SECTION LAN SYSTEM

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| DTC/CIRCUIT DIAGNOSIS |

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2015 Altima Sedan

| MAIN LINE BETWEEN IPDM-E AND DLC | |
|---|---|
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< HOW TO USE THIS MANUAL >

| HOW TO USE THIS MANUAL | А |
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| "CAN FUNDAMENTAL" of LAN Section describes the basic knowledge of the CAN communication system and the method of trouble diagnosis. For information peculiar to a vehicle and inspection procedure, refer to "CAN". | С |
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< PRECAUTION >

PRECAUTION PRECAUTIONS

Precautions for Trouble Diagnosis

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CAUTION:

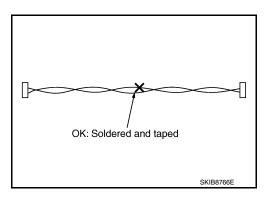
Follow the instructions listed below. Failure to do this may cause damage to parts:

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

Precautions for Harness Repair

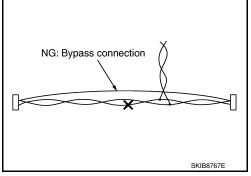
• Solder the repaired area and wrap tape around the soldered area. **NOTE:**

A fray of twisted lines must be within 110 mm (4.33 in).



• Bypass connection is never allowed at the repaired area. **NOTE:**

Bypass connection may cause CAN communication error. The spliced wire becomes separated and the characteristics of twisted line are lost.



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

[CAN FUNDAMENTAL]

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SYSTEM DESCRIPTION > SYSTEM DESCRIPTION

SYSTEM

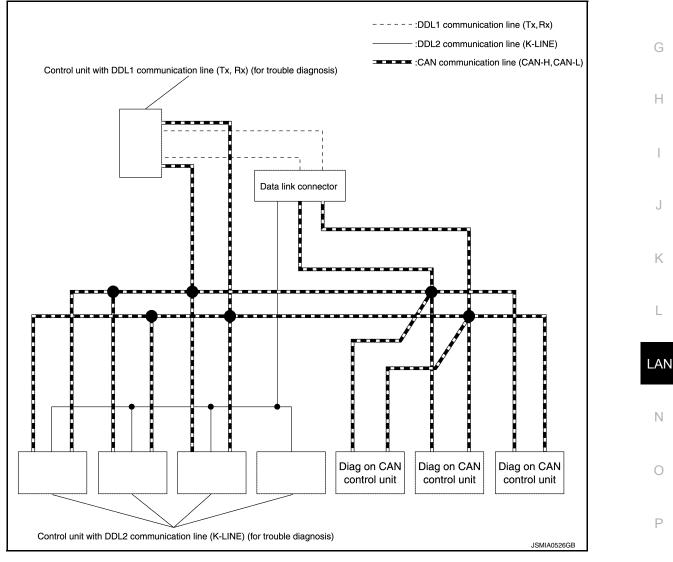
CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

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

DIAG ON CAN : System Description

SYSTEM DIAGRAM



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< SYSTEM DESCRIPTION >

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

DESCRIPTION

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

[CAN FUNDAMENTAL]

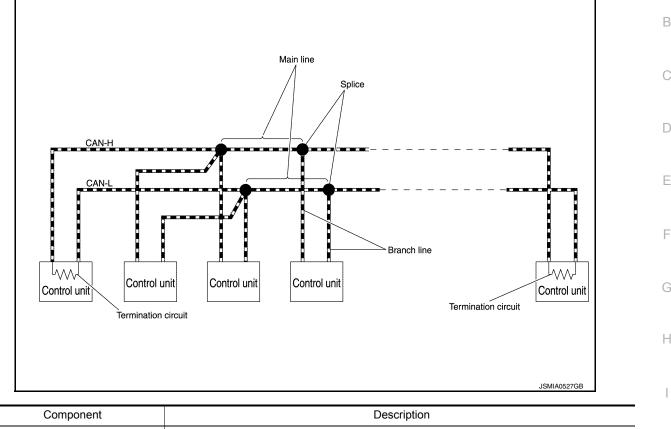
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TROUBLE DIAGNOSIS

Component Description

< SYSTEM DESCRIPTION >



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

Condition of Error Detection

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

CAN COMMUNICATION SYSTEM ERROR

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

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

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

NOTE:

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



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< SYSTEM DESCRIPTION >

Symptom When Error Occurs in CAN Communication System

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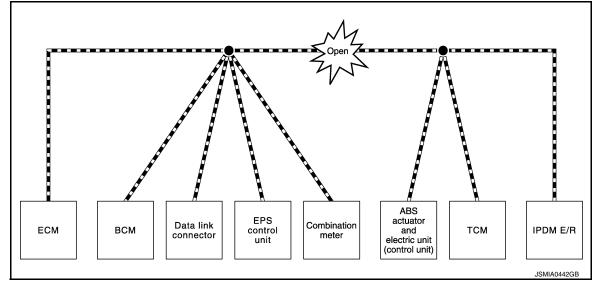
In CAN communication system, multiple control units mutually transmit and receive signals. Each control unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

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

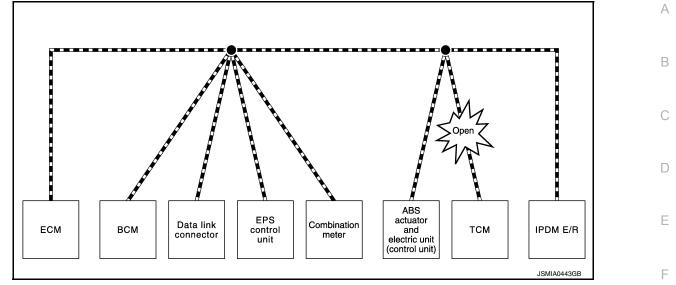
Example: Main Line Between Data Link Connector and ABS Actuator and Electric Unit (Control Unit) Open Circuit



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

< SYSTEM DESCRIPTION >

Example: TCM Branch Line Open Circuit



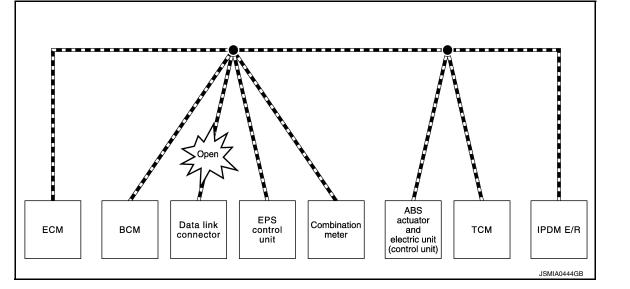
| Unit name | Major symptom | |
|---|---|---|
| ECM | Engine torque limiting is affected, and shift harshness increases. | G |
| BCM | Reverse warning buzzer does not sound. | |
| EPS control unit | Normal operation. | |
| Combination meter | Shift position indicator and O/D OFF indicator turn OFF.Warning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

NOTE:

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

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

Example: Data Link Connector Branch Line Open Circuit





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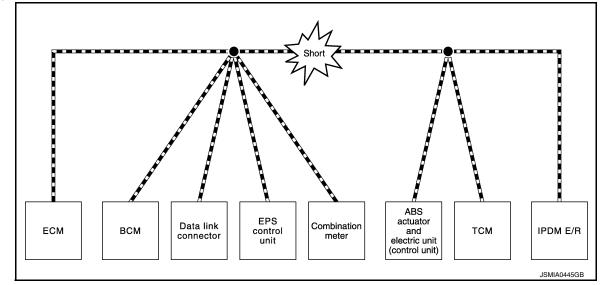
< SYSTEM DESCRIPTION >

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

NOTE:

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

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



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

CAN Diagnosis with CONSULT

INFOID:000000010480449

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

< SYSTEM DESCRIPTION >

Response to the system call

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

Self-Diagnosis

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If communication signals cannot be transmitted or received among control units communicating via CAN communication line, CAN communication-related DTC is displayed on the CONSULT "Self Diagnostic Result" C 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 | E | |
|-------|---|--|---|--|---|---|
| U1000 | 000 CAN COMM CIRCUIT | | ECM When ECM is not transmitting or receiving CAI communication signal of OBD (emission-related diagnosis) for 2 seconds or more. | | | F |
| 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 | cation sig | M is not transmitting or receiving CAN communi- nal other than OBD (emission-related diagnosis) onds or more. | control unit. | (| |
| U1002 | SYSTEM COMM | When a control unit is not transmitting or receiving CAN communication signal for 2 seconds or less. | | | ŀ | |
| 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)

Example: CAN DIAG SUPPORT MNTR indication

With PAST

ENGINE

Not diagnosed

Not diagnosed

Not diagnosed

Not diagnosed

Not diagnosed

PAST

OK

OK

OK

OK

MONITOR ITEM PRESENT

OK

|OK

ΟK

OK

OK

TRANSMIT DIAG OK

VDC/TCS/ABS

METER/M&A

BCM/SEC

IPDM E/R

AWD/4WD

ICC

HVAC

тсм

EPS

e4WD

Without PAST

всм

OK

OK

OK

ΟK

OK

lок

MONITOR ITEM

TRANSMIT DIAG OK

INITIAL DIAG

METER/M&A

IPDM E/R

ECM

TCM

I-KEY

PRESENT

PAST

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Without PAST

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

Revision: May 2014

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< SYSTEM DESCRIPTION >

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

With PAST

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

< SYSTEM DESCRIPTION >

[CAN FUNDAMENTAL]

How to Use CAN Communication Signal Chart

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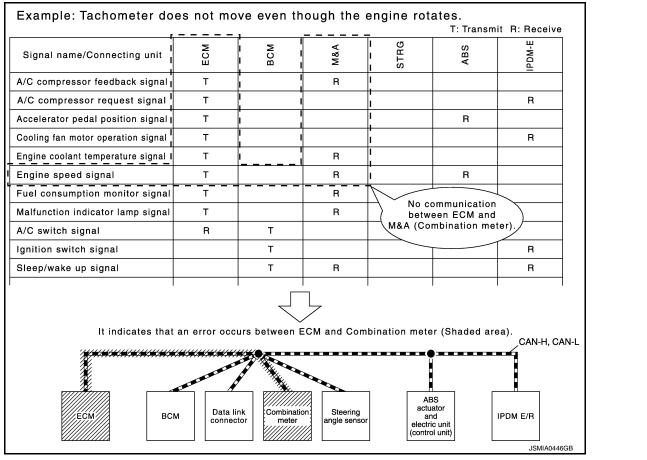
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The CAN communication signal chart lists the signals transmitted/received among control units. It is useful for detecting the root cause by finding a signal related to the symptom, and by checking transmission and reception unit.



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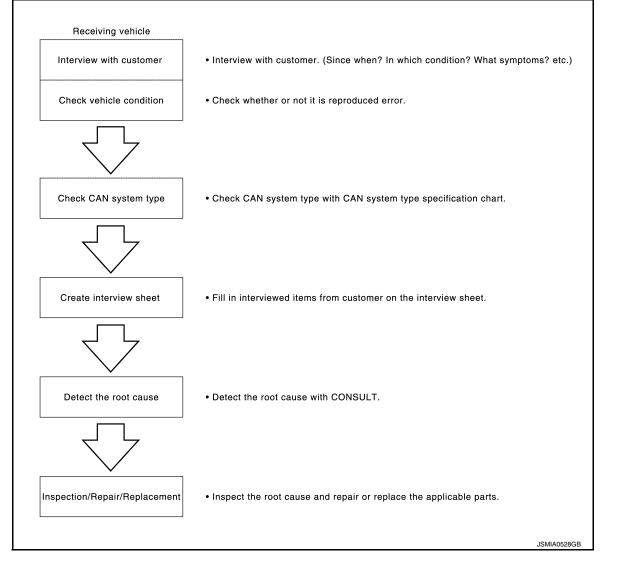
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BASIC INSPECTION DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

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Trouble Diagnosis Procedure

INFOID:000000010480454

INTERVIEW WITH CUSTOMER

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

Points in interview

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

Notes for checking error symptoms:

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

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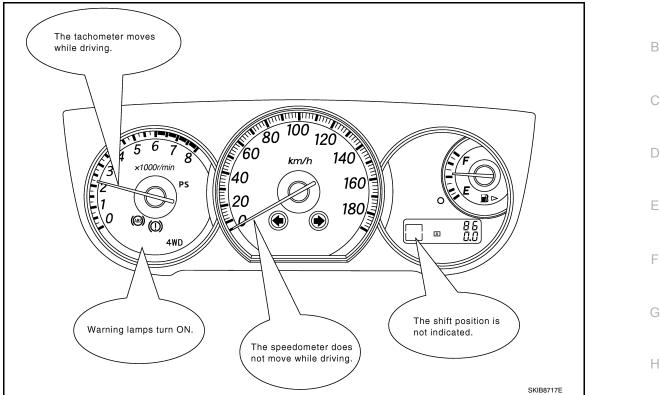
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< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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 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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< BASIC INSPECTION >

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

Example:

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

CAN System Specification Chart

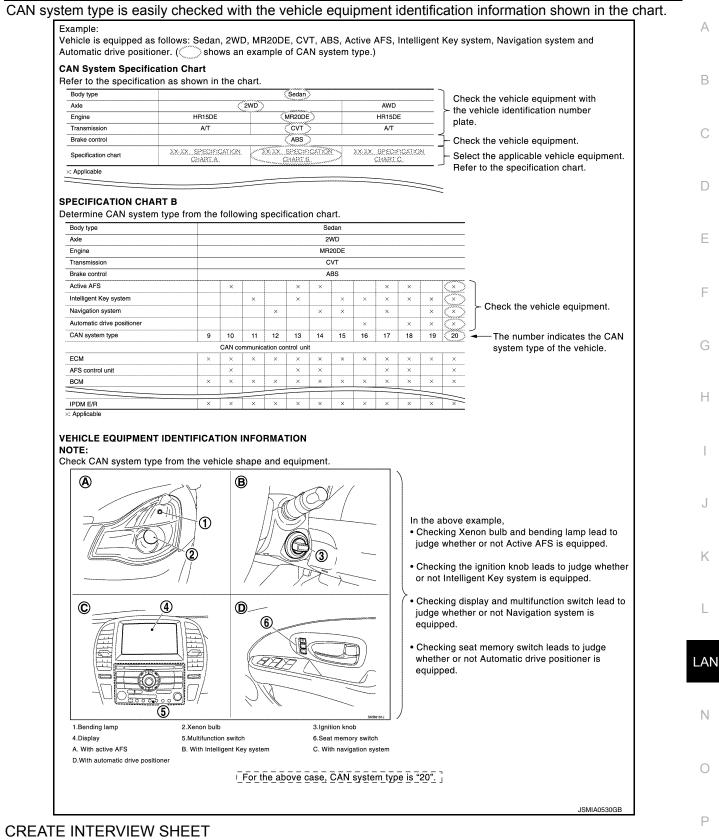
Determine CAN system type from the following specification chart.

| A 1. | | | | igon | | | Check the vehicle |
|---|------------------------------|-------------|---------------|----------|--|--|---|
| Axle | | | | | | equipment with the | |
| Engine | QR25DE (VQ35DE) A/T (CVT) | | | | | vehicle identification number plate. | |
| Transmission | A. | /T | | <u> </u> | 01010000000000000000000000000000000000 | | ζ. |
| Brake control | | | BS | | <u></u> | | Check the vehicle |
| Intelligent Key system | | × | - | × | - | <u> </u> | f equipment. |
| CAN system type | 1 | 2 | 3 | 4 | 5 | 6 - | — The number indicates the CAN system type of the |
| | | | ion control u | ······ | | | vehicle. |
| ECM | × | × | × | × | X | × | |
| AWD control unit | | | | | × | × | |
| Air bag diagnosis sensor unit | × | × | × | × | × | × | |
| всм | × | × | × | × | × | × | |
| ntelligent Key unit | | × | | × | | × | |
| Steering angle sensor | | | | | × | × | |
| EPS control unit | × | × | × | × | × | × | |
| Combination meter | × | × | × | × | × | × | |
| ABS actuator and electric unit (control unit) | × | × | × | × | × | × | |
| тсм | × | × | × | × | × | × | |
| PDM E/R | × | × | × | × | X | × | |
| × : Applicable VEHICLE EQUIPMENT IDE NOTE: | | | | | | | |
| VEHICLE EQUIPMENT IDE | | e shape and | | | | | |
| VEHICLE EQUIPMENT IDE NOTE: Check CAN system type fro | | e shape and | d equipment. | | | | leads to judge whether of not VDC is equipped. Checking the ignition kr leads to judge whether of |
| VEHICLE EQUIPMENT IDE NOTE: Check CAN system type fro | | e shape and | d equipment. | | em type is | | Checking VDC OFF swi leads to judge whether on not VDC is equipped. Checking the ignition km leads to judge whether on not Intelligent Key system |

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

< BASIC INSPECTION >

[CAN FUNDAMENTAL]



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

< BASIC INSPECTION >

Interview Sheet (Example)

| CAN Communication System | Diagnosis II | nterview Sheet |
|--|------------------------|-----------------|
| | Date received: | 3, Feb. 2006 |
| Type: DBA-KG11 | VIN No.: | KG11-005040 |
| Model: BDRARGZG11EDA-E-J- | | |
| First registration: 10, Jan. 2001 | Mileage: | 62,140 |
| CAN system type: Type 19 | | |
| Symptom (Results from interview with custome | er) | |
| Headlamps suddenly turn ON while driving The engine does not restart after stopping switch OFF. | | ng the ignition |
| •The cooling fan continues rotating while tu | ning the ignition swit | ch ON. |
| | | |
| | | |
| Condition at inspection | | |
| Error Symptom: Present / Past | | |
| The engine does not start. While turning the ignition switch ON, • The headlamps (Lo) turn ON, and the cool • The interior lamp does not turn ON. | ing fan continues rota | ating. |
| | | |
| | | JSMIA0531G |

DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

HOW TO USE THIS SECTION

HOW TO USE THIS MANUAL HOW TO USE THIS SECTION

Information

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

Abbreviation List

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

| Abbreviation | Unit name | |
|--------------|---|---|
| A-BAG | Air bag diagnosis sensor unit | |
| ABS | ABS actuator and electric unit (control unit) | |
| AV | AV control unit | F |
| AVM | ITS control unit | |
| BCM | BCM | |
| DLC | Data link connector | G |
| ECM | ECM | |
| EPS | Power steering control module | H |
| HVAC | A/C auto amp. or front air control | |
| IPDM-E | IPDM E/R | |
| M&A | Combination meter | |
| STRG | Steering angle sensor | |
| ТСМ | ТСМ | 1 |

LAN

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LAN-21

[CAN]

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INFOID:000000010480456

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PRECAUTION PRECAUTIONS

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

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

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

Precautions for Trouble Diagnosis

CAUTION:

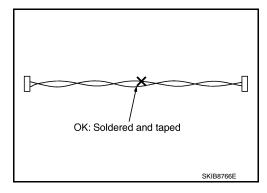
Follow the instructions listed below. Failure to do this may cause damage to parts:

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

Precautions for Harness Repair

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

A fray of twisted lines must be within 110 mm (4.33 in).



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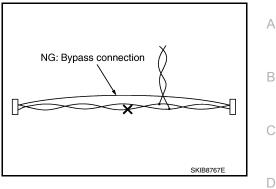
PRECAUTIONS

< PRECAUTION >

[CAN]

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

spliced wire becomes separated and the characteristics of twisted line are lost.



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

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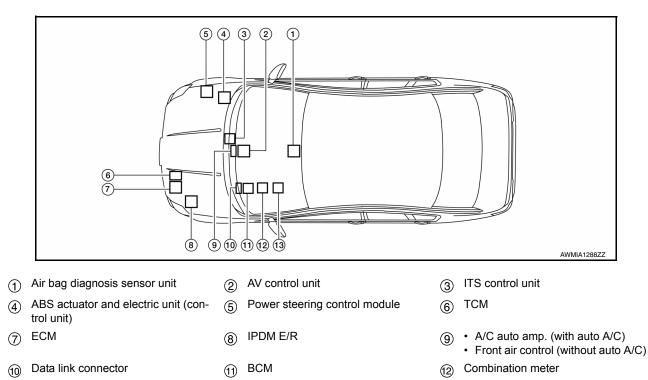
COMPONENT PARTS

< SYSTEM DESCRIPTION >

SYSTEM DESCRIPTION COMPONENT PARTS

Component Parts Location

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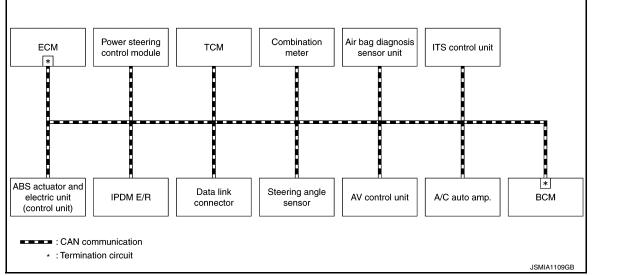


(13) Steering angle sensor

SYSTEM CAN COMMUNICATION SYSTEM

CAN COMMUNICATION SYSTEM : System Description

SYSTEM DIAGRAM



NOTE:

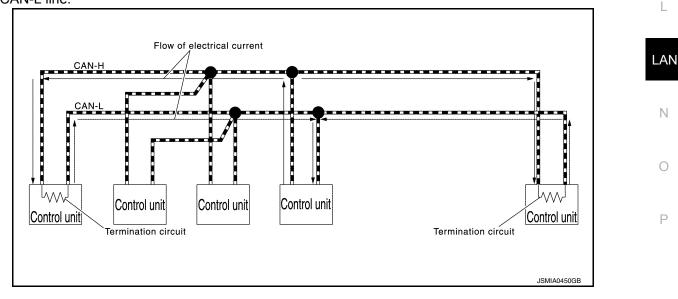
For manual A/C, A/C auto amp. is described as front air control.

DESCRIPTION

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

CAN COMMUNICATION SIGNAL GENERATION

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



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[CAN]

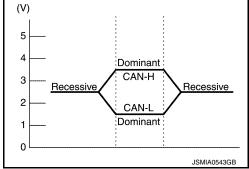
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< SYSTEM DESCRIPTION >

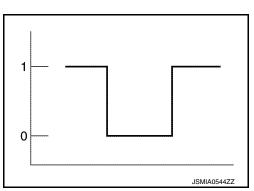
 The current flows separately into the termination circuits connected across the CAN communication system and the termination circuits drop voltage to generate a potential difference between the CAN-H line and the CAN-L line.

NOTE:

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



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



THE CONSTRUCTION OF CAN COMMUNICATION SIGNAL (MESSAGE)

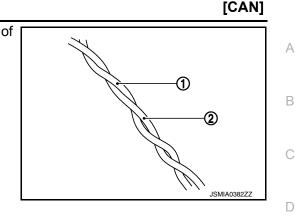
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|---|---|---|---|---|---|-------------|
| | | | | | | |
| | | | | | | |
| | | | | | | JSMIA0545ZZ |

| 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

< SYSTEM DESCRIPTION >

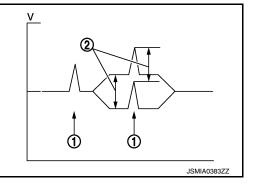
The CAN communication line is a twisted pair wire consisting of strands of CAN-H (1) and CAN-L (2) and has noise immunity.



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.



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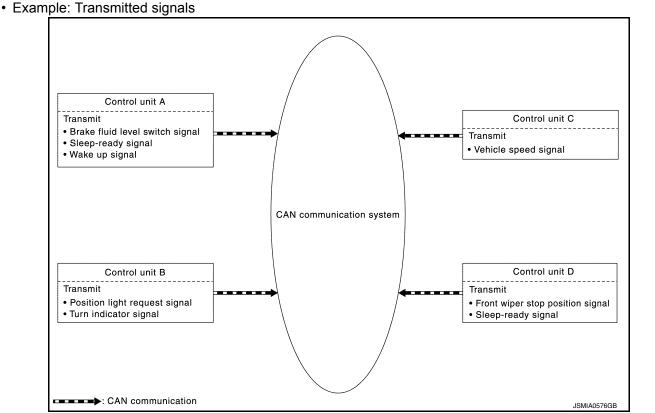
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CAN Signal Communications

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.

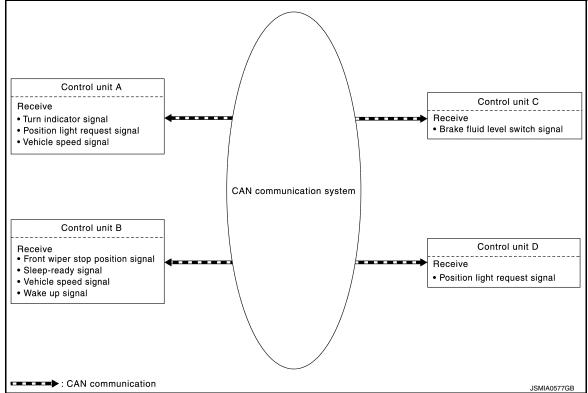


Revision: May 2014



< SYSTEM DESCRIPTION >

· Example: Received signals

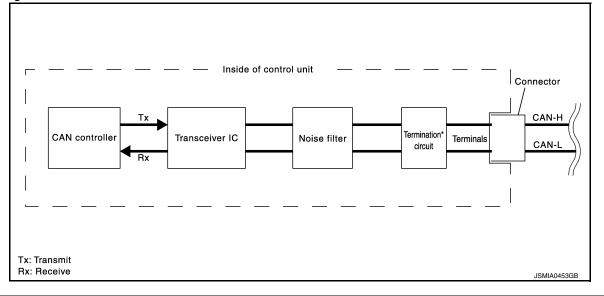


NOTE:

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

CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

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



| Component | System description |
|----------------|---|
| CAN controller | It controls CAN communication signal transmission and reception, error detection, etc. |
| Transceiver IC | It converts digital signal into CAN communication signal, and CAN communication signal into digital signal. |

< SYSTEM DESCRIPTION >

| Component | | | System descrip | otion | | |
|---|--------------------------|-------------------|----------------|--------------|-------------|----------------------|
| Noise filter | It eliminates noise of C | CAN communication | on signal. | | | |
| Termination circuit [*] (Resistance of approx. 120 Ω) | Generates a potential | difference betwee | n CAN-H and | CAN-L. | | |
| These are the only control units | wired with both ends of | CAN communicati | on system. | | | |
| CAN COMMUNICATI | ON SYSTEM · | CAN Syster | n Specifi | cation Ch | art 🗤 | OID:0000000010480463 |
| | | - | - | | | 012.0000000010400400 |
| Determine CAN system type IOTE: | e from the following | specification c | hart. | | | |
| lefer to <u>LAN-16, "Trouble E</u> | Diagnosis Procedure | e" for how to us | e CAN syst | em specifica | tion chart. | |
| | | _ | | · | | |
| Body type | | | | Sedan | | |
| Axle | | | | 2WD | | |
| Engine | | QR2 | 5DE | | VQ35DE | |
| Transmission | | | | CVT | | |
| Brake control | | | | VDC | | |
| Driver assistance system | | | × | | | × |
| Navigation system | | | × | | × | × |
| CAN system type | | 1 | 2 | 3 | 4 | 5 |
| | CA | N communication | unit | | | |
| ECM | | × | × | × | × | × |
| ABS actuator and electric unit (co | ontrol unit) | × | × | × | × | × |
| Power steering control module | | × | × | × | × | × |
| IPDM E/R | | × | × | × | × | × |
| ТСМ | | × | × | × | × | × |
| Data link connector | | × | × | × | × | × |
| Combination meter | | × | × | × | × | × |
| Steering angle sensor | | × | × | × | × | × |
| Air bag diagnosis sensor unit | | × | × | × | × | × |
| AV control unit | | | × | | × | × |
| ITS control unit | | | × | | | × |
| A/C auto amp. or front air control | | × | × | × | × | × |
| | | | | | | |

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION NOTE:

Check CAN system type from the vehicle shape and equipment.

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< SYSTEM DESCRIPTION >

- ① Warning systems switch
- 7 inch color display
- ③ NAVI switches

- (A) With driver assistance system
- B With Navigation system

CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

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

Refer to LAN-21. "Abbreviation List" for the abbreviations of the connecting units.

| | | | | | | | eang e | | | T: Trans | smit R: | Receive |
|--|-----|-----|--------|-----|-----|------|--------|----|-----|----------|---------|---------|
| Signal name | ECM | EPS | IPDM-E | TCM | M&A | STRG | A-BAG | AV | AVM | HVAC | ABS | BCM |
| A/C compressor request signal | Т | | R | | | | | | | R | | |
| Accelerator pedal position signal | Т | | | R | | | | R | | | R | |
| ASCD operation signal | Т | | | R | | | | | | | | |
| ASCD status signal | Т | | | | R | | | | | | | |
| Closed throttle position signal | Т | | | R | | | | | | | | |
| Cooling fan speed request signal | Т | | R | | | | | | | R | | |
| Engine coolant temperature signal | Т | | R | R | R | | | | R | R | | |
| Engine and CVT integrated control | Т | | | R | | | | | | | | |
| signal | R | | | Т | | | | | | | | |
| Engine speed signal | Т | | | R | R | | | R | R | R | R | |
| Engine status signal | Т | R | R | | | | | R | | | | R |
| Fuel consumption monitor signal | Т | | | | R | | | R | | | | |
| Fuel filler cap warning display signal | Т | | | | R | | | | | | | |
| | Т | | | | R | | | | | | | |
| Malfunctioning indicator lamp signal | R | | | Т | | | | | | | | |
| Oil pressure warning lamp signal | Т | | | | R | | | | | | | |
| Power generation command value signal | т | | R | | | | | | | | | |
| Target throttle position signal | Т | | | | | | | | | | R | |
| Wide open throttle position signal | Т | | | R | | | | | | | | |
| EPS operation signal | R | Т | | | | | | | | | | |

< SYSTEM DESCRIPTION >

| Signal name | ECM | EPS | IPDM-E | TCM | M&A | STRG | A-BAG | AV | AVM | HVAC | ABS | BCM | 1 |
|--|-----|-----|--------|-----|--------|------|-------|----|-----|------|-----|----------|---|
| Hydraulic pump electric power steer- ng warning lamp signal | | т | = | | R | | | | | | | | |
| Detention switch signal | | | т | | R | | | | | | | R | |
| Front wiper stop position signal | | | Т | | | | | | | | | R | |
| High beam status signal | R | | Т | | | | | | | | | | |
| Hood switch signal | | | Т | | | | | | | | | R | |
| _ | | | R | | | | | | | | | Т | |
| Interlock/PNP switch signal | | | Т | | R | | | | | | | R | |
| Low beam status signal | R | | Т | | | | | | | | | | |
| Oil pressure switch signal | | | Т | | R R | | | | | | | T R | |
| Push-button ignition switch status | | | т | | IX . | | | | | | | R | |
| signal Rear window defogger control signal | R | | Т | | | | | | | | | | |
| Sleep ready signal | IX. | | T | | | | | | | | | R | |
| Starter relay status signal | | | T | | | | | | | | | R | |
| Current gear position signal | | | • | т | | | | R | | | R | | |
| CVT position indicator signal | | | | T | R | | | | | | R | | |
| nput shaft revolution signal | R | | | T | | | | R | | | R | | |
| Manual mode indicator signal | | | | T | R | | | | | | R | | |
| N range signal | | | | Т | | | | | | | | R | |
| Output shaft revolution signal | R | | | Т | | | | R | | | R | | |
| D/D OFF indicator signal ^{*1} | | | | Т | R | | | | R | | | | |
| P range signal | | | | Т | | | | | | | R | R | |
| Shift position signal | | | | Т | R | | | R | | | | | |
| Brake fluid level signal | | | | | Т | | | | | | R | | |
| Distance to empty signal | | | | | Т | | | R | | | | | |
| Fuel filler cap warning reset signal | R | | | | Т | | | | | | | | |
| Fuel level low warning signal | | | | | Т | | | R | | | | | _ |
| Fuel level sensor signal | R | | | | Т | | | | | | | | L |
| Paddle shift down signal [*] 2 | | | | R | Т | | | | | | | | |
| Paddle shift up signal ^{*2} | | | | R | Т | | | | | | | | |
| Manual mode signal ^{*2} | | | | R | Т | | | | | | | <u> </u> | |
| Market information signal | | | | | Т | | | R | | R | | | |
| Non-manual mode signal ^{*2} | | | | R | T | | | | | | | | |
| Overdrive control switch signal ^{*1} | | | | R | T | | | | | | | | |
| Parking brake switch signal | | | | | T | | | R | | | R | R | |
| Seat belt buckle switch signal | | | | | T | | | | | | | R | |
| Sear Der Duckie Switch Signal | R | R | R | R | T | | | R | | R | | R | |
| Vehicle speed signal | R | R | R | | R | | | R | R | | Т | R | |
| Steering angle sensor signal | 1 | R | | | | Т | | | R | | R | | |
| Shock status signal | | | | | | | Т | | | | | R | |

Revision: May 2014

[CAN]

< SYSTEM DESCRIPTION >

| Signal name | ECM | EPS | IPDM-E | TCM | M&A | STRG | A-BAG | AV | AVM | HVAC | ABS | BCM |
|---------------------------------------|-----|-----|--------|-----|-----|------|-------|----|-----|-----------------|-----|-----------------|
| Buzzer output signal | | | | | R | | | | Т | | | |
| | | | | | R | | | | | | | Т |
| Meter display signal | | | | | R | | | | Т | | | |
| A/C switch signal | R | | | | | | | | | T ^{*3} | | T ^{*4} |
| Ambient sensor signal ^{*3} | | | | | R | | | | | Т | | |
| Blower fan motor switch signal | R | | | | | | | | | T ^{*3} | | T ^{*4} |
| ABS operation signal | | | | R | | | | | | | Т | |
| ABS warning lamp signal | | | | | R | | | | | | Т | |
| Brake warning lamp signal | | | | | R | | | | | | Т | |
| SLIP indicator lamp signal | | | | | R | | | | | | Т | |
| TCS operation signal | R | | | R | | | | | | | Т | |
| VDC OFF indicator lamp signal | | | | | R | | | | | | Т | |
| VDC operation signal | R | | | R | | | | | | | Т | |
| Yaw rate signal | | | | | | | | | R | | Т | |
| Day time running light request signal | | | R | | | | | | R | R | | Т |
| Door switch signal | | | R | | R | | | R | R | | | Т |
| Front fog light request signal | | | R | | R | | | | R | R | | Т |
| Front wiper request signal | | | R | | | | | | R | | | Т |
| High beam request signal | | | R | | R | | | | R | R | | Т |
| Horn reminder signal | | | R | | | | | | | | | Т |
| Ignition switch ON signal | | | R | | | | | | | | | Т |
| Key warning signal | | | | | R | | | | | | | Т |
| Low beam request signal | | | R | | R | | | | R | R | | Т |
| Meter TPMS display signal | | | | | R | | | | | | | Т |
| Position light request signal | | | R | | R | | | | R | R | | Т |
| Rear window defogger switch signal | | | R | | | | | | | R | | Т |
| Sleep wake up signal | | | R | | R | | | | | | | Т |
| Starter control relay signal | | | R | | | | | | | | | Т |
| Theft warning horn request signal | | | R | | | | | | | | | Т |
| Tire pressure data signal | | | | | R | | | R | | | | Т |
| Trunk switch signal | | | | | R | | | R | R | | | Т |
| Turn indicator signal | | | | | R | | | R | R | | | Т |

*1: QR25DE models

*2: VQ35DE models

*3: With automatic air conditioning system

*4: With manual air conditioning system

NOTE:

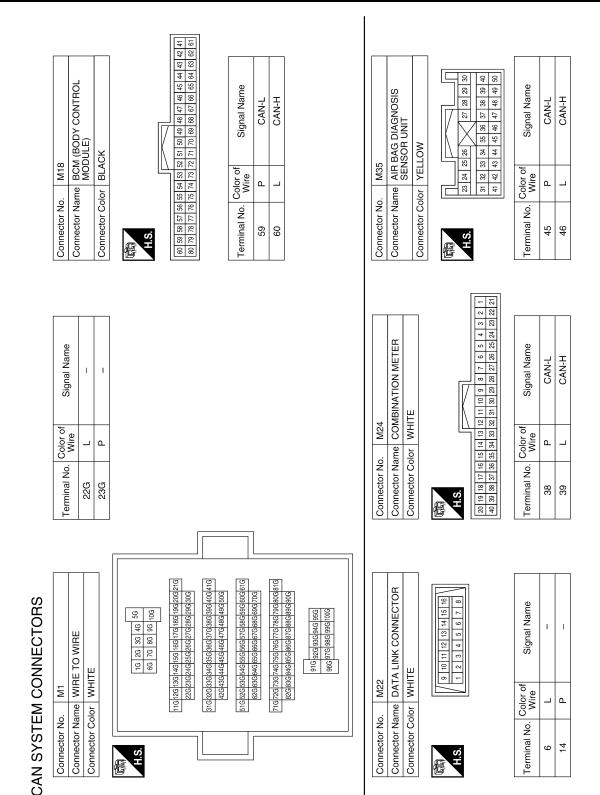
CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

< WIRING DIAGRAM > WIRING DIAGRAM CAN SYSTEM

Wiring Diagram

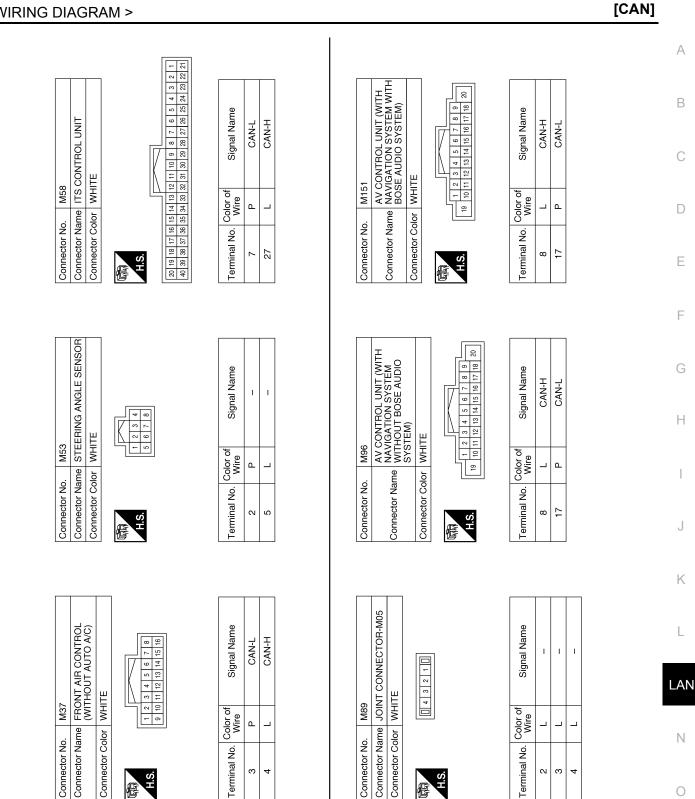


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| 0. M155 200r WHIE 200r WHIE 200r WHIE 200r WHIE 200r Connector Name 200r Connector Name 200r Connector Name 200r Signal Name 200r 2 200r 2 | Obvorvedent M155 Connector Num Ior Calor WHITE Connector Name Ior Calor Ior Ior Ior P - - P - - - P - - - - Invo Wire - - - Invo P - - - - Invo P - - - - - Invo P - | M156 Joint connector-M07 WHITE | | of Signal Name | 1 1 | 1 | 1 | E11 WIRE TO WIRE WHITE | 2 3 4 5 6 7 8 10 11 12 13 14 15 16 | of Signal Name | 1 | 1 | - |
|--|--|---|-----------|----------------|-----|---|---|------------------------------|--|-------------------------------|-------|-------|---|
| | Connector No. Connector Name Connector Color Connector Name Connector Name | nector No. nector Name nector Color | 国 H.S. | Sol | | | _ | o le | | Terminal No. Color of Wire | | | |
| | Connector No. Connector Name Connector Color Connector Name Connector Name | CONNECTOR-M06 | 3 2 1 | Signal Name | 1 | 1 | | OR25DE EXCEPT CALIFORNIA) | 113(17) 121 125 114(18) 122 126 114(18) 122 126 115(10) 124 128 | Signal Name | CAN-L | CAN-H | |
| | | nector No. nector Name nector Color | ت. ن | | - | | | | | | | | |

< WIRING DIAGRAM >

| DIAGRAI | M > | | CA | | [CAN] |
|--|------------|-----------------------|-----------|--|--|
| | | | | Connector No. E31 Connector Name ECM (GR25DE FOR CallFORNIA) Connector Name ECM (GR25DE FOR CallFORNIA) Connector Color GRAY Mission 97 (no) (no) (1141) 112 123 125 (100 (no) (1141) 112 124 122) Terminal No. Color of Nire 99 P 100 L | |
| E22 JOINT CONNECTOR-E04 GRAY | 4 | Signal Name | 1 1 1 1 1 | Signal Name | |
| | 0 | Color of Wire P | a a a a a | Color of Mire P | |
| Connector No. Connector Name Connector Color | 际词 H.S. | al No. | 0 σ 4 σ | 22G 23G 23G | |
| | | | | |] |
| E21 JOINT CONNECTOR-E03 GRAY | 4 3 2 1 | Signal Name | 1 1 1 1 1 | E30 E30 In WILE TO WILE VILIE 20 106 36 46 106 36 46 106 36 46 106 36 46 106 36 46 106 36 46 106 36 86 106 36 86 106 36 86 106 36 86 106 36 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 106 96 86 107 96 86 108 96 96 | 956 946 932 916 100 (995 (982) 972 966 |
| | 6 | Color of Wire L | | E30 Ime WIRE T VINHTE 106 106 106 107 106 108 106 108 106 108 106 | |
| Connector No. Connector Name Connector Color | 际可 H.S. | al No. | 0 π 4 μ ω | Connector No. Connector Name Connector Color History Bill |] |
| | | | | | ABMIA6220GB |

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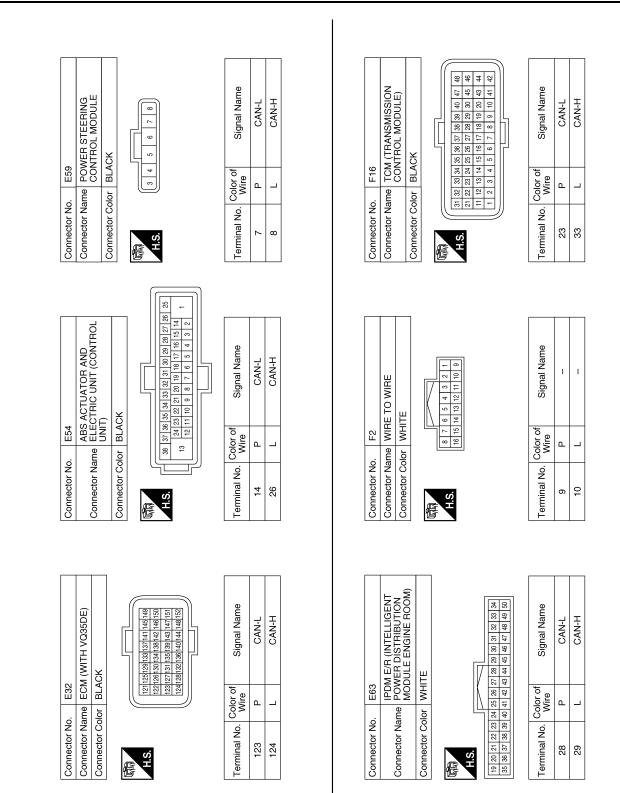
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CAN SYSTEM

< WIRING DIAGRAM >

[CAN]

ABMIA6221GB

| DIAGNOSIS AND REPAIR WORKFLOW | |
|---|--------------------|
| < BASIC INSPECTION > | [CAN] |
| BASIC INSPECTION | A |
| DIAGNOSIS AND REPAIR WORKFLOW | |
| Interview Sheet | :000000010480466 B |
| NOTE: Refer to <u>LAN-16, "Trouble Diagnosis Procedure"</u> for how to use interview sheet. | - C |
| CAN Communication System Diagnosis Interview Sheet | C |
| Date received: | D |
| Type: VIN No.: | E |
| Model: | F |
| First registration: Mileage: | G |
| CAN system type: | Н |
| Symptom (Results from interview with customer) | I |
| | J |
| | К |
| | L |
| Condition at inspection | LAN |
| Error symptom : Present / Past | N |
| | 0 |
| | Ρ |
| | |

SKIB8898E

DTC/CIRCUIT DIAGNOSIS MALFUNCTION AREA CHART

Main Line

INFOID:000000010480467

| Malfunction area | Reference |
|--|-------------------------------|
| Main line between IPDM E/R and data link connector | LAN-41, "Diagnosis Procedure" |
| Main line between data link connector and combination meter | LAN-42. "Diagnosis Procedure" |
| Main line between combination meter and air bag diagnosis sensor unit | LAN-43, "Diagnosis Procedure" |
| Main line between combination meter and air AV control unit | LAN-44, "Diagnosis Procedure" |
| Main line between air bag diagnosis sensor unit and A/C auto amp. (with auto A/C) | LAN-45, "Diagnosis Procedure" |
| Main line between air bag diagnosis sensor unit and front air control (without auto A/C) | |
| Main line between AV control unit and A/C auto amp. (with auto A/C) | LAN-46, "Diagnosis Procedure" |
| Main line between AV control unit and front air control (without auto A/C) | LAN-40, Diagnosis Filledule |

Branch Line

INFOID:000000010480468

| Malfunction area | Reference |
|---|-------------------------------|
| ECM branch line circuit | LAN-47, "Diagnosis Procedure" |
| ABS actuator and electric unit (control unit) branch line circuit | LAN-48. "Diagnosis Procedure" |
| Power steering control module branch line circuit | LAN-49, "Diagnosis Procedure" |
| IPDM E/R branch line circuit | LAN-50, "Diagnosis Procedure" |
| TCM branch line circuit | LAN-51, "Diagnosis Procedure" |
| Data link connector branch line circuit | LAN-52, "Diagnosis Procedure" |
| Combination meter branch line circuit | LAN-53, "Diagnosis Procedure" |
| Steering angle sensor branch line circuit | LAN-54, "Diagnosis Procedure" |
| Air bag diagnosis sensor unit branch line circuit | LAN-55, "Diagnosis Procedure" |
| AV control unit branch line circuit | LAN-56, "Diagnosis Procedure" |
| ITS control unit branch line circuit | LAN-57, "Diagnosis Procedure" |
| A/C auto amp. branch line circuit | LAN-58, "Diagnosis Procedure" |
| BCM branch line circuit | LAN-59, "Diagnosis Procedure" |

Short Circuit

INFOID:000000010480469

| Malfunction area | Reference |
|---------------------------|-------------------------------|
| CAN communication circuit | LAN-60, "Diagnosis Procedure" |

| Ν | AIN LINE BETV | VEEN IPDM-E AI | ND DLC CIRCUI | т |
|---|---|--|---------------|------------------------|
| < DTC/CIRCUIT DIA | GNOSIS > | | | [CAN] |
| MAIN LINE BE | TWEEN IPDM-E | E AND DLC CIF | RCUIT | |
| Diagnosis Proced | lure | | | INFOID:000000010480470 |
| 1.CHECK CONNEC ⁻ | TOR | | | |
| Check the followi and harness side) Harness connector Harness connector Harness connector Is the inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS Disconnect the for IPDM E/R Harness connector | attery cable from the normal terminals and controls or E30 or M1 <u>t normal?</u> e terminal and connect S CONTINUITY (OPEN llowing harness connect | nectors for damage, I tor. N CIRCUIT) ectors. | | onnector. |
| IPDM E/R ha | rness connector | Harness | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E63 | 29 | E30 | 22G | Existed |
| 200 | 28 | 200 | 23G | Existed |
| 3. CHECK HARNESS | | N CIRCUIT) | | 0. |
| Harness | connector | Data link | connector | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| | | | | |

Is the inspection result normal?

M1

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

22G

23G

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

M22

NO >> Repair the main line between the harness connector M1 and the data link connector.

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Existed

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MAIN LINE BETWEEN DLC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

Diagnosis Procedure

INFOID:000000010480471

[CAN]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Data link connector | | Combination meter | Continuity | |
|---------------------|--------------|-------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| IVIZZ | 14 | 11/24 | 38 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the data link connector and the combination meter.

NO >> Repair the main line between the data link connector and the combination meter.

| Ν | AIN LINE BETW | EEN M&A AND | A-BAG CIRCUI | т | | |
|--|---|--------------------------------|--------------|------------------------|---|--|
| < DTC/CIRCUIT DIA | GNOSIS > | | | [CAN] | | |
| MAIN LINE BE | FWEEN M&A A | ND A-BAG CIF | RCUIT | | | |
| Diagnosis Procec | lure | | | INFOID:000000010480472 | А | |
| 1.CHECK HARNESS | | I CIRCUIT) | | | В | |
| Disconnect the fol Combination mete A/C auto amp. (with a control with a control w | Ittery cable from the ne lowing harness conne er th auto A/C) without auto A/C) | ctors. ination meter harnes | | ∿C auto amp. harness | | |
| Combination mete | Combination meter harness connector A/C auto amp. harness connector | | | | | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | - Continuity | F | |
| | 39 | M152 | 1 | Existed | | |
| M24 | 38 | IVI 152 | 21 | Existed | | |

- Without auto A/C

| Combination meter | er harness connector | Front air control | harness connector | Continuity | Н |
|-------------------|----------------------|-------------------|-------------------|--------------|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | - Continuity | |
| M24 | 39 | M37 | 4 | Existed | |
| 10124 | 38 | IVIS7 | 3 | 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 combination meter and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the air bag diagnosis sensor unit and the air bag diagnosis sensor unit.

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MAIN LINE BETWEEN M&A AND AV CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN M&A AND AV CIRCUIT

Diagnosis Procedure

INFOID:000000010480473

[CAN]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- Combination meter
- AV control unit
- ECM
- 4. Check the continuity between the combination meter harness connector and the AV control unit harness connector.
- Navigation without BOSE system

| Combination meter harness connector | | AV control unit harness connector | | Continuity |
|-------------------------------------|--------------|-----------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M24 | 39 | M96 | 8 | Existed |
| | 38 | | 7 | Existed |

Navigation with BOSE system

| Combination meter harness connector | | AV control unit harness connector | | Continuity |
|-------------------------------------|--------------|-----------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M24 | 39 | M151 | 8 | Existed |
| | 38 | | 7 | Existed |

Is the inspection result normal?

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

- YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.
- NO >> Repair the main line between the combination meter and the air AV control unit.

| | Μ | AIN LINE BETW | EEN A-BAG AN | ID HVAC CIRCU | IT | |
|--|---|---|--------------------------------|---------------|------------------------|---|
| < | DTC/CIRCUIT DIA | GNOSIS > | | | [CAN] | |
| Μ | AIN LINE BET | FWEEN A-BAG | AND HVAC C | IRCUIT | | |
| Di | iagnosis Proced | lure | | | INFOID:000000010480474 | A |
| 1 | CHECK HARNESS | | N CIRCUIT) | | | В |
| 1. 2. 3. - - 4. | Disconnect the ba Disconnect the fol Combination meter A/C auto amp. (wi Front air control (v ECM Check the continu connector (with au | Ittery cable from the ne llowing harness conne er ith auto A/C) without auto A/C) | ctors. ination meter harnes | | VC auto amp. harness | C |
| - | With auto A/C | | | | | E |
| Combination meter harness connector A/C auto amp. harness connector Continuity | | | | | | |
| | Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | F |
| | M24 | 39 | M152 | 1 | Existed | |
| | IVI∠4 | 00 | WI IOZ | 04 | E total | |

- Without auto A/C

| Combination meter | er harness connector | Front air control | harness connector | Continuity | . н |
|-------------------|----------------------|-------------------|-------------------|------------|-----|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| M24 | 39 | M37 | 4 | Existed | - |
| IVIZ4 | 38 | IVIS7 | 3 | Existed | |

21

Existed

Is the inspection result normal?

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

38

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

NO >> Repair the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

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MAIN LINE BETWEEN AV AND HVAC CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN AV AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:000000011005346

[CAN]

1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

- 1. Turn the ignition switch OFF.
- 2. Disconnect the battery cable from the negative terminal.
- 3. Disconnect the following harness connectors.
- AV control unit
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C and BOSE audio system

| AV control unit h | arness connector | A/C auto amp. harness connector | | Continuity |
|-------------------|------------------|---------------------------------|----|------------|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity |
| M151 | 8 | M152 | 1 | Existed |
| WITOT | 17 | IVI 152 | 21 | Existed |

With auto A/C without BOSE audio system

| AV control unit h | AV control unit harness connector A/C auto amp. harness connector | | arness connector | Continuity |
|-------------------|---|---------------|------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M152 | 1 | Existed |
| 10190 | 17 | 101102 | 21 | Existed |

Without auto A/C and BOSE audio system

| AV control unit h | arness connector | Front air control harness connector Connector No. Terminal No. | | - Continuity |
|-------------------|------------------|--|---|--------------|
| Connector No. | Terminal No. | | | Continuity |
| M151 | 8 | M27 | 4 | Existed |
| M151 M37 | | 10137 | 3 | Existed |

Without auto A/C without BOSE audio system

| AV control unit I | ontrol unit harness connector Front air control harness connector | | Continuity | |
|-------------------|---|----------------------------|------------|------------|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity |
| M96 | 8 | M37 | 4 | Existed |
| IVIƏO | 17 | 10107 | 3 | 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 AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).
- NO >> Repair the main line between the AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

ECM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | | [CAN] |
|---|--------------------|-------------------------------|
| ECM BRANCH LINE CIRCUIT | | |
| Diagnosis Procedure | | INFOID:00000001048047 |
| 1.CHECK CONNECTOR | | |
| Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the ECM for dam connector side). | nage, bend and loc | ose connection (unit side and |
| Is the inspection result normal? | | |
| YES >> GO TO 2. NO >> Repair the terminal and connector. | | |
| NO >> Repair the terminal and connector. 2.CHECK HARNESS FOR OPEN CIRCUIT | | |
| Disconnect the connector of ECM. | | |
| Check the resistance between the ECM harness connect QR25DE except for California | or terminals. | |
| ECM harness connector | | Desistance (O) |
| Connector No. Terminal No. | | Resistance (Ω) |
| E10 100 | 99 | Approx. 108 – 132 |
| - QR25DE for California | | |
| ECM harness connector | | |
| Connector No. Terminal No. | | – Resistance (Ω) |
| E31 100 | 99 | Approx. 108 – 132 |
| - VQ35DE | | |
| ECM harness connector | | |
| Connector No. Terminal No. | | Resistance (Ω) |
| E32 124 | 123 | Approx. 108 – 132 |
| Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the ECM branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the ECM. R • QR25DE: EC-204, "Diagnosis Procedure" • VQ35DE: EC-720, "Diagnosis Procedure" Is the inspection result normal? YES (Present error)>>Replace the ECM. Refer to the followi • QR25DE: EC-541, "Removal and Installation". • VQ35DE: EC-1042, "Removal and Installation". YES (Past error)>>Error was detected in the ECM branch line NO >> Repair the power supply and the ground circuit. | ng. | <u>]</u> . |
| | | |

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 and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) | |
|---|------------|--------------|----------------|-----------------|
| Conr | nector No. | Terminal No. | | Resistance (22) |
| | E54 | 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-71, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-129</u>, "Removal <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.

EPS BRANCH LINE CIRCUIT

| | | | [CAN] |
|--|---|--------------------------------------|------------------------------------|
| < DTC/CIRCUIT DIAGNOSIS | | | |
| EPS BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010480477 |
| 1.CHECK CONNECTOR | | | |
| connection (unit side and | ble from the negative tern connectors of the power connector side). | ninal. steering control module fo | r damage, bend and loose |
| Is the inspection result normal YES >> GO TO 2. NO >> Repair the termina 2.CHECK HARNESS FOR C | al and connector. | | |
| 1. Disconnect the connector | | modulo | |
| | | control module harness con | nector terminals. |
| Power stee | ering control module harness co | onnector | |
| Connector No. | Termin | nal No. | Resistance (Ω) |
| E59 | 8 | 7 | Approx. 54 – 66 |
| Is the measurement value with YES >> GO TO 3. NO >> Repair the Power 3. CHECK POWER SUPPLY | steering control module b | | |
| Check the power supply and t nosis Procedure". | | ower steering control modu | le. Refer to <u>STC-23, "Diag-</u> |
| Is the inspection result normal YES (Present error)>>Replace <u>lation"</u> . YES (Past error)>>Error was NO >> Repair the power | ce the power steering oil | eering control module brand | |
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Revision: May 2014

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.

| | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| E63 | 29 | 28 | 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-31, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-32, "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.

Revision: May 2014

TCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOS | | | [CAN] |
|--|---|--|------------------------------|
| TCM BRANCH LIN | ECIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010480479 |
| 1.CHECK CONNECTOR | | | |
| 3. Check the following term nector side). TCM Harness connector F2 Harness connector E11 Is the inspection result norm YES >> GO TO 2. NO >> Repair the term 2.CHECK HARNESS FOR 1. Disconnect the connect | cable from the negative termi minals and connectors for da <u>nal?</u> inal and connector. | mage, bend and loose cc | nnection (unit side and con- |
| 2. Check the resistance be | TCM harness connector | nnector terminals. | |
| Connector No. | Termina | l No. | Resistance (Ω) |
| F16 | 33 | 23 | Approx. 54 – 66 |
| Check the power supply and • QR25DE: <u>TM-168</u> , "Diagn • VQ35DE: <u>TM-374</u> , "Diagn Is the inspection result norm YES (Present error)>>Rep • QR25DE: <u>TM</u> • VQ35DE: <u>TM</u> YES (Past error)>>Error w | Y AND GROUND CIRCUIT d the ground circuit of the TC tosis Procedure" osis Procedure" | ollowing. ion <u>"</u> on <u>"</u> ch line. | |
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DLC BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DLC 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 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.

| | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| 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.

INFOID:000000010480480

M&A BRANCH LINE CIRCUIT

| | MIGA DIVANOLI | | |
|---|---------------------------|-----------------------------|---------------------------|
| < DTC/CIRCUIT DIAGNOSIS > | | | [CAN] |
| M&A BRANCH LINE C | RCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010480481 |
| 1.CHECK CONNECTOR | | | |
| 1. Turn the ignition switch OFF. | | | |
| 2. Disconnect the battery cable | | | |
| Check the terminals and cor (unit side and connector side | | nation meter for damage, b | pend and loose connection |
| Is the inspection result normal? | | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the terminal a | | | |
| 2.CHECK HARNESS FOR OPE | | | |
| Disconnect the connector of a Check the resistance between | | tor harnoos connoctor tormi | inala |
| 2. Check the resistance betwee | | | 11015. |
| Combina | tion meter harness connec | tor | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| M24 | 39 | 38 | Approx. 54 – 66 |
| Is the measurement value within | the specification? | | |
| YES >> GO TO 3. NO >> Repair the combination | on motor branch line | | |
| 3.CHECK POWER SUPPLY AN | | | |
| | | | |
| Check the power supply and the METER : Diagnosis Procedure". | ground circuit of the | compination meter. Refer to | MINI-57, COMBINATION |
| Is the inspection result normal? | | | |
| YES (Present error)>>Replace t | | | al and Installation". |
| YES (Past error)>>Error was de | | | |
| NO >> Repair the power sup | ply and the ground cl | 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.

| Ste | Steering angle sensor harness connector | | |
|---------------|---|---|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M53 | 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-47, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-133, "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.

INFOID:000000010480482

A-BAG BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > [CAN] | |
|---|---|
| A-BAG BRANCH LINE CIRCUIT | Δ |
| Diagnosis Procedure | A |
| WARNING: Always observe the following items for preventing accidental activation. Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) Never use unspecified tester or other measuring device. | B |
| 1.CHECK CONNECTOR | |
| 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? | |
| 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-40, "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. | Η |

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AV BRANCH LINE CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

AV 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 AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of AV control unit.
- 2. Check the resistance between the AV control unit harness connector terminals.
- With navigation system without BOSE audio system

| AV control unit harness connector | | Resistance (Ω) | |
|-----------------------------------|--------------|----------------|-----------------|
| Connector No. | Terminal No. | | |
| M96 | 8 | 17 | Approx. 54 – 66 |

With navigation system and BOSE audio system

| | AV control unit harness connector | | |
|---------------|-----------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M151 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

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

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

- With navigation system without BOSE audio system: <u>AV-267, "AV CONTROL UNIT : Diagnosis Procedure"</u>
- With navigation system and BOSE audio system: <u>AV-376, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- With navigation system without BOSE audio system: <u>AV-298, "Removal and Installation"</u>
- With navigation system and BOSE audio system: <u>AV-416, "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.

AVM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | > | | [CAN] |
|---|-------------------------------|-------------------------------|----------------------------|
| AVM BRANCH LINE C | IRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000010480485 |
| 1.CHECK CONNECTOR | | | |
| 1. Turn the ignition switch OFF | | | |
| 2. Disconnect the battery cable | | ninal. | |
| 3. Check the terminals and co side and connector side). | nnectors of the ITS cor | ntrol unit for damage, bend a | and loose connection (unit |
| Is the inspection result normal? | | | |
| YES >> GO TO 2. | | | |
| NO >> Repair the terminal a | | | |
| 2.CHECK HARNESS FOR OPI | EN CIRCUIT | | |
| 1. Disconnect the connector of | | | |
| 2. Check the resistance betwee | en the HS control unit r | narness connector terminals | |
| ITS c | ontrol unit harness connector | | Posistance (0) |
| Connector No. | Termin | al No. | Resistance (Ω) |
| M58 | 27 | 7 | Approx. 54 – 66 |
| Is the measurement value within | the specification? | | |
| YES >> GO TO 3. NO >> Repair the ITS contr | ol unit branch line | | |
| 3. CHECK POWER SUPPLY AN | | | |
| Check the power supply and th | | | AS 64 "Diagnosis Proco |
| dure". | | | AS-04, Diagnosis Floce- |
| Is the inspection result normal? | | | |
| YES (Present error)>>Replace | | | d Installation". |
| YES (Past error)>>Error was de NO >> Repair the power su | | | |
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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000010480486

[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)
- Front air control (without auto A/C)

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---------------------------------|--------------|----|-----------------|
| Connector No. | Terminal No. | | |
| M152 | 1 | 21 | Approx. 54 – 66 |

Without auto A/C

| Front air control harness connector | | | Resistance (Ω) |
|-------------------------------------|--------------|---|-------------------------|
| Connector No. | Terminal No. | | |
| M37 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

${\it 3.}$ 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 following.

AUTOMATIC AIR CONDITIONER: <u>HAC-78, "A/C AUTO AMP. : Diagnosis Procedure"</u>

MANUAL AIR CONDITIONER: <u>HAC-153</u>, "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 following.

- AUTOMATIC AIR CONDITIONER: <u>HAC-102</u>, "Removal and Installation"
- MANUAL AIR CONDITIONER: <u>HAC-162</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the A/C auto amp. branch line (with auto A/C) or front air control branch line (without auto A/C).
- NO >> Repair the power supply and the ground circuit.

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

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > [CAN] BCM BRANCH LINE CIRCUIT Diagnosis Procedure 1.CHECK CONNECTOR | | | | |
|---|---|--|------------------------|-------------------------------|
| Diagnosis Procedure | < DTC/CIRCUIT DIAGNOSIS | > | | [CAN] |
| 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. Image: the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>> Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Present error)>> Error was detected in the BCM branch line. | BCM BRANCH LINE | CIRCUIT | | |
| 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. M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to <u>BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to <u>BCS-81, "Removal and Installation".</u> YES (Past error)>>Error was detected in the BCM branch line. </u> | Diagnosis Procedure | | | INFOID:000000010480487 |
| 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the BCM for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of BCM. 2. Check the resistance between the BCM harness connector terminals. BCM harness connector Resistance (Ω) M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | 1.CHECK CONNECTOR | | | |
| $\begin{array}{llllllllllllllllllllllllllllllllllll$ | Disconnect the battery cat Check the terminals and connector side). | le from the negative termi connectors of the BCM for | | ose connection (unit side and |
| 1. Disconnect the connector of BCM. 2. Check the resistance between the BCM harness connector terminals. BCM harness connector Resistance (Ω) Connector No. Terminal No. M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | YES >> GO TO 2. NO >> Repair the termina | l and connector. | | |
| 2. Check the resistance between the BCM harness connector terminals. BCM harness connector Resistance (Ω) Connector No. Terminal No. M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | 2.CHECK HARNESS FOR O | PEN CIRCUIT | | |
| Connector No. Terminal No. Resistance (Ω) M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | | | nector terminals. | |
| Connector No. Terminal No. M18 60 59 Approx. 108 – 132 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | | BCM harness connector | | Posistance (O) |
| Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the BCM branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | Connector No. | Termina | No. | Resistance (52) |
| YES >> GO TO 3. NO >> Repair the BCM branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the BCM. Refer to BCS-75, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the BCM. Refer to BCS-81, "Removal and Installation". YES (Past error)>>Error was detected in the BCM branch line. | M18 | 60 | 59 | Approx. 108 – 132 |
| | YES >> GO TO 3. NO >> Repair the BCM br 3.CHECK POWER SUPPLY A Check the power supply and the Is the inspection result normal? YES (Present error)>>Replace YES (Past error)>>Error was | anch line. AND GROUND CIRCUIT a ground circuit of the BC c e the BCM. Refer to <u>BCS-</u> detected in the BCM bran | 81, "Removal and Insta | |
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CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3. check harness continuity (short circuit)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

- QR engine models

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

- VQ engine models

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

3. Check the resistance between the BCM terminals.

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

INFOID:000000010480488

CAN COMMUNICATION CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > [CAN] |
|---|
| Is the measurement value within the specification? |
| YES >> GO TO 5. |
| NO >> Replace the ECM and/or the BCM. |
| 5.CHECK SYMPTOM |
| Connect all the connectors. Check if the symptoms described in the "Symptom (Results from interview with customer)" are reproduced. |
| Inspection result |
| Reproduced>>GO TO 6. |
| Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected. |
| 6.CHECK UNIT REPRODUCTION |
| Perform the reproduction test as per the following procedure for each unit. |
| 1. Turn the ignition switch OFF. |
| 2. Disconnect the battery cable from the negative terminal. |
| Disconnect one of the unit connectors of CAN communication system. |
| NOTE: ECM and BCM have a termination circuit. Check other units first. |
| 4. Connect the battery cable to the negative terminal. Check if the symptoms described in the "Symptom |
| (Results from interview with customer)" are reproduced. |
| NOTE: |
| Although unit-related error symptoms occur, do not confuse them with other symptoms. |
| Inspection result |
| Reproduced>>Connect the connector. Check other units as per the above procedure. |
| Non-reproduced>>Replace the unit whose connector was disconnected. |
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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:0000000011051332

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E30
- Harness connector M1

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 E30 and M1
- 2. Check the continuity between the IPDM E/R harness connector and the harness connector.

| IPDM E/R har | IPDM E/R harness connector Harne | | connector | Continuity |
|---------------|----------------------------------|---------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E63 | 29 | E30 | 22G | Existed |
| 203 | 28 | | 23G | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E30.

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 |
| M1 | 22G | M22 | 6 | Existed |
| 171 1 | 23G | 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 M1 and the data link connector.

| < DTC/CIRCUIT DIA | GNOSIS > | | TO A N | |
|---|--|----------------------|----------------------|---------------------------------|
| | | | _ | SYSTEM (TYPE 1)] |
| MAIN LINE BE | TWEEN DLC AI | ND M&A CIRCU | JIT | |
| Diagnosis Proced | dure | | | INFOID:000000011051333 |
| 1.CHECK HARNESS | | N CIRCUIT) | | |
| 3. Disconnect the foECMCombination meters | attery cable from the ne llowing harness conne | ctors. | combination meter ha | arness connector. |
| Data link | connector | Combination meter | harness connector | 0 |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| | 14 | | 38 | Existed |
| | >Check CAN system | type decision again. | | |
| YES (Past error)>>E meter. | >Check CAN system rror was detected in th e main line between th | ne main line between | | r and the combination neter. |

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MAIN LINE BETWEEN M&A AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN M&A AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:000000011051334

[CAN SYSTEM (TYPE 1)]

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.
- Combination meter
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the combination meter harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C

| Combination mete | Combination meter harness connector | | A/C auto amp. harness connector | |
|------------------|-------------------------------------|---------------|---------------------------------|--------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | - Continuity |
| M24 | 39 | M152 | 1 | Existed |
| 11/24 | 38 | | 21 | Existed |

Without auto A/C

| Combination meter | er harness connector | Front air control h | harness connector | Continuity |
|-------------------|----------------------|---------------------|-------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M24 | 39 | M37 | 4 | Existed |
| 10124 | 38 | | 3 | 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 combination meter and the air bag diagnosis sensor unit.

NO >> Repair the main line between the air bag diagnosis sensor unit and the air bag diagnosis sensor unit.

| DTC/CIRCUIT DIAG | GNOSIS > | | | N SYSTEM (TYPE 1)] |
|---|---|----------------------------------|--------------|-----------------------------|
| AIN LINE BET | TWEEN A-BAG | AND HVAC C | IRCUIT | |
| iagnosis Proced | lure | | | INFOID:000000011051336 |
| .CHECK HARNESS | CONTINUITY (OPEN | I CIRCUIT) | | |
| Disconnect the fol Combination mete A/C auto amp. (wi Front air control (v ECM Check the continu | Ittery cable from the ne lowing harness conne er th auto A/C) without auto A/C) | ectors. Dination meter harnes | | A/C auto amp. harness). |
| Combination meter harness connector A/C auto amp. harness connector | | | Continuity | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M24 | 39 | M152 | 1 | Existed |
| IVIZ4 | 38 | IVI 152 | 21 | Existed |

MAIN LINE BETWEEN A-BAG AND HVAC CIRCUIT

- Without auto A/C

| Combination meter | Combination meter harness connector | | Front air control harness connector | | Н |
|-------------------|-------------------------------------|---------------|-------------------------------------|------------|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity | |
| M24 | 39 | M37 | 4 | Existed | |
| 17124 | 38 | 10137 | 3 | Existed | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

NO >> Repair the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

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ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051338

1.CHECK CONNECTOR

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

Check the resistance between the ECM harness connector terminals. 2.

QR25DE except for California

| | ECM harness connector | | |
|---------------|-----------------------|-------------------------|-------------------|
| Connector No. | Termi | Resistance (Ω) | |
| E10 | 100 99 | | Approx. 108 – 132 |

QR25DE for California

| Connector No. Terminal No. | Resistance (Ω) |
|----------------------------|-------------------------|
| E31 100 99 | Approx. 108 – 132 |

VQ35DE

| ECM harness connector | | | Resistance (Ω) |
|-----------------------|---------|--|-------------------------|
| Connector No. | Termi | | |
| E32 | 124 123 | | Approx. 108 – 132 |

Is the measurement value within the specification?

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

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

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

QR25DE: <u>EC-204</u>, "Diagnosis Procedure"
 VQ35DE: <u>EC-720</u>, "Diagnosis Procedure"

Is the inspection result normal?

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

- QR25DE: <u>EC-541</u>, "Removal and Installation".
 VQ35DE: <u>EC-1042</u>, "Removal and Installation".
- YES (Past error)>>Error was detected in the ECM branch line.

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

ABS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

| Diagnosis Procedure | | | INFOID:000000011051339 |
|---|---|---|--|
| 1.CHECK CONNECTOR | | | |
| Check the terminals and | able from the negative term connectors of the ABS act nit side and connector side | uator and electric unit (c | ontrol unit) for damage, bend |
| NO >> Repair the termin | | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| Chack the resistance be | tween the ABS actuator a | nd electric unit (control u | nit) harness connector termi- |
| nals. | nd electric unit (control unit) harn | ess connector | , |
| nals. ABS actuator a | nd electric unit (control unit) harn Termin | | , Resistance (Ω) |
| nals. | Termin 26 | | , |
| ABS actuator a Connector No. E54 Sthe measurement value wi YES >> GO TO 3. NO >> Repair the ABS CHECK POWER SUPPLY Check the power supply and RC-71. "Diagnosis Procedu s the inspection result norm: | Termin 26 thin the specification? actuator and electric unit (c (AND GROUND CIRCUIT d the ground circuit of the tre". al? ace the ABS actuator and e | al No. 14 ontrol unit) branch line. ABS actuator and electr electric unit (control unit). | Resistance (Ω) Approx. 54 – 66 ic unit (control unit). Refer to Refer to <u>BRC-129</u>, "Removal |

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< DTC/CIRCUIT DIAGNOSIS >

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 power steering control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Powers | Resistance (Ω) | | |
|---------------|-------------------------|--|-----------------|
| Connector No. | Terminal No. | | |
| E59 | 8 7 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Power steering control module branch line.

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

Check the power supply and the ground circuit of the power steering control module. Refer to <u>STC-23, "Diag-nosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to <u>ST-38, "Removal and Instal-</u> lation".

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

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

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

| | [CAN SYSTEM (TYPE 1)] |
|--|--|
| IPDM-E BRANCH LINE CIRCUIT | |
| Diagnosis Procedure | INFOID:00000001105134 |
| 1.CHECK CONNECTOR | |
| Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the IPDM E/R for damag and connector side). | ge, bend and loose connection (unit side |
| Is the inspection result normal? | |
| YES >> GO TO 2. NO >> Repair the terminal and connector. | |
| 2.CHECK HARNESS FOR OPEN CIRCUIT | |
| | |
| Disconnect the connector of IPDM E/R. Check the resistance between the IPDM E/R harness connector | terminals. |
| | |
| IPDM E/R harness connector | Resistance (Ω) |
| Connector No. Terminal No. | Approx. 54 – 66 |
| Is the measurement value within the specification? | Αμριοχ. 54 – 60 |
| 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. Refe Is the inspection result normal? | er to <u>PCS-31, "Diagnosis Procedure"</u> . |
| | moval and Installation" |
| YES (Present error)>>Replace the IPDM E/R. Refer to <u>PCS-32. "Re</u> YES (Past error)>>Error was detected in the IPDM E/R branch line. NO >> Repair the power supply and the ground circuit. | |
| YES (Present error)>>Replace the IPDM E/R. Refer to <u>PCS-32. "Re</u> YES (Past error)>>Error was detected in the IPDM E/R branch line. | |
| YES (Present error)>>Replace the IPDM E/R. Refer to <u>PCS-32. "Re</u> YES (Past error)>>Error was detected in the IPDM E/R branch line. | |
| YES (Present error)>>Replace the IPDM E/R. Refer to <u>PCS-32. "Re</u> YES (Past error)>>Error was detected in the IPDM E/R branch line. | |
| YES (Present error)>>Replace the IPDM E/R. Refer to <u>PCS-32. "Re</u> YES (Past error)>>Error was detected in the IPDM E/R branch line. | |

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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051342

[CAN SYSTEM (TYPE 1)]

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).
- TCM
- Harness connector F2
- Harness connector E11

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.check harness for open circuit

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

| TCM harness connector | | | Resistance (Ω) |
|-----------------------|--------------|----|-------------------------|
| Connector No. | Terminal No. | | |
| F16 | 33 | 23 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

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

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

QR25DE: TM-168, "Diagnosis Procedure"

VQ35DE: TM-374, "Diagnosis Procedure"

Is the inspection result normal?

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

- QR25DE: <u>TM-187, "Removal and Installation"</u>
 VQ35DE: <u>TM-392, "Removal and Installation"</u>

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

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

DLC BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 1)]

| DTC/CIRCUIT DIAGNOSIS | | | [CAN SYSTEM (TYPE 1)] |
|---|---|-----------------------------------|------------------------------|
| DLC BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000001105134 |
| .CHECK CONNECTOR | | | |
| Turn the ignition switch OF Disconnect the battery cal Check the terminals and of (connector side and harnes the inspection result normal | ble from the negative terr connectors of the data li ess side). | minal. ink connector for damag | e, bend and loose connectior |
| YES >> GO TO 2. | <u>.</u> | | |
| NO >> Repair the termina | | | |
| CHECK HARNESS FOR O | PEN CIRCUIT | | |
| Check the resistance between | the data link connector t | terminals. | |
| | Data link connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | |
| M22 | 6 | 14 | Approx. 54 – 66 |
| YES (Past error)>>Error was | CAN system type decision detected in the data link k connector branch line. | connector branch line ci | rcuit. |
| YES (Past error)>>Error was | detected in the data link | connector branch line ci | rcuit. |
| YES (Past error)>>Error was | detected in the data link | connector branch line ci | rcuit. |
| YES (Past error)>>Error was | detected in the data link | connector branch line ci | rcuit. |
| YES (Present error)>>Check YES (Past error)>>Error was NO >> Repair the data lin | detected in the data link | connector branch line ci | rcuit. |

< DTC/CIRCUIT DIAGNOSIS >

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051344

[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 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 | Combination meter harness connector | | |
|---------------|-------------------------------------|----|-----------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M24 | 39 | 38 | 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-57, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-81, "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 1)]

| | NE CIRCUIT | | |
|---|--|---|---|
| Diagnosis Procedure | | | INFOID:000000011051345 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals and (unit side and connector | cable from the negative terr I connectors of the steering side). | | bend and loose connection |
| <u>Is the inspection result norm</u> YES >> GO TO 2. | <u>al?</u> | | |
| NO >> Repair the termi | nal and connector. | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| 2. Check the resistance be | | ensor harness connector te | erminals. |
| Stee | ering angle sensor harness conne | ector | Resistance (Ω) |
| | | | |
| Connector No. | | nal No. | |
| M53 | 5 | nal No. 2 | Approx. 54 – 66 |
| M53 Is the measurement value w YES >> GO TO 3. NO >> Repair the steer | 5 ithin the specification? ing angle sensor branch lin | 2 ne. | |
| M53 Is the measurement value w YES >> GO TO 3. | 5 ithin the specification? ing angle sensor branch lin Y AND GROUND CIRCUIT | 2 1e. | Approx. 54 – 66 |
| M53 Is the measurement value w YES >> GO TO 3. NO >> Repair the steer 3. CHECK POWER SUPPL Check the power supply and gram". Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa | 5 ithin the specification? ing angle sensor branch lin Y AND GROUND CIRCUIT d the ground circuit of the al? ace the steering angle sen | 2 ne. - steering angle sensor. Ref sor. Refer to <u>BRC-133, "Re</u> angle sensor branch line. | Approx. 54 – 66 Fer to <u>BRC-47, "Wiring Dia-</u> |
| M53 Is the measurement value w YES >> GO TO 3. NO >> Repair the steer 3. CHECK POWER SUPPL Check the power supply and gram". Is the inspection result norm YES (Present error)>>Repl YES (Past error)>>Error wa | 5 ithin the specification? ing angle sensor branch lin Y AND GROUND CIRCUIT d the ground circuit of the al? lace the steering angle sen as detected in the steering | 2 ne. - steering angle sensor. Ref sor. Refer to <u>BRC-133, "Re</u> angle sensor branch line. | Approx. 54 – 66 Fer to <u>BRC-47, "Wiring Dia-</u> |

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A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

WARNING:

Always observe the following items for preventing accidental activation.

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-40, "Work Flow".

Is the inspection result normal?

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

INFOID:000000011051346

| HVAC BRANCH LIN | IE CIRCUIT | | |
|--|---|---|--|
| Diagnosis Procedure | | | INFOID:000000011051349 |
| 1.CHECK CONNECTOR | | | |
| 3. Check the following term nector side). A/C auto amp. (with auto - Front air control (without Is the inspection result norm YES >> GO TO 2. NO >> Repair the termination of termination of the termination of terminati | able from the negative ter ninals and connectors for o o A/C) auto A/C) <u>al?</u> nal and connector. | minal. damage, bend and loose con | nection (unit side and con- |
| 2.CHECK HARNESS FOR | | | |
| 2. Check the resistance be | | auto A/C) or front air control (harness connector terminals A/C). | |
| | A/C auto amp. harness connecto | | Resistance (Ω) |
| Connector No. M152 | 1 | inal No. 21 | Approx. 54 – 66 |
| - Without auto A/C | I | 21 | Λρριοχ. 04 – 00 |
| | | | |
| F | ront air control harness connect | or | Resistance (Ω) |
| Connector No. | | nal No. | |
| M37 Is the measurement value w | 4 | 3 | Approx. 54 – 66 |
| A/Ċ). 3.CHECK POWER SUPPL Check the power supply and auto A/C). Refer to following • AUTOMATIC AIR CONDIT • MANUAL AIR CONDITION Is the inspection result norm YES (Present error)>>Repl to following. • AUTOMATIC | Y AND GROUND CIRCUI the ground circuit of the A IONER: <u>HAC-78, "A/C AU</u> IER: <u>HAC-153, "Diagnosis</u> <u>al?</u> ace the A/C auto amp. (wi | VC auto amp (with auto A/C) <u>ITO AMP. : Diagnosis Procee</u> <u>Procedure</u> th auto A/C) or front air contro <u>-102, "Removal and Installati</u> | or front air control (without dure" ol (without auto A/C). Refer |
| YES (Past error)>>Error wa branch line (with | as detected in the A/C au | 2. "Removal and Installation" to amp. branch line (with au ircuit. | |
| | | | |

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051350

[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 BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.

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

| | BCM harness connector | | Resistance (Ω) |
|---------------|-----------------------|----|-------------------|
| Connector No. | Terminal No. | | |
| M18 | 60 | 59 | 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 <u>BCS-75, "Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES (Present error)>>Replace the BCM. Refer to <u>BCS-81, "Removal and Installation"</u>.

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

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

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 1)]

| CAN COMMUNICAT | ION CIRCUIT | | | |
|---|--|------------------|------------------------|-----|
| Diagnosis Procedure | | | INFOID:000000011051351 | A |
| 1.CONNECTOR INSPECTI | ON | | | В |
| Disconnect all the unit co Check terminals and con | able from the negative terr onnectors on CAN commu inectors for damage, bend | nication system. | | С |
| Is the inspection result normal YES >> GO TO 2. NO >> Repair the termin 2.CHECK HARNESS CONT | nal and connector. | T) | | D |
| Check the continuity between | | | · | Ε |
| | Data link connector | | Continuity | _ |
| Connector No. | Termir | nal No. | Continuity | F |
| M22 | 6 | 14 | Not existed | |
| Is the inspection result normal YES >> GO TO 3. NO >> Check the harne 3. CHECK HARNESS CONT Check the continuity between | ss and repair the root caus | T) | | G |
| Data link c | onnector | | | |
| Connector No. | Terminal No. | a | Continuity | |
| M22 | 6 | Ground | Not existed | J |
| | 14 | | Not existed | |
| 4. CHECK ECM AND BCM ¹ 1. Remove the ECM and th 2. Check the resistance be | ss and repair the root caus FERMINATION CIRCUIT | se. | | K |
| - QR engine models | | | | LAI |
| 1 | ECM erminal No. | | Resistance (Ω) | N |
| 100 | 99 | А | pprox. 108 – 132 | |
| - VQ engine models | | | | 0 |
| | ECM | | - | |
| 1 | erminal No. | | Resistance (Ω) | P |
| 124 | 123 | A | pprox. 108 – 132 | 1 |
| 3. Check the resistance be | tween the BCM terminals. | | | |
| | BCM | | | |
| T | erminal No. | | Resistance (Ω) | |
| 60 | 59 | A | oprox. 108 – 132 | |
| | | | | |

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the measurement value within the specification?

YES >> GO TO 5.

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

5. CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

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

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

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

NOTE:

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

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

| | | /EEN IPDM-E AN | | T SYSTEM (TYPE 2)] |
|--|--|-----------------------------|--------------|-------------------------|
| | IT DIAGNO | | | |
| | WEEN IPDM-E | | | |
| | | | CON | |
| iagnosis Proced | | | | INFOID:000000011051354 |
| .CHECK CONNECT | OR | | | |
| Check the followin and harness side). Harness connector Harness connector the inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS Disconnect the foll IPDM E/R Harness connector | ttery cable from the ne ng terminals and conr r E30 r M1 <u>normal?</u> terminal and connect CONTINUITY (OPEN owing harness conne | or. I CIRCUIT) ctors. | | ection (connector side |
| IPDM E/R harr | ness connector | Harness | connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| E63 | 29 28 | E30 | 22G 23G | Existed |
| CHECK HARNESS | main line between the CONTINUITY (OPEN etween the harness co | I CIRCUIT) | | 0. |
| Harness | connector | Data link | connector | |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M1 | 22G | M22 | 6 | Existed |
| | 23G | WIZZ | 14 | Existed |
| YES (Past error)>>Er | Check CAN system to ror was detected in th main line between the | e main line between t | | |

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

Diagnosis Procedure

INFOID:0000000011051355

[CAN SYSTEM (TYPE 2)]

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
- Combination meter
- 4. Check the continuity between the data link connector and the combination meter harness connector.

| Data link | connector | Combination meter harness connector | | Continuity |
|---------------|--------------|-------------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| IVIZZ | 14 | IVIZ4 | 38 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the data link connector and the combination meter.

NO >> Repair the main line between the data link connector and the combination meter.

| | ID AV CIRCUIT | TWEEN M&A AN | MAIN LINE BET | |
|----------------------------------|---|--|---|--|
| I SYSTEM (TYPE 2)] | [CAN | | SNOSIS > | TC/CIRCUIT DIAG |
| | Т | ND AV CIRCUI | WEEN M&A A | AIN LINE BET |
| INFOID:000000011051357 | | | ure | agnosis Proced |
| | | N CIRCUIT) | CONTINUITY (OPEN | CHECK HARNESS |
| | | | tery cable from the ne owing harness conne r | |
| V control unit harness | s connector and the A | ination meter harness | | ECM Check the continui connector. Navigation without |
| | | vination meter harness AV control unit ha | BOSE system | Check the continui connector. |
| Continuity | | | BOSE system | Check the continui connector. Navigation without |
| | arness connector | AV control unit ha | BOSE system | Check the continui connector. Navigation without Combination meter Connector No. |
| Continuity | arness connector Terminal No. | AV control unit ha | BOSE system harness connector Terminal No. | Check the continui connector. Navigation without Combination meter |
| Continuity Existed | arness connector Terminal No. 8 | AV control unit ha | BOSE system harness connector Terminal No. 39 38 | Check the continui connector. Navigation without Combination meter Connector No. |
| Continuity Existed Existed | arness connector Terminal No. 8 7 | AV control unit ha | BOSE system harness connector Terminal No. 39 38 DSE system | Check the continui connector. Navigation without Combination meter Connector No. M24 |
| Continuity Existed | arness connector Terminal No. 8 7 | AV control unit ha Connector No. M96 | BOSE system harness connector Terminal No. 39 38 DSE system | Check the continui connector. Navigation without Combination meter Connector No. M24 Navigation with BC |
| Continuity Existed Existed | arness connector Terminal No. 8 7 7 arness connector | AV control unit ha Connector No. M96 AV control unit ha | BOSE system harness connector Terminal No. 39 38 OSE system harness connector | Check the continui connector. Navigation without Combination meter Connector No. M24 Navigation with BC Combination meter |

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

YES (Past error)>>Error was detected in the main line between the combination meter and the AV control unit.

>> Repair the main line between the combination meter and the air AV control unit. NO

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MAIN LINE BETWEEN AV AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:000000011051359

[CAN SYSTEM (TYPE 2)]

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.
- AV control unit
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C and BOSE audio system

| AV control unit h | arness connector | A/C auto amp. harness connector | | Continuity |
|-------------------|------------------|---------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M152 | 1 | Existed |
| WITOT | 17 | IVI 152 | 21 | Existed |

With auto A/C without BOSE audio system

| AV control unit h | AV control unit harness connector | | arness connector | Continuity |
|-------------------|-----------------------------------|---------------|------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M152 | 1 | Existed |
| 10190 | 17 | 101152 | 21 | Existed |

Without auto A/C and BOSE audio system

| AV control unit h | arness connector | Front air control harness connector | | - Continuity |
|-------------------|------------------|-------------------------------------|--------------|--------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M37 | 4 | Existed |
| INTST | 17 | 10137 | 3 | Existed |

Without auto A/C without BOSE audio system

| AV control unit I | narness connector | Front air control harness connector | | Continuity |
|-------------------|-------------------|-------------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M37 | 4 | Existed |
| IVIƏO | 17 | 10107 | 3 | 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 AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).
- NO >> Repair the main line between the AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

ECM BRANCH LINE CIRCUIT

| CM BRANCH LINI | ECIRCUIT | | |
|---|---|--|-------------------------------|
| agnosis Procedure | | | INFOID:000000011051360 |
| CHECK CONNECTOR | | | |
| | able from the negative terr d connectors of the ECM f | | ose connection (unit side and |
| ES >> GO TO 2. | | | |
| IO >> Repair the termi | | | |
| CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be QR25DE except for Cal | tween the ECM harness c | onnector terminals. | |
| | ECM harness connector | | Resistance (Ω) |
| Connector No. | | nal No. | |
| E10 QR25DE for California | 100 | 99 | Approx. 108 – 132 |
| | ECM harness connector | | |
| Connector No. | Termi | nal No. | Resistance (Ω) |
| E31 | 100 | 99 | Approx. 108 – 132 |
| VQ35DE | | | |
| | ECM harness connector | | Resistance (Ω) |
| Connector No. | Termiı | nal No. | |
| E32 | 124 | 123 | Approx. 108 – 132 |
| eck the power supply and QR25DE: <u>EC-204</u> , "Diagno /Q35DE: <u>EC-720, "Diagno /Q35DE: EC-720, "Diagno /Q35DE: EC-720, "Diagno /Q35DE: EC- 0 QR25DE: <u>EC-</u> 0 VQ35DE: <u>EC-</u> ES (Past error)>>Error wa</u> | branch line. Y AND GROUND CIRCUIT the ground circuit of the E osis Procedure" osis Procedure" | CM. Refer to the followin following. <u>ation"</u> . <u>lation"</u> . anch line. | g. |

< DTC/CIRCUIT DIAGNOSIS >

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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.

| | Resistance (Ω) | | | |
|------|-------------------------|--------------|--|-----------------|
| Conr | nector No. | Terminal No. | | Resistance (12) |
| | E54 | 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-71, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-129</u>, "Removal <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:0000000011051361

EPS BRANCH LINE CIRCUIT

[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 power steering control module for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2.CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of power steering control module harness connector terminals. Power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) Connector No. Terminal No. Resistance (Ω) YES >> GO TO 3. NO NO Scheck POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23. "Diagenosis Procedure". Sthe inspection result normal? YE | Diagnosis Procedure | CIRCUIT | | INFOID:000000011051362 | |
|--|---|---|---|--|--|
| 1. Turn the ignition switch OFF. 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the power steering control module for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of power steering control module. 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) E59 8 YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | | | | | |
| 2. Disconnect the battery cable from the negative terminal. 3. Check the terminals and connectors of the power steering control module for damage, bend and loose connection (unit side and connector side). Is the inspection result normal? YES >> GO TO 2. NO >> Repair the terminal and connector. 2. CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of power steering control module. 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) Connector No. Terminal No. E59 8 7 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Instal- lation". YES (Past error)>>Error was detected in the power steering control module branch line. | | | | | |
| YES >> GO TO 2. NO >> Repair the terminal and connector. 2.CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of power steering control module. 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) Connector No. E59 8 YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Instal- lation". YES (Past error)>>Error was detected in the power steering control module branch line. | Disconnect the battery of 2. Disconnect the terminals and connection (unit side and connection). | able from the negative te d connectors of the pow d connector side). | | or damage, bend and loose | |
| NO >> Repair the terminal and connector. 2.CHECK HARNESS FOR OPEN CIRCUIT 1. Disconnect the connector of power steering control module. 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) Connector No. Terminal No. E59 8 7 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | | <u>al ?</u> | | | |
| 1. Disconnect the connector of power steering control module. 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Resistance (Ω) Connector No. Terminal No. E59 8 7 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | | nal and connector. | | | |
| 2. Check the resistance between the power steering control module harness connector terminals. Power steering control module harness connector Connector No. Terminal No. E59 8 7 Approx. 54 - 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3. CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | 2. CHECK HARNESS FOR | OPEN CIRCUIT | | | |
| Connector No. Terminal No. Resistance (Ω) E59 8 7 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. S.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | | | | nnector terminals. | |
| Connector No. Terminal No. E59 8 7 Approx. 54 – 66 Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | Power st | teering control module harness | connector | Resistance (O) | |
| Is the measurement value within the specification? YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to STC-23, "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to ST-38, "Removal and Instal- lation". YES (Past error)>>Error was detected in the power steering control module branch line. | Connector No. Terminal No. Resistance (Ω) | | | | |
| YES >> GO TO 3. NO >> Repair the Power steering control module branch line. 3.CHECK POWER SUPPLY AND GROUND CIRCUIT Check the power supply and the ground circuit of the power steering control module. Refer to <u>STC-23</u> , "Diagnosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to <u>ST-38</u> , "Removal and Installation". YES (Past error)>>Error was detected in the power steering control module branch line. | | Ten | ninal No. | | |
| nosis Procedure". Is the inspection result normal? YES (Present error)>>Replace the power steering oil pump assembly. Refer to <u>ST-38, "Removal and Instal- lation"</u> . YES (Past error)>>Error was detected in the power steering control module branch line. | E59 | 8 | | Approx. 54 – 66 | |
| YES (Present error)>>Replace the power steering oil pump assembly. Refer to <u>ST-38, "Removal and Instal-</u> <u>lation"</u> . YES (Past error)>>Error was detected in the power steering control module branch line. | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe | 8 ithin the specification? er steering control module | 7 e branch line. | Approx. 54 – 66 | |
| | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3. CHECK POWER SUPPL Check the power supply and nosis Procedure". | 8 ithin the specification? er steering control module Y AND GROUND CIRCU I the ground circuit of the | 7 e branch line. IIT | | |
| | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPL Check the power supply and nosis Procedure". Is the inspection result norm YES (Present error)>>Repl <u>lation"</u> . | 8 ithin the specification? er steering control module Y AND GROUND CIRCU I the ground circuit of the al? ace the power steering c | 7 e branch line. JIT power steering control mod bil pump assembly. Refer to | ule. Refer to <u>STC-23, "Diag-</u> ST-38, "Removal and Instal- | |
| | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPL Check the power supply and nosis Procedure". Is the inspection result norm YES (Present error)>>Repl <u>lation"</u> . YES (Past error)>>Error wa | 8 ithin the specification? er steering control module Y AND GROUND CIRCL I the ground circuit of the al? ace the power steering c as detected in the power | 7 e branch line. IIT power steering control mod bil pump assembly. Refer to steering control module brar | ule. Refer to <u>STC-23, "Diag-</u> ST-38, "Removal and Instal- | |
| | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPL Check the power supply and nosis Procedure". Is the inspection result norm YES (Present error)>>Repl <u>lation"</u> . YES (Past error)>>Error wa | 8 ithin the specification? er steering control module Y AND GROUND CIRCL I the ground circuit of the al? ace the power steering c as detected in the power | 7 e branch line. IIT power steering control mod bil pump assembly. Refer to steering control module brar | ule. Refer to <u>STC-23, "Diag-</u> ST-38, "Removal and Instal- | |
| | E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPL Check the power supply and nosis Procedure". Is the inspection result norm YES (Present error)>>Repl <u>lation"</u> . YES (Past error)>>Error wa | 8 ithin the specification? er steering control module Y AND GROUND CIRCL I the ground circuit of the al? ace the power steering c as detected in the power | 7 e branch line. IIT power steering control mod bil pump assembly. Refer to steering control module brar | ule. Refer to <u>STC-23, "Diag-</u> ST-38, "Removal and Instal- | |

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051363

[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 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. | Termi | | |
| E63 | 29 | 28 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

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

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

Check the power supply and the ground circuit of the IPDM E/R. Refer to <u>PCS-31, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-32, "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 LINI | | | |
|--|--|---------------------|--------------------------------|
| Diagnosis Procedure | | | INFOID:000000011051364 |
| 1. CHECK CONNECTOR | | | |
| | cable from the negative terr | | connection (unit side and con- |
| s the inspection result norm YES >> GO TO 2. | al? | | |
| NO >> Repair the term | | | |
| 2.CHECK HARNESS FOR | OPEN CIRCUIT | | |
| Disconnect the connect Check the resistance be | or of TCM. etween the TCM harness co | onnector terminals. | |
| | TCM harness connector | | Resistance (Ω) |
| Connector No. F16 | Termir 33 | nal No. 23 | Approx. 54 – 66 |
| YES >> GO TO 3. NO >> Repair the TCM 3.CHECK POWER SUPPL Check the power supply and QR25DE: TM-168, "Diagn VQ35DE: TM-374, "Diagn | Y AND GROUND CIRCUIT I the ground circuit of the T osis Procedure" osis Procedure" | | <u>j</u> . |
| | lace the TCM. Refer to the -187, "Removal and Installa | ation" | |
| YES (Past error)>>Error w | - <u>392, "Removal and Installa</u> as detected in the TCM bra er supply and the ground ci | nch line. | |
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DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011051365

[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.

| | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| 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.

M&A BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 2)]

| M&A BRANCH LIN | E CIRCUIT | | |
|--|--|---------------------------------------|--------------------------|
| Diagnosis Procedure | | | INFOID:000000011051366 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals ar (unit side and connector) | cable from the negative terr nd connectors of the combi r side). | minal. Ination meter for damage, b | end and loose connection |
| • ' | inal and connector. | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| | tor of combination meter. etween the combination me | ter harness connector termin | nals. |
| С | ombination meter harness connec | tor | Resistance (Ω) |
| Connector No. | | nal No. | |
| M24 | 39 | 38 | Approx. 54 – 66 |
| 3. CHECK POWER SUPPL | bination meter branch line. Y AND GROUND CIRCUIT | r combination meter. Refer to | MWI-57, "COMBINATION |
| YES (Past error)>>Error w | | | al and Installation". |
| | er suppry and the ground ch | | |
| | er supply and the ground of | | |

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STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011051367

[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 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 | | |
| M53 | 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-47, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-133, "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.

A-BAG BRANCH LINE CIRCUIT А Diagnosis Procedure INFOID:000000011051368 WARNING: В Always observe the following items for preventing accidental activation. Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-40, "Work Flow". Is the inspection result normal? YES >> Replace the main harness.

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< DTC/CIRCUIT DIAGNOSIS >

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

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051369

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of AV control unit.
- 2. Check the resistance between the AV control unit harness connector terminals.
- With navigation system without BOSE audio system

| | Resistance (Ω) | |
|---------------|-------------------------|-----------------|
| Connector No. | Termi | |
| M96 | 8 | Approx. 54 – 66 |

With navigation system and BOSE audio system

| | Resistance (Ω) | |
|---------------|-------------------------|-----------------|
| Connector No. | Termi | |
| M151 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

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

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

- With navigation system without BOSE audio system: <u>AV-267, "AV CONTROL UNIT : Diagnosis Procedure"</u>
- With navigation system and BOSE audio system: <u>AV-376, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- With navigation system without BOSE audio system: <u>AV-298, "Removal and Installation"</u>
- With navigation system and BOSE audio system: <u>AV-416, "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.

AVM BRANCH LINE CIRCUIT

| Diagnosis Procedure | | | INFOID:000000011051370 |
|---|--|---|------------------------------|
| 1.CHECK CONNECTOR | | | |
| | cable from the negative termind connectors of the ITS cont | | d and loose connection (unit |
| Is the inspection result norr | nal? | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector. | | |
| 2. CHECK HARNESS FOR | R OPEN CIRCUIT | | |
| Disconnect the connec Check the resistance b | tor of ITS control unit. etween the ITS control unit ha | arness connector termina | ls. |
| | ITS control unit harness connector | | Resistance (Ω) |
| Connector No. | Termina | | |
| M58 | 27 | 7 | A |
| s the measurement value | | 7 | Approx. 54 – 66 |
| Is the measurement value of YES >> GO TO 3. NO >> Repair the ITS 3.CHECK POWER SUPPL Check the power supply and dure". | vithin the specification? control unit branch line. _Y AND GROUND CIRCUIT | | |
| Is the measurement value of YES >> GO TO 3. NO >> Repair the ITS 3.CHECK POWER SUPPL Check the power supply and dure". Is the inspection result norr YES (Present error)>>Rep YES (Past error)>>Error w | vithin the specification? control unit branch line. _Y AND GROUND CIRCUIT | TS control unit. Refer to er to <u>DAS-69, "Removal a</u> l unit branch line. | DAS-64, "Diagnosis Proce- |
| Is the measurement value of YES >> GO TO 3. NO >> Repair the ITS 3.CHECK POWER SUPPL Check the power supply and dure". Is the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | vithin the specification? control unit branch line. _Y AND GROUND CIRCUIT nd the ground circuit of the I nal? place the ITS control unit. Ref vas detected in the ITS contro | TS control unit. Refer to er to <u>DAS-69, "Removal a</u> l unit branch line. | DAS-64, "Diagnosis Proce- |
| Is the measurement value of YES >> GO TO 3. NO >> Repair the ITS 3.CHECK POWER SUPPL Check the power supply and dure". Is the inspection result norr YES (Present error)>>Rep YES (Past error)>>Error w | vithin the specification? control unit branch line. _Y AND GROUND CIRCUIT nd the ground circuit of the I nal? place the ITS control unit. Ref vas detected in the ITS contro | TS control unit. Refer to er to <u>DAS-69, "Removal a</u> l unit branch line. | DAS-64, "Diagnosis Proce- |

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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011051371

[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)
- Front air control (without auto A/C)

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

| | Resistance (Ω) | | |
|---------------|-------------------------|----|-----------------|
| Connector No. | Termi | | |
| M152 | 1 | 21 | Approx. 54 – 66 |

Without auto A/C

| | Resistance (Ω) | | |
|---------------|-------------------------|---|-----------------|
| Connector No. | Termi | | |
| M37 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

${\it 3.}$ 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 following.

AUTOMATIC AIR CONDITIONER: <u>HAC-78, "A/C AUTO AMP. : Diagnosis Procedure"</u>

MANUAL AIR CONDITIONER: <u>HAC-153</u>, "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 following.

- AUTOMATIC AIR CONDITIONER: <u>HAC-102</u>, "Removal and Installation"
- MANUAL AIR CONDITIONER: <u>HAC-162</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the A/C auto amp. branch line (with auto A/C) or front air control branch line (without auto A/C).
- NO >> Repair the power supply and the ground circuit.

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

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSI | S > | | [CAN SYSTEM (TYPE 2)] |
|---|-----------------------------|---------------------|-----------------------------|
| BCM BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000011051372 |
| 1. CHECK CONNECTOR | | | |
| Turn the ignition switch C Disconnect the battery ca Check the terminals and connector side). | able from the negative terr | | e connection (unit side and |
| Is the inspection result norma YES >> GO TO 2. NO >> Repair the termin | al and connector. | | |
| 2.CHECK HARNESS FOR (| OPEN CIRCUIT | | |
| Disconnect the connector Check the resistance bet | | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | Termir | nal No. | Resistance (sz) |
| M18 | 60 | 59 | Approx. 108 – 132 |
| Is the measurement value wit | hin the specification? | | |
| YES >> GO TO 3. NO >> Repair the BCM I | oranch line | | |
| 3. CHECK POWER SUPPLY | | г | |
| Check the power supply and | | | anosis Procedure" |
| Is the inspection result norma | • | | <u>griccio i recoudro</u> . |
| YES (Present error)>>Repla YES (Past error)>>Error was | | | ation". |
| NO >> Repair the power | supply and the ground ci | rcuit. | |
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CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3. check harness continuity (short circuit)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

- QR engine models

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

- VQ engine models

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

3. Check the resistance between the BCM terminals.

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

INFOID:0000000011051373

CAN COMMUNICATION CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 2)] |
|--|---------------------------------|
| Is the measurement value within the specification? | |
| YES >> GO TO 5. NO >> Replace the ECM and/or the BCM. | |
| 5. СНЕСК ЗҮМРТОМ | |
| Connect all the connectors. Check if the symptoms described in the "Sympt customer)" are reproduced. | om (Results from interview with |
| Inspection result | |
| Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis detected. | procedure when past error is |
| 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. | |
| Disconnect one of the unit connectors of CAN communication system. NOTE: ECM and BCM have a termination circuit. Check other units first. Connect the battery cable to the negative terminal. Check if the sympto (Results from interview with customer)" are reproduced. | oms described in the "Symptom |
| NOTE: Although unit-related error symptoms occur, do not confuse them with oth | ier symptoms. |
| Inspection result Reproduced>>Connect the connector. Check other units as per the above pr Non-reproduced>>Replace the unit whose connector was disconnected. | ocedure. |
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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:0000000011051378

1.CHECK CONNECTOR

- 1. Turn the ignition 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 E30
- Harness connector M1

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 E30 and M1
- 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 |
| E63 | 29 E30 | 22G | Existed | |
| 205 | 28 | L30 | 23G | Existed |

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the IPDM E/R and the harness connector E30.

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 | |
| M1 | 22G | M22 | 6 | Existed | |
| IVI I | 23G | 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 M1 and the data link connector.

| < DTC/CIRCUIT DIA | GNOSIS > | | ΓΓΛΝ | OVOTEM (TVDE 2)1 |
|---|---|----------------------|------------------------|----------------------------------|
| | | | = | SYSTEM (TYPE 3)] |
| MAIN LINE BE | FWEEN DLC AI | ND M&A CIRCU | JIT | |
| Diagnosis Proced | lure | | | INFOID:000000011051379 |
| 1. CHECK HARNESS | | N CIRCUIT) | | |
| Disconnect the fol ECM Combination metering | attery cable from the ne llowing harness conne | ectors. | combination meter ha | arness connector. |
| Data link | connector | Combination meter | harness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| | 14 | | 38 | Existed |
| VEC (Doot arrar) | ror was detected in th | type decision again. | the data link connects | r and the combination |
| meter. | e main line between th | ne main line between | | or and the combination neter. |
| meter. | rror was detected in th | ne main line between | | |

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MAIN LINE BETWEEN M&A AND A-BAG CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN M&A AND A-BAG CIRCUIT

Diagnosis Procedure

INFOID:000000011051380

[CAN SYSTEM (TYPE 3)]

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.
- Combination meter
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the combination meter harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C

| Combination mete | r harness connector | A/C auto amp. harness connector | | Continuity | |
|------------------|---------------------|---------------------------------|----|------------|--|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity | |
| M24 | 39 | M152 | 1 | Existed | |
| WI24 | 38 | - WIT32 | 21 | Existed | |

Without auto A/C

| Combination meter | er harness connector | Front air control harness connector | | Continuity |
|-------------------|----------------------|-------------------------------------|---|------------|
| Connector No. | Terminal No. | Connector No. Terminal No. | | Continuity |
| M24 | 39 | M37 | 4 | Existed |
| 10124 | 38 | | 3 | 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 combination meter and the air bag diagnosis sensor unit.
- NO >> Repair the main line between the air bag diagnosis sensor unit and the air bag diagnosis sensor unit.

| < DTC/CIRCUIT DIAGNOSIS > | | | [CAI | N SYSTEM (TYPE 3)] |
|---|--|-----------------|------------------|------------------------|
| VAIN LINE BET | WEEN A-BAG | AND HVAC CI | RCUIT | |
| Diagnosis Proced | lure | | | INFOID:000000011051382 |
| 1.CHECK HARNESS | CONTINUITY (OPE | N CIRCUIT) | | |
| Disconnect the foll Combination mete A/C auto amp. (with Front air control (with ECM Check the continu | ttery cable from the n lowing harness conne r th auto A/C) vithout auto A/C) ity between the comb | ectors. | | A/C auto amp. harness |
| Combination meter | r harness connector | A/C auto amp. h | arness connector | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | - Continuity |
| M24 | 39 | M150 | 1 | Existed |
| IVI24 | 38 | M152 | 21 | |

MAIN LINE BETWEEN A-BAG AND HVAC CIRCUIT

- Without auto A/C

| Combination meter | er harness connector | Front air control harness connector | | Continuity | Н |
|-------------------|----------------------|-------------------------------------|--------------|--------------|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | - Continuity | |
| M24 | 39 | M37 | 4 | Existed | |
| 1/124 | 38 | | 3 | Existed | |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

NO >> Repair the main line between the air bag diagnosis sensor unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

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ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051384

1.CHECK CONNECTOR

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

Check the resistance between the ECM harness connector terminals. 2.

QR25DE except for California

| | ECM harness connector | | |
|---------------|-----------------------|-------------------------|--|
| Connector No. | Termi | Resistance (Ω) | |
| E10 | 100 | Approx. 108 – 132 | |

QR25DE for California

| | Resistance (Ω) | | |
|---------------|----------------|-------------------|--|
| Connector No. | Termi | | |
| E31 | 100 | Approx. 108 – 132 | |
| | | | |

VQ35DE

| | Resistance (Ω) | |
|---------------|-------------------------|-------------------|
| Connector No. | Termi | |
| E32 | 124 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

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

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

QR25DE: <u>EC-204</u>, "Diagnosis Procedure"
 VQ35DE: <u>EC-720</u>, "Diagnosis Procedure"

Is the inspection result normal?

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

- QR25DE: <u>EC-541</u>, "Removal and Installation".
 VQ35DE: <u>EC-1042</u>, "Removal and Installation".
- YES (Past error)>>Error was detected in the ECM branch line.

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

ABS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

| | CIRCUIT | | |
|--|--|--|--|
| Diagnosis Procedure | | | INFOID:000000011051385 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals and and loose connection (ur | able from the negative termina connectors of the ABS actuate nit side and connector side). | | ntrol unit) for damage, bend |
| s the inspection result norma YES >> GO TO 2. | <u>al?</u> | | |
| NO >> Repair the termir | nal and connector. | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| nals. | tween the ABS actuator and e | ``` | t) harness connector termi- |
| | ABS actuator and electric unit (control unit) harness connector Resistance (Ω) Connector No. Terminal No. | | Resistance (Ω) |
| Connector No | Lerminal No |) | |
| Connector No. E54 s the measurement value wi | 26 |). 14 | Approx. 54 – 66 |
| E54 <u>s the measurement value wir</u> YES >> GO TO 3. NO >> Repair the ABS a 3. CHECK POWER SUPPLY Check the power supply and | 26 thin the specification? actuator and electric unit (contr Y AND GROUND CIRCUIT I the ground circuit of the ABS | 14 rol unit) branch line. | Approx. 54 – 66 |
| E54 Is the measurement value wir YES >> GO TO 3. NO >> Repair the ABS a 3.CHECK POWER SUPPLY Check the power supply and BRC-71, "Diagnosis Procedured Is the inspection result normation YES (Present error)>>Replation. | 26 thin the specification? actuator and electric unit (contr Y AND GROUND CIRCUIT I the ground circuit of the ABS re". al? ace the ABS actuator and elect | 14 Fol unit) branch line. S actuator and electric tric unit (control unit). R | Approx. 54 – 66 unit (control unit). Refer to efer to <u>BRC-129, "Removal</u> |
| E54 Is the measurement value wir YES >> GO TO 3. NO >> Repair the ABS a 3.CHECK POWER SUPPLY Check the power supply and BRC-71. "Diagnosis Procedu Is the inspection result normation YES (Present error)>>Replation and Installation". YES (Past error)>>Error wa | 26 thin the specification? actuator and electric unit (contr Y AND GROUND CIRCUIT I the ground circuit of the ABS re". al? | 14 Fol unit) branch line. S actuator and electric tric unit (control unit). R | Approx. 54 – 66 unit (control unit). Refer to efer to <u>BRC-129, "Removal</u> |

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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 power steering control module for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

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

| Powers | Resistance (Ω) | | |
|---------------|-------------------------|---|-----------------|
| Connector No. | Termi | | |
| E59 | 8 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Power steering control module branch line.

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

Check the power supply and the ground circuit of the power steering control module. Refer to <u>STC-23, "Diag-nosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the power steering oil pump assembly. Refer to <u>ST-38, "Removal and Instal-</u> lation".

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

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

IPDM-E BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 3)]

| < DTC/CIRCUIT DIAGNOS | SIS > | Ē | CAN SYSTEM (TYPE 3)] |
|---|--|---|-----------------------------|
| IPDM-E BRANCH L | INE CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:00000001105138 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals and and connector side). | cable from the negative terr d connectors of the IPDM I | ninal. E/R for damage, bend and | loose connection (unit side |
| <u>s the inspection result norm</u> YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR | inal and connector. | | |
| 1. Disconnect the connect | | ess connector terminals. | |
| | IPDM E/R harness connector | | Bosistance (O) |
| Connector No. | Termir | nal No. | Resistance (Ω) |
| E63 | 29 | 28 | Approx. 54 – 66 |
| | Y AND GROUND CIRCUIT the ground circuit of the IF al? lace the IPDM E/R. Refer to | PDM E/R. Refer to <u>PCS-31</u> o <u>PCS-32, "Removal and In</u> | |
| YES (Past error)>>Error wa NO >> Repair the powe | as detected in the IPDM E/ er supply and the ground ci | | |
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TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051388

[CAN SYSTEM (TYPE 3)]

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).
- TCM
- Harness connector F2
- Harness connector E11

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.check harness for open circuit

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

| TCM harness connector | | | Resistance (Ω) |
|-----------------------|-------|--|-------------------------|
| Connector No. | Termi | | |
| F16 | 33 23 | | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

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

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

QR25DE: TM-168, "Diagnosis Procedure"

VQ35DE: TM-374, "Diagnosis Procedure"

Is the inspection result normal?

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

- QR25DE: <u>TM-187</u>, "Removal and Installation"
 VQ35DE: <u>TM-392</u>, "Removal and Installation"

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 3)]

| DLC BRANCH LINE (| > | | [CAN SYSTEM (TYPE 3)] |
|--|--|---------------------------------------|-------------------------------|
| DLC BRANCH LINE C | | | |
| Diagnosis Procedure | | | INFOID:00000001105138 |
| 1.CHECK CONNECTOR | | | |
| Turn the ignition switch OF Disconnect the battery cability Check the terminals and c (connector side and harnes <u>s the inspection result normal?</u> YES >> GO TO 2. NO >> Repair the terminal | le from the negative t onnectors of the data ss side). | erminal. a link connector for dama | ge, bend and loose connectior |
| 2.CHECK HARNESS FOR OF | PEN CIRCUIT | | |
| Check the resistance between t | the data link connecto | or terminals. | |
| | Data link connector | | Resistance (Ω) |
| Connector No. | Те | rminal No. | |
| M22 | 6 | 14 | Approx. 54 – 66 |
| | connector branch lir | ne. | circuit. |
| | connector branch lir | ne. | |
| NO >> Repair the data link | connector branch lir | ne. | |
| | connector branch lir | ne. | |
| | connector branch lir | ne. | |
| | connector branch lir | ne. | |
| | connector branch lir | ne. | |

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011051390

[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.

| Co | Resistance (Ω) | | |
|---------------|-------------------------|--|-----------------|
| Connector No. | Termi | | |
| M24 | 39 38 | | 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-57, "COMBINATION</u> <u>METER : Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-81, "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)]

| STRG BRANCH LI | | | |
|---|--|----------------------------|----------------------------|
| Diagnosis Procedure | | | INFOID:000000011051391 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals and (unit side and connector) | cable from the negative term I connectors of the steering ⁻ side). | | bend and loose connection |
| s the inspection result norm YES >> GO TO 2. | <u>al?</u> | | |
| NO >> Repair the term | nal and connector. | | |
| 2.check harness for | OPEN CIRCUIT | | |
| | or of steering angle sensor. etween the steering angle se | ensor harness connector te | erminals. |
| | ering angle sensor harness connec | ctor | Resistance (Ω) |
| Connector No. | Termina | al No. | . , |
| M53 | 5 | 2 | Approx. 54 – 66 |
| 3. CHECK POWER SUPPL | ing angle sensor branch line | | er to BRC-47. "Wiring Dia- |
| | | | |
| <u>gram"</u> . s the inspection result norm | al? | | |
| s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | <u>al?</u> lace the steering angle sens as detected in the steering a er supply and the ground circ | angle sensor branch line. | moval and Installation". |
| s the inspection result norm YES (Present error)>>Rep YES (Past error)>>Error w | lace the steering angle sens as detected in the steering a | angle sensor branch line. | moval and Installation". |

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A-BAG BRANCH LINE CIRCUIT

Diagnosis Procedure

WARNING:

Always observe the following items for preventing accidental activation.

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

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace the main harness.

2. CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-40, "Work Flow".

Is the inspection result normal?

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

INFOID:000000011051392

| HVAC BRANCH LIN | IE CIRCUIT | | |
|--|--|--|-------------------------------|
| Diagnosis Procedure | | | INFOID:000000011051395 |
| 1.CHECK CONNECTOR | | | |
| | able from the negative tern ninals and connectors for o o A/C) auto A/C) al? | minal. damage, bend and loose con | nection (unit side and con- |
| 2.CHECK HARNESS FOR | | | |
| Check the resistance be control harness connected With auto A/C | tween the A/C auto amp. or terminals (without auto | | |
| Connector No. | VC auto amp. harness connecto | nal No. | Resistance (Ω) |
| M152 | 1 | 21 | Approx. 54 – 66 |
| - Without auto A/C | | | |
| | | | |
| Connector No. | ront air control harness connect | nal No. | Resistance (Ω) |
| M37 | 4 | 3 | Approx. 54 – 66 |
| Is the measurement value wi | thin the specification? | | |
| YES >> GO TO 3. NO >> Repair the A/C a A/C). 3.CHECK POWER SUPPLY Check the power supply and auto A/C). Refer to following. • AUTOMATIC AIR CONDIT | Y AND GROUND CIRCUI the ground circuit of the A | VC auto amp (with auto A/C) | or front air control (without |
| MANUAL AIR CONDITION | | | |
| Is the inspection result norma | | | |
| to following. • AUTOMATIC A | AIR CONDITIONER: HAC | th auto A/C) or front air contro -102, "Removal and Installati 2, "Removal and Installation" | on" |
| YES (Past error)>>Error wa branch line (with | as detected in the A/C au | to amp. branch line (with au | |
| | | | |
| | | | |
| | | | |
| | | | |

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:0000000011051396

[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 BCM for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.

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

| | BCM harness connector | | Resistance (Ω) |
|---------------|-----------------------|----|-------------------|
| Connector No. | Terminal No. | | |
| M18 | 60 | 59 | 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 <u>BCS-75, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to <u>BCS-81, "Removal and Installation"</u>.

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

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 3)]

| CAN COMMUNICA | TION CIRCUIT | | |
|---|---|------------------|-------------------------|
| Diagnosis Procedure | | | INFOID:000000011051397 |
| CONNECTOR INSPECT | ION | | |
| Disconnect all the unit of | OFF. cable from the negative terr connectors on CAN commu- nnectors for damage, bend | nication system. | |
| s the inspection result norm YES >> GO TO 2. NO >> Repair the term CHECK HARNESS CON | | T) | |
| | en the data link connector te | · | <u> </u> |
| | Data link connector | | - Continuity |
| Connector No. | Termir | nal No. | Continuity |
| M22 | 6 | 14 | Not existed |
| s the inspection result norm YES >> GO TO 3. NO >> Check the harn 3.CHECK HARNESS CON Check the continuity betwee | ess and repair the root caus ITINUITY (SHORT CIRCUI | Τ) | |
| | | | |
| Connector No. | connector Terminal No. | | Continuity |
| M22 | 6 14 | Ground | Not existed |
| s the inspection result norm YES >> GO TO 4. NO >> Check the harn 4.CHECK ECM AND BCM | ess and repair the root caus | se. | |
| 1. Remove the ECM and t | | | |
| | ECM | | Resistance (Ω) |
| 100 | Terminal No. | | Amprov. 100 120 |
| 100 - VQ engine models | 99 | | Approx. 108 – 132 |
| | ECM | | |
| | Terminal No. | | Resistance (Ω) |
| 124 | 123 | | Approx. 108 – 132 |
| 3. Check the resistance be | etween the BCM terminals. | | |
| | BCM | | |
| | | | Resistance (Ω) |
| | Terminal No. | | ζ, γ |

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the measurement value within the specification?

YES >> GO TO 5.

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

5. CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

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

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

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

NOTE:

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

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

| DTC/CIRCUIT DIAG | | | ΓΟΔΝ | SYSTEM (TYPE 4)] |
|--|---|---|--|------------------------|
| DTC/CIRCU | | | | |
| AIN LINE BET | | | 2CUIT | |
|)iagnosis Procedi | | | | |
| _ | | | | INFOID:000000011051401 |
| | | | | |
| Check the followin and harness side). Harness connector Harness connector the inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS | tery cable from the ne g terminals and conr - E30 - M1 normal? terminal and connect CONTINUITY (OPEN owing harness conne | nectors for damage, b or. I CIRCUIT) | end and loose conn | ection (connector side |
| | | E/R harness connecto | or and the harness co | onnector. |
| IPDM E/R harn | less connector | Harness o | | Continuity |
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E63 | 29 28 | E30 | 22G 23G | Existed |
| the increation regult | <u>1101111al :</u> | | | |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS | CONTINUITY (OPEN | | | 0. |
| NO >> Repair the CHECK HARNESS Check the continuity be | CONTINUITY (OPEN etween the harness co | I CIRCUIT) | link connector. | 0 |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS | CONTINUITY (OPEN etween the harness co | I CIRCUIT) | link connector. | 0. Continuity |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS heck the continuity be Harness of Connector No. | CONTINUITY (OPEN etween the harness co | I CIRCUIT) onnector and the data Data link o Connector No. | link connector. | |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS check the continuity be Harness of | CONTINUITY (OPEN etween the harness co connector Terminal No. 22G 23G | I CIRCUIT) onnector and the data Data link o | link connector. connector Terminal No. | Continuity |

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

Diagnosis Procedure

INFOID:0000000011051402

[CAN SYSTEM (TYPE 4)]

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
- Combination meter
- 4. Check the continuity between the data link connector and the combination meter harness connector.

| Data link | connector | Combination meter | r harness connector | Continuity |
|---------------|--------------|-------------------|---------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| IVIZZ | 14 | 11/24 | 38 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the data link connector and the combination meter.

NO >> Repair the main line between the data link connector and the combination meter.

| | | TWEEN M&A AN | MAIN LINE BE | |
|----------------------------------|---|--|---|--|
| N SYSTEM (TYPE 4)] | - | | | DTC/CIRCUIT DIAG |
| | Т | ND AV CIRCUI | WEEN M&A A | AIN LINE BET |
| INFOID:000000011051404 | | | ure | agnosis Proced |
| | | N CIRCUIT) | CONTINUITY (OPE | CHECK HARNESS |
| | | | ttery cable from the n owing harness conne r | |
| AV control unit harness | s connector and the A | pination meter harness | | ECM |
| | | Dination meter harness | | ECM Check the continui connector. Navigation without |
| W control unit harness | | | BOSE system | ECM Check the continui connector. Navigation without |
| | arness connector | AV control unit ha Connector No. | BOSE system | ECM Check the continuit connector. Navigation without Combination meter Connector No. |
| Continuity | arness connector Terminal No. | AV control unit ha | BOSE system harness connector Terminal No. | ECM Check the continui connector. Navigation without Combination meter |
| Continuity Existed | arness connector Terminal No. 8 | AV control unit ha Connector No. | BOSE system harness connector Terminal No. 39 38 | ECM Check the continuit connector. Navigation without Combination meter Connector No. |
| Continuity Existed Existed | arness connector Terminal No. 8 7 | AV control unit ha Connector No. | BOSE system harness connector Terminal No. 39 38 | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 Navigation with BC |
| Continuity Existed | arness connector Terminal No. 8 7 | AV control unit ha Connector No. M96 | BOSE system harness connector Terminal No. 39 38 DSE system | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 Navigation with BC |
| Continuity Existed Existed | arness connector Terminal No. 8 7 7 | AV control unit ha Connector No. M96 AV control unit ha | BOSE system harness connector Terminal No. 39 38 DSE system harness connector | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 Navigation with BC Combination meter |

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 combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the air AV control unit.

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MAIN LINE BETWEEN AV AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:000000011051406

[CAN SYSTEM (TYPE 4)]

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.
- AV control unit
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C and BOSE audio system

| AV control unit h | arness connector | A/C auto amp. h | arness connector | Continuity |
|-------------------|------------------|-----------------|------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M152 | 1 | Existed |
| WITOT | 17 | IVI 152 | 21 | Existed |

With auto A/C without BOSE audio system

| AV control unit h | arness connector | A/C auto amp. h | arness connector | Continuity |
|-------------------|------------------|-----------------|------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M152 | 1 | Existed |
| 10190 | 17 | IVI I JZ | 21 | Existed |

Without auto A/C and BOSE audio system

| AV control unit h | arness connector | Front air control ha | arness connector | - Continuity |
|-------------------|------------------|----------------------|------------------|--------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M27 | 4 | Existed |
| INTST | 17 | M37 3 | | Existed |

Without auto A/C without BOSE audio system

| AV control unit I | narness connector | Front air control h | narness connector | Continuity |
|-------------------|-------------------|---------------------|-------------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M37 | 4 | Existed |
| IVIOO | 17 | 10107 | 3 | 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 AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).
- NO >> Repair the main line between the AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

ECM BRANCH LINE CIRCUIT

| ECIRCUIT | | |
|--|--|--|
| | | INFOID:00000001105140 |
| | | |
| cable from the negative term d connectors of the ECM for al? inal and connector. OPEN CIRCUIT or of ECM. etween the ECM harness co | or damage, bend and l | oose connection (unit side and |
| | | |
| | al No. | Resistance (Ω) |
| 100 | 99 | Approx. 108 – 132 |
| | | |
| ECM harness connector | | Desistance (O) |
| Termin | al No. | Resistance (Ω) |
| 100 | 99 | Approx. 108 – 132 |
| | | |
| ECM harness connector | | Resistance (Ω) |
| | | |
| | 123 | Approx. 108 – 132 |
| Y AND GROUND CIRCUIT I the ground circuit of the Ecosis Procedure" | | ing. |
| | OFF. cable from the negative term d connectors of the ECM for al? inal and connector. OPEN CIRCUIT or of ECM. etween the ECM harness con ifornia ECM harness connector Termin 100 ECM harness connector Termin 100 ECM harness connector Termin 100 ECM harness connector Termin 100 | OFF. table from the negative terminal. d connectors of the ECM for damage, bend and line. al? inal and connector. OPEN CIRCUIT or of ECM. tween the ECM harness connector terminals. ifornia ECM harness connector Terminal No. 100 99 ECM harness connector Terminal No. 124 123 ithin the specification? branch line. Y AND GROUND CIRCUIT the ground circuit of the ECM. Refer to the followingois Procedure" |

< DTC/CIRCUIT DIAGNOSIS >

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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) |
|---|------------|--------------|----|-------------------------|
| Conr | nector No. | Terminal No. | | |
| | E54 | 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-71, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-129</u>, "Removal <u>and Installation"</u>.

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

EPS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

| EPS BRANCH LINE | ECIRCUIT | | |
|---|---|----------------------------|-------------------------------------|
| Diagnosis Procedure | | | INFOID:000000011051409 |
| 1. CHECK CONNECTOR | | | |
| 3. Check the terminals an connection (unit side an | cable from the negative ter d connectors of the powe d connector side). | | or damage, bend and loose |
| Is the inspection result norm YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR | inal and connector. | | |
| | or of power steering control | ol module. | |
| | | control module harness co | nnector terminals. |
| Power s | teering control module harness | connector | Resistance (Ω) |
| Connector No. | Term | inal No. | |
| E59 | 8 | 7 | Approx. 54 – 66 |
| Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3. CHECK POWER SUPPL | er steering control module | | |
| Check the power supply and nosis Procedure". Is the inspection result norm | - | power steering control mod | ule. Refer to <u>STC-23, "Diag-</u> |
| YES (Present error)>>Repl lation". | lace the power steering of | l pump assembly. Refer to | ST-38, "Removal and Instal- |
| | er supply and the ground o | | |
| | | | |

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051410

[CAN SYSTEM (TYPE 4)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.

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

| | IPDM E/R harness connector | | | |
|---------------|----------------------------|----|-----------------|--|
| Connector No. | Terminal No. | | Resistance (Ω) | |
| E63 | 29 | 28 | 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-31, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-32, "Removal and Installation".

YES (Past error)>>Error was detected in the IPDM E/R branch line.

| TCM BRANCH LINI | | | |
|---|--|---------------------|--------------------------------|
| Diagnosis Procedure | | | INFOID:000000011051411 |
| 1.CHECK CONNECTOR | | | |
| | cable from the negative terr | | connection (unit side and con- |
| <u>s the inspection result norm</u> YES >> GO TO 2. | al? | | |
| NO >> Repair the term | | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of TCM. etween the TCM harness co | onnector terminals. | |
| | TCM harness connector | | Resistance (Ω) |
| Connector No. | | nal No. | |
| F16 s the measurement value w | 33 | 23 | Approx. 54 – 66 |
| YES >> GO TO 3. NO >> Repair the TCM 3.CHECK POWER SUPPL Check the power supply and QR25DE: <u>TM-168, "Diagn</u> | Y AND GROUND CIRCUIT the ground circuit of the T osis Procedure" | |]. |
| VQ35DE: <u>TM-374, "Diagn</u> | | | |
| | lace the TCM. Refer to the -187, "Removal and Installa | ition" | |
| YES (Past error)>>Error w | - <u>392, "Removal and Installa</u> as detected in the TCM bra er supply and the ground ci | nch line. | |
| | | | |
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DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051412

[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.

M&A BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 4)]

| | E CIRCUIT | | |
|---|---|--|---------------------------|
| Diagnosis Procedure | | | INFOID:000000011051413 |
| 1.CHECK CONNECTOR | | | |
| Check the terminals an (unit side and connector) | cable from the negative terr d connectors of the combi r side). | minal. ination meter for damage, l | pend and loose connection |
| Is the inspection result norm YES >> GO TO 2. | nal? | | |
| YES >> GO TO 2. NO >> Repair the term | inal and connector. | | |
| 2. CHECK HARNESS FOR | OPEN CIRCUIT | | |
| | or of combination meter. Etween the combination me | ter harness connector term | nals. |
| Ca | ombination meter harness connec | tor | Resistance (Ω) |
| Connector No. | Termiı | nal No. | |
| M24 | 39 | 38 | Approx. 54 – 66 |
| | | | |
| YES >> GO TO 3. NO >> Repair the coml 3. CHECK POWER SUPPL | bination meter branch line. Y AND GROUND CIRCUIT | | |
| YES >> GO TO 3. NO >> Repair the com 3. CHECK POWER SUPPL Check the power supply an <u>METER : Diagnosis Proced</u> | bination meter branch line. Y AND GROUND CIRCUIT d the ground circuit of the ure". | | MWI-57, "COMBINATION |
| YES >> GO TO 3. NO >> Repair the com 3. CHECK POWER SUPPL Check the power supply an <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 ure". hal? lace the combination meter | combination meter. Refer to Refer to <u>MWI-81, "Remov</u> tion meter branch line. | |
| NO >> Repair the com 3. CHECK POWER SUPPL Check the power supply an <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 <u>ure"</u> . hal? lace the combination meter as detected in the combina | combination meter. Refer to Refer to <u>MWI-81, "Remov</u> tion meter branch line. | |
| YES >> GO TO 3. NO >> Repair the com 3. CHECK POWER SUPPL Check the power supply an <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 <u>ure"</u> . hal? lace the combination meter as detected in the combina | combination meter. Refer to Refer to <u>MWI-81, "Remov</u> tion meter branch line. | |

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STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051414

[CAN SYSTEM (TYPE 4)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.

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

| Stee | Resistance (Ω) | | |
|---------------|----------------------------|--|-----------------|
| Connector No. | Connector No. Terminal No. | | |
| M53 | M53 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-47, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-133, "Removal and Installation"</u>.

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

< DTC/CIRCUIT DIAGNOSIS > A-BAG BRANCH LINE CIRCUIT А Diagnosis Procedure INFOID:000000011051415 WARNING: В Always observe the following items for preventing accidental activation. Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-40, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction.

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AV 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 AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of AV control unit.
- 2. Check the resistance between the AV control unit harness connector terminals.
- With navigation system without BOSE audio system

| | AV control unit harness connector | | | | |
|---------------|-----------------------------------|----------------|-----------------|--|--|
| Connector No. | Termi | Resistance (Ω) | | | |
| M96 | 8 | 17 | Approx. 54 – 66 | | |

With navigation system and BOSE audio system

| | AV control unit harness connector | | | |
|---------------|-----------------------------------|----------------|-----------------|--|
| Connector No. | Termi | Resistance (Ω) | | |
| M151 | 8 | 17 | Approx. 54 – 66 | |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

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

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

- With navigation system without BOSE audio system: <u>AV-267, "AV CONTROL UNIT : Diagnosis Procedure"</u>
- With navigation system and BOSE audio system: <u>AV-376, "AV CONTROL UNIT : Diagnosis Procedure"</u>

Is the inspection result normal?

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

- With navigation system without BOSE audio system: <u>AV-298, "Removal and Installation"</u>
- With navigation system and BOSE audio system: <u>AV-416, "Removal and Installation"</u>
- YES (Past error)>>Error was detected in the AV control unit branch line.

| HVAC BRANCH LIN | IE CIRCUIT | | |
|--|--|--|---|
| Diagnosis Procedure | | | INFOID:000000011051418 |
| 1.CHECK CONNECTOR | | | |
| Check the following term nector side). A/C auto amp. (with auto Front air control (without Is the inspection result norm | able from the negative ten ninals and connectors for c o A/C) t auto A/C) | | nnection (unit side and con- |
| YES >> GO TO 2. NO >> Repair the termi 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | or of A/C auto amp. (with a | | (without auto A/C). s (with auto A/C) or front air |
| | A/C auto amp. harness connecto | r | Resistance (Ω) |
| Connector No. | | nal No. | |
| M152 Without auto A/C | 1 | 21 | Approx. 54 – 66 |
| Without auto A/C | | | |
| F | ront air control harness connecto | Dr | Resistance (Ω) |
| Connector No. | Termi | nal No. | |
| M37 | 4 | 3 | Approx. 54 – 66 |
| A/Ċ). CHECK POWER SUPPL Check the power supply and buto A/C). Refer to following AUTOMATIC AIR CONDITION MANUAL AIR CONDITION the inspection result norm | Y AND GROUND CIRCUIT the ground circuit of the A IONER: <u>HAC-78, "A/C AU</u> IER: <u>HAC-153, "Diagnosis</u> al? | r /C auto amp (with auto A/C <u>TO AMP. : Diagnosis Proce</u> <u>Procedure"</u> | rol branch line (without auto) or front air control (without edure" rol (without auto A/C). Refer |
| AUTOMATIC // MANUAL AIR YES (Past error)>>Error w. branch line (with | CONDITIONER: <u>HAC-162</u> as detected in the A/C aut | | |
| | | | |

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051419

[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 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.

| | Resistance (Ω) | | |
|---------------|----------------|----|-------------------|
| Connector No. | Termi | | |
| M18 | 60 | 59 | 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 <u>BCS-75, "Diagnosis Procedure"</u>. <u>Is the inspection result normal?</u>

YES (Present error)>>Replace the BCM. Refer to <u>BCS-81, "Removal and Installation"</u>.

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

CAN COMMUNICATION CIRCUIT

[CAN SYSTEM (TYPE 4)]

| CAN COMMUNICAT | ION CIRCUIT | | |
|---|--|---|--------------------------|
| Diagnosis Procedure | | | INFOID:000000011051420 |
| 1.CONNECTOR INSPECTI | ON | | |
| Disconnect all the unit co Check terminals and con | able from the negative terr onnectors on CAN commu inectors for damage, bend | nication system. | |
| Is the inspection result norma YES >> GO TO 2. NO >> Repair the termin 2.CHECK HARNESS CONT | nal and connector. | Т) | |
| Check the continuity between | | | |
| | Data link connector | | Continuity |
| Connector No. | Termi | nal No. | |
| M22 | 6 | 14 | Not existed |
| Is the inspection result normal YES >> GO TO 3. NO >> Check the harne 3. CHECK HARNESS CONT Check the continuity betweer | ss and repair the root cau FINUITY (SHORT CIRCUI | T) | |
| Data link c | onnector | | |
| Connector No. | Terminal No. | Oreverd | Continuity |
| M22 | 6 | Ground | Not existed |
| | 14 | | Not existed |
| 4. CHECK ECM AND BCM ¹ 1. Remove the ECM and th | ss and repair the root caus | se. | |
| | ECM | | |
| | erminal No. | | Resistance (Ω) |
| 100 | 99 | / | Approx. 108 – 132 |
| - VQ engine models | | | |
| | ECM | | |
| 1 | erminal No. | | Resistance (Ω) |
| 124 | 123 | , And | Approx. 108 – 132 |
| 3. Check the resistance bet | ween the BCM terminals. | | |
| | BCM | | |
| | BCIVI | | $Desistance(\mathbf{O})$ |
| T | erminal No. | | Resistance (Ω) |

CAN COMMUNICATION CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Is the measurement value within the specification?

YES >> GO TO 5.

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

5. CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

6.CHECK UNIT REPRODUCTION

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

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

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

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

NOTE:

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

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.

Non-reproduced>>Replace the unit whose connector was disconnected.

| | | | ΓΟΔΝ | SYSTEM (TYPE 5)] |
|--|--|--|---|-----------------------------|
| DTC/CIRCUIT DIAG | | | | |
| AIN LINE BET | | | | |
| | | AND DEC CIP | | |
| iagnosis Procedu | Jre | | | INFOID:000000011051421 |
| .CHECK CONNECT | OR | | | |
| Check the followin and harness side). Harness connector Harness connector the inspection result YES >> GO TO 2. NO >> Repair the CHECK HARNESS Disconnect the following IPDM E/R | tery cable from the ne g terminals and conn · E30 · M1 normal? terminal and connecte CONTINUITY (OPEN owing harness connect | ectors for damage, b or. I CIRCUIT) | pend and loose conne | ection (connector side |
| Harness connector . Check the continuit | | E/R harness connected | or and the harness co | nnector. |
| IPDM E/R harn | | Harness o | | Continuity |
| Connector No. | Terminal No. 29 | Connector No. | Terminal No. 22G | Existed |
| E63 | 29 | E30 | 22G 23G | Existed |
| the inspection result | normal? | | | Existen |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS | main line between the CONTINUITY (OPEN | CIRCUIT) | arness connector E30 link connector. | |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS | main line between the CONTINUITY (OPEN etween the harness co | CIRCUIT) | link connector. |). |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS heck the continuity be | main line between the CONTINUITY (OPEN etween the harness co | CIRCUIT) | link connector. | |
| YES >> GO TO 3. NO >> Repair the CHECK HARNESS heck the continuity be Harness of | main line between the CONTINUITY (OPEN etween the harness co connector Terminal No. 22G | I CIRCUIT) onnector and the data Data link | link connector. connector Terminal No. 6 |). Continuity Existed |
| NO >> Repair the CHECK HARNESS Check the continuity be Harness of Connector No. | main line between the CONTINUITY (OPEN etween the harness co connector Terminal No. | CIRCUIT) | link connector. connector Terminal No. |). Continuity |

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

MAIN LINE BETWEEN DLC AND M&A CIRCUIT

Diagnosis Procedure

INFOID:000000011051422

[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
- Combination meter
- 4. Check the continuity between the data link connector and the combination meter harness connector.

| Data link | connector | Combination meter harness connector | | Continuity |
|---------------|--------------|-------------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M22 | 6 | M24 | 39 | Existed |
| IVIZZ | 14 | 11/24 | 38 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the data link connector and the combination meter.

NO >> Repair the main line between the data link connector and the combination meter.

| | _ | TWEEN M&A AN | | |
|----------------------------------|---|--|---|--|
| I SYSTEM (TYPE 5)] | = | | | DTC/CIRCUIT DIAG |
| | Т | ND AV CIRCUI | WEEN M&A A | AIN LINE BET |
| INFOID:000000011051424 | | | ure | agnosis Proced |
| | | N CIRCUIT) | CONTINUITY (OPEN | CHECK HARNESS |
| | | | tery cable from the ne owing harness conne | |
| ₩ control unit harness | s connector and the A | pination meter harness | | ECM |
| | | Dination meter harness AV control unit ha | BOSE system | ECM Check the continui connector. |
| Continuity | | | BOSE system | ECM Check the continui connector. Navigation without |
| | arness connector | AV control unit ha Connector No. | BOSE system | ECM Check the continuit connector. Navigation without Combination meter Connector No. |
| Continuity | arness connector Terminal No. | AV control unit ha | BOSE system harness connector Terminal No. | ECM Check the continui connector. Navigation without Combination meter |
| Continuity Existed | arness connector Terminal No. 8 | AV control unit ha Connector No. | BOSE system harness connector Terminal No. 39 38 | ECM Check the continuit connector. Navigation without Combination meter Connector No. |
| Continuity Existed Existed | arness connector Terminal No. 8 7 | AV control unit ha Connector No. | BOSE system Terminal No. 39 38 DSE system | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 |
| Continuity Existed | arness connector Terminal No. 8 7 | AV control unit ha Connector No. M96 | BOSE system Terminal No. 39 38 DSE system | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 Navigation with BC |
| Continuity Existed Existed | arness connector Terminal No. 8 7 7 | AV control unit ha Connector No. M96 AV control unit ha | BOSE system harness connector Terminal No. 39 38 DSE system harness connector | ECM Check the continuit connector. Navigation without Combination meter Connector No. M24 Navigation with BC Combination meter |

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 combination meter and the AV control unit.

NO >> Repair the main line between the combination meter and the air AV control unit.

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MAIN LINE BETWEEN AV AND HVAC CIRCUIT

Diagnosis Procedure

INFOID:000000011051426

[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.
- AV control unit
- A/C auto amp. (with auto A/C)
- Front air control (without auto A/C)
- ECM
- 4. Check the continuity between the AV control unit harness connector and the A/C auto amp. harness connector (with auto A/C) or front air control harness connector (without auto A/C).
- With auto A/C and BOSE audio system

| AV control unit h | arness connector | A/C auto amp. harness connector | | Continuity |
|-------------------|------------------|---------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M152 | 1 | Existed |
| MIST | 17 | WIT52 | 21 | Existed |

With auto A/C without BOSE audio system

| AV control unit h | narness connector | A/C auto amp. harness connector | | Continuity |
|-------------------|-------------------|---------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M152 | 1 | Existed |
| 10190 | 17 | 101152 | 21 | Existed |

Without auto A/C and BOSE audio system

| AV control unit h | arness connector | Front air control harness connector | | - Continuity |
|-------------------|------------------|-------------------------------------|--------------|--------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M151 | 8 | M27 | 4 | Existed |
| WITST | 17 | 10137 | M37 3 | |

Without auto A/C without BOSE audio system

| AV control unit harness connector | | Front air control harness connector | | Continuity |
|-----------------------------------|--------------|-------------------------------------|--------------|------------|
| Connector No. | Terminal No. | Connector No. | Terminal No. | Continuity |
| M96 | 8 | M37 | 4 | Existed |
| IVIOO | 17 | 10107 | 3 | 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 AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).
- NO >> Repair the main line between the AV control unit and the A/C auto amp. (with auto A/C) or front air control (without auto A/C).

ECM BRANCH LINE CIRCUIT

| CM BRANCH LINE | CIRCUIT | | |
|---|--|--------------------------|--------------------------------|
| iagnosis Procedure | | | INFOID:000000011051427 |
| .CHECK CONNECTOR | | | |
| Check the terminals and connector side). the inspection result norma YES >> GO TO 2. NO >> Repair the termin CHECK HARNESS FOR (Disconnect the connecto | able from the negative tern connectors of the ECM for al and connector. DPEN CIRCUIT r of ECM. | or damage, bend and l | oose connection (unit side and |
| QR25DE except for Calif | ween the ECM harness co ornia | onnector terminals. | |
| | ECM harness connector | | Resistance (Ω) |
| Connector No. | Termin | | |
| E10 QR25DE for California | 100 | 99 | Approx. 108 – 132 |
| | ECM harness connector | | Popietanes (O) |
| Connector No. | Termin | al No. | Resistance (Ω) |
| E31 VQ35DE | 100 | 99 | Approx. 108 – 132 |
| V QUODE | | | |
| | ECM harness connector | -1.81- | Resistance (Ω) |
| Connector No. E32 | Termin 124 | 123 | Approx 109 122 |
| the measurement value wi | | 125 | Approx. 108 – 132 |
| YES >> GO TO 3. NO >> Repair the ECM CHECK POWER SUPPLY heck the power supply and QR25DE: EC-204, "Diagno VQ35DE: EC-720, "Diagno the inspection result norma | branch line. AND GROUND CIRCUIT the ground circuit of the Er sis Procedure" sis Procedure" | CM. Refer to the followi | ing. |

< DTC/CIRCUIT DIAGNOSIS >

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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) |
|------|---|-------|----------|-----------------|
| Conr | nector No. | Term | inal No. | |
| | E54 | 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-71, "Diagnosis Procedure"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to <u>BRC-129</u>, "Removal <u>and Installation"</u>.

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

EPS BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

| Diagnosis Procedure | | | INFOID:000000011051429 |
|---|--|---|--|
| 1.CHECK CONNECTOR | | | |
| | able from the negative te d connectors of the powe d connector side). al? nal and connector. | | or damage, bend and loose |
| | or of power steering contr | ol module. | |
| | | control module harness co | nnector terminals. |
| Power st | eering control module harness | | |
| F UWEI SI | eening control module namess | connector | Bosistanos (O) |
| Connector No. | | inal No. | Resistance (Ω) |
| Connector No. E59 | Term 8 | | Resistance (Ω) Approx. 54 – 66 |
| Connector No. E59 Is the measurement value w YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPLY | Term 8 thin the specification? er steering control module Y AND GROUND CIRCU | ninal No. 7 9 branch line. IT | Approx. 54 – 66 |
| Connector No. E59 Is the measurement value with YES >> GO TO 3. | Term 8 thin the specification? er steering control module 6 AND GROUND CIRCU the ground circuit of the | ninal No. 7 9 branch line. IT | Approx. 54 – 66 |
| Connector No. E59 Is the measurement value wi YES >> GO TO 3. NO >> Repair the Power 3.CHECK POWER SUPPLY Check the power supply and nosis Procedure". Is the inspection result normal YES (Present error)>>Repl Lation". | 8 thin the specification? er steering control module Y AND GROUND CIRCU the ground circuit of the al? ace the power steering o | inal No. 7 branch line. IT power steering control mod il pump assembly. Refer to | Approx. 54 – 66 ule. Refer to <u>STC-23, "Diag-</u> <u>ST-38, "Removal and Instal-</u> |
| Connector No. E59 Is the measurement value wi YES >> GO TO 3. NO >> Repair the Powe 3.CHECK POWER SUPPLY Check the power supply and nosis Procedure". Is the inspection result normation YES (Present error)>>Replication". YES (Past error)>>Error was | 8 thin the specification? er steering control module Y AND GROUND CIRCU the ground circuit of the al? ace the power steering o | inal No. 7 branch line. IT power steering control mod il pump assembly. Refer to steering control module brar | Approx. 54 – 66 ule. Refer to <u>STC-23, "Diag-</u> <u>ST-38, "Removal and Instal-</u> |

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IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051430

[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.

| | IPDM E/R harness connector | | |
|---------------|----------------------------|--------------|-----------------|
| Connector No. | Termi | Terminal No. | |
| E63 | 29 | 28 | 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-31, "Diagnosis Procedure"</u>. Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-32, "Removal and Installation".

YES (Past error)>> Error was detected in the IPDM E/R branch line.

| TCM BRANCH LINI | E CIRCUIT | | |
|--|--|----------------------------|--------------------------------|
| Diagnosis Procedure | | | INFOID:000000011051431 |
| 1. CHECK CONNECTOR | | | |
| | cable from the negative terr | | connection (unit side and con- |
| s the inspection result norm YES >> GO TO 2. | nal? | | |
| NO >> Repair the term | | | |
| 2.CHECK HARNESS FOR | | | |
| Disconnect the connect Check the resistance be | etween the TCM harness co | onnector terminals. | |
| | TCM harness connector | | Resistance (Ω) |
| Connector No. | Termii 33 | nal No. 23 | Approx. 54 – 66 |
| s the measurement value w YES >> GO TO 3. | | | |
| NO >> Repair the TCM 3.CHECK POWER SUPPL | | - | |
| Check the power supply and • QR25DE: <u>TM-168, "Diagn</u> • VQ35DE: <u>TM-374, "Diagn</u> | osis Procedure" osis Procedure" | CM. Refer to the following | <u>g</u> . |
| | lace the TCM. Refer to the -187, "Removal and Installa | ation" | |
| YES (Past error)>>Error w | - <u>392, "Removal and Installa</u> as detected in the TCM bra er supply and the ground ci | nch line. | |
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DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051432

[CAN SYSTEM (TYPE 5)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| | Data link connector | | |
|---------------|---------------------|----|-------------------------|
| 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.

M&A BRANCH LINE CIRCUIT

[CAN SYSTEM (TYPE 5)]

| Diagnosis Procedure | | | INFOID:000000011051433 | |
|--|---|--------------------------------------|--------------------------|--|
| 1. CHECK CONNECTOR | | | | |
| | able from the negative tern d connectors of the combined | ninal. nation meter for damage, b | end and loose connection | |
| s the inspection result norm | <u>al?</u> | | | |
| YES >> GO TO 2. NO >> Repair the termi | nal and connector. | | | |
| 2. CHECK HARNESS FOR | | | | |
| Disconnect the connect Check the resistance be | | ter harness connector termi | nals. | |
| Cc | Combination meter harness connector | | Resistance (Ω) | |
| Connector No. | Termin | al No. | | |
| M24 | 39 | 38 | Approx. 54 – 66 | |
| 3. CHECK POWER SUPPL | bination meter branch line. Y AND GROUND CIRCUIT | | | |
| Check the power supply and METER : Diagnosis Procedu Is the inspection result norm | | combination meter. Refer to | MWI-57, "COMBINATION | |
| | <u>al?</u> | | | |
| YES (Present error)>>Repl YES (Past error)>>Error wa | ace the combination meter | | al and Installation". | |
| YES (Present error)>>Repl YES (Past error)>>Error wa | ace the combination meter. as detected in the combinat | tion meter branch line. | al and Installation". | |
| YES (Present error)>>Repl YES (Past error)>>Error wa | ace the combination meter. as detected in the combinat | tion meter branch line. | al and Installation". | |

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STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051434

[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. | Terminal No. | | Resistance (Ω) |
| M53 | 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-47, "Wiring Dia-gram"</u>.

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to <u>BRC-133, "Removal and Installation"</u>.

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

< DTC/CIRCUIT DIAGNOSIS > A-BAG BRANCH LINE CIRCUIT А **Diagnosis** Procedure INFOID:000000011051435 WARNING: В Always observe the following items for preventing accidental activation. Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.) С Never use unspecified tester or other measuring device. 1. CHECK CONNECTOR 1. Turn the ignition switch OFF. D 2. Disconnect the battery cable from the negative terminal. Check the terminals and connectors of the air bag diagnosis sensor unit for damage, bend and loose con-3. nection (unit side and connector side). Е Is the inspection result normal? YES >> GO TO 2. NO >> Replace the main harness. F 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT Check the air bag diagnosis sensor unit. Refer to SRC-40, "Work Flow". Is the inspection result normal? YES >> Replace the main harness. NO >> Replace parts whose air bag system has a malfunction.

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AV 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 AV control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS FOR OPEN CIRCUIT

- 1. Disconnect the connector of AV control unit.
- 2. Check the resistance between the AV control unit harness connector terminals.
- With navigation system without BOSE audio system

| | AV control unit harness connector | | |
|---------------|-----------------------------------|----|-----------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M96 | 8 | 17 | Approx. 54 – 66 |

With navigation system and BOSE audio system

| | AV control unit harness connector | | |
|---------------|-----------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M151 | 8 | 17 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the AV control unit branch line.

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

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

- With navigation system without BOSE audio system: <u>AV-267, "AV CONTROL UNIT : Diagnosis Procedure"</u>
- With navigation system and BOSE audio system: AV-376, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

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

- With navigation system without BOSE audio system: <u>AV-298, "Removal and Installation"</u>
- With navigation system and BOSE audio system: <u>AV-416, "Removal and Installation"</u>
- YES (Past error)>>Error was detected in the AV control unit branch line.

AVM BRANCH LINE CIRCUIT

| .CHECK CONNECTOR | | | INFOID:000000011051437 |
|--|---|----------------------------|------------------------------|
| | | | |
| Check the terminals ar side and connector side the inspection result norm YES >> GO TO 2. | cable from the negative term d connectors of the ITS con e). | | d and loose connection (unit |
| CHECK HARNESS FOR | | | |
| Disconnect the connec Check the resistance b | tor of ITS control unit. etween the ITS control unit h | arness connector termin | als. |
| | ITS control unit harness connector Resistance | | Resistance (Ω) |
| Connector No. | Termina | | |
| M58 | 27 | 7 | Approx. 54 – 66 |
| CHECK POWER SUPPL | control unit branch line. Y AND GROUND CIRCUIT | ITS control unit. Refer to | DAS-64, "Diagnosis Proce- |
| <u>ure"</u> . | | | |
| YES (Past error)>>Error w | blace the ITS control unit. Re vas detected in the ITS contro er supply and the ground cire | ol unit branch line. | and Installation". |
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HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000011051438

[CAN SYSTEM (TYPE 5)]

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

| | A/C auto amp. harness connector | | |
|---------------|---------------------------------|----|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M152 | 1 | 21 | Approx. 54 – 66 |

Without auto A/C

| | Front air control harness connector | | |
|---------------|-------------------------------------|---|-------------------------|
| Connector No. | Terminal No. | | Resistance (Ω) |
| M37 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.

${\it 3.}$ 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 following.

AUTOMATIC AIR CONDITIONER: <u>HAC-78, "A/C AUTO AMP. : Diagnosis Procedure"</u>

MANUAL AIR CONDITIONER: <u>HAC-153</u>, "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 following.

- AUTOMATIC AIR CONDITIONER: <u>HAC-102</u>, "Removal and Installation"
- MANUAL AIR CONDITIONER: <u>HAC-162</u>, "Removal and Installation"
- YES (Past error)>>Error was detected in the A/C auto amp. branch line (with auto A/C) or front air control branch line (without auto A/C).
- NO >> Repair the power supply and the ground circuit.

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

BCM BRANCH LINE CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | | | [CAN SYSTEM (TYPE 5)] |
|---|------------------------------------|--------------------------------|-------------------------------|
| BCM BRANCH LINE | CIRCUIT | | |
| Diagnosis Procedure | | | INFOID:000000011051439 |
| 1. CHECK CONNECTOR | | | |
| Turn the ignition switch O Disconnect the battery ca Check the terminals and connector side). | ble from the negative terr | | ose connection (unit side and |
| Is the inspection result normalYES>> GO TO 2.NO>> Repair the termina2.CHECK HARNESS FOR O | al and connector. | | |
| Disconnect the connector Check the resistance bety | of BCM. | onnector terminals. | |
| | BCM harness connector | | Resistance (Ω) |
| Connector No. | | nal No. | |
| M18 | 60 | 59 | Approx. 108 – 132 |
| Is the measurement value with YES >> GO TO 3. NO >> Repair the BCM b 3.CHECK POWER SUPPLY | oranch line. AND GROUND CIRCUIT | | |
| Check the power supply and t | | CM. Refer to <u>BCS-75, "D</u> | agnosis Procedure". |
| Is the inspection result normal YES (Present error)>>Replac YES (Past error)>>Error was NO >> Repair the power | | anch line. | llation". |
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CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

1.CONNECTOR INSPECTION

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

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

Is the inspection result normal?

YES >> GO TO 3.

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

3. CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data lin | Data link connector | | Continuity |
|---------------|---------------------|-------------------|-------------|
| Connector No. | Terminal No. | Ground Continuity | 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 the root cause.

4.CHECK ECM AND BCM TERMINATION CIRCUIT

1. Remove the ECM and the BCM.

2. Check the resistance between the ECM terminals.

- QR engine models

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

- VQ engine models

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

3. Check the resistance between the BCM terminals.

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

INFOID:000000011051440

CAN COMMUNICATION CIRCUIT

| < DTC/CIRCUIT DIAGNOSIS > | [CAN SYSTEM (TYPE 5)] |
|--|---------------------------------|
| Is the measurement value within the specification? | |
| YES >> GO TO 5. NO >> Replace the ECM and/or the BCM. | |
| 5. СНЕСК ЗҮМРТОМ | |
| Connect all the connectors. Check if the symptoms described in the "Symptocustomer)" are reproduced. | om (Results from interview with |
| Inspection result | |
| Reproduced>>GO TO 6. Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis detected. | procedure when past error is |
| 6. CHECK UNIT REPRODUCTION | |
| Perform the reproduction test as per the following procedure for each unit. Turn the ignition switch OFF. Disconnect the battery cable from the negative terminal. Disconnect one of the unit connectors of CAN communication system. | |
| NOTE: ECM and BCM have a termination circuit. Check other units first. 4. Connect the battery cable to the negative terminal. Check if the sympto (Results from interview with customer)" are reproduced. | ms described in the "Symptom |
| NOTE: Although unit-related error symptoms occur, do not confuse them with oth | er symptoms. |
| Inspection result Reproduced>>Connect the connector. Check other units as per the above pr Non-reproduced>>Replace the unit whose connector was disconnected. | ocedure. |
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