133</u> , "Removal and Installation". • YES (Past error)>>Error was detected in the IPDM E/R branch line.	
Connector No. Terminal No. Resistance (Ω) E46 41 40 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the IPDM E/R branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to BCS-69, "Diagnosis Procedure". • With Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure". • Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation".	
Connector No. Terminal No. E46 41 40 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. 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 the following. • With Intelligent Key system: Refer to BCS-69, "Diagnosis Procedure". • Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to BCS-76, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation". • Without Intelligent Key system: Refer to BCS-133, "Removal and Installation".	Resistance (Q)
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 the following. • With Intelligent Key system: Refer to <u>BCS-69</u> , " <u>Diagnosis Procedure</u> ". • Without Intelligent Key system: Refer to <u>BCS-126</u> , " <u>Diagnosis Procedure</u> ". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. • With Intelligent Key system: Refer to <u>BCS-76</u> , " <u>Removal and Installation</u> ". • Without Intelligent Key system: Refer to <u>BCS-133</u> , " <u>Removal and Installation</u> ". YES (Past error)>>Error was detected in the IPDM E/R branch line.	Connector No. Terminal No.
 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 the following. With Intelligent Key system: Refer to <u>BCS-69</u>, "Diagnosis Procedure". Without Intelligent Key system: Refer to <u>BCS-126</u>, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the IPDM E/R. Refer to the following. With Intelligent Key system: Refer to <u>BCS-76</u>, "Removal and Installation". Without Intelligent Key system: Refer to <u>BCS-133</u>, "Removal and Installation". YES (Past error)>>Error was detected in the IPDM E/R branch line. 	E46 41 40 Approx. 54 – 66
 YES (Present error)>>Replace the IPDM E/R. Refer to the following. With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>. Without Intelligent Key system: Refer to <u>BCS-133, "Removal and Installation"</u>. YES (Past error)>>Error was detected in the IPDM E/R branch line. 	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 the following. • With Intelligent Key system: Refer to <u>BCS-69</u> , " <u>Diagnosis Procedure</u> ".
 With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>. Without Intelligent Key system: Refer to <u>BCS-133, "Removal and Installation"</u>. YES (Past error)>>Error was detected in the IPDM E/R branch line. 	Is the inspection result normal?
	 Without Intelligent Key system: Refer to <u>BCS-133, "Removal and Installation"</u>.

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< DTC/CIRCUIT DIAGNOSIS >

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

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-38, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

INFOID:0000000115370
damage, bend and loose connectio
Resistance (Ω)
Approx. 54 – 66
h

< DTC/CIRCUIT DIAGNOSIS >

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537063

[CAN SYSTEM (TYPE 1)]

1.CHECK CONNECTOR

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

E	Resistance (Ω)		
Connector No.	Termi		
M87	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-22, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-39, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

NO >> Repair the power supply and the ground circuit.

M&A BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

Diagnosis Procedure			INFOID:000000011537064
1.check connector			
	cable from the negative terr id connectors of the combi	ninal. nation meter for damage, t	pend and loose connection
Is the inspection result norm	nal?		
YES >> GO TO 2. NO >> Repair the term	inal and connector		
2.CHECK HARNESS FOR			
	or of combination meter. etween the combination me	ter harness connector termi	nals.
Co	ombination meter harness connec	tor	Resistance (Ω)
Connector No.	Termir	nal No.	
M24	1	2	Approx. 54 – 66
Is the measurement value w YES >> GO TO 3. NO >> Repair the comb 3. CHECK POWER SUPPL	vithin the specification? bination meter branch line. Y AND GROUND CIRCUIT	-	
Is the measurement value w YES >> GO TO 3. NO >> Repair the comb 3. CHECK POWER SUPPL	vithin the specification? bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the ource".	-	
Is the measurement value w YES >> GO TO 3. NO >> Repair the comb 3.CHECK POWER SUPPL Check the power supply and METER : Diagnosis Procedu Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	vithin the specification? bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". nal?	- combination meter. Refer to : Refer to <u>MWI-77, "Remova</u> tion meter branch line.	MWI-52, "COMBINATION
Is the measurement value w YES >> GO TO 3. NO >> Repair the comb 3.CHECK POWER SUPPL Check the power supply and METER : Diagnosis Procedu Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	vithin the specification? bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". hal? lace the combination meter as detected in the combina	- combination meter. Refer to : Refer to <u>MWI-77, "Remova</u> tion meter branch line.	MWI-52, "COMBINATION
Is the measurement value w YES >> GO TO 3. NO >> Repair the comb 3.CHECK POWER SUPPL Check the power supply and METER : Diagnosis Procedu Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	vithin the specification? bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". hal? lace the combination meter as detected in the combina	- combination meter. Refer to : Refer to <u>MWI-77, "Remova</u> tion meter branch line.	MWI-52, "COMBINATION

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537065

[CAN SYSTEM (TYPE 1)]

1.CHECK 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.		
M14	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 <u>BRC-45, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-120, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

NO >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOS	ilS >		[CAN SYSTEM (TYPE 1)]
BCM BRANCH LINE	ECIRCUIT		
Diagnosis Procedure			INFOID:000000011537066
1.CHECK CONNECTOR			
3. Check the terminals and connector side).	able from the negative tern d connectors of the BCM f		ose connection (unit side and
s the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR	nal and connector.		
1. Disconnect the connect	or of BCM. tween the BCM harness co	onnector terminals.	
	BCM harness connector		Resistance (Ω)
Connector No.	Termin	al No.	
M21	39	40	Approx. 108 – 132
With Intelligent Key syst	BCM harness connector		
Connector No.	Termin	al No.	Resistance (Ω)
M84	39	40	Approx. 108 – 132
s the measurement value w YES >> GO TO 3. NO >> Repair the BCM CHECK POWER SUPPL Check the power supply and	branch line. Y AND GROUND CIRCUIT the ground circuit of the B	CM. Refer to the followin	g.
With Intelligent Key system Without Intelligent Key sys s the inspection result norm	tem: Refer to <u>BCS-126, "D</u>	osis Procedure". iagnosis Procedure".	
YES (Present error)>>Repl • With Intelligen • Without Intellig	ace the BCM. Refer to the t Key system: Refer to <u>BCS</u> gent Key system: Refer to <u>B</u>	S-76, "Removal and Insta 3CS-133, "Removal and	
YES (Past error)>>Error wa NO >> Repair the powe	as detected in the BCM bra		

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< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

	Data link connector			
Connector No.	Terminal No.		Continuity	
M22	6	14	Not existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data link	Data link connector		Continuity
Connector No.	Terminal No.	Ground	Continuity
M22	6	Giouna	Not existed
IVIZZ	14		Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

ECM		Resistance (Ω)	
Terminal No.			
100	99	Approx. 108 – 132	

3. Check the resistance between the BCM terminals.

BCM		Resistance (Ω)	
Terminal No.			
39	40	Approx. 108 – 132	

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

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

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Inspection result А Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. 6.CHECK UNIT REPRODUCTION В Perform the reproduction test as per the following procedure for each unit. Turn the ignition switch OFF. 1. Disconnect the battery cable from the negative terminal. 2. 3. Disconnect one of the unit connectors of CAN communication system. NOTE: ECM and BCM have a termination circuit. Check other units first. D 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: Ε 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. F Non-reproduced>>Replace the unit whose connector was disconnected.

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MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000011537068

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E4
- Harness connector M2

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.

- IPDM E/R
- Harness connectors E4 and M2
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R har	IPDM E/R harness connector		Harness connector	
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
E46	41	E4	100G	Existed
L40	40 24	L4	95G	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E4.

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.	Continuity
M2	100G	M22	6	Existed
IVIZ	95G	IVIZZ	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 IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M2 and the data link connector.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

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) E16 100 99 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-165. "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488. "Removal and Installation". YES (Present error)>>Error was detected in the ECM branch line. NO >> Repair the power supply and the ground circuit.	.CHECK CONNECTOR			
. Disconnect the connector of ECM. . Check the resistance between the ECM harness connector terminals. ECM harness connector Resistance (Ω) Connector No. Terminal No. E16 100 99 Approx. 108 – 132 Sthe measurement value within the specification? YES > GO TO 3. NO >> Repair the ECM branch line. . CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". Sthe inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. .	 Turn the ignition switch Disconnect the battery Check the terminals ar connector side). the inspection result norm YES >> GO TO 2. NO >> Repair the term 	cable from the negative termin d connectors of the ECM for o <u>nal?</u> inal and connector.		se connection (unit side and
Check the resistance between the ECM harness connector terminals. ECM harness connector Resistance (Ω) Connector No. Terminal No. E16 100 99 Approx. 108 – 132 the measurement value within the specification? (FS) >> GO TO 3. VO >> Repair the ECM branch line. . . CHECK POWER SUPPLY AND GROUND CIRCUIT heck the power supply and the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". the inspection result normal? (FS (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". (FS (Past error)>>Replace the ECM. Refer to EC-488, "Removal and Installation".				
Connector No. Terminal No. Resistance (Ω) E16 100 99 Approx. 108 – 132 s the measurement value within the specification? YES >> GO TO 3. YES >> GO TO 3. Sthe measurement the ECM branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". S the inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. EC-488, "Removal and Installation".			ector terminals.	
Connector No. Terminal No. E16 100 99 Approx. 108 – 132 s 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-165, "Diagnosis Procedure". s the inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line.		ECM harness connector		
s 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-165, "Diagnosis Procedure". s the inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line.	Connector No.	Terminal N	lo.	- Resistance (Ω)
 YES >> GO TO 3. NO >> Repair the ECM branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". as the inspection result normal? YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. 	E16	100	99	Approx. 108 – 132
	YES >> GO TO 3			
	NO >> Repair the ECN CHECK POWER SUPPL heck the power supply an the inspection result norm YES (Present error)>>Rep	Y AND GROUND CIRCUIT d the ground circuit of the ECM nal? lace the ECM. Refer to <u>EC-48</u>	8. "Removal and Install	

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< DTC/CIRCUIT DIAGNOSIS >

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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).
- 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.		
E33	26	14	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 <u>BRC-64, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-117, "Removal</u> <u>and Installation"</u>.

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

NO >> Repair the power supply and the ground circuit.

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

iagnosis Procedure			INFOID:00000001153707
.CHECK CONNECTOR			
. Turn the ignition switch . Disconnect the battery of	cable from the negative terr	ninal. E/R for damage, bend and	loose connection (unit side
the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS FOR	inal and connector.		
. Disconnect the connect		ess connector terminals.	
	IPDM E/R harness connector		Resistance (O)
Connector No.	IPDM E/R harness connector Termir	nal No.	Resistance (Ω)
Connector No. E46 s the measurement value w	Termir 41	al No. 40	Resistance (Ω) Approx. 54 – 66
E46 the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and With Intelligent Key syster	Termir 41 <u>/ithin the specification?</u> M E/R branch line. Y AND GROUND CIRCUIT d the ground circuit of the IF n: Refer to <u>BCS-69, "Diagn</u>	40 - PDM E/R. Refer to the follow osis Procedure".	Approx. 54 – 66
E46 the measurement value w YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPL Check the power supply and With Intelligent Key syster	Termir 41 <u>vithin the specification?</u> M E/R branch line. Y AND GROUND CIRCUIT d the ground circuit of the IF n: Refer to <u>BCS-69, "Diagn</u> stem: Refer to <u>BCS-126, "D</u>	40 - PDM E/R. Refer to the follow osis Procedure".	Approx. 54 – 66

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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537072

[CAN SYSTEM (TYPE 2)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the 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 F50
- Harness connector E64

Is the 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.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-238, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the TM-266, "Removal and Installation".

YES (Past error)>> Error was detected in the TCM branch line.

A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000011537073 WARNING: В 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.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-38, "Work Flow". Is the inspection result normal? YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

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< DTC/CIRCUIT DIAGNOSIS >

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537074

[CAN SYSTEM (TYPE 2)]

1.CHECK 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		
Connector No.	Terminal No.		Resistance (Ω)
M22	6 14		Approx. 54 – 66

Is the measurement value within the specification?

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

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

EPS BRANCH LINE Diagnosis Procedure			
			INFOID:000000011537075
1.CHECK CONNECTOR			
	cable from the negative tern d connectors of the EPS co		and loose connection (unit
• '	inal and connector.		
2. CHECK HARNESS FOR	OPEN CIRCUIT		
 Disconnect the connect Check the resistance be 	or of EPS control unit. etween the EPS control unit	harness connector termina	als.
	EPS control unit harness connecto	r	Resistance (Ω)
Connector No.	Termin		
M87 Is the measurement value v	2	1	Approx. 54 – 66
YES >> GO TO 3. NO >> Repair the EPS 3.CHECK POWER SUPPL	control unit branch line. Y AND GROUND CIRCUIT		STC-22 "Diagnosis Proce-
<u>dure"</u> . <u>Is the inspection result norm</u> YES (Present error)>>Rep	-	efer to <u>STC-39, "Removal</u>	
	er supply and the ground cir		

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M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537076

[CAN SYSTEM (TYPE 2)]

1.CHECK 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.		
M24	1 2		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 <u>MWI-52, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-77, "Removal and Installation".

YES (Past error)>>Error was detected in the combination meter branch line.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >			[CAN SYSTEM (TYPE 2)]
STRG BRANCH LI	VE CIRCUIT		
Diagnosis Procedure			INFOID:000000011537077
1. CHECK CONNECTOR			
3. Check the terminals and (unit side and connector	cable from the negative terr d connectors of the steering r side).		bend and loose connection
Is the inspection result norm YES >> GO TO 2.	al?		
YES >> GO TO 2. NO >> Repair the term	inal and connector.		
2.CHECK HARNESS FOR	OPEN CIRCUIT		
	or of steering angle sensor. Stween the steering angle s	ensor harness connector te	erminals.
Stee	ering angle sensor harness conne		Resistance (Ω)
Connector No.	Termir	nal No.	
M14	5	2	Approx. 54 – 66
Is the measurement value wYES>> GO TO 3.NO>> Repair the steer3.CHECK POWER SUPPL	ring angle sensor branch lir		
Check the power supply an gram".	-	steering angle sensor. Re	fer to <u>BRC-45, "Wiring Dia-</u>
Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wan NO >> Repair the power	lace the steering angle sen	angle sensor branch line.	emoval and Installation".

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BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537078

1.CHECK 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.
- Without Intelligent Key system

BCM harness connector			Resistance (Ω)
Connector No.	Termi	nal No.	
M21	39 40		Approx. 108 – 132

With Intelligent Key system

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M84	39 40		Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-69, "Diagnosis Procedure"</u>.
- Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>.
- Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u>.
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 2)]

		INFOID:000000011537079
ION		
OFF. cable from the negative term connectors on CAN commur nnectors for damage, bend	nication system.	
inal and connector		
	Г)	
n the data link connector te	rminals.	
Data link connector		Quetinuitu
Termin	al No.	Continuity
6	14	Not existed
TINUITY (SHORT CIRCUIT	Γ)	
n the data link connector ar	nd the ground.	
		Continuity
	Ground	Not existed
14		Not existed
ess and repair the root caus TERMINATION CIRCUIT he BCM.	se.	
ECM		Resistance (Ω)
Terminal No.		
	A	Approx. 108 – 132
BCM		Resistance (Ω)
Terminal No.		
		pprox. 108 – 132
	connectors on CAN commun innectors for damage, bend hal? inal and connector. ITINUITY (SHORT CIRCUIT en the data link connector te Data link connector Termin 6 hal? ess and repair the root caus ITINUITY (SHORT CIRCUIT en the data link connector ar connector Terminal No. 6 14 hal? ess and repair the root caus TERMINATION CIRCUIT he BCM. etween the ECM terminals. ECM Terminal No. 99 etween the BCM terminals. BCM Terminal No. 40 vithin the specification?	TION CIRCUIT ION OFF. cable from the negative terminal. connectors on CAN communication system. nnnectors for damage, bend and loose connection. tinal and connector. ITINUITY (SHORT CIRCUIT) en the data link connector terminals. Data link connector 6 14 tail? ess and repair the root cause. ITINUITY (SHORT CIRCUIT) en the data link connector and the ground. connector ITINUITY (SHORT CIRCUIT) en the data link connector and the ground. connector Ground 6 14 all? ess and repair the root cause. TERMINATION CIRCUIT he BCM. etween the ECM terminals. ECM 199 4 etween the BCM terminals. BCM Terminal No. 40 A

< DTC/CIRCUIT DIAGNOSIS >

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 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.

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ntinuity
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MAIN LINE BETWEEN DLC AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

MAIN LINE BETWEEN DLC AND AV CIRCUIT

Diagnosis Procedure

INFOID:000000011537081

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Data link	connector	AV control unit harness connector Connector No. Terminal No.		Continuity	
Connector No.	Terminal No.			Continuity	
M22	6	M100	8	Existed	
IVIZZ	14	WI TOO	17	Existed	

- With navigation system without BOSE audio system

Data link	connector	AV control unit harness connector		Continuity	
Connector No.	Terminal No.	Connector No. Terminal No.		Continuity	
M22	6	M103	8	Existed	
IVIZZ	14	WI IUS	17	Existed	

Is the inspection result normal?

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

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

NO >> Repair the main line between the data link connector and the AV control unit.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

Diagnosis Procedure			
.CHECK CONNECTOR			
	cable from the negative terr		e connection (unit side and
s the inspection result norm	nal?		
YES >> GO TO 2. NO >> Repair the term	inal and connector		
2.CHECK HARNESS FOR			
Disconnect the connect			
	etween the ECM harness co	onnector terminals.	
ECM harness connector		Resistance (Ω)	
Connector No		nal No.	Resistance (Ω)
Connector No.	Termir		
E16	Termir 100	nal No. 99	Resistance (Ω) Approx. 108 – 132
E16 the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL	Termir 100 /ithin the specification? I branch line. Y AND GROUND CIRCUIT	99	Approx. 108 – 132
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and	Termir 100 <u>vithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E	99	Approx. 108 – 132
E16 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ECM 3. CHECK POWER SUPPL Check the power supply and <u>s the inspection result norm</u>	Termir 100 /ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E hal?	99 	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>hal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E hal? lace the ECM. Refer to <u>EC-</u>	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>hal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>hal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>hal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".
E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Termir 100 <u>ithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>hal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra	99 CM. Refer to <u>EC-165, "Dia</u> <u>488, "Removal and Installa</u> nch line.	Approx. 108 – 132 gnosis Procedure".

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ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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 a	ABS actuator and electric unit (control unit) harness connector		
Connector No.	Terminal No.		Resistance (Ω)
E33	26	14	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 <u>BRC-64, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-117, "Removal</u> <u>and Installation"</u>.

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

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

			INFOID:00000001153708
.CHECK CONNECTOR			
. Check the terminals an and connector side).	cable from the negative termi nd connectors of the IPDM E/		l loose connection (unit side
<u>the inspection result norr</u> YES >> GO TO 2.			
NO >> Repair the tern	ninal and connector.		
CHECK HARNESS FOR	R OPEN CIRCUIT		
Disconnect the connectCheck the resistance b	tor of IPDM E/R. etween the IPDM E/R harnes	s connector terminals.	
	IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal	No.	
E46	41	40	Approx. 54 – 66
YES >> GO TO 3.	M E/R branch line.		

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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537085

[CAN SYSTEM (TYPE 3)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the 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 F50
- Harness connector E64

Is the 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.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-238, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the TM-266, "Removal and Installation".

YES (Past error)>> Error was detected in the TCM branch line.

< DTC/CIRCUIT DIAGNOSIS > A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000011537086 WARNING: В 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.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-38, "Work Flow". Is the inspection result normal? YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

Revision: December 2014

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< DTC/CIRCUIT DIAGNOSIS >

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537087

[CAN SYSTEM (TYPE 3)]

1.CHECK 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		
Connector No.	Terminal No.		Resistance (Ω)
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

Diagnosis Procedure			INFOID:000000011537088
1.CHECK CONNECTOR	-		
 Check the terminals and side and connector side 	cable from the negative ten d connectors of the EPS co).	minal. ontrol unit for damage, bend	and loose connection (unit
s the inspection result norm	al?		
YES >> GO TO 2. NO >> Repair the term	inal and connector		
2. CHECK HARNESS FOR			
 Disconnect the connect Check the resistance be 		t harness connector termina	ls.
E	EPS control unit harness connector Resistance (0)		Resistance (Ω)
Connector No.	Termi	nal No.	. ,
M87	2	1	Approx. 54 – 66
s the measurement value w	ithin the specification?		
YES >> GO TO 3. NO >> Repair the EPS	control unit branch line.		
NO >> Repair the EPS	control unit branch line. Y AND GROUND CIRCUI ⁻	г	
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure".	Y AND GROUND CIRCUI		STC-22, "Diagnosis Proce-
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI [®] d the ground circuit of the al? lace the EPS control unit. F	EPS control unit. Refer to <u>seven the seven seven to STC-39, "Removal seven to STC-39, "Removal seven to seven the seven the seven to seven the sevent the sevent the sevent the sevent the seven the sevent the sev</u>	
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI d the ground circuit of the al? lace the EPS control unit. F as detected in the EPS cor	EPS control unit. Refer to <u>seven the seven seven to STC-39, "Removal seven to STC-39, "Removal seven to seven the seven the seven to seven the sevent the se</u>	
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI d the ground circuit of the al? lace the EPS control unit. F as detected in the EPS cor	EPS control unit. Refer to <u>seven the seven seven to STC-39, "Removal seven to STC-39, "Removal seven to seven the seven the seven to seven the sevent the se</u>	
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI d the ground circuit of the al? lace the EPS control unit. F as detected in the EPS cor	EPS control unit. Refer to <u>seven the seven seven to STC-39, "Removal seven to STC-39, "Removal seven to seven the seven the seven to seven the sevent the se</u>	
NO >> Repair the EPS 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUI d the ground circuit of the al? lace the EPS control unit. F as detected in the EPS cor	EPS control unit. Refer to <u>seven the seven seven to STC-39, "Removal seven to STC-39, "Removal seven to seven the seven the seven to seven the sevent the se</u>	

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< DTC/CIRCUIT DIAGNOSIS >

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537089

[CAN SYSTEM (TYPE 3)]

1.CHECK 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.	Termi		
M24	1 2		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 <u>MWI-52, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-77, "Removal and Installation".

YES (Past error)>>Error was detected in the combination meter branch line.

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOS	SIS >		[CAN SYSTEM (TYPE 3)]
STRG BRANCH LI	VE CIRCUIT		
Diagnosis Procedure			INFOID:000000011537090
1.CHECK CONNECTOR			
3. Check the terminals and (unit side and connector	cable from the negative terr d connectors of the steering r side).		bend and loose connection
<u>Is the inspection result norm</u> YES >> GO TO 2.	<u>al?</u>		
NO >> Repair the term	inal and connector.		
2.CHECK HARNESS FOR	OPEN CIRCUIT		
	or of steering angle sensor. etween the steering angle s	ensor harness connector te	erminals.
Stee	ering angle sensor harness conne		Resistance (Ω)
Connector No.	Termir	nal No.	
M14	5	2	Approx. 54 – 66
Is the measurement value wYES>> GO TO 3.NO>> Repair the steer3.CHECK POWER SUPPL	ring angle sensor branch lir		
Check the power supply an gram".	-	steering angle sensor. Re	fer to <u>BRC-45, "Wiring Dia-</u>
YES (Past error)>>Error w	lace the steering angle sen		emoval and Installation".

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AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537091

[CAN SYSTEM (TYPE 3)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.

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

- With navigation system without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	8	Approx. 54 – 66	

With navigation system and BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	8	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

 $\mathbf{3}$. CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- With navigation system without BOSE audio system: Refer to <u>AV-181, "AV CONTROL UNIT : Diagnosis Pro-</u> cedure".
- With navigation system and BOSE audio system: Refer to <u>AV-282, "AV CONTROL UNIT : Diagnosis Proce-</u> <u>dure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.

- With navigation system without BOSE audio system: Refer to <u>AV-209</u>, "<u>Removal and Installa-</u> tion".
- With navigation system and BOSE audio system: Refer to AV-318, "Removal and Installation".

YES (Past error)>>Error was detected in the AV control unit branch line.

BCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOS	ilS >		[CAN SYSTEM (TYPE 3)]
BCM BRANCH LINE	ECIRCUIT		
Diagnosis Procedure			INFOID:000000011537092
1.CHECK CONNECTOR			
 Check the terminals and connector side). 	able from the negative tern d connectors of the BCM f		ose connection (unit side and
s the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR	nal and connector.		
1. Disconnect the connect	or of BCM. tween the BCM harness co	onnector terminals.	
	BCM harness connector		Resistance (Ω)
Connector No.	Termin	al No.	
M21	39	40	Approx. 108 – 132
With Intelligent Key syst	BCM harness connector		
Connector No.	Termin	al No.	Resistance (Ω)
M84	39	40	Approx. 108 – 132
s the measurement value w YES >> GO TO 3. NO >> Repair the BCM CHECK POWER SUPPL Check the power supply and With Intelligent Key system Without Intelligent Key sys	branch line. Y AND GROUND CIRCUIT the ground circuit of the B n: Refer to <u>BCS-69, "Diagno</u> tem: Refer to <u>BCS-126, "D</u>	CM. Refer to the followin osis Procedure".	g.
• Without Intellig YES (Past error)>>Error wa	ace the BCM. Refer to the t Key system: Refer to <u>BCS</u> gent Key system: Refer to <u>B</u>	S-76, "Removal and Insta 3CS-133, "Removal and I nch line.	

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< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

	Data link connector		
Connector No.	Terminal No.		Continuity
M22	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause.

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

Data lin	Data link connector		Continuity
Connector No.	Terminal No.	Ground	Continuity
M22	6	Giouna	Not existed
IVIZZ	14	1	Not existed

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

E	CM	Resistance (Ω)
Termi	nal No.	
100	99	Approx. 108 – 132

3. Check the resistance between the BCM terminals.

BO	CM	Resistance (Ω)
Termin	nal No.	
39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the BCM.

5.CHECK SYMPTOM

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

INFOID:0000000011537093

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Inspection result А Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. 6.CHECK UNIT REPRODUCTION В Perform the reproduction test as per the following procedure for each unit. Turn the ignition switch OFF. 1. Disconnect the battery cable from the negative terminal. 2. 3. Disconnect one of the unit connectors of CAN communication system. NOTE: ECM and BCM have a termination circuit. Check other units first. D 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: Ε 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. F Non-reproduced>>Replace the unit whose connector was disconnected.

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MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:0000000011537094

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E4
- Harness connector M2

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.

- IPDM E/R
- Harness connectors E4 and M2
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

IPDM E/R har	ness connector	Harness connector Connector No. Terminal No.		Continuity	
Connector No.	Terminal No.				
E46	41	E4	100G	Existed	
L40	40	L4	95G	Existed	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E4.

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.	Continuity
M2	100G	M22	6	Existed
IVIZ	95G	IVIZZ	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 IPDM E/R and the data link connector.

NO >> Repair the main line between the harness connector M2 and the data link connector.

	ure			INFOID:000000011537095
.CHECK HARNESS	CONTINUITY (OPEI	N CIRCUIT)		
Disconnect the foll ECM A/C auto amp.	tery cable from the n owing harness conne	ectors.		
	-	link connector and the	A/C auto amp. harnes	ss connector.
	connector	A/C auto amp. ha		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M22	6	M34	6	Existed
	14		7	Existed
the inspection result		type decision again.		ctor and the A/C auto

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ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537096

[CAN SYSTEM (TYPE 4)]

1.CHECK 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		
Connector No.	Termi	Resistance (Ω)	
E16	100	99	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

 $\mathbf{3}$. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to <u>EC-165, "Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES (Present error)>>Replace the ECM. Refer to EC-488, "Removal and Installation".

YES (Past error)>>Error was detected in the ECM branch line.

ABS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

iagnosis Procedure			INFOID:000000011537097
.CHECK CONNECTOR			
. Check the terminals and and loose connection (u	able from the negative term I connectors of the ABS act nit side and connector side)	uator and electric unit (co	ntrol unit) for damage, bend
<u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
CHECK HARNESS FOR	OPEN CIRCUIT		
. Check the resistance be nals.		nd electric unit (control un	it) harness connector termi-
Connector No.	ABS actuator and electric unit (control unit) harness connector Resistance (Ω) ctor No. Terminal No.		Resistance (Ω)
		al No	
E33	26	al No. 14	Approx. 54 – 66
E33 the measurement value w YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPL heck the power supply an RC-64. "Diagnosis Procedu the inspection result norm YES (Present error)>>Repl and Installation"	26 <u>ithin the specification?</u> actuator and electric unit (c Y AND GROUND CIRCUIT d the ground circuit of the <u>ure</u> ". <u>al?</u> ace the ABS actuator and e	14 ontrol unit) branch line. ABS actuator and electric electric unit (control unit). F	Approx. 54 – 66 unit (control unit). Refer to Refer to <u>BRC-117, "Removal</u>

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537098

[CAN SYSTEM (TYPE 4)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.

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

	IPDM E/R harness connector		
Connector No.	Terminal No.		Resistance (Ω)
E46	41	40	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the IPDM E/R branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the IPDM E/R. Refer to the following.

• With Intelligent Key system: Refer to <u>BCS-69, "Diagnosis Procedure"</u>.

• Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>.
- · Without Intelligent Key system: Refer to BCS-133, "Removal and Installation".
- YES (Past error)>>Error was detected in the IPDM E/R branch line.

TCM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

	ECIRCUIT		
Diagnosis Procedure			INFOID:000000011537099
1.CHECK CONNECTOR			
	able from the negative terr		connection (unit side and con-
 Harness connector E64 			
Is the inspection result norm	<u>al?</u>		
YES >> GO TO 2. NO >> Repair the termi	nal and connector.		
2. CHECK HARNESS FOR			
2. Check the resistance be	tween the TCM harness control of the TCM harness connector	onnector terminals.	Posistance (0)
Connector No.	Termi	nal No.	Resistance (Ω)
F23	33	23	Approx. 54 – 66
<u>Is the measurement value w</u> YES >> GO TO 3.	•		
NO >> Repair the TCM 3. CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	Y AND GROUND CIRCUIT I the ground circuit of the T <u>al?</u> ace the TCM. Refer to the	CM. Refer to <u>TM-238, "D</u> <u>TM-266, "Removal and li</u> anch line.	

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A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

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-38, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness.

NO >> Replace parts whose air bag system has a malfunction.

INFOID:000000011537100

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

< DTC/CIRCUIT DIAGNOS	SIS >		[CAN SYSTEM (TYPE 4)]
DLC BRANCH LINE	ECIRCUIT		
Diagnosis Procedure			INFOID:00000001153710
.CHECK CONNECTOR			
	cable from the negative tern d connectors of the data li ness side).		age, bend and loose connectior
YES >> GO TO 2.			
NO >> Repair the termi CHECK HARNESS FOR			
heck the resistance betwee		terminals.	
	Data link connector		
Connector No.		nal No.	Resistance (Ω)
M22	6	14	Approx. 54 – 66
YES (Past error)>>Error wa	ck CAN system type decisi as detected in the data link link connector branch line.	connector branch line	circuit.
YES (Past error)>>Error wa	as detected in the data link	connector branch line	circuit.
YES (Past error)>>Error wa	as detected in the data link	connector branch line	circuit.
YES (Past error)>>Error wa	as detected in the data link	connector branch line	circuit.
YES (Past error)>>Error wa	as detected in the data link	connector branch line	circuit.
YES (Past error)>>Error wa	as detected in the data link	connector branch line	circuit.

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537102

[CAN SYSTEM (TYPE 4)]

1.CHECK CONNECTOR

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

E	Resistance (Ω)		
Connector No.	Termi		
M87	2	1	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to <u>STC-22, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-39, "Removal and Installation".

YES (Past error)>>Error was detected in the EPS control unit branch line.

M&A BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

M&A BRANCH LINE CIRCUIT Diagnosis Procedure				
1.CHECK CONNECTOR				
	cable from the negative terr d connectors of the combi r side). al? inal and connector.		bend and loose connection	
	or of combination meter. Stween the combination me		inals.	
Connector No.	Terminal No. Resistance (Ω		Resistance (Ω)	
M24	1	2	Approx. 54 – 66	
<u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the comb	pination meter branch line.			
3. CHECK POWER SUPPL Check the power supply an	Y AND GROUND CIRCUI		o <u>MWI-52, "COMBINATION</u>	
3.CHECK POWER SUPPL Check the power supply an <u>METER : Diagnosis Procedu</u> <u>s the inspection result norm</u> YES (Present error)>>Rep YES (Past error)>>Error wa	Y AND GROUND CIRCUIT d the ground circuit of the <u>ure"</u> . al? lace the combination meter	combination meter. Refer t . Refer to <u>MWI-77, "Remov</u> tion meter branch line.		
B. CHECK POWER SUPPL Check the power supply an <u>METER : Diagnosis Procedu</u> <u>s the inspection result norm</u> YES (Present error)>>Rep YES (Past error)>>Error w	Y AND GROUND CIRCUIT d the ground circuit of the <u>ure"</u> . al? lace the combination meter as detected in the combina	combination meter. Refer t . Refer to <u>MWI-77, "Remov</u> tion meter branch line.		

Revision: December 2014

< DTC/CIRCUIT DIAGNOSIS >

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< DTC/CIRCUIT DIAGNOSIS >

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537104

[CAN SYSTEM (TYPE 4)]

1.CHECK 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.

Ste	Resistance (Ω)		
Connector No.	Terminal No.		
M14	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 <u>BRC-45, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-120, "Removal and Installation"</u>.

YES (Past error)>>Error was detected in the steering angle sensor branch line.

HVAC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

Diagnosis Procedure			INFOID:000000011537105
1.CHECK CONNECTOR			
	able from the negative tern d connectors of the A/C au		and loose connection (unit
s the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS FOR	nal and connector.		
. Disconnect the connect		arness connector terminals	5.
	A/C auto amp. harness connector		Resistance (Ω)
Connector No.	Termin	al No.	Resistance (52)
M34	6	7	Approx. 54 – 66
YES >> GO TO 3.			
CHECK POWER SUPPL theck the power supply an <u>iagnosis Procedure</u> ".	Y AND GROUND CIRCUIT d the ground circuit of the <u>al?</u>	A/C auto amp. Refer to <u>-</u>	IAC-83, "A/C AUTO AMP. :
CHECK POWER SUPPL check the power supply an <u>biagnosis Procedure</u> ". the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	Y AND GROUND CIRCUIT d the ground circuit of the al? lace the A/C auto amp. Ref	A/C auto amp. Refer to <u>H</u> er to <u>HAC-105, "Removal a</u> amp. branch line.	
CHECK POWER SUPPL Check the power supply an Diagnosis Procedure". s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa	Y AND GROUND CIRCUIT d the ground circuit of the al? lace the A/C auto amp. Ref as detected in the A/C auto	A/C auto amp. Refer to <u>H</u> er to <u>HAC-105, "Removal a</u> amp. branch line.	

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BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537106

1.CHECK 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.
- Without Intelligent Key system

	BCM harness connector		Resistance (Ω)
Connector No.	Termi	nal No.	
M21	39	40	Approx. 108 – 132

With Intelligent Key system

	BCM harness connector		Resistance (Ω)
Connector No.	Termi	nal No.	
M84	39	40	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-69, "Diagnosis Procedure"</u>.
- Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>.
- Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u>.
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 4)]

CAN COMMUNICA	TION CIRCUIT		
Diagnosis Procedure			INFOID:000000011537107
1.CONNECTOR INSPECT	ION		
	cable from the negative tern		
	onnectors on CAN commur nnectors for damage, bend		
Is the inspection result norm	al?		
YES >> GO TO 2. NO >> Repair the term	inal and connector		
2.CHECK HARNESS CON		Г)	
Check the continuity betwee			
	Data link connector		Continuity
Connector No.	Termin		-
M22	6	14	Not existed
Is the inspection result norm	al?		
YES >> GO TO 3. NO >> Check the harne	ess and repair the root caus	se.	
3. CHECK HARNESS CON	•		
Check the continuity betwee			
		5	
	connector		Continuity
Connector No.	Terminal No.	Ground	Not ovisted
M22	6		Not existed Not existed
Is the inspection result norm			Not Chlotod
YES >> GO TO 4.			
4	ess and repair the root caus	se.	
4. CHECK ECM AND BCM	TERMINATION CIRCUIT		
1. Remove the ECM and t			
2. Check the resistance be	etween the ECM terminals.		
	ECM		
	Terminal No.		Resistance (Ω)
100	99	A	Approx. 108 – 132
3. Check the resistance be	etween the BCM terminals.		
	BCM		
	Terminal No.		Resistance (Ω)
39	40	Δ	pprox. 108 – 132
Is the measurement value w			5010X. 100 - 102
YES >> GO TO 5.			
NO >> Replace the EC	M and/or the BCM.		
5.CHECK SYMPTOM			
	Check if the symptoms de	escribed in the "Symptom	(Results from interview with
ustomer)" are reproduced.		/ /	·

< DTC/CIRCUIT DIAGNOSIS >

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 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 > [CAN SYST DTC/CIRCUIT DIAGNOSIS MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT Diagnosis Procedure 1.CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. 3. Check the following terminals and connectors for damage, bend and loose connection	TEM (TYPE 5)]
MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT Diagnosis Procedure 1.CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal.	INFOID:000000011537108
Diagnosis Procedure 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal.	INFOID:000000011537108
 CHECK CONNECTOR Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 	INFOID:000000011537108
 Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 	
Disconnect the battery cable from the negative terminal.	
 and harness side). Harness connector E4 Harness connector M2 <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Repair the terminal and connector. CHECK HARNESS CONTINUITY (OPEN CIRCUIT) Disconnect the following harness connectors. IPDM E/R Harness connectors E4 and M2 Check the continuity between the IPDM E/R harness connector and the harness connector 	
IPDM E/R harness connector Harness connector	
Connector No. Terminal No. Connector No. Terminal No.	Continuity
E46 E4 100G	Existed
40 95G	Existed
s the inspection result normal? YES >> GO TO 3. NO >> Repair the main line between the IPDM E/R and the harness connector E4. CHECK HARNESS CONTINUITY (OPEN CIRCUIT) Check the continuity between the harness connector and the data link connector.	
Harness connector Data link connector	
Connector No. Terminal No. Connector No. Terminal No.	Continuity
M2 100G 6	Existed
95G 14	Existed

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:0000000011537109

[CAN SYSTEM (TYPE 5)]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- ECM
- A/C auto amp.
- 4. Check the continuity between the data link connector and the A/C auto amp. harness connector.

Data link	connector	A/C auto amp. h	arness connector	Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	Continuity
M22	6	M34	6	Existed
IVIZZ	14	10134	7	Existed

Is the inspection result normal?

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

- YES (Past error)>>Error was detected in the main line between the data link connector and the A/C auto amp.
- NO >> Repair the main line between the data link connector and the A/C auto amp.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

< DTC/CIRCUIT DIAGNOS	IS >		[CAN SYSTEM (TYPE 5)]
ECM BRANCH LINE	ECIRCUIT		
Diagnosis Procedure			INFOID:000000011537110
1. CHECK CONNECTOR			
	able from the negative term		e connection (unit side and
s the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR	nal and connector.		
1. Disconnect the connect		nnector terminals.	
	ECM harness connector		Resistance (Ω)
Connector No.	Termina		
E16	100	99	Approx. 108 – 132
s the measurement value w YES >> GO TO 3. NO >> Repair the ECM CHECK POWER SUPPL Check the power supply and s the inspection result norm	branch line. Y AND GROUND CIRCUIT the ground circuit of the E0	CM. Refer to <u>EC-165, "Dia</u>	gnosis Procedure".
YES (Present error)>>Repl YES (Past error)>>Error wa NO >> Repair the powe		nch line.	ation".

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ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK 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 a	and electric unit (control unit) har	ness connector	Resistance (Ω)
Connector No.	Termi	nal No.	
E33	26	14	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 <u>BRC-64, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-117, "Removal</u> <u>and Installation"</u>.

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

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

Diagnosis Procedure			INFOID:00000001153711.
1.CHECK CONNECTOR			
 Check the terminals and and connector side). 	cable from the negative terr d connectors of the IPDM I		l loose connection (unit side
s the inspection result norm	al?		
YES >> GO TO 2. NO >> Repair the termi	inal and connector.		
2. CHECK HARNESS FOR			
 Disconnect the connect Check the resistance be 	etween the IPDM_E/R.	ess connector terminals.	
	IPDM E/R harness connector		Resistance (Ω)
Connector No.	Termir		- Resistance (Ω)
E46 s the measurement value w	Termir 41	al No. 40	Resistance (Ω) Approx. 54 – 66
	Termin 41 rithin the specification? // E/R branch line. Y AND GROUND CIRCUIT I the ground circuit of the IF n: Refer to <u>BCS-69, "Diagnesterner</u> ; Refer to <u>BCS-126, "D</u>	40 PDM E/R. Refer to the follo	Approx. 54 – 66
E46 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the IPDM 3. CHECK POWER SUPPL Check the power supply and With Intelligent Key system Without Intelligent Key system Without Intelligent Key system YES (Present error)>>Repl • With Intelligen • With Intelligen • Without Intelligen • Without Intelligen • Without Intelligen • Without Intelligen	Termin 41 ithin the specification? A E/R branch line. Y AND GROUND CIRCUIT I the ground circuit of the IF n: Refer to <u>BCS-69, "Diagnostem:</u> Refer to <u>BCS-126, "Diagnostem:</u> Refer to <u>BCS-126, "Diagnostem:</u> Refer to <u>BCS-126, "Diagnostem:</u> I ace the IPDM E/R. Refer to to the IF I key system: Refer to <u>BCS-126, "Diagnostem:</u>	40 PDM E/R. Refer to the follo poiss Procedure". iagnosis Procedure". o the following. S-76. "Removal and Install 3CS-133. "Removal and In R branch line.	Approx. 54 – 66
E46 s the measurement value w YES >> GO TO 3. NO >> Repair the IPDM 3.CHECK POWER SUPPL Check the power supply and With Intelligent Key system Without Intelligent Key system Without Intelligent Key system S the inspection result norm YES (Present error)>>Repl • With Intelligen • Without Intelligen • Without Intelligen • Without Intelligen • Without Intelligen	Termin 41 ithin the specification? // E/R branch line. Y AND GROUND CIRCUIT I the ground circuit of the IF n: Refer to BCS-69, "Diagnustem: Refer to BCS-126, "Diag	40 PDM E/R. Refer to the follo poiss Procedure". iagnosis Procedure". o the following. S-76. "Removal and Install 3CS-133. "Removal and In R branch line.	Approx. 54 – 66

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Revision: December 2014

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537113

[CAN SYSTEM (TYPE 5)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the 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 F50
- Harness connector E64

Is the 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.	Termi	nal No.	
F23	33	23	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-238, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to the TM-266, "Removal and Installation".

YES (Past error)>> Error was detected in the TCM branch line.

< DTC/CIRCUIT DIAGNOSIS > A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000011537114 WARNING: В 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.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-38, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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< DTC/CIRCUIT DIAGNOSIS >

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011537115

[CAN SYSTEM (TYPE 5)]

1.CHECK 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.	Termi	nal No.	
M22	6	14	Approx. 54 – 66

Is the measurement value within the specification?

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

YES (Past error)>>Error was detected in the data link connector branch line circuit.

NO >> Repair the data link connector branch line.

EPS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

EPS BRANCH LINE			
Diagnosis Procedure			INFOID:000000011537116
1.CHECK CONNECTOR			
	able from the negative terr connectors of the EPS co al?		d and loose connection (unit
2.CHECK HARNESS FOR	OPEN CIRCUIT		
	tween the EPS control unit	harness connector termina	als.
EPS control unit harness connector			
			Resistance (Ω)
Connector No.	Termir	nal No.	Resistance (Ω)
Connector No. M87	Termir 2		Resistance (Ω) Approx. 54 – 66
Connector No. M87 s the measurement value w YES >> GO TO 3. NO >> Repair the EPS 3.CHECK POWER SUPPLY Check the power supply and dure". s the inspection result norm	Termir 2 thin the specification? control unit branch line. Y AND GROUND CIRCUIT the ground circuit of the al?	al No. 1 EPS control unit. Refer to	Approx. 54 – 66 STC-22, "Diagnosis Proce-
Connector No. M87 Is the measurement value w YES >> GO TO 3. NO >> Repair the EPS 3.CHECK POWER SUPPLY Check the power supply and dure". Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa	Termir 2 thin the specification? control unit branch line. AND GROUND CIRCUIT the ground circuit of the al? ace the EPS control unit. F	al No. 1 EPS control unit. Refer to Refer to <u>STC-39, "Removal</u> trol unit branch line.	Approx. 54 – 66 STC-22, "Diagnosis Proce-

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M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537117

[CAN SYSTEM (TYPE 5)]

1.CHECK 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.		
M24	1 2		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 <u>MWI-52, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-77, "Removal and Installation".

YES (Past error)>>Error was detected in the combination meter branch line.

STRG BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

Diagnosis Procedure			INFOID:000000011537118
1.CHECK CONNECTOR			
(unit side and connector s	ble from the negative te connectors of the steerir ide).	rminal. ng angle sensor for damage	, bend and loose connection
Is the inspection result normal YES >> GO TO 2. NO >> Repair the termina	al and connector.		
2.CHECK HARNESS FOR C			
 Disconnect the connector Check the resistance betw 		or. sensor harness connector t	erminals.
Steeri	ng angle sensor harness con	nector	Resistance (Ω)
Connector No.	Tern	ninal No.	
M14	5	2	Approx. 54 – 66
Is the measurement value with	nin the specification?		
3. CHECK POWER SUPPLY		IT	fer to BRC-45, "Wiring Dia-
NO >> Repair the steerin 3. CHECK POWER SUPPLY Check the power supply and gram".	AND GROUND CIRCU the ground circuit of th	IT	fer to <u>BRC-45, "Wiring Dia-</u>
NO >> Repair the steerin 3.CHECK POWER SUPPLY Check the power supply and gram". Is the inspection result normal YES (Present error)>>Replac YES (Past error)>>Error was	AND GROUND CIRCU the ground circuit of th ? ce the steering angle se	IT e steering angle sensor. Re ensor. Refer to <u>BRC-120, "Re</u> g angle sensor branch line.	
NO >> Repair the steerin 3.CHECK POWER SUPPLY Check the power supply and gram". Is the inspection result normal YES (Present error)>>Replac YES (Past error)>>Error was	AND GROUND CIRCU the ground circuit of th ? ce the steering angle se detected in the steering	IT e steering angle sensor. Re ensor. Refer to <u>BRC-120, "Re</u> g angle sensor branch line.	
NO >> Repair the steerin 3.CHECK POWER SUPPLY Check the power supply and gram". Is the inspection result normal YES (Present error)>>Replac YES (Past error)>>Error was	AND GROUND CIRCU the ground circuit of th ? ce the steering angle se detected in the steering	IT e steering angle sensor. Re ensor. Refer to <u>BRC-120, "Re</u> g angle sensor branch line.	

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AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537119

[CAN SYSTEM (TYPE 5)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.

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

- With navigation system without BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M103	8 17		Approx. 54 – 66

With navigation system and BOSE audio system

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M100	8	17	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

 $\mathbf{3}$. CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- With navigation system without BOSE audio system: Refer to <u>AV-181, "AV CONTROL UNIT : Diagnosis Pro-</u> cedure".
- With navigation system and BOSE audio system: Refer to <u>AV-282, "AV CONTROL UNIT : Diagnosis Proce-</u> <u>dure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.

- With navigation system without BOSE audio system: Refer to <u>AV-209</u>, "<u>Removal and Installa-</u> tion".
- With navigation system and BOSE audio system: Refer to AV-318, "Removal and Installation".

YES (Past error)>>Error was detected in the AV control unit branch line.

HVAC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

Diagnosis Procedure			INFOID:000000011537120
1.CHECK CONNECTOR			
 Check the terminals an side and connector side 	cable from the negative term d connectors of the A/C aut :).		and loose connection (unit
<u>s the inspection result norm</u> YES >> GO TO 2.	nal?		
NO >> Repair the term			
2. CHECK HARNESS FOR	OPEN CIRCUIT		
 Disconnect the connect Check the resistance be 	or of A/C auto amp. etween the A/C auto amp. ha	arness connector terminals	3.
	A/C auto amp. harness connector		Resistance (Ω)
Connector No.	Termina	al No.	
M34	6	7	Approx E4 66
-	-	1	Approx. 54 – 66
s the measurement value w YES >> GO TO 3. NO >> Repair the A/C a 3.CHECK POWER SUPPL	vithin the specification? auto amp. branch line. Y AND GROUND CIRCUIT		
Is the measurement value w YES >> GO TO 3. NO >> Repair the A/C a 3. CHECK POWER SUPPL Check the power supply an Diagnosis Procedure".	vithin the specification? auto amp. branch line. Y AND GROUND CIRCUIT ad the ground circuit of the		
Is the measurement value w YES >> GO TO 3. NO >> Repair the A/C a CHECK POWER SUPPL Check the power supply an Diagnosis Procedure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	vithin the specification? auto amp. branch line. Y AND GROUND CIRCUIT ad the ground circuit of the	A/C auto amp. Refer to <u>H</u> er to <u>HAC-105, "Removal a</u> amp. branch line.	AC-83, "A/C AUTO AMP. :
Is the measurement value w YES >> GO TO 3. NO >> Repair the A/C a 3. CHECK POWER SUPPL Check the power supply an Diagnosis Procedure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w	vithin the specification? auto amp. branch line. Y AND GROUND CIRCUIT ad the ground circuit of the nal? lace the A/C auto amp. Refe as detected in the A/C auto	A/C auto amp. Refer to <u>H</u> er to <u>HAC-105, "Removal a</u> amp. branch line.	AC-83, "A/C AUTO AMP. :
Is the measurement value w YES >> GO TO 3. NO >> Repair the A/C a 3.CHECK POWER SUPPL Check the power supply an Diagnosis Procedure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error was	vithin the specification? auto amp. branch line. Y AND GROUND CIRCUIT ad the ground circuit of the nal? lace the A/C auto amp. Refe as detected in the A/C auto	A/C auto amp. Refer to <u>H</u> er to <u>HAC-105, "Removal a</u> amp. branch line.	AC-83, "A/C AUTO AMP. :

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BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011537121

[CAN SYSTEM (TYPE 5)]

1.CHECK 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.
- Without Intelligent Key system

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M21	39 40		Approx. 108 – 132

With Intelligent Key system

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M84	39 40		Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the BCM branch line.

 $\mathbf{3}$. Check power supply and ground circuit

Check the power supply and the ground circuit of the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-69, "Diagnosis Procedure"</u>.
- Without Intelligent Key system: Refer to BCS-126, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to the following.

- With Intelligent Key system: Refer to <u>BCS-76, "Removal and Installation"</u>.
- Without Intelligent Key system: Refer to <u>BCS-133. "Removal and Installation"</u>.
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 5)]

DIC/CIRCUIT DIAGNOS	515 -		
CAN COMMUNICA	TION CIRCUIT		
Diagnosis Procedure			INFOID:000000011537122
1.CONNECTOR INSPECT	ION		
 Disconnect all the unit of Check terminals and co 	cable from the negative terr connectors on CAN commu nnectors for damage, bend	nication system.	
Is the inspection result norm YES >> GO TO 2.	<u>nal?</u>		
NO >> Repair the term			
2.CHECK HARNESS CON			
Check the continuity betwee	en the data link connector te	erminals.	
	Data link connector		Continuity
Connector No.	Termir	nal No.	Continuity
M22 Is the inspection result norm	6	14	Not existed
YES >> GO TO 3.	ess and repair the root caus		
Check the continuity betwee	en the data link connector a	nd the ground.	
Data link	connector		Continuity
Connector No.	Terminal No.	Ground	
M22	6		Not existed
Is the inspection result norm	14		Not existed
YES >> GO TO 4. NO >> Check the harm 4.CHECK ECM AND BCM 1. Remove the ECM and t	ess and repair the root caus TERMINATION CIRCUIT he BCM.	Se.	
2. Check the resistance be	etween the ECM terminals.		
	ECM		Resistance (Ω)
Terminal No. 99		Approx. 108 – 132	
	etween the BCM terminals.	F	ιμρισλ. 100 - 102
	BCM		
	Terminal No.		Resistance (Ω)
39			pprox. 108 – 132
5. СНЕСК ЗҮМРТОМ	M and/or the BCM.	escribed in the "Symptom	(Results from interview with
Connect all the connectors. customer)" are reproduced.	Check if the symptoms de	escribed in the "Symptom	(Results from interview with

< DTC/CIRCUIT DIAGNOSIS >

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect one of the unit connectors of CAN communication system. **NOTE:**

ECM and BCM have a termination circuit. Check other units first.

 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.