SECTION LAN SYSTEM

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< PRECAUTION > PRECAUTION А PRECAUTIONS Precautions for Trouble Diagnosis INFOID:000000009799545 В **CAUTION:** • Never apply 7.0 V or more to the measurement terminal. • Use a tester with open terminal voltage of 7.0 V or less. • Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness. D Precautions for Harness Repair INFOID:000000009799546 • Solder the repaired area and wrap tape around the soldered area. NOTE: Ε A fray of twisted lines must be within 110 mm (4.33 in). F OK: Soldered and taped SKIB8766E Н 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 NG: Bypass connection line are lost. X Κ SKIB8767E • Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line. LAN

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SYSTEM DESCRIPTION CAN COMMUNICATION SYSTEM

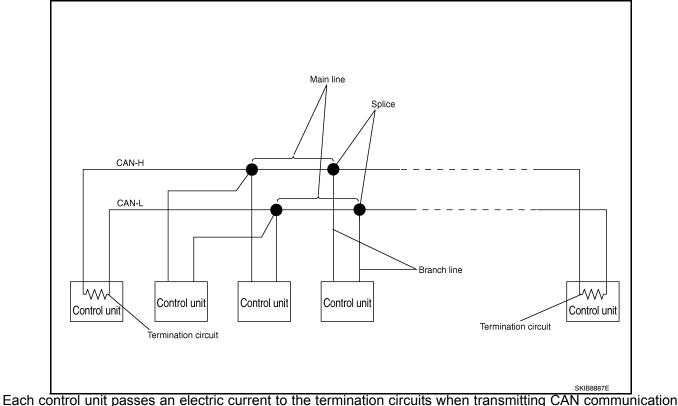
System Description

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- CAN communication is a multiplex communication system. This enables the system to transmit and receive large quantities of data at high speed by connecting control units with two communication lines (CAN-H and CAN-L).
- Control units on the CAN network transmit signals using the CAN communication control circuit. They receive only necessary signals from other control units to operate various functions.
- · CAN communication lines adopt twisted-pair line style (two lines twisted) for noise immunity.

System Diagram



signal. The termination circuits produce an electrical potential difference between CAN-H and CAN-L. CAN communication system transmits and receives CAN communication signals by the potential difference.

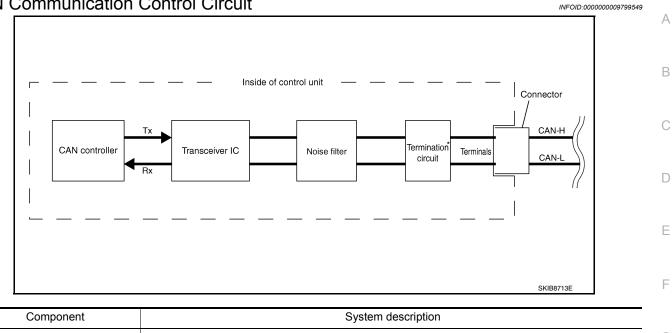
| Component | Description |
|---------------------|--|
| Main line | CAN communication line between splices |
| Branch line | CAN communication line between splice and a control unit |
| Splice | A point connecting a branch line with a main line |
| Termination circuit | Refer to LAN-9. "CAN Communication Control Circuit". |

CAN COMMUNICATION SYSTEM

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

CAN Communication Control Circuit



| CAN controller | It controls CAN communication signal transmission and reception, error detection, etc. | G |
|--|---|---|
| Transceiver IC | It converts digital signal into CAN communication signal, and CAN communication signal into digital signal. | |
| Noise filter | It eliminates noise of CAN communication signal. | Н |
| Termination circuit [*] (Resistance of approx. 120 Ω) | It produces potential difference. | |

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

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< SYSTEM DESCRIPTION >

DIAG ON CAN

Description

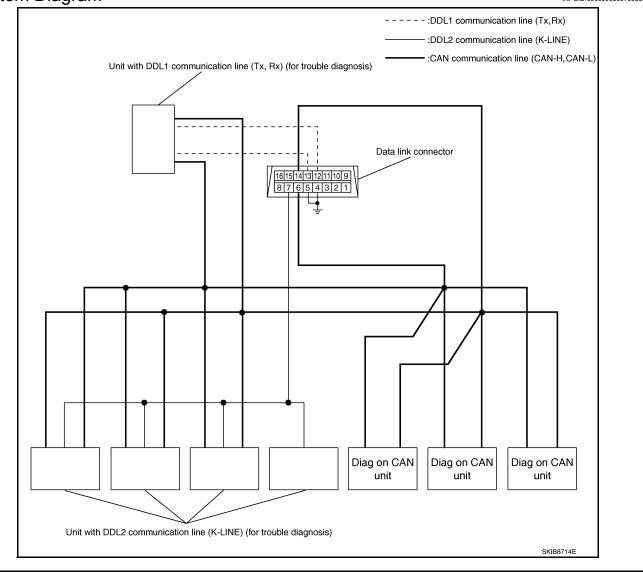
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[CAN FUNDAMENTAL]

"Diag on CAN" is a diagnosis using CAN communication instead of previous DDL1 and DDL2 communication lines, between control units and diagnosis unit.

System Diagram



| Name | Harness | Description |
|-------------|----------------|--|
| DDL1 | Tx Rx | It is used for trouble diagnosis. (CAN-H and CAN-L are used for controlling) |
| DDL2 | K-LINE | It is used for trouble diagnosis. (CAN-H and CAN-L are used for controlling) |
| Diag on CAN | CAN-H CAN-L | It is used for trouble diagnosis and control. |

[CAN FUNDAMENTAL]

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< SYSTEM DESCRIPTION >

TROUBLE DIAGNOSIS

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 D SYSTEM IS NORMAL

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

CAUTION:

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 unit.

Symptom When Error Occurs in CAN Communication System

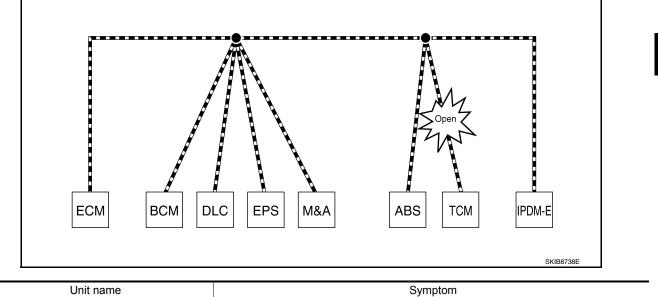
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

- Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.
- Refer to LAN-22, "Abbreviation List" for the unit abbreviation.

Example: TCM branch line open circuit



| Unit name | Symptom |
|-----------|--|
| ECM | Engine torque limiting is affected, and shift harshness increases. |
| BCM | Reverse warning chime does not sound. |

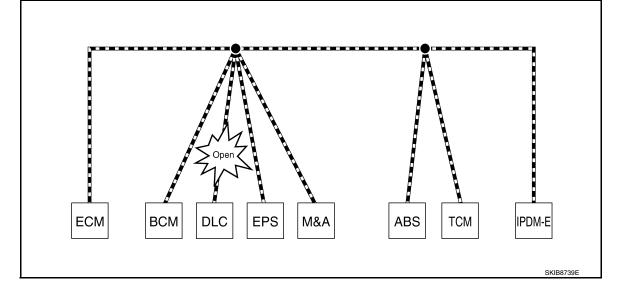


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[CAN FUNDAMENTAL]

| Unit name | Symptom | |
|---|--|--|
| EPS control unit | Normal operation. | |
| Combination meter | Shift position indicator and OD OFF indicator turn OFF.Warning lamps turn ON. | |
| ABS actuator and electric unit (control unit) | Normal operation. | |
| ТСМ | No impact on operation. | |
| IPDM E/R | Normal operation. | |

Example: Data link connector branch line open circuit



| Unit name | Symptom |
|---|-------------------|
| ECM | |
| BCM | |
| EPS control unit | |
| Combination meter | Normal operation. |
| ABS actuator and electric unit (control unit) | |
| ТСМ | |
| IPDM E/R | |

NOTE:

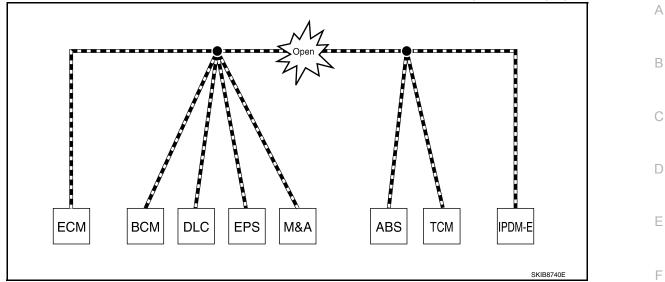
- When data link connector branch line is open, transmission and reception of CAN communication signals are not affected. Therefore, no symptoms occur. However, be sure to repair malfunctioning circuit.
- The model (all units on CAN communication system are Diag on CAN) cannot perform CAN diagnosis with CONSULT if the following error occurs. The error is judged by the symptom.

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

< SYSTEM DESCRIPTION >

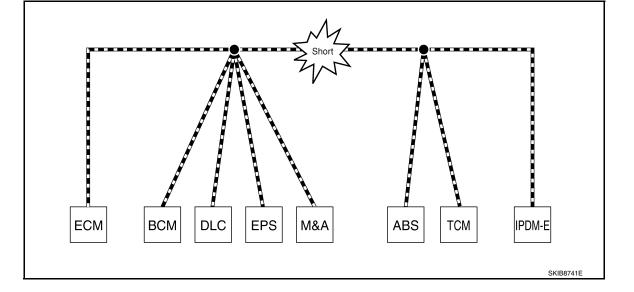
[CAN FUNDAMENTAL]

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



| Unit name | Symptom | |
|---|---|--|
| ECM | Engine torque limiting is affected, and shift harshness increases. | |
| BCM | Reverse warning chime 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. | |

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



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< SYSTEM DESCRIPTION >

| Unit name | Symptom | |
|---|---|--|
| ECM | Engine torque limiting is affected, and shift harshness increases.Engine speed drops. | |
| BCM | Reverse warning chime 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

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

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

Self-Diagnosis

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

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

| DTC | Self-diagnosis item (CONSULT indication) | DTC detection condition | | Inspection/Action |
|------------------------|---|---|---|--|
| U1000 CAN COMM CIRCUIT | 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 | When ECM is not transmitting or receiving CAN communi- cation signal other than OBD (emission-related diagnosis) for 2 seconds or more. | | control unit. |
| U1002 | SYSTEM COMM | When a control unit is not transmitting or receiving CAN communication signal for 2 seconds or less. | | |
| U1010 | CONTROL UNIT(CAN) | When an error is detected during the initial diagnosis for CAN controller of each control unit. | | Replace the control unit indicating "U1010". |

CAN Diagnostic Support Monitor

MONITOR ITEM (CONSULT)

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< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

Example: CAN DIAG SUPPORT MNTR indication

| Without | PAST |
|---------|------|
|---------|------|

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

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

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Without PAST

| Item | PRESENT | Description | C |
|--|---------|---|---|
| Initial diagnosia | OK | Normal at present | |
| Initial diagnosis | NG | Control unit error (Except for some control units) | |
| | OK | Normal at present | |
| Transmission diagnosis | UNKWN | Unable to transmit signals for 2 seconds or more. | |
| | UNKWN | Diagnosis not performed | |
| Control unit name (Reception diagnosis) | OK | Normal at present | |
| | | Unable to receive signals for 2 seconds or more. | |
| | UNKWN | Diagnosis not performed | J |
| | | 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. |
| Control unit name | | OK | Normal at present and in the past |
| | 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. |
| | | | Diagnosis not performed. |
| | Not diagnosed | - | No control unit for receiving signals. (No applicable optional parts) |

MONITOR ITEM (ON-BOARD DIAGNOSIS)

NOTE:

For some models, CAN communication diagnosis result is received from the vehicle monitor.

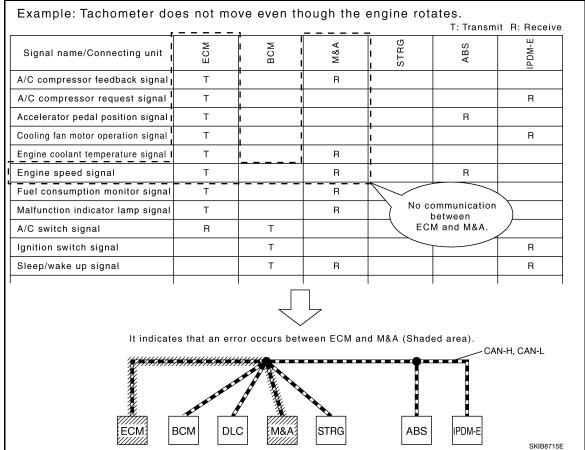
< SYSTEM DESCRIPTION >

| Item | Result indi- cated | Error counter | Description | | | |
|--|-----------------------|---------------|---|--|--|--|
| | OK | 0 | Normal at present | | | |
| CAN_COMM (Initial diagnosis) | NG | 1 – 50 | Control unit error (The number indicates how many times diagnosis has been run.) | | | |
| | OK | 0 | Normal at present | | | |
| CAN_CIRC_1 (Transmission diagnosis) | UNKWN | 1 – 50 | Unable to transmit for 2 seconds or more at present. (The number indicates how many times diagnosis has bee run.) | | | |
| | OK | 0 | Normal at present | | | |
| CAN_CIRC_2 – 9 (Reception diagnosis of each unit) | UNKWN | 1 – 50 | Unable to transmit for 2 seconds or more at present. (The number indicates how many times diagnosis has bee run.) | | | |
| | | | Diagnosis not performed. | | | |
| | | | No control unit for receiving signals. (No applicable optiona parts) | | | |

How to Use CAN Communication Signal Chart

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The CAN communication signal chart lists the signals needed for trouble diagnosis. It is useful for detecting the root cause by finding a signal related to the symptom, and by checking transmission and reception unit.



< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

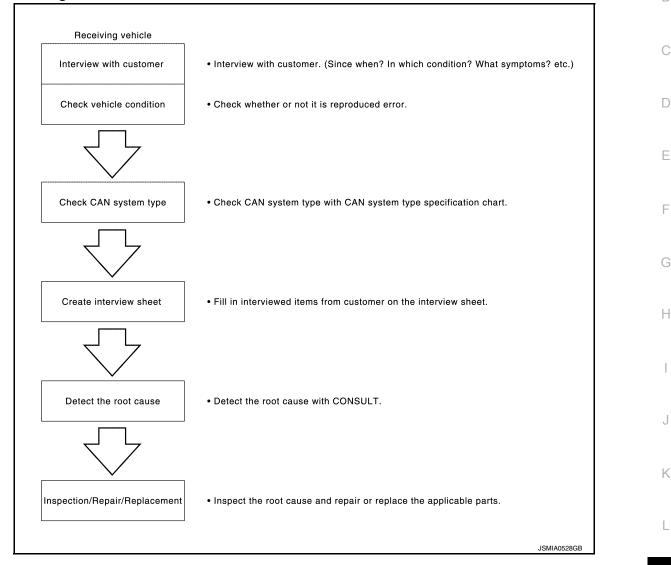
Trouble Diagnosis Flow Chart

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Trouble Diagnosis Procedure

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

NOTE:

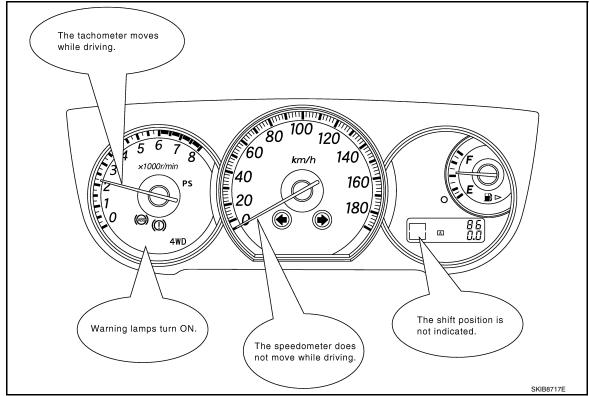
- · Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into failsafe mode.



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[CAN FUNDAMENTAL]

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



INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

NOTE:

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

CHECK OF CAN SYSTEM TYPE (HOW TO USE CAN SYSTEM TYPE SPECIFICATION CHART) Determine CAN system type based on vehicle equipment.

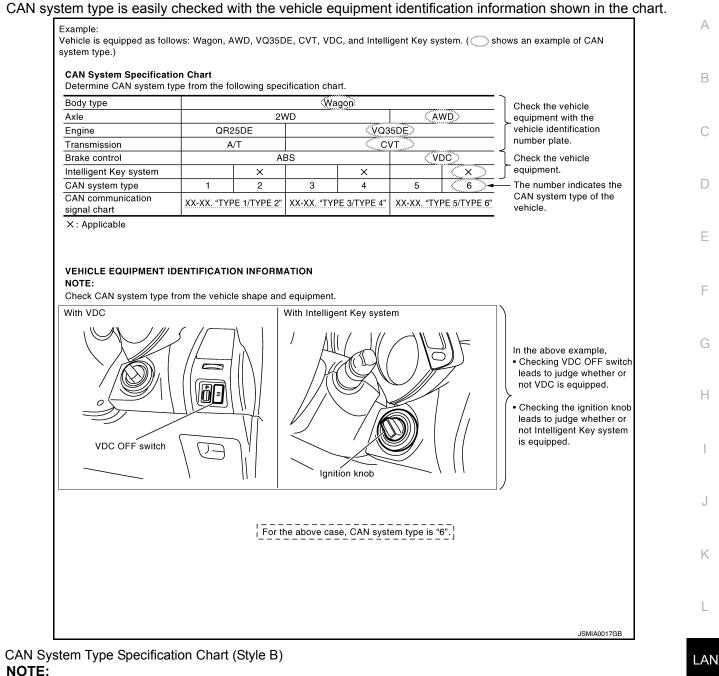
NOTE:

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

CAN System Type Specification Chart (Style A) **NOTE:**

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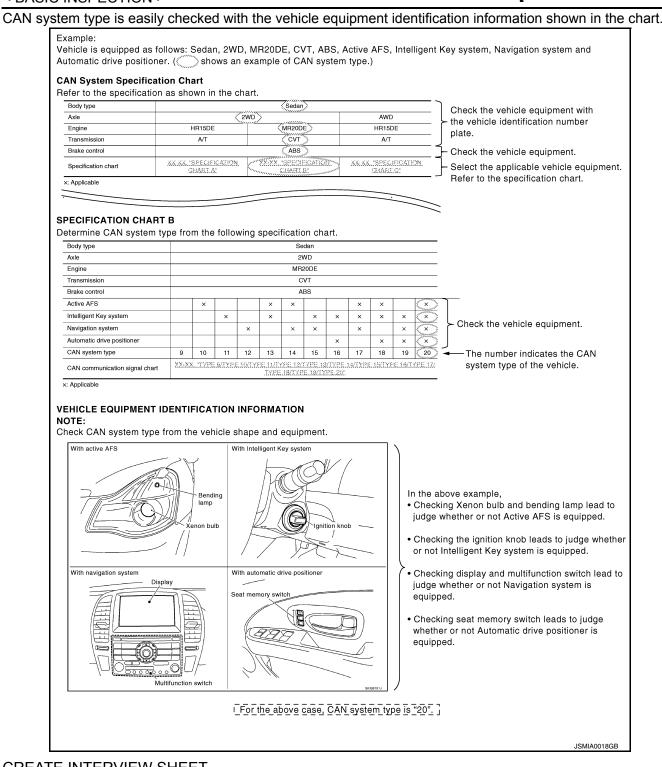


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CREATE INTERVIEW SHEET

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

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< BASIC INSPECTION > Interview Sheet (Example) CAN Communication System Diagnosis Interview Sheet 3, Feb. 2006 Date received: Type: DBA-KG11 VIN No.: KG11-005040 BDRARGZ397EDA-E-J-Model: First registration: 10, Jan. 2001 Mileage: 62,140 Type 19 CAN system type: Symptom (Results from interview with customer) ·Headlamps suddenly turn ON while driving the vehicle. •The engine does not restart after stopping the vehicle and turning the ignition switch OFF. $\boldsymbol{\cdot}$ The cooling fan continues rotating while turning the ignition switch ON.

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

DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

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HOW TO USE THIS MANUAL HOW TO USE THIS SECTION

Caution

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[CAN]

• This section describes information peculiar to a vehicle and inspection procedures.

• For trouble diagnosis procedure, refer to LAN-17, "Trouble Diagnosis Procedure".

Abbreviation List

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

| Abbreviation | Unit name |
|--------------|---|
| 4WD | AWD control unit |
| A-BAG | Air bag diagnosis sensor unit |
| ABS | ABS actuator and electric unit (control unit) |
| AV | AV control unit |
| AVM | Around view monitor control unit |
| BCM | BCM |
| CCM | Chassis control module |
| DLC | Data link connector |
| ECM | ECM |
| EPS | EPS control unit |
| | A/C auto amp. (with auto A/C) |
| HVAC | Front air control (without auto A/C) |
| ICC | Distance sensor |
| IPDM-E | IPDM E/R |
| M&A | Combination meter |
| PWBD | Automatic back door control module |
| STRG | Steering angle sensor |
| ТСМ | ТСМ |

PRECAUTIONS

< PRECAUTION > 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

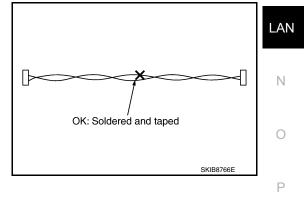
CAUTION:

- 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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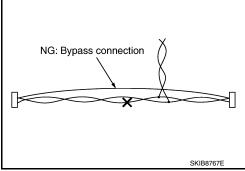
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PRECAUTIONS

< PRECAUTION >

Bypass connection is never allowed at the repaired area.
 NOTE:
 Bypass connection may cause CAN communication error

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.

COMPONENT PARTS

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION **COMPONENT PARTS**

Component Parts Location

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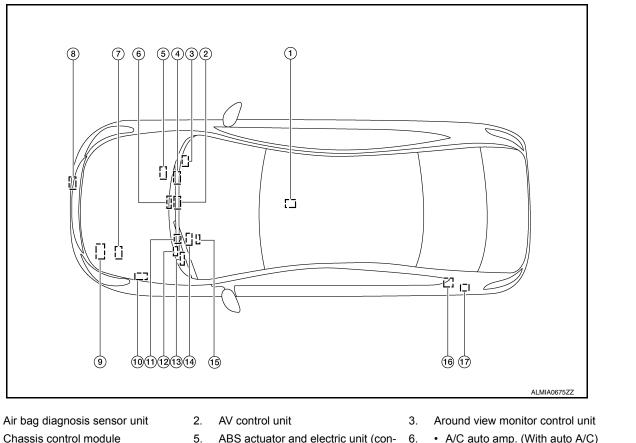
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7. TCM

1.

4.

- 10. IPDM E/R
- 13. BCM
- 16. AWD control unit

- 5. ABS actuator and electric unit (control unit)
- 8. Distance sensor
- 11. EPS control unit
- 14. Combination meter
- 17. Automatic back door control module
- A/C auto amp. (With auto A/C)
- Front air control (Without auto A/ C)
- 9. ECM
- 12. Data link connector
- 15. Steering angle sensor

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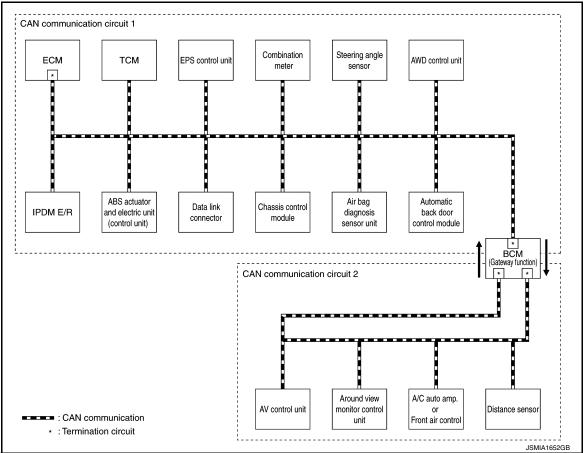
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SYSTEM CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

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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.
- The following control units include a gateway function and communicate signals between the different CAN communication circuits.

| CAN communication circuit | Gateway control unit | Reference |
|---|----------------------|------------------------------|
| CAN communication circuit 1 \Leftrightarrow CAN communication circuit 2 | BCM | LAN-74, "System Description" |

CAN Communication Signal Generation

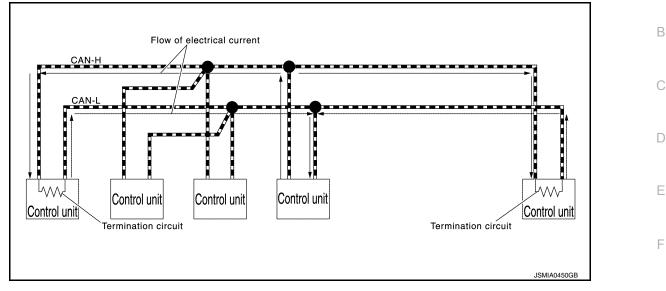
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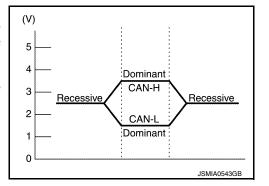
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 Termination circuits (resistors) are connected across the CAN communication system. When transmitting a CAN communication signal, each control unit passes a current to the CAN-H line and the current returns to the CAN-L line.

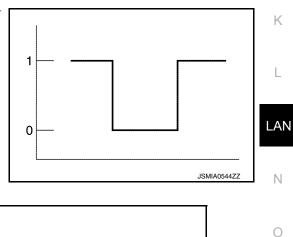


 The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.
 NOTE:

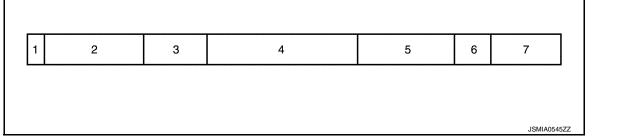
A signal with no current passage is called "Recessive" and one with current passage is called "Dominant".



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



The Construction of CAN Communication Signal (Message)

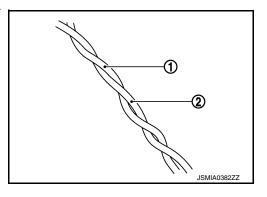


< SYSTEM DESCRIPTION >

| 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 unit. | | | | |
| 7 | End of frame (7 bit) | End of message. | | | | |

CAN Communication Line

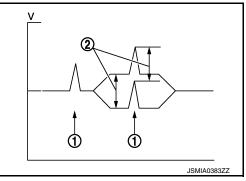
The CAN communication line is a twisted pair wire consisting of strands of CAN-H (1) and CAN-L (2) and has noise immunity.



NOTE:

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

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



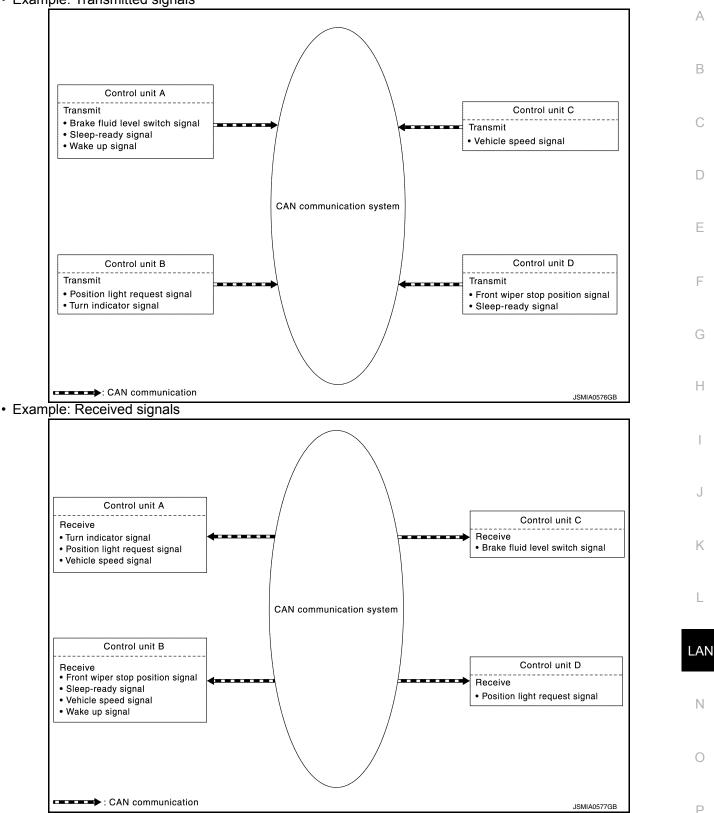
CAN Signal Communications

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



< SYSTEM DESCRIPTION >

· Example: Transmitted signals



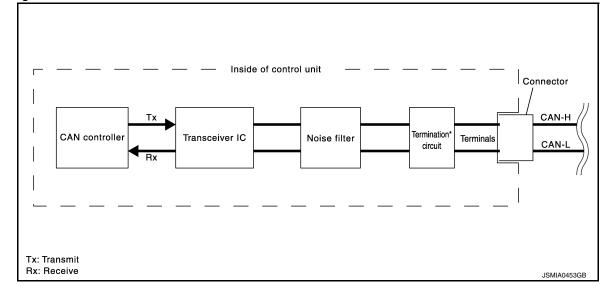
NOTE:

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

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< SYSTEM DESCRIPTION >

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



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

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

CAN COMMUNICATION SYSTEM : CAN System Specification Chart

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Determine CAN system type from the following specification chart.

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

| Body type | Wagon | | | | | | | |
|---|---------|----------|--------------|---|---|---|---|---|
| Axle | 2WD AWD | | | | | | | |
| Engine | QR25DE | | | | | | | |
| Transmission | CVT | | | | | | | |
| Brake control | VDC | | | | | | | |
| Around view monitor system | | | × | × | | | × | × |
| Automatic back door system | | × | × | × | | × | × | × |
| Forward Collision Warning | | | | × | | | | × |
| CAN system type | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| | CA | N commun | ication unit | | 1 | | 1 | |
| ECM | × | × | × | × | × | × | × | × |
| ABS actuator and electric unit (control unit) | × | × | × | × | × | × | × | × |
| IPDM E/R | × | × | × | × | × | × | × | × |
| ТСМ | × | × | × | × | × | × | × | × |
| Data link connector | × | × | × | × | × | × | × | × |

NOTE:

< SYSTEM DESCRIPTION >

| Body type | Wagon | | | | | | | | | | | | | |
|--|-------|----------|--------------|----|------|---|---|---|---|--|--|--|--|--|
| Axle | | 2WD AWD | | | | | | | | | | | | |
| Engine | | | | QR | 25DE | | | | - | | | | | |
| Transmission | | | | C | :VT | | | | - | | | | | |
| Brake control | | | | V | DC | | | | - | | | | | |
| Around view monitor system | | | × | × | | | × | × | - | | | | | |
| Automatic back door system | | × | × | × | | × | × | × | - | | | | | |
| Forward Collision Warning | | | | × | | | | × | - | | | | | |
| CAN system type | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | - | | | | | |
| | CAI | N commun | ication unit | | | | | | - | | | | | |
| Combination meter | × | × | × | × | × | × | × | × | - | | | | | |
| Air bag diagnosis sensor unit | × | × | × | × | × | × | × | × | - | | | | | |
| Chassis control module | × | × | × | × | × | × | × | × | - | | | | | |
| EPS control unit | × | × | × | × | × | × | × | × | - | | | | | |
| Steering angle sensor | × | × | × | × | × | × | × | × | - | | | | | |
| AWD control unit | | | | | × | × | × | × | - | | | | | |
| Automatic back door control module | | × | × | × | | × | × | × | - | | | | | |
| BCM | × | × | × | × | × | × | × | × | - | | | | | |
| AV control unit | | | × | × | | | × | × | - | | | | | |
| Around view monitor control unit | | | × | × | | | × | × | - | | | | | |
| A/C auto amp. ^{*1} or Front air control ^{*2} | × | × | × | × | × | × | × | × | - | | | | | |
| Distance sensor | | | | × | | | | × | - | | | | | |

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.

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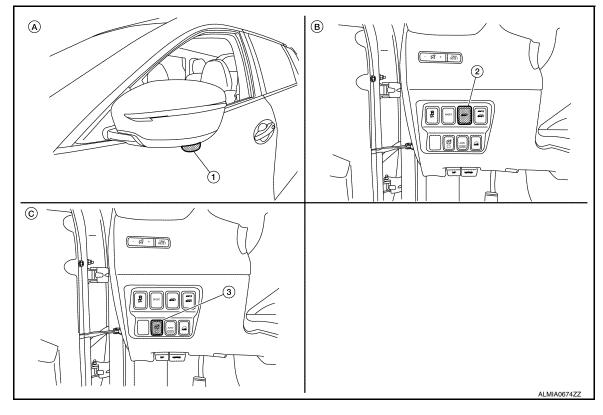
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1. Door mirror LH side camera

With around view monitor system

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- 2. Automatic back door main switch
- 3. Warning systems switch
- With automatic back door system C. With forw

C. With forward collision warning

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CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

Refer to <u>LAN-16</u>, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart. NOTE:

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

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| | | | | | | | | | | | | ٦ | : Tran | smit | R: Re | eceive |
|--|-----|-----|--------|-----|-----|-------|-----|-----|------|-----|------|-----|--------|------|-------|--------|
| Signal name/Connecting unit | ECM | ABS | IPDM-E | TCM | M&A | A-BAG | CCM | EPS | STRG | 4WD | PWBD | BCM | AV | AVM | HVAC | CC |
| A/C compressor request signal | Т | | R | | | | | | | | | | | | | |
| Accelerator pedal position signal | Т | R | | R | | | R | | | R | | | | R | | R |
| ASCD status signal | Т | | | | R | | | | | | | | | | | |
| Closed throttle position signal | Т | | | R | | | | | | | | | | | | |
| Cooling fan speed request signal | Т | | R | | | | | | | | | | | | R | |
| Engine and CVT integrated control signal | Т | | | R | | | | | | | | | | | | |
| | R | | | Т | | | | | | | | | | | | |
| Engine coolant temperature signal | Т | | | R | R | | | | | | | | | R | R | |
| Engine speed signal | Т | R | | R | R | | R | | | R | | | | | R | R |
| Engine status signal | Т | | | | R | | | R | | | | R | R | R | | |
| Fuel consumption monitor signal | Т | | | | R | | | | | | | | R | | | |
| Fuel filler cap warning display signal | Т | | | | R | | | | | | | | | | | |
| Molfunctioning indicator lamp signal | Т | | | | R | | | | | | | | | | | |
| Malfunctioning indicator lamp signal | R | | | Т | | | | | | | | | | | | |
| SPORT mode indicator lamp signal | Т | | | | R | | | | | | | | | | | |

Revision: November 2013

< SYSTEM DESCRIPTION >

| Signal name/Connecting unit | ECM | ABS | IPDM-E | TCM | M&A | A-BAG | CCM | EPS | STRG | 4WD | PWBD | BCM | A | AVM | HVAC | CC | А |
|--------------------------------------|-----|-----|--------|-----|-----|-------|-----|-----|------|-----|------|-----|---|-----|------|----|-----|
| Oil pressure switch signal | Т | | | | R | | | | | | | | | | | | _ |
| ABS malfunction signal | | Т | | R | | | | | | | | | | | | | В |
| ABS operation signal | | Т | | R | | | | | | | | | | | | | |
| ABS warning lamp signal | | Т | | | R | | | | | | | | | | | | С |
| G sensor signal | | Т | | R | | | R | | | | | | | | | | |
| TCS operation signal | | Т | | | R | | | | | | | | | | | | |
| VDC operation signal | | Т | | | R | | | | | | | | | | | | D |
| VDC warning lamp signal | | Т | | | R | | | | | | | | | | | | |
| VDC OFF indicator lamp signal | | Т | | | R | | | | | | | | | | | | F |
| A/C compressor feedback signal | R | | Т | | | | | | | | | | | | R | | |
| Front wiper stop position signal | | | Т | | | | | | | | | R | | | | | |
| High beam status signal | R | | Т | | | | | | | | | | | | | | F |
| Hood switch signal | | | Т | | | | | | | | | R | | | | | |
| Ignition relay status signal | | | Т | | | | | | | | | R | | | | | 0 |
| Low beam status signal | R | | Т | | | | | | | | | | | | | | G |
| Push-button ignition switch status | | | Т | | | | | | | | | R | | | | | |
| Starter relay status signal | | | Т | | | | | | | | | R | | | | | Н |
| Input shaft revolution signal | R | | | Т | | | | | | | | | | | | | |
| OD OFF indicator signal | | | | Т | R | | | | | | | | | | | | |
| Output shaft revolution signal | R | R | | Т | | | | | | R | | | | | | R | |
| Shift position signal | | R | R | Т | R | | R | | | R | | R | | R | | R | |
| SPORT mode signal | R | | | Т | | | | | | | | | | | | | J |
| Brake fluid level switch signal | | R | | | Т | | | | | | | | | | | | |
| Fuel filler cap warning reset signal | R | | | | Т | | | | | | | | | | | | |
| Overdrive control switch signal | | | | R | Т | | | | | | | | | | | | Κ |
| Parking brake switch signal | | R | | | Т | | | | | R | R | R | | | | R | |
| Seat belt buckle switch signal | | | | | Т | | | | | | | R | | | | | 1 |
| | | | | | Т | | | | | | | R | | | | | |
| Sleep-ready signal | | | Т | | | | | | | | | R | | | | | |
| SPORT mode switch signal | | | | R | Т | | | | | | | | | | | | LAN |
| | R | | R | | Т | R | | R | | | R | R | R | | | | |
| Vehicle speed signal | R | Т | | R | R | | R | R | | | R | R | | R | | R | Ν |
| EPS operation signal | R | | | | | | | Т | | | | | | | | | IN |
| EPS warning lamp signal | | | | | R | | | Т | | | | | | | | | |
| Steering angle sensor signal | | R | | | | | R | | Т | | | | R | R | | R | 0 |
| AWD warning lamp signal | | | | | R | | | | | Т | | | | | | | |
| Mode lamp signal | | | | | R | | | | | Т | | | | | | | _ |
| A/C switch signal | R | | | | | | | | | | | Т | | | | | Ρ |
| Blower fan motor switch signal | R | | | | | | | | | | | Т | | | | | |
| | | | | | R | | | | | | | Т | | | | | |
| Buzzer output signal | | | | | R | | | | | | | | | Т | | | |
| | | | | | R | | | | | | | | | | | Т | |
| Auto accessory status | | | | | R | | | | | | | Т | | | | | |

Revision: November 2013

[CAN]

< SYSTEM DESCRIPTION >

| Signal name/Connecting unit | ECM | ABS | IPDM-E | TCM | M&A | A-BAG | CCM | EPS | STRG | 4WD | PWBD | BCM | AV | AVM | HVAC | ICC |
|---------------------------------------|-----|-----|--------|-----|-----|-------|-----|-----|------|-----|------|-----|----|-----|------|-----|
| Back door lock status | | | | | | | | | | | R | Т | | | | |
| Daytime running light request signal | | | R | | R | | | | | | | Т | | | | |
| Door switch signal | | | | | R | | | | | | | Т | | R | | |
| Front fog light request signal | | | R | | R | | | | | | | Т | | | | |
| Front wiper request signal | | | R | | | | | | | | | Т | | R | | R |
| High beam request signal | | | R | | R | | | | | | | Т | | | | |
| Horn request signal | | | R | | | | | | | | | Т | | | | |
| Ignition switch signal | | | R | | | | | | | | R | Т | | | | |
| Key warning signal | | | | | R | | | | | | | Т | | | | |
| Low beam request signal | | | R | | R | | | | | | | Т | | | | |
| Low tire pressure warning lamp signal | | | | | R | | | | | | | Т | | | | |
| Meter ring illumination request | | | | | R | | | | | | | Т | | | | |
| Position light request signal | | | R | | R | | | | | | | Т | | | | |
| Sleep wake up signal | | | R | | R | | | | | | R | Т | | | | |
| Turn indicator signal | | | | | R | | | | | | | Т | | R | | |
| | | | | | R | | | | | | | | | Т | | |
| Meter display signal | | | | | R | | | | | | | Т | | | | |
| | | | | | R | | Т | | | | | | | | | |
| Rear window defogger control signal | R | | | | | | | | | | | R | | | Т | |

NOTE:

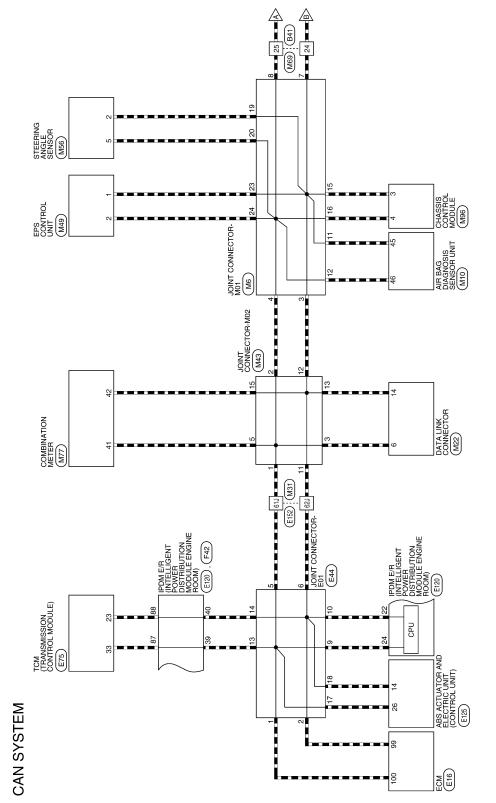
CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

< WIRING DIAGRAM >

WIRING DIAGRAM

CAN SYSTEM

Wiring Diagram - CAN SYSTEM -



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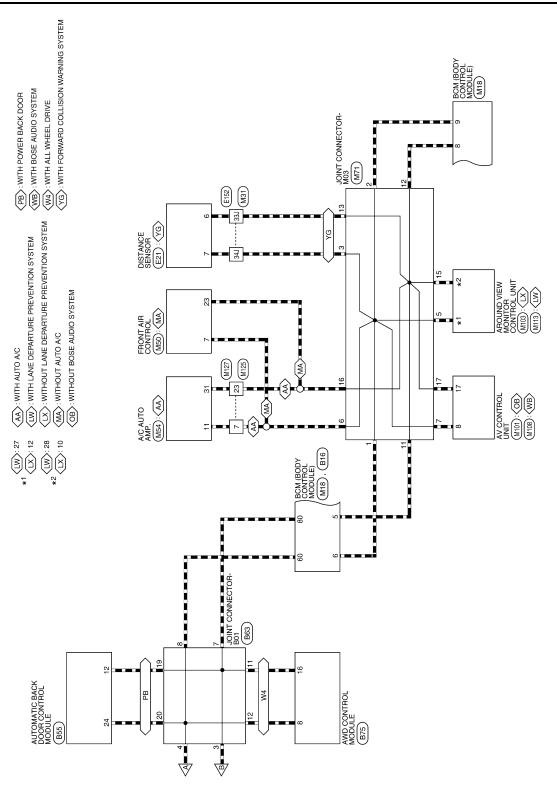
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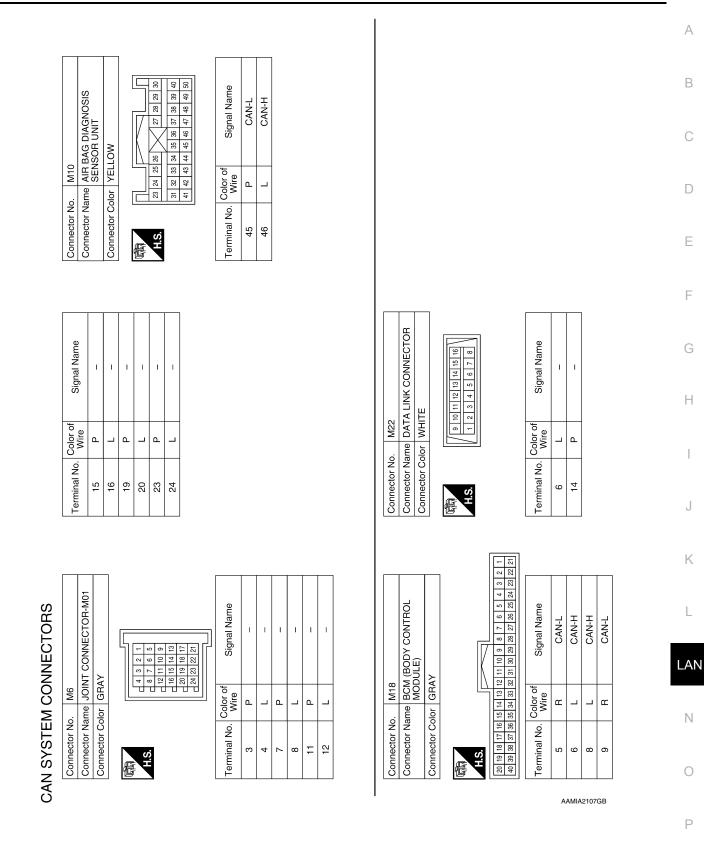
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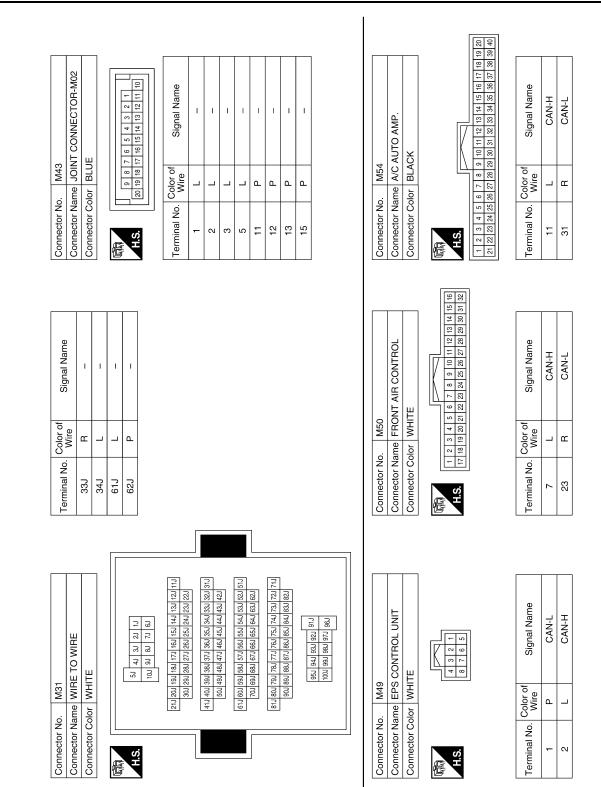


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CAN SYSTEM

< WIRING DIAGRAM >



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CAN SYSTEM

< WIRING DIAGRAM >

| Connector No. M71 Connector Name JOINT CONNECTOR-M03 Connector Color BLUE | 7 6 5 4 3 2 1 17 16 15 14 13 12 11 10 | Signal Name | I | 1 | I | I | Ι | I | 1 | I | 1 | I | I | 1 | | _ | AV CONTROL UNIT (WITHOUT BOSE AUDIO SYSTEM) | TE | | 3 4 5 6 7 8 9 12 13 14 15 16 17 18 20 | Signal Name | CAN-H |
|---|---|------------------|----|----|---|---|---|---|----|----|----|----|----|----|--------------|---|---|-----------------|-----------------|--|------------------|-------|
| M71 me JOINT or BLUE | 20 19 18 20 19 18 | Color of Wire | _ | _ | _ | _ | L | _ | щ | æ | æ | щ | œ | æ | M101 | | | | | 19 10 11 1 | Color of Wire | 2 |
| Connector No. Connector Name Connector Color | S.H | Terminal No. | - | N | ო | 5 | 9 | 7 | 11 | 12 | 13 | 15 | 16 | 17 | Connector No | | Connector Name | Connector Color | | Ś | Terminal No. | 8 |
| | 9 18 17 | | | | 1 | | | | | | | | | | | | | 1 | | | | |
| e to wire re | 14 13 12 11 10 9 7 6 5 4 3 30 29 28 27 26 28 27 28 27 28 27 28 27 29 13 | Signal Name | I | I | | | | | | | | | | | | | CHASSIS CONTROL UNIT WHITE | | 5 6 7 8 9 10 11 | s 17 18 19 20 21 22 23 24 | Signal Name | CAN-L |
| . M69 me WIRE T lor WHITE | 16 15 14 13 12 11 32 31 30 29 28 27 | Color of Wire | ٩ | _ | | | | | | | | | | | М96 | | | | 2 3 | 13 14 15 16 | Color of Wire | 4 |
| Connector No. M69 Connector Name WIRE TO WIRE Connector Color WHITE | H.S. | Terminal No. | 24 | 25 | | | | | | | | | | | Connector No | | Connector Name Connector Color | ą | | | Terminal No. | 3 |
| | | | | | - | | | | | | | | | | | · | | _ | | - | | |
| ERING ANGLE SENSOR | | Signal Name | I | I | | | | | | | | | | | | | IBINATION METER TE | | 44 45 | 47 48 49 50 51 52 | Signal Name | CAN-H |
| M56 me STEF lor GRA | | Color of Wire | ٩ | _ | | | | | | | | | | | M77 | | Ine COMBI | - | | | Color of Wire | |
| Connector No. M56 Connector Name STEERING ANGL Connector Color GRAY | H.S. | Terminal No. | 2 | £ | | | | | | | | | | | Connector No | | Connector Name COMBINATION M Connector Color WHITE | þ | | ò | Terminal No. | 41 |

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CAN SYSTEM

< WIRING DIAGRAM >

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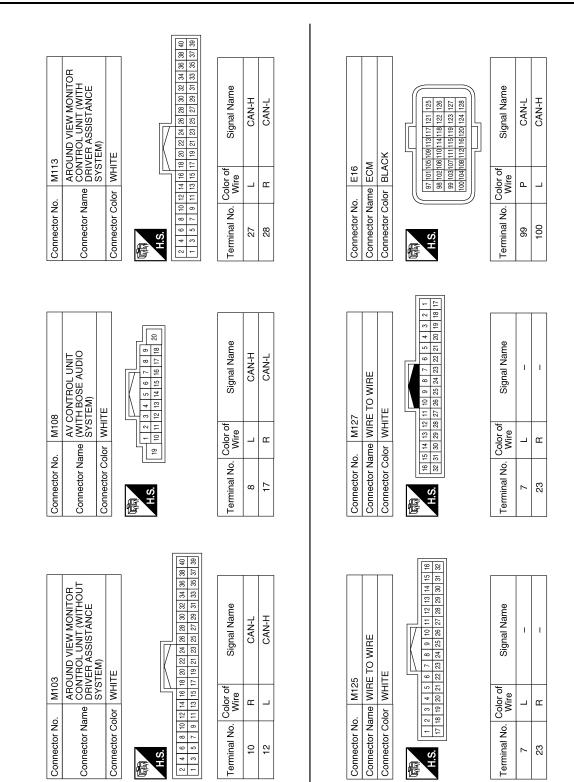
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Revision: November 2013



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CAN SYSTEM

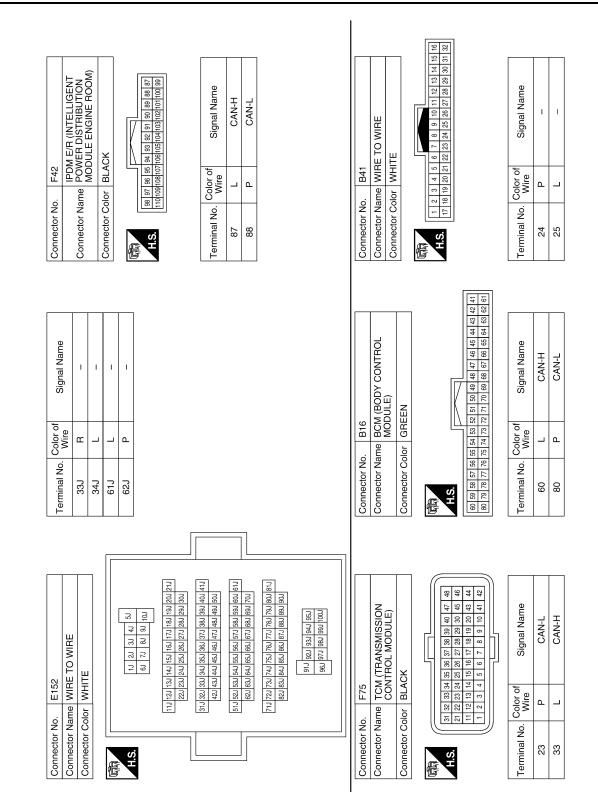
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| < WIRING DIAGRAM > | [CAN] |
| Signal Name | AB |
| | С |
| | D |
| Terminal No. 10 13 17 18 | E |
| | F |
| Connector No. E44 Connector Name JOINT CONNECTOR-E01 Connector Name JOINT CONNECTOR-E01 Connector Name JOINT CONNECTOR-E01 Connector Name JOINT CONNECTOR-E01 Mine 2 E 2 <t< td=""><td>G</td></t<> | G |
| E44 Joint Conne WHITE WHITE BLACK E125 E125 E125 E125 E125 E125 BLACK CONTINUE Sign Continue | Н |
| | I |
| Connector No. Connector Nation Connector No. Connector No. Connector No. Connector No. Connector No. Connector Nation Connector Nation Connect | J |
| | К |
| E21 DISTANCE SENSOR BLACK BLACK Free Signal Name Free CAN-L FOW FOR INTELLIGENT MODUE ENGINE DOOM) GRAV E120 E120 FOW FOR INTELLIGENT MODUE ENGINE DOOM) GRAV CAN-L CAN-L CAN-L CAN-L CAN-L CAN-L CAN-L CAN-L | L |
| Connector No. E21 Connector Name DISTANCE SENSOR Connector Name DISTANCE SENSOR Connector Name DISTANCE SENSOR Tomation E21 Image: Sensor BLACK Connector Name DISTANCE SENSOR Image: Sensor BLACK Image: Sensor Signal Name Image: Sensint Sensor Signal Name | LAN |
| Connector Name E21 Connector Name DISTAN Connector Name DISTAN Connector Name DISTAN F 7 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 8 1 9 1 100WE 1100M 1110 | N |
| Connector No. Connector No. Connector Name Connector Name Connector Name 0 Terminal No. 0 Terminal No. 0 1 1 22 39 33 22 | 0 |
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CAN SYSTEM

< WIRING DIAGRAM >

| 01 MODULE | Signal Name CAN-H CAN-L | |
|--|--|-------------|
| ONTRC 01110 | | |
| Connector Name AWD C Connector Color WHITE | No. Color of Mire of P L | |
| Connector Narr Connector Colo | Terminal No. | |
| | | |
| Connector Name JOINT CONNECTOR-B01 Connector Color GRAY | Signal Name | |
| | L D L D L D L D L D L D L D L D L D L D | |
| Connector Name Connector Color H.S. | Terminal No. 3 3 4 7 8 11 12 19 20 | |
| | | |
| Connector Name UTOMATIC BACK DOOR Connector Name AUTOMATIC BACK DOOR Connector Color BLACK Image: Im | Signal Name CAN-L CAN-H | |
| ame AUTOMATIC Slor BLACK | Color of Wire L L | |
| Connector Name Connector Color H.S. | Terminal No. 12 24 24 | |
| | | AAMIA2117GB |

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN]

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

| CAN system type: | w Sneet | INFOID:0000000097 |
|---|--|-------------------|
| Type: VIN No.: Model: Mileage: Symptom (Results from interview with customer) | CAN Communication System Diagnosis Interview Sheet | |
| Model: | Date received: | |
| Model: | | |
| Inst registration: Mileage: CAN system type: Symptom (Results from interview with customer) Symptom (Results from interview with customer) Condition at inspection Error symptom : Present / Past | Type: VIN No.: | |
| CAN system type: | Model: | |
| Symptom (Results from interview with customer) Symptom (Results from interview with customer) Solution at inspection Error symptom : Present / Past | irst registration: Mileage: | |
| Condition at inspection Error symptom : Present / Past | CAN system type: | |
| Error symptom : Present / Past | Symptom (Results from interview with customer) | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| Error symptom : Present / Past | | |
| | Condition at inspection | |
| | Error symptom : Present / Past | |
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< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS MALFUNCTION AREA CHART

Main Line

INFOID:000000009799573

| Malfunction area | Reference | |
|---|-------------------------------|--|
| Main line between IPDM E/R and data link connector | LAN-46, "Diagnosis Procedure" | |
| Main line between data link connector and chassis control module | LAN-47, "Diagnosis Procedure" | |
| Main line between chassis control module and automatic back door control module | LAN-48. "Diagnosis Procedure" | |
| Main line between chassis control module and AWD control unit | LAN-49, "Diagnosis Procedure" | |
| wanah Lina | 1 | |

Branch Line

INFOID:000000009799574

| Malfunction area | Reference |
|---|-------------------------------|
| ECM branch line circuit | LAN-50, "Diagnosis Procedure" |
| ABS actuator and electric unit (control unit) branch line circuit | LAN-51, "Diagnosis Procedure" |
| IPDM E/R branch line circuit | LAN-52. "Diagnosis Procedure" |
| TCM branch line circuit | LAN-53, "Diagnosis Procedure" |
| Data link connector branch line circuit | LAN-55. "Diagnosis Procedure" |
| Combination meter branch line circuit | LAN-57. "Diagnosis Procedure" |
| Air bag diagnosis sensor unit branch line circuit | LAN-59, "Diagnosis Procedure" |
| Chassis control module branch line circuit | LAN-60, "Diagnosis Procedure" |
| EPS control unit branch line circuit | LAN-56. "Diagnosis Procedure" |
| Steering angle sensor branch line circuit | LAN-58. "Diagnosis Procedure" |
| AWD control unit branch line circuit | LAN-61, "Diagnosis Procedure" |
| Automatic back door control module branch line circuit | LAN-62. "Diagnosis Procedure" |
| BCM branch line circuit | LAN-63. "Diagnosis Procedure" |
| AV control unit branch line circuit | LAN-64, "Diagnosis Procedure" |
| Around view monitor control unit branch line circuit | LAN-65, "Diagnosis Procedure" |
| A/C auto amp. branch line circuit | LAN 66 "Diagnosis Dresedure" |
| Front air control branch line circuit | LAN-66, "Diagnosis Procedure" |
| Distance sensor branch line circuit | LAN-68, "Diagnosis Procedure" |

Short Circuit

INFOID:000000009799575

| Malfunction area | Reference | |
|-----------------------------|-------------------------------|---|
| CAN communication circuit 1 | LAN-69, "Diagnosis Procedure" | 0 |
| CAN communication circuit 2 | LAN-71, "Diagnosis Procedure" | |

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MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000009799576

[CAN]

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R ha | rness connector | Harness | Continuity | |
|---------------|-----------------|---------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E120 | 24 | E152 | 61J | Existed |
| EIZU | 22 | E152 | 62J | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness | connector | Data link | Continuity | |
|---------------|--------------|---------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M31 | 61J | M22 | 6 | Existed |
| | 62J | 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 M31 and the data link connector.

| Diagnosis Proced | | ND CCM CIRC | JII | INFOID:000000009799577 |
|---|---|---------------|--------------|------------------------|
| 1.CHECK HARNESS | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the foll ECM Chassis control me Check the continuit | ttery cable from the n lowing harness conne odule | | | e harness connector. |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| | 6 | | 4 | Existed |
| M22 | 14 | - M96 | 3 | Existed |
| | normal? | | | |

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MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010269403

[CAN]

1.CHECK CONNECTOR

- 1. Turn the ignition 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 M69
- Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Chassis control module
- Harness connectors M69 and B41
- 2. Check the continuity between the chassis control module harness connector and the harness connector.

| Chassis control mod | ule harness connector | Harness | Continuity | |
|---------------------|-----------------------|---------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 4 | M69 | 25 | Existed |
| 10190 | 3 | W09 | 24 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the continuity between the harness connector and the automatic back door control module harness connector.

| Harness | connector | Automatic back d harness | Continuity | |
|----------------------------|-----------|-----------------------------|--------------|---------|
| Connector No. Terminal No. | | Connector No. | Terminal No. | |
| B41 | 25 | B55 | 24 | Existed |
| B41 - | 24 | - 000 | 12 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

| DTC/CIRCUIT DIAC > | | WEEN CCM ANI | O 4WD CIRCUIT | [CAN] |
|--|--|--------------------|---|------------------------|
| MAIN LINE BET | WEEN CCM A | ND 4WD CIRC | UIT | |
| Diagnosis Proced | ure | | | INFOID:000000010351443 |
| 1.снеск соллест | OR | | | |
| | ttery cable from the ne ng terminals and conr r M69 r B41 | | pend and loose conn | ection (connector side |
| YES >> GO TO 2. | terminal and connect | or | | |
| NO >> Repair the CHECK HARNESS | terminal and connect | | | |
| Chassis control me Harness connecto | rs M69 and B41 | | ness connector and t | ne harness connector. |
| Chassis control modu | ule harness connector | Harness | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 4 | M69 | 25 | Existed |
| s the inspection result | 3 | | 24 | Existed |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS Disconnect the con | main line between th CONTINUITY (OPEN nnector of AWD contro | | | |
| Harness | connector | AWD control unit I | narness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| B41 | 25 | B75 | 8 | Existed |
| | 24 | | 16 | Existed |
| | >Check CAN system | | n the chassis control 341 and the AWD co | module and the AWD |

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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. | Termi | | |
| 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-499, "Removal and Installation".

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

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

INFOID:000000009799578

ABS BRANCH LINE CIRCUIT

< 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 C and loose connection (unit side and connector side).

Is the 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. | Termi | | | |
| E125 | 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 <u>BRC-114, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "Removal</u> and Installation".

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

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

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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. | Termi | | |
| E120 | 24 | 22 | 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 <u>PCS-34, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35. "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 DIAGNOSIS > | [CAN] |
|---------------------------|-----------------------|
| TCM BRANCH LINE CIRCUIT | |
| Diagnosis Procedure | INFOID:00000009799589 |
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1.CHECK CONNECTOR

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

IPDM E/R

Is the inspection result normal?

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

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the following harness connectors.
- TCM
- **IPDM E/R**
- 2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

| TCM harne | TCM harness connector IPDM E/R harness connector | | | | Continuity | G |
|---------------|--|---------------|--------------|------------|------------|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | | |
| E75 | 33 | F42 | 87 | Existed | Н | |
| F75 | 23 | Γ42 | 88 | Existed | | |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

| Continuity | IPDM E/R terminals | | | |
|------------|--------------------|--------------|--|--|
| Continuity | Terminal No. | Terminal No. | | |
| Existed | 39 | 87 | | |
| Existed | 40 | 88 | | |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) | |
|----------------------------|--------------|--|-------------------------|---|
| Connector No. | Terminal No. | | | (|
| E120 | 39 40 | | Approx. 54 – 66 | _ |

Is the measurement value within the specification?

YES >> GO TO 5.

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

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-176, "Diagnosis Procedure". Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

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TCM BRANCH LINE CIRCUIT

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

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

DLC BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > [CAN] | |
|---|---|
| DLC BRANCH LINE CIRCUIT | ^ |
| Diagnosis Procedure | A |
| 1.CHECK CONNECTOR | 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, bend and loose connection (connector side and harness side). | С |
| <u>Is the inspection result normal?</u> YES >> GO TO 2. NO >> Repair the terminal and connector. | D |
| 2. CHECK HARNESS FOR OPEN CIRCUIT | _ |
| Check the resistance between the data link connector terminals. | E |
| Data link connector | |

| | Data link connector Resistance (Ω) | | | | Г |
|----------|------------------------------------|---------------------------|---------|-----------------|---|
| | Connector No. | Termi | nal No. | | Г |
| | M22 | 6 | 14 | Approx. 54 – 66 | _ |
| <u> </u> | s the measurement value w | vithin 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. | Termi | | |
| M49 | 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-20, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-36, "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.

INFOID:000000009799586

M&A BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | | | [CAN] |
|---|----------------------------|------------------------------|--------------------------|
| M&A BRANCH LINE C | IRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000009799587 |
| 1.CHECK CONNECTOR | | | |
| 1. Turn the ignition switch OFF | | | |
| 2. Disconnect the battery cable | e from the negative terr | | |
| 3. Check the terminals and co (unit side and connector side | | ination meter for damage, b | end and loose connection |
| Is the inspection result normal? | | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the terminal a 2 outpot the physical conditions and 2 | | | |
| 2.CHECK HARNESS FOR OPE | | | |
| Disconnect the connector of Check the resistance between | | ter harness connector termir | nals |
| | | | 1015. |
| Combin | ation meter harness connec | tor | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| M77 | 41 | 42 | Approx. 54 – 66 |
| Is the measurement value within | the specification? | | |
| YES >> GO TO 3. NO >> Repair the combinat | ion meter branch line | | |
| 3. CHECK POWER SUPPLY AN | | r | |
| | | | |
| Check the power supply and the METER : Diagnosis Procedure". | ground circuit of the c | | INIVI-59, COMBINATION |
| Is the inspection result normal? | | | |
| YES (Present error)>>Replace | | | al and Installation". |
| YES (Past error)>>Error was de | | | |
| NO >> Repair the power su | ppiy and the ground ci | rcuit. | |
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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. | | |
| M56 | 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-57, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-139, "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.

Revision: November 2013

A-BAG BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > [CAN] | |
|--|---|
| A-BAG BRANCH LINE CIRCUIT | Λ |
| Diagnosis Procedure | А |
| WARNING: Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) Never use unspecified tester or other measuring device. CHECK CONNECTOR | B |
| Turn the ignition switch OFF. 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 connection (unit side and connector side). | D |
| Is the inspection result normal? | Ε |
| YES >> GO TO 2. NO >> Replace the main harness. 2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT | F |
| Check the air bag diagnosis sensor unit. Refer to <u>SRC-39, "Work Flow"</u> . | |
| <u>Is the inspection result normal?</u> YES >> Replace the main harness. | G |
| NO >> Replace parts whose air bag system has a malfunction. | |
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Revision: November 2013

CCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CCM 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 chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Chassis control module harness connector | | | Resistance (Ω) |
|--|--------------|---|-------------------------|
| Connector No. | Terminal No. | | Resistance (22) |
| M96 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to <u>DAS-272, "Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-277, "Removal and Installation".

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

INFOID:000000010269413

4WD BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS | \$> | | [CAN] |
|---|----------------------------------|------------------------------|----------------------------|
| 4WD BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000009799579 |
| 1.CHECK CONNECTOR | | | |
| | | | |
| Turn the ignition switch OF Disconnect the battery cal | | ninal | |
| | | ontrol unit for damage, bend | and loose connection (unit |
| side and connector side). | | | |
| Is the inspection result normal | <u>?</u> | | |
| YES >> GO TO 2. NO >> Repair the termina | al and connector | | |
| 2.CHECK HARNESS FOR O | | | |
| | | | |
| Disconnect the connector Check the resistance betw | | it harness connector termina | le |
| 2. Check the resistance betw | | | 15. |
| AWI | D control unit harness connected | or | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| B75 | 8 | 16 | Approx. 54 – 66 |
| Is the measurement value with | nin the specification? | | |
| YES >> GO TO 3. | | | |
| ^ ' | ontrol unit branch line. | | |
| 3.CHECK POWER SUPPLY | AND GROUND CIRCUIT | - | |
| Check the power supply and t | he ground circuit of the | AWD control unit. Refer to D | LN-57, "Diagnosis Proce- |
| dure". | 0 | | |
| Is the inspection result normal | | | and Installation" |
| YES (Present error)>>Replace YES (Past error)>>Error was | | | ind instanation. |
| | supply and the ground ci | | |
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PWBD BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

PWBD 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 automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic back door control module harness connector | | | Resistance (Ω) |
|--|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| B55 | 24 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

${f 3.}$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276, "Removal and</u> <u>Installation"</u>.

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | SIS > | | [CAN] |
|--|---|--------------------------|-----------------------------|
| BCM BRANCH LIN | E CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000009799581 |
| 1.CHECK CONNECTOR | | | |
| | | | |
| | cable from the negative term | | e connection (unit side and |
| Is the inspection result norm | ial? | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the term | | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of BCM. etween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termin | al No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| Is the measurement value wYES>> GO TO 3.NO>> Repair the BCM 3. CHECK POWER SUPPL | l branch line. | | |
| Check the power supply and • With intelligent key system • Without intelligent key sys | n: <u>BCS-68, "Diagnosis Proc</u> | edure". | |
| Is the inspection result norm | al? | | |
| With intelliger | lace the BCM. Refer to the it key system: <u>BCS-75, "Re</u> gent key system: <u>BCS-135,</u> | moval and Installation". | |
| YES (Past error)>>Error w | as detected in the BCM bra er supply and the ground cir | nch line. | |
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AV BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

Check the continuity between the BCM harness connector terminals. 2.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IVI I O | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-71, "Diagnosis Procedure".

 $\mathbf{3}$.check harness for open circuit

- 1 Disconnect the connector of AV control unit.
- Check the resistance between the AV control unit harness connector terminals. 2.
- Models with BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M108 | 8 | 17 | Approx. 54 – 66 |

Models without BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | 1 (22) |
| M101 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

>> Repair the AV control unit branch line. NO

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

Navigation with BOSE: <u>AV-337, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Navigation without BOSE: <u>AV-180, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- Navigation with BOSE: <u>AV-376, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-209, "Removal and Installation"</u>

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

LAN-64

AVM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | [CAN] |
|--|------------------------|
| AVM BRANCH LINE CIRCUIT | |
| Diagnosis Procedure | INFOID:000000009799584 |
| 1.CHECK CONNECTOR | |
| Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the following terminals and connectors for damage, bend and loose connection (un nector side). Around view monitor control unit BCM | it side and con- |
| Is the inspection result normal? | |
| YES >> GO TO 2. NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT) | |

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

| | BCM harness connector | | Continuity | _ |
|---------------|-----------------------|---------|------------|---|
| Connector No. | Termi | nal No. | Continuity | G |
| M18 | 6 | 8 | Existed | - |
| IVI TO | 5 | 9 | Existed | н |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-71, "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

1 Disconnect the connector of around view monitor control unit.

- Check the resistance between the around view monitor control unit harness connector terminals. 2.
- With lane departure prevention system

| Around view | v monitor control unit harness | connector | Resistance (Ω) | |
|---------------|--------------------------------|-----------|-----------------|--|
| Connector No. | Term | inal No. | | |
| M113 | 27 | 28 | Approx. 54 – 66 | |

Without lane departure prevention system

| LA | Resistance (Ω) | Around view monitor control unit harness connector | | |
|----|-----------------|--|----|---------------|
| | | Terminal No. | | Connector No. |
| N | Approx. 54 – 66 | 10 | 12 | M103 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: <u>AV-338</u>, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"
- Navigation without BOSE: <u>AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: <u>AV-387, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-217, "Removal and Installation"</u>

YES (Past error)>>Error was detected in the around view monitor control unit branch line. NO

>> Repair the power supply and the ground circuit.

LAN-65

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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010269419

[CAN]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto Á/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| 1110 | 5 | 9 | Existed |

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> <u>71. "Diagnosis Procedure"</u>.
- **3.**CHECK HARNESS FOR OPEN CIRCUIT
- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.
- With auto A/C

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| Front air control harness connector | | | Resistance (Ω) |
|-------------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M50 | 7 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56</u>, "Diagnosis Procedure".

HVAC BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | [CAN] |
|--|-----------|
| Manual air conditioning: <u>HAC-166. "FRONT A/C CONTROL : Diagnosis Procedure"</u>. | |
| Is the inspection result normal? | A |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without an | uto A/C). |
| Refer to the following. Automatic air conditioning: <u>HAC-103</u>, "Removal and Installation". | В |
| Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>. | |
| YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (With | nout auto |
| A/C) branch line. NO >> Repair the power supply and the ground circuit. | С |
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ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010269420

[CAN]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- Distance sensor
- Harness connector E152
- Harness connector M31
- BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IM18 | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 71, "Diagnosis Procedure".

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

- 1. Connect the connector of BCM.
- 2. Disconnect the connector of distance sensor.
- 3. Check the resistance between the distance sensor harness connector terminals.

| Distance sensor harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|---|-----------------|
| Connector No. | Terminal No. | | |
| E21 | 7 | 6 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to <u>DAS-144</u>, "<u>DISTANCE SEN-</u> <u>SOR : Diagnosis Procedure</u>".

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to DAS-160, "Removal and Installation".

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

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

CAN COMMUNICATION CIRCUIT 1 [CAN] < DTC/CIRCUIT DIAGNOSIS > **CAN COMMUNICATION CIRCUIT 1** А **Diagnosis** Procedure INFOID:000000010269395 **1**.CONNECTOR INSPECTION 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect all the unit connectors on CAN communication circuit 1. 3. С Check terminals and connectors for damage, bend and loose connection. 4 Is the inspection result normal? YES >> GO TO 2. D NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT) E Check the continuity between the data link connector terminals. Data link connector Continuity F Connector No. Terminal No. M22 6 14 Not existed Is the inspection result normal? YES >> GO TO 3. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. $\mathbf{3}.$ check harness continuity (short circuit) Н Check the continuity between the data link connector and the ground. Data link connector Continuity Connector No. Terminal No. Ground 6 Not existed M22 14 Not existed Is the inspection result normal? Κ YES >> GO TO 4. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT Remove the ECM and the BCM. 1. 2. Check the resistance between the IPDM E/R terminals. LAN ECM Resistance (Ω) Terminal No. 100 Ν 99 Approx. 108 - 132 Check the resistance between the BCM terminals. BCM Resistance (Ω) Terminal No. 60 80 Approx. 108 - 132 Ρ Is the measurement value within the specification? YES >> GO TO 5. >> Replace the ECM and/or the BCM. NO CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" 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 circuit 1. **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.

CAN COMMUNICATION CIRCUIT 2

| < DTC/CIRCUIT DIAGNOS | | | [CAN] |
|---|--|-------------------------------------|-----------------------------|
| CAN COMMUNICAT | TION CIRCUIT 2 | | |
| Diagnosis Procedure | | | INFOID:000000010269396 |
| 1.CONNECTOR INSPECTION | ON | | |
| Turn the ignition switch 0 Disconnect the battery ca Check the terminals and connector side). | able from the negative ter | minal. for damage, bend and loos | e connection (unit side and |
| s the inspection result norma | <u>al?</u> | | |
| YES >> GO TO 2. NO >> Repair the termin | nal and connector. | | |
| 2. CHECK HARNESS CONT | | Γ) | |
| 1. Disconnect the connecto | | | |
| | BCM harness connector | | Continuity |
| Connector No. | | inal No. | |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |
| | ween the BCM harness connector | | |
| Connector No. | | inal No. | Continuity |
| M18 | 6 | 5 | Not existed |
| s the inspection result norma | al? | | |
| YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CONT | ss and repair or replace t FINUITY (SHORT CIRCU | | |
| Check the continuity betweer | the BCM and the ground | d. | |
| BCM harnes | s connector | | |
| Connector No. | Terminal No. | Ground Continuity | |
| M18 | 6 | | |
| | 5 | | Not existed |
| CHECK BCM TERMINAT | ss and repair or replace (| if shield line is short) the roo | ot cause. |
| Remove the BCM. Check the resistance bet | tween the BCM terminals | | |
| | BCM | | Pesistance (O) |
| Т | erminal No. | F | Resistance (Ω) |

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN]

| 6 | 5 | Approx. 108 – 132 |
|---|---|-------------------|
| 8 | 9 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 7.

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

7. CHECK UNIT REPRODUCTION

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

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

BCM has two termination circuits. Check other units first.

- 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 - NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

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

PRECAUTIONS

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< PRECAUTION > 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.

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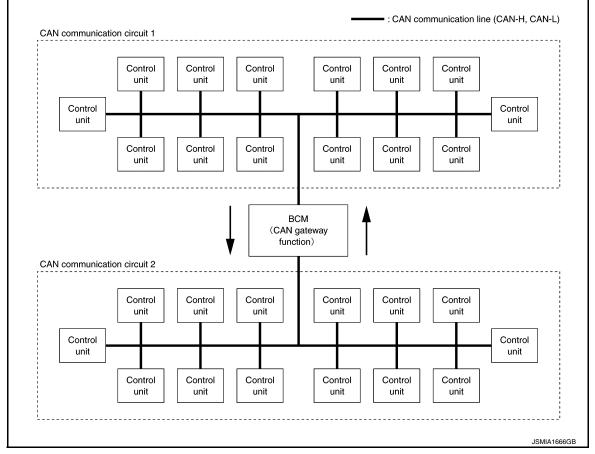
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< SYSTEM DESCRIPTION > SYSTEM DESCRIPTION SYSTEM

System Description

INFOID:000000010335053

SYSTEM DIAGRAM



SYSTEM DESCRIPTION

- The BCM has a CAN gateway function.
- The BCM communicates between two CAN communication circuits.
- The BCM selects and transmits only necessary information.

DIAGNOSIS SYSTEM (CAN GATEWAY)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (CAN GATEWAY)

CONSULT Function

APPLICATION ITEM

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

| Diagnosis mode | Function Description | С |
|------------------------|---|---|
| Ecu Identification | The CAN gateway software number is displayed. | |
| Self Diagnostic Result | Displays the diagnosis results of BCM CAN gateway function. | |
| Data Monitor | Displays real-time input/output data of BCM CAN gateway function. | D |
| Configuration | Read and save the vehicle specification. Write the vehicle specification when replacing of BCM. | |

ECU IDENTIFICATION

The CAN gateway part number is displayed.

SELF DIAGNOSTIC RESULT

Refer to LAN-76, "DTC Index".

- · When "CRNT" is displayed on self-diagnosis result
- The system is presently malfunctioning.
- When "PAST" is displayed on self-diagnosis result
- System malfunction in the past is detected, but the system is presently normal.

Freeze Frame Data (FFD)

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

| Item name | Display item | |
|------------------------|--|--|
| Milage (Kirometers) | Displays the total mileage when a DTC is detected. | |

DATA MONITOR

| Monitor item | Description | |
|-------------------------------------|--|---|
| CAN GW MODE (UNCONF/MALF/NORMAL) | Displays the status of BCM CAN gateway function. | K |
| IGN SIGNAL (Off/On) | Displays the status of ignition switch. | L |

CONFIGURATION

| Function | 1 | Description | – LAN |
|----------------------------|--------------------|---|-------|
| Read / Write Configuration | Before Replace ECU | Reads the vehicle configuration of current BCM.Saves the read vehicle configuration. | N |
| | After Replace ECU | Writes the vehicle configuration with saved data. | |
| Manual Configuration | | Writes the vehicle configuration with manual selection. | |

CAUTION:

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

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

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ECU DIAGNOSIS INFORMATION CAN GATEWAY

Reference Value

INFOID:000000010335055

VALUES ON THE DIAGNOSIS TOOL

NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

| Monitor item | Condition | Value/Status |
|--------------|---|--------------|
| | When the configuration of the BCM CAN gateway function is not written | UNCONF |
| CAN GW MODE | When the BCM CAN Gateway function is malfunction | MALF |
| | When BCM CAN Gateway function is normal. | NORMAL |
| IGN SIGNAL | Ignition switch in OFF or ACC position | Off |
| ION SIGNAL | Ignition switch in ON position | On |

DTC Index

INFOID:000000010335057

| DTC | Reference |
|---|---------------------------|
| No DTC is detected. Further testing may be required. | _ |
| B2600-46: CONFIG ERROR | LAN-78. "DTC Description" |
| B2600-55: CONFIG ERROR | LAN-79, "DTC Description" |

CONFIGURATION (CAN GATEWAY)

| < BASIC INSPECTION > |
|-----------------------------|
| BASIC INSPECTION |
| CONFIGURATION (CAN GATEWAY) |

| Work Procedure | INFOID:000000010335061 | В |
|--|------------------------|--------|
| 1.WRITING MODE SELECTION | | |
| | | С |
| Select "Re/programming, Configuration" of CAN gateway. | | |
| When writing saved data>>GO TO 2. | | D |
| When writing manually>>GO TO 3. | | |
| 2.PERFORM "AFTER REPLACE ECU" OF "READ / WRITE CONFIGURATION" | | F |
| | | |
| Perform "After Replace ECU" of "Read / Write Configuration". | | |
| >> GO TO 4. | | F |
| 3. PERFORM "MANUAL CONFIGURATION" | | |
| | | \sim |
| CONSULT Configuration | | G |
| Select "Manual Configuration". Touch "Next". | | |
| 3. Touch "OK". | | Н |
| 4. Check that the configuration has been successfully written and touch "End". | | |
| >> GO TO 4. | | I |
| 4. CHECK ALL ECU SELF-DIAGNOSIS RESULTS | | |
| | | |
| Erase all ECU self-diagnosis results using CONSULT. Turn the ignition switch OFF. | | J |
| 3. Turn the ignition switch ON and wait for 2 seconds or more. | | |
| 4. Check that all ECU self-diagnosis results have no DTC (e.g. U1000 and U1001) of CAN co | mmunication. | Κ |
| >> WORK END | | |
| | | |

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[CAN GATEWAY]

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DTC/CIRCUIT DIAGNOSIS B2600-46 CONFIG ERROR

DTC Description

INFOID:000000010335098

DTC DETECTION LOGIC

| DTC | Trouble diagnosis (Trouble diagnosis contents) | Detecting condition |
|----------|---|--|
| B2600-46 | CONFIG ERROR (Configuration error) | When errors are detected in the configuration data stored in the BCM (CAN gateway function). |

POSSIBLE CAUSE

BCM

FAIL-SAFE

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

DTC CONFIRMATION PROCEDURE

1.PERFORM DTC CONFIRMATION PROCEDURE

With CONSULT

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

Is DTC B2600-46 detected?

- YES >> Proceed to LAN-78, "Diagnosis Procedure".
- NO-1 >> To check malfunction symptom before repair: GI-41, "Intermittent Incident".
- NO-2 >> Confirmation after repair: INSPECTION END

Diagnosis Procedure

INFOID:000000010335099

1.PERFORM DTC CONFIRMATION PROCEDURE AGAIN

- 1. Turn ignition switch ON.
- 2. Erase DTC.
- 3. Perform DTC confirmation procedure again. Refer to LAN-78, "DTC Description".
- 4. Check DTC.

Is DTC B2600-46 detected again?

- YES >> Replace BCM. Refer to the following.
 - With Intelligent Key system: <u>BCS-75, "Removal and Installation"</u>.
 - WIthout Intelligent Key system: BCS-135, "Removal and Installation".
- NO >> INSPECTION END

B2600-55 CONFIG ERROR

< DTC/CIRCUIT DIAGNOSIS >

B2600-55 CONFIG ERROR

DTC Description

DTC DETECTION LOGIC

[CAN GATEWAY]

INFOID:000000010352109

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Trouble diagnosis DTC Detecting condition (Trouble diagnosis contents) **CONFIG ERROR** B2600-55 When no data are stored in the BCM (CAN gateway function). (Configuration error) D POSSIBLE CAUSE Configuration is incomplete BCM Е FAIL-SAFE Transmission and reception of the signal between CAN communication circuit 1 and CAN communication circuit 2 are stopped F DTC CONFIRMATION PROCEDURE 1.PERFORM DTC CONFIRMATION PROCEDURE (P)With CONSULT 1. Turn ignition switch ON and wait at least 2 seconds or more. 2. Select "Self Diagnostic Result" mode of "CAN GATEWAY" using CONSULT. Н 3. Check DTC. Is DTC B2600-55 detected? YES >> Proceed to LAN-79, "Diagnosis Procedure" NO-1 >> To check malfunction symptom before repair: GI-41, "Intermittent Incident". NO-2 >> Confirmation after repair: INSPECTION END Diagnosis Procedure INFOID:000000010352111 1.PERFORM CONFIGURATION OF CAN GATEWAY Perform CAN gateway configuration. Refer to LAN-77, "Work Procedure". Κ >> GO TO 2. 2.PERFORM DTC CONFIRMATION PROCEDURE AGAIN L Turn ignition switch ON. 1. 2. Perform DTC confirmation procedure again. Refer to <u>LAN-79</u>, "DTC Description". LAN Check DTC. 3. Is DTC B2600-55 detected again? YES >> Replace BCM. Refer to the following. Ν With Intelligent Key system: <u>BCS-75</u>, "Removal and Installation". • WIthout Intelligent Key system: BCS-135, "Removal and Installation".

NO >> INSPECTION END

Revision: November 2013

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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:000000010337418

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R ha | mess connector | Harness | connector | Continuity |
|---------------|----------------|---------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E120 | 24 | E152 | 61J | Existed |
| L120 | 22 | | 62J | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

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 |
| M31 | 61J | M22 | 6 | Existed |
| IVIS I | 62J | 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 M31 and the data link connector.

| | WEEN DLC A | ND CCM CIRCU | | |
|--|--|------------------------|-----------------------|-----------------|
| gnosis Proced | ure | | | INFOID:0000000 |
| HECK HARNESS | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the foll ECM Chassis control mo | ttery cable from the n owing harness conne odule | | chassis control modul | e harness conne |
| Data link | connector | Chassis control modu | le harness connector | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M96 | 4 | Existed |
| 11122 | 14 | MOO | 3 | Existed |
| S (Present error)> S (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| S (Past error)>>Er trol module | Check CAN system ror was detected in the e. | | | |
| (Present error)> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| (Present error)>> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| (Present error)> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| (Present error)>> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| (Present error)>> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| 6 (Present error)> 6 (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| S (Present error)> S (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| S (Present error)> S (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |
| (Present error)>> (Past error)>>Er trol module | Check CAN system ror was detected in the e. | he main line between t | | |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337421

[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 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. | Terminal No. | | 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-499, "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

[CAN SYSTEM (TYPE 1)]

| Diagnosis Procedure | | | INFOID:00000001033742 |
|--|---|--|--|
| 1.CHECK CONNECTOR | | | |
| | | | |
| 3. Check the terminals and | OFF. cable from the negative termi d connectors of the ABS actu init side and connector side). | | ontrol unit) for damage, benc |
| s the inspection result norm | al? | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the term | | | |
| 2. CHECK HARNESS FOR | or of ABS actuator and electr | | |
| nals. | | | |
| ABS actuator | and electric unit (control unit) harnes | s connector | |
| ABS actuator a | and electric unit (control unit) harnes Terminal | | - Resistance (Ω) |
| | | | - Resistance (Ω) Approx. 54 – 66 |
| Connector No. E125 | Terminal 26 | No. | |
| Connector No. E125 s the measurement value w YES >> GO TO 3. | Terminal 26 rithin the specification? | No. 14 | |
| Connector No. E125 s the measurement value w YES >> GO TO 3. NO >> Repair the ABS | Terminal 26 vithin the specification? actuator and electric unit (co | No. 14 | |
| Connector No. E125 s the measurement value w YES >> GO TO 3. NO >> Repair the ABS 3.CHECK POWER SUPPL | Terminal 26 <u>ithin the specification?</u> actuator and electric unit (co Y AND GROUND CIRCUIT | No. 14 ntrol unit) branch line. | Approx. 54 – 66 |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an | Terminal 26 <u>ithin the specification?</u> actuator and electric unit (co Y AND GROUND CIRCUIT d the ground circuit of the A | No. 14 ntrol unit) branch line. | Approx. 54 – 66 |
| Connector No. E125 s the measurement value w YES >> GO TO 3. NO >> Repair the ABS 3.CHECK POWER SUPPL Check the power supply an 3RC-114, "Diagnosis Proce | Terminal 26 <u>ithin the specification?</u> actuator and electric unit (co Y AND GROUND CIRCUIT d the ground circuit of the A dure". | No. 14 ntrol unit) branch line. | Approx. 54 – 66 |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an <u>3RC-114</u> , "Diagnosis Proceed <u>s the inspection result norm</u> | Terminal 26 <u>ithin the specification?</u> actuator and electric unit (co Y AND GROUND CIRCUIT d the ground circuit of the A dure". | No. 14 ntrol unit) branch line. BS actuator and electric | Approx. 54 – 66 |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an <u>3RC-114. "Diagnosis Proceed</u> <u>s the inspection result norm</u> YES (Present error)>>Rep <u>and Installation</u> | Terminal 26 <u>within the specification?</u> actuator and electric unit (co Y AND GROUND CIRCUIT d the ground circuit of the A <u>dure"</u> . <u>al?</u> lace the ABS actuator and electric | No. 14 ntrol unit) branch line. BS actuator and electric ectric unit (control unit). I | Approx. 54 – 66 c unit (control unit). Refer to Refer to <u>BRC-136, "Remova</u> |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an <u>3RC-114. "Diagnosis Proces</u> <u>s the inspection result norm</u> YES (Present error)>>Rep <u>and Installation</u> YES (Past error)>>Error was | Terminal 26 <u>actuator and electric unit (co</u> Y AND GROUND CIRCUIT d the ground circuit of the A <u>dure"</u> . <u>al?</u> lace the ABS actuator and electric | No. 14 ntrol unit) branch line. BS actuator and electric ectric unit (control unit). I tor and electric unit (con | Approx. 54 – 66 c unit (control unit). Refer to Refer to <u>BRC-136, "Remova</u> |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an <u>3RC-114. "Diagnosis Proces</u> <u>s the inspection result norm</u> YES (Present error)>>Rep <u>and Installation</u> YES (Past error)>>Error was | Terminal 26 <u>actuator and electric unit (co</u> Y AND GROUND CIRCUIT d the ground circuit of the A <u>dure"</u> . <u>al?</u> lace the ABS actuator and election as detected in the ABS actuator | No. 14 ntrol unit) branch line. BS actuator and electric ectric unit (control unit). I tor and electric unit (con | Approx. 54 – 66 c unit (control unit). Refer to Refer to <u>BRC-136, "Remova</u> |
| Connector No. E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS 3. CHECK POWER SUPPL Check the power supply an <u>3RC-114. "Diagnosis Proces</u> <u>s the inspection result norm</u> YES (Present error)>>Rep <u>and Installation</u> YES (Past error)>>Error was | Terminal 26 <u>actuator and electric unit (co</u> Y AND GROUND CIRCUIT d the ground circuit of the A <u>dure"</u> . <u>al?</u> lace the ABS actuator and election as detected in the ABS actuator | No. 14 ntrol unit) branch line. BS actuator and electric ectric unit (control unit). I tor and electric unit (con | Approx. 54 – 66 c unit (control unit). Refer to Refer to <u>BRC-136, "Remova</u> |

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< DTC/CIRCUIT DIAGNOSIS >

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337423

[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.

| | IPDM E/R harness connector | | |
|---------------|----------------------------|----------------|-----------------|
| Connector No. | Termi | Resistance (Ω) | |
| E120 | 24 22 | | 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 <u>PCS-34, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "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.

| | LINE CIRCUIT | | | |
|--|---|--------------------------------|--------------------|-----------------------------------|
| Diagnosis Proced | lure | | | INFOID:000000010337424 |
| 1.CHECK CONNECT | OR | | | |
| Check the followir nector side). TCM IPDM E/R | ttery cable from the n ng terminals and conn | | nd and loose conne | ction (unit side and con- |
| <u>s the inspection result</u> YES >> GO TO 2. | t normal? | | | |
| | e terminal and connec | tor. | | |
| 2. CHECK HARNESS | | N CIRCUIT) | | |
| TCM IPDM E/R Check the continu | - | harness connector and | | ness connector. |
| Connector No. | ss connector Terminal No. | IPDM E/R harr Connector No. | Terminal No. | Continuity |
| | 33 | | 87 | Existed |
| F75 | 23 | F42 | 88 | Existed |
| 3. CHECK IPDM E/R Check the continuity b | etween the IPDM E/R | terminals. | | |
| Termir | nal No. | Termir | nal No. | Continuity |
| | 7 | 3 | 9 | Existed |
| 8 | 8 | 4 | 0 | Existed |
| Is the inspection result YES >> GO TO 4. | ne IPDM E/R. FOR OPEN CIRCUI | | erminals. | |
| NO >> Replace the second secon | | | | |
| 4. CHECK HARNESS | IPDM E/R harnes | s connector | | Posistance (O) |
| 4 CHECK HARNESS | IPDM E/R harnes | s connector Terminal No. | | Resistance (Ω) |
| 4.CHECK HARNESS | 39 | Terminal No. | 40 | Resistance (Ω) Approx. 54 – 66 |

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES (Present error)>>Replace the TCM. Refer to TM-202. "Removal and Installation".

TCM BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

| < DTC/CIRCUIT DIAGNOSIS | | | [CAN SYSTEM (TYPE 1)] |
|--|--|-----------------------------------|------------------------------|
| OLC BRANCH LINE (| CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337425 |
| 1. CHECK CONNECTOR | | | |
| Check the terminals and a (connector side and harne) | ble from the negative termin connectors of the data link ss side). | al. connector for damage | e, bend and loose connection |
| s the inspection result normal | <u>?</u> | | |
| YES >> GO TO 2. NO >> Repair the termina | al and connector. | | |
| 2. CHECK HARNESS FOR O | | | |
| Check the resistance between | | minals | |
| | | | |
| | Data link connector | | Resistance (Ω) |
| Connector No. | Terminal 1 | | 54.00 |
| M22 | 6 | 14 | Approx. 54 – 66 |
| YES (Present error)>>Check YES (Past error)>>Error was | CAN system type decision | again. nnector branch line cir | cuit. |
| YES (Past error)>>Error was | CAN system type decision detected in the data link co | again. nnector branch line cir | cuit. |
| YES (Present error)>>Check YES (Past error)>>Error was | CAN system type decision detected in the data link co | again. nnector branch line cir | cuit. |
| YES (Present error)>>Check YES (Past error)>>Error was | CAN system type decision detected in the data link co | again. nnector branch line cir | cuit. |
| YES (Present error)>>Check YES (Past error)>>Error was | CAN system type decision detected in the data link co | again. nnector branch line cir | cuit. |
| YES (Present error)>>Check YES (Past error)>>Error was | CAN system type decision detected in the data link co | again. nnector branch line cir | cuit. |

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337426

[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 | EPS control unit harness connector | | |
|---------------|------------------------------------|-----------------|--|
| Connector No. | Termi | Resistance (Ω) | |
| M49 | 2 | 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-20, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-36, "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:000000010337427 | |
|---|--|--|---------------------------|--|
| 1.CHECK CONNECTOR | | | | |
| | able from the negative tern d connectors of the combined | | pend and loose connection | |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR | nal and connector. | | | |
| Disconnect the connector. Check the resistance be | or of combination meter. tween the combination met | er harness connector term | inals. | |
| Co | mbination meter harness connect | tor | Resistance (Ω) | |
| Connector No. | Termin | al No. | | |
| | | | | |
| | 41 ithin the specification? | 42 | Approx. 54 – 66 | |
| the measurement value w YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL heck the power supply and IETER : Diagnosis Procedu | ithin the specification? Dination meter branch line. Y AND GROUND CIRCUIT I the ground circuit of the cource". al? | 42 ombination meter. Refer to | MWI-59, "COMBINATION | |
| s the measurement value w YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL Check the power supply and <u>AETER : Diagnosis Procedu</u> the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa | ithin the specification? Dination meter branch line. Y AND GROUND CIRCUIT I the ground circuit of the cource". al? ace the combination meter. | 42 ombination meter. Refer to Refer to <u>MWI-82, "Remov</u> ion meter branch line. | MWI-59, "COMBINATION | |

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337428

[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.

| Ste | Steering angle sensor harness connector | | |
|---------------|---|-------------------------|--|
| Connector No. | Termi | Resistance (Ω) | |
| M56 | 5 | 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-57, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-139</u>, "Removal and Installation".

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

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

[CAN SYSTEM (TYPE 1)]

A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000010337429 WARNING: В 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. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. D 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). Is the inspection result normal? Ε YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337430

[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 chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Cha | Chassis control module harness connector | | |
|---------------|--|-------------------------|-----------------|
| Connector No. | Termi | Resistance (Ω) | |
| M96 | 4 3 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to <u>DAS-272, "Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-277, "Removal and Installation".

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| BCM BRANCH LIN | ECIRCUIT | | |
|---|---|--|-------------------------------|
| Diagnosis Procedure | | | INFOID:000000010337433 |
| 1. CHECK CONNECTOR | | | |
| 3. Check the terminals an connector side). | able from the negative term d connectors of the BCM fo | | ose connection (unit side and |
| Is the inspection result norm YES >> GO TO 2. NO >> Repair the termination 2.CHECK HARNESS FOR | nal and connector. | | |
| Disconnect the connect Check the resistance be | or of BCM. Stween the BCM harness co | nnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termina | al No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| YES >> GO TO 3. NO >> Repair the BCM 3.CHECK POWER SUPPL Check the power supply and • With intelligent key system • Without intelligent key system | Y AND GROUND CIRCUIT I the ground circuit of the BC I: <u>BCS-68, "Diagnosis Proce</u> tem: <u>BCS-128, "Diagnosis P</u> | <u>edure"</u> . | g. |
| Is the inspection result norm | | | |
| With intelligen Without intelligen | ace the BCM. Refer to the f t key system: <u>BCS-75, "Ren</u> gent key system: <u>BCS-135, '</u> as detected in the BCM brar | noval and Installation". "Removal and Installatio | <u>n"</u> . |
| NO >> Repair the powe | | | |
| | er supply and the ground cho | cuit. | |

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< DTC/CIRCUIT DIAGNOSIS >

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337436

[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 following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto Á/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | | |
|---------------|-----------------------|------------|---------|--|
| Connector No. | Termi | Continuity | | |
| M18 | 6 8 | | Existed | |
| IVI I O | 5 | 9 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| | A/C auto amp. harness connector | | |
|---------------|---------------------------------|-------------------------|-----------------|
| Connector No. | Termi | Resistance (Ω) | |
| M54 | 11 31 | | Approx. 54 – 66 |

- Without auto A/C

| Front air control harness connector | | | Resistance (Ω) |
|-------------------------------------|--------------|--|-------------------------|
| Connector No. | Terminal No. | | |
| M50 | 7 23 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56</u>, "Diagnosis Procedure".

HVAC BRANCH LINE CIRCUIT

| [CAN SYSTEM | (TYPE 1)] |
|-------------|-----------|
|-------------|-----------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 1)] |
|---|--------------------------------------|
| Manual air conditioning: <u>HAC-166</u> , "FRONT A/C CONTROL : Diagnosis Pro | |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or from Refer to the following. Automatic air conditioning: <u>HAC-103</u>, "<u>Removal and Installation</u>". Manual air conditioning: <u>HAC-181</u>, "<u>Removal and Installation</u>". | |
| YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) A/C) branch line. |) or front air control (Without auto |
| NO >> Repair the power supply and the ground circuit. | |
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< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT 1

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 circuit 1.
- 4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | | 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 or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

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

| E | ECM Resistance (Ω) | | |
|--------------|--------------------|-------------------|--|
| Terminal No. | | - Resistance (12) | |
| 100 99 | | Approx. 108 – 132 | |

3. Check the resistance between the BCM terminals.

| BC | BCM Besistance (O) | | |
|--------------|--------------------|-------------------|--|
| Terminal No. | | Resistance (Ω) | |
| 60 | 80 | 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:000000010337438

CAN COMMUNICATION CIRCUIT 1

< 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 circuit 1. 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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CAN COMMUNICATION CIRCUIT 2

Diagnosis Procedure

INFOID:000000010337465

[CAN SYSTEM (TYPE 1)]

1.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the 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 CONTINUITY (OPEN CIRCUIT)

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

| BCM harness connector | | | Continuity |
|-----------------------|--------|------------|------------|
| Connector No. | Termir | Continuity | |
| M18 | 6 | 8 | Existed |
| M18 5 9 | | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.

2. Check the continuity between the BCM harness connector terminals.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|-------------|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | Not existed | |

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

| BCM harness connector | | | Continuity | |
|-----------------------|--------------|--------|-------------|--|
| Connector No. | Terminal No. | Ground | Continuity | |
| M18 | 6 | Giouna | Not existed | |
| W10 | 5 | | Not existed | |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5. CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.

2. Check the resistance between the BCM terminals.

BCM
Terminal No.
Resistance (Ω)

CAN COMMUNICATION CIRCUIT 2

[CAN SYSTEM (TYPE 1)] < DTC/CIRCUIT DIAGNOSIS > 6 5 Approx. 108 - 132 8 9 Approx. 108 - 132 Is the measurement value within the specification? YES >> GO TO 6. NO >> Replace the chassis control module. 6.CHECK SYMPTOM Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. Inspection result Reproduced>>GO TO 7. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. 7. CHECK UNIT REPRODUCTION Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect one of the unit connectors of CAN communication circuit 2. NOTE: BCM has two termination circuits. Check other units first. 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. NOTE: Although unit-related error symptoms occur, do not confuse them with other symptoms. Inspection result Reproduced>>Connect the connector. Check other units as per the above procedure. Non-reproduced>>Replace the unit whose connector was disconnected.

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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:000000010337441

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R har | ness connector | Harness connector | | Continuity |
|---------------|----------------|-------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E120 | 24 | E152 | 61J | Existed |
| L120 | 22 | | 62J | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

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 |
| M31 | 61J | M22 | 6 | Existed |
| IVIS I | 62J | 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 M31 and the data link connector.

| | | ND CCM CIRC | | |
|--|---|--|-----------------------|----------------------|
| agnosis Procec | lure | | | INFOID:00000001033 |
| CHECK HARNESS | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the fol ECM Chassis control m | Ittery cable from the r lowing harness conne odule | | chassis control modu | le harness connecto |
| Data link | connector | Chassis control modu | le harness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| | 6 | M96 | 4 | Existed |
| M22 | | | 3 | Existed |
| S (Present error)> S (Past error)>>E trol modul | Check CAN system rror was detected in t e. | type decision again. he main line between t ne data link connector a | he data link connecto | r and the chassis co |
| <u>e inspection resul</u> S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |
| <u>e inspection resul</u> S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |
| e inspection resul S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |
| ne inspection resul S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |
| e inspection resul S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |
| <u>e inspection resul</u> S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | he data link connecto | r and the chassis co |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

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MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337443

[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 (connector side and harness side).
- Harness connector M69
- Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Chassis control module

- Harness connectors M69 and B41
- 2. Check the continuity between the chassis control module harness connector and the harness connector.

| Chassis control module harness connector Harness connector | | connector | Continuity | | |
|--|--------------|---------------|--------------|------------|--|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| M96 | 4 | M69 | 25 | Existed | |
| M90 | 3 | W09 | 24 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the continuity between the harness connector and the automatic back door control module harness connector.

| Harness | connector | Automatic back door control module harness connector Connector No. Terminal No. | | Continuity | |
|---------------|--------------|--|---------|------------|--|
| Connector No. | Terminal No. | | | | |
| B41 25 24 | 25 | B55 | 24 | Existed | |
| | - D00 | 12 | Existed | | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

| | | | INFOID:00000001033744 |
|---|--|---|-----------------------------|
| .CHECK CONNECTOR | | | |
| | OFF. cable from the negative tern d connectors of the ECM fo | | e connection (unit side and |
| the inspection result norm | <u>)al?</u> | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector. | | |
| CHECK HARNESS FOR | | | |
| Disconnect the connect | or of ECM. | | |
| Check the resistance be | etween the ECM harness co | onnector terminals. | |
| | ECM harness connector | | |
| Connector No. | Termin | al No. | Resistance (Ω) |
| E16 | 100 | 99 | Approx. 108 – 132 |
| the measurement value v | vithin the specification? | | |
| YES >> GO TO 3. NO >> Repair the ECM | 1 branch line. | | |
| | | | |
| | Y AND GROUND CIRCUIT | | |
| CHECK POWER SUPPL | | | gnosis Procedure". |
| CHECK POWER SUPPL | d the ground circuit of the E | | gnosis Procedure". |
| CHECK POWER SUPPL heck the power supply and the inspection result norm YES (Present error)>>Rep | d the ground circuit of the Ed nal? lace the ECM. Refer to <u>EC-</u> | CM. Refer to <u>EC-165, "Dia</u> 499, "Removal and Installa | - |
| A.CHECK POWER SUPPL heck the power supply and the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | d the ground circuit of the Ed <u>nal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | CM. Refer to <u>EC-165, "Dia</u> 499, "Removal and Installa nch line. | - |
| A.CHECK POWER SUPPL heck the power supply and the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | d the ground circuit of the Ed nal? lace the ECM. Refer to <u>EC-</u> | CM. Refer to <u>EC-165, "Dia</u> 499, "Removal and Installa nch line. | - |
| A.CHECK POWER SUPPL heck the power supply and the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | d the ground circuit of the Ed <u>nal?</u> lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | CM. Refer to <u>EC-165, "Dia</u> 499, "Removal and Installa nch line. | - |

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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 a | ABS actuator and electric unit (control unit) harness connector | | Resistance (Ω) |
|----------------|---|--|-------------------------|
| Connector No. | Terminal No. | | |
| E125 | 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-114, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "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)]

| < DTC/CIRCUIT DIAGNOSIS | > | | [CAN SYSTEM (TYPE 2)] |
|---|---|------------------------------------|-----------------------------|
| PDM-E BRANCH LIN | IE CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000001033744 |
| 1. CHECK CONNECTOR | | | |
| Turn the ignition switch OF Disconnect the battery cability Check the terminals and connector side). s the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal | le from the negative ter onnectors of the IPDM | minal. E/R for damage, bend and | loose connection (unit side |
| 2. CHECK HARNESS FOR OF | PEN CIRCUIT | | |
| Disconnect the connector of Check the resistance between | een the IPDM E/R harn | ess connector terminals. | |
| | DM E/R harness connector | | Resistance (Ω) |
| Connector No. | | nal No. | |
| E120 s the measurement value withi | 24 | 22 | Approx. 54 – 66 |
| YES >> GO TO 3. NO >> Repair the IPDM E. 3.CHECK POWER SUPPLY A Check the power supply and the s the inspection result normal? | ND GROUND CIRCUI | PDM E/R. Refer to <u>PCS-34,</u> | |
| YES (Present error)>>Replace YES (Past error)>>Error was o NO >> Repair the power s | | /R branch line. | <u>ıstallation"</u> . |
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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337447

[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
- IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the following harness connectors.
- TCM
- IPDM E/R
- 2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

| TCM harne | TCM harness connector | | IPDM E/R harness connector | |
|---------------|-----------------------|---------------|----------------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| F75 | 33 | F42 | 87 | Existed |
| 175 | 23 | 1 42 | 88 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

| IPDM E/F | Continuity | |
|--------------|--------------|------------|
| Terminal No. | Terminal No. | Continuity |
| 87 | 39 | Existed |
| 88 | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

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

| | IPDM E/R harness connector | | |
|---------------|----------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| E120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 5.

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

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-176, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

LAN-106

TCM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

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

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

< DTC/CIRCUIT DIAGNOSIS >

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< DTC/CIRCUIT DIAGNOSIS >

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337448

[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 | ECIRCUIT | | |
|---|--|---------------------------|------------------------------|
| Diagnosis Procedure | | | INFOID:000000010337449 |
| 1.CHECK CONNECTOR | | | |
| | cable from the negative termined connectors of the EPS con | | d and loose connection (unit |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | inal and connector. | | |
| 1. Disconnect the connect | | harness connector termir | nals. |
| E | PS control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | I No. | |
| M49 | 2 | 1 | Approx. 54 – 66 |
| 3. CHECK POWER SUPPL | d the ground circuit of the E | PS control unit. Refer to | STC-20, "Diagnosis Proce- |
| VES (Present error)>>Pen | | fer to STC-36 "Remova | Land Installation" |
| YES (Past error)>>Error w | lace the EPS control unit. Re as detected in the EPS contr er supply and the ground circ | ol unit branch line. | <u>I and Installation"</u> . |

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< DTC/CIRCUIT DIAGNOSIS >

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337450

[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. | | |
| M77 | 41 | 42 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to <u>MWI-59, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-82, "Removal and Installation".

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

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

STRG BRANCH LINE CIRCUIT

| Diagnosis Procedure 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable 3. Check the terminals and conr | | | INFOID:000000010337451 |
|--|---|--|------------------------------|
| Turn the ignition switch OFF. Disconnect the battery cable | | | |
| 2. Disconnect the battery cable | | | |
| (unit side and connector side) Is the inspection result normal? | nectors of the steering and | | e, bend and loose connection |
| YES >> GO TO 2. NO >> Repair the terminal ar | nd connector. | | |
| 2. CHECK HARNESS FOR OPE | N CIRCUIT | | |
| Disconnect the connector of s Check the resistance between | | or harness connector | terminals. |
| Steering a | ngle sensor harness connector | | Resistance (Ω) |
| Connector No. | Terminal No | Э. | |
| M56 | 5 | 2 | Approx. 54 – 66 |
| YES >> GO TO 3. NO >> Repair the steering an 3. CHECK POWER SUPPLY AND Check the power supply and the gram". Is the inspection result normal? YES (Present error)>>Replace the YES (Past error)>>Error was def NO >> Repair the power sup | D GROUND CIRCUIT ground circuit of the stee he steering angle sensor. tected in the steering angle | Refer to <u>BRC-139, "F</u> le sensor branch line. | Removal and Installation". |
| | ply and the ground circuit | • | |

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337452

[CAN SYSTEM (TYPE 2)]

WARNING:

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow".

Is the inspection result normal?

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

CCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | iIS > | | [CAN SYSTEM (TYPE 2)] |
|--|--|----------------------------|------------------------------------|
| CCM BRANCH LINI | E CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337453 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative terr I connectors of the chassis | | r for damage, bend and loose |
| Is the inspection result norm | al? | | |
| YES >> GO TO 2. NO >> Repair the termi | nal and connector. | | |
| 2.CHECK HARNESS FOR | | | |
| | or of chassis control modul tween the chassis control | | r terminals. |
| Chas | ssis control module harness conn | ector | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| M96 | 4 | 3 | Approx. 54 – 66 |
| Is the measurement value w | ithin the specification? | | |
| YES >> GO TO 3. NO >> Repair the chase | sis control module branch | line | |
| 3. CHECK POWER SUPPLY | | | |
| | | | Refer to DAS-272, "Diagnosis |
| Procedure". | | | Teler to <u>DAS-272, Diagnosis</u> |
| Is the inspection result norm | al? | | |
| YES (Present error)>>Repl YES (Past error)>>Error wa NG >> Repair the powe | | control module branch line | |
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< DTC/CIRCUIT DIAGNOSIS >

PWBD 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 automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.

2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic back door control module harness connector | | Resistance (Ω) | |
|--|--------------|----------------|-----------------|
| Connector No. | Terminal No. | | |
| B55 | 24 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

${\it 3.}$ check power supply and ground circuit

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276</u>, "<u>Removal and</u> <u>Installation</u>".

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | ils > | I | CAN SYSTEM (TYPE 2)] |
|---|--|---------------------|-----------------------------|
| BCM BRANCH LINI | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337456 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative terr | | e connection (unit side and |
| Is the inspection result norm | al? | | |
| YES >> GO TO 2. NO >> Repair the termi | nal and connector. | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of BCM. tween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termir | al No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| Is the measurement value wYES>> GO TO 3.NO>> Repair the BCM3.CHECK POWER SUPPLY | branch line. | - | |
| Check the power supply andWith intelligent key systemWithout intelligent key system | : BCS-68, "Diagnosis Proc | edure". | |
| Is the inspection result norm | | | |
| | t key system: <u>BCS-75, "Re</u> | | |
| YES (Past error)>>Error wa | | nch line. | |
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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337459

[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).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| Front air control harness connector | | | Resistance (Ω) |
|-------------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| M50 | 7 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56</u>, "Diagnosis Procedure".

HVAC BRANCH LINE CIRCUIT

| [CAN SYSTEM | M (TYPE 2)] |
|-------------|-------------|
|-------------|-------------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 2)] |
|---|-----------------------|
| Manual air conditioning: <u>HAC-166, "FRONT A/C CONTROL : Diagnosis Proc</u> | edure". |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front a Refer to the following. Automatic air conditioning: <u>HAC-103</u>, "<u>Removal and Installation</u>". | |
| Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>. YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) o | |
| A/C) branch line.NO >> Repair the power supply and the ground circuit. | |
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< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT 1

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 circuit 1.
- 4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link | Data link connector | | Continuity |
|---------------|---------------------|--------|-------------|
| Connector No. | Terminal No. | Cround | Continuity |
| M22 | Ground 6 | | Not existed |
| WIZZ | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

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

| E | СМ | Resistance (Ω) | |
|-------|---------|-------------------|--|
| Termi | nal No. | | |
| 100 | 99 | Approx. 108 – 132 | |

3. Check the resistance between the BCM terminals.

| BC | CM | Resistance (Ω) |
|--------|---------|-------------------|
| Termir | nal No. | |
| 60 | 80 | 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.

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INFOID:000000010337461

< 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 circuit 1. 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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Revision: November 2013

Diagnosis Procedure

INFOID:000000010337462

[CAN SYSTEM (TYPE 2)]

1.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the 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 CONTINUITY (OPEN CIRCUIT)

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

| | BCM harness connector | | | | |
|---------------|-----------------------|------------|---------|--|--|
| Connector No. | Termir | Continuity | | | |
| M18 | 6 | 8 | Existed | | |
| | 5 | Existed | | | |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.

2. Check the continuity between the BCM harness connector terminals.

| | Continuity | |
|---------------|------------|-------------|
| Connector No. | Termi | Continuity |
| M18 | 6 | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

| BCM harn | BCM harness connector | | Continuity |
|---------------|-----------------------|--------|-------------|
| Connector No. | Terminal No. | Ground | Continuity |
| M18 | 6 | Giouna | Not existed |
| W10 | 5 | | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5. CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.

2. Check the resistance between the BCM terminals.

| BCM | Resistance (Ω) |
|--------------|----------------|
| Terminal No. | |

< DTC/CIRCUIT DIAGNOSIS > 6 5 Approx. 108 - 132 А 8 9 Approx. 108 - 132 Is the measurement value within the specification? YES >> GO TO 6. В NO >> Replace the chassis control module. 6.CHECK SYMPTOM Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. Inspection result D Reproduced>>GO TO 7. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. Ε 7. CHECK UNIT REPRODUCTION Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. F Disconnect the battery cable from the negative terminal. 2. Disconnect one of the unit connectors of CAN communication circuit 2. NOTE: BCM has two termination circuits. Check other units first. 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. NOTE: Н 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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[CAN SYSTEM (TYPE 2)]

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 3)]

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

Diagnosis Procedure

INFOID:000000010337466

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R ha | mess connector | Harness connector | | ess connector Harness connector | | Continuity |
|---------------|----------------|-------------------|--------------|---------------------------------|--|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | | |
| E120 | 24 | E152 | 61J | Existed | | |
| L120 | 22 | | 62J | Existed | | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

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 |
| M31 | 61J | M22 | 6 | Existed |
| IVIS I | 62J | 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 M31 and the data link connector.

| TC/CIRCUIT DIAG | | ND CCM CIRC | ЛТ | |
|--|--|---|------------------------|---------------------|
| | | | | |
| ignosis Proced | ure | | | INFOID:000000010337 |
| CHECK HARNESS | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the foll ECM Chassis control mo | ttery cable from the r owing harness conn odule | | chassis control modul | e harness connecto |
| Data link o | connector | Chassis control modu | le harness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| | 6 | | 4 | Existed |
| M22 | - | M96 | | |
| S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | h type decision again. The main line between the data link connector | | |
| ne inspection result S (Present error)> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. | he data link connector | and the chassis co |
| ne inspection result S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| ne inspection result S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| e inspection result S (Present error)> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| e inspection result S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| e inspection result S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| e inspection result S (Present error)>> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| e inspection result S (Present error)> S (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |
| ne inspection result ES (Present error)>> ES (Past error)>>Er trol module | 14 <u>normal?</u> >Check CAN system ror was detected in t e. | type decision again. he main line between t | he data link connector | and the chassis co |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

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MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337468

[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 (connector side and harness side).
- Harness connector M69
- Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Chassis control module
- Harness connectors M69 and B41
- 2. Check the continuity between the chassis control module harness connector and the harness connector.

| Chassis control mod | ule harness connector | Harness connector | | Continuity | |
|---------------------|-----------------------|-------------------|--------------|------------|--|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| M96 | 4 | M69 | 25 | Existed | |
| 10190 | 3 | W09 | 24 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the continuity between the harness connector and the automatic back door control module harness connector.

| Harness connector | | Automatic back door control module harness connector | | Continuity | |
|-------------------|--------------|---|--------------|------------|--|
| Connector No. | Terminal No. | Connector No. | Terminal No. | | |
| B41 | 25 | B55 | 24 | Existed | |
| D4 I | 24 | 600 | 12 | Existed | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

| < DTC/CIRCUIT DIAGNOS | ilS > | | [CAN SYSTEM (TYPE 3)] |
|--|--|----------------------------|-----------------------------|
| ECM BRANCH LINE | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337469 |
| 1. CHECK CONNECTOR | | | |
| Check the terminals and connector side). | able from the negative terr d connectors of the ECM f | | e connection (unit side and |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the termi | | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| Disconnect the connect Check the resistance be | or of ECM. tween the ECM harness co | onnector terminals. | |
| | ECM harness connector | | - Resistance (Ω) |
| Connector No. | Termir | Terminal No. | |
| E16 | 100 | 99 | Approx. 108 – 132 |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM 3.CHECK POWER SUPPL Check the power supply and | branch line. Y AND GROUND CIRCUIT | | gnosis Procedure". |
| Is the inspection result norm YES (Present error)>>Repl | ace the ECM. Refer to EC. | 499, "Removal and Installa | ation". |
| YES (Past error)>>Error wa NO >> Repair the powe | er supply and the ground ci | | |
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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) |
| E125 | 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-114, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "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.

INFOID:000000010337470

[CAN SYSTEM (TYPE 3)]

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

| DTC/CIRCUIT DIAGNOS | IS > | | [CAN SYSTEM (TYPE 3) |
|--|---|---|-------------------------------------|
| PDM-E BRANCH L | NE CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:0000000103374 |
| CHECK CONNECTOR | | | |
| and connector side). | able from the negative ter connectors of the IPDM | | l loose connection (unit sid |
| s the inspection result norma YES >> GO TO 2. | <u>al?</u> | | |
| NO >> Repair the termin | | | |
| 2.CHECK HARNESS FOR | OPEN CIRCUIT | | |
| Disconnect the connecto Check the resistance before | | ess connector terminals. | |
| | | | |
| | IPDM F/R harness connector | | |
| Connector No. | IPDM E/R harness connector Term | inal No. | - Resistance (Ω) |
| E120 | Term 24 | inal No. 22 | - Resistance (Ω) Approx. 54 – 66 |
| E120 s the measurement value wi YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I | 22 T | Approx. 54 – 66 |
| E120 s the measurement value wir YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and s the inspection result normation YES (Present error)>>Replation YES (Past error)>>Error wardstate YES (Past error) | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I al? ace the IPDM E/R. Refer | 22 T PDM E/R. Refer to <u>PCS-34</u> to <u>PCS-35. "Removal and I</u> /R branch line. | Approx. 54 – 66 |
| E120 s the measurement value wir YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and s the inspection result normation YES (Present error)>>Replation YES (Past error)>>Error wardstate YES (Past error) | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I al? ace the IPDM E/R. Refer s detected in the IPDM E | 22 T PDM E/R. Refer to <u>PCS-34</u> to <u>PCS-35. "Removal and I</u> /R branch line. | Approx. 54 – 66 |
| E120 s the measurement value wir YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and s the inspection result normation YES (Present error)>>Replation YES (Past error)>>Error wardstate YES (Past error) | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I al? ace the IPDM E/R. Refer s detected in the IPDM E | 22 T PDM E/R. Refer to <u>PCS-34</u> to <u>PCS-35. "Removal and I</u> /R branch line. | Approx. 54 – 66 |
| E120 s the measurement value wir YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and s the inspection result normation YES (Present error)>>Replation YES (Past error)>>Error wardstate YES (Past error) | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I al? ace the IPDM E/R. Refer s detected in the IPDM E | 22 T PDM E/R. Refer to <u>PCS-34</u> to <u>PCS-35. "Removal and I</u> /R branch line. | Approx. 54 – 66 |
| E120 s the measurement value wir YES >> GO TO 3. NO >> Repair the IPDM CHECK POWER SUPPLY Check the power supply and s the inspection result normation YES (Present error)>>Replation YES (Past error)>>Error wardstate YES (Past error) | Term 24 thin the specification? E/R branch line. Y AND GROUND CIRCUI the ground circuit of the I al? ace the IPDM E/R. Refer s detected in the IPDM E | 22 T PDM E/R. Refer to <u>PCS-34</u> to <u>PCS-35. "Removal and I</u> /R branch line. | Approx. 54 – 66 |

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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337472

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the 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
- IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the following harness connectors.
- TCM
- IPDM E/R
- 2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

| TCM harne | TCM harness connector IPDM E/R harness connector | | Continuity | |
|---------------|--|----------------------------|------------|------------|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity |
| F75 | 33 | F42 | 87 | Existed |
| FTS | 23 | Γ4Ζ | 88 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

| IPDM E/ | Continuity | |
|--------------|--------------|------------|
| Terminal No. | Terminal No. | Continuity |
| 87 | 39 | Existed |
| 88 | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|----------------------------|-------|-----------------|----------------|
| Connector No. | Termi | | |
| E120 | 39 | Approx. 54 – 66 | |

Is the measurement value within the specification?

YES >> GO TO 5.

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

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-176, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

TCM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

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

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

< DTC/CIRCUIT DIAGNOSIS >

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DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337473

[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. | Termi | 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:000000010337474 |
|---|---|---------------------------|----------------------------------|
| 1.CHECK CONNECTOR | | | |
| | able from the negative termi connectors of the EPS con | | l and loose connection (unit |
| Is the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR | nal and connector. | | |
| 1. Disconnect the connect | | narness connector termina | als. |
| E | PS control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | No. | Resistance (52) |
| M49 | 2 | 1 | Approx. 54 – 66 |
| 3. CHECK POWER SUPPLY | control unit branch line. / AND GROUND CIRCUIT I the ground circuit of the E | PS control unit. Refer to | <u>STC-20, "Diagnosis Proce-</u> |
| <u>dure"</u> . <u>Is the inspection result norm</u> YES (Present error)>>Repl YES (Past error)>>Error wa | al? ace the EPS control unit. Re is detected in the EPS contr r supply and the ground circ | ol unit branch line. | and Installation". |

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< DTC/CIRCUIT DIAGNOSIS >

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337475

[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 | | |
| M77 | 41 | 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-59, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-82, "Removal and Installation".

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

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

STRG BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

| Diagnosis Procedure | | | INFOID:000000010337476 |
|--|---|---|-------------------------------------|
| 1. CHECK CONNECTOR | | | |
| 1. Turn the ignition switch (| DFF. | | |
| 2. Disconnect the battery c | able from the negative tern connectors of the steering | | bend and loose connection |
| s the inspection result norma | al? | | |
| YES >> GO TO 2. NO >> Repair the termin | nal and connector | | |
| 2. CHECK HARNESS FOR | | | |
| | r of steering angle sensor. | | |
| 2. Check the resistance be | ween the steering angle se | ensor harness connector te | erminals. |
| Stee | ring angle sensor harness conne | ctor | Posistance (O) |
| Connector No. | Termin | al No. | Resistance (Ω) |
| M56 | 5 | 2 | Approx. 54 – 66 |
| | | | |
| s the measurement value wi | thin the specification? | | |
| YES >> GO TO 3. | • | e | |
| YES >> GO TO 3. NO >> Repair the steeri | ng angle sensor branch lin | | |
| YES >> GO TO 3. | ng angle sensor branch lin ⁄ AND GROUND CIRCUIT | | fer to <u>BRC-57, "Wiring Dia</u> - |
| YES >> GO TO 3. NO >> Repair the steeri CHECK POWER SUPPLY Check the power supply and gram". | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the | | fer to <u>BRC-57, "Wiring Dia</u> - |
| YES >> GO TO 3. NO >> Repair the steeri 3.CHECK POWER SUPPLY Check the power supply and gram". Is the inspection result normal | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? | steering angle sensor. Re | - |
| YES >> GO TO 3. NO >> Repair the steeri CHECK POWER SUPPLY Check the power supply and gram". | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? ace the steering angle sens | steering angle sensor. Re sor. Refer to <u>BRC-139, "Re</u> | - |
| YES >> GO TO 3. NO >> Repair the steeri 3.CHECK POWER SUPPLY Check the power supply and gram". s the inspection result normative YES (Present error)>>Replative YES (Past error)>>Error wat | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? ace the steering angle sens | steering angle sensor. Re sor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | - |
| YES >> GO TO 3. NO >> Repair the steeri 3.CHECK POWER SUPPLY Check the power supply and gram". s the inspection result normative YES (Present error)>>Replative YES (Past error)>>Error wat | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? ace the steering angle sens s detected in the steering a | steering angle sensor. Re sor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | - |
| YES >> GO TO 3. NO >> Repair the steeri 3.CHECK POWER SUPPLY Check the power supply and gram". s the inspection result normative YES (Present error)>>Replative YES (Past error)>>Error wat | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? ace the steering angle sens s detected in the steering a | steering angle sensor. Re sor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | - |
| YES >> GO TO 3. NO >> Repair the steeri 3.CHECK POWER SUPPLY Check the power supply and gram". s the inspection result normative YES (Present error)>>Replative YES (Past error)>>Error wat | ng angle sensor branch lin AND GROUND CIRCUIT I the ground circuit of the al? ace the steering angle sens s detected in the steering a | steering angle sensor. Re sor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | - |

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337477

[CAN SYSTEM (TYPE 3)]

WARNING:

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow".

Is the inspection result normal?

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

CCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSI | S > | | [CAN SYSTEM (TYPE 3)] |
|--|--|-----------------------------|------------------------------------|
| CCM BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337478 |
| 1. CHECK CONNECTOR | | | |
| 3. Check the terminals and connection (unit side and | able from the negative terr connectors of the chassis I connector side). | | for damage, bend and loose |
| Is the inspection result normal YES >> GO TO 2. NO >> Repair the termin 2.CHECK HARNESS FOR 0 | al and connector. | | |
| 2. Check the resistance bet | | module harness connector | terminals. |
| | sis control module harness conn | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| M96 | 4 | 3 | Approx. 54 – 66 |
| Is the measurement value with YES >> GO TO 3. NO >> Repair the chass 3. CHECK POWER SUPPLY | is control module branch l | | |
| Check the power supply and <u>Procedure</u> ". | - | chassis control module. Re | efer to <u>DAS-272, "Diagnosis</u> |
| Is the inspection result norma YES (Present error)>>Repla YES (Past error)>>Error wa NG >> Repair the power | ace the chassis control mo | control module branch line. | Removal and Installation". |
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< DTC/CIRCUIT DIAGNOSIS >

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

[CAN SYSTEM (TYPE 3)]

INFOID:000000010337480

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.

2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic back door control module harness connector | | | Resistance (Ω) |
|--|-------|--|-------------------------|
| Connector No. | Termi | | |
| B55 | 24 12 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

${f 3.}$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276, "Removal and</u> <u>Installation"</u>.

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | SIS > | I | CAN SYSTEM (TYPE 3)] |
|--|---|---------------------|-----------------------------|
| BCM BRANCH LIN | E CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337481 |
| 1. CHECK CONNECTOR | | | |
| | cable from the negative terr | | e connection (unit side and |
| Is 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 | or of BCM. etween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the BCM 3. CHECK POWER SUPPL | l branch line. | - | |
| Check the power supply andWith intelligent key systemWithout intelligent key sys | n: <u>BCS-68, "Diagnosis Proc</u> | edure". | |
| Is the inspection result norm | | - | |
| | t key system: <u>BCS-75, "Re</u> | | |
| YES (Past error)>>Error w | | inch line. | |
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AV BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IVI I O | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-265, "Diagnosis Procedure".

 $\mathbf{3}$.check harness for open circuit

- 1 Disconnect the connector of AV control unit.
- Check the resistance between the AV control unit harness connector terminals. 2.
- Models with BOSE audio system

| AV | control unit harness connecto | r | Resistance (Ω) |
|---------------|-------------------------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M108 | 8 | 17 | Approx. 54 – 66 |

Models without BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| M101 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

>> Repair the AV control unit branch line. NO

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

Navigation with BOSE: <u>AV-337, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Navigation without BOSE: <u>AV-180, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- Navigation with BOSE: <u>AV-376, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-209, "Removal and Installation"</u>

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

LAN-138

INFOID:000000010337482

| AVM BRANCH LINE | | | <u>. </u> |
|---|--|--|--|
| Diagnosis Procedure | | | A INFOID:000000010337483 |
| 1. CHECK CONNECTOR | | | В |
| 3. Check the following terr nector side). Around view monitor co BCM Is the inspection result norm YES >> GO TO 2. NO >> Repair the term | cable from the negative terr ninals and connectors for c introl unit <u>nal?</u> inal and connector. | lamage, bend and loose cor | nnection (unit side and con- C |
| 2.CHECK HARNESS CON 1. Disconnect the connect | |) | |
| | tween the BCM harness co | onnector terminals. | F |
| | BCM harness connector | | |
| Connector No. | Termi | nal No. | Continuity G |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |
| Check the resistance be With lane departure pre | or of around view monitor of around view monitor of around view monitor of around view monitor system | nitor control unit harness co | Jonnector terminals. |
| | view monitor control unit harness | | Resistance (Ω) |
| Connector No. | | nal No. | Anner 54 60 |
| M113 | 27 | 28 | Approx. 54 – 66 |
| - Without lane departure | prevention system | | |
| Around v | view monitor control unit harness | connector | LAN Resistance (Ω) |
| Connector No. | Termi | nal No. | |
| M103 | 12 | 10 | Approx. 54 – 66 |
| 4.CHECK POWER SUPPL Check the power supply and • Navigation with BOSE: AV • Navigation without BOSE: Is the inspection result norm YES (Present error)>>Rep • Navigation wit • Navigation wit • Navigation wit YES (Past error)>>Error w | nd view monitor control uni Y AND GROUND CIRCUIT d the ground circuit of the a <u>4-338, "AROUND VIEW MC</u> <u>AV-180, "AROUND VIEW MC</u> <u>hal?</u> lace the around view monit th BOSE: <u>AV-387, "Remova</u> thout BOSE: <u>AV-217, "Rem</u> | round view monitor control on <u>NITOR CONTROL UNIT : I</u> <u>MONITOR CONTROL UNIT</u> for control unit. Refer to the <u>al and Installation"</u> <u>ioval and Installation"</u> <u>view monitor control unit bra</u> | Diagnosis Procedure" P : Diagnosis Procedure" following. |
| | | | |

Revision: November 2013

< DTC/CIRCUIT DIAGNOSIS >

LAN-139

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337484

[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).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IVI TO | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| A/C auto amp. harness connector | | Resistance (Ω) | |
|---------------------------------|--------------|----------------|-----------------|
| Connector No. | Terminal No. | | |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| F | Front air control harness connector | | |
|---------------|-------------------------------------|--|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M50 | 7 23 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56</u>, "Diagnosis Procedure".

HVAC BRANCH LINE CIRCUIT

| [CAN SYSTEM | (TYPE 3)] |
|-------------|-----------|
|-------------|-----------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 3)] |
|---|---------------------------------|
| Manual air conditioning: <u>HAC-166</u> , "FRONT A/C CONTROL : Diagnosis Pro | |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front Refer to the following. | air control (Without auto A/C). |
| Automatic air conditioning: <u>HAC-103</u>, "Removal and Installation" | |
| Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>. | |
| YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) A/C) branch line. | |
| NO >> Repair the power supply and the ground circuit. | |
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< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT 1

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 circuit 1.
- 4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link | Data link connector | | Continuity |
|---------------|---------------------|--------|-------------|
| Connector No. | Terminal No. | Ground | Continuity |
| M22 | 6 | Giouna | Not existed |
| WIZZ | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

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

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

3. Check the resistance between the BCM terminals.

| BCM | | Resistance (Ω) | |
|--------------|----|-------------------|--|
| Terminal No. | | | |
| 60 | 80 | 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.

LAN-142

INFOID:000000010337486

< 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 circuit 1. 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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Revision: November 2013

Diagnosis Procedure

INFOID:000000010337487

[CAN SYSTEM (TYPE 3)]

1.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the 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 CONTINUITY (OPEN CIRCUIT)

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

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.

2. Check the continuity between the BCM harness connector terminals.

| BCM harness connector | | Continuity | |
|-----------------------|--------------|------------|-------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 5 | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|--------|-------------|
| Connector No. | Terminal No. | Ground | Continuity |
| M18 | 6 | Gibunu | Not existed |
| | 5 | - | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5. CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.

2. Check the resistance between the BCM terminals.

| BCM | Resistance (O) |
|--------------|-----------------|
| Terminal No. | Resistance (12) |

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS > 6 5 Approx. 108 - 132 А 8 9 Approx. 108 - 132 Is the measurement value within the specification? YES >> GO TO 6. В NO >> Replace the chassis control module. 6.CHECK SYMPTOM Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. Inspection result D Reproduced>>GO TO 7. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. Ε 7. CHECK UNIT REPRODUCTION Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. F Disconnect the battery cable from the negative terminal. 2. Disconnect one of the unit connectors of CAN communication circuit 2. NOTE: BCM has two termination circuits. Check other units first. 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. NOTE: Н 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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[CAN SYSTEM (TYPE 3)]

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:000000010337489

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R ha | mess connector | Harness connector | | Continuity | |
|---------------|----------------|-------------------|--------------|------------|--|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| E120 | 24 | E152 | 61J | Existed | |
| L120 | 22 | | 62J | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

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 | |
| M31 | 61J | M22 | 6 | Existed | |
| IVIS I | 62J | 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 M31 and the data link connector.

| IN LINE BE | TWEEN DLC A | ND CCM CIRC | UIT | |
|---|---|--|------------------------|-----------------|
| gnosis Proced | lure | | | INFOID:0000000 |
| - | | | | |
| | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the fol ECM Chassis control m | Ittery cable from the r lowing harness conne odule | | chassis control module | e harness conne |
| Data link | connector | Chassis control modu | le harness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M96 | 4 | Existed |
| 11122 | 14 | | 3 | Existed |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | type decision again. he main line between t ne data link connector | | |
| S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
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| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
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| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |
| S (Present error)> S (Past error)>>E trol modul | ⊥ <u>t normal?</u> ·>Check CAN system rror was detected in t e. | he main line between t | | |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

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MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337491

[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 following terminals and connectors for damage, bend and loose connection (connector side and harness side).
- Harness connector M69
- Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Chassis control module
- Harness connectors M69 and B41
- 2. Check the continuity between the chassis control module harness connector and the harness connector.

| Chassis control mod | Chassis control module harness connector | | Harness connector | | |
|---------------------|--|----------------------------|-------------------|------------|--|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity | |
| M96 | 4 | M69 | 25 | Existed | |
| 10190 | 3 | W09 | 24 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the continuity between the harness connector and the automatic back door control module harness connector.

| Harness | connector | Automatic back door control module harness connector | | h ann an | | Continuity |
|---------------|--------------|---|----|---|--|------------|
| Connector No. | Terminal No. | Connector No. Terminal No. | | 1 | | |
| B41 | 25 | B55 | 24 | Existed | | |
| D4 I | 24 | - D00 | 12 | Existed | | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

| Diagnosis Procedure | | | INFOID:00000001033749 |
|--|---|---|-----------------------------|
| 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 CHECK HARNESS FOR | nal and connector. | | |
| Disconnect the connect Check the resistance be | or of ECM. tween the ECM harness co | onnector terminals. | |
| | ECM harness connector | | Resistance (Ω) |
| Connector No. Terminal No. | | | |
| | | | |
| | 100 ithin the specification? | 99 | Approx. 108 – 132 |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM 3.CHECK POWER SUPPL Check the power supply and Is the inspection result norm | ithin the specification? branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? | 99 - CM. Refer to <u>EC-165, "Dia</u> | gnosis Procedure". |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the ECM 3. CHECK POWER SUPPL Check the power supply and Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error was | ithin the specification? branch line. Y AND GROUND CIRCUIT I the ground circuit of the E <u>al?</u> ace the ECM. Refer to <u>EC-</u> | 99 CM. Refer to <u>EC-165, "Dia</u> 499, "Removal and Installa nch line. | 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) |
| E125 | 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-114</u>, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "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.

INFOID:000000010337493

[CAN SYSTEM (TYPE 4)]

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

| INE CIRCUIT | | |
|---|--|---|
| | | |
| | | INFOID:00000001033749 |
| | | |
| cable from the negative terr d connectors of the IPDM I nal? | | d loose connection (unit side |
| OPEN CIRCUIT | | |
| | ess connector terminals. | |
| IPDM E/R harness connector | | Resistance (Ω) |
| Termir | nal No. | |
| 24 | 22 | Approx. 54 – 66 |
| Y AND GROUND CIRCUIT d the ground circuit of the IF nal? lace the IPDM E/R. Refer to | PDM E/R. Refer to <u>PCS-3</u> | |
| as detected in the IPDM E/I | | |
| | d connectors of the IPDM I <u>nal?</u> inal and connector. COPEN CIRCUIT for of IPDM E/R. etween the IPDM E/R harned IPDM E/R harness connector IPDM E/R harness connector Termin 24 vithin the specification? M E/R branch line. LY AND GROUND CIRCUIT d the ground circuit of the IF <u>nal?</u> blace the IPDM E/R. Refer to | cable from the negative terminal. d connectors of the IPDM E/R for damage, bend an nal? inal and connector. COPEN CIRCUIT for of IPDM E/R. etween the IPDM E/R harness connector terminals. IPDM E/R harness connector IPDM E/R harness connector 24 22 vithin the specification? M E/R branch line. LY AND GROUND CIRCUIT d the ground circuit of the IPDM E/R. Refer to <u>PCS-3</u> - |

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INFOID:000000010337495

TCM 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 following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- TCM
- IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the following harness connectors.
- TCM
- IPDM E/R
- 2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

| TCM harne | ss connector | IPDM E/R harness connector | | Continuity |
|---------------|--------------|----------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| F75 | 33 | F42 | 87 | Existed |
| FTJ | 23 | F42 | 88 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

| IPDM E/F | Continuity | |
|--------------|--------------|------------|
| Terminal No. | Terminal No. | Continuity |
| 87 | 39 | Existed |
| 88 | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

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

| | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| E120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 5.

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

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-176, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

TCM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

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

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

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DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337496

[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 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. | Termi | 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 4)]

| EPS BRANCH LINE | ECIRCUIT | | |
|---|---|---------------------------|----------------------------|
| Diagnosis Procedure | | | INFOID:000000010337497 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals and side and connector side | cable from the negative term d connectors of the EPS cor). | | and loose connection (unit |
| <u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the termi CHECK HARNESS FOR | nal and connector. | | |
| . Disconnect the connect | | harness connector termina | lls. |
| E | PS control unit harness connector | · | Resistance (Ω) |
| Connector No. | Termina | al No. | |
| M49 | 2 | 1 | Approx. 54 – 66 |
| CHECK POWER SUPPL | control unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the B | | STC-20, "Diagnosis Proce- |
| YES (Present error)>>Rep YES (Present error)>>Rep YES (Past error)>>Error wa | al? lace the EPS control unit. R as detected in the EPS cont er supply and the ground circ | rol unit branch line. | and Installation". |
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M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337498

[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 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. | | |
| M77 | 41 | 42 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to <u>MWI-59, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-82, "Removal and Installation".

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

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

STRG BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

| Diagnosis Procedure | | | INFOID:000000010337499 |
|--|--|--|-------------------------------------|
| 1.CHECK CONNECTOR | | | |
| | able from the negative ter I connectors of the steerin side). <u>al?</u> nal and connector. | minal. g angle sensor for damage, | bend and loose connection |
| Check the resistance be | | sensor harness connector te | erminals. |
| | ering angle sensor harness conn | | Resistance (Ω) |
| Connector No. | Iermi | inal No. | |
| M56 | 5 | 2 | Approx. 54 – 66 |
| M56 s the measurement value w | - | 2 | Approx. 54 – 66 |
| s the measurement value w YES >> GO TO 3. | ithin the specification? ing angle sensor branch li | ne. | Approx. 54 – 66 |
| s the measurement value w YES >> GO TO 3. NO >> Repair the steer CHECK POWER SUPPL Check the power supply and gram". | ithin the specification? ing angle sensor branch li Y AND GROUND CIRCUI d the ground circuit of the | ne. | |
| s the measurement value w YES >> GO TO 3. NO >> Repair the steer CHECK POWER SUPPL Check the power supply and tram". s the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa | ithin the specification? ing angle sensor branch li Y AND GROUND CIRCUI d the ground circuit of the al? ace the steering angle ser | ne. T e steering angle sensor. Re nsor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | fer to <u>BRC-57, "Wiring Dia</u> - |
| s the measurement value w YES >> GO TO 3. NO >> Repair the steer CHECK POWER SUPPL Check the power supply and gram". s the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa | ithin the specification? ing angle sensor branch li Y AND GROUND CIRCUI d the ground circuit of the al? ace the steering angle ser as detected in the steering | ne. T e steering angle sensor. Re nsor. Refer to <u>BRC-139, "Re</u> angle sensor branch line. | fer to <u>BRC-57, "Wiring Dia</u> - |

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< DTC/CIRCUIT DIAGNOSIS >

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000010337500

[CAN SYSTEM (TYPE 4)]

WARNING:

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow".

Is the inspection result normal?

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

CCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | IS > | | [CAN SYSTEM (TYPE 4)] |
|---|--|--------------------------------|------------------------------------|
| CCM BRANCH LINI | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337501 |
| 1. CHECK CONNECTOR | | | |
| | able from the negative tern connectors of the chassis | | for damage, bend and loose |
| Is the inspection result normYES>> GO TO 2.NO>> Repair the termi2.CHECK HARNESS FOR | nal and connector. | | |
| | or of chassis control modul tween the chassis control | e. module harness connector | terminals. |
| Chas | sis control module harness conn | ector | Resistance (Ω) |
| Connector No. | Termi | nal No. | |
| M96 | 4 | 3 | Approx. 54 – 66 |
| Is the measurement value wYESYESNO>> Repair the chase 3. CHECK POWER SUPPLY | sis control module branch | | |
| Check the power supply and <u>Procedure</u> ". | - | chassis control module. Re | efer to <u>DAS-272, "Diagnosis</u> |
| Is the inspection result norm | | | |
| YES (Present error)>>Repl YES (Past error)>>Error wa NG >> Repair the powe | | control module branch line. | Removal and Installation". |
| | | | |

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< DTC/CIRCUIT DIAGNOSIS >

PWBD 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 automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.

2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic | Automatic back door control module harness connector | | |
|---------------|--|----|-----------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| B55 | 24 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

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

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276</u>, "<u>Removal and</u> <u>Installation</u>".

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | SIS > | [| CAN SYSTEM (TYPE 4)] |
|--|---|---------------------|-----------------------------|
| BCM BRANCH LIN | E CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337504 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative terr | | e connection (unit side and |
| Is the inspection result norm | al? | | |
| YES >> GO TO 2. NO >> Repair the term | nal and connector. | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of BCM. etween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| Is the measurement value wYES>> GO TO 3.NO>> Repair the BCM 3. CHECK POWER SUPPL | branch line. | - | |
| Check the power supply and • With intelligent key system • Without intelligent key sys | i: <u>BCS-68, "Diagnosis Proc</u> | edure". | |
| Is the inspection result norm | | | |
| | t key system: <u>BCS-75, "Re</u> | | |
| YES (Past error)>>Error w | | nch line. | |
| | | | |

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AV BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IVI I O | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-265, "Diagnosis Procedure".

 $\mathbf{3}$.check harness for open circuit

- 1 Disconnect the connector of AV control unit.
- Check the resistance between the AV control unit harness connector terminals. 2.
- Models with BOSE audio system

| A | / control unit harness connector | | Resistance (Ω) |
|---------------|----------------------------------|--|-----------------|
| Connector No. | Terminal No. | | |
| M108 | 8 17 | | Approx. 54 – 66 |

Models without BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| M101 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

>> Repair the AV control unit branch line. NO

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

Navigation with BOSE: <u>AV-337, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Navigation without BOSE: <u>AV-180, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- Navigation with BOSE: <u>AV-376, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-209, "Removal and Installation"</u>

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

LAN-162

INFOID:000000010337505

| AVM BRANCH LINE | | | <u>. </u> |
|---|--|--|--|
| Diagnosis Procedure | | | A INFOID:000000010337506 |
| 1.CHECK CONNECTOR | | | В |
| 3. Check the following terr nector side). Around view monitor co BCM Is the inspection result norm YES >> GO TO 2. NO >> Repair the term | cable from the negative term minals and connectors for co introl unit <u>nal?</u> inal and connector. | lamage, bend and loose cor | nnection (unit side and con- C |
| 2.CHECK HARNESS CON 1. Disconnect the connect | |) | |
| | tween the BCM harness co | onnector terminals. | F |
| | BCM harness connector | | |
| Connector No. | Termi | nal No. | Continuity G |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |
| Check the resistance be With lane departure pre | vention system | nitor control unit harness co | Jonnector terminals. |
| | view monitor control unit harness | | Resistance (Ω) |
| Connector No. | | nal No. | America 54 - 66 |
| M113 | 27 | 28 | Approx. 54 – 66 |
| - Without lane departure | prevention system | | |
| Around v | view monitor control unit harness | connector | LAN Resistance (Ω) |
| Connector No. | Termi | nal No. | |
| M103 | 12 | 10 | Approx. 54 – 66 N |
| 4.CHECK POWER SUPPL Check the power supply and • Navigation with BOSE: AV • Navigation without BOSE: Is the inspection result norm YES (Present error)>>Rep • Navigation wit • Navigation wit • Navigation wit YES (Past error)>>Error w | nd view monitor control unity Y AND GROUND CIRCUIT d the ground circuit of the a -338, "AROUND VIEW MC AV-180, "AROUND VIEW hal? lace the around view monity th BOSE: <u>AV-387, "Remove</u> thout BOSE: <u>AV-217, "Rem</u> | round view monitor control on <u>NITOR CONTROL UNIT : I</u> <u>MONITOR CONTROL UNIT</u> for control unit. Refer to the <u>al and Installation"</u> <u>ioval and Installation"</u> <u>view monitor control unit bra</u> | Diagnosis Procedure" P : Diagnosis Procedure" following. |
| - | - | | |

Revision: November 2013

< DTC/CIRCUIT DIAGNOSIS >

LAN-163

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337507

[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 following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto A/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| | Front air control harness connecto | or | Resistance (Ω) |
|---------------|------------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (32) |
| M50 | 7 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56, "Diagnosis Procedure"</u>.

HVAC BRANCH LINE CIRCUIT

| [CAN SYS | TEM (TYI | PE 4)] |
|----------|----------|--------|
|----------|----------|--------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 4)] |
|---|-----------------------|
| Manual air conditioning: <u>HAC-166</u>, "FRONT A/C CONTROL : Diagnosis Proc | edure". |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front Refer to the following. Automatic air conditioning: <u>HAC-103</u>, "<u>Removal and Installation</u>" | |
| Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>. YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) of the auto and the auto and the auto and the auto and the auto auto auto auto auto auto auto auto | |
| A/C) branch line. NO >> Repair the power supply and the ground circuit. | · |
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ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337508

[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 following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- Distance sensor
- Harness connector E152
- Harness connector M31
- BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | Continuity |
|---------------|-----------------------|---------|------------|
| Connector No. | Termi | nal No. | Continuity |
| M18 | 6 | 8 | Existed |
| IVITO | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u><u>265, "Diagnosis Procedure"</u>.

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

- 1. Connect the connector of BCM.
- 2. Disconnect the connector of distance sensor.
- 3. Check the resistance between the distance sensor harness connector terminals.

| [| Distance sensor harness connector | or | Resistance (Ω) |
|---------------|-----------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| E21 | 7 | 6 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to <u>DAS-144, "DISTANCE SEN-</u> <u>SOR : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to DAS-160, "Removal and Installation".

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

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

< DTC/CIRCUIT DIAGNOSIS > **CAN COMMUNICATION CIRCUIT 1** А **Diagnosis** Procedure INFOID:000000010337509 **1**.CONNECTOR INSPECTION 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect all the unit connectors on CAN communication circuit 1. 3. С Check terminals and connectors for damage, bend and loose connection. 4 Is the inspection result normal? YES >> GO TO 2. D NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT) E Check the continuity between the data link connector terminals. Data link connector Continuity F Connector No. Terminal No. M22 6 14 Not existed Is the inspection result normal? YES >> GO TO 3. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. $\mathbf{3}.$ check harness continuity (short circuit) Н Check the continuity between the data link connector and the ground. Data link connector Continuity Connector No. Terminal No. Ground 6 Not existed M22 14 Not existed Is the inspection result normal? Κ YES >> GO TO 4. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT Remove the ECM and the BCM. 1. 2. Check the resistance between the IPDM E/R terminals. LAN ECM Resistance (Ω) Terminal No. 100 Ν 99 Approx. 108 - 132 Check the resistance between the BCM terminals. BCM Resistance (Ω) Terminal No. 60 80 Approx. 108 - 132 Ρ Is the measurement value within the specification? YES >> GO TO 5. >> Replace the ECM and/or the BCM. NO CHECK SYMPTOM

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

LAN-167

< 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 circuit 1. **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.

| | TION CIRCUIT 2 | | |
|---|--|---------------------------------|--|
| Diagnosis Procedure | | | INFOID:000000010337510 |
| 1.CONNECTOR INSPECT | ION | | |
| | cable from the negative terr d connectors of the BCM f | | e connection (unit side and |
| YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS CON | nal and connector. |) | |
| 1. Disconnect the connect | | | |
| | BCM harness connector | | Continuity |
| Connector No. | - | nal No. | |
| M18 | 6 | 8 | Existed |
| s the inspection result norm | 5 | 9 | Existed |
| | onnectors on CAN communitations on CAN communitations co | | Continuitu |
| | BCM harness connector C | | Continuity |
| Connector No. | Terrini | | |
| M18 | 6 | 5 | Not existed |
| M18 Is the inspection result norm YES >> GO TO 4. | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI | ne root cause. T) | Not existed |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI in the BCM and the ground | ne root cause. T) | |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON Check the continuity betwee | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI in the BCM and the ground | ne root cause. T) | Not existed Continuity |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON Check the continuity betwee BCM harnes | 6 ess and repair or replace th TINUITY (SHORT CIRCUI on the BCM and the ground as connector Terminal No. 6 | ne root cause. T) | Continuity Not existed |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne CHECK HARNESS CON Check the continuity betwee BCM harnes Connector No. M18 | 6 ess and repair or replace th TINUITY (SHORT CIRCUI in the BCM and the ground ss connector Terminal No. 6 5 | ne root cause. T) | Continuity |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne CHECK HARNESS CON Check the continuity betwee BCM harnes Connector No. M18 Is the inspection result norm YES >> GO TO 5. NO >> Check the harne | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI on the BCM and the ground ss connector Terminal No. 6 5 al? ess and repair or replace (if | ne root cause. T) Ground | Continuity Not existed Not existed |
| M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne CHECK HARNESS CON Check the continuity betwee BCM harnes Connector No. M18 Is the inspection result norm YES >> GO TO 5. NO >> Check the harne 5.CHECK BCM TERMINAT | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI on the BCM and the ground ss connector Terminal No. 6 5 al? ess and repair or replace (if | ne root cause. T) Ground | Continuity Not existed Not existed |
| $\begin{tabular}{ c c c c c } \hline M18 \\ \hline BS the inspection result norm \\ YES >> GO TO 4. \\ NO >> Check the harnes \\ \hline CHECK HARNESS CON \\ \hline Check the continuity betwee \\ \hline \hline BCM harnes \\ \hline Connector No. \\ \hline M18 \\ \hline \\ Is the inspection result norm \\ YES >> GO TO 5. \\ NO >> Check the harnes \\ \hline \hline S.CHECK BCM TERMINAT \\ \hline 1. Remove the BCM. \\ \hline \end{tabular}$ | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI on the BCM and the ground ss connector Terminal No. 6 5 al? ess and repair or replace (if | ne root cause. T) Ground | Continuity Not existed Not existed |
| $\begin{tabular}{ c c c c c } \hline M18 \\ \hline BS the inspection result norm \\ YES >> GO TO 4. \\ NO >> Check the harnes \\ \hline CHECK HARNESS CON \\ \hline Check the continuity betwee \\ \hline \hline BCM harnes \\ \hline Connector No. \\ \hline M18 \\ \hline \\ Is the inspection result norm \\ YES >> GO TO 5. \\ NO >> Check the harnes \\ \hline \hline S.CHECK BCM TERMINAT \\ \hline 1. Remove the BCM. \\ \hline \end{tabular}$ | 6 al? ess and repair or replace th TINUITY (SHORT CIRCUI in the BCM and the ground as connector Terminal No. 6 5 al? ess and repair or replace (if TION CIRCUIT | f shield line is short) the roo | Continuity Not existed Not existed |

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

| 6 | 5 | Approx. 108 – 132 |
|---|---|-------------------|
| 8 | 9 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 7.

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

7. CHECK UNIT REPRODUCTION

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

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

BCM has two termination circuits. Check other units first.

- 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 - NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

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

| | | VEEN IPDM-E AN | | T N SYSTEM (TYPE 5)] |
|---|--|--------------------------|-----------------|-------------------------|
| DIAGNOS | | | | |
| | | E AND DLC CIF | | |
| | | E AND DLC CIP | CON | |
| cedure | | | | INFOID:000000010337697 |
| ECTOR | | | | |
| owing terr ide). ector E152 ector M31 esult norma 0 2. the termin ESS CON e following ectors E15 | able from the n ninals and con 2 <u>al?</u> nal and connec TINUITY (OPE) harness conne 52 and M31 | tor. N CIRCUIT) | | ection (connector side |
| - | | | | |
| R harness co | Terminal No. | Harness of Connector No. | Terminal No. | Continuity |
| | 24 | E152 | 61J | Existed |
| | 22 | E 152 | 62J | Existed |
| ESS CONT | line between th | onnector and the data | link connector. | 52. |
| ness connect | | Data link | | Continuity |
| | Terminal No. 61J | Connector No. | Terminal No. | Existed |
| | 62J | M22 | 14 | Existed |
| sult norma | | type decision again. | | |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:000000010337698

[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
- Chassis control module
- 4. Check the continuity between the data link connector and the chassis control module harness connector.

| Data link connector | | Chassis control modu | ule harness connector | Continuity |
|---------------------|--------------|----------------------|-----------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | MQ6 | 4 | Existed |
| IVIZZ | 14 | M96 | 3 | Existed |

Is the inspection result normal?

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

NO >> Repair the main line between the data link connector and the chassis control module.

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

| MAIN LINE BET | WEEN CCM A | ND 4WD CIRC | - | N SYSTEM (TYPE 5)] |
|---|---|----------------------|-----------------------------------|----------------------------------|
| Diagnosis Proced | ure | | | INFOID:00000001035179 |
| 1.CHECK CONNECT | OR | | | |
| | ttery cable from the ne ng terminals and conr r M69 | | pend and loose conr | nection (connector side |
| s the inspection result | <u>: normal?</u> | | | |
| YES >> GO TO 2. NO >> Repair the | e terminal and connect | tor. | | |
| 2. CHECK HARNESS | | | | |
| Chassis control m Harness connector | ors M69 and B41 | | ness connector and t | he harness connector. |
| Chassis control mod | ule harness connector | Harness of | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | - |
| M96 | 4 | M69 | 25 | Existed |
| s the inspection result | 3 | | 24 | Existed |
| YES >> GO TO 3. | e main line between th | ol unit. | | |
| 3.CHECK HARNESS | nnector of AWD contro ity between the harne | ss connector and the | | |
| 3.CHECK HARNESS 1. Disconnect the co 2. Check the continu | nnector of AWD contro | AWD control unit h | narness connector | Continuity |
| 3.CHECK HARNESS 1. Disconnect the co 2. Check the continu | nnector of AWD contro ity between the harne connector Terminal No. | | narness connector Terminal No. | Continuity |
| 3.CHECK HARNESS 1. Disconnect the co 2. Check the continu Harness | nnector of AWD contro ity between the harne | AWD control unit h | | Continuity Existed Existed |
| CHECK HARNESS Disconnect the co Check the continu | nnector of AWD contro ity between the harne | AWD control unit h | | Continuity |

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337700

1.CHECK 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-499, "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

[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 ABS actuator and electric unit (control unit) for damage, bera and loose connection (unit side and connector side). Is the 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 term nals. ABS actuator and electric unit (control unit) harness connector Resistance (Ω) Connector No. Terminal No. Resistance (Ω) E125 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 BRC-114, "Diagnosis Procedure". | | CIRCUIT | | |
|---|--|--|-----------------------------|---------------------------------|
| 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, beil and loose connection (unit side and connector side). Is the 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 term nals. <u>ABS actuator and electric unit (control unit) harness connector mals.</u> <u>E125</u> 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 BRC-114. "Diagnosis Procedure". | Jiagnosis Procedure | | | INFOID:000000010337701 |
| Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, being and loose connection (unit side and connector side). as the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. CHECK HARNESS FOR OPEN CIRCUIT Disconnect the connector of ABS actuator and electric unit (control unit) harness connector terminals. ABS actuator and electric unit (control unit) harness connector terminals. ABS actuator and electric unit (control unit) harness connector Connector No. Terminal No. E125 26 14 Approx. 54 - 66 as the measurement value within the specification? YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer arcs. | .CHECK CONNECTOR | | | |
| YES >> GO TO 2. NO >> Repair the terminal and connector. CHECK HARNESS FOR OPEN CIRCUIT . 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 term nals. ABS actuator and electric unit (control unit) harness connector Resistance (Ω) Connector No. Terminal No. E125 26 14 Approx. 54 - 66 sthe measurement value within the specification? YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer SRC-114. "Diagnosis Procedure". | Disconnect the battery of Check the terminals and | able from the negative term connectors of the ABS act | uator and electric unit (co | ntrol unit) for damage, bend |
| $\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$ | YES >> GO TO 2. NO >> Repair the term | nal and connector. | | |
| Connector No. Terminal No. Resistance (Ω) E125 26 14 Approx. 54 – 66 a the measurement value within the specification? YES >> GO TO 3. YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer RC-114. "Diagnosis Procedure". | . Check the resistance b | | | it) harness connector termi- |
| Connector No. Terminal No. E125 26 14 Approx. 54 – 66 the measurement value within the specification? YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. •.CHECK POWER SUPPLY AND GROUND CIRCUIT heck the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer RC-114. "Diagnosis Procedure". | ABS actuator | nd electric unit (control unit) harne | ess connector | Resistance (O) |
| <u>s the measurement value within the specification?</u> YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer RC-114. "Diagnosis Procedure". | Connector No. | Termina | il No. | |
| YES >> GO TO 3. NO >> Repair the ABS actuator and electric unit (control unit) branch line. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer | E125 | 26 | 14 | Approx. 54 – 66 |
| | NO >> Repair the ABS | | ontrol unit) branch line. | |
| <u>s the inspection result normal?</u> YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "Removand Installation"</u> . YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line. | Check the power supply ar BRC-114, "Diagnosis Proce | d the ground circuit of the A lure". | ABS actuator and electric | c unit (control unit). Refer to |

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337702

[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 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.

| | Resistance (Ω) | | |
|---------------|----------------|----|-----------------|
| Connector No. | Terminal No. | | |
| E120 | 24 | 22 | 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 <u>PCS-34, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35. "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 | | | | |
|---|---|-----------------------|--------------------|---------------------------|--|
| Diagnosis Proced | lure | | | INFOID:000000010337703 | |
| 1.CHECK CONNECT | TOR | | | | |
| Check the followin nector side). TCM IPDM E/R Is the inspection result YES >> GO TO 2. | ittery cable from the neighbor the neighbor terminals and conneighbor | ectors for damage, be | nd and loose conne | ction (unit side and con- | |
| 2. CHECK HARNESS | | | | | |
| - TCM - IPDM E/R 2. Check the continu | lowing harness conne ity between the TCM | harness connector an | d the IPDM E/R har | ness connector. | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| F75 | 33 | F42 | 87 | Existed | |
| 110 | 23 | 1 72 | 88 | Existed | |
| NO >> Repair the 3.CHECK IPDM E/R Check the continuity b | etween the IPDM E/R | terminals. | | | |
| Termir | IPDM E/R terminals Terminal No. Terminal No. | | | | |
| 87 | | 39 | | Existed | |
| 8 | 8 | 40 | | Existed | |
| Is the inspection result YES >> GO TO 4. NO >> Replace th 4. CHECK HARNESS Check the resistance b | he IPDM E/R. FOR OPEN CIRCUIT | | erminals. | | |
| IPDM E/R harness connector | | | | | |
| Connector No. | | Terminal No. | | Resistance (Ω) | |
| E120 | 39 | | 40 | Approx. 54 – 66 | |
| Is the measurement va YES >> GO TO 5. NO >> Repair the | | | | | |

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

TCM BRANCH LINE CIRCUIT

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

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

| | > | | [CAN SYSTEM (TYPE 5)] |
|--|--|---------|---------------------------|
| OLC BRANCH LINE C | IRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337704 |
| 1.CHECK CONNECTOR | | | |
| Turn the ignition switch OFF Disconnect the battery cable Check the terminals and co (connector side and harness s the inspection result normal? YES >> GO TO 2. | e from the negative termin onnectors of the data link s side). | | bend and loose connection |
| NO >> Repair the terminal 3° | | | |
| 2. CHECK HARNESS FOR OPP | | | |
| Check the resistance between th | ne data link connector terr | ninais. | |
| | Data link connector | | Resistance (Ω) |
| Connector No. M22 | Terminal I | No14 | Approx. 54 – 66 |
| NO >> Repair the data link | connector branch line. | | uit. |
| NO Repair the data link | connector branch line. | | uit. |
| NO Repair the data link | connector branch line. | | uit. |
| NO Repair the data link | connector branch line. | | uit. |
| NO Repair the data link | connector branch line. | | |
| NO Repair the data link | connector branch line. | | |

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337705

[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 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 | | |
| M49 | 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-20, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-36, "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 5)]

| Diagnosis Procedure | | | INFOID:000000010337706 |
|---|---|--|---------------------------|
| 1. CHECK CONNECTOR | | | WW 012.00000010507700 |
| | | | |
| | cable from the negative terr d connectors of the combi | | pend and loose connection |
| s the inspection result norm | al? | | |
| YES >> GO TO 2. NO >> Repair the termi | inal and connector | | |
| CHECK HARNESS FOR | | | |
| | or of combination meter. | | |
| | | ter harness connector term | nals. |
| Co | ombination meter harness connect | tor | Resistance (Ω) |
| Connector No. | Termiı | nal No. | |
| M77 | 41 | 42 | Approx. 54 – 66 |
| the measurement value w | lithin the specification (| | |
| YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL | pination meter branch line. Y AND GROUND CIRCUIT | | |
| YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL heck the power supply and IETER : Diagnosis Procedu | Dination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". | | MWI-59, "COMBINATION |
| YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL theck the power supply and ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa | Dination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". hal? lace the combination meter | combination meter. Refer to . Refer to <u>MWI-82, "Remov</u> tion meter branch line. | |
| YES >> GO TO 3. NO >> Repair the comb CHECK POWER SUPPL heck the power supply and ETER : Diagnosis Procedu the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa | Dination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". hal? lace the combination meter as detected in the combination | combination meter. Refer to . Refer to <u>MWI-82, "Remov</u> tion meter branch line. | |
| NO >> Repair the comb CHECK POWER SUPPL Check the power supply and <u>AETER : Diagnosis Procedu</u> the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error wa | Dination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". hal? lace the combination meter as detected in the combination | combination meter. Refer to . Refer to <u>MWI-82, "Remov</u> tion meter branch line. | |

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STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337707

[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 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 | Steering angle sensor harness connector | | | |
|---------------|---|-------------------------|-----------------|--|
| Connector No. | Termi | Resistance (Ω) | | |
| M56 | 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-57, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-139</u>, "Removal and Installation".

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

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

[CAN SYSTEM (TYPE 5)]

A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000010337708 WARNING: В 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. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. D 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). Is the inspection result normal? Ε YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337709

[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 chassis control module connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Cha | Chassis control module harness connector | | | |
|---------------|--|-------------------------|-----------------|--|
| Connector No. | Termi | Resistance (Ω) | | |
| M96 | 4 | 3 | Approx. 54 – 66 | |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to <u>DAS-272, "Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-277, "Removal and Installation".

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

| Diagnosis Procedure | | | INFOID:000000010337710 |
|---|--|---|------------------------------|
| 1. CHECK CONNECTOR | | | |
| 3. Check the terminals and side and connector side | cable from the negative termi d connectors of the AWD con e). | | d and loose connection (unit |
| <u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | inal and connector. | | |
| Disconnect the connect Check the resistance be | or of AWD control unit. etween the AWD control unit | harness connector termi | nals. |
| ļ | WD control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | l No. | |
| B75 | 8 | 16 | Approx. 54 – 66 |
| | vithin the specification? | | |
| 3. CHECK POWER SUPPL Check the power supply an <u>dure</u> ". Is the inspection result norm | Control unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the A nal? | | |
| YES >> GO TO 3. NO >> Repair the AWE 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Control unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the A | efer to <u>DLN-67, "Remova</u> rol unit branch line. | |
| YES >> GO TO 3. NO >> Repair the AWE 3. CHECK POWER SUPPL Check the power supply an <u>dure"</u> . Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Control unit branch line. Y AND GROUND CIRCUIT d the ground circuit of the A nal? lace the AWD control unit. Re as detected in the AWD cont | efer to <u>DLN-67, "Remova</u> rol unit branch line. | |

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BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337712

[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.

| | BCM harness connector | | | |
|---------------|-----------------------|-------------------------|-------------------|--|
| Connector No. | Termi | Resistance (Ω) | | |
| B16 | 60 | 80 | 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: <u>BCS-68, "Diagnosis Procedure"</u>.

Without intelligent key system: <u>BCS-128</u>, "Diagnosis Procedure".

Is the inspection result normal?

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

- With intelligent key system: <u>BCS-75, "Removal and Installation"</u>.
- Without intelligent key system: BCS-135, "Removal and Installation".
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

| | SIS > | | [CAN SYSTEM (TYPE 5)] |
|--|---|--|---|
| IVAC DRAINCH LI | NE CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337715 |
| | | | |
| Check the following terr nector side). A/C auto amp. (With au Harness connector M12 Harness connector M12 Front air control (Witho BCM <u>s the inspection result norn</u> YES >> GO TO 2. (With YES >> GO TO 3. (With NO >> Repair the term | cable from the negative terr minals and connectors for d 27 (With auto A/C) 25 (With auto A/C) 25 (With auto A/C) ut auto A/C) nauto A/C) nout auto A/C) nout auto A/C) NTINUITY (OPEN CIRCUIT | amage, bend and loose c | onnection (unit side and con- |
| . Check the continuity be | BCM harness connector | | - Continuity |
| Connector No. | | nal No. | Eviate d |
| M18 | 6 5 | 8 | Existed |
| | | | |
| NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector | A OPEN CIRCUIT of BCM (With auto A/C). tor of A/C auto amp. (With a between the A/C auto amp. | uto A/C) or front air contro | circuit 2 side). Refer to <u>LAN-</u> ol (Without auto A/C). hir control (Without auto A/C) |
| NO >> Check the harm 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term | A OPEN CIRCUIT of BCM (With auto A/C). tor of A/C auto amp. (With a between the A/C auto amp. | uto A/C) or front air contro (With auto A/C) or front a | ol (Without auto A/C). ir control (Without auto A/C) |
| NO >> Check the harn 265. "Diagnosis 3.CHECK HARNESS FOR 1. Connect the connector 2. Disconnect the connector 3. Check the resistance b harness connector term | A OPEN CIRCUIT of BCM (With auto A/C). tor of A/C auto amp. (With a between the A/C auto amp. hinals. | uto A/C) or front air contro (With auto A/C) or front a | ol (Without auto A/C). |
| NO >> Check the harn 265. "Diagnosis 3.CHECK HARNESS FOR 1. Connect the connector 2. Disconnect the connector 3. Check the resistance b harness connector term With auto A/C | A OPEN CIRCUIT of BCM (With auto A/C). tor of A/C auto amp. (With a between the A/C auto amp. hinals. | uto A/C) or front air contro (With auto A/C) or front a | ol (Without auto A/C). ir control (Without auto A/C) |
| NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. | A C auto amp. harness connecto | uto A/C) or front air contro (With auto A/C) or front a r nal No. | ol (Without auto A/C). hir control (Without auto A/C) Resistance (Ω) |
| NO >> Check the harn <u>265. "Diagnosis</u> 3. CHECK HARNESS FOR 1. Connect the connector 2. Disconnect the connector 3. Check the resistance b harness connector term With auto A/C <u>Connector No.</u> <u>M54</u> Without auto A/C | A C auto amp. harness connecto | uto A/C) or front air contro (With auto A/C) or front a r nal No. 31 | ol (Without auto A/C). hir control (Without auto A/C) Resistance (Ω) Approx. 54 – 66 |
| NO >> Check the harn <u>265. "Diagnosis</u> 3. CHECK HARNESS FOR 1. Connect the connector 2. Disconnect the connector 3. Check the resistance b harness connector term With auto A/C <u>Connector No.</u> <u>M54</u> Without auto A/C | A C auto amp. harness connecto A/C auto amp. harness connecto Termin 11 | uto A/C) or front air contro (With auto A/C) or front a r nal No. 31 | ol (Without auto A/C). hir control (Without auto A/C) Resistance (Ω) |

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56, "Diagnosis Procedure"</u>.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

• Manual air conditioning: HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: <u>HAC-103</u>, "Removal and Installation".
- Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>.
- YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.
- NO >> Repair the power supply and the ground circuit.

< DTC/CIRCUIT DIAGNOSIS > CAN COMMUNICATION CIRCUIT 1 А **Diagnosis** Procedure INFOID:000000010337717 **1**.CONNECTOR INSPECTION 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect all the unit connectors on CAN communication circuit 1. 3. С Check terminals and connectors for damage, bend and loose connection. 4 Is the inspection result normal? YES >> GO TO 2. D NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT) E Check the continuity between the data link connector terminals. Data link connector Continuity F Connector No. Terminal No. M22 6 14 Not existed Is the inspection result normal? YES >> GO TO 3. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. $\mathbf{3}.$ check harness continuity (short circuit) Н Check the continuity between the data link connector and the ground. Data link connector Continuity Connector No. Terminal No. Ground 6 Not existed M22 14 Not existed Is the inspection result normal? Κ YES >> GO TO 4. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT Remove the ECM and the BCM. 1. 2. Check the resistance between the IPDM E/R terminals. LAN ECM Resistance (Ω) Terminal No. 100 Ν 99 Approx. 108 - 132 Check the resistance between the BCM terminals. BCM Resistance (Ω) Terminal No. 60 80 Approx. 108 - 132 Ρ Is the measurement value within the specification? YES >> GO TO 5. >> Replace the ECM and/or the BCM. NO CHECK SYMPTOM

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

LAN-189

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

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

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

 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 SYSTEM (TYPE 5)]

| CAN COMMUNICA | TION CIRCUIT 2 | | |
|---|--|--|--|
| Diagnosis Procedure | | | INFOID:000000010337718 |
| 1.CONNECTOR INSPECT | ION | | |
| | cable from the negative terr | | se connection (unit side and |
| s the inspection result norm | al? | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the termination 2 | | N N | |
| 2.CHECK HARNESS CON | |) | |
| Disconnect the connect Check the continuity be | or of BCM. tween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Continuity |
| Connector No. | Termir | nal No. | Sommuny |
| M18 | 6 | 8 | Existed |
| Is the inspection result norm | 5 | 9 | Existed |
| 1. Disconnect all the unit c | TINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co | nication circuit 2. | |
| Disconnect all the unit c Check the continuity be | connectors on CAN commu tween the BCM harness co BCM harness connector | nication circuit 2. nnector terminals. | Continuity |
| Disconnect all the unit of the continuity be Check the continuity be Connector No. | connectors on CAN commu tween the BCM harness co BCM harness connector Termir | nication circuit 2. onnector terminals. | |
| Disconnect all the unit of Check the continuity be Connector No. M18 | connectors on CAN commu tween the BCM harness co BCM harness connector Termir 6 | nication circuit 2. nnector terminals. | Continuity Not existed |
| 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON | connectors on CAN commu tween the BCM harness co BCM harness connector Termir 6 hal? ess and repair or replace th TINUITY (SHORT CIRCUI | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | |
| 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne | connectors on CAN commu tween the BCM harness co BCM harness connector Termir 6 hal? ess and repair or replace th TINUITY (SHORT CIRCUI | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | |
| 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 Is the inspection result norm YES YES Solution Content YES YES YES YES YES YES Solution YES | connectors on CAN commu tween the BCM harness co BCM harness connector Termir 6 hal? ess and repair or replace th TINUITY (SHORT CIRCUI en the BCM and the ground ss connector | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | |
| 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON Check the continuity betwee | connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 hal? ess and repair or replace th TINUITY (SHORT CIRCUI en the BCM and the ground ss connector Terminal No. | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed Continuity |
| 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 Is the inspection result norm YES YES Solution Content YES YES YES YES YES YES Solution YES | eonnectors on CAN commu tween the BCM harness co BCM harness connector 6 hal? ess and repair or replace th TINUITY (SHORT CIRCUI en the BCM and the ground ss connector Terminal No. 6 | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed Continuity Not existed |
| 1. Disconnect all the unit of 2. Check the continuity bet Connector No. M18 Is the inspection result norm YES YES > GO TO 4. NO > Check the harned 4.CHECK HARNESS CON Check the continuity betweet BCM harnes Connector No. M18 | connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 nal? ess and repair or replace th TINUITY (SHORT CIRCUI en the BCM and the ground es connector Terminal No. 6 5 | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed Continuity |
| 1. Disconnect all the unit of 2. Check the continuity bet Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harne 4.CHECK HARNESS CON Check the continuity betweet BCM harnes Connector No. M18 Is the inspection result norm YES YES Sthe inspection result norm YES Sthe inspection result norm YES Sthe inspection result norm YES Scheck the harnes Connector No. M18 Is the inspection result norm YES Scheck the harnes GO TO 5. NO Scheck the harnes 5.CHECK BCM TERMINAT | ess and repair or replace (if all? | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) Ground | Not existed Continuity Not existed Not existed Not existed |
| 1. Disconnect all the unit of 2. Check the continuity bet 2. Check the continuity bet Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harned 4.CHECK HARNESS CON Check the continuity betweet BCM harnes Connector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES NO >> Check the harne 5. CHECK BCM TERMINAT 1. Remove the BCM. | ess and repair or replace (if all? | nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) Ground | Not existed Continuity Not existed Not existed Not existed |
| 1. Disconnect all the unit of 2. Check the continuity bet 2. Check the continuity bet Connector No. M18 Is the inspection result norm YES >> GO TO 4. NO >> Check the harned 4.CHECK HARNESS CON Check the continuity betweet BCM harnes Connector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES Sconnector No. M18 Is the inspection result norm YES NO >> Check the harne 5. CHECK BCM TERMINAT 1. Remove the BCM. | connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 nal? ess and repair or replace th TINUITY (SHORT CIRCUI en the BCM and the ground es connector Terminal No. 6 5 nal? ess and repair or replace (if TION CIRCUIT | nication circuit 2. prinector terminals. f shield line is short) the roo | Not existed Continuity Not existed Not existed Not existed |

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 5)]

| 6 | 5 | Approx. 108 – 132 |
|---|---|-------------------|
| 8 | 9 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 7.

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

7. CHECK UNIT REPRODUCTION

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

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

BCM has two termination circuits. Check other units first.

- 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 - NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

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

| < DTC/CIRCUIT DIA(| | | Ι(ΞΔΝ | I SYSTEM (TYPE 6)] |
|---|--|--|---------------------|------------------------|
| DTC/CIRCU | | | | |
| MAIN LINE BET | | | | |
| | | | COTT | |
| Diagnosis Proced | ure | | | INFOID:000000010337721 |
| | OR | | | |
| Check the followir and harness side) Harness connecto Harness connecto the inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS Disconnect the fol IPDM E/R Harness connecto | ttery cable from the ne ng terminals and conr r E152 or M31 <u>t normal?</u> e terminal and connect c CONTINUITY (OPEN lowing harness connect | or. I CIRCUIT) ctors. | | ection (connector side |
| IPDM E/R har | ness connector | Harness c | connector | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E120 | 24 | E152 | 61J | Existed |
| s the inspection result | 22 | | 62J | Existed |
| YES >> GO TO 3. | main line between th | e IPDM E/R and the b | arness connector E1 | |
| CHECK HARNESS | CONTINUITY (OPEN etween the harness co | I CIRCUIT) | | 52. |
| CHECK HARNESS | CONTINUITY (OPEN | I CIRCUIT) | link connector. | |
| CHECK HARNESS | CONTINUITY (OPEN etween the harness co | I CIRCUIT) | link connector. | Continuity |
| CHECK HARNESS Check the continuity be Harness | CONTINUITY (OPEN etween the harness co | I CIRCUIT) onnector and the data Data link c | link connector. | |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:000000010337722

[CAN SYSTEM (TYPE 6)]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- ECM
- Chassis control module
- 4. Check the continuity between the data link connector and the chassis control module harness connector.

| Data link | connector | Chassis control modu | ule harness connector | Continuity |
|---------------|--------------|----------------------|-----------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M96 | 4 | Existed |
| IVIZZ | 14 | 10190 | 3 | Existed |

Is the inspection result normal?

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

NO >> Repair the main line between the data link connector and the chassis control module.

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

| | GNOSIS > | | - | I SYSTEM (TYPE 6)] |
|---|--|--|--|---|
| AIN LINE BE | IWEEN CCM A | ND PWBD CIR | CUII | |
| Diagnosis Proced | lure | | | INFOID:000000010337723 |
| | OR | | | |
| | ttery cable from the ne ng terminals and conr r M69 | | pend and loose conn | ection (connector side |
| s the inspection result | t normal? | | | |
| YES >> GO TO 2. NO >> Repair the | e terminal and connect | or | | |
| | | | | |
| Chassis control m Harness connecto | | | ness connector and th | ne harness connector. |
| Chassis control mod | ule harness connector | Harness | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| | | | | |
| | 4 | M69 - | 25 | Existed |
| M96 s the inspection result | 3 | M69 | | Existed Existed |
| M96 <u>s the inspection result</u> YES >> GO TO 3. NO >> Repair the 3. CHECK HARNESS Disconnect the co Check the continu connector. | 3 t normal? e main line between th cONTINUITY (OPEN nnector of automatic t | e chassis control mod I CIRCUIT) back door control mod | 25 24 ule and the harness of ule. automatic back door of | Existed |
| M96 <u>s the inspection result</u> YES >> GO TO 3. NO >> Repair the 3. CHECK HARNESS Disconnect the co Check the continu connector. | 3 t normal? e main line between th 5 CONTINUITY (OPEN nnector of automatic b ity between the harnes | e chassis control mod I CIRCUIT) back door control mod ss connector and the a Automatic back do | 25 24 ule and the harness of ule. automatic back door of | Existed connector M69. control module harness |
| M96 <u>s the inspection result</u> YES >> GO TO 3. NO >> Repair the 3. CHECK HARNESS . Disconnect the co 2. Check the continu connector. Harness | 3 t normal? e main line between th 5 CONTINUITY (OPEN nnector of automatic to ity between the harnes connector | e chassis control mod I CIRCUIT) back door control mod ss connector and the a Automatic back do harness c | 25 24 ule and the harness of ule. automatic back door of por control module | Existed connector M69. control module harness |
| M96 <u>s the inspection result</u> YES >> GO TO 3. NO >> Repair the | 3 t normal? e main line between th | e chassis control mod | 25 24 | Existed |

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ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337724

[CAN SYSTEM (TYPE 6)]

1.CHECK 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-499, "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

[CAN SYSTEM (TYPE 6)]

| | ECIRCUIT | | |
|---|---|---|---|
| Diagnosis Procedure | | | INFOID:000000010337725 |
| .CHECK CONNECTOR | | | |
| . Check the terminals and | cable from the negative tern | tuator and electric unit (co | ntrol unit) for damage, bend |
| the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS FOR | inal and connector. | | |
| Disconnect the connect | or of ABS actuator and elec | | t) harness connector termi- |
| ABS actuator | and electric unit (control unit) harn | less connector | Resistance (Ω) |
| Connector No. | Terminal No. | | Resistance (12) |
| | | ai no. | |
| E125 | 26 /ithin the specification? | 14 | Approx. 54 – 66 |
| E125 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPL Check the power supply an CRC-114, "Diagnosis Proce | vithin the specification? actuator and electric unit (or Y AND GROUND CIRCUIT and the ground circuit of the dure". | 14 control unit) branch line. | Approx. 54 – 66 unit (control unit). Refer to |
| E125 the measurement value w YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPL Check the power supply an RC-114, "Diagnosis Proce the inspection result norm YES (Present error)>>Rep and Installation | vithin the specification? actuator and electric unit (or Y AND GROUND CIRCUIT and the ground circuit of the dure". hal? lace the ABS actuator and e | 14 control unit) branch line. ABS actuator and electric electric unit (control unit). R | unit (control unit). Refer to efer to <u>BRC-136, "Removal</u> |
| E125 s the measurement value w YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPL Check the power supply an RC-114, "Diagnosis Proce s the inspection result norm YES (Present error)>>Rep and Installation YES (Past error)>>Error w | vithin the specification? actuator and electric unit (c Y AND GROUND CIRCUIT ad the ground circuit of the dure". hal? lace the ABS actuator and e | 14 control unit) branch line. ABS actuator and electric electric unit (control unit). R lator and electric unit (cont | unit (control unit). Refer to efer to <u>BRC-136, "Removal</u> |

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Revision: November 2013

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337726

[CAN SYSTEM (TYPE 6)]

1.CHECK 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. | Termi | Resistance (Ω) | |
| E120 | 24 | 22 | 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 <u>PCS-34, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "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 | | | |
|---|---|-----------------------|---------------------|---------------------------|
| Diagnosis Proced | lure | | | INFOID:000000010337727 |
| 1. СНЕСК СОЛЛЕСТ | OR | | | |
| Check the followin nector side). TCM IPDM E/R Is the inspection result YES >> GO TO 2. | ttery cable from the ne og terminals and conne | ectors for damage, be | end and loose conne | ction (unit side and con- |
| 2.CHECK HARNESS | | | | |
| - TCM - IPDM E/R | lowing harness conne | harness connector an | d the IPDM E/R har | ness connector. |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| F75 | 33 | F42 | 87 | Existed |
| 110 | 23 | 1 72 | 88 | Existed |
| NO >> Repair the 3.CHECK IPDM E/R Check the continuity b | etween the IPDM E/R | terminals. | | |
| Termir | | terminals Termii | nal No. | Continuity |
| 8 | | | 39 | Existed |
| 8 | 8 | 4 | 10 | Existed |
| Is the inspection result YES >> GO TO 4. NO >> Replace th 4. CHECK HARNESS Check the resistance b | ne IPDM E/R. FOR OPEN CIRCUIT | | erminals. | |
| | IPDM E/R harnes | s connector | | Pasistanas (O) |
| Connector No. | | Terminal No. | | Resistance (Ω) |
| E120 | 39 | | 40 | Approx. 54 – 66 |
| Is the measurement vaYES>> GO TO 5.NO>> Repair the | e IPDM E/R branch line | | | |

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

TCM BRANCH LINE CIRCUIT

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

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 6)]

| | SIS > | | [CAN SYSTEM (TYPE 6)] |
|----------------------------|---|-----------|------------------------------|
| DLC BRANCH LINE | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337728 |
| 1.CHECK CONNECTOR | | | |
| | cable from the negative term d connectors of the data lir ness side). | | e, bend and loose connection |
| YES >> GO TO 2. | | | |
| NO >> Repair the term | | | |
| 2. CHECK HARNESS FOR | | | |
| Check the resistance betwe | en the data link connector te | erminals. | |
| | Data link connector | | Resistance (Ω) |
| Connector No. M22 | Termina 6 | | |
| s the measurement value w | - | 14 | Approx. 54 – 66 |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337729

[CAN SYSTEM (TYPE 6)]

1.CHECK 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 | | |
| M49 | 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-20, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-36, "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 6)]

| Diagnosis Procedure | | | INFOID:000000010337730 |
|---|--|--|-----------------------------|
| 1.CHECK CONNECTOR | | | |
| | OFF | | |
| 2. Disconnect the battery | cable from the negative terr nd connectors of the combi | | pend and loose connection |
| s the inspection result norn | nal? | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector. | | |
| CHECK HARNESS FOR | | | |
| | tor of combination meter. | | |
| | | ter harness connector term | inals. |
| C | ombination meter harness connec | tor | Resistance (Ω) |
| Connector No. | Termiı | nal No. | |
| M77 | 41 | 42 | Ammroy EA CC |
| | | 72 | Approx. 54 – 66 |
| the measurement value v | vithin the specification? | ٦٢ | Αμριοχ. 54 – 66 |
| the measurement value v YES >> GO TO 3. | | 72 | Αμριοχ. 54 – 66 |
| the measurement value v YES >> GO TO 3. NO >> Repair the com | bination meter branch line. | | Αμριοχ. 34 – 66 |
| the measurement value v YES >> GO TO 3. NO >> Repair the com .CHECK POWER SUPPL heck the power supply an | bination meter branch line. Y AND GROUND CIRCUIT | Γ | MWI-59, "COMBINATION |
| the measurement value v YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Proced the inspection result norm | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the oure". nal? | combination meter. Refer to | <u>MWI-59, "COMBINATION</u> |
| the measurement value v YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Proced the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter vas detected in the combina | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |
| the measurement value v YES >> GO TO 3. NO >> Repair the com •CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Proced the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |
| the measurement value v (ES >> GO TO 3. NO >> Repair the com .CHECK POWER SUPPL heck the power supply an <u>ETER : Diagnosis Proced</u> the inspection result norm (ES (Present error)>>Rep (ES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter vas detected in the combina | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |
| the measurement value v YES >> GO TO 3. NO >> Repair the com .CHECK POWER SUPPL heck the power supply an <u>ETER : Diagnosis Proced</u> the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter vas detected in the combina | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |
| the measurement value v YES >> GO TO 3. NO >> Repair the com CHECK POWER SUPPL heck the power supply an ETER : Diagnosis Proced the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter vas detected in the combina | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |
| s the measurement value v YES >> GO TO 3. NO >> Repair the com J.CHECK POWER SUPPL Check the power supply an IETER : Diagnosis Proced S the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the o <u>ure</u> ". <u>hal?</u> blace the combination meter vas detected in the combina | combination meter. Refer to Refer to <u>MWI-82, "Remov</u> tion meter branch line. | <u>MWI-59, "COMBINATION</u> |

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STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337731

[CAN SYSTEM (TYPE 6)]

1.CHECK 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. | Termi | | |
| M56 | 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-57, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-139</u>, "Removal and Installation".

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

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

[CAN SYSTEM (TYPE 6)]

A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000010337732 WARNING: В 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. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. D 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). Is the inspection result normal? Ε YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337733

[CAN SYSTEM (TYPE 6)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Cha | Resistance (Ω) | | |
|---------------|-------------------------|---|-----------------|
| Connector No. | Termi | | |
| M96 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to <u>DAS-272, "Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-277, "Removal and Installation".

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 6)]

| Diagnosis Procedure | | | INFOID:000000010337734 |
|---|--|---|------------------------------|
| 1.CHECK CONNECTOR | | | |
| | cable from the negative termi d connectors of the AWD con | | d and loose connection (unit |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | inal and connector. | | |
| Disconnect the connect Check the resistance be | tor of AWD control unit. etween the AWD control unit | harness connector termin | nals. |
| | AWD control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | l No. | |
| B75 | 8 | 16 | Approx. 54 – 66 |
| | vitnin the specification? | | |
| YES >> GO TO 3. NO >> Repair the AWE 3. CHECK POWER SUPPL Check the power supply an dure". | D control unit branch line. Y AND GROUND CIRCUIT | WD control unit. Refer to | DLN-57, "Diagnosis Proce- |
| YES >> GO TO 3. NO >> Repair the AWE 3.CHECK POWER SUPPL Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | D control unit branch line. Y AND GROUND CIRCUIT | efer to <u>DLN-67, "Remova</u> rol unit branch line. | |
| NO >> Repair the AWE 3. CHECK POWER SUPPL Check the power supply an <u>dure"</u> . Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | D control unit branch line. Y AND GROUND CIRCUIT Ind the ground circuit of the A mal? place the AWD control unit. Re vas detected in the AWD cont | efer to <u>DLN-67, "Remova</u> rol unit branch line. | |

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PWBD 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 automatic back door control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic back door control module harness connector | | | Resistance (Ω) |
|--|-------|----|-----------------|
| Connector No. | Termi | | |
| B55 | 24 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

${f 3.}$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276, "Removal and</u> <u>Installation"</u>.

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | SIS > | [| CAN SYSTEM (TYPE 6)] |
|--|---|---------------------|-----------------------------|
| BCM BRANCH LIN | E CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337736 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative terr | | e connection (unit side and |
| Is the inspection result norm | al? | | |
| YES >> GO TO 2. NO >> Repair the termi | nal and connector. | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of BCM. Stween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| B16 | 60 | 80 | Approx. 108 – 132 |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the BCM 3. CHECK POWER SUPPL | branch line. | - | |
| Check the power supply and • With intelligent key system • Without intelligent key sys | : <u>BCS-68, "Diagnosis Proc</u> | edure". | |
| Is the inspection result norm | | | |
| | t key system: <u>BCS-75, "Re</u> | | |
| YES (Past error)>>Error wa | | nch line. | |
| | | | |

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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337739

[CAN SYSTEM (TYPE 6)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto Á/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | | |
|---------------|-----------------------|------------|---------|--|
| Connector No. | Termi | Continuity | | |
| M18 | 6 8 | | Existed | |
| | 5 | 9 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| Front air control harness connector | | | Resistance (Ω) |
|-------------------------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (22) |
| M50 | 7 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56, "Diagnosis Procedure"</u>.

HVAC BRANCH LINE CIRCUIT

| [CAN SYSTEM | (TYPE 6)] |
|-------------|-----------|
|-------------|-----------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 6)] |
|---|------------------------------------|
| Manual air conditioning: <u>HAC-166</u> , "FRONT A/C CONTROL : Diagnosis Pro | |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front Refer to the following. | air control (Without auto A/C). |
| Automatic air conditioning: <u>HAC-103</u>, "Removal and Installation | <u>"</u> . |
| Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>. YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) | or front air control (Without auto |
| A/C) branch line. | |
| NO >> Repair the power supply and the ground circuit. | |
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CAN COMMUNICATION CIRCUIT 1

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 circuit 1.
- 4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | | 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 or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

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

| ECM | | Resistance (Ω) | |
|--------------|----|-------------------------|--|
| Terminal No. | | - Resistance (12) | |
| 100 | 99 | Approx. 108 – 132 | |

3. Check the resistance between the BCM terminals.

| BCM | | Resistance (Ω) | |
|--------------|----|-------------------|--|
| Terminal No. | | Resistance (12) | |
| 60 | 80 | 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.

LAN-212

INFOID:000000010337741

< 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 circuit 1. 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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Diagnosis Procedure

INFOID:000000010337742

[CAN SYSTEM (TYPE 6)]

1.CONNECTOR INSPECTION

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the terminals and connectors of the 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 CONTINUITY (OPEN CIRCUIT)

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

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect all the unit connectors on CAN communication circuit 2.

2. Check the continuity between the BCM harness connector terminals.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|-------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 5 | Not existed |

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the BCM and the ground.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|--------|-------------|
| Connector No. | Terminal No. | Ground | Continuity |
| M18 | 6 | Gibunu | Not existed |
| IVITO | 5 | | Not existed |

Is the inspection result normal?

YES >> GO TO 5.

NO >> Check the harness and repair or replace (if shield line is short) the root cause.

5. CHECK BCM TERMINATION CIRCUIT

1. Remove the BCM.

2. Check the resistance between the BCM terminals.

| BCM | Resistance (O) |
|--------------|----------------|
| Terminal No. | |

< DTC/CIRCUIT DIAGNOSIS > 6 5 Approx. 108 - 132 А 8 9 Approx. 108 - 132 Is the measurement value within the specification? YES >> GO TO 6. В NO >> Replace the chassis control module. 6.CHECK SYMPTOM Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. Inspection result D Reproduced>>GO TO 7. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. Ε 7. CHECK UNIT REPRODUCTION Perform the reproduction test as per the following procedure for each unit. 1. Turn the ignition switch OFF. F Disconnect the battery cable from the negative terminal. 2. Disconnect one of the unit connectors of CAN communication circuit 2. NOTE: BCM has two termination circuits. Check other units first. 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. NOTE: Н 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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[CAN SYSTEM (TYPE 6)]

MAIN LINE BETWEEN IPDM-E AND DLC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

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

Diagnosis Procedure

INFOID:000000010337743

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E152
- Harness connector M31

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 E152 and M31
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R harness connector | | Harness connector | | Continuity |
|----------------------------|--------------|-------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E120 | 24 | E152 | 61J | Existed |
| | 22 | | 62J | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E152.

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 |
| M31 | 61J | M22 | 6 | Existed |
| | 62J | | 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 M31 and the data link connector.

| AIN LINE BE | WEEN DLC AN | | וול | |
|---|---|---|----------------------------|---------------------|
| ignosis Procec | lure | | | INFOID:00000001033 |
| CHECK HARNESS | CONTINUITY (OPEN | I CIRCUIT) | | |
| Disconnect the fol ECM Chassis control m | ttery cable from the ne lowing harness conne | ctors. | chassis control modu | le harness connecto |
| Data link | connector | Chassis control modu | le harness connector | Continuity |
| | Terminal No. | Connector No. | Terminal No. | Continuity |
| Connector No. | | | | |
| Connector No. | 6 | M96 | 4 | Existed |
| M22 <u>e inspection resul</u> S (Present error)>>E S (Past error)>>E trol modul | 6 14 <u>normal?</u> >Check CAN system t rror was detected in th | type decision again. le main line between tl | 3 he data link connecto | Existed |
| M22 ne inspection result S (Present error)> S (Past error)>>E trol modul | 6 14 >Check CAN system t rror was detected in th e. | type decision again. le main line between tl | 3 he data link connecto | Existed |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

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MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN CCM AND PWBD CIRCUIT

Diagnosis Procedure

INFOID:000000010337745

[CAN SYSTEM (TYPE 7)]

1.CHECK CONNECTOR

- 1. Turn the ignition 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 M69
- Harness connector B41

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Chassis control module
- Harness connectors M69 and B41
- 2. Check the continuity between the chassis control module harness connector and the harness connector.

| Chassis control mod | ule harness connector | Harness | Harness connector | |
|---------------------|-----------------------|---------------|-------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 4 | M69 | 25 | Existed |
| 10190 | 3 | W09 | 24 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the chassis control module and the harness connector M69.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the connector of automatic back door control module.
- 2. Check the continuity between the harness connector and the automatic back door control module harness connector.

| Harness connector | | | oor control module connector | Continuity | |
|-------------------|--------------|----------------------------|---------------------------------|------------|--|
| Connector No. | Terminal No. | Connector No. Terminal No. | | | |
| B41 | 25 | B55 | 24 | Existed | |
| D4 I | 24 | 600 | 12 | Existed | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the chassis control module and the automatic back door control module.

NO >> Repair the main line between the harness connector B41 and the automatic back door control module.

ECM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 7)]

| 1. CHECK 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 ar connector side). Is the 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. Image: 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. NO >> Repair the power supply and the ground circuit. | Diagnosis Procedure | | | INFOID:00000001033774 |
|--|---|--|--|-----------------------------|
| 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 ar connector side). Is the 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. ECM harness connector Resistance (Ω) Connector No. Terminal No. Resistance (Ω) So 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-499. "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | .CHECK CONNECTOR | | | |
| 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. Image: terminal no. ECM harness connector Resistance (Ω) Connector No. 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | Disconnect the battery of Check the terminals an connector side). | cable from the negative terr d connectors of the ECM f | | e connection (unit side and |
| 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. | • | al? | | |
| 2.CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of ECM. 2. Check the resistance between the ECM harness connector terminals. Image: 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. 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | | inal and connector. | | |
| 1. Disconnect the connector of ECM. 2. Check the resistance between the ECM harness connector terminals. Image: Second Structure Image: Second Structure Image: Second Structure Image: Second Structure <t< td=""><td></td><td></td><td></td><td></td></t<> | | | | |
| ECM harness connector Resistance (Ω) 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. 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | | | | |
| 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 within the specification? O >> Repair the ECM branch line. Sthe measurement within the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | | | onnector terminals. | |
| 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 value within the specification? YES >> GO TO 3. Sthe measurement value within the ground circuit of the ECM. Refer to EC-165, "Diagnosis Procedure". 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | | | | |
| 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | | ECM harness connector | | |
| 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-499, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line. | Connector No. | | al No. | Resistance (Ω) |
| 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 <u>EC-165, "Diagnosis Procedure"</u> . <u>s the inspection result normal?</u> YES (Present error)>>Replace the ECM. Refer to <u>EC-499, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the ECM branch line. | | Termir | | |
| 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>s the inspection result normal?</u> YES (Present error)>>Replace the ECM. Refer to <u>EC-499, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the ECM branch line. | E16 | Termir 100 | | |
| Check the power supply and the ground circuit of the ECM. Refer to <u>EC-165, "Diagnosis Procedure"</u> . <u>s the inspection result normal?</u> YES (Present error)>>Replace the ECM. Refer to <u>EC-499, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the ECM branch line. | E16 s the measurement value w YES >> GO TO 3. | Termir 100 rithin the specification? | | |
| s the inspection result normal? YES (Present error)>>Replace the ECM. Refer to <u>EC-499, "Removal and Installation"</u> . YES (Past error)>>Error was detected in the ECM branch line. | E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECM | Termir 100 <u>vithin the specification?</u> I branch line. | 99 | |
| YES (Present error)>>Replace the ECM. Refer to <u>EC-499. "Removal and Installation"</u> . YES (Past error)>>Error was detected in the ECM branch line. | E16 <u>s the measurement value w</u> YES >> GO TO 3. NO >> Repair the ECW 3. CHECK POWER SUPPL | Termir 100 <u>vithin the specification?</u> I branch line. Y AND GROUND CIRCUIT | 99 | Approx. 108 – 132 |
| YES (Past error)>>Error was detected in the ECM branch line. | E16 s the measurement value w YES >> GO TO 3. NO >> Repair the ECW CHECK POWER SUPPL Check the power supply and | Termir 100 /ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E | 99 | Approx. 108 – 132 |
| NO >> Repair the power supply and the ground circuit. | 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 <u>vithin the specification?</u> I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E hal? | 99 CM. Refer to <u>EC-165, "Dia</u> | 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 s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Termir 100 ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | 99 CM. Refer to <u>EC-165, "Dia</u> <u>499, "Removal and Installa</u> nch line. | 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 s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Termir 100 ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | 99 CM. Refer to <u>EC-165, "Dia</u> <u>499, "Removal and Installa</u> nch line. | 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 s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Termir 100 ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | 99 CM. Refer to <u>EC-165, "Dia</u> <u>499, "Removal and Installa</u> nch line. | 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 s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Termir 100 ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | 99 CM. Refer to <u>EC-165, "Dia</u> <u>499, "Removal and Installa</u> nch line. | 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 s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | Termir 100 ithin the specification? I branch line. Y AND GROUND CIRCUIT I the ground circuit of the E al? lace the ECM. Refer to <u>EC-</u> as detected in the ECM bra | 99 CM. Refer to <u>EC-165, "Dia</u> <u>499, "Removal and Installa</u> nch line. | Approx. 108 – 132 |

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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 and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|-------|--------------|-------------------------|
| Connector No. | Termi | Terminal No. | |
| E125 | 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-114, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-136, "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 7)]

| < DTC/CIRCUIT DIAGNOS | SIS > | [| [CAN SYSTEM (TYPE 7)] |
|---|---|--|-----------------------------|
| IPDM-E BRANCH L | INE CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000001033774 |
| 1.CHECK CONNECTOR | | | |
| | cable from the negative terr d connectors of the IPDM | ninal. E/R for damage, bend and | loose connection (unit side |
| YES >> GO TO 2. NO >> Repair the term | | | |
| 2. CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of IPDM E/R. etween the IPDM E/R harne | ess connector terminals. | |
| | IPDM E/R harness connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| E120 | 24 | 22 | Approx. 54 – 66 |
| YES (Past error)>>Error w | Y AND GROUND CIRCUIT d the ground circuit of the IF hal? lace the IPDM E/R. Refer to as detected in the IPDM E/ | PDM E/R. Refer to <u>PCS-34,</u> p <u>PCS-35, "Removal and In</u> R branch line. | - |
| NO >> Repair the powe | er supply and the ground ci | rcuit. | |

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INFOID:000000010337749

TCM 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 following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- TCM
- IPDM E/R

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Disconnect the following harness connectors.
- TCM
- IPDM E/R
- 2. Check the continuity between the TCM harness connector and the IPDM E/R harness connector.

| TCM harne | ss connector | IPDM E/R har | ness connector | Continuity |
|---------------|--------------|---------------|----------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| F75 | 33 | F42 | 87 | Existed |
| FTS | 23 | Γ4Ζ | 88 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK IPDM E/R (OPEN CIRCUIT)

Check the continuity between the IPDM E/R terminals.

| IPDM E/F | Continuity | |
|--------------|--------------|------------|
| Terminal No. | Terminal No. | Continuity |
| 87 | 39 | Existed |
| 88 | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace the IPDM E/R.

4.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|----------------------------|-------|----|-------------------------|
| Connector No. | Termi | | |
| E120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 5.

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

5.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to <u>TM-176, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the TCM. Refer to TM-202, "Removal and Installation".

TCM BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 7)]

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< DTC/CIRCUIT DIAGNOSIS > YES (Past error)>>Error was detected in the TCM branch line.

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

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< DTC/CIRCUIT DIAGNOSIS >

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337750

[CAN SYSTEM (TYPE 7)]

1.CHECK 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. | Termi | 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 7)]

| EPS BRANCH LINE | | | |
|--|--|---|------------------------------|
| Diagnosis Procedure | | | INFOID:000000010337751 |
| 1 .CHECK CONNECTOR | | | |
| | cable from the negative tern d connectors of the EPS co | | d and loose connection (unit |
| s the inspection result norm | <u>nal?</u> | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector | | |
| 2.CHECK HARNESS FOR | inal and connector. | | |
| . Disconnect the connect | | | |
| | | t harness connector termina | als. |
| | EPS control unit harness connected | or | Resistance (Ω) |
| Connector No. | Termi | nal No. | |
| M49 | 2 | 1 | Approx. 54 – 66 |
| the measurement value v | vithin the specification? | | |
| YES >> GO TO 3. NO >> Repair the EPS | control unit branch line. | | |
| • | Y AND GROUND CIRCUIT | г | |
| Check the power supply an ure". | d the ground circuit of the | | STC-20, "Diagnosis Proce- |
| the inspection result norm | | | |
| | lace the EPS control unit. F as detected in the EPS cor | Refer to <u>STC-36, "Removal</u> itrol unit branch line. | and Installation". |
| | er supply and the ground ci | | |
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< DTC/CIRCUIT DIAGNOSIS >

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337752

[CAN SYSTEM (TYPE 7)]

1.CHECK 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.

| Co | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| M77 | 41 | 42 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to <u>MWI-59, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-82, "Removal and Installation".

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

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

STRG BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

| Diagnosia Drosodura | E CIRCUIT | | |
|---|---|---|--------------------------------------|
| Diagnosis Procedure | | | INFOID:00000001033775 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative termina connectors of the steering and side). | | e, bend and loose connectior |
| YES >> GO TO 2. | | | |
| NO >> Repair the termin | | | |
| 2.CHECK HARNESS FOR | | | |
| | r of steering angle sensor. ween the steering angle senso | or harness connector | terminals. |
| Stee | ing angle sensor harness connector | | Resistance (Ω) |
| Connector No. | Terminal No |). | |
| M56 | 5 | 2 | Approx. 54 – 66 |
| Is the measurement value wi | thin the specification? | | |
| 3. CHECK POWER SUPPLY Check the power supply and gram". | ng angle sensor branch line. YAND GROUND CIRCUIT I the ground circuit of the stee | ering angle sensor. F | |
| YES >> GO TO 3. NO >> Repair the steeri 3. CHECK POWER SUPPLY Check the power supply and gram". Is the inspection result normative YES (Present error)>>Replative YES (Past error)>>Error wat | ng angle sensor branch line. YAND GROUND CIRCUIT I the ground circuit of the stee | Refer to <u>BRC-139, "F</u> e sensor branch line | Refer to <u>BRC-57, "Wiring Dia-</u> |

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Revision: November 2013

< DTC/CIRCUIT DIAGNOSIS >

A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337754

[CAN SYSTEM (TYPE 7)]

WARNING:

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow".

Is the inspection result normal?

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

CCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | 15 > | | |
|--|--|-----------------------------|-----------------------------|
| CCM BRANCH LIN | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337755 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative terr connectors of the chassis | | for damage, bend and loose |
| Is the inspection result norm | <u>al?</u> | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the termi | | | |
| 2.CHECK HARNESS FOR | OPEN CIRCUIT | | |
| | or of chassis control modul tween the chassis control | - | terminals. |
| Chas | sis control module harness conn | ector | Desistance (O) |
| Connector No. | Termir | al No. | - Resistance (Ω) |
| M96 | 4 | 3 | Approx. 54 – 66 |
| Is the measurement value w | thin the specification? | | |
| YES >> GO TO 3. | | | |
| • | sis control module branch l | | |
| 3. CHECK POWER SUPPLY | Y AND GROUND CIRCUIT | - | |
| Check the power supply and | I the ground circuit of the | chassis control module. Re | efer to DAS-272, "Diagnosis |
| Procedure". | | | |
| Is the inspection result norm | <u>al?</u> | | |
| YES (Present error)>>Repl YES (Past error)>>Error wa NG >> Repair the powe | | control module branch line. | |
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4WD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337756

[CAN SYSTEM (TYPE 7)]

1.CHECK CONNECTOR

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

| AWD control unit harness connector | | | Resistance (Ω) |
|------------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| B75 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AWD control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to <u>DLN-57, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to <u>DLN-67, "Removal and Installation"</u>.

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

NG >> Repair the power supply and the ground circuit.

PWBD BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 7)]

| < DTC/CIRCUIT DIAGNOSIS > | | | [CAN SYSTEM (TYPE 7)] |
|---|-----------------------------------|------------------------------|---------------------------------------|
| PWBD BRANCH LINE CI | RCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010337757 |
| 1.CHECK CONNECTOR | | | |
| Turn the ignition switch OFF. Disconnect the battery cable from Check the terminals and connect loose connection (unit side and connection) | ctors of the auton | | module for damage, bend and |
| <u>Is the inspection result normal?</u> YES >> GO TO 2. | | | |
| NO >> Repair the terminal and o | connector. | | |
| 2. CHECK HARNESS FOR OPEN C | | | |
| Disconnect the connector of auto Check the resistance between the Automatic back door of | e automatic back | door control module har | |
| Connector No. | Termi | nal No. | Resistance (Ω) |
| B55 | 24 | 12 | Approx. 54 – 66 |
| Is the measurement value within the YES >> GO TO 3. NO >> Repair the automatic bac 3. CHECK POWER SUPPLY AND G Check the power supply and the grou "AUTOMATIC BACK DOOR CONTR | k door control mo ROUND CIRCUI | Г automatic back door con | trol module. Refer to <u>DLK-141,</u> |
| <u>Is the inspection result normal?</u> VES (Present error)>>Replace the | automatic back d | oor control module. De | fer to DI K-276 "Removal and |

YES (Present error)>>Replace the automatic back door control module. Refer to DLK-276, "Removal and Installation".

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

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BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337758

[CAN SYSTEM (TYPE 7)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| | BCM harness connector | | |
|---------------|-----------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| B16 | 60 | 80 | 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: <u>BCS-68, "Diagnosis Procedure"</u>.

Without intelligent key system: <u>BCS-128</u>, "Diagnosis Procedure".

Is the inspection result normal?

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

- With intelligent key system: <u>BCS-75, "Removal and Installation"</u>.
- Without intelligent key system: BCS-135, "Removal and Installation".
- YES (Past error)>>Error was detected in the BCM branch line.
- NO >> Repair the power supply and the ground circuit.

AV BRANCH LINE CIRCUIT

| AV BRANCH LINE | CIRCUIT | | Δ. |
|---|---|--|------------------------------------|
| Diagnosis Procedure | | | A INFOID:000000010337759 |
| 1.CHECK CONNECTOR | | | В |
| 3. Check the following terr nector side). AV control unit BCM <u>Is the inspection result norm</u> YES >> GO TO 2. | cable from the negative term minals and connectors for c <u>mal?</u> inal and connector. | lamage, bend and loose conr | nection (unit side and con- C D |
| 1. Disconnect the connect | or of BCM. | | |
| 2. Check the continuity be | tween the BCM harness co | onnector terminals. | F |
| | BCM harness connector | | Continuity |
| Connector No. | | nal No. | G |
| M18 | 6 | 8 | Existed |
| Is the inspection result norm | 5 | 9 | Existed H |
| 265, "Diagnosis 3. CHECK HARNESS FOR 1. Disconnect the connect | Procedure". OPEN CIRCUIT or of AV control unit. etween the AV control unit I | use (CAN communication circ | J |
| | AV control unit harness connecto | r | K |
| Connector No. | Termi | nal No. | Resistance (Ω) |
| M108 | 8 | 17 | Approx. 54 – 66 |
| - Models without BOSE a | uudio system | | |
| | AV control unit harness connecto | r | LAN |
| Connector No. | Termi | nal No. | Resistance (Ω) |
| M101 | 8 | 17 | Approx. 54 – 66 |
| 4.CHECK POWER SUPPL Check the power supply and • Navigation with BOSE: AV • Navigation without BOSE: Is the inspection result norm YES (Present error)>>Rep • Navigation wi • Navigation wi YES (Past error)>>Error w | ontrol unit branch line. Y AND GROUND CIRCUI d the ground circuit of the A -337, "AV CONTROL UNIT AV-180, "AV CONTROL U | V control unit. Refer to the fo <u>Diagnosis Procedure</u> <u>NIT : Diagnosis Procedure</u> efer to following. <u>al and Installation</u> <u>oval and Installation</u> rol unit branch line. | O Ilowing. |
| | | | |

< DTC/CIRCUIT DIAGNOSIS >

LAN-233

AVM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337760

[CAN SYSTEM (TYPE 7)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- Disconnect the battery cable from the negative terminal. 2.
- Check the following terminals and connectors for damage, bend and loose connection (unit side and con-3. nector side).
- Around view monitor control unit
- BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| | BCM harness connector | | | |
|---------------|-----------------------|---|------------|--|
| Connector No. | Terminal No. | | Continuity | |
| M18 | 6 | 8 | Existed | |
| IVI I O | 5 | 9 | Existed | |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-265, "Diagnosis Procedure".

$\mathbf{3}$.check harness for open circuit

- 1 Disconnect the connector of around view monitor control unit.
- Check the resistance between the around view monitor control unit harness connector terminals. 2.
- With lane departure prevention system

| Around view monitor control unit harness connector | | | Resistance (Ω) |
|--|-----------------|--|-----------------|
| Connector No. | Terminal No. | | |
| M113 | 27 28 | | Approx. 54 – 66 |
| Without lane departure pro | evention system | | |

without lane departure prevention system

| Around view monitor control unit harness connector | | | Resistance (Ω) |
|--|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M103 | 12 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the around view monitor control unit branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the around view monitor control unit. Refer to the following.

- Navigation with BOSE: AV-338, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"
- Navigation without BOSE: AV-180, "AROUND VIEW MONITOR CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the around view monitor control unit. Refer to the following.

- Navigation with BOSE: <u>AV-387, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-217, "Removal and Installation"</u>

YES (Past error)>>Error was detected in the around view monitor control unit branch line. NO

>> Repair the power supply and the ground circuit.

LAN-234

| agnosis Procedure | | | INFOID:0000000103377 |
|---|--|---|---|
| CHECK CONNECTOR | | | |
| Check the following terr nector side). A/C auto amp. (With au Harness connector M12 Harness connector M12 Front air control (Withou BCM the inspection result norm YES >> GO TO 2. (With YES >> GO TO 3. (With NO >> Repair the term CHECK HARNESS CON Disconnect the connect | cable from the negative term minals and connectors for c to A/C) 27 (With auto A/C) 25 (With auto A/C) 25 (With auto A/C) auto A/C) auto A/C) inal and connector. ITINUITY (OPEN CIRCUIT | lamage, bend and loose c | onnection (unit side and con |
| . Check the continuity be | BCM harness connector | onnector terminals. | |
| | BOW Harriess connector | Terminal No. | |
| Connector No. | T | nal No. | - Continuity |
| Connector No. M18 | T | nal No. 8 9 | Continuity Existed Existed |
| M18 <u>s the inspection result norm</u> YES >> GO TO 3. | Termin 6 5 nal? | 8 | Existed |
| M18 the inspection result norm YES >> GO TO 3. NO >> Check the harn <u>265. "Diagnosis</u> CHECK HARNESS FOR Connect the connector Disconnect the connector | Termin 6 5 mal? ess and repair the root causes <u>B Procedure"</u> . COPEN CIRCUIT of BCM (With auto A/C). cor of A/C auto amp. (With auto amp.) etween the A/C auto amp. | 8 9 use (CAN communication auto A/C) or front air contro | Existed Existed circuit 2 side). Refer to LAN |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term | Termin 6 5 mal? ess and repair the root causes <u>B Procedure"</u> . COPEN CIRCUIT of BCM (With auto A/C). cor of A/C auto amp. (With auto amp.) etween the A/C auto amp. | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. | 6 5 hal? ess and repair the root cau <u>Procedure"</u> . OPEN CIRCUIT of BCM (With auto A/C). or of A/C auto amp. (With a etween the A/C auto amp. ninals. | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a r | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C – Resistance (Ω) |
| M18 the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. M54 | Termin 6 5 nal? ess and repair the root causes and repair the root causes and repair the root causes are specific to a specific to | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. | 6 5 hal? ess and repair the root cau <u>Procedure"</u> . OPEN CIRCUIT of BCM (With auto A/C). or of A/C auto amp. (With a etween the A/C auto amp. ninals. | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a r | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C – Resistance (Ω) |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. M54 Without auto A/C | 6 5 nal? ess and repair the root causes and repair the root causes and repair the root causes are procedure". COPEN CIRCUIT of BCM (With auto A/C). or of A/C auto amp. (With a etween the A/C auto amp. (With a etween the A/C auto amp. in als. A/C auto amp. harness connector Termin | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a nr nal No. 31 | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C - Resistance (Ω) Approx. 54 – 66 |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. M54 Without auto A/C | 6 5 hal? ess and repair the root causes Procedure". Procedure". OPEN CIRCUIT of BCM (With auto A/C). cor of A/C auto amp. (With a etween the A/C auto amp. (With a etween the A/C auto amp. ninals. A/C auto amp. harness connector Termin 11 | 9 use (CAN communication auto A/C) or front air contro (With auto A/C) or front a nr nal No. 31 | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C – Resistance (Ω) |
| M18 s the inspection result norm YES >> GO TO 3. NO >> Check the harn 265. "Diagnosis CHECK HARNESS FOR Connect the connector Disconnect the connector Check the resistance b harness connector term With auto A/C Connector No. M54 Without auto A/C | 6 5 hal? ess and repair the root causes Procedure". Procedure". OPEN CIRCUIT of BCM (With auto A/C). cor of A/C auto amp. (With a etween the A/C auto amp. (With a etween the A/C auto amp. ninals. A/C auto amp. harness connector Termin 11 | 9 use (CAN communication auto A/C) or front air contra (With auto A/C) or front a nr nal No. 31 | Existed Existed circuit 2 side). Refer to LAN ol (Without auto A/C). air control (Without auto A/C - Resistance (Ω) Approx. 54 – 66 |

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56, "Diagnosis Procedure"</u>.

HVAC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

• Manual air conditioning: HAC-166, "FRONT A/C CONTROL : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

- Automatic air conditioning: <u>HAC-103</u>, "Removal and Installation".
- Manual air conditioning: <u>HAC-181, "Removal and Installation"</u>.
- YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.
- NO >> Repair the power supply and the ground circuit.

< DTC/CIRCUIT DIAGNOSIS > **CAN COMMUNICATION CIRCUIT 1** А **Diagnosis** Procedure INFOID:000000010337763 **1**.CONNECTOR INSPECTION 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect all the unit connectors on CAN communication circuit 1. 3. C Check terminals and connectors for damage, bend and loose connection. 4 Is the inspection result normal? YES >> GO TO 2. D NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT) E Check the continuity between the data link connector terminals. Data link connector Continuity F Connector No. Terminal No. M22 6 14 Not existed Is the inspection result normal? YES >> GO TO 3. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. $\mathbf{3}.$ check harness continuity (short circuit) Н Check the continuity between the data link connector and the ground. Data link connector Continuity Connector No. Terminal No. Ground 6 Not existed M22 14 Not existed Is the inspection result normal? Κ YES >> GO TO 4. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT Remove the ECM and the BCM. 1. 2. Check the resistance between the IPDM E/R terminals. LAN ECM Resistance (Ω) Terminal No. 100 Ν 99 Approx. 108 - 132 Check the resistance between the BCM terminals. BCM Resistance (Ω) Terminal No. 60 80 Approx. 108 - 132 Ρ Is the measurement value within the specification? YES >> GO TO 5. >> Replace the ECM and/or the BCM. NO CHECK SYMPTOM

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

LAN-237

< 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 circuit 1. **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.

CAN COMMUNICATION CIRCUIT 2

| CAN COMMUNICA | TION CIRCUIT 2 | | |
|---|--|---------------------------------|-----------------------------|
| Diagnosis Procedure | | | INFOID:000000010337764 |
| 1.CONNECTOR INSPECT | ION | | |
| | cable from the negative terr | | e connection (unit side and |
| Is the inspection result norm | nal? | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector | | |
| NO >> Repair the term 2.CHECK HARNESS CON | |) | |
| 1. Disconnect the connect | |) | |
| | tween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Continuity |
| Connector No. | Termi | nal No. | |
| M18 | 6 | 8 | Existed |
| Is the inspection result norm | 5 | 9 | Existed |
| | connectors on CAN commu tween the BCM harness cc | nication circuit 2. | |
| | BCM harness connector | | Continuity |
| Connector No. | | nal No. | |
| M18 | 6 | 5 | Not existed |
| Is the inspection result norm YES >> GO TO 4. NO >> Check the harm 4. CHECK HARNESS CON Check the continuity betweet | ess and repair or replace th ITINUITY (SHORT CIRCUI | Τ) | |
| BCM harne | ss connector | | |
| Connector No. | Terminal No. | | Continuity |
| | 6 | Ground | Not existed |
| M18 | 5 | | Not existed |
| Is the inspection result norm YES >> GO TO 5. NO >> Check the harm 5. CHECK BCM TERMINA | ess and repair or replace (i | f shield line is short) the roo | ot cause. |
| Remove the BCM. Check the resistance be | etween the BCM terminals. | | |
| | BCM | | Desistance (O) |
| | Terminal No | F | Resistance (Ω) |

Terminal No.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 7)]

| 6 | 5 | Approx. 108 – 132 |
|---|---|-------------------|
| 8 | 9 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 7.

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

7. CHECK UNIT REPRODUCTION

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

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

BCM has two termination circuits. Check other units first.

- 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 - NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

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

| | | EEN IPDM-E AN | ID DLC CIRCUI | T I SYSTEM (TYPE 8)] |
|---|--|--|-----------------------|-------------------------|
| DTC/CIRCUIT DIAG | | SIS | L | (|
| | | E AND DLC CIR | CUIT | |
| Diagnosis Proced | | | | INFOID:000000010337777 |
| | | | | |
| Turn the ignition sy Disconnect the bat Check the followir and harness side). Harness connector Harness connector Harness connector Sthe inspection result YES >> GO TO 2. NO >> Repair the | vitch OFF. tery cable from the ne g terminals and conr E152 M31 normal? terminal and connect | nectors for damage, b or. | end and loose conn | ection (connector side |
| CHECK HARNESS | | | | |
| IPDM E/R Harness connector | | ctors. E/R harness connecto | or and the harness co | onnector. |
| IPDM E/R harr | less connector | Harness c | onnector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E120 | 24 22 | E152 | 61J 62J | Existed |
| CHECK HARNESS | main line between the CONTINUITY (OPEN | e IPDM E/R and the ha I CIRCUIT) onnector and the data | | 52. |
| Harness | connector | Data link c | connector | |
| | Terminal No. | Connector No. | Terminal No. | Continuity |
| Connector No. | | MOO | 6 | Existed |
| Connector No. | 61J | | | Existed |
| | 62J | M22 | 14 | LAISIEU |

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND CCM CIRCUIT

Diagnosis Procedure

INFOID:000000010337778

[CAN SYSTEM (TYPE 8)]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- ECM
- Chassis control module
- 4. Check the continuity between the data link connector and the chassis control module harness connector.

| Data link | connector | Chassis control module harness connector | | Continuity |
|---------------|--------------|--|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M96 | 4 | Existed |
| IVIZZ | 14 | 10190 | 3 | Existed |

Is the inspection result normal?

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

NO >> Repair the main line between the data link connector and the chassis control module.

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

| VIAIN LINE BEI | WEEN CCM A | ND PWBD CIR | CUIT | |
|---|---|---|--|------------------------|
| Diagnosis Proced | ure | | | INFOID:000000010337775 |
| 1.CHECK CONNECT | OR | | | |
| | ttery cable from the ne ng terminals and conr r M69 | | pend and loose conn | ection (connector side |
| s the inspection result | <u>normal?</u> | | | |
| YES >> GO TO 2. NO >> Repair the | e terminal and connect | or. | | |
| 2. CHECK HARNESS | | | | |
| Chassis control me Harness connecto | | | ness connector and th | e harness connector. |
| Chassis control mode | ule harness connector | Harness of | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 4 | M69 | 25 | Existed |
| | 3 | | 24 | Existed |
| s the inspection result | | | | |
| YES >> GO TO 3. NO >> Repair the 3.CHECK HARNESS 1. Disconnect the con 2. Check the continue connector. | nnector of automatic b | I CIRCUIT) back door control mode | ule. automatic back door c por control module | ontrol module harness |
| YES >> GO TO 3. NO >> Repair the 3.CHECK HARNESS 1. Disconnect the con 2. Check the continue connector. | CONTINUITY (OPEN nnector of automatic b ity between the harnes | I CIRCUIT) back door control mode as connector and the a Automatic back do | ule. automatic back door c por control module | |
| YES >> GO TO 3. NO >> Repair the 3.CHECK HARNESS 1. Disconnect the con 2. Check the continuit connector. Harness Connector No. | CONTINUITY (OPEN nnector of automatic b ity between the harnes connector | I CIRCUIT) back door control mode ss connector and the a Automatic back do harness c Connector No. | ule. automatic back door c oor control module connector | ontrol module harness |
| YES >> GO TO 3. NO >> Repair the 3.CHECK HARNESS 1. Disconnect the con 2. Check the continue connector. Harness | CONTINUITY (OPEN nnector of automatic b ity between the harnes connector Terminal No. 25 24 | I CIRCUIT) back door control mode ss connector and the a Automatic back do harness c | ule. automatic back door c por control module connector Terminal No. | control module harness |

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337780

[CAN SYSTEM (TYPE 8)]

1.CHECK 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. | Terminal No. | | 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-499, "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

[CAN SYSTEM (TYPE 8)]

| | ECIRCUIT | | |
|--|--|---|-----------------------------------|
| Diagnosis Procedure | | | INFOID:000000010337781 |
| 1.CHECK CONNECTOR | | | |
| 3. Check the terminals and | OFF. cable from the negative terminal d connectors of the ABS actuato nit side and connector side). | | ntrol unit) for damage, bend |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | nal and connector. | | |
| | or of ABS actuator and electric u etween the ABS actuator and e | | it) harness connector termi- |
| ABS actuator | and electric unit (control unit) harness c | onnector | Resistance (Ω) |
| Connector No. | Terminal No | | |
| E125 | 26 | 14 | Approx. 54 – 66 |
| | actuator and electric unit (contro Y AND GROUND CIRCUIT | | |
| BRC-114, "Diagnosis Proce | dure". | | unit (control unit). Refer to |
| <u>BRC-114, "Diagnosis Proce</u> <u>Is the inspection result norm</u> YES (Present error)>>Rep <u>and Installation</u> YES (Past error)>>Error w | <u>dure"</u> . <u>al?</u> lace the ABS actuator and electi | ric unit (control unit). F and electric unit (cont | Refer to <u>BRC-136, "Removal</u> |

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337782

[CAN SYSTEM (TYPE 8)]

1.CHECK 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. | | |
| E120 | 24 | 22 | 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 <u>PCS-34, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "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.

| | LINE CIRCUIT | | | |
|---|---|--------------------------------|--------------------|---------------------------|
| Diagnosis Proced | lure | | | INFOID:000000010337783 |
| 1.CHECK CONNECT | ſOR | | | |
| Check the followir nector side). TCM IPDM E/R | ittery cable from the neighbor | | nd and loose conne | ction (unit side and con- |
| s the inspection result YES >> GO TO 2. | <u>i normal ?</u> | | | |
| | e terminal and connect | tor. | | |
| 2.CHECK HARNESS | | N CIRCUIT) | | |
| - TCM - IPDM E/R 2. Check the continu | - | harness connector and | | ness connector. |
| Connector No. | ss connector Terminal No. | IPDM E/R harr Connector No. | Terminal No. | Continuity |
| | 33 | | 87 | Existed |
| F75 | 23 | F42 | 88 | Existed |
| 3.CHECK IPDM E/R Check the continuity b | etween the IPDM E/R | terminals. | | |
| Termir | nal No. | Termir | nal No. | Continuity |
| | 37 | 3 | 9 | Existed |
| 8 | 88 | 4 | 0 | Existed |
| | he IPDM E/R. S FOR OPEN CIRCUI ⁻ | | erminals. | |
| 4 .CHECK HARNESS Check the resistance I | | s connector | | Resistance (Ω) |
| | IPDM E/R harnes | | | Resistance (12) |
| | IPDM E/R harnes | Terminal No. | | |
| Check the resistance I | 39 | Terminal No. | 40 | Approx. 54 – 66 |

Is the inspection result normal?

< DTC/CIRCUIT DIAGNOSIS >

YES (Present error)>>Replace the TCM. Refer to TM-202. "Removal and Installation".

TCM BRANCH LINE CIRCUIT

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

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 8)]

| < DTC/CIRCUIT DIAGNOS | | | [CAN SYSTEM (TYPE 8)] |
|---|---|--|-------------------------------|
| DLC BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000001033778 |
| .CHECK CONNECTOR | | | |
| Turn the ignition switch 0 Disconnect the battery ca Check the terminals and (connector side and harr | able from the negative t I connectors of the dat | terminal. a link connector for dama | ge, bend and loose connectior |
| s the inspection result norma | , | | |
| YES >> GO TO 2. | al and as up at a | | |
| NO >> Repair the termir CHECK HARNESS FOR | | | |
| | | or torminals | |
| Check the resistance betwee | | | |
| | Data link connector | | Resistance (Ω) |
| Connector No. | | rminal No. | |
| M22 | 6 | 14 | Approx. 54 – 66 |
| | ink connector branch lir | ne. | circuit. |
| NO >> Repair the data i | ink connector branch lir | ne. | |
| NO >> Repair the data i | ink connector branch lir | ne. | |
| NO >> Repair the data i | ink connector branch lir | ne. | |
| NO >> Repair the data I | ink connector branch lir | ne. | |

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337785

[CAN SYSTEM (TYPE 8)]

1.CHECK 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 | | |
| M49 | 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-20, "Diagnosis Proce-</u> dure".

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to STC-36, "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 8)]

| Diagnosis Procedure | | | INFOID:00000001033778 |
|---|---|--|--|
| 1.CHECK CONNECTOR | | | |
| Check the terminals an (unit side and connecto) | cable from the negative terr d connectors of the combi r side). | | e, bend and loose connectior |
| <u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | inal and connector. | | |
| 1. Disconnect the connect | or of combination meter. etween the combination me | ter harness connector te | rminals. |
| Co | ombination meter harness connect | tor | |
| Connector No. | Termir | nal No. | Resistance (Ω) |
| M77 | 41 | 42 | Approx. 54 – 66 |
| | | | |
| YES >> GO TO 3. NO >> Repair the comi 3. CHECK POWER SUPPL Check the power supply and <u>METER : Diagnosis Procedu</u> Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the c ure". hal? lace the combination meter | combination meter. Refe . Refer to <u>MWI-82, "Rer</u> tion meter branch line. | r to <u>MWI-59, "COMBINATION</u> noval and Installation". |
| NO >> Repair the com 3. CHECK POWER SUPPL Check the power supply and <u>METER : Diagnosis Procedu</u> Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the cure". hal? lace the combination meter as detected in the combina | combination meter. Refe . Refer to <u>MWI-82, "Rer</u> tion meter branch line. | |

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< DTC/CIRCUIT DIAGNOSIS >

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337787

[CAN SYSTEM (TYPE 8)]

1.CHECK 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. | Termi | | |
| M56 | 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-57, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-139</u>, "Removal and Installation".

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

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

[CAN SYSTEM (TYPE 8)]

A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000010337788 WARNING: В 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. С 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. D 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). Is the inspection result normal? Ε YES >> GO TO 2. NO >> Replace the main harness. 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT F Check the air bag diagnosis sensor unit. Refer to SRC-39, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction. Н

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< DTC/CIRCUIT DIAGNOSIS >

CCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337789

[CAN SYSTEM (TYPE 8)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Chassis control module harness connector | | | Resistance (Ω) |
|--|--------------|---|-------------------------|
| Connector No. | Terminal No. | | |
| M96 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the chassis control module branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the chassis control module. Refer to <u>DAS-272, "Diagnosis</u> <u>Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the chassis control module. Refer to DAS-277, "Removal and Installation".

YES (Past error)>>Error was detected in the chassis control module branch line.

NG >> Repair the power supply and the ground circuit.

4WD BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 8)]

| Diagnosis Procedure | | | INFOID:00000001033779 |
|--|---|--|------------------------------|
| 1. CHECK CONNECTOR | | | |
| 3. Check the terminals an side and connector side | cable from the negative term d connectors of the AWD cor e). | | d and loose connection (unit |
| <u>s the inspection result norn</u> YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOF | ninal and connector. | | |
| Disconnect the connec Check the resistance b | tor of AWD control unit. etween the AWD control unit | harness connector termin | nals. |
| | AWD control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | l No. | |
| D.7.5 | 8 | 40 | |
| | - | 16 | Approx. 54 – 66 |
| Is the measurement value weight of the selection of the selection of the selection of the selection result norm of the selection res | within the specification? D control unit branch line. LY AND GROUND CIRCUIT nd the ground circuit of the A | WD control unit. Refer to | DLN-57, "Diagnosis Proce- |
| Is the measurement value v YES >> GO TO 3. NO >> Repair the AWI 3.CHECK POWER SUPPI Check the power supply ar dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | vithin the specification? D control unit branch line. LY AND GROUND CIRCUIT nd the ground circuit of the A | WD control unit. Refer to efer to <u>DLN-67, "Remova</u> rol unit branch line. | DLN-57, "Diagnosis Proce- |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the AWI 3. CHECK POWER SUPPI Check the power supply an dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | within the specification? D control unit branch line. LY AND GROUND CIRCUIT ad the ground circuit of the A <u>nal?</u> place the AWD control unit. R vas detected in the AWD cont | WD control unit. Refer to efer to <u>DLN-67, "Remova</u> rol unit branch line. | DLN-57, "Diagnosis Proce- |

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< DTC/CIRCUIT DIAGNOSIS >

< DTC/CIRCUIT DIAGNOSIS >

PWBD BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337791

[CAN SYSTEM (TYPE 8)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of automatic back door control module.

2. Check the resistance between the automatic back door control module harness connector terminals.

| Automatic back door control module harness connector | | | Resistance (Ω) |
|--|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| B55 | 24 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the automatic back door control module branch line.

${f 3.}$ CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the automatic back door control module. Refer to <u>DLK-141</u>, <u>"AUTOMATIC BACK DOOR CONTROL UNIT : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the automatic back door control module. Refer to <u>DLK-276</u>, "<u>Removal and</u> <u>Installation</u>".

YES (Past error)>>Error was detected in the automatic back door control module branch line.

NG >> Repair the power supply and the ground circuit.

BCM BRANCH LINE CIRCUIT

| | E CIRCUIT | | |
|--|---|--|-----------------------------|
| Diagnosis Procedure | | | INFOID:000000010337792 |
| 1.CHECK CONNECTOR | | | |
| | cable from the negative tern | | e connection (unit side and |
| Is the inspection result norm YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR | inal and connector. | | |
| Disconnect the connect Check the resistance be | tor of BCM. etween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| | | | |
| Connector No. | Termin | al No. | |
| B16 Is the measurement value v | 60 | al No. 80 | Approx. 108 – 132 |
| B16 Is the measurement value w YES >> GO TO 3. NO >> Repair the BCM 3.CHECK POWER SUPPL Check the power supply and • With intelligent key system • Without intelligent key system | 60 vithin the specification? A branch line. -Y AND GROUND CIRCUIT d the ground circuit of the Br n: <u>BCS-68, "Diagnosis Proc</u> stem: <u>BCS-128, "Diagnosis F</u> | 80 CM. Refer to the following. edure". | |
| B16 Is the measurement value w YES >> GO TO 3. NO >> Repair the BCM 3.CHECK POWER SUPPL Check the power supply and • With intelligent key system • With intelligent key system • Without intelligent key system State inspection result norm YES (Present error)>>Rep • With intelliger | 60 vithin the specification? A branch line. Y AND GROUND CIRCUIT d the ground circuit of the B n: <u>BCS-68, "Diagnosis Proc</u> u- stem: <u>BCS-128, "Diagnosis F</u> nal? blace the BCM. Refer to the nt key system: <u>BCS-75, "Ref</u> | 80 CM. Refer to the following. <u>edure"</u> . <u>Procedure"</u> . following. <u>moval and Installation"</u> . | Approx. 108 – 132 |
| B16 Is the measurement value w YES >> GO TO 3. NO >> Repair the BCM 3.CHECK POWER SUPPL Check the power supply and • With intelligent key system • Without intelligent key system • With intelligent key system • Without intelligent key system • With intelligent key system • Without key system • Without key system • Without key system | 60 vithin the specification? A branch line. Y AND GROUND CIRCUIT d the ground circuit of the Bunt BCS-68, "Diagnosis Procession BCS-128, "Diagnosis In hal? blace the BCM. Refer to the | 80 CM. Refer to the following. edure". Procedure". following. moval and Installation". "Removal and Installation" nch line. | Approx. 108 – 132 |

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< DTC/CIRCUIT DIAGNOSIS >

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

Check the continuity between the BCM harness connector terminals. 2.

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to LAN-265, "Diagnosis Procedure".

 $\mathbf{3}$.check harness for open circuit

1 Disconnect the connector of AV control unit.

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

Models with BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M108 | 8 | 17 | Approx. 54 – 66 |

Models without BOSE audio system

| AV control unit harness connector | | | Resistance (Ω) |
|-----------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M101 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

>> Repair the AV control unit branch line. NO

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

Navigation with BOSE: <u>AV-337, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Navigation without BOSE: <u>AV-180, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- Navigation with BOSE: <u>AV-376, "Removal and Installation"</u>
 Navigation without BOSE: <u>AV-209, "Removal and Installation"</u>

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

LAN-258

INFOID:000000010337793

| AVM BRANCH LINE | | | |
|---|--|---|--|
| Diagnosis Procedure | | | A INFOID:000000010337794 |
| 1. CHECK CONNECTOR | | | В |
| 3. Check the following terr nector side). Around view monitor co BCM Is the inspection result norm YES >> GO TO 2. | cable from the negative tern ninals and connectors for c ntrol unit <u>nal?</u> | minal. lamage, bend and loose con | nection (unit side and con- C |
| NO >> Repair the term 2.CHECK HARNESS CON | | N N | E |
| 1. Disconnect the connect | or of BCM. tween the BCM harness cc | | F |
| Occurrenter No. | BCM harness connector | | Continuity |
| Connector No. | 6 | nal No. 8 | Existed |
| M18 | 5 | 9 | Existed |
| Check the resistance be With lane departure pre | vention system | nitor control unit harness co | nnector terminals. |
| Connector No. | view monitor control unit harness | nal No. | Resistance (Ω) |
| M113 | 27 | 28 | Approx. 54 – 66 |
| - Without lane departure | | | |
| Around | view monitor control unit harness | connector | LAN |
| Connector No. | Termi | nal No. | Resistance (Ω) |
| M103 | 12 | 10 | Approx. 54 – 66 |
| 4.CHECK POWER SUPPL Check the power supply and • Navigation with BOSE: AV • Navigation without BOSE: Is the inspection result norm YES (Present error)>>Rep • Navigation wit • Navigation wit • Navigation wit YES (Past error)>>Error w | nd view monitor control uni Y AND GROUND CIRCUIT d the ground circuit of the a <u>4-338, "AROUND VIEW MC</u> <u>AV-180, "AROUND VIEW MC</u> <u>hal?</u> lace the around view monit th BOSE: <u>AV-387, "Remova</u> thout BOSE: <u>AV-217, "Rem</u> | round view monitor control u <u>NITOR CONTROL UNIT : E</u> <u>MONITOR CONTROL UNIT</u> for control unit. Refer to the f <u>al and Installation"</u> <u>ioval and Installation"</u> view monitor control unit brar | Diagnosis Procedure" P : Diagnosis Procedure" following. |
| | | AFA | |

Revision: November 2013

< DTC/CIRCUIT DIAGNOSIS >

LAN-259

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337795

[CAN SYSTEM (TYPE 8)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- A/C auto amp. (With auto A/C)
- Harness connector M127 (With auto A/C)
- Harness connector M125 (With auto A/C)
- Front air control (Without auto A/C)
- BCM

Is the inspection result normal?

YES >> GO TO 2. (With auto A/C)

YES >> GO TO 3. (Without auto Á/C)

NO >> Repair the terminal and connector.

2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| | BCM harness connector | | |
|---------------|-----------------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u> 265. "Diagnosis Procedure".

3.CHECK HARNESS FOR OPEN CIRCUIT

- 1. Connect the connector of BCM (With auto A/C).
- 2. Disconnect the connector of A/C auto amp. (With auto A/C) or front air control (Without auto A/C).
- 3. Check the resistance between the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) harness connector terminals.

- With auto A/C

| | A/C auto amp. harness connector | | |
|---------------|---------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M54 | 11 | 31 | Approx. 54 – 66 |

- Without auto A/C

| I | Front air control harness connector | | |
|---------------|-------------------------------------|----|-----------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M50 | 7 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the A/C auto amp. (With auto A/C) or front air control (Without auto A/C) branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. (With auto A/C) or front air control (Without auto A/C). Refer to the following.

Automatic air conditioning: <u>HAC-56</u>, "Diagnosis Procedure".

HVAC BRANCH LINE CIRCUIT

| [CAN SYSTEM | (TYPE 8)] |
|-------------|-----------|
|-------------|-----------|

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 8)] |
|--|------------------------------------|
| Manual air conditioning: <u>HAC-166</u> , "FRONT A/C CONTROL : Diagnosis Prov | cedure". |
| Is the inspection result normal? | |
| YES (Present error)>>Replace the A/C auto amp. (With auto A/C) or front Refer to the following. | |
| Automatic air conditioning: <u>HAC-103</u>, "<u>Removal and Installation</u>" Manual air conditioning: <u>HAC-181</u>, "<u>Removal and Installation</u>". | |
| YES (Past error)>>Error was detected in the A/C auto amp. (With auto A/C) A/C) branch line. | or front air control (Without auto |
| NO >> Repair the power supply and the ground circuit. | |
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ICC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010337796

[CAN SYSTEM (TYPE 8)]

1.CHECK CONNECTOR

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
- Distance sensor
- Harness connector E152
- Harness connector M31
- BCM

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of BCM.

2. Check the continuity between the BCM harness connector terminals.

| BCM harness connector | | | Continuity |
|-----------------------|--------------|---|------------|
| Connector No. | Terminal No. | | Continuity |
| M18 | 6 | 8 | Existed |
| IVI I O | 5 | 9 | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check the harness and repair the root cause (CAN communication circuit 2 side). Refer to <u>LAN-</u>265, "Diagnosis Procedure".

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

- 1. Connect the connector of BCM.
- 2. Disconnect the connector of distance sensor.
- 3. Check the resistance between the distance sensor harness connector terminals.

| [| Distance sensor harness connector | | |
|---------------|-----------------------------------|---|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| E21 | 7 | 6 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.

NO >> Repair the distance sensor branch line.

4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the distance sensor. Refer to <u>DAS-144, "DISTANCE SEN-</u> <u>SOR : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the distance sensor. Refer to DAS-160, "Removal and Installation".

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

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

< DTC/CIRCUIT DIAGNOSIS > CAN COMMUNICATION CIRCUIT 1 А **Diagnosis** Procedure INFOID:000000010337797 **1**.CONNECTOR INSPECTION 1. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. 2. Disconnect all the unit connectors on CAN communication circuit 1. 3. C Check terminals and connectors for damage, bend and loose connection. 4 Is the inspection result normal? YES >> GO TO 2. D NO >> Repair the terminal and connector. 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT) E Check the continuity between the data link connector terminals. Data link connector Continuity F Connector No. Terminal No. M22 6 14 Not existed Is the inspection result normal? YES >> GO TO 3. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. $\mathbf{3}.$ check harness continuity (short circuit) Н Check the continuity between the data link connector and the ground. Data link connector Continuity Connector No. Terminal No. Ground 6 Not existed M22 14 Not existed Is the inspection result normal? Κ YES >> GO TO 4. NO >> Check the harness and repair or replace (if shield line or fuse block (J/B) is short) the root cause. 4.CHECK ECM AND BCM TERMINATION CIRCUIT Remove the ECM and the BCM. 1. 2. Check the resistance between the IPDM E/R terminals. LAN ECM Resistance (Ω) Terminal No. 100 Ν 99 Approx. 108 - 132 Check the resistance between the BCM terminals. BCM Resistance (Ω) Terminal No. 60 80 Approx. 108 - 132 Ρ Is the measurement value within the specification? YES >> GO TO 5. >> Replace the ECM and/or the BCM. NO CHECK SYMPTOM

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

LAN-263

< 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 circuit 1. **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.

CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

| CAN COMMUNICA | TION CIRCUIT 2 | | |
|---|--|--|--|
| Diagnosis Procedure | | | INFOID:000000010337798 |
| 1.CONNECTOR INSPECT | ION | | |
| | cable from the negative ter | | se connection (unit side and |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the term | inal and connector. | N | |
| 2.CHECK HARNESS CON 1. Disconnect the connect | |) | |
| | tween the BCM harness co | onnector terminals. | |
| | BCM harness connector | | Continuity |
| Connector No. | Termi | nal No. | Continuity |
| M18 | 6 | 8 | Existed |
| | 5 | 9 | Existed |
| CHECK HARNESS CON | | nication circuit 2. | |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector | T) nication circuit 2. onnector terminals. | Continuity |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 | T) nication circuit 2. | Continuity Not existed |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 s the inspection result norm YES >> GO TO 4. | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector BCM harness connector Termin 6 hal? ess and repair or replace the ITINUITY (SHORT CIRCUI | T) nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 S the inspection result norm YES >> GO TO 4. NO >> Check the harm 4.CHECK HARNESS CON Check the continuity between | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector BCM harness connector Termin 6 hal? ess and repair or replace the ITINUITY (SHORT CIRCUI | T) nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 S the inspection result norm YES >> GO TO 4. NO >> Check the harm 4.CHECK HARNESS CON Check the continuity between | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 hal? ess and repair or replace th ITINUITY (SHORT CIRCUI en the BCM and the ground | T) nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 S the inspection result norm YES >> GO TO 4. NO >> Check the harne A.CHECK HARNESS CON Check the continuity between BCM harnes Connector No. | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector BCM harness connector Termin 6 hal? ess and repair or replace the ITINUITY (SHORT CIRCUI en the BCM and the ground ss connector | T) nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed |
| 3.CHECK HARNESS CON 1. Disconnect all the unit of 2. Check the continuity be Connector No. M18 S the inspection result norm YES >> GO TO 4. NO >> Check the harne A.CHECK HARNESS CON Check the continuity betwee BCM harnes Connector No. M18 | ITINUITY (SHORT CIRCUI connectors on CAN commu tween the BCM harness co BCM harness connector Termin 6 hal? ess and repair or replace th ITINUITY (SHORT CIRCUI en the BCM and the ground ss connector Terminal No. 6 5 | T) nication circuit 2. onnector terminals. nal No. 5 ne root cause. T) | Not existed Continuity |
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CAN COMMUNICATION CIRCUIT 2

< DTC/CIRCUIT DIAGNOSIS >

[CAN SYSTEM (TYPE 8)]

| 6 | 5 | Approx. 108 – 132 |
|---|---|-------------------|
| 8 | 9 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 6.

NO >> Replace the chassis control module.

6.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 7.

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

7. CHECK UNIT REPRODUCTION

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

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

BCM has two termination circuits. Check other units first.

- 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced.
 - NOTE:

Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

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