

SECTION

LAN

LAN SYSTEM

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PRECAUTION

PRECAUTIONS

Precautions for Trouble Diagnosis

INFOID:000000003767663

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.

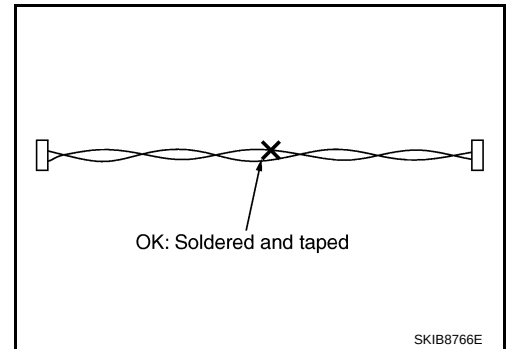
Precautions for Harness Repair

INFOID:000000003767664

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

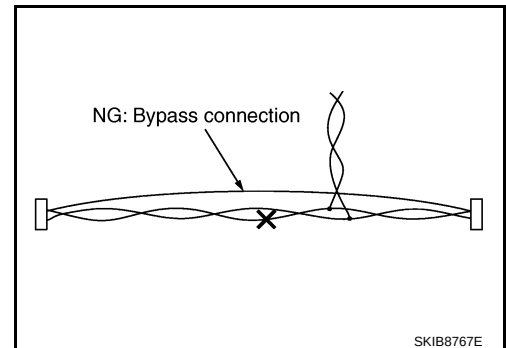
A fray of twisted lines must be within 110 mm (4.33 in).



- 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.

FUNCTION DIAGNOSIS

CAN COMMUNICATION SYSTEM

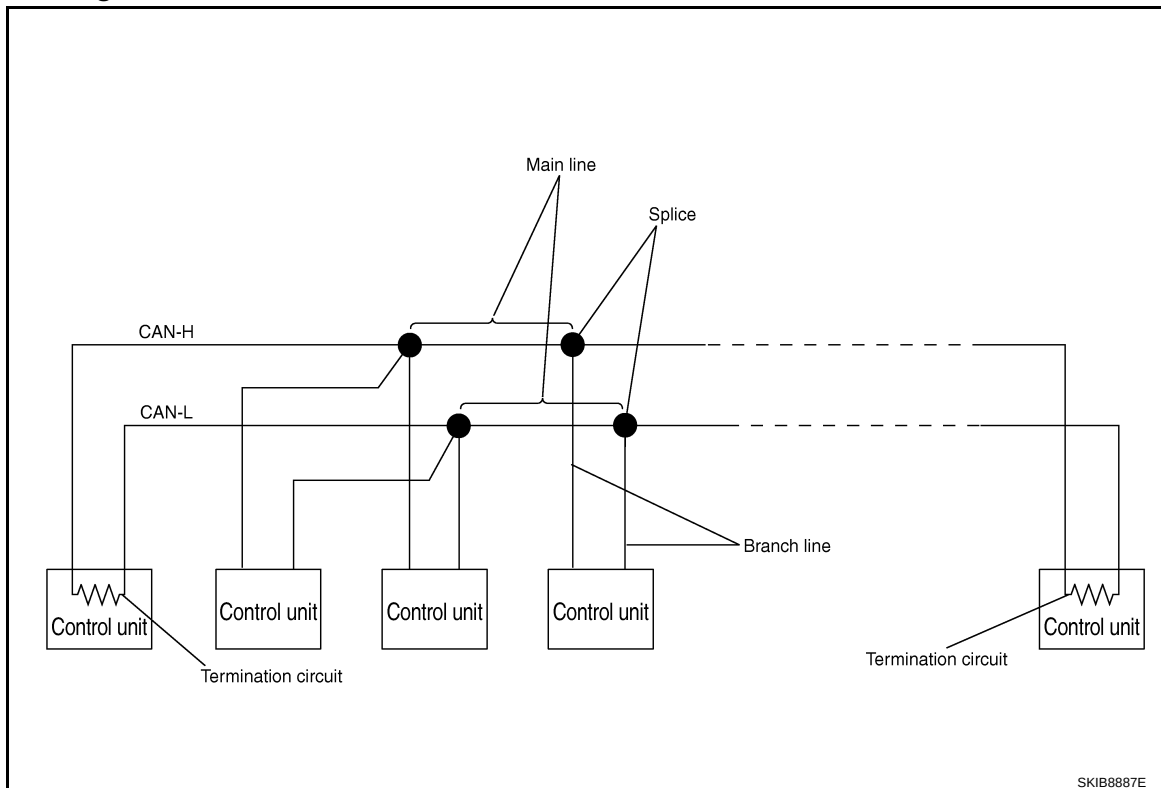
System Description

INFOID:000000003767665

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

System Diagram

INFOID:000000003767666



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-6, "CAN Communication Control Circuit" .

LAN

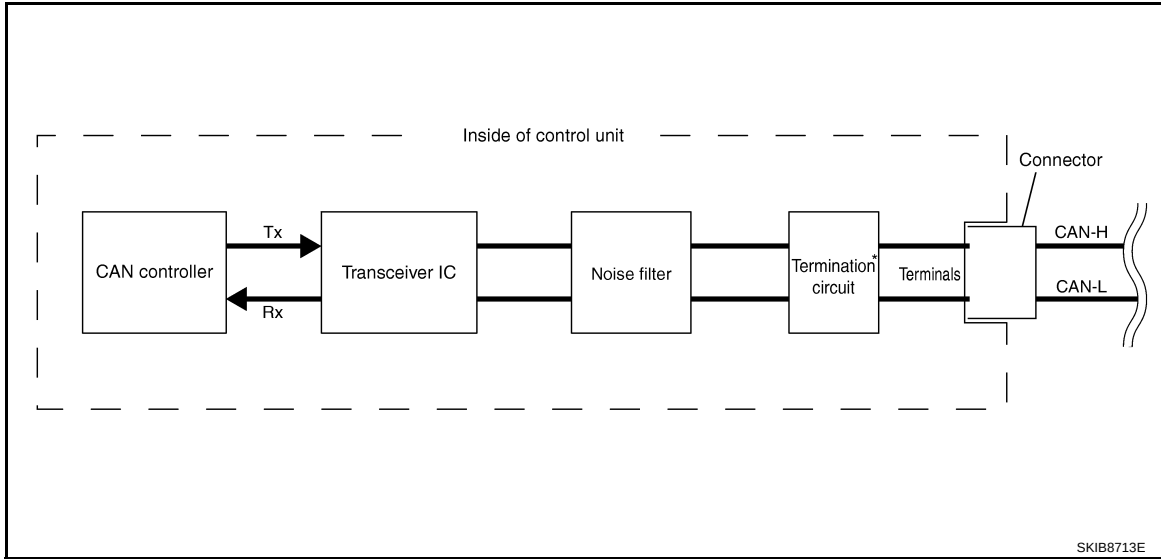
CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

CAN Communication Control Circuit

INFOID:000000003767667



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

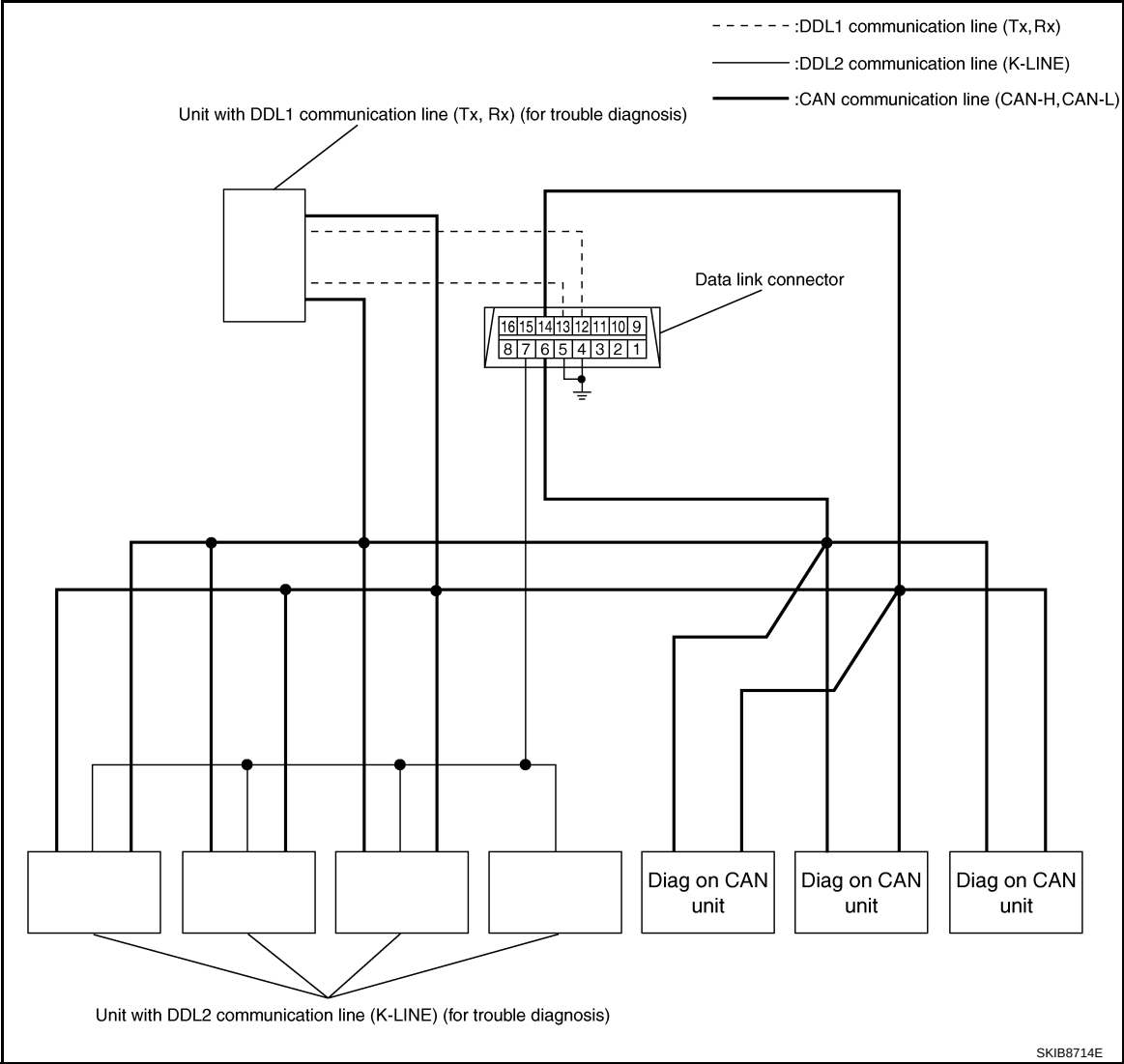
Description

INFOID:000000003767668

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

System Diagram

INFOID:000000003767669



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

TROUBLE DIAGNOSIS

Condition of Error Detection

INFOID:000000003767670

“U1000” or “U1001” is indicated on SELF-DIAG RESULTS on CONSULT-III if 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 “U1000” OR “U1001” IS INDICATED EVEN THOUGH CAN COMMUNICATION SYSTEM IS NORMAL

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

NOTE:

CAN communication system is normal if “U1000” or “U1001” is indicated on SELF-DIAG RESULTS of CONSULT-III under the above conditions. Erase the memory of the self-diagnosis of each unit.

Symptom When Error Occurs in CAN Communication System

INFOID:000000003767671

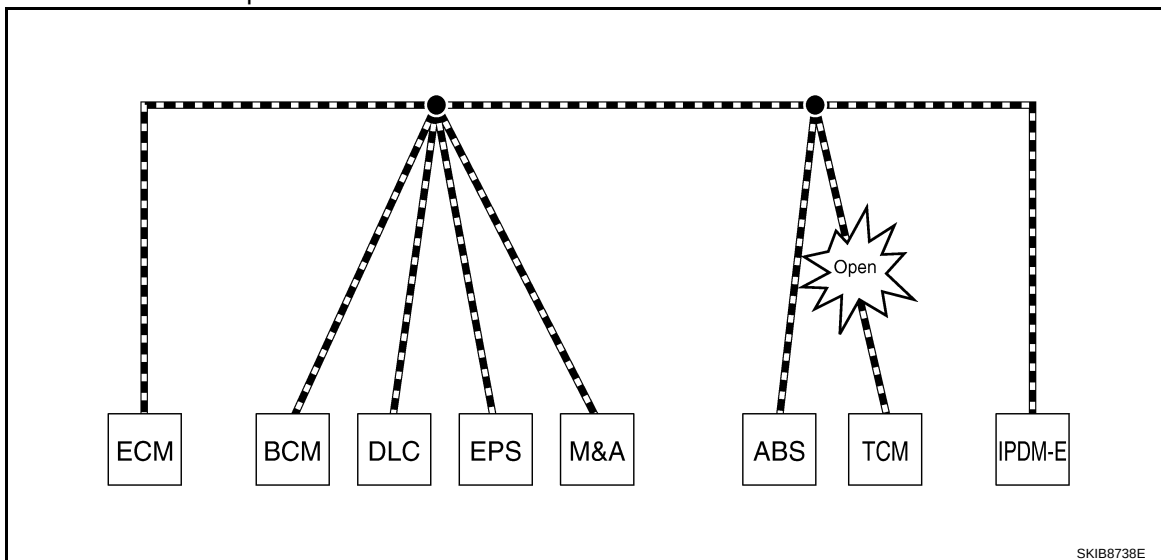
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

ERROR EXAMPLE

NOTE:

- Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.
- Refer to [LAN-19, "Abbreviation List"](#) for the unit abbreviation.

Example: TCM branch line open circuit



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

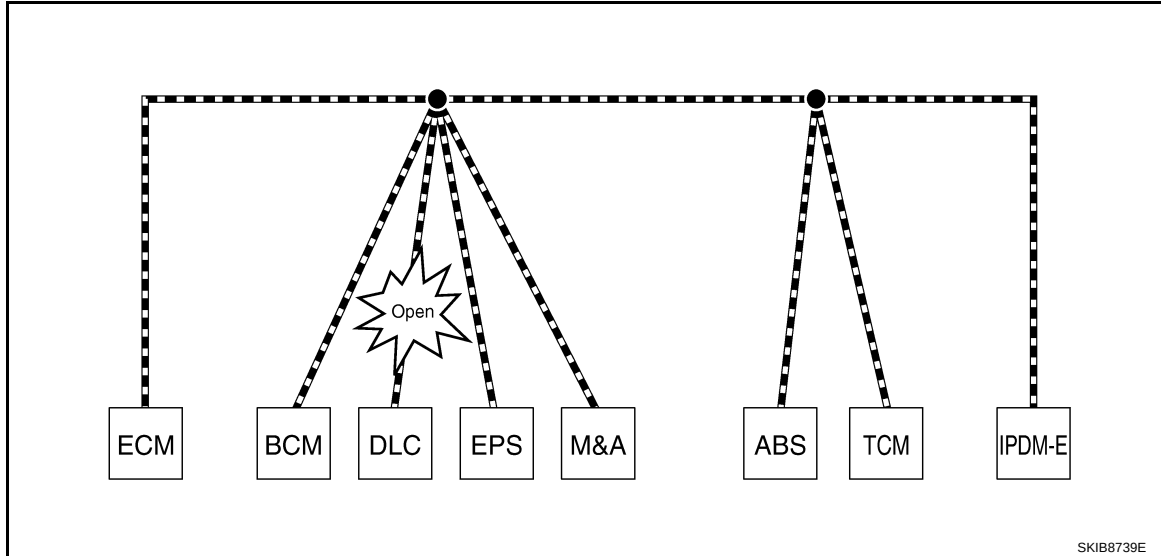
TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

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

Example: Data link connector branch line open circuit



Unit name	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-III if the following error occurs. The error is judged by the symptom.

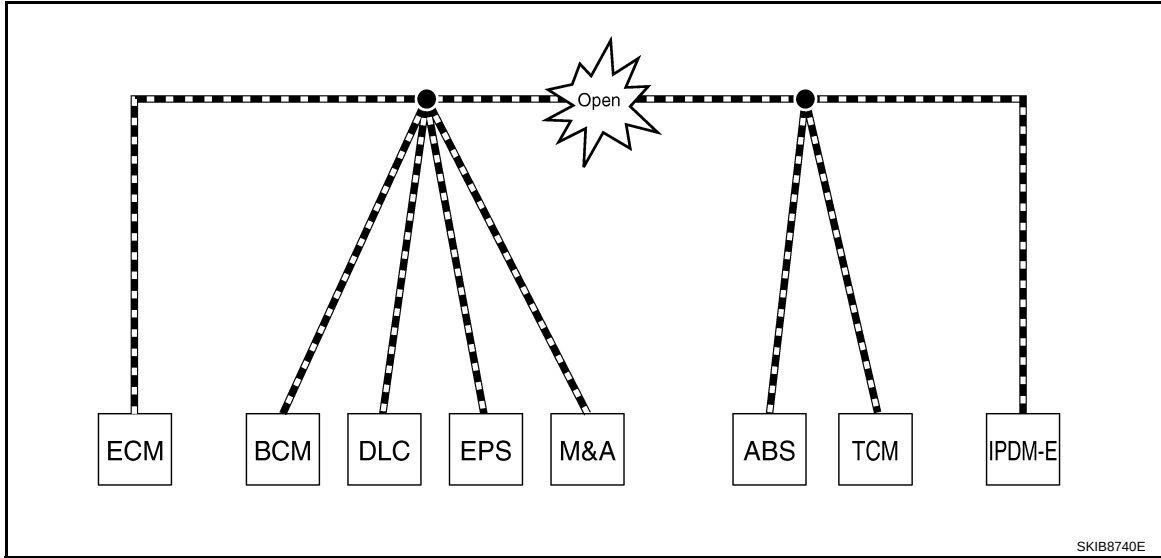
Error	Difference of symptom
Data link connector branch line open circuit	Normal operation.
CAN-H, CAN-L harness short-circuit	Most of the units which are connected to the CAN communication system enter fail-safe mode or are deactivated.

TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

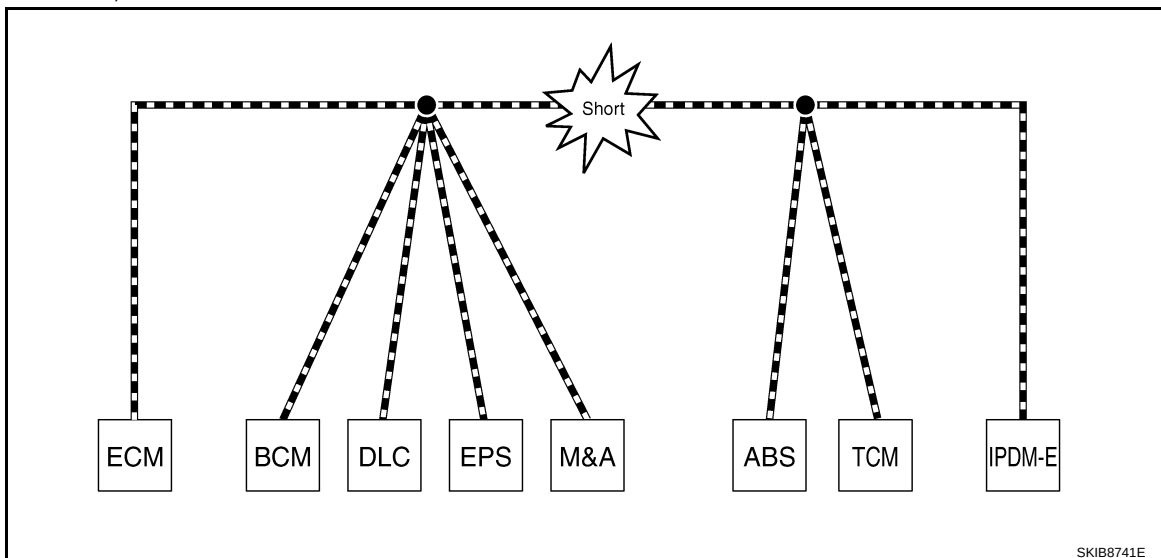
[CAN FUNDAMENTAL]

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



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

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



TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

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

CAN Diagnosis with CONSULT-III

INFOID:0000000003767672

CAN diagnosis on CONSULT-III 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:0000000003767673

DTC	Self-diagnosis item (CONSULT-III indication)	DTC detection condition	Inspection/Action
U1000	CAN COMM CIRCUIT	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.
		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.	
P0607	ECM		

CAN Diagnostic Support Monitor

INFOID:0000000003767674

MONITOR ITEM (CONSULT-III)

TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Example: CAN DIAG SUPPORT MNTR indication

Without PAST			With PAST		
ECM			ECM		
	PRSENT	PAST		PRSENT	PAST
INITIAL DIAG	OK		TRANSMIT DIAG	OK	OK
TRANSMIT DIAG	OK		VDC/TCS/ABS	-	-
TCM	OK		METER/M&A	OK	OK
VDC/TCS/ABS	UNKWN		BCM/SEC	OK	OK
METER/M&A	OK		ICC	-	-
ICC	UNKWN		HVAC	-	-
BCM/SEC	OK		TCM	OK	OK
IPDM E/R	OK		EPS	-	-
			IPDM E/R	OK	OK
			e4WD	-	-
			AWD/4WD	OK	OK

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Without PAST

Item	PRSENT	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	PRSENT	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.
	-	-	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.

TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

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:000000003767675

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).

CAN-H, CAN-L

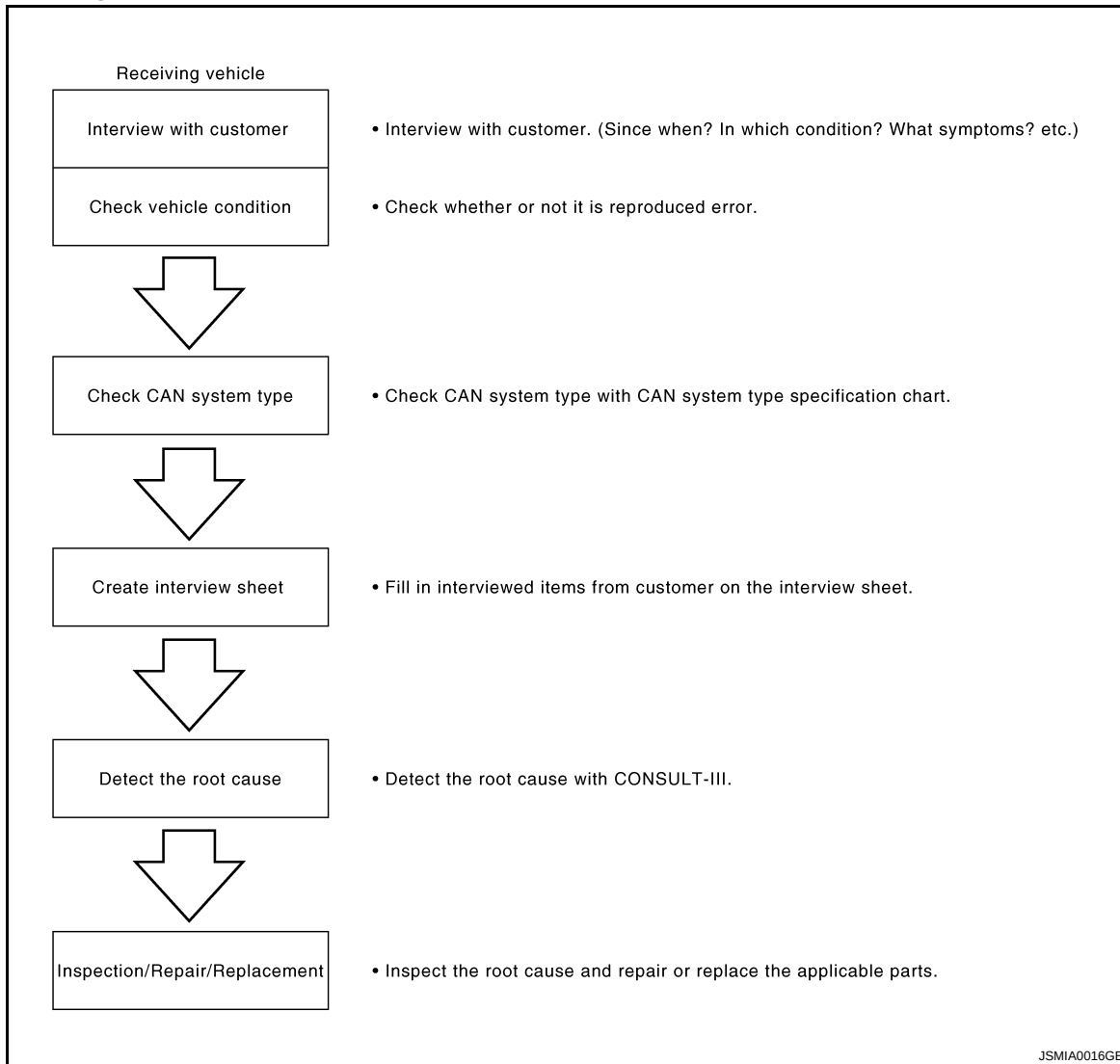
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

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Trouble Diagnosis Procedure

INFOID:000000003767677

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:

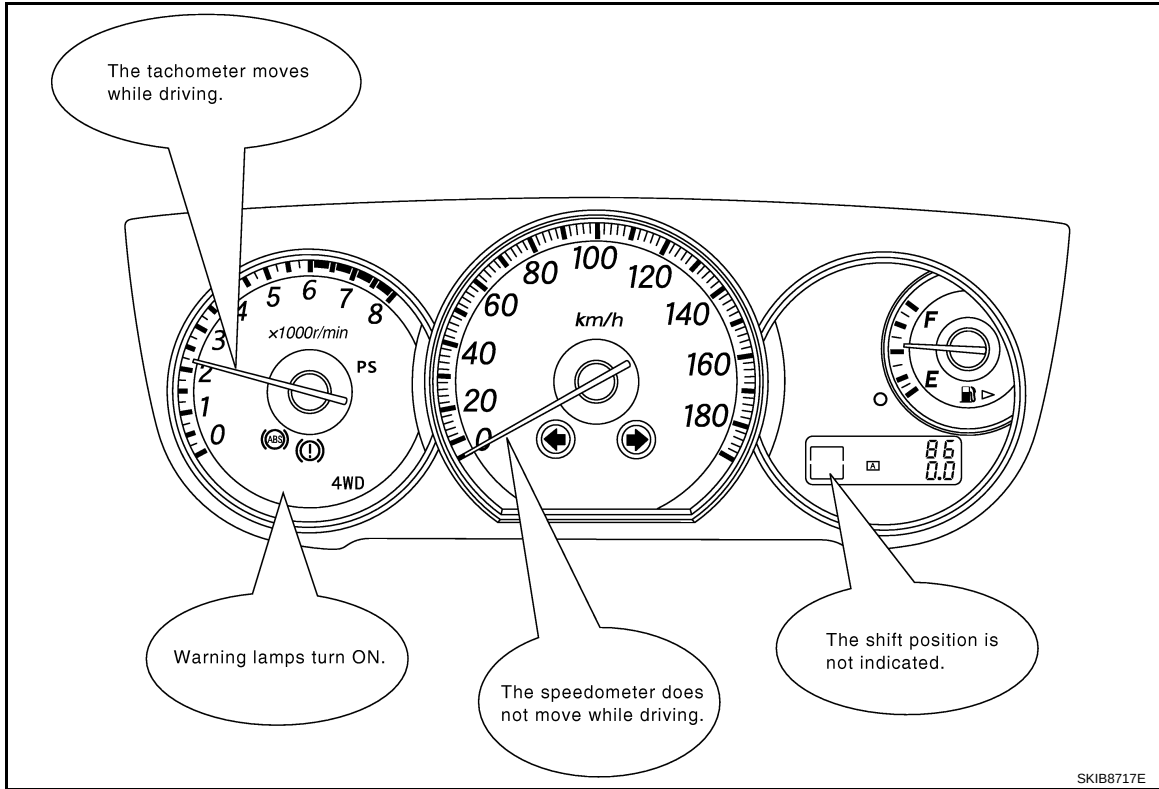
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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



INSPECTION OF VEHICLE CONDITION

Check whether the symptom is reproduced or not.

NOTE:

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

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

Determine CAN system type based on vehicle equipment.

NOTE:

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

CAN System Type Specification Chart (Style A)

NOTE:

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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

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

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

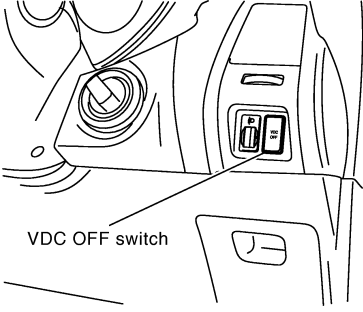
Body type	Wagon					
Axle	2WD			AWD		
Engine	QR25DE			VQ35DE		
Transmission	A/T			CVT		
Brake control	ABS			VDC		
Intelligent Key system		X		X		X
CAN system type	1	2	3	4	5	6
CAN communication signal chart	XX-XX. "TYPE 1/TYPE 2"		XX-XX. "TYPE 3/TYPE 4"		XX-XX. "TYPE 5/TYPE 6"	

X : Applicable

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

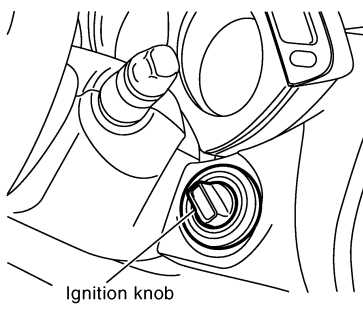
VEHICLE EQUIPMENT IDENTIFICATION INFORMATION
NOTE:
Check CAN system type from the vehicle shape and equipment.

With VDC



VDC OFF switch

With Intelligent Key system



Ignition knob

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".

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CAN System Type Specification Chart (Style B)

NOTE:

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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

Example:

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

CAN System Specification Chart

Refer to the specification as shown in the chart.

Body type	Sedan		
Engine	HR15DE	MR20DE	HR15DE
Transmission	A/T	CVT	A/T
Brake control	ABS		
Specification chart	XXX SPECIFICATION CHART A	YYY SPECIFICATION CHART B	XXX SPECIFICATION CHART C

x: Applicable

Check the vehicle equipment with the vehicle identification number plate.

Check the vehicle equipment.

Select the applicable vehicle equipment. Refer to the specification chart.

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		x			x	x			x	x		x
Intelligent Key system			x		x		x	x	x	x	x	x
Navigation system				x		x	x		x		x	x
Automatic drive positioner								x		x	x	x
CAN system type	9	10	11	12	13	14	15	16	17	18	19	20
CAN communication signal chart	XX XX TYPE W/INTELLIGENT KEY SYSTEM 12TYPE 13TYPE 14TYPE 15TYPE 16TYPE 17TYPE 18TYPE 19TYPE 20TYPE TYPE 18TYPE 19TYPE 20											

x: Applicable

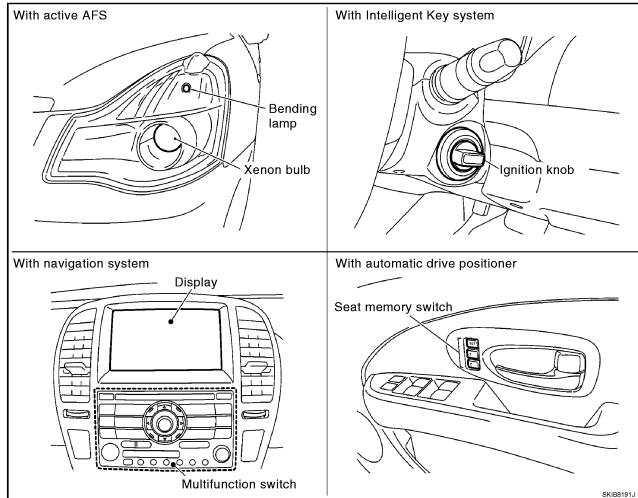
Check the vehicle equipment.

The number indicates the CAN system type of the vehicle.

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



In the above example,

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

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

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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.

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DETECT THE ROOT CAUSE

CAN diagnosis function of CONSULT-III detects the root cause.

HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Caution

INFOID:0000000003767678

- This section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to [LAN-14, "Trouble Diagnosis Procedure"](#).

Abbreviation List

INFOID:0000000003767679

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

Abbreviation	Unit name
ABS	ABS actuator and electric unit (control unit)
ADP	Driver seat control unit
AV	AV control unit
BCM	BCM
DLC	Data link connector
ECM	ECM
HVAC	A/C auto amp.
IPDM-E	IPDM E/R
M&A	Combination meter
STRG	Steering angle sensor
TCM	TCM

PRECAUTION

PRECAUTIONS

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

INFOID:000000003850219

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the "SRS AIRBAG".
- 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 for Trouble Diagnosis

INFOID:000000003767681

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.

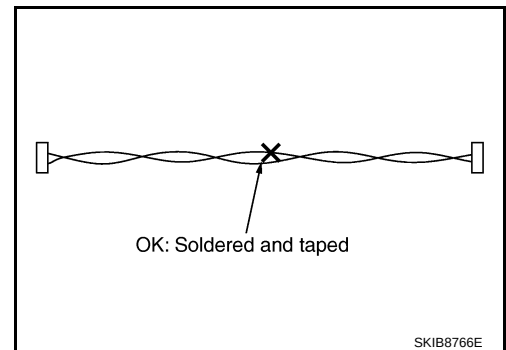
Precautions for Harness Repair

INFOID:000000003767682

- Solder the repaired area and wrap tape around the soldered area.

NOTE:

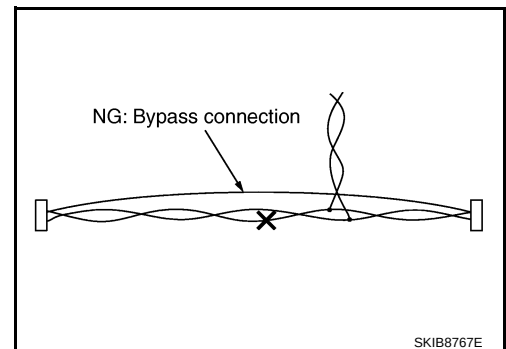
A fray of twisted lines must be within 110 mm (4.33 in).



- 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.

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

INFOID:000000003767683

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

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FUNCTION DIAGNOSIS

CAN COMMUNICATION SYSTEM

CAN System Specification Chart

INFOID:000000003767684

Determine CAN system type from the following specification chart.

NOTE:

Refer to [LAN-14, "Trouble Diagnosis Procedure"](#) for how to use CAN system specification chart.

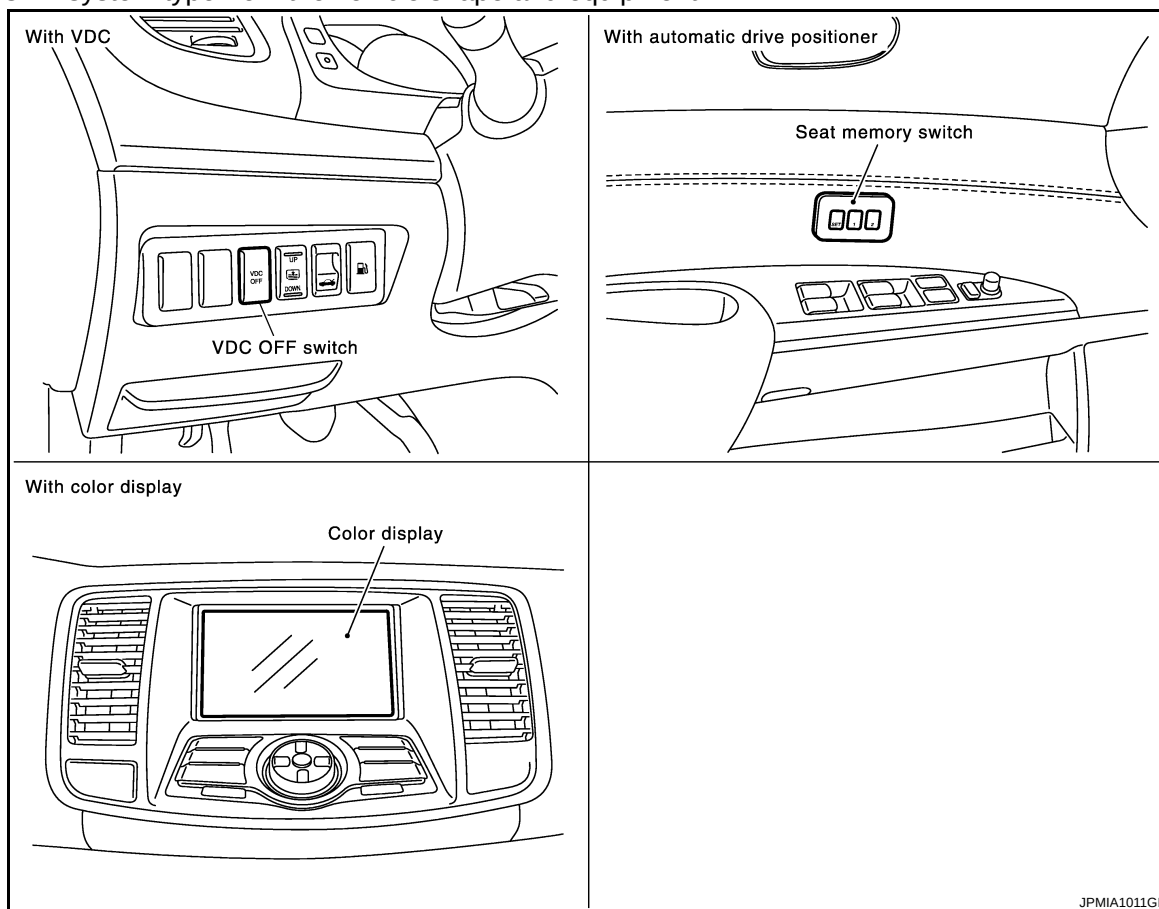
Body type	Sedan			
Axle	2WD			
Engine	VQ25DE			VQ35DE
Transmission	CVT			
Brake control	ABS	VDC		
Automatic drive positioner			×	×
Color display		×	×	×
CAN system type	2	4	6	9
Start CAN Diagnosis (CONSULT-III)	2	4	6	9

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



CAN Communication Signal Chart

INFOID:000000003767685

Refer to [LAN-13, "How to Use CAN Communication Signal Chart"](#) for how to use CAN communication signal chart.

CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

NOTE:

Refer to [LAN-19, "Abbreviation List"](#) for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	ADP	AV	HVAC	M&A	STRG	BCM	ABS	TCM	IPDM-E
A/C compressor request signal	T									R
Accelerator pedal position signal	T							R	R	
ASCD CRUISE indicator signal	T				R					
ASCD operation signal	T								R	
ASCD SET indicator signal	T				R					
Closed throttle position signal	T								R	
Cooling fan speed request signal	T									R
Engine and CVT integrated control signal	T								R	
	R								T	
Engine coolant temperature signal	T				R					
Engine speed signal	T				R			R	R	
Engine status signal	T		R				R			
Fuel consumption monitor signal	T		R							
Malfunctioning indicator lamp signal	T				R					
Power generation command value signal	T									R
System setting signal		T	R							
		R	T				R			
			R				T			
Rear window defogger switch signal			T				R			
A/C switch signal	R			T			T			
Blower fan motor switch signal	R			T			T			
Distance to empty signal			R		T					
Fuel level low warning signal			R		T					
Sleep-ready signal					T		R			
							R			T
Sport mode switch signal					T				R	
Vehicle speed signal		R	R		T		R		R	R
	R	R			R		R	T		
Wake up signal					T		R			
Steering angle sensor signal						T		R		
Buzzer output signal					R		T			
Door switch signal		R	R		R		T			R
Door unlock signal		R					T			
Front fog light request signal					R		T			R
Front wiper request signal							T			R
Headlamp washer request signal							T			R
High beam request signal					R		T			R
Hood switch signal							T			R
Horn reminder signal							T			R
Ignition switch ON signal							T			R
							R			T

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CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	ADP	AV	HVAC	M&A	STRG	BCM	ABS	TCM	IPDM-E
Ignition switch signal		R					T			
Interlock/PNP switch signal							T			R
							R			T
Key ID signal		R					T			
Key switch signal		R					T			
Key warning lamp signal					R		T			
Low beam request signal							T			R
Meter display signal					R		T			
Oil pressure switch signal					R		T			
							R			T
Position light request signal					R		T			R
Rear fog lamp status signal					R		T			
Rear window defogger control signal							T			R
	R		R				R			T
Sleep wake up signal		R			R		T			R
Starter control relay signal							T			R
Starter relay status signal							R			T
							T			R
Starting mode signal		R					T			
Steering lock relay signal							T			R
							R			T
Stop lamp switch signal							T		R	
Theft warning horn request signal							T			R
Trunk switch signal			R		R		T			
ABS operation signal								T	R	
ABS warning lamp signal					R			T		
Brake warning lamp signal					R			T		
SLIP indicator lamp signal					R			T		
VDC OFF indicator lamp signal					R			T		
CVT position indicator signal					R		R	R	T	
CVT self-diagnosis signal	R								T	
Input shaft revolution signal	R								T	
N range signal							R		T	
Output shaft revolution signal	R								T	
P range signal		R					R	R	T	
Shift position signal					R			R	T	
Sport mode indicator signal					R				T	
A/C compressor feedback signal				R						T
Control device (detention switch) signal		R					R			T
Front wiper stop position signal							R			T
High beam status signal	R									T
Low beam status signal	R									T

CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	ADP	AV	HVAC	M&A	STRG	BCM	ABS	TCM	IPDM-E
Push-button ignition switch status signal							R			T
Steering lock unit status signal							R			T

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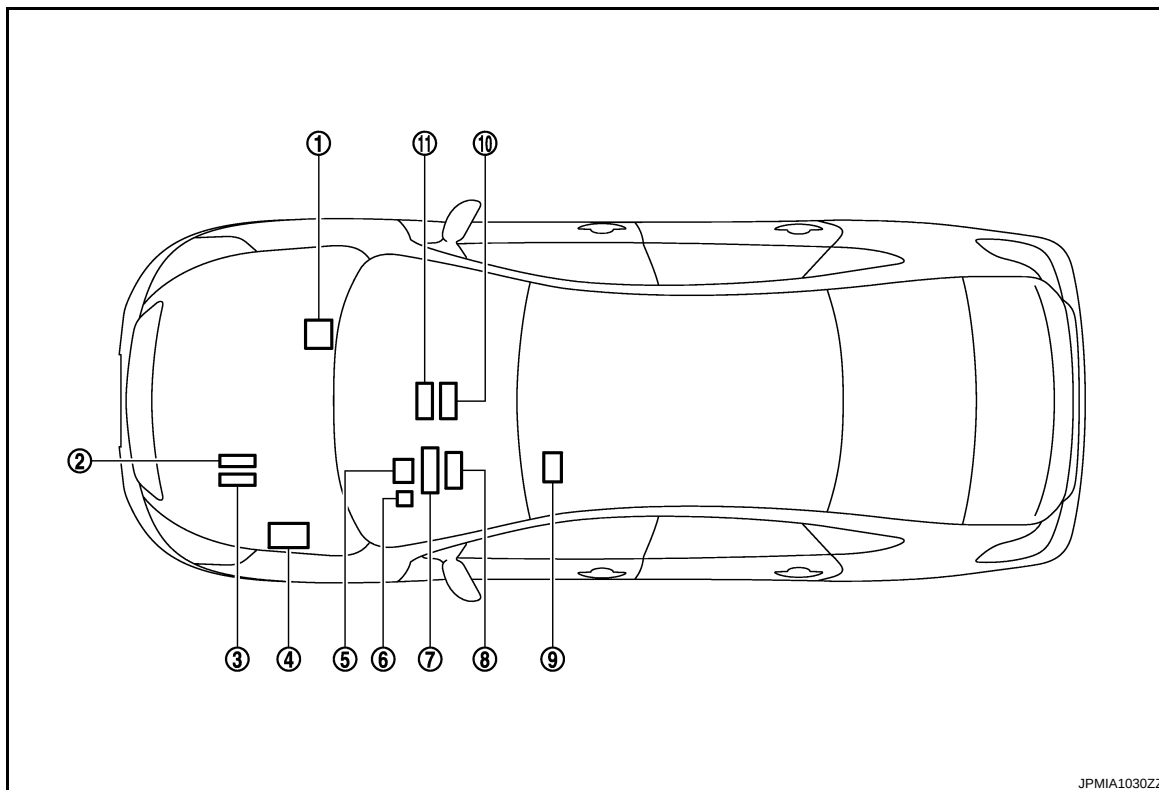
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COMPONENT DIAGNOSIS

CAN COMMUNICATION SYSTEM

Component Parts Location

INFOID:000000003767686



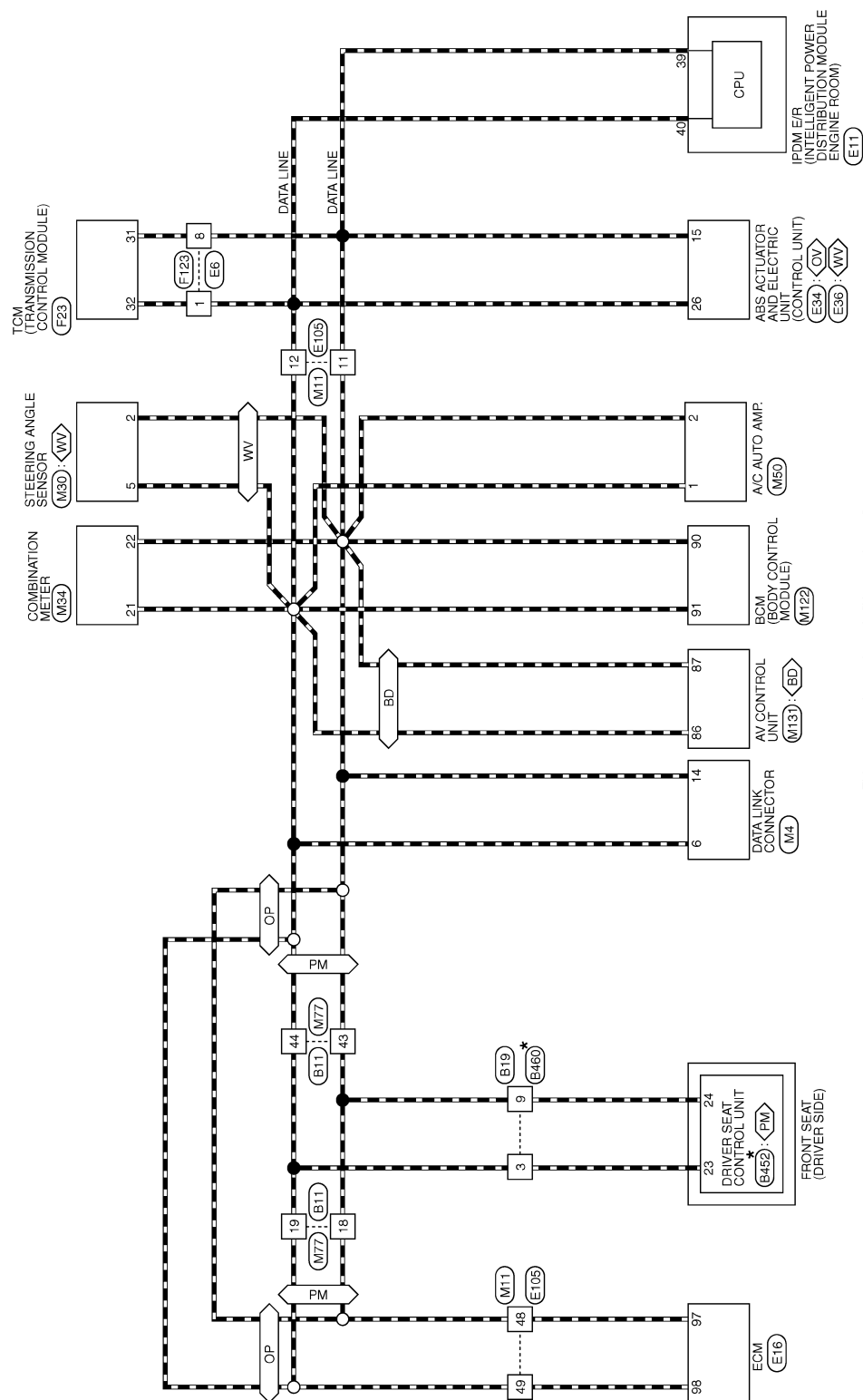
- | | | |
|--|------------------------------|----------------------------------|
| 1. ABS actuator and electric unit (control unit)
With ABS: E34
With VDC: E36 | 2. TCM F23 | 3. ECM E16 |
| 4. IPDM E/R E11 | 5. BCM M122 | 6. Data link connector M4 |
| 7. Combination meter M34 | 8. Steering angle sensor M30 | 9. Driver seat control unit B452 |
| 10. A/C auto amp. M50 | 11. AV control unit M131 | |

[CAN]

Wiring Diagram - CAN SYSTEM -

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BD : With BOSE system or base audio and display system
PM : With automatic drive positioner
OP : Without automatic drive positioner
WW : With VDC
OV : Without VDC



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

2008/06/20

JCMWA2460GE

CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

CAN SYSTEM

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



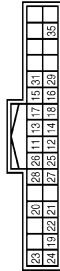
Terminal No.	Color of Wire	Signal Name [Specification]
18	P	-
19	L	-
43	P	-
44	L	-

Connector No.	B19
Connector Name	WIRE TO WIRE
Connector Type	NS10FW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
3	L	-
9	P	-

Connector No.	B452
Connector Name	DRIVER SEAT CONTROL UNIT
Connector Type	TH22FW



Terminal No.	Color of Wire	Signal Name [Specification]
23	P	CAN-H
24	P/L	CAN-L

Connector No.	B460
Connector Name	WIRE TO WIRE
Connector Type	NS10MW-CS



Terminal No.	Color of Wire	Signal Name [Specification]
3	P	-
9	P/L	-

Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	TK16MGY-IV



Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
8	P	-

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



Terminal No.	Color of Wire	Signal Name [Specification]
39	P	-
40	L	-

Connector No.	E16
Connector Name	ECM
Connector Type	RH24FB-RZ8-L-LH



Terminal No.	Color of Wire	Signal Name [Specification]
97	P	VEHCAN-L
98	L	VEHCAN-H

Connector No.	E34
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITHOUT VDC)
Connector Type	BAA22FB-AH24-RH



Terminal No.	Color of Wire	Signal Name [Specification]
15	P	CAN(-)
26	L	CAN(+)

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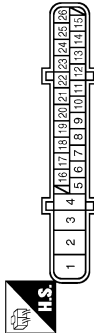
CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

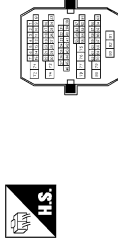
CAN SYSTEM

Connector No.	E06
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITH VDC)
Connector Type	BA22FE-APZ4-RH



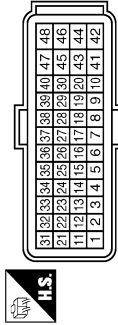
Terminal No.	Color of Wire	Signal Name [Specification]
15	P	CAN-L(VRS)
26	L	CAN-H(VRS)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH70MH-CS10-M3



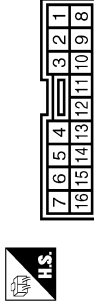
Terminal No.	Color of Wire	Signal Name [Specification]
11	P	-
12	L	-
48	P	-
49	L	-

Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	FA4FE-RZ8-L-RH



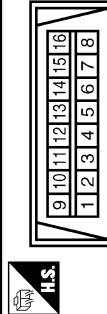
Terminal No.	Color of Wire	Signal Name [Specification]
31	P	CAN-L
32	L	CAN-H

Connector No.	F123
Connector Name	WIRE TO WIRE
Connector Type	TK16FY-TV



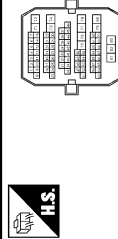
Terminal No.	Color of Wire	Signal Name [Specification]
1	L	-
8	P	-

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



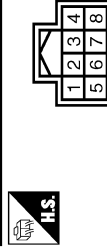
Terminal No.	Color of Wire	Signal Name [Specification]
6	L	-
14	P	-

Connector No.	M11
Connector Name	WIRE TO WIRE
Connector Type	TH70FW-CS10-M3



Terminal No.	Color of Wire	Signal Name [Specification]
11	P	-
12	L	-
48	P	-
49	L	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH8FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
2	P	-
5	L	-

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



Terminal No.	Color of Wire	Signal Name [Specification]
21	L	CAN-H
22	P	CAN-L

CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

CAN SYSTEM

Connector No.	M50
Connector Name	A/C AUTO AMP.
Connector Type	SAB40FW



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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Terminal No.	Color of Wire	Signal Name [Specification]
1	L	CAN-H
2	P	CAN-L

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



Terminal No.	Color of Wire	Signal Name [Specification]
18	P	-
19	L	-
43	P	-
44	L	-

Connector No.	M122
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	TH40FB-NH



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
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Terminal No.	Color of Wire	Signal Name [Specification]
90	P	CAN-L
91	L	CAN-H

Connector No.	M131
Connector Name	AV CONTROL UNIT
Connector Type	TH32FW-NH



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

Terminal No.	Color of Wire	Signal Name [Specification]
86	L	CAN-H
87	P	CAN-L

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MALFUNCTION AREA CHART

< COMPONENT DIAGNOSIS >

[CAN]

MALFUNCTION AREA CHART

Main Line

INFOID:000000003767688

Malfunction Area	Reference
Main line between driver seat control unit and data link connector	LAN-32. "Diagnosis Procedure"
Main line between data link connector and BCM	LAN-33. "Diagnosis Procedure"
Main line between BCM and ABS actuator and electric unit (control unit)	LAN-34. "Diagnosis Procedure"

Branch Line

INFOID:000000003767689

Malfunction Area	Reference
ECM branch line circuit	LAN-35. "Diagnosis Procedure"
Driver seat control unit branch line circuit	LAN-36. "Diagnosis Procedure"
Data link connector branch line circuit	LAN-37. "Diagnosis Procedure"
AV control unit branch line circuit	LAN-38. "Diagnosis Procedure"
BCM branch line circuit	LAN-39. "Diagnosis Procedure"
A/C auto amp. branch line circuit	LAN-40. "Diagnosis Procedure"
Combination meter branch line circuit	LAN-41. "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-42. "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-43. "Diagnosis Procedure"
TCM branch line circuit	LAN-44. "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-45. "Diagnosis Procedure"

Short Circuit

INFOID:000000003767690

Malfunction Area	Reference
CAN communication circuit	LAN-46. "Diagnosis Procedure"

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MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN ADP AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000003767691

1.CHECK CONNECTOR

1. Turn the ignition 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 B11
 - Harness connector M77

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 B11 and M77.
2. Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B11	19	44	Existed
	18	43	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the driver seat control unit and the harness connector B11.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	44	M4	6	Existed
	43		14	Existed

Is the inspection result normal?

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

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

NO >> Repair the main line between the harness connector M77 and the data link connector.

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000003767692

INSPECTION PROCEDURE

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

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M122	91	Existed
	14		90	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 >> Repair the main line between the data link connector and the BCM.

LAN

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

Diagnosis Procedure

INFOID:000000003767693

1.CHECK CONNECTOR

1. Turn the ignition 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 M11
 - Harness connector E105

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 connectors M11 and E105
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.	
M122	91	M11	12	Existed
	90		11	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the BCM and the harness connector M11.

3.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.
 - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E34	26	Existed
	11		15	Existed

- Models with VDC

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E36	26	Existed
	11		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 E105 and the ABS actuator and electric unit (control unit).

ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767694

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
 - Harness connector M11
 - Harness connector M77 (Models with automatic drive positioner)
 - Harness connector B11 (Models with automatic drive positioner)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	98	97	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-132. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-14. "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

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

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

LAN

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767695

1.CHECK CONNECTOR

1. Turn the ignition 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 B460
 - Harness connector B19

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B452	23	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-45, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-136, "Exploded View"](#).

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

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

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767705

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	86	87	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio and display system: [AV-82, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio without navigation: [AV-236, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio with navigation: [AV-464, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

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

- Base audio and display system: [AV-170, "Exploded View"](#)
- BOSE audio without navigation: [AV-378, "Exploded View"](#)
- BOSE audio with navigation: [AV-648, "Exploded View"](#)

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

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

LAN

HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767696

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to the following.

- Without color display: [HAC-65, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- With color display: [HAC-191, "A/C AUTO AMP. : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to the following.

- Without color display: [VTL-23, "Exploded View"](#)
- With color display: [VTL-80, "Exploded View"](#)

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

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

M&A BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767697

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-126, "Exploded View"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

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STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767698

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

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

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-136, "Wiring Diagram - BRAKE CONTROL SYSTEM -"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-157, "Exploded View"](#).

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

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

BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767699

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M122	91	90	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-78, "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

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DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767700

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767701

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.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	26	15	Approx. 54 – 66

- Models with VDC

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	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 the following.

- Models with ABS: [BRC-22, "Diagnosis Procedure"](#)
- Models with VDC: [BRC-91, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit).
- Models with ABS: [BRC-60, "Exploded View"](#)
 - Models with VDC: [BRC-154, "Exploded View"](#)

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

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

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767702

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - Harness connector F123
 - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ25DE: [TM-249, "Diagnosis Procedure"](#)
- VQ35DE: [TM-85, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- VQ25DE: [TM-315, "Exploded View"](#)
- VQ35DE: [TM-153, "Exploded View"](#)

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

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

IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003767703

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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-19, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-34, "Exploded View"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

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CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:000000003767704

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.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

ECM		Resistance (Ω)
Terminal No.		
98	97	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

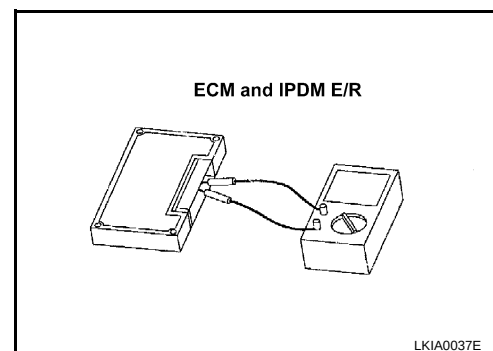
Is the measurement value within the specification?

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.



CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

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.

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MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

COMPONENT DIAGNOSIS

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000004459797

INSPECTION PROCEDURE

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

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M122	91	Existed
	14		90	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 >> Repair the main line between the data link connector and the BCM.

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

Diagnosis Procedure

INFOID:000000004459798

1.CHECK CONNECTOR

1. Turn the ignition 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 M11
 - Harness connector E105

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 connectors M11 and E105
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.	
M122	91	M11	12	Existed
	90		11	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the BCM and the harness connector M11.

3.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.
 - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E34	26	Existed
	11		15	Existed

- Models with VDC

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E36	26	Existed
	11		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 E105 and the ABS actuator and electric unit (control unit).

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841869

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
 - Harness connector M11
 - Harness connector M77 (Models with automatic drive positioner)
 - Harness connector B11 (Models with automatic drive positioner)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	98	97	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUITCheck the power supply and the ground circuit of the ECM. Refer to [EC-132, "Diagnosis Procedure"](#).Is the inspection result normal?YES (Present error)>>Replace the ECM. Refer to [EC-14, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

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

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

HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841872

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	1	2	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.
NO >> Repair the A/C auto amp. branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to the following.

- Without color display: [HAC-65, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- With color display: [HAC-191, "A/C AUTO AMP. : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the A/C auto amp. Refer to the following.
- Without color display: [VTL-23, "Exploded View"](#)
 - With color display: [VTL-80, "Exploded View"](#)

- YES (Past error)>>Error was detected in the A/C auto amp. branch line.
NO >> Repair the power supply and the ground circuit.

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M&A BRANCH LINE CIRCUIT**Diagnosis Procedure**

INFOID:000000003841873

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the combination meter branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?YES (Present error)>>Replace the combination meter. Refer to [MWI-126, "Exploded View"](#).

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

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

BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841875

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M122	91	90	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-78, "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

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DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841876

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841877

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.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	26	15	Approx. 54 – 66

- Models with VDC

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	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 the following.

- Models with ABS: [BRC-22, "Diagnosis Procedure"](#)
- Models with VDC: [BRC-91, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit).
- Models with ABS: [BRC-60, "Exploded View"](#)
 - Models with VDC: [BRC-154, "Exploded View"](#)

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

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

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841878

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - Harness connector F123
 - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ25DE: [TM-249, "Diagnosis Procedure"](#)
- VQ35DE: [TM-85, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- VQ25DE: [TM-315, "Exploded View"](#)
- VQ35DE: [TM-153, "Exploded View"](#)

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

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

IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841879

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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-19, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-34, "Exploded View"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:000000003841880

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.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

ECM		Resistance (Ω)
Terminal No.		
98	97	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

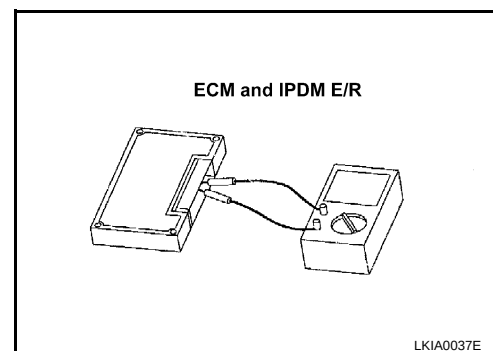
Is the measurement value within the specification?

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.



CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 2)]

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.

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MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

COMPONENT DIAGNOSIS

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000004459799

INSPECTION PROCEDURE

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

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M122	91	Existed
	14		90	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 >> Repair the main line between the data link connector and the BCM.

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

Diagnosis Procedure

INFOID:000000004459800

1.CHECK CONNECTOR

1. Turn the ignition 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 M11
 - Harness connector E105

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 connectors M11 and E105
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.	
M122	91	M11	12	Existed
	90		11	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the BCM and the harness connector M11.

3.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.
 - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E34	26	Existed
	11		15	Existed

- Models with VDC

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E36	26	Existed
	11		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 E105 and the ABS actuator and electric unit (control unit).

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841849

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
 - Harness connector M11
 - Harness connector M77 (Models with automatic drive positioner)
 - Harness connector B11 (Models with automatic drive positioner)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	98	97	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUITCheck the power supply and the ground circuit of the ECM. Refer to [EC-132, "Diagnosis Procedure"](#).Is the inspection result normal?YES (Present error)>>Replace the ECM. Refer to [EC-14, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

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

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

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841851

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	86	87	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio and display system: [AV-82, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio without navigation: [AV-236, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio with navigation: [AV-464, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio and display system: [AV-170, "Exploded View"](#)
 - BOSE audio without navigation: [AV-378, "Exploded View"](#)
 - BOSE audio with navigation: [AV-648, "Exploded View"](#)

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

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

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HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841852

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to the following.

- Without color display: [HAC-65, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- With color display: [HAC-191, "A/C AUTO AMP. : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to the following.

- Without color display: [VTL-23, "Exploded View"](#)
- With color display: [VTL-80, "Exploded View"](#)

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

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841853

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-126, "Exploded View"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

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STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841854

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

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

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-136, "Wiring Diagram - BRAKE CONTROL SYSTEM -"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-157, "Exploded View"](#).

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

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

BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841855

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M122	91	90	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-78, "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

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DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841856

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841857

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.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	26	15	Approx. 54 – 66

- Models with VDC

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	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 the following.

- Models with ABS: [BRC-22, "Diagnosis Procedure"](#)
- Models with VDC: [BRC-91, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit).
- Models with ABS: [BRC-60, "Exploded View"](#)
 - Models with VDC: [BRC-154, "Exploded View"](#)

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

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

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841858

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - Harness connector F123
 - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ25DE: [TM-249, "Diagnosis Procedure"](#)
- VQ35DE: [TM-85, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- VQ25DE: [TM-315, "Exploded View"](#)
- VQ35DE: [TM-153, "Exploded View"](#)

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

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

IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841859

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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-19, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-34, "Exploded View"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

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CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:000000003841860

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.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

ECM		Resistance (Ω)
Terminal No.		
98	97	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

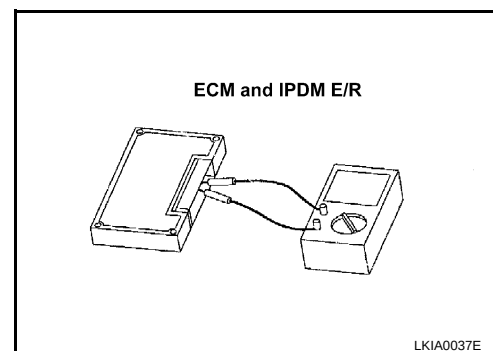
Is the measurement value within the specification?

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.



CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 4)]

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.

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MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

COMPONENT DIAGNOSIS

MAIN LINE BETWEEN ADP AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000004459801

1.CHECK CONNECTOR

1. Turn the ignition 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 B11
 - Harness connector M77

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 B11 and M77.
2. Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B11	19	44	Existed
	18	43	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the driver seat control unit and the harness connector B11.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	44	M4	6	Existed
	43		14	Existed

Is the inspection result normal?

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

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

NO >> Repair the main line between the harness connector M77 and the data link connector.

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000004459802

INSPECTION PROCEDURE

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

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M122	91	Existed
	14		90	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 >> Repair the main line between the data link connector and the BCM.

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MAIN LINE BETWEEN BCM AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

Diagnosis Procedure

INFOID:000000004459803

1.CHECK CONNECTOR

1. Turn the ignition 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 M11
 - Harness connector E105

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 connectors M11 and E105
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.	
M122	91	M11	12	Existed
	90		11	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the BCM and the harness connector M11.

3.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.
 - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E34	26	Existed
	11		15	Existed

- Models with VDC

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E36	26	Existed
	11		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 E105 and the ABS actuator and electric unit (control unit).

ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841829

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
 - Harness connector M11
 - Harness connector M77 (Models with automatic drive positioner)
 - Harness connector B11 (Models with automatic drive positioner)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	98	97	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-132. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-14. "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

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

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

LAN

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841830

1.CHECK CONNECTOR

1. Turn the ignition 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 B460
 - Harness connector B19

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B452	23	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-45, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-136, "Exploded View"](#).

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

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

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841831

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	86	87	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio and display system: [AV-82, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio without navigation: [AV-236, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio with navigation: [AV-464, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

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

- Base audio and display system: [AV-170, "Exploded View"](#)
- BOSE audio without navigation: [AV-378, "Exploded View"](#)
- BOSE audio with navigation: [AV-648, "Exploded View"](#)

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

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

LAN

HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841832

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to the following.

- Without color display: [HAC-65, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- With color display: [HAC-191, "A/C AUTO AMP. : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to the following.

- Without color display: [VTL-23, "Exploded View"](#)
- With color display: [VTL-80, "Exploded View"](#)

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

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841833

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-126, "Exploded View"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

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STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841834

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

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

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-136, "Wiring Diagram - BRAKE CONTROL SYSTEM -"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-157, "Exploded View"](#).

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

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

BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841835

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M122	91	90	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-78, "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

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DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841836

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841837

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.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	26	15	Approx. 54 – 66

- Models with VDC

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	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 the following.

- Models with ABS: [BRC-22, "Diagnosis Procedure"](#)
- Models with VDC: [BRC-91, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit).
- Models with ABS: [BRC-60, "Exploded View"](#)
 - Models with VDC: [BRC-154, "Exploded View"](#)

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

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

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841838

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - Harness connector F123
 - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ25DE: [TM-249, "Diagnosis Procedure"](#)
- VQ35DE: [TM-85, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- VQ25DE: [TM-315, "Exploded View"](#)
- VQ35DE: [TM-153, "Exploded View"](#)

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

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

IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841839

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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-19, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-34, "Exploded View"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

LAN

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:000000003841840

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.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

ECM		Resistance (Ω)
Terminal No.		
98	97	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

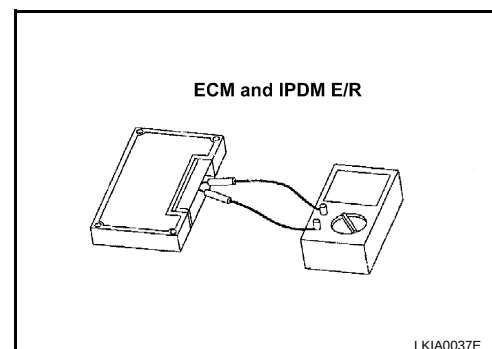
Is the measurement value within the specification?

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.



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CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 6)]

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.

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MAIN LINE BETWEEN ADP AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

COMPONENT DIAGNOSIS

MAIN LINE BETWEEN ADP AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000004459804

1.CHECK CONNECTOR

1. Turn the ignition 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 B11
 - Harness connector M77

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 B11 and M77.
2. Check the continuity between the harness connector terminals.

Connector No.	Terminal No.		Continuity
B11	19	44	Existed
	18	43	

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the driver seat control unit and the harness connector B11.

3.CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	44	M4	6	Existed
	43		14	Existed

Is the inspection result normal?

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

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

NO >> Repair the main line between the harness connector M77 and the data link connector.

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

MAIN LINE BETWEEN DLC AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000004459805

INSPECTION PROCEDURE

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

Data link connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M122	91	Existed
	14		90	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 >> Repair the main line between the data link connector and the BCM.

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MAIN LINE BETWEEN BCM AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

MAIN LINE BETWEEN BCM AND ABS CIRCUIT

Diagnosis Procedure

INFOID:000000004459806

1.CHECK CONNECTOR

1. Turn the ignition 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 M11
 - Harness connector E105

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 connectors M11 and E105
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.	
M122	91	M11	12	Existed
	90		11	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the BCM and the harness connector M11.

3.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.
 - Models with ABS

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E34	26	Existed
	11		15	Existed

- Models with VDC

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	12	E36	26	Existed
	11		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 E105 and the ABS actuator and electric unit (control unit).

ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841809

1.CHECK CONNECTOR

1. Turn the ignition 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 E105
 - Harness connector M11
 - Harness connector M77 (Models with automatic drive positioner)
 - Harness connector B11 (Models with automatic drive positioner)

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	98	97	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the ECM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the ECM. Refer to [EC-132. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the ECM. Refer to [EC-14. "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#).

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

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

LAN

ADP BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841810

1.CHECK CONNECTOR

1. Turn the ignition 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 B460
 - Harness connector B19

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Driver seat control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
B452	23	24	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the driver seat control unit branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the driver seat control unit. Refer to [ADP-45, "DRIVER SEAT CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?YES (Present error)>>Replace the driver seat control unit. Refer to [ADP-136, "Exploded View"](#).

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

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

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841811

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

AV control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M131	86	87	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- Base audio and display system: [AV-82, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio without navigation: [AV-236, "AV CONTROL UNIT : Diagnosis Procedure"](#)
- BOSE audio with navigation: [AV-464, "AV CONTROL UNIT : Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the AV control unit. Refer to the following.
- Base audio and display system: [AV-170, "Exploded View"](#)
 - BOSE audio without navigation: [AV-378, "Exploded View"](#)
 - BOSE audio with navigation: [AV-648, "Exploded View"](#)

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

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

LAN

HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

HVAC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841812

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

A/C auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M50	1	2	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the A/C auto amp. Refer to the following.

- Without color display: [HAC-65, "A/C AUTO AMP. : Diagnosis Procedure"](#)
- With color display: [HAC-191, "A/C AUTO AMP. : Diagnosis Procedure"](#)

Is the inspection result normal?

YES (Present error)>>Replace the A/C auto amp. Refer to the following.

- Without color display: [VTL-23, "Exploded View"](#)
- With color display: [VTL-80, "Exploded View"](#)

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

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

M&A BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841813

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

Combination meter harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M34	21	22	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the combination meter. Refer to [MWI-126, "Exploded View"](#).
YES (Past error)>>Error was detected in the combination meter branch line.
NO >> Repair the power supply and the ground circuit.

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STRG BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

STRG BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841814

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

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

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the steering angle sensor branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the steering angle sensor. Refer to [BRC-136, "Wiring Diagram - BRAKE CONTROL SYSTEM -"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-157, "Exploded View"](#).

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

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

BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

BCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841815

1.CHECK CONNECTOR

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

Is the inspection result normal?

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

2.CHECK HARNESS FOR OPEN CIRCUIT

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

BCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M122	91	90	Approx. 54 – 66

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the BCM. Refer to [BCS-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-78, "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM branch line.
NO >> Repair the power supply and the ground circuit.

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DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841816

1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841817

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.
- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	26	15	Approx. 54 – 66

- Models with VDC

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	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 the following.

- Models with ABS: [BRC-22, "Diagnosis Procedure"](#)
- Models with VDC: [BRC-91, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit).
- Models with ABS: [BRC-60, "Exploded View"](#)
 - Models with VDC: [BRC-154, "Exploded View"](#)

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

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

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841818

1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (unit side and connector side).
 - TCM
 - Harness connector F123
 - Harness connector E6

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

2.CHECK HARNESS FOR OPEN CIRCUIT

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

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F23	32	31	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the TCM branch line.

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

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

- VQ25DE: [TM-249, "Diagnosis Procedure"](#)
- VQ35DE: [TM-85, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- VQ25DE: [TM-315, "Exploded View"](#)
- VQ35DE: [TM-153, "Exploded View"](#)

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

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

IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

IPDM-E BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000003841819

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.		
E11	40	39	Approx. 108 – 132

Is the measurement value within the specification?

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

3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the IPDM E/R. Refer to [PCS-19, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-34, "Exploded View"](#).
YES (Past error)>>Error was detected in the IPDM E/R branch line.
NO >> Repair the power supply and the ground circuit.

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CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

CAN COMMUNICATION CIRCUIT

Diagnosis Procedure

INFOID:000000003841820

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.		
M4	6	14	Not existed

Is the inspection result normal?

YES >> GO TO 3.

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

3.CHECK HARNESS CONTINUITY (SHORT CIRCUIT)

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

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

Is the inspection result normal?

YES >> GO TO 4.

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

4.CHECK ECM AND IPDM E/R TERMINATION CIRCUIT

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

ECM		Resistance (Ω)
Terminal No.		
98	97	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

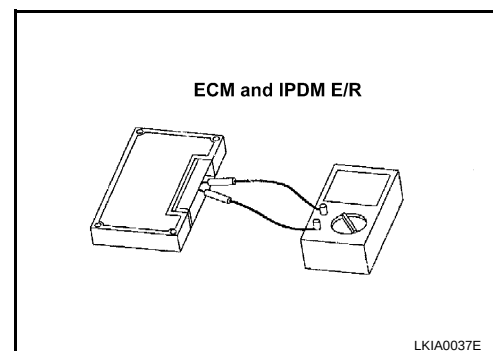
Is the measurement value within the specification?

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.



CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN SYSTEM (TYPE 9)]

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.

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