# SECTION LAN

## LAN SYSTEM

## CONTENTS

## CAN GATEWAY



## CAN SYSTEM (TYPE 1)

## CAN SYSTEM (TYPE 7)

## CAN SYSTEM (TYPE 9)

## CAN SYSTEM (TYPE 50)

## CAN SYSTEM (TYPE 51)

# PRECAUTION

## PRECAUTIONS

### Precautions for Trouble Diagnosis

INFOID:0000000010101266

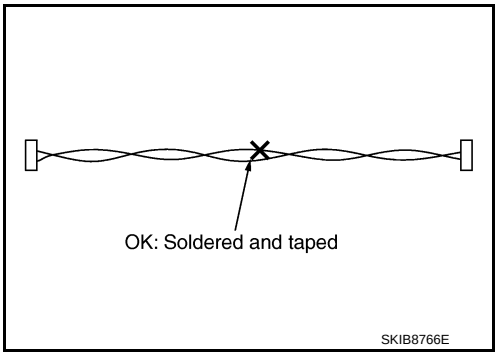
**CAUTION:**

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

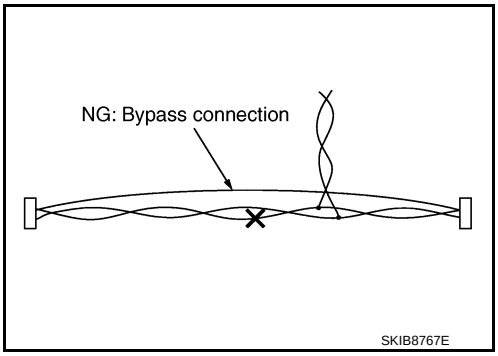
### Precautions for Harness Repair

INFOID:0000000010101267

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




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




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

# SYSTEM DESCRIPTION

## SYSTEM

## CAN COMMUNICATION SYSTEM

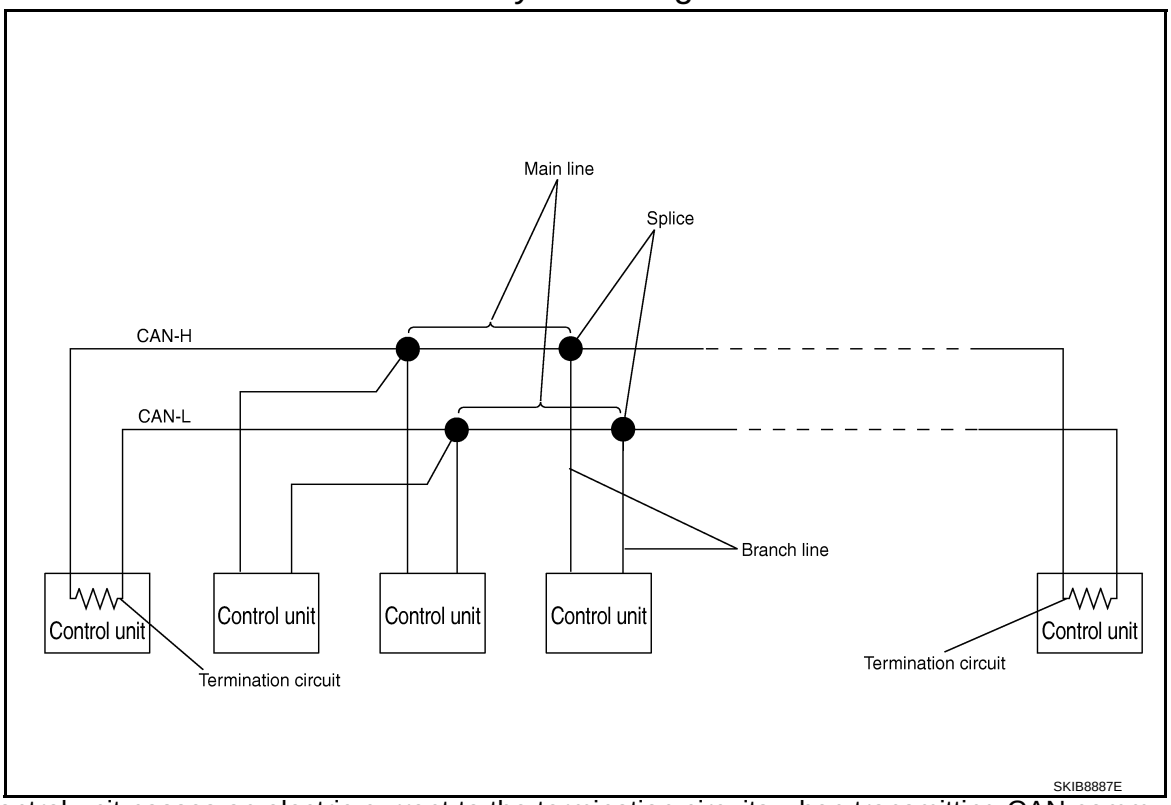
### CAN COMMUNICATION SYSTEM : System Description

INFOID:0000000010101268

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

### CAN COMMUNICATION SYSTEM : System Diagram

INFOID:0000000010101269

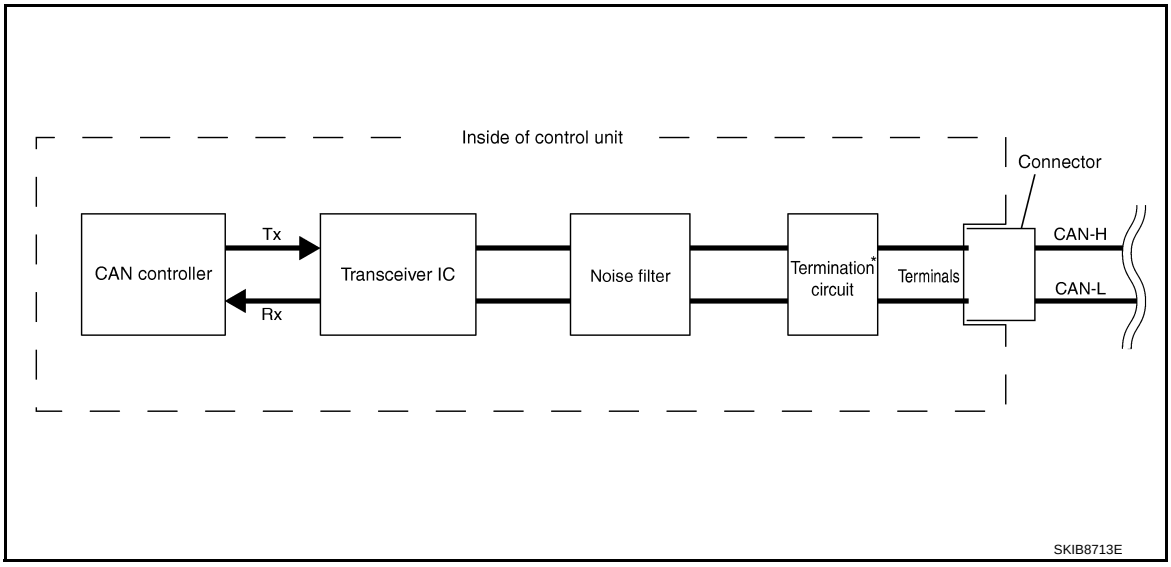



Each control unit passes an electric current to the termination circuits when transmitting CAN communication signal. The termination circuits produce an electrical potential difference between CAN-H and CAN-L. CAN communication system transmits and receives CAN communication signals by the potential difference.

| Component | Description |
|---|---|
| Main line | CAN communication line between splices |
| Branch line | CAN communication line between splice and a control unit |
| Splice | A point connecting a branch line with a main line |
| Termination circuit | Refer to LAN-16, "CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit". |

## CAN COMMUNICATION SYSTEM : CAN Communication Control Circuit

INFOID:0000000010101270




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

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

# DIAG ON CAN

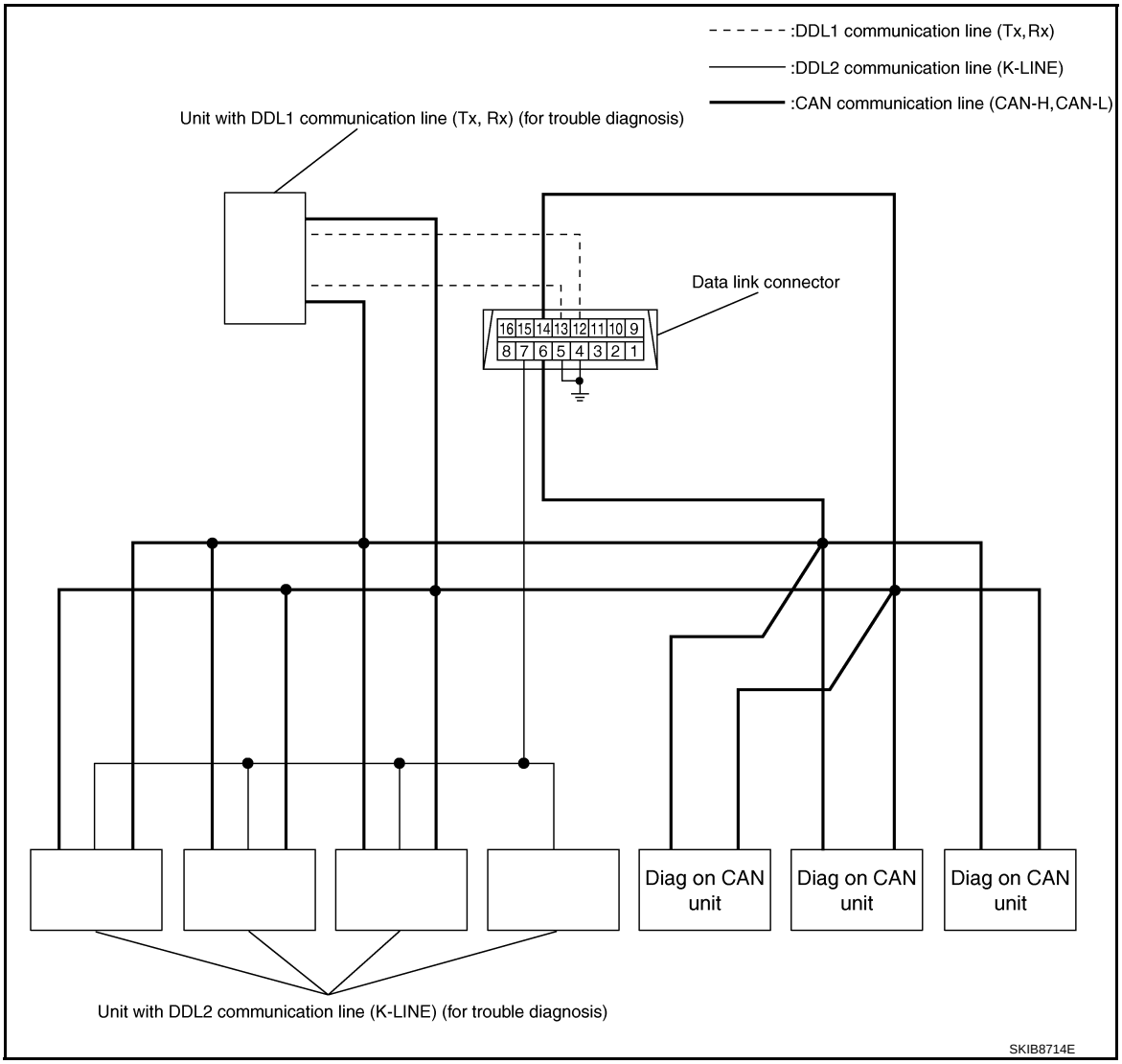
## DIAG ON CAN : Description

INFOID:0000000010101271

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

## DIAG ON CAN : System Diagram

INFOID:0000000010101272




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

# TROUBLE DIAGNOSIS

## Condition of Error Detection

INFOID:0000000010101273

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

### CAN COMMUNICATION SYSTEM ERROR

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

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

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

**CAUTION:**

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

## Symptom When Error Occurs in CAN Communication System

INFOID:0000000010101274

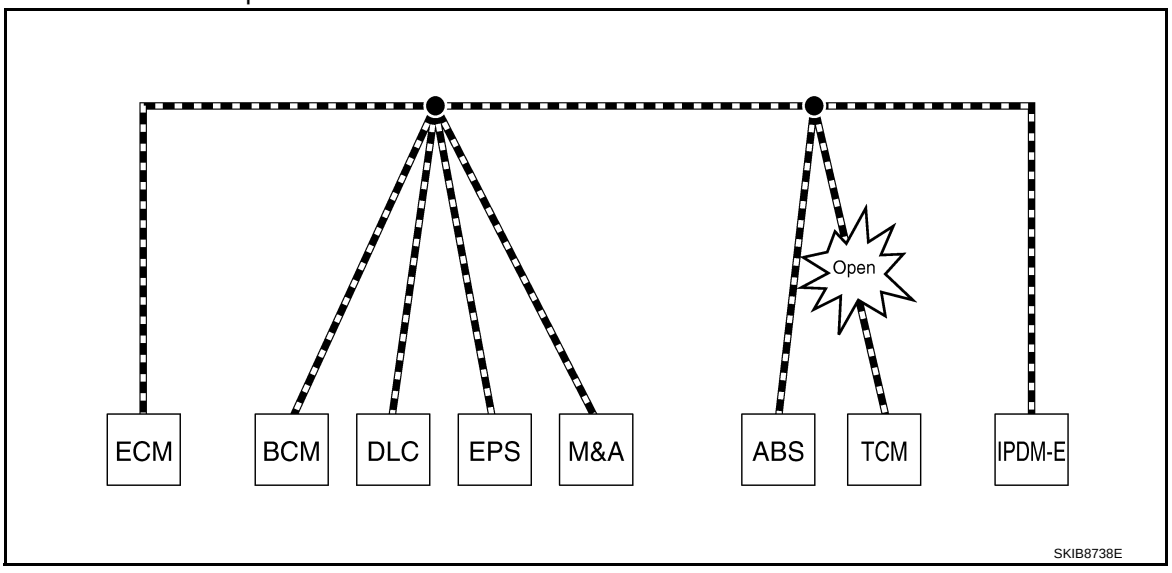
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

### ERROR EXAMPLE

**NOTE:**

- Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.
- Refer to LAN-29, "Abbreviation List" for the unit abbreviation.

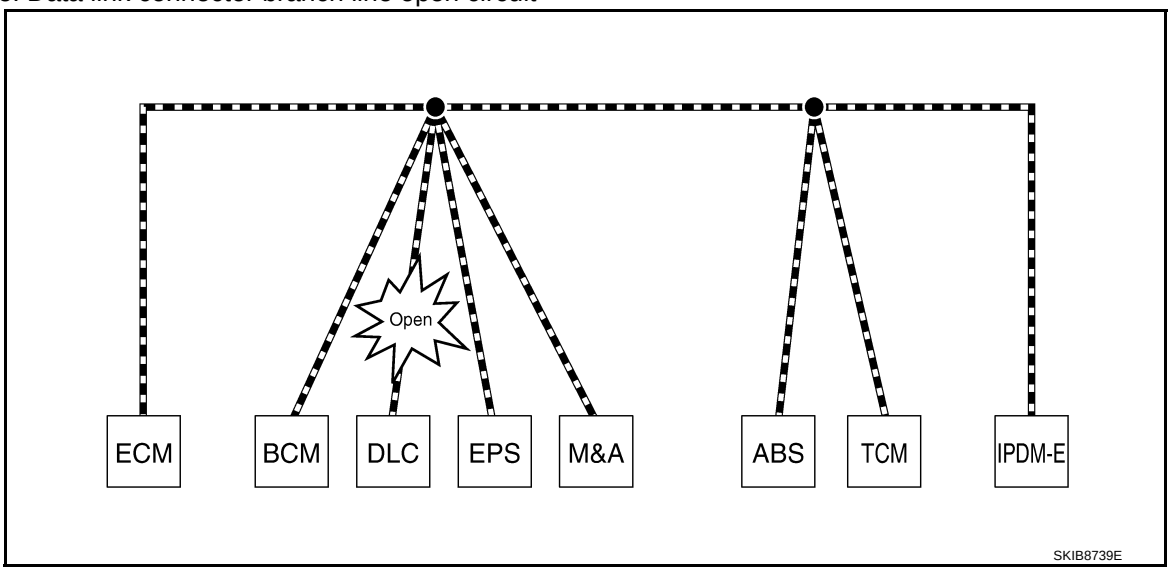
Example: TCM branch line open circuit




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

| Unit name | Major symptom |
|---|---|
| EPS control unit | Normal operation. |
| Combination meter | • Shift position indicator and OD OFF indicator turn OFF.<br>• Warning lamps turn ON. |
| ABS actuator and electric unit (control unit) | Normal operation. |
| TCM | No impact on operation. |
| IPDM E/R | Normal operation. |

Example: Data link connector branch line open circuit

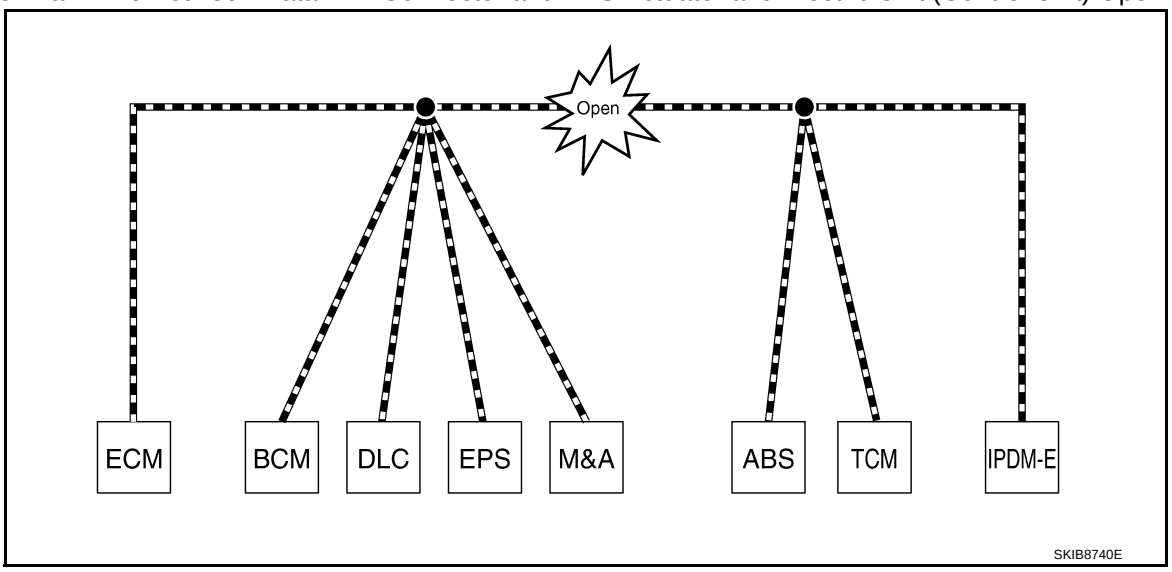



| Unit name | Major symptom |
|---|---|
| ECM | Normal operation. |
| BCM | |
| EPS control unit | |
| Combination meter | |
| ABS actuator and electric unit (control unit) | |
| TCM | |
| IPDM E/R | |

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

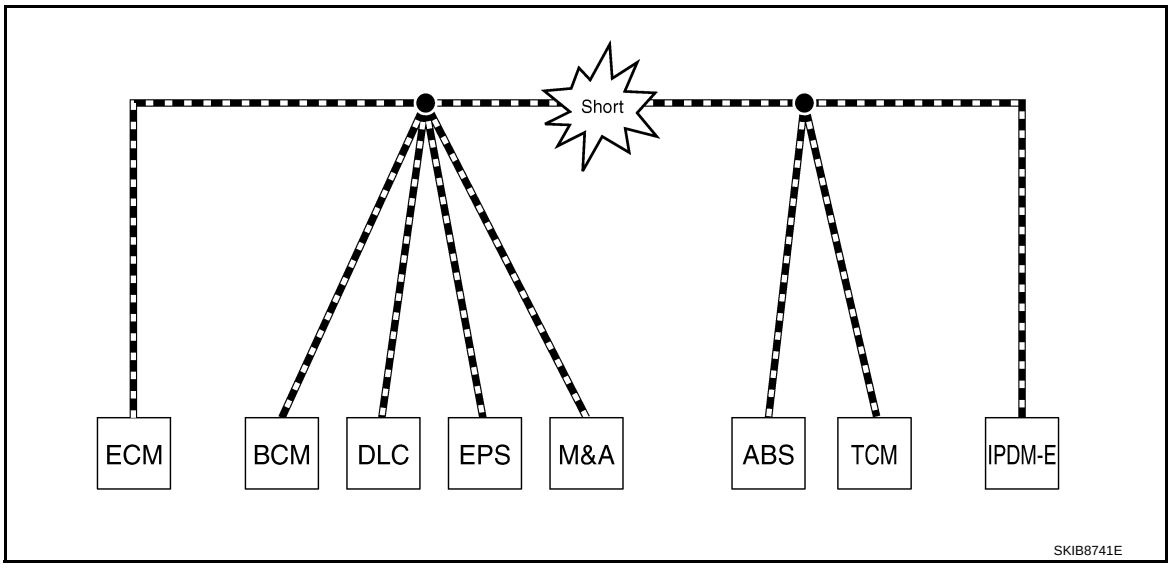
| Error | Difference of symptom |
|---|---|
| Data link connector branch line open circuit | Normal operation. |
| CAN-H, CAN-L harness short-circuit | Most of the units which are connected to the CAN communication system enter fail-safe mode or are deactivated. |

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 chime does not sound.<br>• 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.<br>• The speedometer is inoperative.<br>• The odo/trip meter stops. |
| ABS actuator and electric unit (control unit) | Normal operation. |
| TCM | No impact on operation. |
| IPDM E/R | When the ignition switch is ON,<br>• The headlamps (Lo) turn ON.<br>• The cooling fan continues to rotate. |

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



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

## CAN Diagnosis with CONSULT

INFOID:0000000010101275

CAN diagnosis on CONSULT extracts the root cause by receiving the following information.
- Response to the system call
- Control unit diagnosis information
- Self-diagnosis
- CAN diagnostic support monitor

## Self-Diagnosis

INFOID:0000000010101276

If communication signals cannot be transmitted or received among units communicating via CAN communication line, CAN communication-related DTC is displayed on the CONSULT “Self Diagnostic Result” screen.
**NOTE:**
The following table shows examples of CAN communication-related DTC. For other DTC, refer to the applicable sections.

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

## CAN Diagnostic Support Monitor

INFOID:0000000010101277

MONITOR ITEM (CONSULT)

Example: CAN DIAG SUPPORT MNTR indication

**Without PAST**

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

**With PAST**

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

JSMIA0964GB

Without PAST

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

With PAST

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

## MONITOR ITEM (ON-BOARD DIAGNOSIS)

**NOTE:**

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

Example: Vehicle Display

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

## How to Use CAN Communication Signal Chart

INFOID:0000000010101278

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

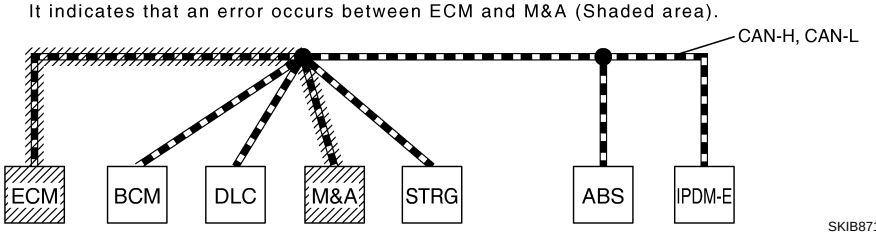
Example: Tachometer does not move even though the engine rotates.

T: Transmit R: Receive

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

No communication between ECM and M&A.

It indicates that an error occurs between ECM and M&A (Shaded area).

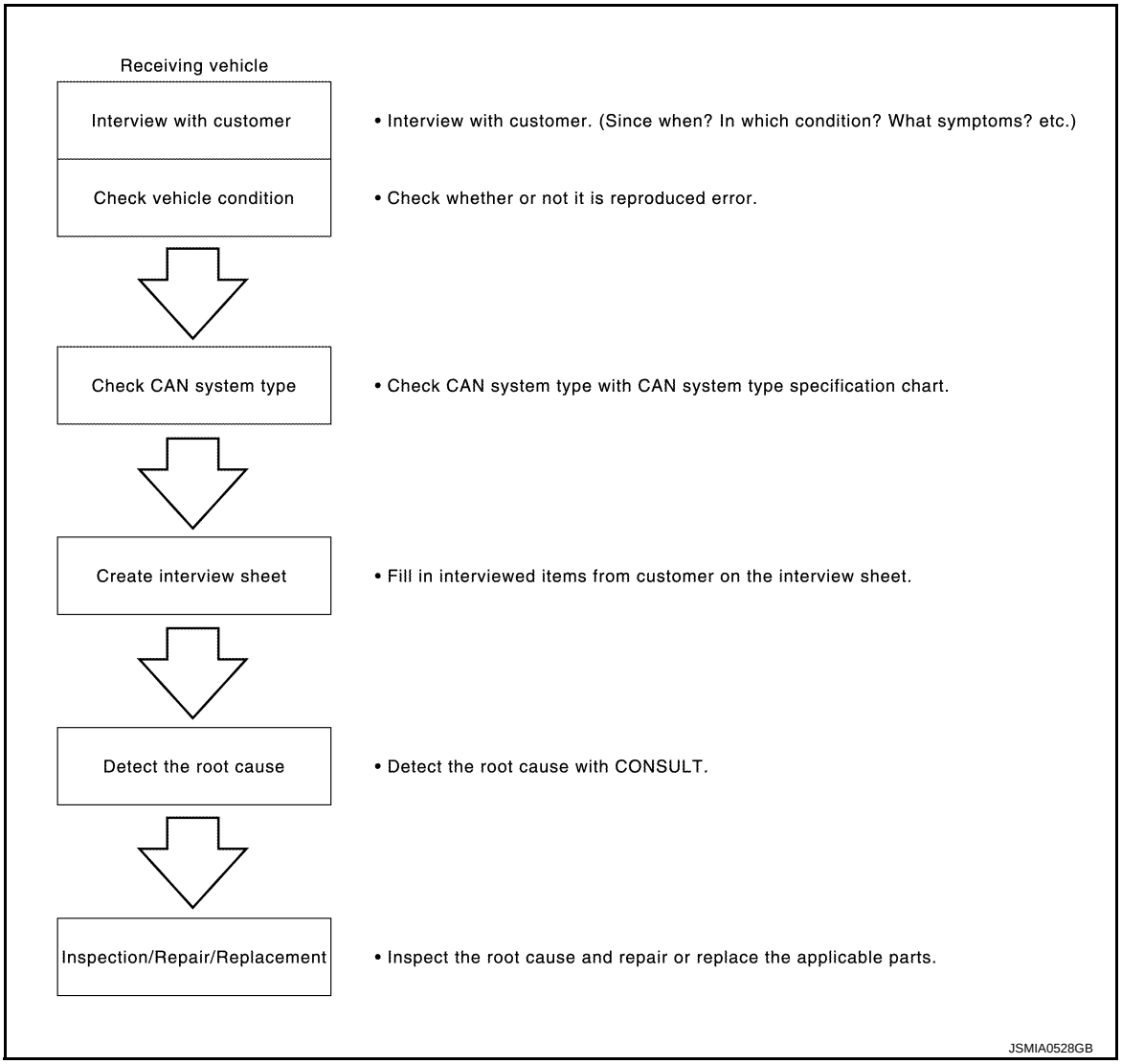


# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Trouble Diagnosis Flow Chart

INFOID:0000000010101279




### Trouble Diagnosis Procedure

INFOID:0000000010101280

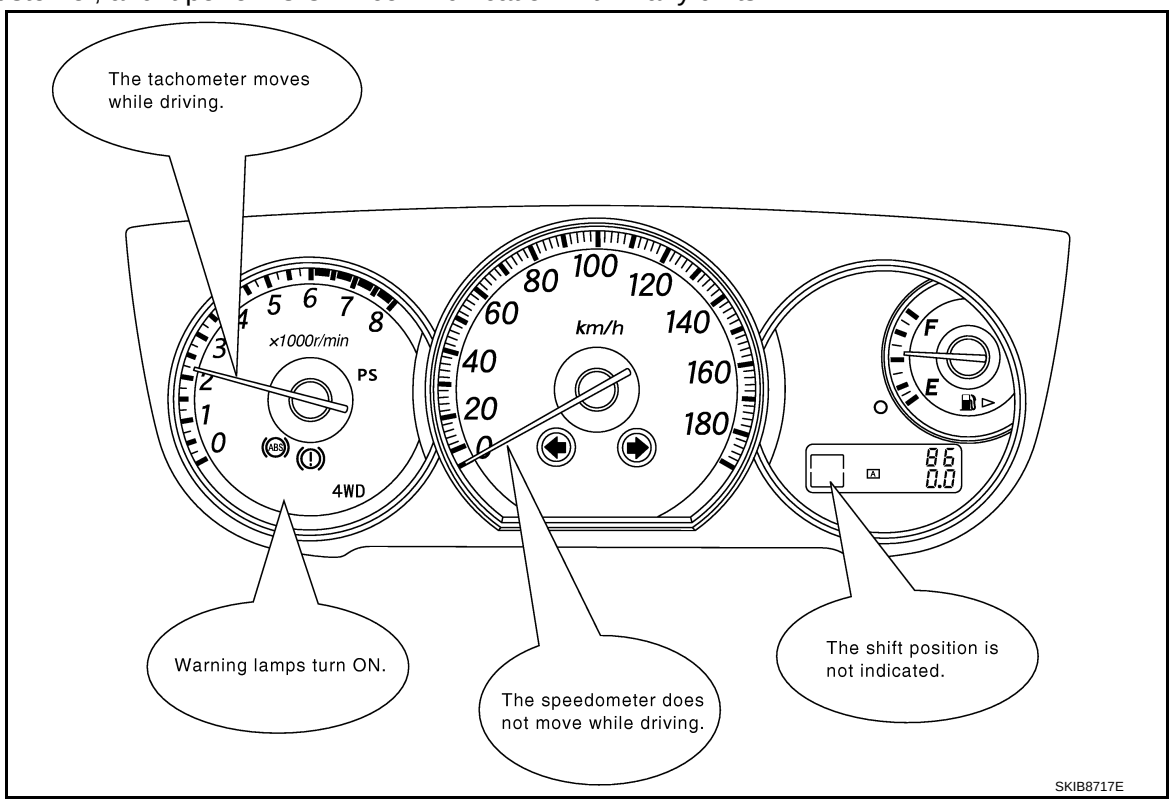
#### INTERVIEW WITH CUSTOMER

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

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

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

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




## INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

**NOTE:**

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

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

Determine CAN system type based on vehicle equipment.

**NOTE:**

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

CAN System Type Specification Chart (Style A)

**NOTE:**

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

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

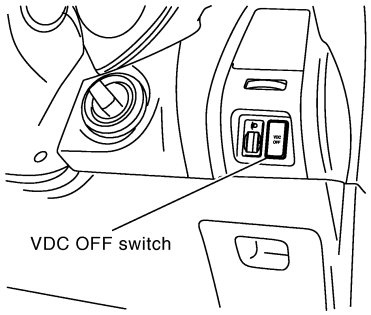
**CAN System Specification Chart**
Determine CAN system type from the following specification chart.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Body type | Wagon | | | | | | Check the vehicle equipment with the vehicle identification number plate. |
| Axle | 2WD | | | | AWD | | |
| Engine | QR25DE | | VQ35DE | | | | |
| Transmission | A/T | | CVT | | | | |
| Brake control | ABS | | | | VDC | | Check the vehicle equipment. |
| Intelligent Key system | | × | | × | | × | |
| CAN system type | 1 | 2 | 3 | 4 | 5 | 6 | The number indicates the CAN system type of the vehicle. |
| CAN communication signal chart | XX-XX. “TYPE 1/TYPE 2” | | XX-XX. “TYPE 3/TYPE 4” | | XX-XX. “TYPE 5/TYPE 6” | | |

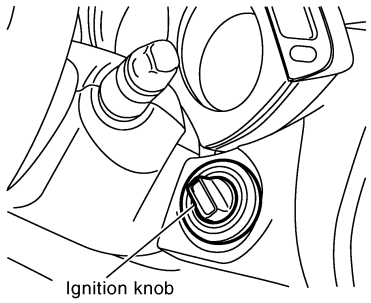
×: Applicable

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

With VDC




With Intelligent Key system




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

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

JSMIA0017GB

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

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

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

**CAN System Specification Chart**

Refer to the specification as shown in the chart.

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

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

×: Applicable

**SPECIFICATION CHART B**

Determine CAN system type from the following specification chart.

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Body type | Sedan | | | | | | | | | | |
| Axle | 2WD | | | | | | | | | | |
| Engine | MR20DE | | | | | | | | | | |
| Transmission | CVT | | | | | | | | | | |
| Brake control | ABS | | | | | | | | | | |
| Active AFS | | × | | | × | × | | | × | × | | × |
| Intelligent Key system | | | × | | × | | × | × | × | × | × | × |
| Navigation system | | | | × | | × | × | | × | | × | × |
| Automatic drive positioner | | | | | | | | × | | × | × | × |
| CAN system type | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| CAN communication signal chart | XX-XX "TYPE 9/TYPE 10/TYPE 11/TYPE 12/TYPE 13/TYPE 14/TYPE 15/TYPE 16/TYPE 17/TYPE 18/TYPE 19/TYPE 20" | | | | | | | | | | | |

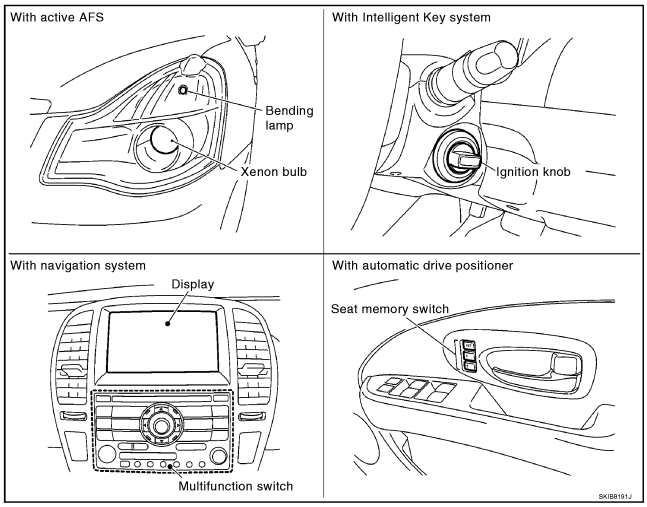
Check the vehicle equipment.
The number indicates the CAN system type of the vehicle.

×: Applicable

**VEHICLE EQUIPMENT IDENTIFICATION INFORMATION**

**NOTE:**

Check CAN system type from the vehicle shape and equipment.




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

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

JSMIA0018GB

## CREATE INTERVIEW SHEET

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

Interview Sheet (Example)

CAN Communication System Diagnosis Interview Sheet

Date received: 3, Feb. 2006

Type: DBA-KG11

VIN No.: KG11-005040

Model: BDRARGZ397EDA-E-J-

First registration: 10, Jan. 2001

Mileage: 62,140

CAN system type: Type 19

Symptom (Results from interview with customer)

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

Condition at inspection

Error Symptom: (Present) / Past

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

JSMIA0019GB

## DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT detects the root cause.

# HOW TO USE THIS MANUAL

## HOW TO USE THIS SECTION

### Caution

INFOID:0000000010101281

- This section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to LAN-24, "Trouble Diagnosis Procedure".

### Abbreviation List

INFOID:0000000010101282

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

| Abbreviation | Unit name |
|---|---|
| 4WD | AWD control unit |
| A-BAG | Air bag diagnosis sensor unit |
| ABS | ABS actuator and electric unit (control unit) |
| ADP | Driver seat control unit |
| AFS | AFS control unit |
| APA | Accelerator pedal actuator |
| AV | AV control unit |
| BCM | BCM |
| CGW | CAN gateway |
| DLC | Data link connector |
| ECM | ECM |
| HVAC | A/C auto amp. |
| ICC | ADAS control unit |
| IPDM-E | IPDM E/R |
| LANE | Lane camera unit |
| LASER | ICC sensor |
| M&A | Combination meter |
| PSB | Pre-crash seat belt control unit (driver side) |
| RDR-L | Side radar LH |
| RDR-R | Side radar RH |
| STRG | Steering angle sensor |
| TCM | TCM |
| TCU | TCU |
| TPMS | Low tire pressure warning control unit |

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000010285561

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

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

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

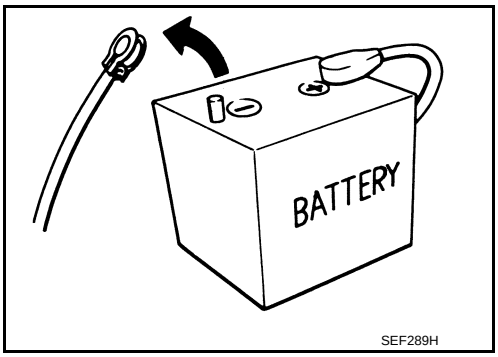
**WARNING:**

**Always observe the following items for preventing accidental activation.**

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

### Precautions for Removing of Battery Terminal

INFOID:0000000010285563




- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  **NOTE:**
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

### Precautions for Trouble Diagnosis

INFOID:0000000010101284

**CAUTION:**

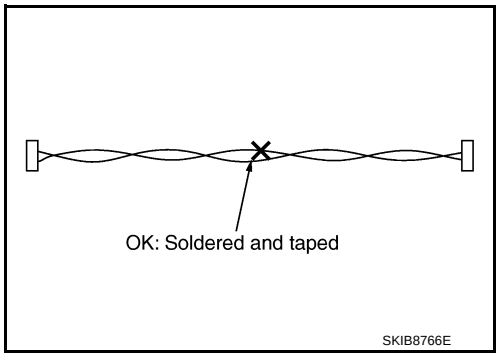
- **Never apply 7.0 V or more to the measurement terminal.**
- **Use a tester with open terminal voltage of 7.0 V or less.**

- **Turn the ignition switch OFF and disconnect the battery cable from the negative terminal when checking the harness.**

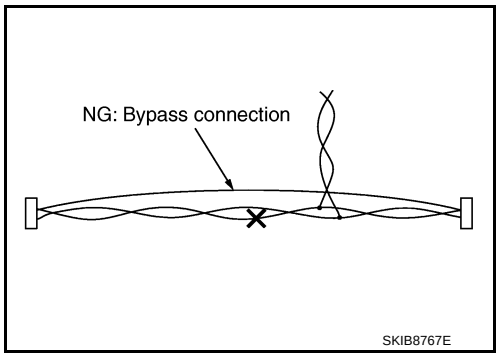
## Precautions for Harness Repair

INFOID:0000000010101285

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




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



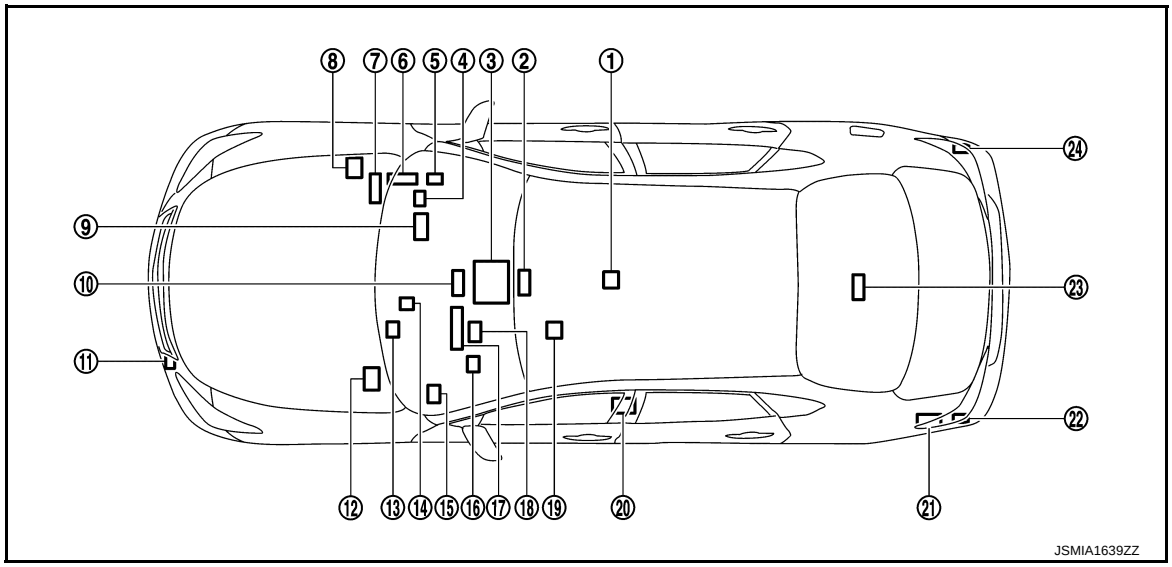

- Replace the applicable harness as an assembly if error is detected on the shield lines of CAN communication line.

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000010101286




| | | |
|---|---|---|
| 1. Air bag diagnosis sensor unit | 2. Lane camera unit | 3. A/T assembly |
| 4. CAN gateway | 5. Low tire pressure warning control unit | 6. A/C auto amp. |
| 7. ECM | 8. IPDM E/R | 9. TCU |
| 10. AV control unit | 11. ICC sensor | 12. ABS actuator and electric unit (control unit) |
| 13. BCM | 14. Accelerator pedal actuator | 15. AFS control unit |
| 16. Data link connector | 17. Combination meter | 18. Steering angle sensor |
| 19. Driver seat control unit | 20. Pre-crash seat belt control unit (driver side) | 21. AWD control unit |
| 22. Side radar LH | 23. ADAS control unit | 24. Side radar RH |

# SYSTEM

## CAN COMMUNICATION SYSTEM

### CAN COMMUNICATION SYSTEM : CAN System Specification Chart

INFOID:0000000010101287

Determine CAN system type from the following specification chart.

**NOTE:**

Refer to LAN-24, "Trouble Diagnosis Procedure" for how to use CAN system specification chart.

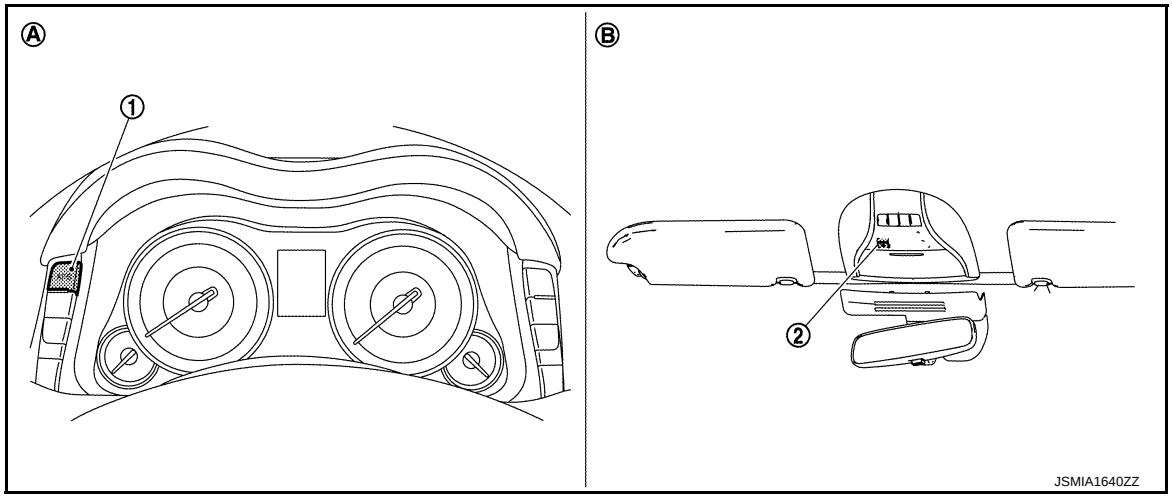
| Body type | Sedan | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Axle | 2WD | | | | | | AWD | | | | |
| Engine | VQ37VHR | | | VK56VD | | | VQ37VHR | | | VK56VD | |
| Transmission | A/T | | | | | | | | | | |
| Brake control | VDC | | | | | | | | | | |
| Telematics system | | × | × | × | | × | | × | × | × | × |
| Active AFS | | | × | | × | × | | | × | | × |
| CAN system type | 50 | 1 | 2 | 3 | 51 | 4 | 5 | 6 | 7 | 8 | 9 |
| CAN communication unit | | | | | | | | | | | |
| ECM | × | × | × | × | × | × | × | × | × | × | × |
| Low tire pressure warning control unit | × | × | × | × | × | × | × | × | × | × | × |
| CAN gateway | | | × | | × | × | | | × | | × |
| A/C auto amp. | × | × | × | × | × | × | × | × | × | × | × |
| TCM | × | × | × | × | × | × | × | × | × | × | × |
| Air bag diagnosis sensor unit | × | × | × | × | × | × | × | × | × | × | × |
| TCU | | × | × | × | | × | | × | × | × | × |
| AV control unit | × | × | × | × | × | × | × | × | × | × | × |
| Combination meter | × | × | × | × | × | × | × | × | × | × | × |
| Data link connector | × | × | × | × | × | × | × | × | × | × | × |
| BCM | × | × | × | × | × | × | × | × | × | × | × |
| Steering angle sensor | × | × | × | × | × | × | × | × | × | × | × |
| AWD control unit | | | | | | | × | × | × | × | × |
| ABS actuator and electric unit (control unit) | × | × | × | × | × | × | × | × | × | × | × |
| AFS control unit | | | × | | × | × | | | × | | × |
| IPDM E/R | × | × | × | × | × | × | × | × | × | × | × |
| Driver seat control unit | × | × | × | × | × | × | × | × | × | × | × |
| ADAS control unit | | | × | | × | × | | | × | | × |
| Pre-crash seat belt control unit (driver side) | | | × | | × | × | | | × | | × |
| ITS communication unit | | | | | | | | | | | |
| ADAS control unit | | | × | | × | × | | | × | | × |
| Side radar LH | | | × | | × | × | | | × | | × |
| Side radar RH | | | × | | × | × | | | × | | × |
| Accelerator pedal actuator | | | × | | × | × | | | × | | × |
| Lane camera unit | | | × | | × | × | | | × | | × |
| ICC sensor | | | × | | × | × | | | × | | × |

×: Applicable

### VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

**NOTE:**

Check CAN system type from the vehicle shape and equipment.




1. AFS switch
2. Telematics switch
A. With active AFS
B. With telematics system

## CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart

INFOID:0000000010101288

Refer to LAN-23, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart.

**NOTE:**

Refer to LAN-29, "Abbreviation List" for the abbreviations of the connecting units.

T: Transmit R: Receive

| Signal name | ECM | TPMS | CGW | HVAC | TCM | A-BAG | TCU | AV | M&A | BCM | STRG | 4WD | ABS | AFS | IPDM-E | ADP | ICC | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A/C compressor request signal | T | | | | | | | | | | | | | | R | | | |
| Accelerator pedal position signal | T | | | | R | | | | | | | R | R | | | | R | |
| ASCD OD cancel request signal | T | | | | R | | | | | | | | | | | | | |
| ASCD operation signal | T | | | | R | | | | | | | | | | | | | |
| ASCD status signal | T | | | | | | | | R | | | | | | | | | |
| Closed throttle position signal | T | | | | R | | | | | | | | | | | | R | |
| Cooling fan speed request signal | T | | | | | | | | | | | | | | R | | | |
| ECO drive indicator control signal | T | | | | | | | | R | | | | | | | | | |
| ECO pedal reaction force control signal | T | | | | | | | | | | | | | | | | R | |
| ECO pedal reaction force setting signal | T | | | | | | | R | | | | | | | | | | |
| | R | | | | | | | T | | | | | | | | | | |
| Engine and A/T integrated control signal | T | | | | R | | | | | | | | | | | | | |
| | R | | | | T | | | | | | | | | | | | | |
| Engine coolant temperature signal | T | | | R | | | | | R | | | | | | | | | |
| Engine speed signal | T | | | | R | | | | R | | | R | R | R | | | R | |
| Engine status signal | T | | | | | | R | R | R | R | | | | | | | | |
| Fuel consumption monitor signal | T | | | | | | | R | R | | | | | | | | | |
| ICC brake switch signal | T | | | | | | | | | | | | | | | | R | |
| ICC operation signal | T | | | | R | | | | | | | | | | | | | |
| | R | | | | | | | | | | | | R | | | | T | |

| Signal name | ECM | TPMS | CGW | HVAC | TCM | A-BAG | TCU | AV | M&A | BCM | STRG | 4WD | ABS | AFS | IPDM-E | ADP | ICC | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ICC prohibition signal | T | | | | | | | | | | | | | | | | R | |
| ICC steering switch signal | T | | | | | | | | | | | | | | | | R | |
| Malfunctioning indicator lamp signal | T | | | | | | R | | R | | | | | | | | | |
| N idle instruction signal | R | | | | T | | | | | | | | | | | | | |
| | T | | | | R | | | | | | | | | | | | | |
| Oil pressure warning lamp signal | T | | | | | | | | R | | | | | | | | | |
| Power generation command value signal | T | | | | | | | | | | | | | | R | | | |
| Snow mode switch signal | T | | | | | | | | | | | | R | | | | R | |
| Stop lamp switch signal | T | | | | | | | | | | | | | | | | R | |
| | | | | | R | | | | | T | | | | | | | | |
| | | | | | | | | | | | | R | T | | | | R | |
| Wide open throttle position signal | T | | | | R | | | | | | | | | | | | | |
| Buzzer request signal | | T | | | | | | | | R | | | | | | | | |
| | | | | | | | | | R | T | | | | | | | | |
| Low tire pressure warning lamp signal | | | | | | | | | R | T | | | | | | | | |
| | | T | | | | | | R | R | R | | | | | | | | |
| Tire pressure data signal | | T | | | | | | R | | | | | | | | | | |
| A/C display signal | | | | T | | | | R | | | | | | | | | | |
| A/C evaporator temperature signal | R | | | T | | | | | | | | | | | | | | |
| A/C ON signal | R | | | T | | | | | | | | | | | | | | |
| Ambient sensor signal | | | | T | | | | | R | | | | | | | | | |
| Blower fan ON signal | R | | | T | | | | | | | | | | | | | | |
| ECO mode signal | | | | T | R | | | | R | | | | | | | | R | |
| | R | | | | T | | | | | | | | | | | | | |
| SNOW mode signal | | | | T | R | | | | R | | | | | | | | R | |
| | R | | | | T | | | | | | | | | | | | | |
| SPORT mode signal | | | | T | R | | | | R | | | | | | | | R | |
| | R | | | | T | | | | | | | | | | | | | |
| STANDARD mode signal | | | | T | R | | | | R | | | | | | | | R | |
| | R | | | | T | | | | | | | | | | | | | |
| Target A/C evaporator temperature signal | R | | | T | | | | | | | | | | | | | | |
| A/T CHECK indicator lamp signal | | | | | T | | | | R | | | | | R | | | | |
| A/T self-diagnosis signal | R | | | | T | | | | | | | | | | | | | |
| Current gear position signal | R | | | | T | | | | | | | | | | | | R | |
| Drive mode select signal | R | | | | T | | | | | | | | | | | | R | |
| Input speed signal | | | | | T | | | | | | | | | | | | R | |
| Manual mode shift refusal signal | | | | | T | | | | R | | | | | | | | | |
| N range signal | | | | | T | | | | | R | | | R | | | | | |
| Next gear position signal | R | | | | T | | | | | | | | | | | | | |
| Output shaft revolution signal | R | | | | T | | | | | | | | | | | | R | |

| Signal name | ECM | TPMS | CGW | HVAC | TCM | A-BAG | TCU | AV | M&A | BCM | STRG | 4WD | ABS | AFS | IPDM-E | ADP | ICC | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| P range signal | | | | | T | | | | | R | | | | | | | | |
| R range signal | | | | | T | | | | | | | | R | | | | | |
| Shift position signal | | | | | T | | | | R | | | | | R | | R | R | |
| Shift schedule signal | R | | | | T | | | | | | | | | | | | | |
| Car crash information signal | | | | | | T | R | | | | | | | | | | | |
| Door lock/unlock request signal | | | | | | | T | | | R | | | | | | | | |
| Sleep-ready signal | | | | | | | T | | | R | | | | | | | | |
| | | | | | | | | | T | R | | | | | | | | |
| | | | | | | | | | | R | | | | | T | | | |
| Wake up signal | | | | | | | T | | | R | | | | | | | | |
| | | | | | | | | | T | R | | | | | | | | |
| A/C switch operation signal | | | | R | | | | T | | | | | | | | | | |
| Rear window defogger switch signal | | | | | | | | T | | R | | | | | | | | |
| System selection signal | | | | | | | | T | | | | | | | | | R | |
| System setting signal | | | | | | | | T | | R | | | | | | | | |
| | | | | | | | | R | | T | | | | | | | | |
| Voice recognition signal | | | | R | | | | T | | | | | | | | | | |
| Brake fluid level switch signal | | | | | | | | | T | | | | R | | | | | |
| Distance to empty signal | | | | | | | | R | T | | | | | | | | | |
| Fuel level low warning signal | | | | | | | | R | T | | | | | | | | | |
| Fuel level sensor signal | R | | | | | | | | T | | | | | | | | | |
| Manual mode shift down signal | | | | | R | | | | T | | | | | | | | | |
| Manual mode shift up signal | | | | | R | | | | T | | | | | | | | | |
| Manual mode signal | | | | | R | | | | T | | | | | | | | | |
| Non-manual mode signal | | | | | R | | | | T | | | | | | | | | |
| Odometer signal | | | | | | | | | T | R | | | | | | | | |
| Paddle shifter shift down signal* | | | | | R | | | | T | | | | | | | | | |
| Paddle shifter shift up signal* | | | | | R | | | | T | | | | | | | | | |
| Parking brake switch signal | | | | | | | | | T | R | | R | R | | | | R | |
| Seat belt buckle switch signal (driver side) | | | | | | | | | T | R | | | | | | | | |
| Vehicle speed signal | R | | | R | R | | | R | T | R | | | | R | R | R | | R |
| | | R | | | | | | | R | R | | R | T | | | R | R | |
| Blower fan motor switch signal | R | | | | | | | | | T | | | | | | | | |
| Buzzer output signal | | | | | | | | | R | T | | | | | | | | |
| | | | | | | | | | R | | | | | | | | T | |
| Daytime running light request signal | | | | | | | | | | T | | | | | R | | | |
| Dimmer signal | | | | | | | | | R | T | | | | | | | R | |
| Door switch signal | | | | | | | | | R | T | | | | | R | R | | R |
| Door lock status signal | | | | | | | R | | | T | | | | | | | | |
| Door unlock signal | | | | | | | | | | T | | | | | | R | | |

| Signal name | ECM | TPMS | CGW | HVAC | TCM | A-BAG | TCU | AV | M&A | BCM | STRG | 4WD | ABS | AFS | IPDM-E | ADP | ICC | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Front fog light request signal | | | | | | | | | R | T | | | | | R | | | |
| Front wiper request signal | | | | | | | | | | T | | | | | R | | R | |
| Handle position signal | | | | | | | | | | T | | | | | | R | | |
| High beam request signal | | | | | | | | | R | T | | | | | R | | | |
| Horn reminder signal | | | | | | | | | | T | | | | | R | | | |
| Ignition switch ON signal | | | | | | | | | | T | | | | | R | | | R |
| | | | | | | | | | | R | | | | | T | | | |
| Ignition switch signal | | | | | | | | | | T | | | | | | R | | R |
| Intelligent Key system warning display signal | | | | | | | | | R | T | | | | | | | | |
| Interlock/PNP switch signal | | | | | | | | | | T | | | | | R | | | |
| | | | | | | | | | | R | | | | | T | | | |
| Key ID signal | | | | R | | | | | | T | | | | | | R | | |
| Low beam request signal | | | | | | | | | | T | | | | | R | | | |
| Meter display signal | | | | | | | | | R | T | | | | | | | | |
| | | | | | | | | | R | | | | | | | | T | |
| Meter ring illumination request signal | | | | | | | | | R | T | | | | | | | | |
| Oil pressure switch signal | | | | | | | R | | R | T | | | | | | | | |
| | | | | | | | | | | R | | | | | T | | | |
| Position light request signal | | | | | | | | | R | T | | | | | R | | | |
| Rear window defogger control signal | | | | | | | | | | T | | | | | R | | | |
| | R | | | | | | | R | | | | | | | T | | | |
| Sleep wake up signal | | | R | | | | R | | R | T | | | | | R | R | | R |
| Starter control relay signal | | | | | | | | | | T | | | | | R | | | |
| Starter relay status signal | | | | | | | | | R | T | | | | | R | | | |
| | | | | | | | | | | R | | | | | T | | | |
| Starting mode signal | | | | | | | | | | T | | | | | | R | | |
| Theft warning horn request signal | | | | | | | | | | T | | | | | R | | | |
| Trunk switch signal | | | | | | | | | R | T | | | | | | | | |
| Turn indicator signal | | | | | R | | | | R | T | | | | | | | R | |
| Steering angle sensor malfunction signal | | | | | | | | | | | T | | | | | | R | R |
| Steering angle sensor signal | | | | | | | | R | | | T | | R | R | | | R | R |
| Steering angle speed signal | | | | | | | | | | | T | | | | | | R | R |
| Steering calibration signal | | | | | | | | | | | T | | | | | | | R |
| AWD signal | | | | | | | | | | | | T | R | | | | | |
| AWD warning lamp signal | | | | | | | | | R | | | T | | | | | | |
| A/T shift schedule change demand signal | | | | | R | | | | | | | | T | | | | | |
| ABS malfunction signal | | | | | | | | | | | | | T | | | | R | |
| ABS operation signal | | | | | R | | | | | | | | T | | | | R | R |
| ABS warning lamp signal | | | | | | | R | | R | | | | T | | | | R | |

| Signal name | ECM | TPMS | CGW | HVAC | TCM | A-BAG | TCU | AV | M&A | BCM | STRG | 4WD | ABS | AFS | IPDM-E | ADP | ICC | PSB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Brake warning lamp signal | | | | | | | | | R | | | | T | | | | | |
| | | | | | | | R | | T | | | | | | | | | |
| Decel G sensor signal | | | | | R | | | | | | | | T | | | | | |
| Pressure sensor signal | | | | | R | | | | | | | | T | | | | | |
| Side G sensor signal | | | | | R | | | | | | | | T | | | | R | |
| TCS gear keep request signal | | | | | R | | | | | | | | T | | | | | |
| TCS malfunction signal | | | | | | | | | | | | | T | | | | R | |
| TCS operation signal | | | | | | | | | | | | | T | | | | R | |
| VDC malfunction signal | | | | | R | | | | | | | | T | | | | R | |
| VDC OFF indicator lamp signal | | | | | | | | | R | | | | T | | | | | |
| VDC OFF switch signal | | | | | | | | | | | | | T | | | | R | |
| VDC operation signal | | | | | | | | | | | | | T | | | | R | |
| VDC warning lamp signal | | | | | | | R | | R | | | | T | | | | | |
| Yaw rate signal | | | | | | | | | | | | | T | | | | R | |
| AFS OFF indicator lamp signal | | | | | | | | | R | | | | | T | | | | |
| A/C compressor feedback signal | R | | | R | | | | | | | | | | | T | | | |
| Front wiper position signal | | | | | | | | | | R | | | | | T | | | |
| High beam status signal | R | | | | | | | | | | | | | | T | | | |
| Hood switch signal | | | | | | | | | | R | | | | | T | | | |
| Low beam status signal | R | | | | | | | | | | | | | R | T | | | |
| Push-button ignition switch status signal | | | | | | | | | | R | | | | | T | | | |
| Active Trace control signal | | | | | | | | | | | | | R | | | | T | |
| Brake fluid pressure control signal | | | | | | | | | | | | | R | | | | T | |
| BSI ON indicator signal | | | | | | | | | R | | | | | | | | T | |
| BSW/BSI warning lamp signal | | | | | | | | | R | | | | | | | | T | |
| IBA OFF indicator lamp signal | | | | | | | | | R | | | | | | | | T | |
| IBA operation signal | | | | | | | | | | | | | | | | | T | R |
| ICC warning lamp signal | | | | | | | | | R | | | | | | | | T | |
| Lane departure warning lamp signal | | | | | | | | | R | | | | | | | | T | |
| LDP ON indicator lamp signal | | | | | | | | | R | | | | | | | | T | |
| Target yaw moment signal | | | | | | | | | | | | | R | | | | T | |

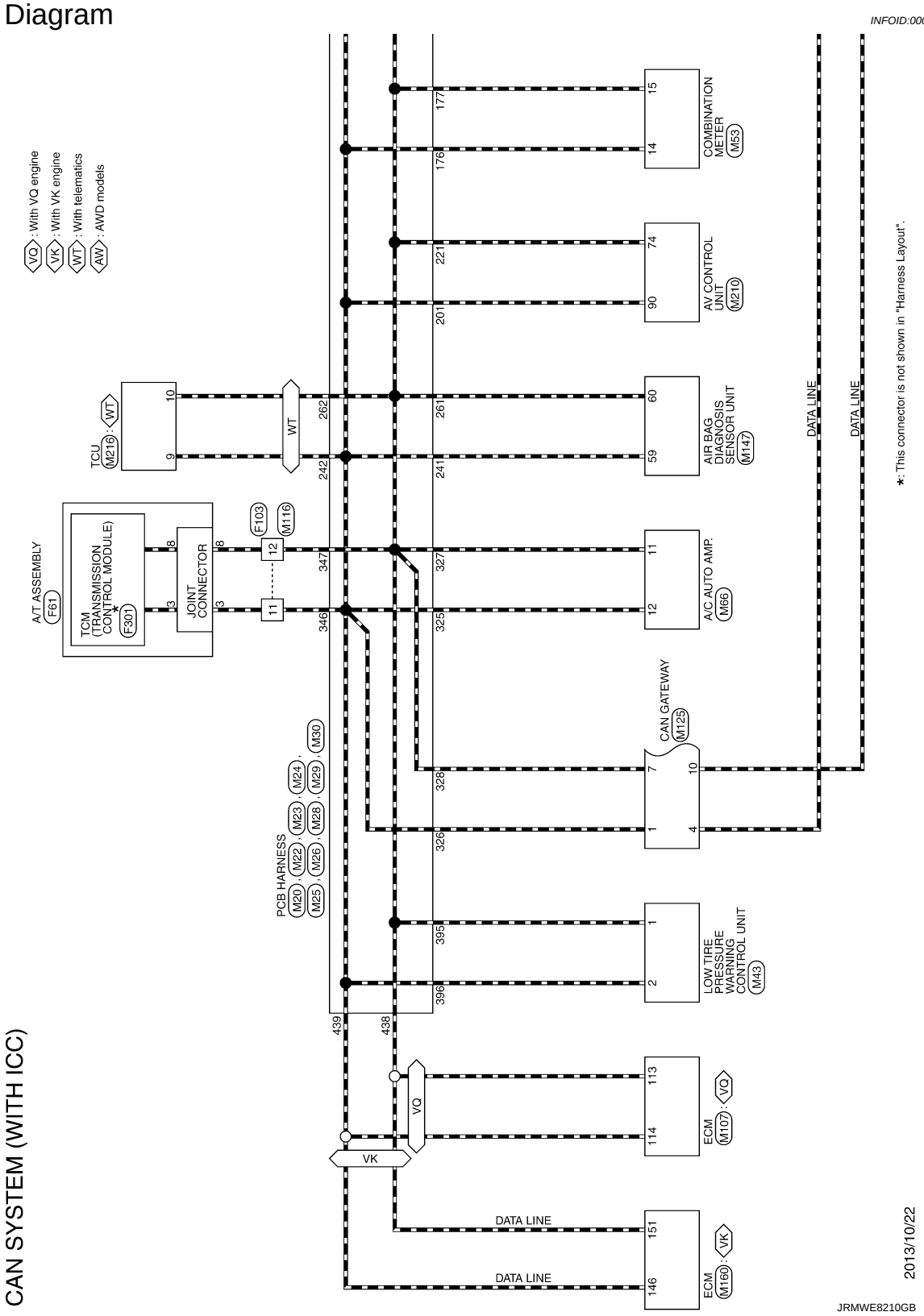
*: Models with paddle shifter

# WIRING DIAGRAM

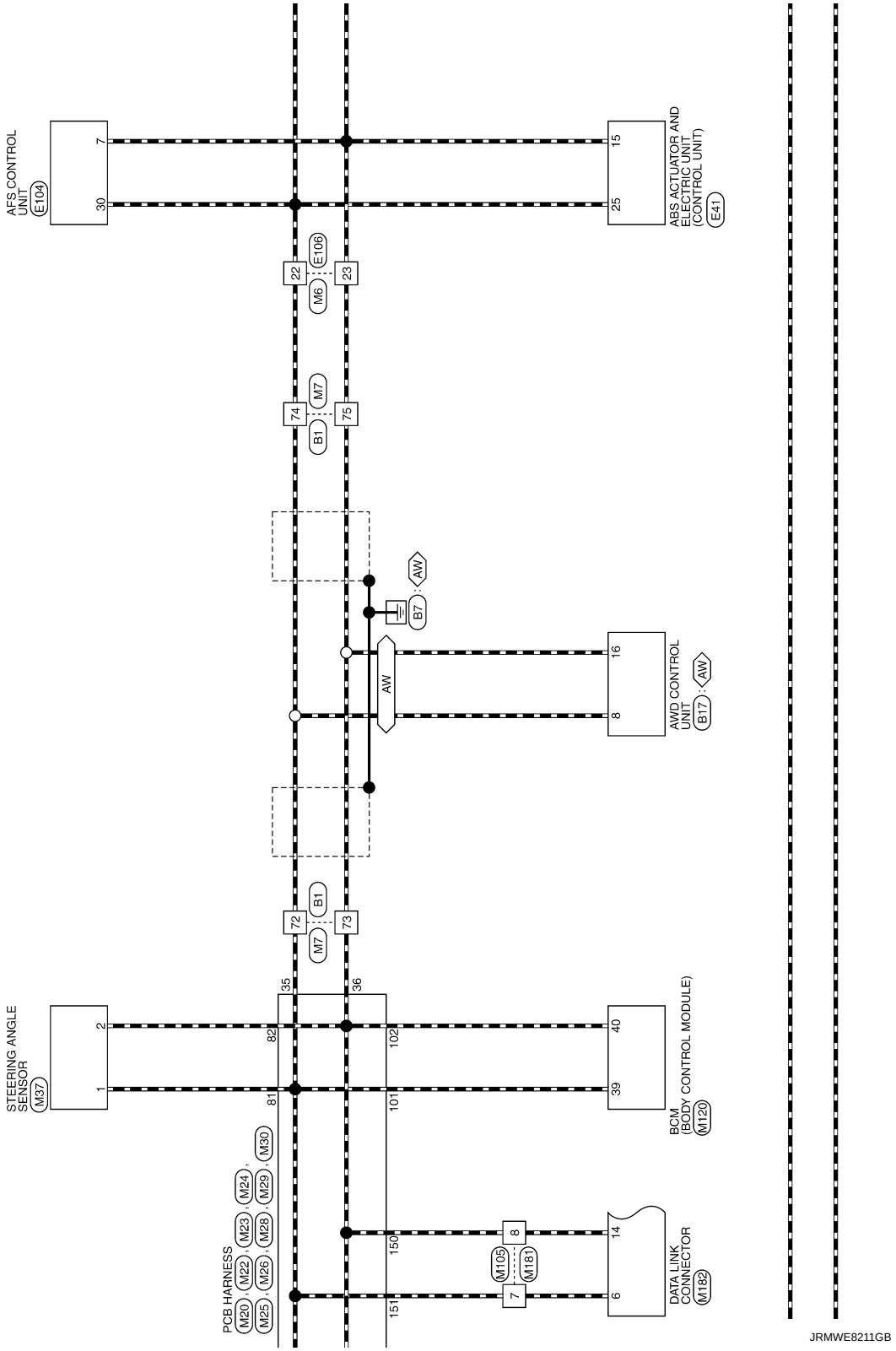
## CAN SYSTEM (WITH ICC)

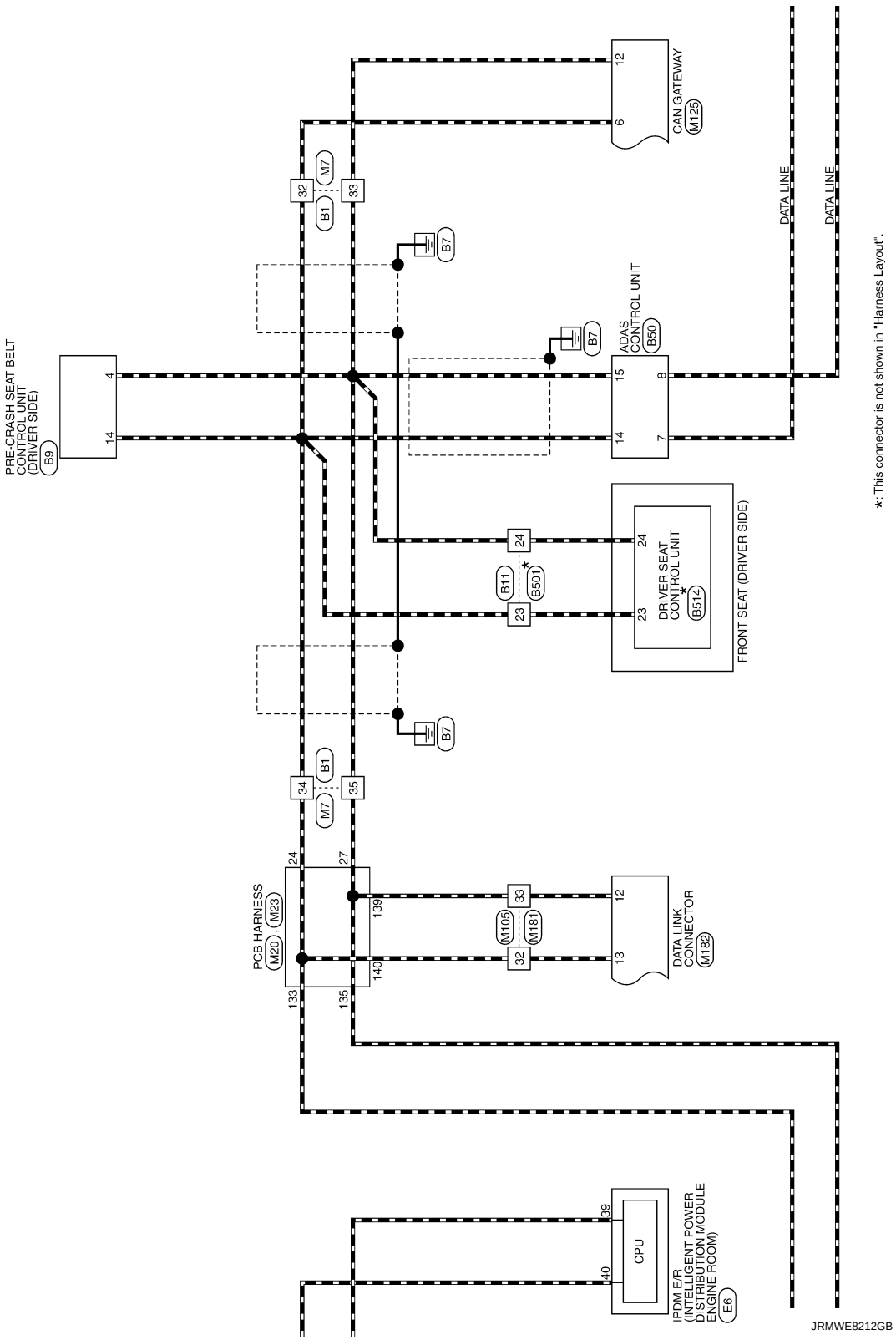
### Wiring Diagram

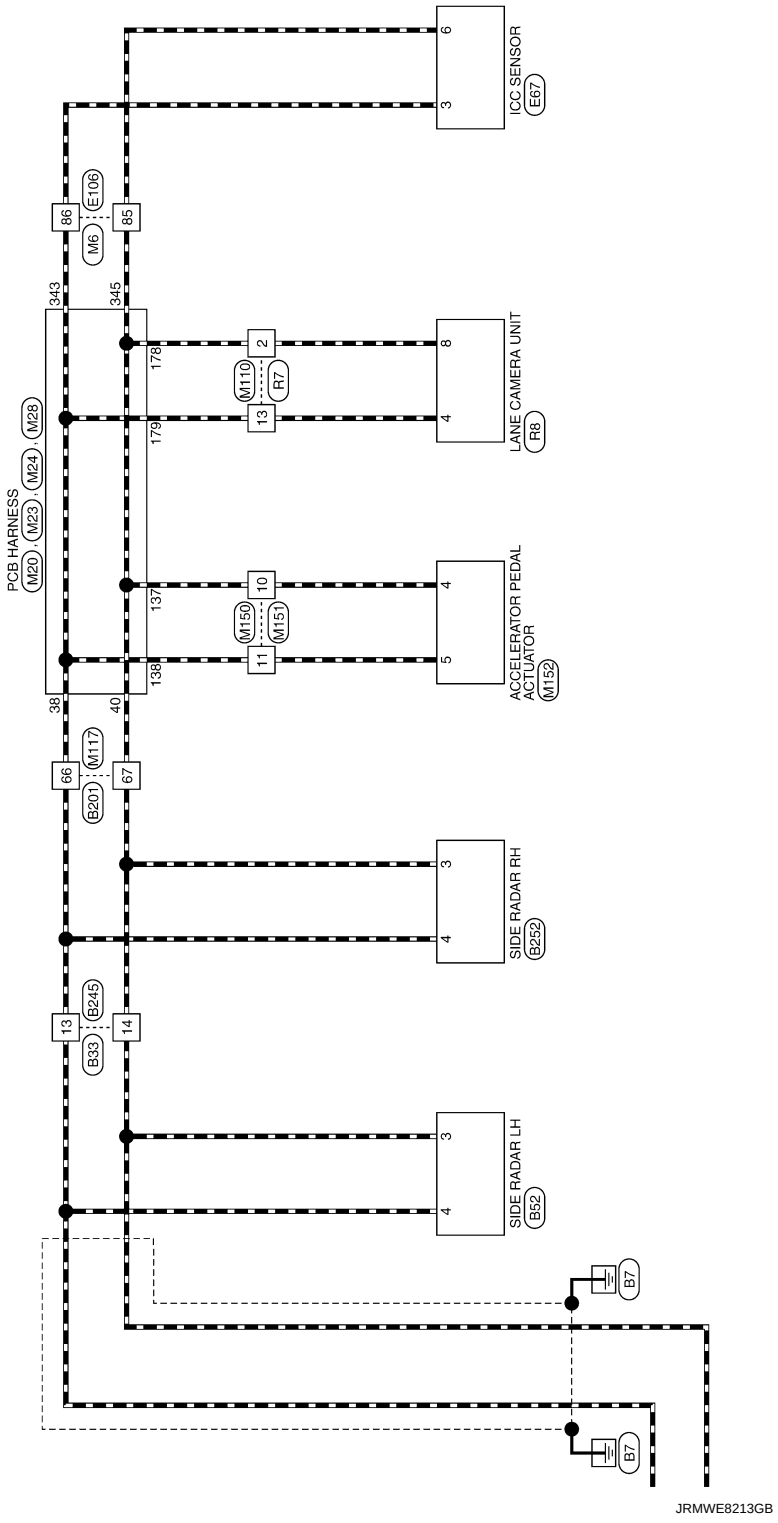
INFOID:0000000010101289




CAN SYSTEM (WITH ICC)

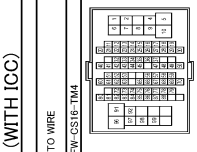

AFS CONTROL UNIT (E104)
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (E41)
AWD CONTROL UNIT (B17)
STEERING ANGLE SENSOR (M37)
BCM (BODY CONTROL MODULE) (M120)
DATA LINK CONNECTOR (M182)
PCB HARNESS (M20), (M22), (M23), (M24), (M25), (M26), (M28), (M29), (M30)
(M6), (E106)
(B1), (M7)
(M7), (B1)
(B7)
(M105), (M181)
AW
JRMWE8211GB


CAN GATEWAY
M125
12
6
DATA LINE
DATA LINE
32
M7
33
B1
B7
ADAS
CONTROL UNIT
B50
15
8
14
7
PRE-CRASH SEAT BELT
CONTROL UNIT
(DRIVER SIDE)
B9
4
14
24
B11
B501
23
DRIVER SEAT
CONTROL UNIT
B514
FRONT SEAT (DRIVER SIDE)
34
35
24
27
PCB HARNESS
M20
M23
139
140
133
135
M105
M181
DATA LINK
CONNECTOR
M182
IPDM E/R
(INTELLIGENT POWER
DISTRIBUTION MODULE
ENGINE ROOM)
E6
CPU
39
40
*: This connector is not shown in "Harness Layout".
JRMWE8212GB


ICC SENSOR
E67
6
3
E106
M6
86
85
343
345
PCB HARNESS
M20
M23
M24
M28
178
179
M110
R7
2
13
LANE CAMERA UNIT
R8
8
4
137
138
M150
M151
10
11
ACCELERATOR PEDAL ACTUATOR
M152
4
5
38
40
M117
B201
66
67
SIDE RADAR RH
B252
3
4
B245
B33
13
14
SIDE RADAR LH
B52
3
4
B7
B7
JRMWE8213GB

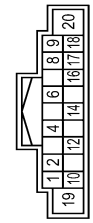
CAN SYSTEM (WITH ICC)

| Connector No. | B1 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |



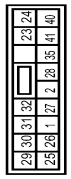
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | R | – |
| 2 | W | – |
| 4 | LG | – |
| 5 | P | – |
| 6 | V | – |
| 7 | GR | – |
| 8 | Y | – |
| 9 | LG | – |
| 10 | V | – |
| 11 | GR | – [With climate controlled seat] |
| 11 | L | – [With heated seat] |
| 12 | GR | – [With heated seat] |
| 12 | P | – [With climate controlled seat] |
| 13 | BR | – |
| 14 | R | – |
| 15 | O | – |
| 16 | V | – |
| 17 | B | – |
| 18 | R | – |
| 19 | W | – |
| 20 | R | – |
| 21 | B | – |
| 22 | LG | – |
| 23 | V | – |
| 24 | Y | – |
| 25 | G | – |
| 26 | GR | – |
| 27 | SB | – |
| 28 | L/O | – |
| 29 | W/L | – |
| 30 | SHIELD | – |
| 32 | L | – |
| 33 | R | – |
| 34 | L | – |
| 35 | R | – |
| 36 | G | – |
| 37 | SB | – |
| 40 | SHIELD | – |
| 41 | GR/V | – |
| 42 | W/L | – |
| 43 | L | – |
| 44 | B | – |
| 45 | W | – |
| 47 | O | – |
| 48 | Y | – |
| 49 | BR | – |
| 50 | SB | – |
| 51 | V | – |
| 52 | LG | – |
| 53 | G | – |
| 56 | P | – |
| 57 | BR | – |
| 58 | LG | – |
| 59 | Y | – |
| 60 | W | – |
| 61 | B | – |
| 62 | LG | – |
| 63 | V | – |
| 65 | O | – |
| 66 | BR | – |
| 67 | V | – |
| 68 | LG | – |
| 69 | GR | – |
| 70 | R | – |
| 72 | L | – |
| 73 | P | – |
| 74 | L | – |
| 75 | P | – |
| 76 | Y | – |
| 77 | R | – |
| 78 | W | – |
| 79 | G | – |
| 80 | L | – |
| 81 | LG | – |
| 82 | BR | – |
| 83 | SB | – |
| 84 | Y | – |
| 85 | W | – |
| 86 | R | – |
| 87 | G | – |
| 88 | GR | – |
| 91 | SB | – |
| 92 | G | – |
| 96 | Y | – |
| 97 | O | – |
| 98 | SB | – |
| 99 | LG | – |

| Connector No. | B9 |
|---|---|
| Connector Name | PRE-CRASH SEAT BELT CONTROL UNIT (DRIVER SIDE) |
| Connector Type | TH18FW-CS2 |



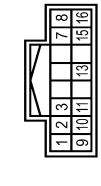
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | V | SIG BAT |
| 2 | G | OUT 1 |
| 4 | R | CAN LO |
| 6 | LG | BUCKLE SW LH NO |
| 8 | BR | LOCAL COMM 2 |
| 9 | SHIELD | SHIELD GND |
| 10 | R | SENS POWER 1 |
| 12 | B | OUT 2 |
| 14 | L | CAN HI |
| 16 | Y | LOCAL COMM 1 |
| 17 | W | SENS GND 1 |
| 18 | B | SIG GND |
| 19 | Y | MOTOR BAT |
| 20 | B | MOTOR GND |

| Connector No. | B11 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | NS16FW-CS |



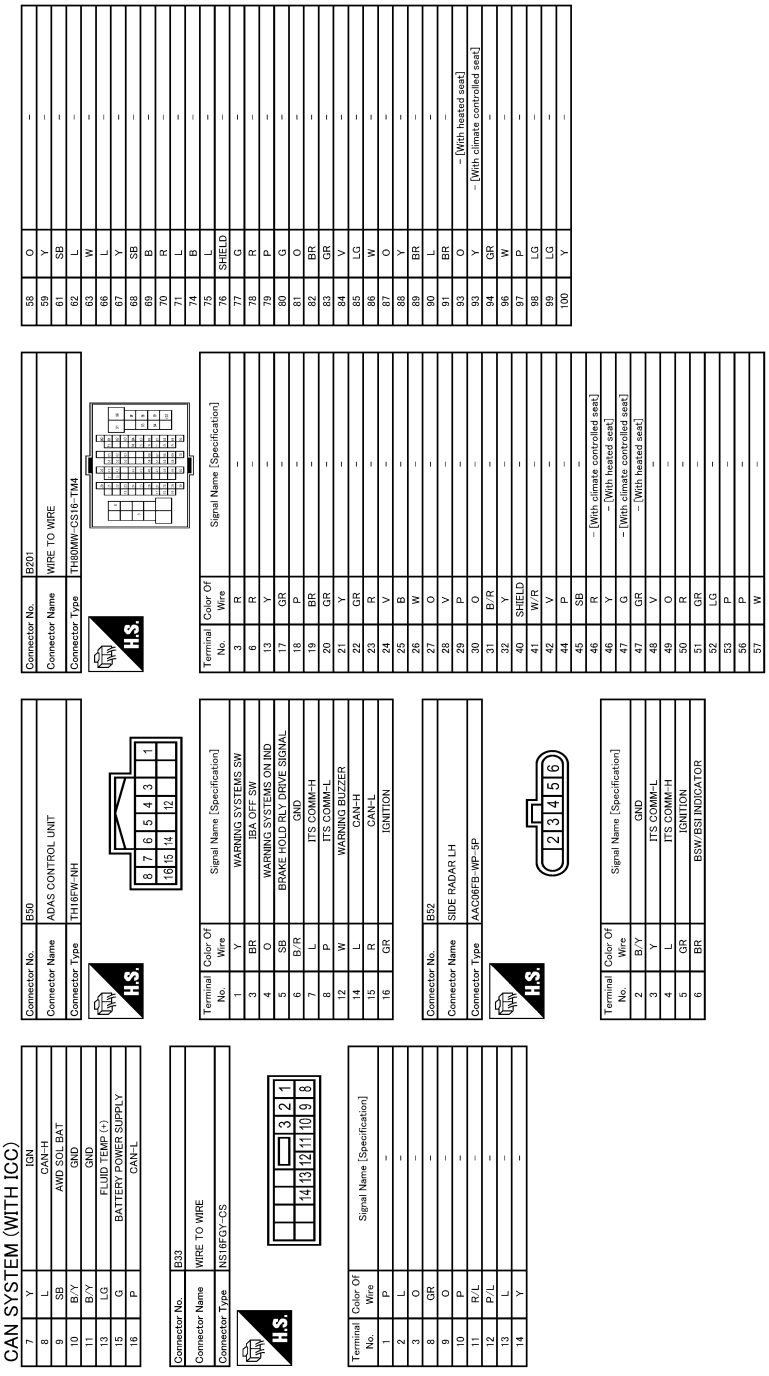
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | SB | – |
| 2 | B | – |
| 23 | L | – |
| 24 | P | – [Without CAN gateway] |
| 24 | R | – [With CAN gateway] |
| 25 | BR | – |
| 26 | W | – |
| 27 | L | – |
| 28 | P | – |
| 29 | O | – |
| 30 | V | – |
| 31 | BR | – |
| 32 | LG | – |
| 35 | LG | – |
| 40 | O | – |
| 41 | B | – |

| Connector No. | B17 |
|---|---|
| Connector Name | AWD CONTROL UNIT |
| Connector Type | TH16FW-NH |

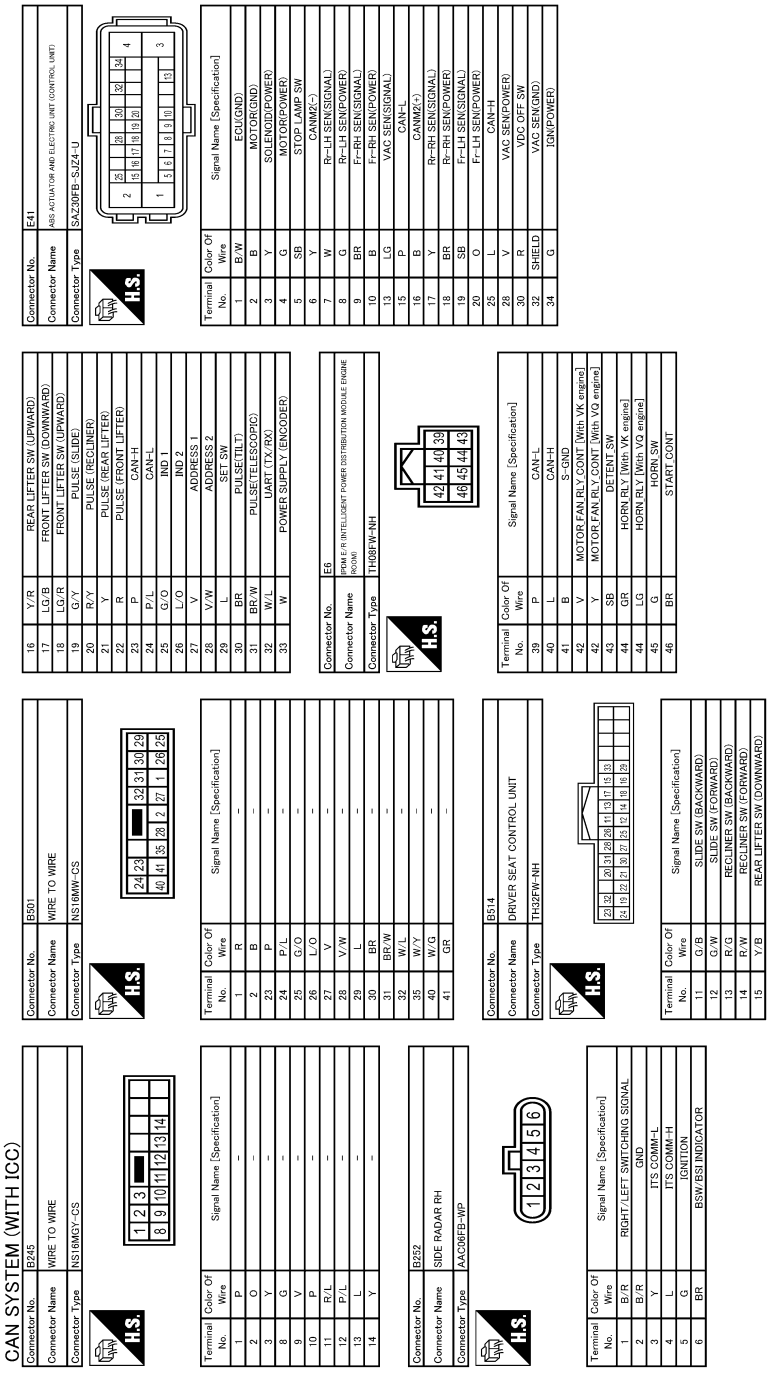


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | BR | AWD SOL (+) |
| 2 | R | AWD SOL (–) |
| 3 | W | FLUID TEMP (–) |

JRMWE8214GB




JRMWE8215GB




JRMWE8216GB

CAN SYSTEM (WITH ICC)

| Connector No. | E67 |
|---|---|
| Connector Name | ICC SENSOR |
| Connector Type | RS06FB-PR |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | IGNITION |
| 3 | L | ITS COMM-H |
| 4 | B/Y | GND |
| 6 | Y | ITS COMM-L |

| Connector No. | E104 |
|---|---|
| Connector Name | AFS CONTROL UNIT |
| Connector Type | TH40FW-NH |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | IGN |
| 2 | O | PSG-R |
| 3 | GR | SW |
| 4 | BR | PSV-R |
| 6 | V | HSV-R |
| 7 | P | CAN-L |
| 8 | B | HSG-R |
| 9 | Y | PS-R |
| 11 | R | SMR-1 (−) |
| 13 | B | SMR-2 (−) |
| 15 | W | SML-1 (+) |
| 17 | G | SML-2 (+) |
| 19 | W | AMDS-R |
| 24 | LG | PSV-L |
| 25 | B | GND |
| 27 | BR | PSG-L |
| 28 | SB | HS-R |
| 29 | P | PS-L |
| 30 | L | CAN-H |
| 32 | W | SMR-2 (+) |
| 34 | G | SMR-1 (+) |
| 36 | R | SML-2 (−) |
| 38 | B | SML-1 (−) |
| 40 | GR | AMDS-L |

| Connector No. | E106 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | P | – |
| 2 | W | – |
| 3 | SB | – |
| 4 | LG | – |
| 5 | O | – |
| 7 | GR | – |
| 8 | G | – |
| 9 | Y | – |
| 10 | BR | – |
| 11 | SB | – |
| 12 | V | – |
| 13 | GR | – |
| 14 | GR | – |
| 15 | V | – |
| 16 | Y | – |
| 17 | GR | – |
| 18 | V | – |
| 20 | BR | – |
| 21 | P | – |
| 22 | L | – |
| 23 | P | – |
| 27 | SHIELD | – |
| 28 | L/O | – |
| 29 | W/L | – |
| 31 | BR | – |
| 32 | G | – |
| 33 | O | – |
| 34 | Y | – |
| 41 | BR | – |
| 44 | W | – |
| 45 | L | – |
| 46 | GR | – |
| 47 | V | – |
| 48 | G | – |
| 49 | O | – |
| 50 | LG | – |
| 60 | W | – |
| 61 | G | – |
| 62 | Y | – |
| 63 | BR | – |
| 64 | B | – |
| 65 | Y | – |
| 66 | R | – |
| 67 | SB | – |
| 77 | O | – |
| 78 | SB | – |
| 80 | G | – |
| 81 | R | – |
| 82 | SB | – |
| 83 | GR | – |
| 84 | Y | – |
| 85 | Y | – |
| 86 | L | – |
| 87 | V | – |
| 88 | BR | – |
| 89 | LG | – |
| 90 | W | – |
| 91 | W | – |
| 92 | P | – |
| 93 | LG | – |
| 94 | BR | – |
| 95 | W | – |
| 97 | R | – |
| 98 | Y | – |
| 99 | V | – |
| 100 | V | – |

| Connector No. | F61 |
|---|---|
| Connector Name | A/T ASSEMBLY |
| Connector Type | RK10FG-DGY |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | POWER SUPPLY (BACK UP) |
| 2 | R | POWER SUPPLY (BACK UP) |
| 3 | L | HEV SYSTEM CAN-H |
| 4 | V | K-LINE |
| 5 | B | GND |
| 6 | G | POWER SUPPLY (IGN) |
| 7 | SB | BACK-UP LAMP RELAY |
| 8 | P | HEV SYSTEM CAN-L |
| 9 | BR | P/N SIGNAL [Without paddle shifter] |
| 9 | LG | P/N SIGNAL [With paddle shifter] |
| 10 | B | GROUND |

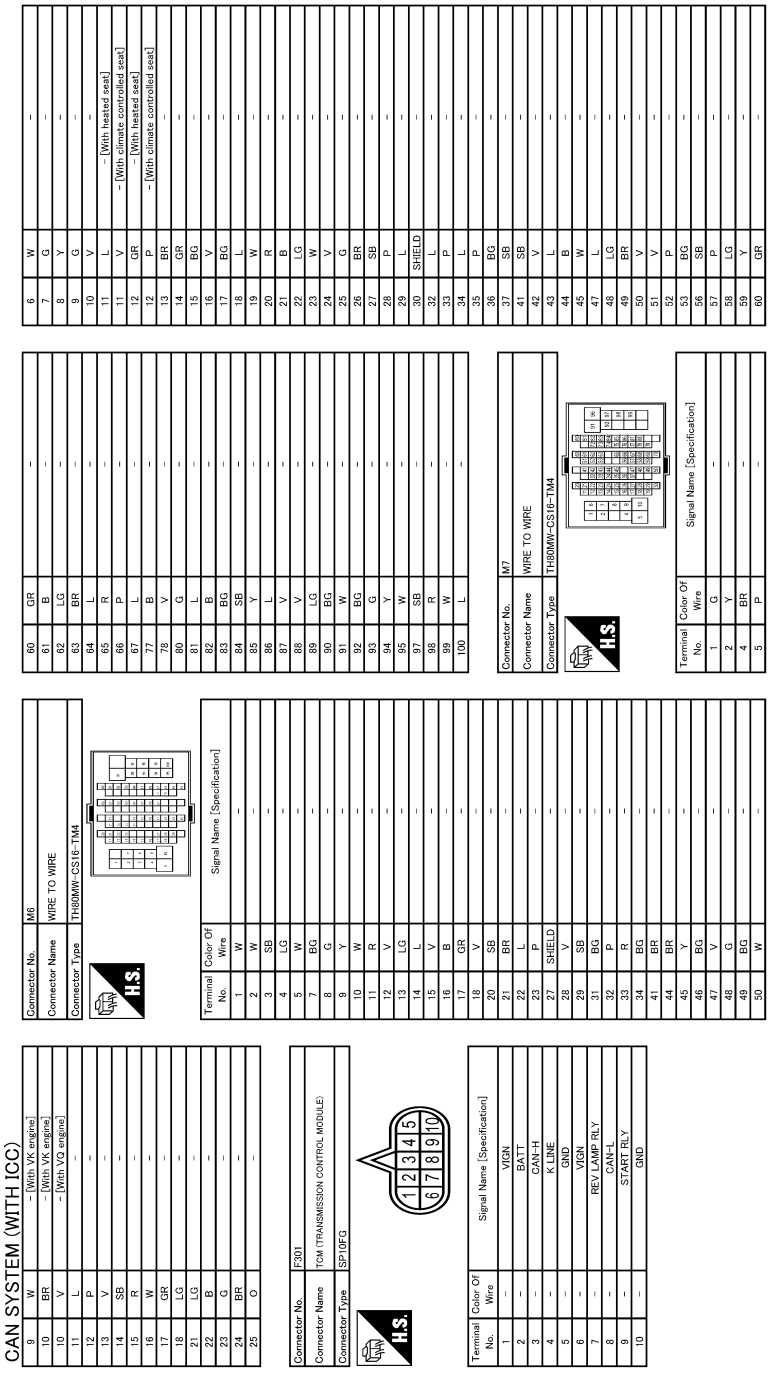
| Connector No. | F103 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TK36FW-NS10 |

H.S.

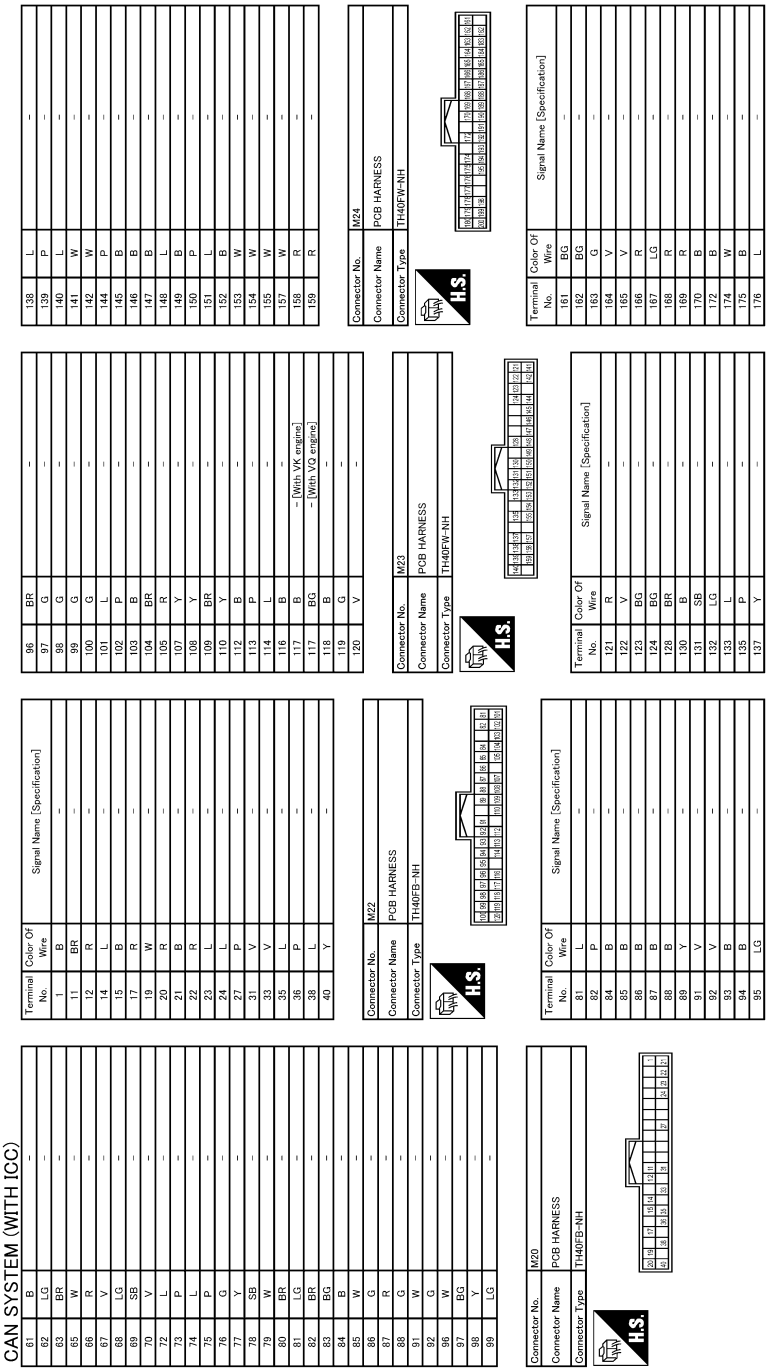


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | L | – |
| 3 | G | – |
| 4 | B | – [With VK engine] |
| 4 | R | – [With VQ engine] |
| 5 | B | – [With VQ engine] |
| 5 | GR | – [With VK engine] |
| 7 | LG | – |
| 8 | Y | – |
| 9 | SB | – [With VQ engine] |

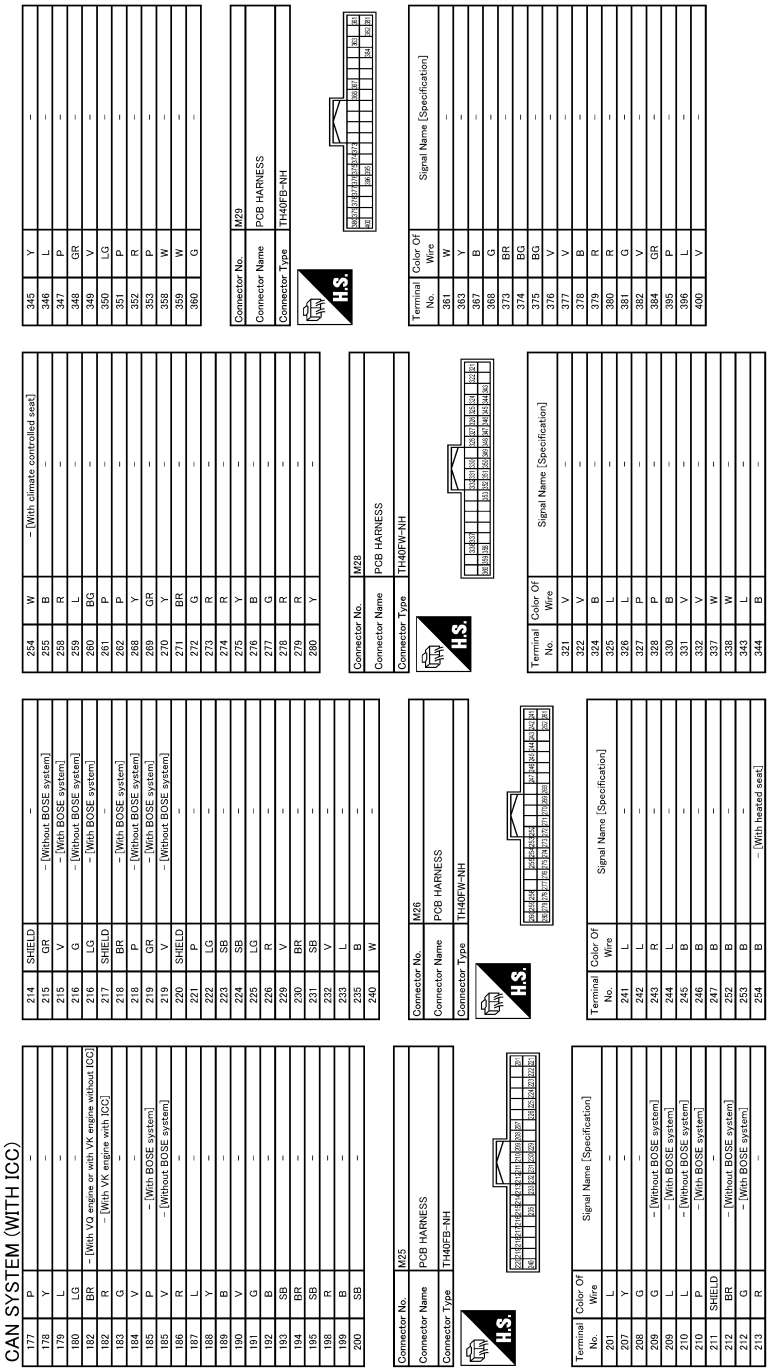
JRMWE8217GB



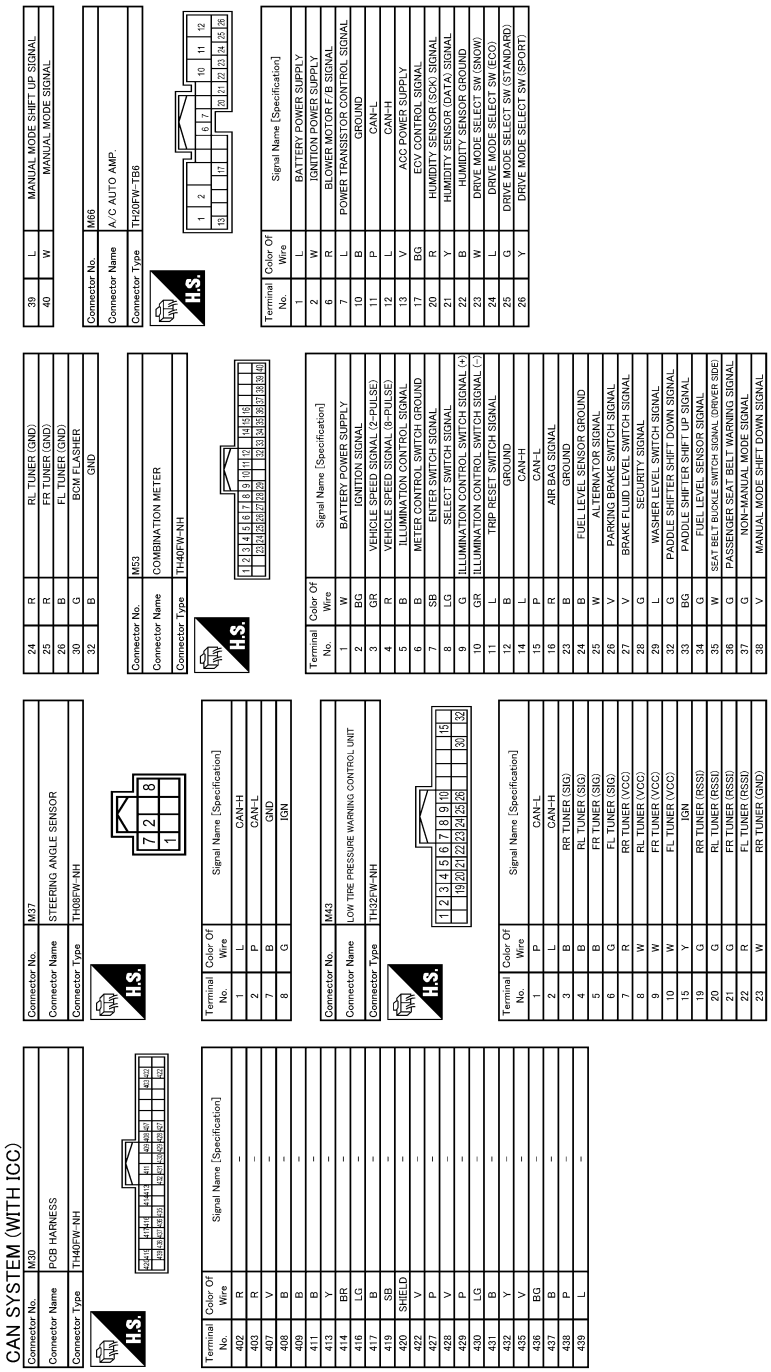

JRMWE8218GB




JRMWE8219GB



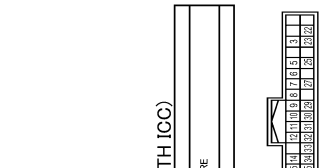

JRMWE8220GB




JRMWE8221GB

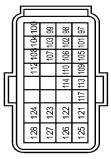
CAN SYSTEM (WITH ICC)

| Connector No. | M105 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH40FW-NH |



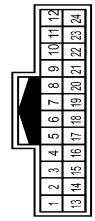
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | R | – |
| 3 | B | – |
| 5 | LG | – |
| 6 | P | – |
| 7 | L | – |
| 8 | P | – |
| 9 | B | – |
| 10 | W | – |
| 11 | W | – |
| 12 | SB | – |
| 14 | SB | – |
| 15 | BR | – |
| 16 | V | – |
| 18 | G | – |
| 19 | B | – |
| 20 | V | – |
| 22 | BG | – |
| 23 | B | – |
| 25 | W | – |
| 27 | SB | – |
| 29 | B | – |
| 30 | R | – |
| 31 | BR | – |
| 32 | L | – |
| 33 | P | – |
| 34 | LG | – |
| 35 | W | – |
| 36 | LG | – |
| 37 | L | – |
| 38 | R | – |

| Connector No. | M107 |
|---|---|
| Connector Name | ECM |
| Connector Type | RH24FGY-R28-R-RH-Z |



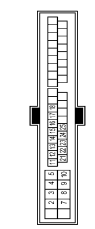
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 97 | R | ACCELERATOR PEDAL POSITION SENSOR 1 |
| 98 | Y | ACCELERATOR PEDAL POSITION SENSOR 2 |
| 99 | G | SENSOR POWER SUPPLY, ACCELERATOR PEDAL POSITION SENSOR 1 |
| 100 | W | SENSOR GROUND, ACCELERATOR PEDAL POSITION SENSOR 1 |
| 101 | SB | ASCD STEERING SWITCH |
| 102 | P | FUEL TANK PRESSURE SENSOR |
| 103 | L | SENSOR POWER SUPPLY, ACCELERATOR PEDAL POSITION SENSOR 2 |
| 104 | B | SENSOR GROUND [Without ICC] |
| 104 | BR | SENSOR GROUND [With ICC] |
| 105 | LG | REFRIGERANT PRESSURE SENSOR |
| 106 | P | FUEL TANK TEMPERATURE SENSOR |
| 107 | BG | AVCC2 PDPRES, FTPRES |
| 108 | Y | GND ASCD SW |
| 109 | BR | TRANSMISSION RANGE SWITCH |
| 110 | V | ENGINE SPEED SIGNAL OUTPUT |
| 112 | V | GNDA PDPRES, FTPRES |
| 113 | P | CAN COMMUNICATION LINE |
| 114 | L | CAN COMMUNICATION LINE |
| 117 | V | DATA LINK CONNECTOR |
| 121 | G | EVAP CANISTER VENT CONTROL VALVE |
| 122 | P | STOP LAMP SWITCH |
| 123 | B | ECM GROUND |
| 124 | B | ECM GROUND |
| 125 | SB | POWER SUPPLY FOR ECM |
| 126 | BR | ASCD BRAKE SWITCH |
| 127 | B | ECM GROUND |
| 128 | B | ECM GROUND |

| Connector No. | M110 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24MW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | – |
| 2 | Y | – |
| 3 | W | – |
| 4 | R | – |
| 5 | L | – |
| 6 | B | – |
| 7 | BR | – |
| 8 | R | – |
| 9 | B | – |
| 10 | V | – |
| 11 | BR | – |
| 12 | G | – |
| 13 | L | – |
| 14 | B | – |
| 15 | LG | – |
| 16 | Y | – |
| 17 | W | – |
| 18 | R | – |
| 19 | B | – |
| 20 | V | – |
| 21 | R | – |
| 22 | G | – |
| 23 | L | – |
| 24 | LG | – |

| Connector No. | M116 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TK36MW-NS10 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | SB | – |
| 3 | Y | – |
| 4 | B | – [With VK engine] |
| 4 | SB | – [With VQ engine] |
| 5 | B | – |
| 7 | W | – |
| 8 | Y | – |
| 9 | SB | – [With VQ engine] |
| 9 | W | – [With VK engine] |
| 10 | SB | – |
| 11 | L | – |
| 12 | P | – |
| 13 | V | – |
| 14 | R | – |
| 15 | Y | – |
| 16 | SB | – |
| 17 | BR | – |
| 18 | LG | – |
| 21 | LG | – |
| 22 | B | – |
| 23 | W | – |
| 24 | W | – |
| 25 | BG | – |

JRMWE8222GB

CAN SYSTEM (WITH ICC)

| Connector No. | M117 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80FW-CS16-TM4 |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | Y | – |
| 6 | R | – |
| 13 | W | – |
| 17 | GR | – |
| 18 | P | – |
| 19 | BR | – |
| 20 | GR | – |
| 21 | Y | – |
| 22 | LG | – |
| 23 | R | – |
| 24 | BG | – |
| 25 | BG | – |
| 26 | W | – |
| 27 | R | – |
| 28 | V | – |
| 29 | P | – |
| 30 | B | – |
| 31 | G | – |
| 32 | Y | – |
| 40 | SHIELD | – |
| 41 | R | – |
| 42 | V | – |
| 44 | W | – |
| 45 | SB | – |
| 46 | BG | – [With heated seat] |
| 46 | L | – [With climate controlled seat] |
| 47 | G | – [With climate controlled seat] |
| 47 | GR | – [With heated seat] |
| 48 | V | – |
| 49 | BG | – |
| 50 | LG | – |
| 51 | SB | – |
| 52 | Y | – |
| 53 | W | – |
| 56 | B | – |
| 57 | G | – |
| 58 | R | – |
| 59 | W | – |
| 61 | LG | – |
| 62 | V | – |
| 63 | R | – |
| 66 | L | – |
| 67 | Y | – |
| 68 | SB | – |
| 69 | B | – |
| 70 | R | – |
| 71 | BR | – |
| 74 | B | – |
| 75 | L | – |
| 76 | SHIELD | – |
| 77 | G | – |
| 78 | R | – |
| 79 | L | – |
| 80 | G | – |
| 81 | BG | – |
| 82 | BR | – |
| 83 | GR | – |
| 84 | V | – |
| 85 | LG | – |
| 86 | V | – |
| 87 | R | – |
| 88 | Y | – |
| 89 | BR | – |
| 90 | L | – |
| 91 | Y | – |
| 93 | G | – [With heated seat] |
| 93 | W | – [With climate controlled seat] |
| 94 | V | – |
| 96 | W | – |
| 97 | Y | – |
| 98 | BR | – |
| 99 | G | – |
| 100 | Y | – |

| Connector No. | M120 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Type | TH40FB-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | RR WINDOW DEFG RLY CONT |
| 2 | BG | COMBI SW INPUT 5 |
| 3 | SB | COMBI SW INPUT 4 |
| 4 | L | COMBI SW INPUT 3 |
| 5 | G | COMBI SW INPUT 2 |
| 6 | P | COMBI SW INPUT 1 |
| 8 | V | POWER WINDOW SW COMM |
| 9 | P | STOP LAMP SW 1 |
| 11 | R | RAIN SENSOR SERIAL LINK |
| 14 | W | OPTICAL SENSOR |
| 16 | SB | DIMMER SIGNAL |
| 17 | Y | SENSOR PWR SPLY |
| 18 | B | RECEIVER / SENSOR GND |
| 19 | R | RECEIVER PWR SPLY |
| 20 | BR | KYLS ENT RECEIVER COMM |
| 21 | P | NATS ANT AMP. |
| 22 | GR | KYLS ENT RECEIVER RSSI |
| 23 | G | SECURITY IND CONT |
| 24 | L | DONGLE LINK |
| 25 | G | NATS ANT AMP. |
| 26 | R | I-KEY IDENTIFICATION |
| 29 | G | HAZARD SW |
| 30 | O | TR LID OPNR SW |
| 31 | W | DR DOOR UNLK SENSOR |
| 32 | BR | COMBI SW OUTPUT 5 |
| 33 | R | COMBI SW OUTPUT 4 |
| 34 | V | COMBI SW OUTPUT 3 |
| 35 | Y | COMBI SW OUTPUT 2 |
| 36 | LG | COMBI SW OUTPUT 1 |
| 37 | R | P POSITION |
| 39 | L | CAN-H |
| 40 | P | CAN-L |

| Connector No. | M125 |
|---|---|
| Connector Name | CAN GATEWAY |
| Connector Type | TH12FW-NH |



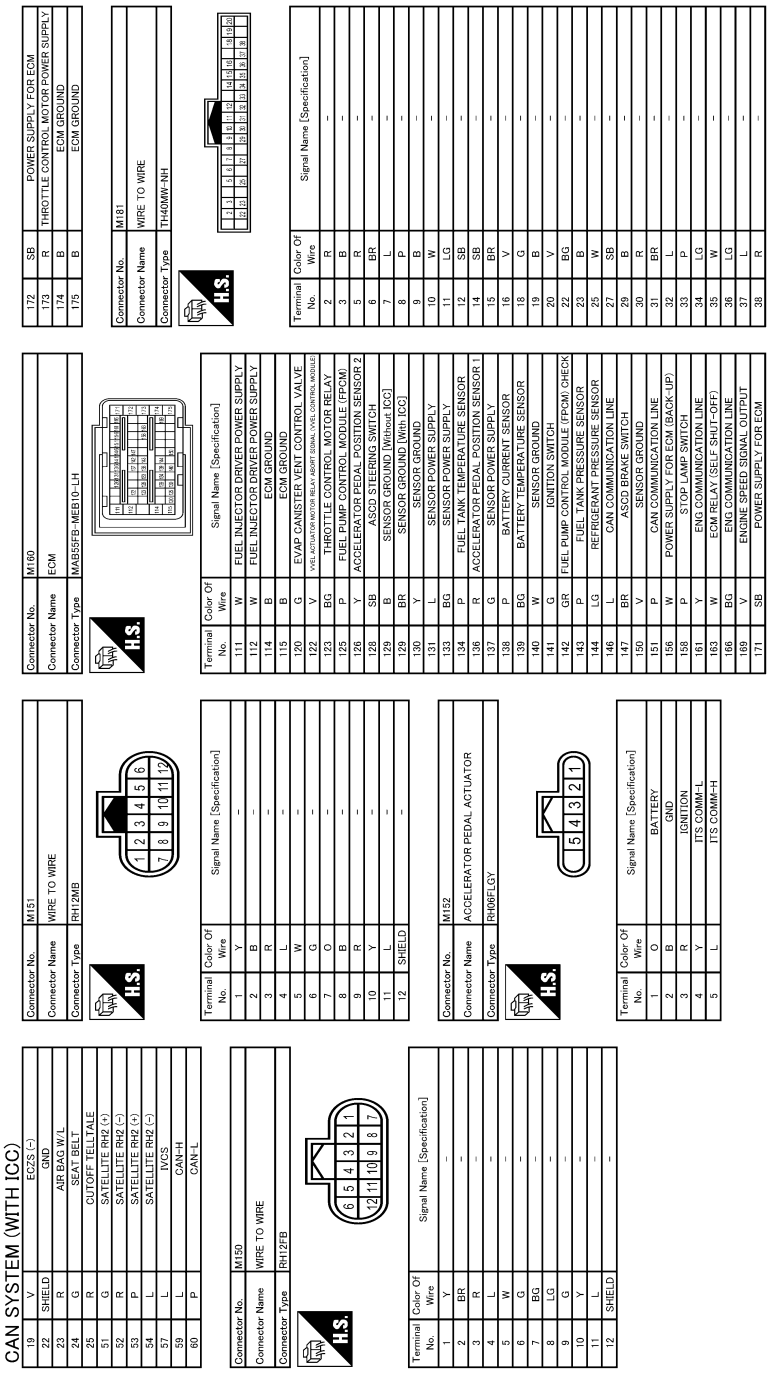
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | L | CAN-H |
| 3 | GR | BATTERY |
| 4 | L | CAN-H |
| 5 | B | GND |
| 6 | L | CAN-H |
| 7 | P | CAN-L |
| 9 | W | IGNITION |
| 10 | P | CAN-L |
| 11 | B | GND |
| 12 | P | CAN-L |

| Connector No. | M147 |
|---|---|
| Connector Name | AIR BAG DIAGNOSIS SENSOR UNIT |
| Connector Type | NH28FY-EX |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | LG | IGN |
| 2 | B | GND |
| 3 | Y | DR1 (+) |
| 4 | Y | DR1 (-) DR2 (-) |
| 5 | Y | DR2 (+) |
| 6 | Y | AS1 (-) |
| 7 | Y | AS1 (+) |
| 8 | Y | AS2 (+) |
| 9 | Y | AS2 (-) |
| 18 | SB | EG2S (+) |

JRMWE8223GB

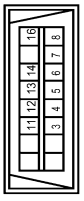



JRMWE8224GB

CAN SYSTEM (WITH ICC)

| Connector No. | M182 |
|---|---|
| Connector Name | DATA LINK CONNECTOR |
| Connector Type | BD16FW |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 3 | LG | M-CAN L |
| 4 | B | EARTH |
| 5 | B | EARTH |
| 6 | L | CAN-H |
| 7 | V | K-LINE |
| 8 | LG | IGN SW |
| 11 | SB | M-CAN H |
| 12 | P | CAN-L |
| 13 | L | CAN-H |
| 14 | P | CAN-L |
| 16 | W | POWER |

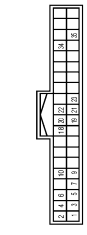
| Connector No. | M210 |
|---|---|
| Connector Name | AV CONTROL UNIT |
| Connector Type | TH32FW-NH |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 65 | V | PARKING BRAKE SIGNAL |
| 67 | R | COMPOSITE IMAGE SIGNAL GND |
| 68 | W | COMPOSITE IMAGE SIGNAL |
| 69 | G | I-KEY IDENTIFICATION SIGNAL |
| 70 | P | - |
| 71 | SHIELD | MICROPHONE SHIELD |
| 72 | G | MICROPHONE VCC |
| 73 | BR | COMM (CONT->DISP) |
| 74 | P | CAN-L |
| 75 | LG | AV COMM (L) |
| 76 | LG | AV COMM (L) |
| 79 | SB | DIMMER SIGNAL |
| 80 | W | IGNITION SIGNAL |
| 81 | BG | REVERSE SIGNAL |
| 82 | R | VEHICLE SPEED SIGNAL (8-PULSE) |
| 83 | SHIELD | SHIELD |
| 84 | B | COMPOSITE IMAGE SYNC SIGNAL |
| 87 | R | MICROPHONE SIGNAL |
| 88 | SHIELD | SHIELD |
| 89 | Y | COMM (DISP->CONT) |
| 90 | L | CAN-H |
| 91 | SB | AV COMM (H) |
| 92 | SB | AV COMM (H) |

| Connector No. | M216 |
|---|---|
| Connector Name | TCU |
| Connector Type | TH40FW-NH |

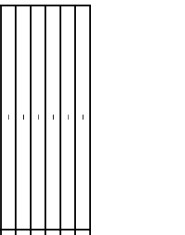
H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | BATTERY POWER SUPPLY |
| 2 | B | GROUND |
| 3 | SB | ACC POWER SUPPLY |
| 4 | W | IGNITION SIGNAL |
| 5 | V | ACC OUTPUT |
| 6 | P | - |
| 7 | B | GND |
| 9 | L | CAN-H |
| 10 | P | CAN-L |
| 18 | G | MICROPHONE VCC |
| 19 | R | MICROPHONE SIGNAL |
| 20 | SHIELD | MICROPHONE SHIELD |
| 21 | G | MICROPHONE VCC |
| 22 | R | MICROPHONE SIGNAL |
| 23 | SHIELD | MICROPHONE SHIELD |
| 24 | G | SOS call switch |
| 35 | BR | SOS call switch LED signal |

| Connector No. | R7 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH24FW-NH |

H.S.



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | - |
| 2 | Y | - |
| 3 | W | - |
| 4 | R | - |
| 5 | L | - |
| 6 | B | - |
| 7 | R | - |
| 8 | P | - |
| 9 | B | - |
| 10 | V | - |
| 11 | BR | - |
| 12 | G | - |
| 13 | L | - |
| 14 | L | - |
| 15 | LG | - |
| 16 | Y | - |
| 17 | W | - |
| 18 | R | - |
| 19 | B | - |
| 20 | R | - |
| 21 | R | - |
| 22 | G | - |
| 23 | L | - |
| 24 | LG | - |

| Connector No. | R8 |
|---|---|
| Connector Name | LANE CAMERA UNIT |
| Connector Type | TH08FW-NH |

H.S.



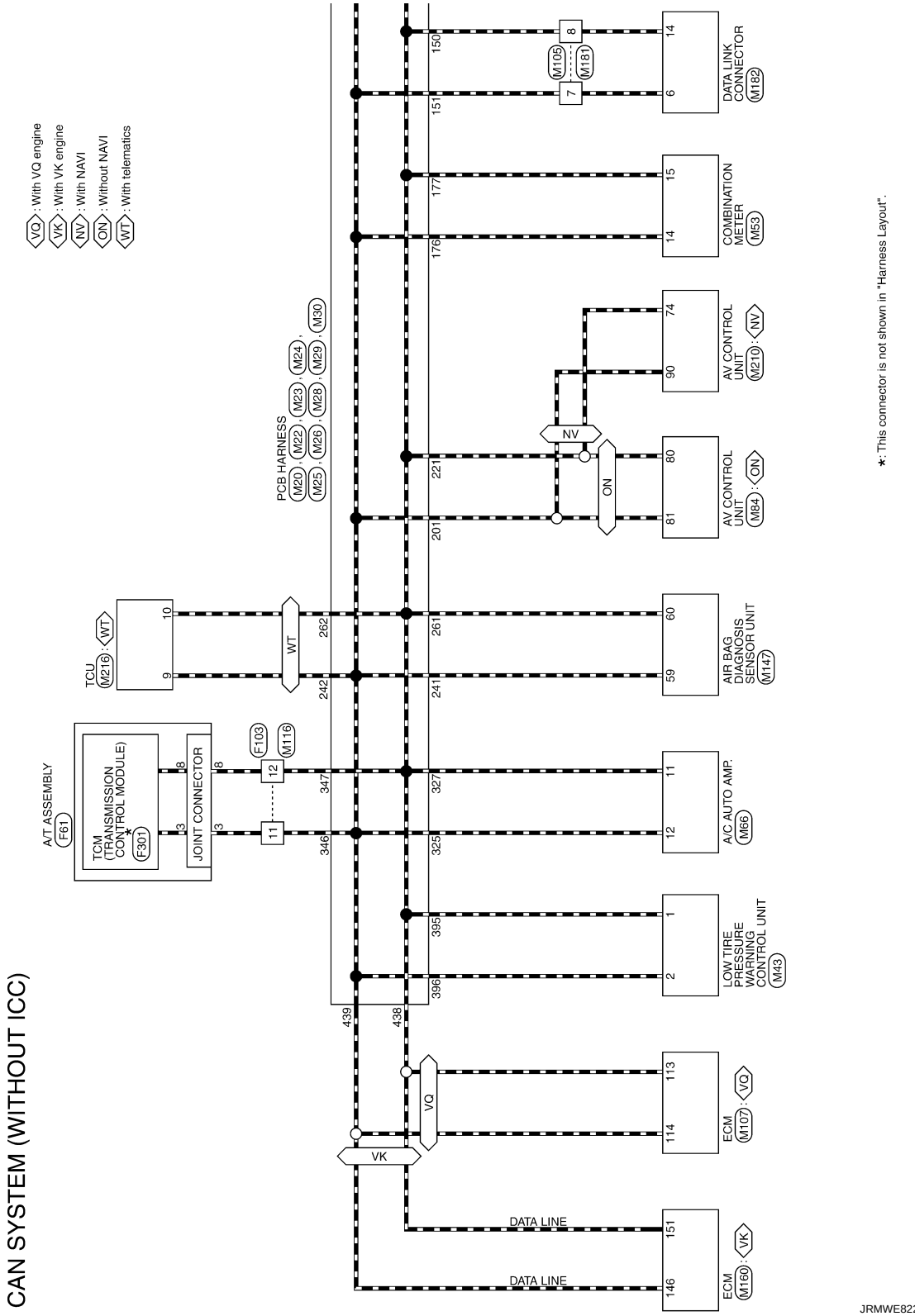
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | B | GND |
| 4 | L | ITS COMM-H |
| 5 | B | GND |
| 7 | G | IGNITION |
| 8 | Y | ITS COMM-L |

JRMWE8225GB

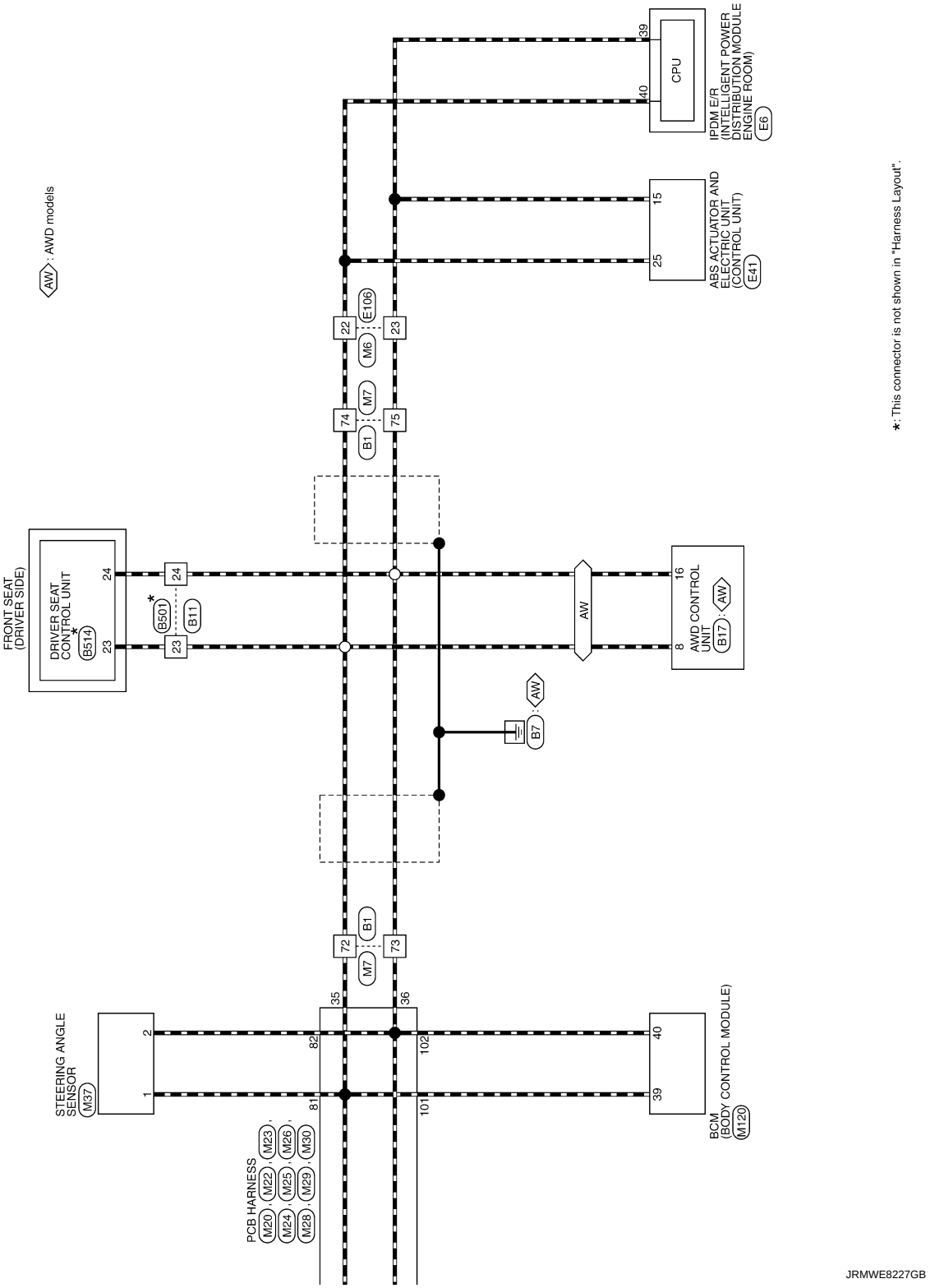
# CAN SYSTEM (WITHOUT ICC)

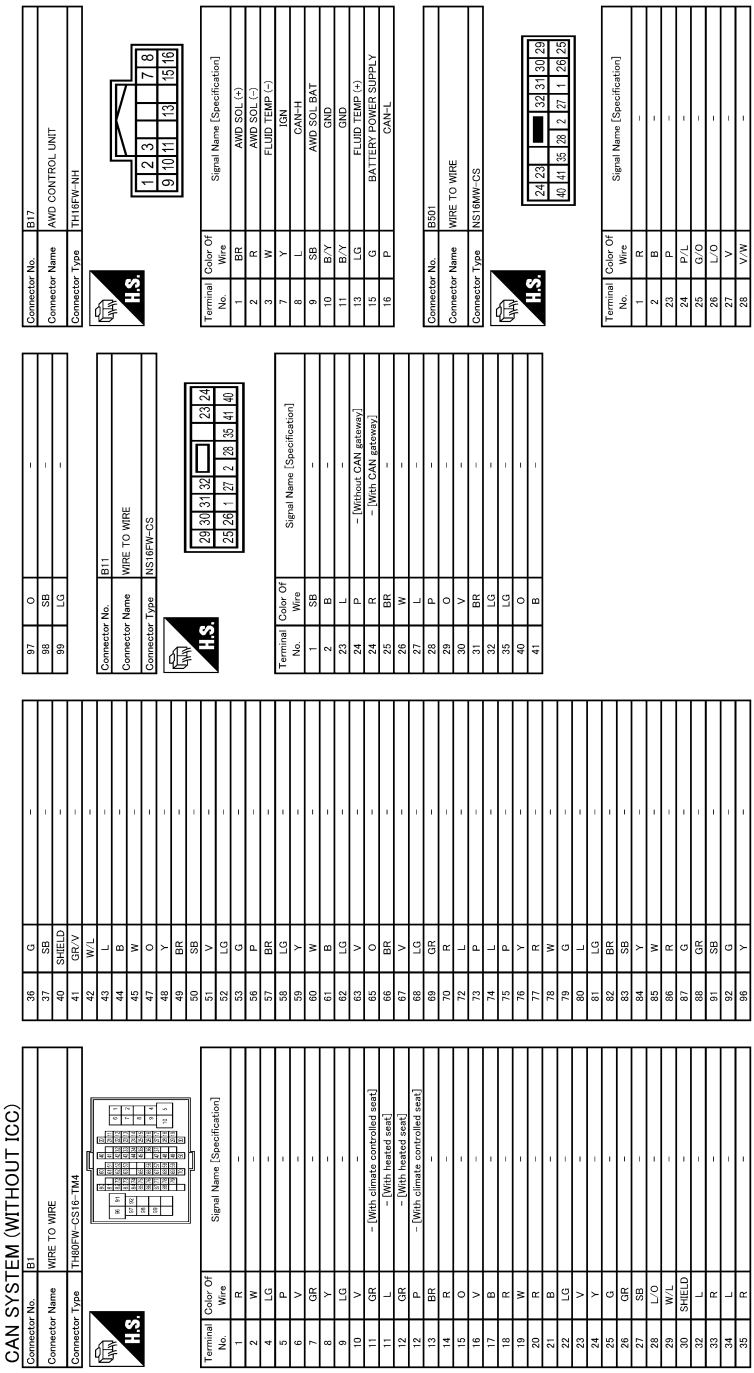
## Wiring Diagram

INFOID:0000000010101290

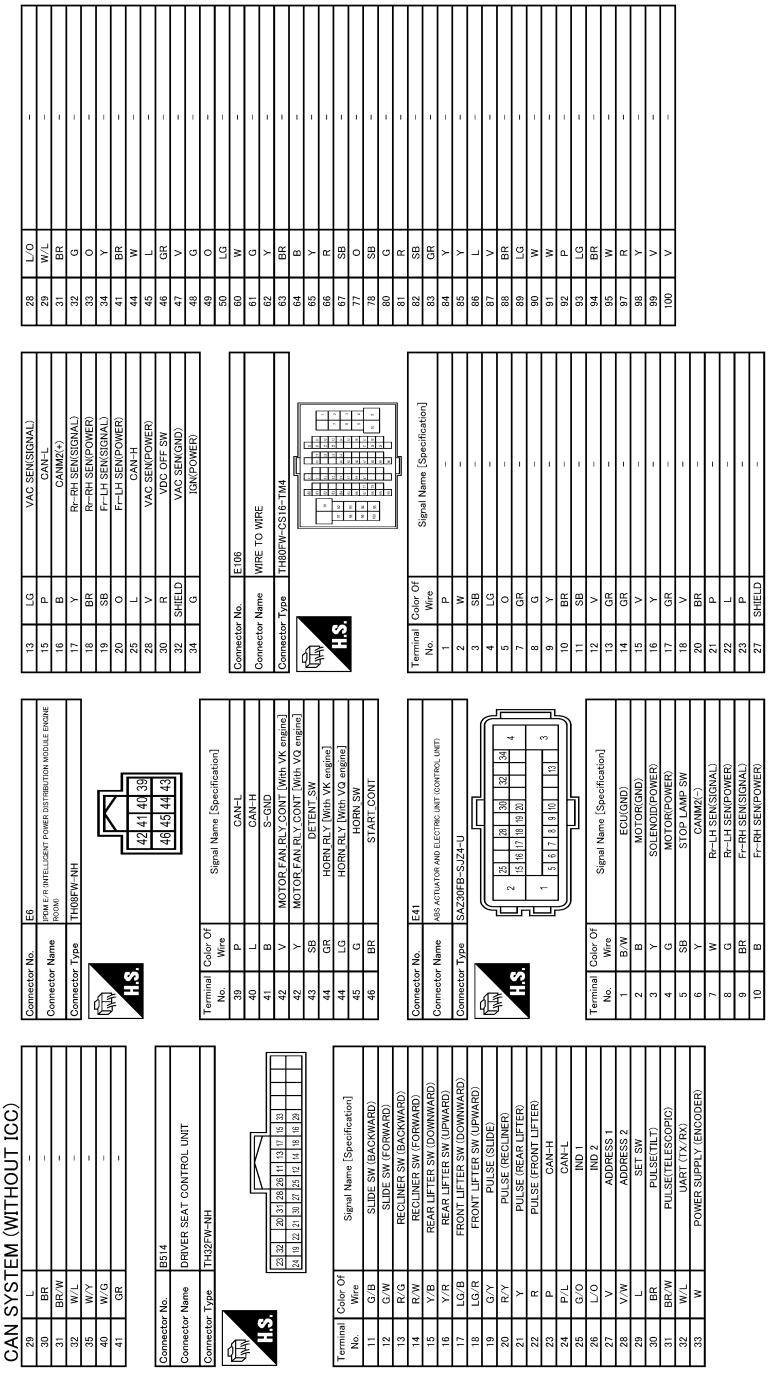



*: This connector is not shown in "Harness Layout".


AW : AWD models
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) E6
CPU
39
40
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E41
15
25
E106
M6
22
23
M7
B1
74
75
FRONT SEAT (DRIVER SIDE)
DRIVER SEAT CONTROL UNIT B514
24
23
B501
B11
AWD CONTROL UNIT B17
16
8
AW
B7
72
73
35
36
STEERING ANGLE SENSOR M37
2
1
82
81
102
101
BCM (BODY CONTROL MODULE) M120
40
39
PCB HARNESS
M20, M22, M23, M24, M25, M26, M28, M29, M30
★: This connector is not shown in "Harness Layout".
JRMWE8227GB




JRMWE8228GB




JRMWE8229GB

CAN SYSTEM (WITHOUT ICC)

| Connector No. | F61 |
|---|---|
| Connector Name | A/T ASSEMBLY |
| Connector Type | RK10FG-DGY |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | Y | POWER SUPPLY (BACK UP) |
| 2 | R | POWER SUPPLY (BACK UP) |
| 3 | L | HEV SYSTEM CAN-H |
| 4 | V | K-LINE |
| 5 | B | GND |
| 6 | G | POWER SUPPLY (IGN) |
| 7 | SB | BACK-UP LAMP RELAY |
| 8 | P | HEV SYSTEM CAN-L |
| 9 | BR | P/N SIGNAL [Without paddle shifter] |
| 9 | LG | P/N SIGNAL [With paddle shifter] |
| 10 | B | GROUND |

| Connector No. | F103 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TK36FW-NS10 |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 2 | L | – |
| 3 | G | – |
| 4 | B | – [With VK engine] |
| 4 | R | – [With VQ engine] |
| 5 | B | – [With VQ engine] |
| 5 | GR | – [With VK engine] |
| 7 | LG | – |
| 8 | Y | – |
| 9 | SB | – [With VQ engine] |
| 9 | W | – [With VK engine] |
| 10 | BR | – [With VK engine] |
| 10 | V | – [With VQ engine] |
| 11 | L | – |
| 12 | P | – |
| 13 | V | – |
| 14 | SB | – |
| 15 | R | – |
| 16 | W | – |
| 17 | GR | – |
| 18 | LG | – |
| 21 | LG | – |
| 22 | B | – |
| 23 | G | – |
| 24 | BR | – |
| 25 | O | – |

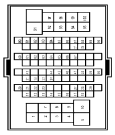
| Connector No. | F301 |
|---|---|
| Connector Name | TCM (TRANSMISSION CONTROL MODULE) |
| Connector Type | SP10FG |

H.S.


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | – | VIGN |
| 2 | – | BATT |
| 3 | – | CAN-H |
| 4 | – | K LINE |
| 5 | – | GND |
| 6 | – | VIGN |
| 7 | – | REV LAMP RLY |
| 8 | – | CAN-L |
| 9 | – | START RLY |
| 10 | – | GND |

| Connector No. | M6 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |

H.S.



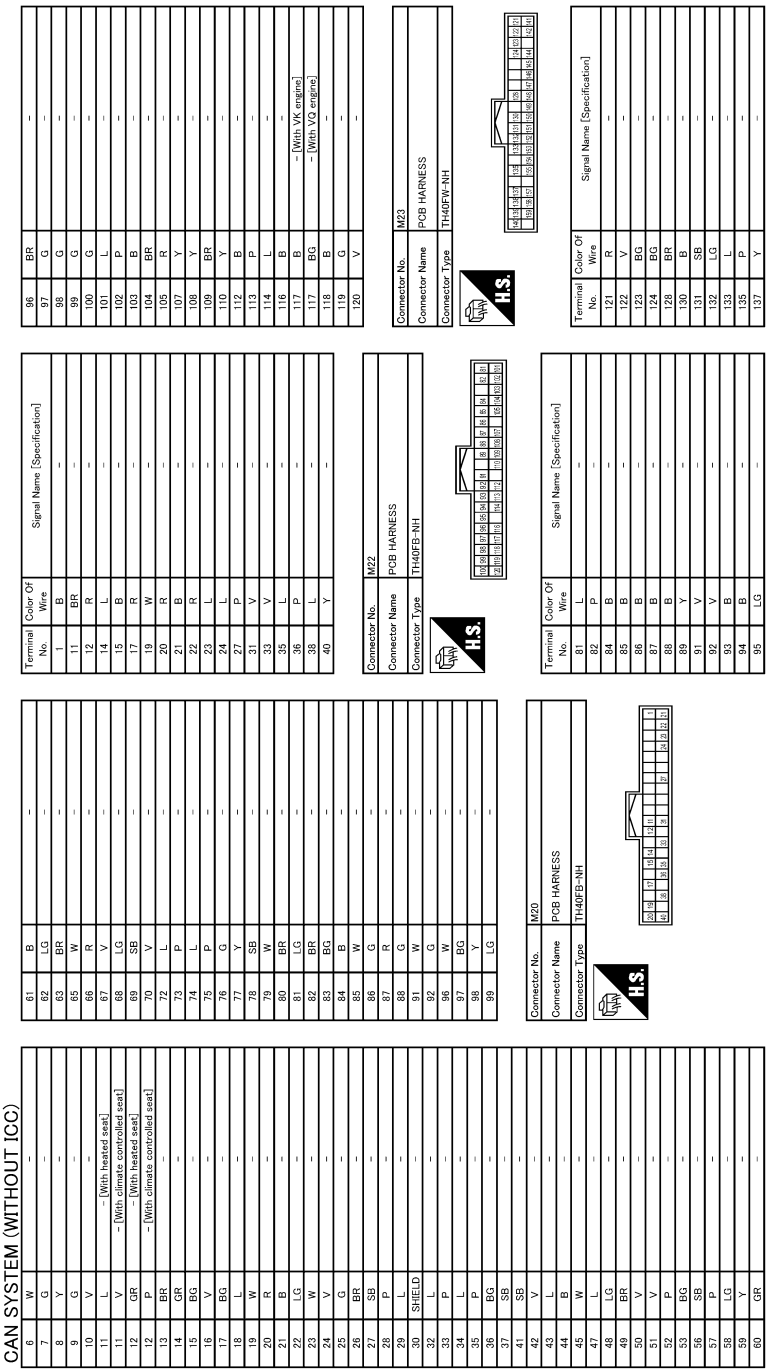
| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | W | – |
| 2 | W | – |
| 3 | SB | – |
| 4 | LG | – |
| 5 | W | – |
| 7 | BG | – |
| 8 | G | – |
| 9 | Y | – |
| 10 | W | – |
| 11 | R | – |
| 12 | V | – |
| 13 | LG | – |
| 14 | L | – |
| 15 | V | – |
| 16 | B | – |
| 17 | GR | – |
| 18 | V | – |
| 20 | SB | – |
| 21 | BR | – |
| 22 | L | – |
| 23 | P | – |
| 27 | SHIELD | – |
| 28 | V | – |
| 29 | SB | – |
| 31 | BG | – |
| 32 | P | – |
| 33 | R | – |
| 34 | BG | – |
| 41 | BR | – |
| 44 | BR | – |
| 45 | Y | – |
| 46 | BG | – |
| 47 | V | – |
| 48 | G | – |
| 49 | BG | – |
| 50 | W | – |
| 60 | GR | – |
| 61 | B | – |
| 62 | LG | – |
| 63 | BR | – |
| 64 | L | – |
| 65 | R | – |
| 66 | P | – |
| 67 | L | – |
| 77 | B | – |
| 78 | V | – |
| 80 | G | – |
| 81 | L | – |
| 82 | B | – |
| 83 | BG | – |
| 84 | SB | – |
| 85 | Y | – |
| 86 | L | – |
| 87 | V | – |
| 88 | V | – |
| 89 | LG | – |
| 90 | BG | – |
| 91 | W | – |
| 92 | BG | – |
| 93 | G | – |
| 94 | Y | – |
| 95 | W | – |
| 97 | SB | – |
| 98 | R | – |
| 99 | W | – |
| 100 | L | – |

| Connector No. | M7 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Type | TH80MW-CS16-TM4 |

H.S.

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 1 | G | – |
| 2 | Y | – |
| 4 | BR | – |
| 5 | P | – |

JRMWE8230GB




JRMWE8231GB

CAN SYSTEM (WITHOUT ICC)

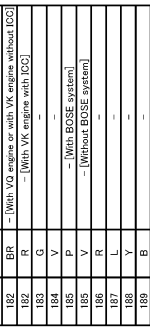
| | | |
|---|---|---|
| 138 | L | – |
| 139 | P | – |
| 140 | L | – |
| 141 | W | – |
| 142 | W | – |
| 144 | P | – |
| 145 | B | – |
| 146 | B | – |
| 147 | B | – |
| 148 | L | – |
| 149 | B | – |
| 150 | P | – |
| 151 | L | – |
| 152 | B | – |
| 153 | W | – |
| 154 | W | – |
| 155 | W | – |
| 157 | W | – |
| 158 | R | – |
| 159 | R | – |

| Connector No. | M24 |
|---|---|
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |

| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 161 | BG | – |
| 162 | BG | – |
| 163 | G | – |
| 164 | V | – |
| 165 | V | – |
| 166 | R | – |
| 167 | LG | – |
| 168 | R | – |
| 169 | R | – |
| 170 | B | – |
| 172 | B | – |
| 174 | W | – |
| 175 | B | – |
| 176 | L | – |

| | | |
|---|---|---|
| 177 | P | – |
| 178 | Y | – |
| 179 | L | – |
| 180 | LG | – |
| 182 | BR | – [With VQ engine or with VK engine without ICC] |
| 182 | R | – [With VK engine with ICC] |
| 183 | G | – |
| 184 | V | – |
| 185 | P | – [With BOSE system] |
| 185 | V | – [Without BOSE system] |
| 186 | R | – |
| 187 | L | – |
| 188 | Y | – |
| 189 | B | – |
| 190 | V | – |
| 191 | G | – |
| 192 | B | – |
| 193 | SB | – |
| 194 | BR | – |
| 195 | SB | – |
| 198 | R | – |
| 199 | B | – |
| 200 | SB | – |

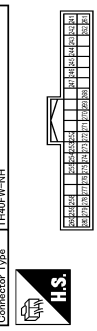
| Connector No. | M25 |
|---|---|
| Connector Name | PCB HARNESS |
| Connector Type | TH40FB-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 201 | L | – |
| 207 | Y | – |
| 208 | G | – |
| 209 | G | – [Without BOSE system] |
| 209 | L | – [With BOSE system] |
| 210 | L | – [Without BOSE system] |
| 210 | P | – [With BOSE system] |
| 211 | SHIELD | – |
| 212 | BR | – [Without BOSE system] |
| 212 | G | – [With BOSE system] |
| 213 | R | – |

| | | |
|---|---|---|
| 214 | SHIELD | – |
| 215 | GR | – [Without BOSE system] |
| 215 | V | – [With BOSE system] |
| 216 | G | – [Without BOSE system] |
| 216 | LG | – [With BOSE system] |
| 217 | SHIELD | – |
| 218 | BR | – [With BOSE system] |
| 218 | P | – [Without BOSE system] |
| 219 | GR | – [With BOSE system] |
| 219 | V | – [Without BOSE system] |
| 220 | SHIELD | – |
| 221 | P | – |
| 222 | LG | – |
| 223 | SB | – |
| 224 | SB | – |
| 225 | LG | – |
| 226 | R | – |
| 229 | V | – |
| 230 | BR | – |
| 231 | SB | – |
| 232 | V | – |
| 233 | L | – |
| 235 | B | – |
| 240 | W | – |

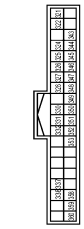
| Connector No. | M26 |
|---|---|
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |



| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 241 | L | – |
| 242 | L | – |
| 243 | R | – |
| 244 | L | – |
| 245 | B | – |
| 246 | B | – |
| 247 | B | – |
| 252 | B | – |
| 253 | B | – |
| 254 | B | – [With heated seat] |

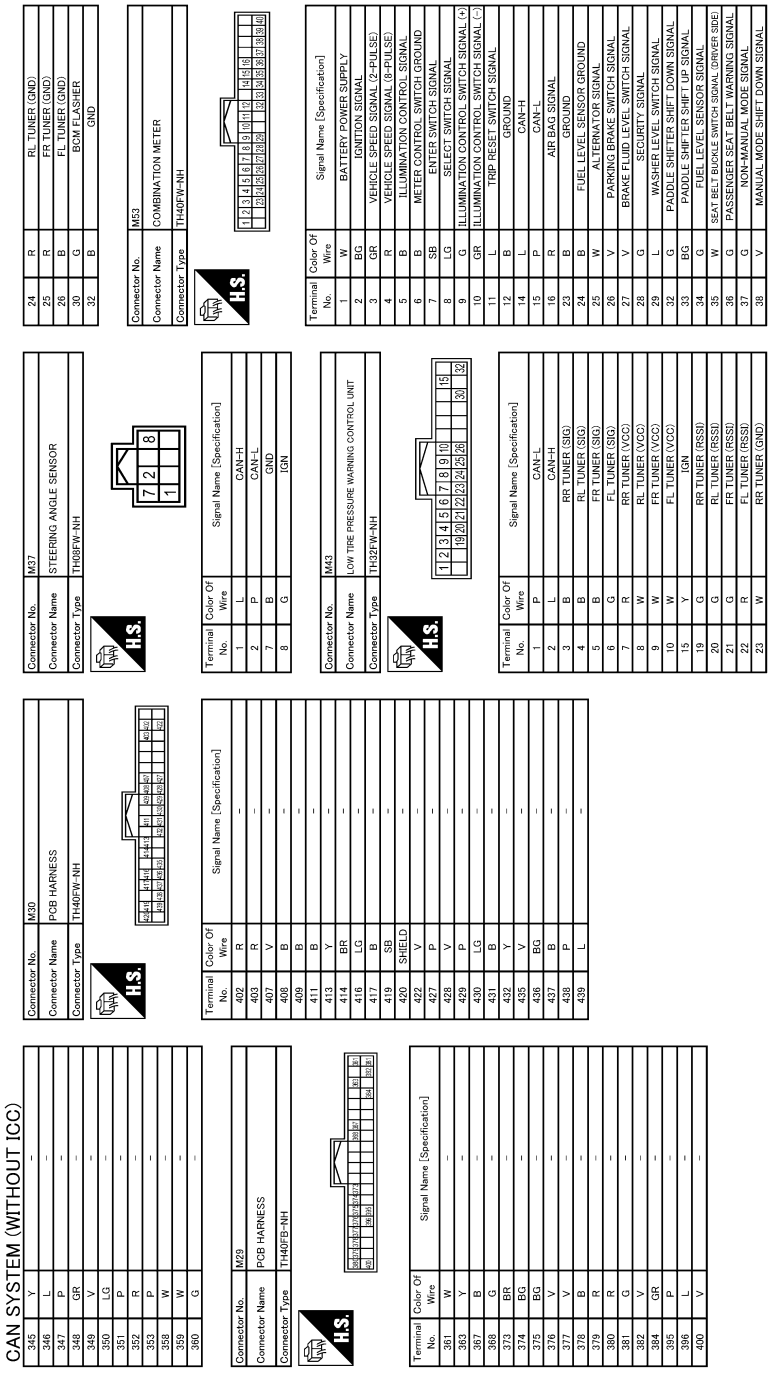
| | | |
|---|---|---|
| 254 | W | – [With climate controlled seat] |
| 255 | B | – |
| 258 | R | – |
| 259 | L | – |
| 260 | BG | – |
| 261 | P | – |
| 262 | P | – |
| 268 | Y | – |
| 269 | GR | – |
| 270 | Y | – |
| 271 | BR | – |
| 272 | G | – |
| 273 | R | – |
| 274 | R | – |
| 275 | Y | – |
| 276 | B | – |
| 277 | G | – |
| 278 | R | – |
| 279 | R | – |
| 280 | Y | – |

| Connector No. | M28 |
|---|---|
| Connector Name | PCB HARNESS |
| Connector Type | TH40FW-NH |

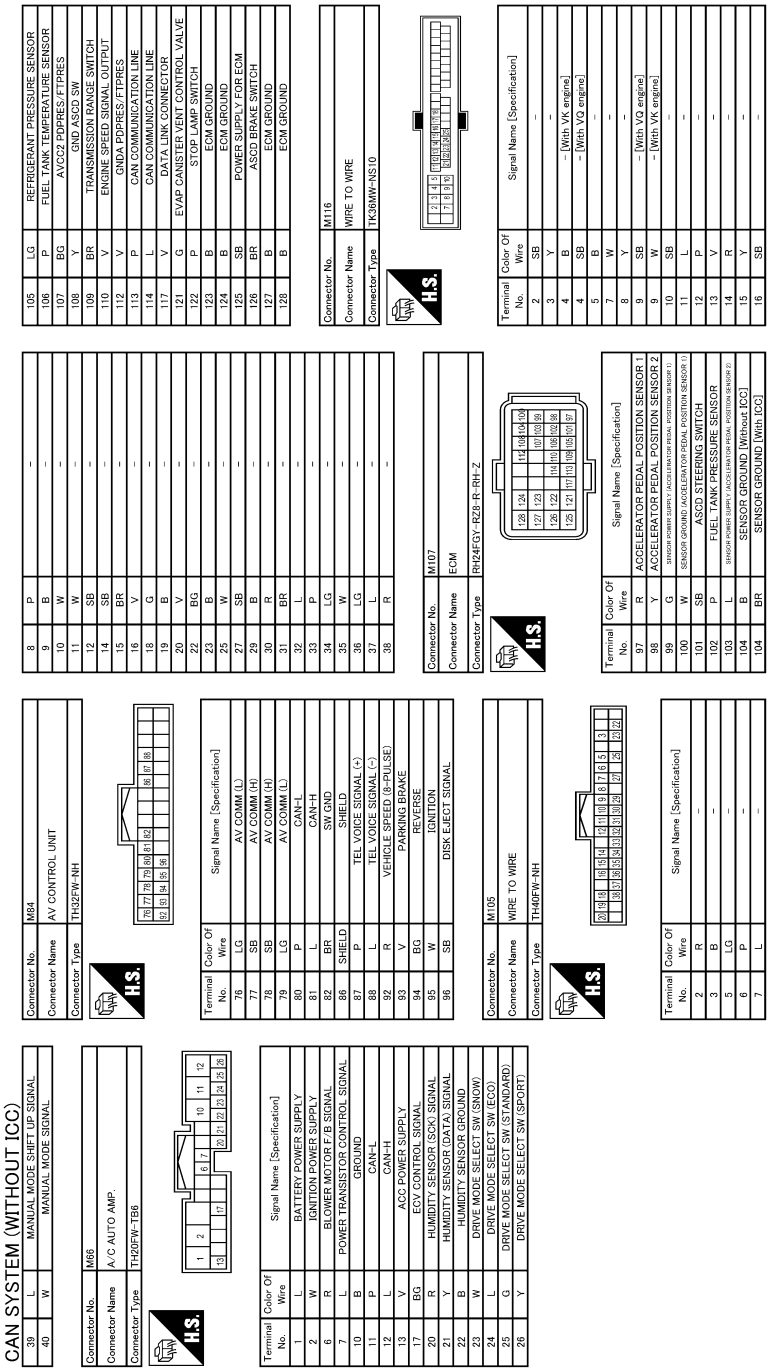


| Terminal No. | Color Of Wire | Signal Name [Specification] |
|---|---|---|
| 321 | V | – |
| 322 | V | – |
| 324 | B | – |
| 325 | L | – |
| 326 | L | – |
| 327 | P | – |
| 328 | P | – |
| 330 | B | – |
| 331 | V | – |
| 332 | V | – |
| 337 | W | – |
| 338 | W | – |
| 343 | L | – |
| 344 | B | – |

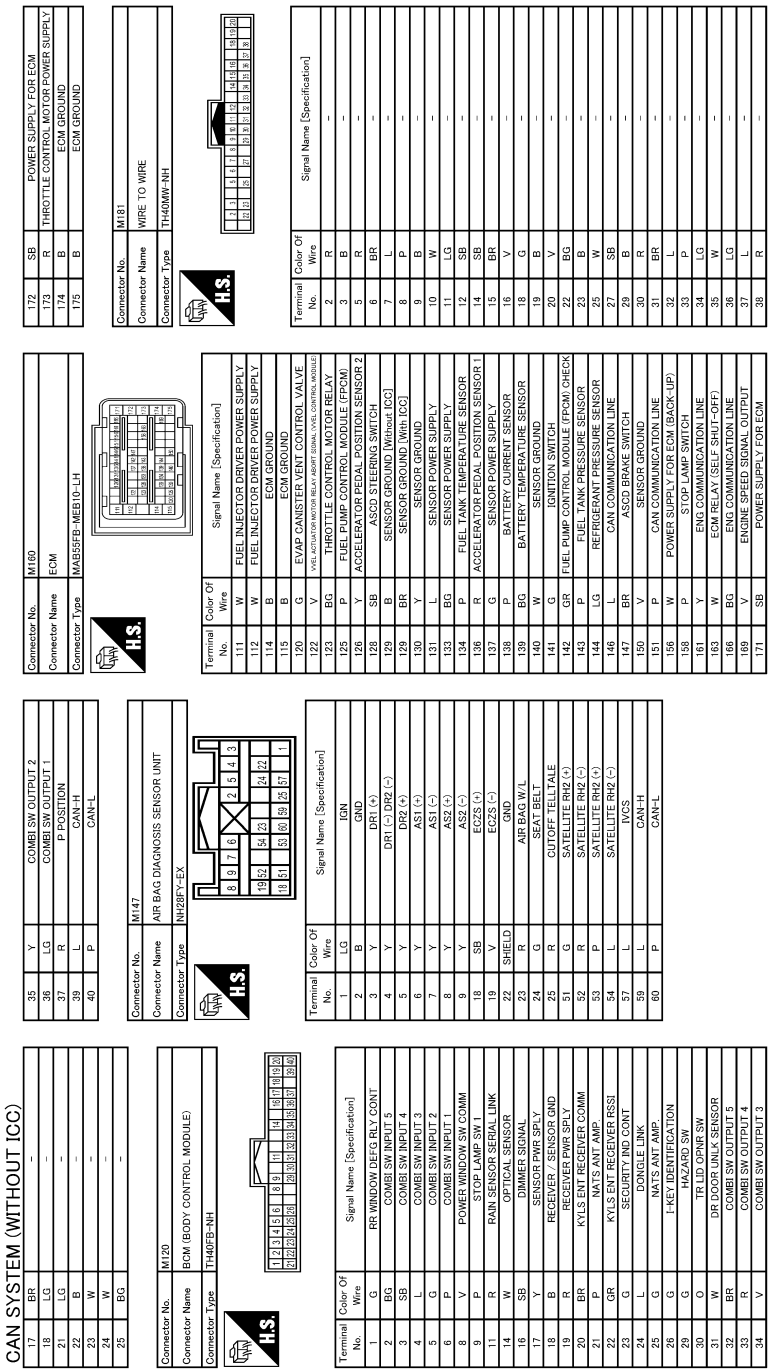
JRMWE8232GB



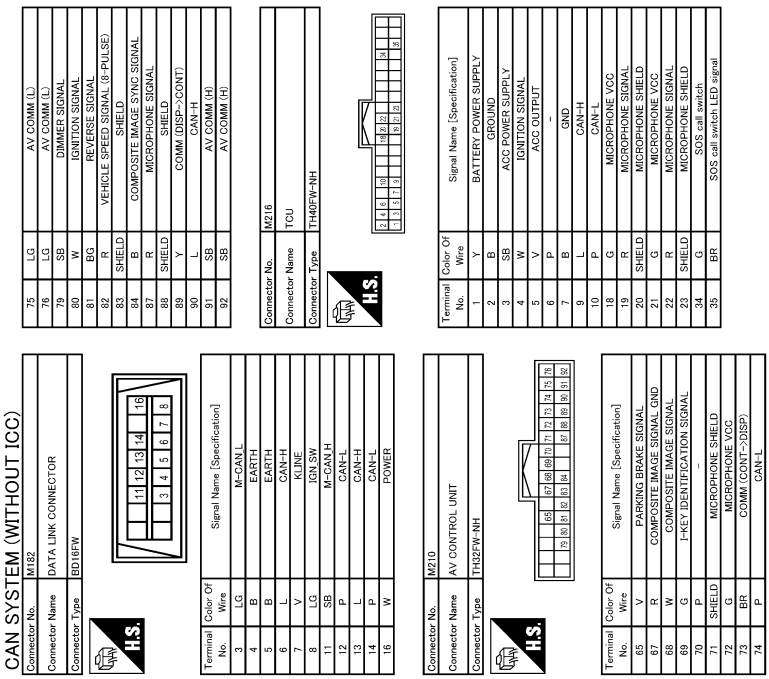

JRMWE8233GB




JRMWE8234GB




JRMWE8235GB




JRMWE8236GB

# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Interview Sheet

INFOID:0000000010101291

CAN Communication System Diagnosis Interview Sheet

Date received:

Type: VIN No.:

Model:

First registration: Mileage:

CAN system type:

Symptom (Results from interview with customer)

Condition at inspection

Error symptom : Present / Past

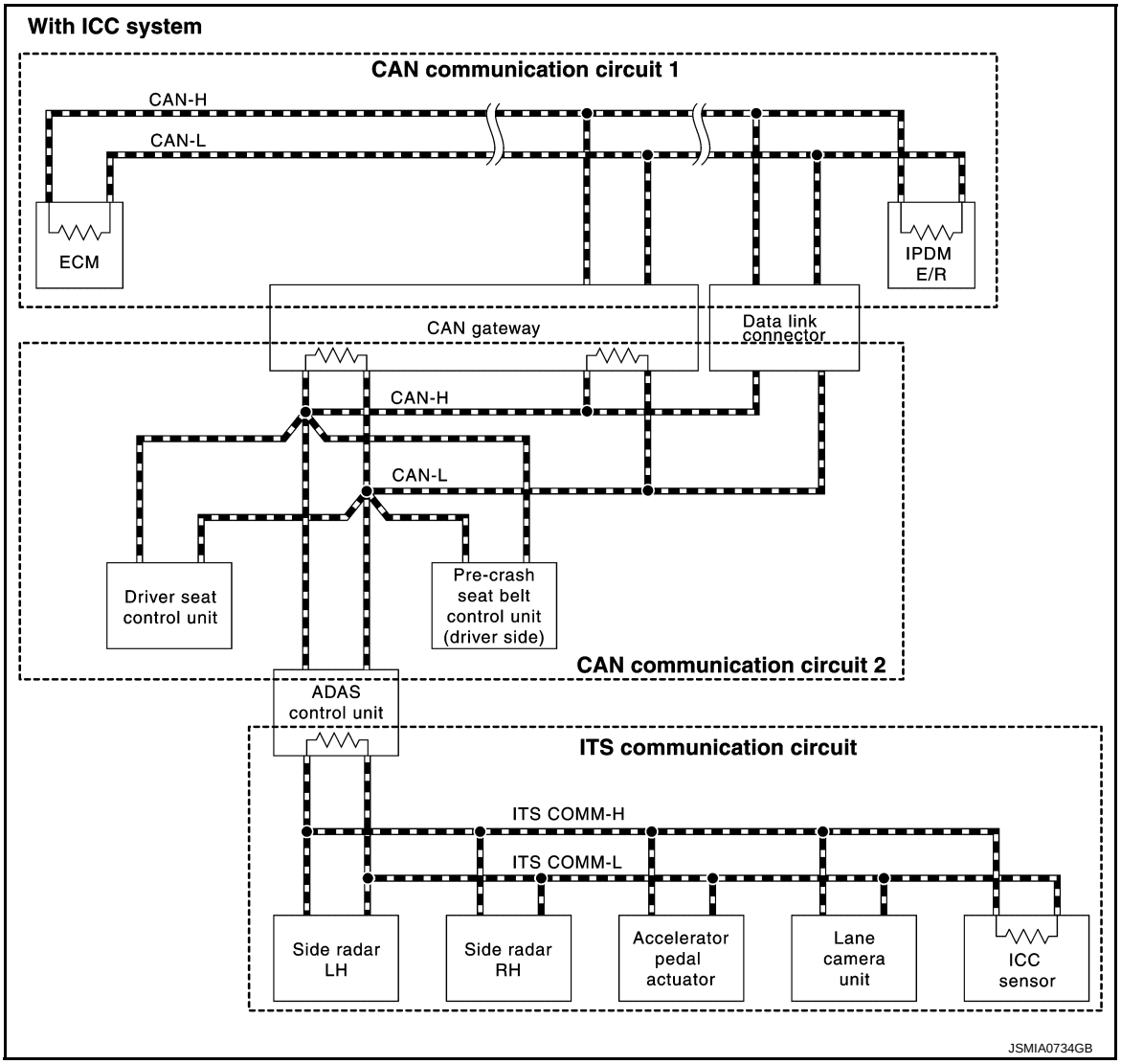
SKIB8898E

# DTC/CIRCUIT DIAGNOSIS

## MALFUNCTION AREA CHART

### System Diagram

INFOID:0000000010101292




### CAN Communication Circuit

INFOID:0000000010101293

#### MAIN LINE

| Malfunction area | Reference |
|---|---|
| Main line between low tire pressure warning control unit and A/C auto amp. | LAN-70, "Diagnosis Procedure" |
| Main line between A/C auto amp. and air bag diagnosis sensor unit | LAN-71, "Diagnosis Procedure" |
| Main line between air bag diagnosis sensor unit and AV control unit | LAN-72, "Diagnosis Procedure" |
| Main line between AV control unit and combination meter | LAN-73, "Diagnosis Procedure" |
| Main line between combination meter and data link connector | LAN-74, "Diagnosis Procedure" |
| Main line between data link connector and BCM | LAN-75, "Diagnosis Procedure" |
| Main line between BCM and ABS actuator and electric unit (control unit) | LAN-76, "Diagnosis Procedure" |
| Main line between BCM and AWD control unit | LAN-78, "Diagnosis Procedure" |
| Main line between BCM and driver seat control unit | LAN-79, "Diagnosis Procedure" |

| Malfunction area | Reference |
|---|---|
| Main line between AWD control unit and ABS actuator and electric unit (control unit) | LAN-80, "Diagnosis Procedure" |
| Main line between driver seat control unit and ABS actuator and electric unit (control unit) | LAN-82, "Diagnosis Procedure" |
| Main line between data link connector and driver seat control unit | LAN-84, "Diagnosis Procedure" |

BRANCH LINE

| Malfunction area | Reference |
|---|---|
| ECM branch line circuit | LAN-89, "Diagnosis Procedure" |
| Low tire pressure warning control unit branch line circuit | LAN-91, "Diagnosis Procedure" |
| CAN gateway branch line circuit (CAN communication circuit 1) | LAN-92, "Diagnosis Procedure" |
| CAN gateway branch line circuit (CAN communication circuit 2) | LAN-93, "Diagnosis Procedure" |
| A/C auto amp. branch line circuit | LAN-94, "Diagnosis Procedure" |
| TCM branch line circuit | LAN-95, "Diagnosis Procedure" |
| Air bag diagnosis sensor unit branch line circuit | LAN-97, "Diagnosis Procedure" |
| TCU branch line circuit | LAN-98, "Diagnosis Procedure" |
| AV control unit branch line circuit | LAN-99, "Diagnosis Procedure" |
| Combination meter branch line circuit | LAN-101, "Diagnosis Procedure" |
| Data link connector branch line circuit (CAN communication circuit 1) | LAN-103, "Diagnosis Procedure" |
| Data link connector branch line circuit (CAN communication circuit 2) | LAN-104, "Diagnosis Procedure" |
| BCM branch line circuit | LAN-105, "Diagnosis Procedure" |
| Steering angle sensor branch line circuit | LAN-106, "Diagnosis Procedure" |
| AWD control unit branch line circuit | LAN-107, "Diagnosis Procedure" |
| ABS actuator and electric unit (control unit) branch line circuit | LAN-108, "Diagnosis Procedure" |
| AFS control unit branch line circuit | LAN-109, "Diagnosis Procedure" |
| IPDM E/R branch line circuit | LAN-110, "Diagnosis Procedure" |
| Driver seat control unit branch line circuit | LAN-111, "Diagnosis Procedure" |
| ADAS control unit branch line circuit | LAN-112, "Diagnosis Procedure" |
| Pre-crash seat belt control unit (driver side) branch line circuit | LAN-113, "Diagnosis Procedure" |

SHORT CIRCUIT

| Malfunction area | Reference |
|---|---|
| CAN communication circuit (Without ICC system) | LAN-119, "Diagnosis Procedure" |
| CAN communication circuit 1 (With ICC system) | LAN-121, "Diagnosis Procedure" |
| CAN communication circuit 2 (With ICC system) | LAN-123, "Diagnosis Procedure" |

## ITS Communication Circuit

INFOID:0000000010101294

MAIN LINE

| Malfunction area | Reference |
|---|---|
| Main line between side radar LH and side radar RH | LAN-85, "Diagnosis Procedure" |
| Main line between side radar RH and accelerator pedal actuator | LAN-86, "Diagnosis Procedure" |
| Main line between accelerator pedal actuator and lane camera unit | LAN-88, "Diagnosis Procedure" |

BRANCH LINE

| Malfunction area | Reference |
|---|---|
| Side radar LH branch line circuit | LAN-114, "Diagnosis Procedure" |
| Side radar RH branch line circuit | LAN-115, "Diagnosis Procedure" |
| Accelerator pedal actuator branch line circuit | LAN-116, "Diagnosis Procedure" |
| Lane camera unit branch line circuit | LAN-117, "Diagnosis Procedure" |
| ICC sensor branch line circuit | LAN-118, "Diagnosis Procedure" |

SHORT CIRCUIT OR OPEN CIRCUIT

| Malfunction area | Reference |
|---|---|
| ITS communication circuit | LAN-125, "Diagnosis Procedure" |

# MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101295

### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101296

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101297

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101298

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101299

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101300

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101301

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1
- Harness connector M6
- Harness connector E106

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

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

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair the main line between the harness connectors M7 and M6.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the BCM and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN BCM AND 4WD CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101302

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the AWD control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101303

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101305

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AWD control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101306

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101308

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101309

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101310

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

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

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101311

### 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.

- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7

4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101312

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101313

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010101314

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010101315

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101316

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101317

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101318

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101319

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101320

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101321

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101322

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010101323

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010101324

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101325

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101326

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101327

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101329

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101330

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101331

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101332

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101333

### 1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101334

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101335

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101336

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101337

### 1.CHECK CONNECTOR

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

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101338

### 1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101339

### 1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101340

### 1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5.CHECK SYMPTOM

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

Inspection result

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010101341

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5.CHECK SYMPTOM

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

Inspection result

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010101342

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

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

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

Is the measurement value within the specification?

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

### 5.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101343

### 1.CHECK CAN DIAGNOSIS

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

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

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

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

### 2.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

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

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

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

Is the inspection result normal?

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

## 7.CHECK SYMPTOM

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

Inspection result

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

## 8.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000010285562

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

**WARNING:**

**Always observe the following items for preventing accidental activation.**

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

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

**WARNING:**

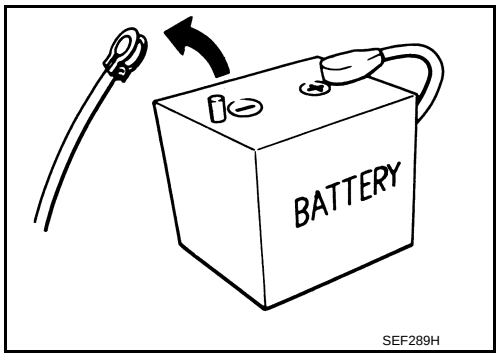
**Always observe the following items for preventing accidental activation.**

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

### Precautions for Removing of Battery Terminal

INFOID:0000000010285564

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  **NOTE:**
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  **NOTE:**
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.



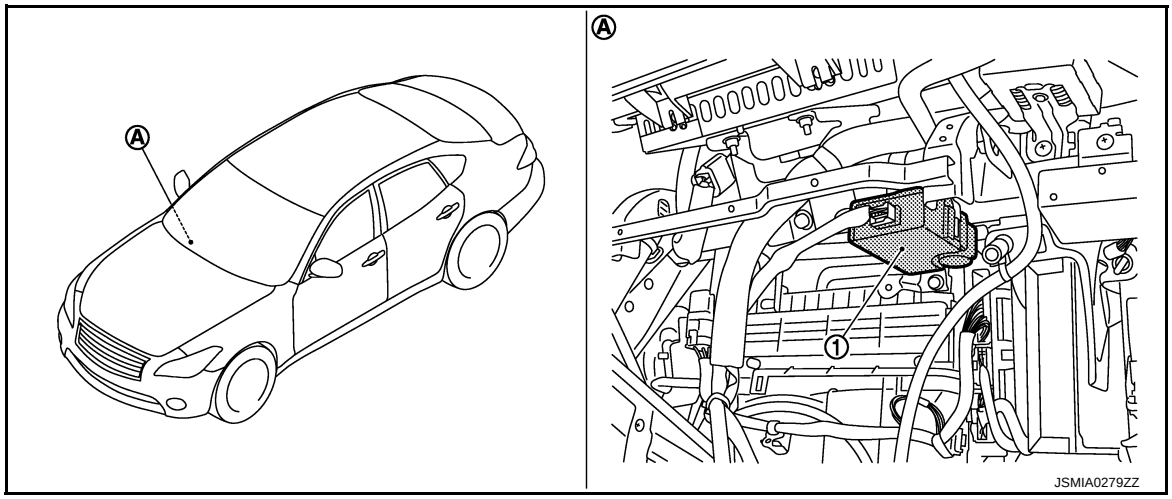

- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  **NOTE:**
  The removal of 12V battery may cause a DTC detection error.

# SYSTEM DESCRIPTION

## COMPONENT PARTS

### Component Parts Location

INFOID:0000000010101345

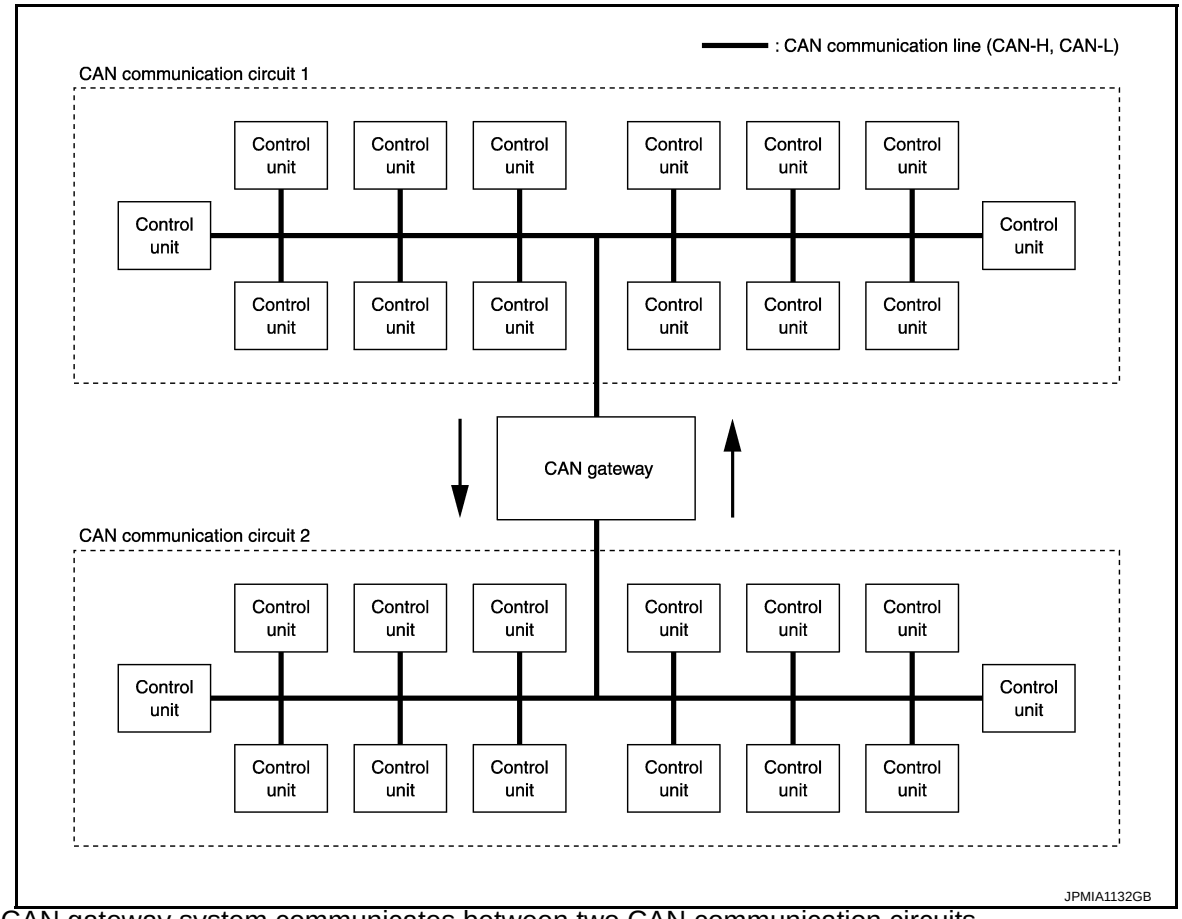



1. CAN gateway
A. Over the glove box

# SYSTEM

## System Description

INFOID:0000000010101346




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

# DIAGNOSIS SYSTEM (CAN GATEWAY)

## CONSULT Function

INFOID:0000000010101347

### APPLICATION ITEM

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

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

### SELF DIAGNOSTIC RESULT

Refer to LAN-131, "DTC Index".

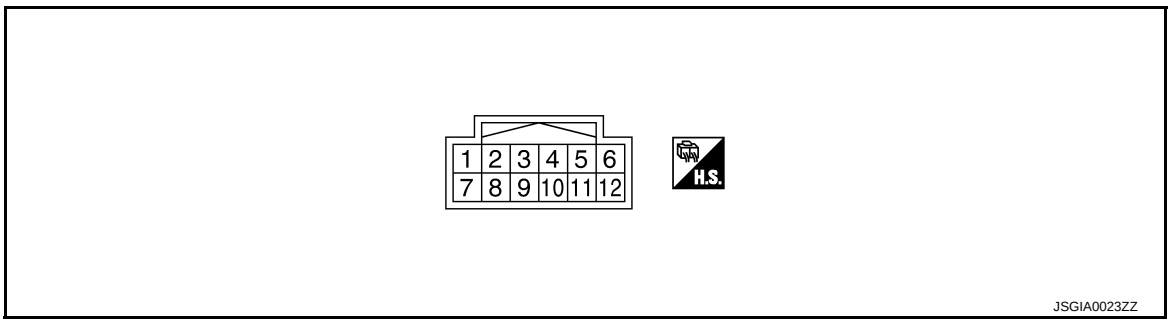
# ECU DIAGNOSIS INFORMATION

## CAN GATEWAY

### Reference Value

INFOID:0000000010101348

#### TERMINAL LAYOUT




#### PHYSICAL VALUES

| Terminal No. (Wire color) | | Description | | Condition | Value (Approx.) |
|---|---|---|---|---|---|
| + | – | Signal name | Input/ Output | | |
| 1 (L) | — | CAN-H (CAN communication circuit 1) | Input/ Output | — | — |
| 3 (GR) | Ground | Battery power supply | Input | Ignition switch OFF | Battery voltage |
| 4 (L) | — | CAN-H (CAN communication circuit 2) | Input/ Output | — | — |
| 5 (B) | Ground | Ground | — | Ignition switch ON | 0 V |
| 6 (L) | — | CAN-H (CAN communication circuit 2) | Input/ Output | — | — |
| 7 (P) | — | CAN-L (CAN communication circuit 1) | Input/ Output | — | — |
| 9 (W) | Ground | Ignition power supply | Input | Ignition switch ON | Battery voltage |
| 10 (P) | — | CAN-L (CAN communication circuit 2) | Input/ Output | — | — |
| 11 (B) | Ground | Ground | — | Ignition switch ON | 0 V |
| 12 (P) | — | CAN-L (CAN communication circuit 2) | Input/ Output | — | — |

### DTC Inspection Priority Chart

INFOID:0000000010101349

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

| Priority | DTC |
|---|---|
| 1 | • B2600: CONFIG ERROR<br>• U1010: CONTROL UNIT(CAN) |
| 2 | U1000: CAN COMM CIRCUIT |

### DTC Index

INFOID:0000000010101350

**NOTE:**

- The details of time display are as follows.
- CRNT: A malfunction is detected now
- PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame Data).
- The number is 0 when is detected now
- The number increases like 1 → 2 ··· 38 → 39 after returning to the normal condition whenever IGN OFF → ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

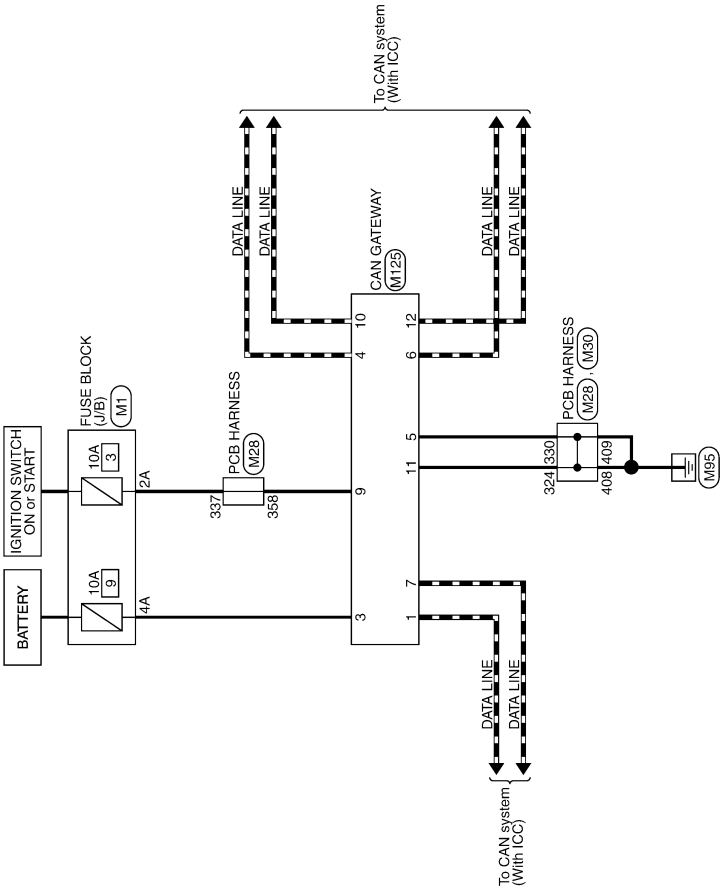
| DTC | | Reference |
|---|---|---|
| No DTC is detected.<br>Further testing may be required. | | — |
| U1000: CAN COMM CIRCUIT | | LAN-137 |
| U1010: CONTROL UNIT(CAN) | | LAN-138 |
| B2600: CONFIG ERROR | WRONG DATA | LAN-139 |
| | NOT CONFIGURED | |

# WIRING DIAGRAM

## CAN GATEWAY SYSTEM

### Wiring Diagram

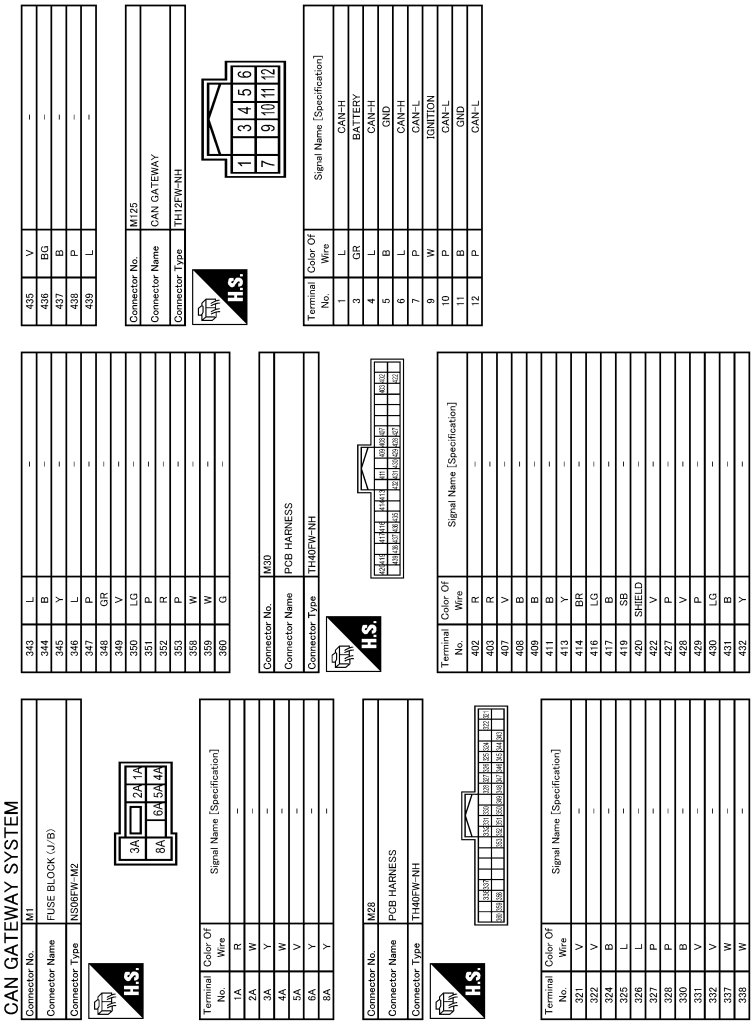
INFOID:0000000010101351




CAN GATEWAY SYSTEM

2013/10/22

JRMWE8237GB




JRMWE8238GB

# BASIC INSPECTION

## ADDITIONAL SERVICE WHEN REPLACING CAN GATEWAY

### Description

INFOID:0000000010101352

BEFORE REPLACEMENT

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

**NOTE:**

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

AFTER REPLACEMENT

**CAUTION:**

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

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

### Work Procedure

INFOID:0000000010101353

**1.** SAVING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification. Refer to LAN-136, "Description".

**NOTE:**

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

>> GO TO 2.

**2.** REPLACE CAN GATEWAY

Replace CAN gateway. Refer to LAN-141, "Removal and Installation".

>> GO TO 3.

**3.** WRITING VEHICLE SPECIFICATION

CONSULT Configuration

Perform “After Replace ECU” of “Read / Write Configuration” or “Manual Configuration” to write vehicle specification. Refer to LAN-136, "Work Procedure".

>> WORK END

# CONFIGURATION (CAN GATEWAY)

## Description

INFOID:0000000010101354

Vehicle specification needs to be written with CONSULT because it is not written after replacing CAN gateway. Configuration has three functions as follows

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

**CAUTION:**

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

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

## Work Procedure

INFOID:0000000010101355

### 1.WRITING MODE SELECTION

CONSULT Configuration

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

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

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

CONSULT Configuration

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

>> GO TO 4.

### 3.PERFORM “MANUAL CONFIGURATION”

CONSULT Configuration

1. Select “Manual Configuration”.
2. Touch “Next”.
3. Touch “OK”.
4. Check that the configuration has been successfully written and touch “End”.

>> GO TO 4.

### 4.CHECK ALL ECU SELF-DIAGNOSIS RESULTS

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

>> WORK END

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM CIRCUIT

### Description

INFOID:0000000010101356

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H and CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-34, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

### DTC Logic

INFOID:0000000010101357

#### DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|---|---|---|---|
| U1000 | CAN COMM CIRCUIT | When CAN gateway cannot communicate CAN communication signal continuously for 2 seconds or more. | CAN communication system |

### Diagnosis Procedure

INFOID:0000000010101358

#### 1.PERFORM SELF DIAGNOSTIC

1. Turn the ignition switch ON and wait for 2 seconds or more.
2. Check “Self Diagnostic Result”.

Is “U1000: CAN COMM CIRCUIT” displayed?

YES >> Refer to LAN-24, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-47, "Intermittent Incident".

# U1010 CONTROL UNIT (CAN)

## Description

INFOID:0000000010101359

CAN (Controller Area Network) is a serial communication line for real time applications. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Modern vehicle is equipped with many electronic control unit, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H and CAN-L) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.
CAN Communication Signal Chart. Refer to LAN-34, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

## DTC Logic

INFOID:0000000010101360

### DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Possible cause |
|---|---|---|---|
| U1010 | CONTROL UNIT(CAN) | When an error is detected during the initial diagnosis for CAN controller of CAN gateway. | CAN gateway |

## Diagnosis Procedure

INFOID:0000000010101361

### 1.REPLACE CAN GATEWAY

When DTC “U1010: CONTROL UNIT(CAN)” is detected, replace CAN gateway.

>> Replace CAN gateway. Refer to LAN-141, "Removal and Installation".

# B2600 CONFIG ERROR

## Description

INFOID:0000000010101362

The CAN gateway requires initial settings to judge necessary information, according to a vehicle specification.

## DTC Logic

INFOID:0000000010101363

### DTC DETECTION LOGIC

| DTC | CONSULT display description | DTC Detection Condition | Probable cause |
|---|---|---|---|
| B2600 | CONFIG ERROR<br>WRONG DATA | When errors are detected in the configuration data stored in the CAN gateway. | CAN gateway |
| | CONFIG ERROR<br>NOT CONFIGURED | When no data are stored in the CAN gateway. | |

## Diagnosis Procedure

INFOID:0000000010101364

### 1.REPLACE CAN GATEWAY

When DTC “B2600: CONFIG ERROR” is detected, replace CAN gateway.

>> Replace CAN gateway. Refer to LAN-141, "Removal and Installation".

# POWER SUPPLY AND GROUND CIRCUIT

## Diagnosis Procedure

INFOID:0000000010101365

### 1.CHECK FUSE

Check that the following fuse are not blown.

| Signal name | Fuse No. |
|---|---|
| Battery power supply | 9 |
| Ignition power supply | 3 |

Is the fuse fusing?

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

### 2.CHECK POWER SUPPLY CIRCUIT

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

| Terminals | | | Condition | Voltage (Approx.) |
|---|---|---|---|---|
| (+) | | (–) | | |
| CAN gateway | | Ground | Ignition switch | |
| Connector | Terminal | | | |
| M125 | 3 | | OFF | Battery voltage |
| | 9 | | ON | Battery voltage |

Is the measurement value normal?

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

### 3.CHECK GROUND CIRCUIT

Check continuity between CAN gateway harness connector and ground.

| CAN gateway | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| M125 | 5 | | Existed |
| | 11 | | |

Does continuity exist?

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

# REMOVAL AND INSTALLATION

## CAN GATEWAY

### Removal and Installation

INFOID:0000000010101366

**CAUTION:**
**Before replacing CAN gateway, perform “Before Replace ECU” of “Read / Write Configuration” to save or print current vehicle specification. Refer to LAN-135, "Description".**

REMOVAL

1. Remove instrument lower panel RH. Refer to IP-13, "Removal and Installation".
2. Disconnect CAN gateway connector.
3. Remove mounting screw to remove CAN gateway.

INSTALLATION

Install in the reverse order of removal.

**CAUTION:**
**To prevent malfunction, be sure to perform “After Replace ECU” of “Read / Write Configuration” or “Manual Configuration” when replacing CAN gateway. Refer to LAN-135, "Description".**

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285569

### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285570

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285571

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285572

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285573

### 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
- Harness connectors M105 and M181
4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285574

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285577

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285580

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285586

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285587

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285590

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285591

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285592

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285593

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285594

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285595

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285596

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285599

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285600

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285603

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285605

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285606

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285614

### 1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5. CHECK SYMPTOM

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

Inspection result

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

## 6. CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285623

### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285624

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285625

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285626

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285627

### 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
- Harness connectors M105 and M181
4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285628

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285629

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1
- Harness connector M6
- Harness connector E106

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

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

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair the main line between the harness connectors M7 and M6.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the BCM and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285636

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285637

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285638

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

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

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285639

### 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.

- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7

4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285640

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285641

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285642

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285643

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285644

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285645

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285646

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285647

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285648

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285649

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285651

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285652

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285653

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285654

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285657

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285658

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285659

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285660

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285661

### 1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285662

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285663

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285664

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285665

### 1.CHECK CONNECTOR

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

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285666

### 1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285667

### 1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010285669

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5.CHECK SYMPTOM

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

Inspection result

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010285670

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

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

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

Is the measurement value within the specification?

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

### 5.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285671

### 1.CHECK CAN DIAGNOSIS

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

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

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

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

### 2.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

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

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

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

Is the inspection result normal?

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

## 7.CHECK SYMPTOM

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

Inspection result

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

## 8.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285675

### 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
- Low tire pressure warning control unit
- A/C auto amp.
4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285676

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285677

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285678

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285679

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285680

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285683

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285686

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285692

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285693

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285696

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285697

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285698

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285699

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285700

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.

NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.

NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285701

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285702

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285705

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285706

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285709

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285711

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285712

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285720

### 1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5.CHECK SYMPTOM

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

Inspection result

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285727

### 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
- Low tire pressure warning control unit
- A/C auto amp.
4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285728

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285729

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285730

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285731

### 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
- Harness connectors M105 and M181
4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285732

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- Harness connectors M181 and M105
- BCM

4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285733

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1
- Harness connector M6
- Harness connector E106

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

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

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair the main line between the harness connectors M7 and M6.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the BCM and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285740

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285741

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285742

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

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

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285743

### 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.
- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7
4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285744

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285745

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285746

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285747

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

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

### 2.CHECK CONNECTOR

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

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285748

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285749

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285750

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285751

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285752

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285753

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285755

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285756

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285757

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285758

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285761

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285762

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285763

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285764

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285765

### 1.CHECK CONNECTOR

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

- ADAS control unit
- CAN gateway

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285766

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285767

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285768

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

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

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285769

### 1.CHECK CONNECTOR

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

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285770

### 1.CHECK CONNECTOR

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

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285771

### 1.CHECK CONNECTOR

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

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010285773

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5.CHECK SYMPTOM

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

Inspection result

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010285774

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

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

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

Is the measurement value within the specification?

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

### 5.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

## 6.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285775

### 1.CHECK CAN DIAGNOSIS

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

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

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

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

### 2.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

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

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

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

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

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

Is the inspection result normal?

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

## 7.CHECK SYMPTOM

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

Inspection result

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

## 8.CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285781

### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285782

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285783

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285784

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285785

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285786

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285789

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285792

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

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

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285798

### 1.CHECK CONNECTOR

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

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285799

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285802

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285803

### 1.CHECK CONNECTOR

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

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

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

Is the inspection result normal?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285804

**WARNING:**

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

### 1.CHECK CONNECTOR

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

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

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

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285806

### 1.CHECK CONNECTOR

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

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

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

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285807

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285808

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285811

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285812

### 1.CHECK CONNECTOR

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

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285813

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285815

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285817

### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

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

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285818

### 1.CHECK CONNECTOR

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

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

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

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

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

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285826

### 1.CONNECTOR INSPECTION

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

Is the inspection result normal?

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

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

- VQ37VHR

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

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

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

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

Is the measurement value within the specification?

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

## 5. CHECK SYMPTOM

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

Inspection result

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

## 6. CHECK UNIT REPRODUCTION

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

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

Inspection result

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

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285843

### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285844

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

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

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

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285845

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285846

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285847

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285848

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285851

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285892

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285860

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285861

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285864

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285865

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285866

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285867

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285868

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285869

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285870

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285873

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285874

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285875

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285877

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285879

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285880

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285888

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285897

### 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
- Low tire pressure warning control unit
- A/C auto amp.
4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285898

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285899

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285900

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285901

### 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
- Harness connectors M105 and M181
4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285902

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- Harness connectors M181 and M105
- BCM

4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND 4WD CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285904

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the AWD control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285907

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AWD control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285910

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285911

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285912

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

2. Check the continuity between the side radar RH harness connector and the harness connector.

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285913

### 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.

- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7

4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285914

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285915

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285916

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285917

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285918

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285919

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285920

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285921

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285922

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285923

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010285925

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010285926

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285927

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285928

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285929

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285931

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285932

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AFS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285933

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285934

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285935

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285936

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Pre-crash seat belt control unit (driver side)
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285937

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar LH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar LH branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285938

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar RH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285939

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285940

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285941

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-181, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010285943

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010285944

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

| CAN gateway | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 4 | 10 | Approx. 108 – 132 |
| 6 | 12 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   **NOTE:**
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285945

### 1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and CAN communication circuit 2 have no malfunction.

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

### 2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

| ICC sensor | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 3 | 6 | Approx. 108 – 132 |

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

## 7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication system.
   **NOTE:**
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010285968

#### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285969

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285970

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285971

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285972

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285973

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285976

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285979

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285985

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285986

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285989

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285990

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285991

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285992

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285993

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285994

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285995

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285998

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010285999

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286000

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286002

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286004

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286005

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286013

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010286025

### 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
- Low tire pressure warning control unit
- A/C auto amp.
4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286026

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286027

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286028

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286029

### 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
- Harness connectors M105 and M181
4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286030

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- Harness connectors M181 and M105
- BCM

4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND 4WD CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286032

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the AWD control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN 4WD AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286035

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the body harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AWD control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286038

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286039

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286040

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

2. Check the continuity between the side radar RH harness connector and the harness connector.

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286041

### 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.

- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7

4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286042

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286043

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010286044

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010286045

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286046

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286047

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286048

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# TCU BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286049

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- TCU
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of TCU.
2. Check the resistance between the TCU harness connector terminals.

| TCU harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M216 | 9 | 10 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCU. Refer to AV-395, "TCU : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the TCU. Refer to AV-404, "Removal and Installation".
YES (Past error)>>Error was detected in the TCU branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M26.
2. Check the continuity between the TCU harness connector and the harness connector.

| TCU harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M216 | 9 | M26 | 242 | Existed |
| | 10 | | 262 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the TCU harness connector M216 and the harness connector M26.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286050

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286051

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010286053

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010286054

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286055

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286056

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# 4WD BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286057

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AWD control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AWD control unit.
2. Check the resistance between the AWD control unit harness connector terminals.

| AWD control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B17 | 8 | 16 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AWD control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AWD control unit. Refer to DLN-49, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AWD control unit. Refer to DLN-61, "Removal and Installation".
YES (Past error)>>Error was detected in the AWD control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286059

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286060

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AFS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286061

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286062

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286063

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286064

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Pre-crash seat belt control unit (driver side)
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286065

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar LH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar LH branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286066

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar RH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286067

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286068

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286069

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-181, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010286071

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010286072

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

| CAN gateway | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 4 | 10 | Approx. 108 – 132 |
| 6 | 12 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   **NOTE:**
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286073

### 1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and CAN communication circuit 2 have no malfunction.

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

### 2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

| ICC sensor | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 3 | 6 | Approx. 108 – 132 |

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

## 7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication system.
   **NOTE:**
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010286082

#### 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
- Low tire pressure warning control unit
- A/C auto amp.

4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286083

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286084

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286085

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286086

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286087

### 1. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.
- ECM
- Harness connectors M181 and M105
- BCM
4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286090

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | 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 BCM and the driver seat control unit.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the harness connector B1 and the driver seat control unit.

# MAIN LINE BETWEEN ADP AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286093

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B1
- Harness connector M7
- Harness connector M6
- Harness connector E106

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors B1 and M7.
2. Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO-1 >> AWD models: Replace the body harness.
NO-2 >> 2WD models: Repair the main line between the driver seat control unit and the harness connector B1.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M7 and M6.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.

YES (Past error)>>Error was detected in the main line between the driver seat control unit and the ABS actuator and electric unit (control unit).

NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286099

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286100

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286103

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286104

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286105

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286107

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.

NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.

NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286108

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286109

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit.
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286112

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286113

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286116

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286118

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286119

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# CAN COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286127

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication system.
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication system.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# DTC/CIRCUIT DIAGNOSIS

## MAIN LINE BETWEEN TPMS AND HVAC CIRCUIT

### Diagnosis Procedure

INFOID:0000000010286144

### 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
- Low tire pressure warning control unit
- A/C auto amp.
4. Check the continuity between the low tire pressure warning control unit harness connector and the A/C auto amp. harness connector.

| Low tire pressure warning control unit harness connector | | A/C auto amp. harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M66 | 12 | Existed |
| | 1 | | 11 | 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 low tire pressure warning control unit and the A/C auto amp.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN HVAC AND A-BAG CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286145

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the A/C auto amp. and the air bag diagnosis sensor unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN A-BAG AND AV CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286146

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- A/C auto amp.
- AV control unit

4. Check the continuity between the A/C auto amp. harness connector and the AV control unit harness connector.

- Models with navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M210 | 90 | Existed |
| | 11 | | 74 | Existed |

- Models without navigation system

| A/C auto amp. harness connector | | AV control unit harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M84 | 81 | Existed |
| | 11 | | 80 | 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 AV control unit.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN AV AND M&A CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286147

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- AV control unit
- Combination meter

4. Check the continuity between the AV control unit harness connector and the combination meter harness connector.

- Models with navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M53 | 14 | Existed |
| | 74 | | 15 | Existed |

- Models without navigation system

| AV control unit harness connector | | Combination meter harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M53 | 14 | Existed |
| | 80 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the AV control unit and the combination meter.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN M&A AND DLC CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286148

### 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
- Harness connectors M105 and M181

4. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M105 | 7 | Existed |
| | 15 | | 8 | 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 data link connector.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286149

### 1.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect the following harness connectors.

- ECM
- Harness connectors M181 and M105
- BCM

4. Check the continuity between the harness connector and the BCM harness connector.

| Harness connector | | BCM harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M105 | 7 | M120 | 39 | Existed |
| | 8 | | 40 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the data link connector and the BCM.
NO >> Replace the PCB harness.

# MAIN LINE BETWEEN BCM AND ABS CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286150

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1
- Harness connector M6
- Harness connector E106

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.

- BCM
- Harness connector M20

2. Check the continuity between the BCM harness connector and the PCB harness connector.

| BCM harness connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M120 | 39 | 35 | Existed |
| | 40 | 36 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 35 | M7 | 72 | Existed |
| | 36 | | 73 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 72 | 74 | Existed |
| | 73 | 75 | Existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Repair the main line between the harness connector terminals.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M6 and E106.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M7 | 74 | M6 | 22 | Existed |
| | 75 | | 23 | Existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Repair the main line between the harness connectors M7 and M6.

## 6. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the continuity between the harness connector and the ABS actuator and electric unit (control unit) harness connector.

| Harness connector | | ABS actuator and electric unit (control unit) harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E106 | 22 | E41 | 25 | Existed |
| | 23 | | 15 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the BCM and the ABS actuator and electric unit (control unit).
NO >> Repair the main line between the harness connector E106 and the ABS actuator and electric unit (control unit).

# MAIN LINE BETWEEN DLC AND ADP CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286157

### 1.CHECK CONNECTOR

1. Turn the ignition 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 M20 and PCB harness side connector
- Harness connector M7
- Harness connector B1

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the data link connector and the PCB harness connector.

| Data link connector | | PCB harness connector | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | Terminal No. | |
| M182 | 13 | 24 | Existed |
| | 12 | 27 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Replace the PCB harness.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M7 and B1.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M20 | 24 | M7 | 34 | Existed |
| | 27 | | 35 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M20 and M7.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

Check the continuity between the harness connector terminals.

| Connector No. | Terminal No. | | Continuity |
|---|---|---|---|
| B1 | 34 | 32 | Existed |
| | 35 | 33 | 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 driver seat control unit.
NO >> Replace the body harness.

# MAIN LINE BETWEEN RDR-L AND RDR-R CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286158

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B33
- Harness connector B245

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.

- Side radar LH
- Harness connectors B33 and B245

2. Check the continuity between the side radar LH harness connector and the harness connector.

| Side radar LH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B52 | 4 | B33 | 13 | Existed |
| | 3 | | 14 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar LH and the harness connector B33.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of side radar RH.
2. Check the continuity between the harness connector and the side radar RH harness connector.

| Harness connector | | Side radar RH harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B245 | 13 | B252 | 4 | Existed |
| | 14 | | 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 side radar LH and the side radar RH.
NO >> Repair the main line between the harness connector B245 and the side radar RH.

# MAIN LINE BETWEEN RDR-R AND APA CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286159

### 1.CHECK CONNECTOR

1. Turn the ignition 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 B201
- Harness connector M117
- Harness connector M20 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.

- Side radar RH
- Harness connectors B201 and M117

2. Check the continuity between the side radar RH harness connector and the harness connector.

| Side radar RH harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B252 | 4 | B201 | 66 | Existed |
| | 3 | | 67 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the main line between the side radar RH and the harness connector B201.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M20.
2. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M117 | 66 | M20 | 38 | Existed |
| | 67 | | 40 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Repair the main line between the harness connectors M117 and M20.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connectors M150 and M151.
2. Check the continuity between the PCB harness connector and the harness connector.

| PCB harness connector | Harness connector | | Continuity |
|---|---|---|---|
| Terminal No. | Connector No. | Terminal No. | |
| 38 | M150 | 11 | Existed |
| 40 | | 10 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the side radar RH and the accelerator pedal actuator.

NO >> Replace the PCB harness.

# MAIN LINE BETWEEN APA AND LANE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286160

### 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.
- ADAS control unit
- Harness connectors M151 and M150
- Harness connectors M110 and R7
4. Check the continuity between the harness connectors.

| Harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M150 | 11 | M110 | 13 | Existed |
| | 10 | | 2 | Existed |

Is the inspection result normal?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the main line between the accelerator pedal actuator and the lane camera unit.
NO >> Replace the PCB harness.

# ECM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286161

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ECM
- Harness connector M30 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
2. Check the resistance between the ECM harness connector terminals.

- VQ37VHR

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M107 | 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M160 | 146 | 151 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to the following.

- VQ37VHR for USA and Canada: EC-200, "Diagnosis Procedure"
- VQ37VHR for Mexico: EC-713, "Diagnosis Procedure"
- VK56VD for USA and Canada: EC-1166, "Diagnosis Procedure"
- VK56VD for Mexico: EC-1744, "Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to the following.
- VQ37VHR for USA and Canada: EC-557, "Removal and Installation"
- VQ37VHR for Mexico: EC-974, "Removal and Installation"
- VK56VD for USA and Canada: EC-1566, "Removal and Installation"
- VK56VD for Mexico: EC-2033, "Removal and Installation"

YES (Past error)>>Error was detected in the ECM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M30.
2. Check the continuity between the ECM harness connector and the harness connector.

- VQ37VHR

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |

| | | | | |
|---|---|---|---|---|
| M107 | 114 | M30 | 439 | Existed |
| | 113 | | 438 | Existed |

- VK56VD

| ECM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M160 | 146 | M30 | 439 | Existed |
| | 151 | | 438 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (VQ37VHR)>>Repair the harness between the ECM harness connector M107 and the harness connector M30.
NO (VK56VD)>>Repair the harness between the ECM harness connector M160 and the harness connector M30.

# TPMS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286162

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Low tire pressure warning control unit
- Harness connector M29 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of low tire pressure warning control unit.
2. Check the resistance between the low tire pressure warning control unit harness connector terminals.

| Low tire pressure warning control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M43 | 2 | 1 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the low tire pressure warning control unit. Refer to WT-52, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the low tire pressure warning control unit. Refer to WT-67, "Removal and Installation".
YES (Past error)>>Error was detected in the low tire pressure warning control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M29.
2. Check the continuity between the low tire pressure warning control unit harness connector and the harness connector.

| Low tire pressure warning control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M43 | 2 | M29 | 396 | Existed |
| | 1 | | 395 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the low tire pressure warning control unit harness connector M43 and the harness connector M29.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010286163

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of CAN gateway.
2. Check the resistance between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 1 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 1 | M28 | 326 | Existed |
| | 7 | | 328 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M28.

# CGW BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010286164

### 1.CHECK DTC

Check DTC of the CAN gateway with CONSULT.

Is U1010 or B2600 indicated?

YES >> Perform a diagnosis of the indicated DTC.
NO >> GO TO 2.

### 2.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- CAN gateway
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> GO TO 5.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the CAN gateway. Refer to LAN-140, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the CAN gateway. Refer to LAN-141, "Removal and Installation".
YES (Past error)>>Error was detected in the CAN gateway branch line (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the CAN gateway harness connector and the harness connector.

| CAN gateway harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M125 | 4 | M23 | 133 | Existed |
| | 10 | | 135 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the CAN gateway harness connector M125 and the harness connector M23.

# HVAC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286165

### 1.CHECK CONNECTOR

1. Turn the ignition 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.
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/C auto amp.
2. Check the resistance between the A/C auto amp. harness connector terminals.

| A/C auto amp. harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M66 | 12 | 11 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to HAC-145, "A/C AUTO AMP. : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to HAC-175, "Removal and Installation".
YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/C auto amp. harness connector and the harness connector.

| A/C auto amp. harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M66 | 12 | M28 | 325 | Existed |
| | 11 | | 327 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/C auto amp. harness connector M66 and the harness connector M28.

# TCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286166

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- A/T assembly
- Harness connector F103
- Harness connector M116
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of A/T assembly.
2. Check the resistance between the A/T assembly harness connector terminals.

| A/T assembly harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| F61 | 3 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 5.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Remove the joint connector. Refer to TM-191, "Exploded View".
2. Check the continuity between the A/T assembly harness connector side and the TCM harness connector side of the joint connector.

| A/T assembly harness connector side | TCM harness connector side | Continuity |
|---|---|---|
| Terminal No. | Terminal No. | |
| 3 | 3 | Existed |
| 8 | 8 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the joint connector.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the TCM. Refer to TM-158, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the control valve & TCM. Refer to TM-191, "Exploded View".
YES (Past error)>>Error was detected in the TCM branch line.
NO >> Repair the power supply and the ground circuit.

### 5.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the A/T assembly harness connector and the harness connector.

| A/T assembly harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| F61 | 3 | M28 | 346 | Existed |
| | 8 | | 347 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the A/T assembly harness connector F61 and the harness connector M28.

# A-BAG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286167

**WARNING:**

- **Before servicing, turn ignition switch OFF, disconnect battery negative terminal, and wait 3 minutes or more. (To discharge backup capacitor.)**
- **Never use unspecified tester or other measuring device.**

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Air bag diagnosis sensor unit
- Harness connector M26 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the main harness and/or the PCB harness.

### 2.CHECK AIR BAG DIAGNOSIS SENSOR UNIT

Check the air bag diagnosis sensor unit. Refer to SRC-33, "Work Flow".

Is the inspection result normal?

YES >> Replace the main harness and/or the PCB harness.
NO >> Replace parts whose air bag system has a malfunction.

# AV BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286169

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- AV control unit
- Harness connector M25 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AV control unit.
2. Check the resistance between the AV control unit harness connector terminals.

- Models with navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M210 | 90 | 74 | Approx. 54 – 66 |

- Models without navigation system

| AV control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M84 | 81 | 80 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AV control unit. Refer to the following.

- Base audio without navigation system: AV-92, "AV CONTROL UNIT : Diagnosis Procedure"
- BOSE audio with navigation system: AV-278, "AV CONTROL UNIT : Diagnosis Procedure"

Is the inspection result normal?

YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio without navigation system: AV-124, "Removal and Installation"
- BOSE audio with navigation system: AV-305, "Removal and Installation"

YES (Past error)>>Error was detected in the AV control unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M25.
2. Check the continuity between the AV control unit harness connector and the harness connector.

- Models with navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M210 | 90 | M25 | 201 | Existed |
| | 74 | | 221 | Existed |

- Models without navigation system

| AV control unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M84 | 81 | M25 | 201 | Existed |
| | 80 | | 221 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO (With navigation system)>>Repair the harness between the AV control unit harness connector M210 and the harness connector M25.
NO (Without navigation system)>>Repair the harness between the AV control unit harness connector M84 and the harness connector M25.

# M&A BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286170

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Combination meter
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of combination meter.
2. Check the resistance between the combination meter harness connector terminals.

| Combination meter harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M53 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to MWI-92, "Removal and Installation".
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the combination meter harness connector and the harness connector.

| Combination meter harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M53 | 14 | M24 | 176 | Existed |
| | 15 | | 177 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the combination meter harness connector M53 and the harness connector M24.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 1)

## Diagnosis Procedure

INFOID:0000000010286172

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 1 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 6 | M23 | 151 | Existed |
| | 14 | | 150 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# DLC BRANCH LINE CIRCUIT (CAN COMMUNICATION CIRCUIT 2)

## Diagnosis Procedure

INFOID:0000000010286173

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Data link connector
- Harness connector M181
- Harness connector M105
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

| Data link connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES (Present error)>>Check CAN system type decision again.
YES (Past error)>>Error was detected in the data link connector branch line circuit (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".
NO >> GO TO 3.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the data link connector and the harness connector.

| Data link connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M182 | 13 | M23 | 140 | Existed |
| | 12 | | 139 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the data link connector M182 and the harness connector M23.

# BCM BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286174

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- BCM
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of BCM.
2. Check the resistance between the BCM harness connector terminals.

| BCM harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M120 | 39 | 40 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to BCS-83, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the BCM. Refer to BCS-90, "Removal and Installation".
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the BCM harness connector and the harness connector.

| BCM harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M120 | 39 | M22 | 101 | Existed |
| | 40 | | 102 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the BCM harness connector M120 and the harness connector M22.

# STRG BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286175

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Steering angle sensor
- Harness connector M22 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of steering angle sensor.
2. Check the resistance between the steering angle sensor harness connector terminals.

| Steering angle sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M37 | 1 | 2 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to BRC-54, "Wiring Diagram".

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to BRC-153, "Removal and Installation".
YES (Past error)>>Error was detected in the steering angle sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M22.
2. Check the continuity between the steering angle sensor harness connector and the harness connector.

| Steering angle sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M37 | 1 | M22 | 81 | Existed |
| | 2 | | 82 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the steering angle sensor harness connector M37 and the harness connector M22.

# ABS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286178

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ABS actuator and electric unit (control unit) for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ABS actuator and electric unit (control unit).
2. Check the resistance between the ABS actuator and electric unit (control unit) harness connector terminals.

| ABS actuator and electric unit (control unit) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E41 | 25 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the ABS actuator and electric unit (control unit) branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ABS actuator and electric unit (control unit). Refer to BRC-128, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to BRC-150, "Removal and Installation".
YES (Past error)>>Error was detected in the ABS actuator and electric unit (control unit) branch line.
NO >> Repair the power supply and the ground circuit.

# AFS BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286179

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the AFS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of AFS control unit.
2. Check the resistance between the AFS control unit harness connector terminals.

| AFS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E104 | 30 | 7 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the AFS control unit branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the AFS control unit. Refer to EXL-90, "AFS CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the AFS control unit. Refer to EXL-131, "Removal and Installation".
YES (Past error)>>Error was detected in the AFS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# IPDM-E BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286180

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the IPDM E/R for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of IPDM E/R.
2. Check the resistance between the IPDM E/R harness connector terminals.

| IPDM E/R harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E6 | 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the IPDM E/R branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to PCS-34, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the IPDM E/R. Refer to PCS-35, "Removal and Installation".
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

# ADP BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286181

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Driver seat control unit
- Harness connector B501
- Harness connector B11
- CAN gateway (With ICC system)

Is the inspection result normal?

YES (With ICC system)>>GO TO 2.
YES (Without ICC system)>>GO TO 3.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway. (With ICC system)
2. Disconnect the connector of driver seat control unit.
3. Check the resistance between the driver seat control unit harness connector terminals.

| Driver seat control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B514 | 23 | 24 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the driver seat control unit branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to ADP-72, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the driver seat control unit. Refer to ADP-145, "Removal and Installation".
YES (Past error)>>Error was detected in the driver seat control unit branch line.
NO >> Repair the power supply and the ground circuit.

# ICC BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286182

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ADAS control unit
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of ADAS control unit.
3. Check the resistance between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 14 | 15 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ADAS control unit. Refer to DAS-67, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ADAS control unit. Refer to DAS-68, "Removal and Installation".
YES (Past error)>>Error was detected in the ADAS control unit branch line.
NO >> Repair the power supply and the ground circuit.

# PSB BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286183

### 1.CHECK CONNECTOR

1. Turn the ignition 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).

- Pre-crash seat belt control unit (driver side)
- CAN gateway

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the connector of CAN gateway.
2. Check the continuity between the CAN gateway harness connector terminals.

| CAN gateway harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M125 | 4 | 6 | Existed |
| | 10 | 12 | Existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line is open) the root cause (CAN communication circuit 2 side). Refer to LAN-67, "System Diagram".

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Connect the connector of CAN gateway.
2. Disconnect the connector of pre-crash seat belt control unit (driver side).
3. Check the resistance between the pre-crash seat belt control unit (driver side) harness connector terminals.

| Pre-crash seat belt control unit (driver side) harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B9 | 14 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the pre-crash seat belt control unit (driver side) branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the pre-crash seat belt control unit (driver side). Refer to SBC-51, "Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the seat belt pre-tensioner retractor (driver side). Refer to SB-7, "SEAT BELT RETRACTOR : Removal and Installation".
YES (Past error)>>Error was detected in the pre-crash seat belt control unit (driver side) branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-L BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286184

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar LH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar LH.
2. Check the resistance between the side radar LH harness connector terminals.

| Side radar LH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B52 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> Repair the side radar LH branch line.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar LH. Refer to DAS-578, "SIDE RADAR LH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar LH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar LH branch line.
NO >> Repair the power supply and the ground circuit.

# RDR-R BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286185

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the side radar RH for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK RIGHT/LEFT SWITCHING SIGNAL CIRCUIT

Check the right/left switching signal circuit of the side radar RH. Refer to DAS-581, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the root cause.

### 3.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of side radar RH.
2. Check the resistance between the side radar RH harness connector terminals.

| Side radar RH harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B252 | 4 | 3 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 4.
NO >> Repair the side radar RH branch line.

### 4.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the side radar RH. Refer to DAS-579, "SIDE RADAR RH : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the side radar RH. Refer to DAS-595, "Removal and Installation".
YES (Past error)>>Error was detected in the side radar RH branch line.
NO >> Repair the power supply and the ground circuit.

# APA BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286186

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Accelerator pedal actuator
- Harness connector M151
- Harness connector M150
- Harness connector M23 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of accelerator pedal actuator.
2. Check the resistance between the accelerator pedal actuator harness connector terminals.

| Accelerator pedal actuator harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M152 | 5 | 4 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the accelerator pedal actuator. Refer to DAS-205, "ACCELERATOR PEDAL ACTUATOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the accelerator pedal assembly. Refer to ACC-4, "MODELS WITH DISTANCE CONTROL ASSIST SYSTEM : Removal and Installation".
YES (Past error)>>Error was detected in the accelerator pedal actuator branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M23.
2. Check the continuity between the accelerator pedal actuator harness connector and the harness connector.

| Accelerator pedal actuator harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| M152 | 5 | M23 | 138 | Existed |
| | 4 | | 137 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the accelerator pedal actuator harness connector M152 and the harness connector M23.

# LANE BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286187

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- Lane camera unit
- Harness connector R7
- Harness connector M110
- Harness connector M24 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of lane camera unit.
2. Check the resistance between the lane camera unit harness connector terminals.

| Lane camera unit harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| R8 | 4 | 8 | Approx. 54 – 66 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the lane camera unit. Refer to DAS-409, "LANE CAMERA UNIT : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the lane camera unit. Refer to DAS-425, "Removal and Installation".
YES (Past error)>>Error was detected in the lane camera unit branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M24.
2. Check the continuity between the lane camera unit harness connector and the harness connector.

| Lane camera unit harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| R8 | 4 | M24 | 179 | Existed |
| | 8 | | 178 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the lane camera unit harness connector R8 and the harness connector M24.

# LASER BRANCH LINE CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286188

### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).

- ICC sensor
- Harness connector E106
- Harness connector M6
- Harness connector M28 and PCB harness side connector

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ICC sensor.
2. Check the resistance between the ICC sensor harness connector terminals.

| ICC sensor harness connector | | | Resistance (Ω) |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| E67 | 3 | 6 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 3.
NO >> GO TO 4.

### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ICC sensor. Refer to CCS-163, "ICC SENSOR : Diagnosis Procedure".

Is the inspection result normal?

YES (Present error)>>Replace the ICC sensor. Refer to CCS-181, "Removal and Installation".
YES (Past error)>>Error was detected in the ICC sensor branch line.
NO >> Repair the power supply and the ground circuit.

### 4.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the harness connector M28.
2. Check the continuity between the ICC sensor harness connector and the harness connector.

| ICC sensor harness connector | | Harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| E67 | 3 | M28 | 343 | Existed |
| | 6 | | 345 | Existed |

Is the inspection result normal?

YES >> Replace the PCB harness.
NO >> Repair the harness between the ICC sensor harness connector E67 and the harness connector M28.

# CAN COMMUNICATION CIRCUIT 1

## Diagnosis Procedure

INFOID:0000000010286190

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 1.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | 14 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 6 | | Not existed |
| | 14 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.

- VQ37VHR

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 114 | 113 | Approx. 108 – 132 |

- VK56VD

| ECM | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 146 | 151 | Approx. 108 – 132 |

3. Check the resistance between the IPDM E/R terminals.

| IPDM E/R | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 40 | 39 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 1.
   **NOTE:**
   ECM and IPDM E/R have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# CAN COMMUNICATION CIRCUIT 2

## Diagnosis Procedure

INFOID:0000000010286191

### 1.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect all the unit connectors on CAN communication circuit 2.
   **NOTE:**
   For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".
4. Check terminals and connectors for damage, bend and loose connection.

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair the terminal and connector.

### 2.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector terminals.

| Data link connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | 12 | Not existed |

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the data link connector and the ground.

| Data link connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| M182 | 13 | | Not existed |
| | 12 | | Not existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 4.CHECK CAN GATEWAY TERMINATION CIRCUIT

1. Remove the CAN gateway.
2. Check the resistance between the CAN gateway terminals.

| CAN gateway | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 4 | 10 | Approx. 108 – 132 |
| 6 | 12 | Approx. 108 – 132 |

Is the measurement value within the specification?

YES >> GO TO 5.
NO >> Replace the CAN gateway.

### 5.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 6.

Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 6.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of CAN communication circuit 2.
   **NOTE:**
   CAN gateway has two termination circuits. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.

# ITS COMMUNICATION CIRCUIT

## Diagnosis Procedure

INFOID:0000000010286192

### 1.CHECK CAN DIAGNOSIS

Check the CAN diagnosis results from CONSULT to see that the CAN communication circuit 1 and CAN communication circuit 2 have no malfunction.

**NOTE:**

For identification of CAN communication circuit 1, CAN communication circuit 2, and ITS communication circuit, refer to LAN-67, "System Diagram".

Are the CAN communication 1 and CAN communication 2 circuits normal?

YES >> GO TO 2.
NO >> Check and repair CAN communication circuit 1 and/or CAN communication circuit 2.

### 2.CONNECTOR INSPECTION

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the ADAS control unit for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair the terminal and connector.

### 3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

1. Disconnect the following harness connectors.
- ADAS control unit
- ICC sensor
2. Check the continuity between the ADAS control unit harness connector and the ICC sensor harness connector.

| ADAS control unit harness connector | | ICC sensor harness connector | | Continuity |
|---|---|---|---|---|
| Connector No. | Terminal No. | Connector No. | Terminal No. | |
| B50 | 7 | E67 | 3 | Existed |
| | 8 | | 6 | Existed |

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace the body harness.

### 4.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

1. Disconnect the following harness connectors.
- Side radar LH
- Side radar RH
- Accelerator pedal actuator
- Lane camera unit
2. Check the continuity between the ADAS control unit harness connector terminals.

| ADAS control unit harness connector | | | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | 8 | Not existed |

Is the inspection result normal?

YES >> GO TO 5.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

### 5.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

Check the continuity between the ADAS control unit harness connector and the ground.

| ADAS control unit harness connector | | Ground | Continuity |
|---|---|---|---|
| Connector No. | Terminal No. | | |
| B50 | 7 | | Not existed |
| | 8 | | Not existed |

Is the inspection result normal?

YES >> GO TO 6.
NO >> Check the harness and repair or replace (if shield line or PCB harness is short) the root cause.

## 6.CHECK TERMINATION CIRCUIT

1. Remove the ADAS control unit and the ICC sensor.
2. Check the resistance between the ADAS control unit terminals.

| ADAS control unit | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 7 | 8 | Approx. 108 – 132 |

3. Check the resistance between the ICC sensor terminals.

| ICC sensor | | Resistance (Ω) |
|---|---|---|
| Terminal No. | | |
| 3 | 6 | Approx. 108 – 132 |

Is the inspection result normal?

YES >> GO TO 7.
NO >> Replace the ADAS control unit and/or the ICC sensor.

## 7.CHECK SYMPTOM

Connect all the connectors. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.

Inspection result

Reproduced>>GO TO 8.
Non-reproduced>>Start the diagnosis again. Follow the trouble diagnosis procedure when past error is detected.

## 8.CHECK UNIT REPRODUCTION

Perform the reproduction test as per the following procedure for each unit.

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Disconnect one of the unit connectors of ITS communication system.
   **NOTE:**
   ADAS control unit and ICC sensor have a termination circuit. Check other units first.
4. Connect the battery cable to the negative terminal. Check if the symptoms described in the “Symptom (Results from interview with customer)” are reproduced.
   **NOTE:**
   Although unit-related error symptoms occur, do not confuse them with other symptoms.

Inspection result

Reproduced>>Connect the connector. Check other units as per the above procedure.
Non-reproduced>>Replace the unit whose connector was disconnected.