

SECTION **LAN**  
LAN SYSTEM

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# PRECAUTION

## PRECAUTIONS

### Precautions for Trouble Diagnosis

INFOID:000000001208726

**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.

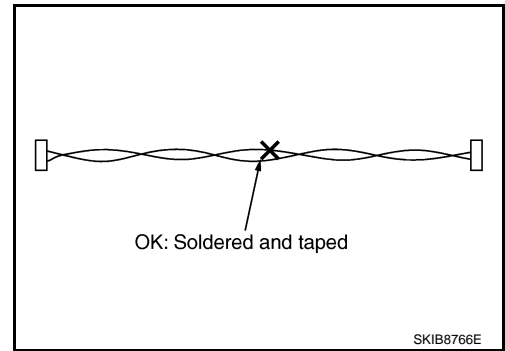
### Precautions for Harness Repair

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

**NOTE:**

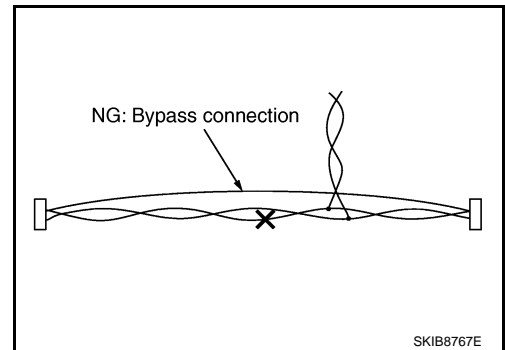
A fray of twisted lines must be within 110 mm (4.33 in).



- 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.

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## FUNCTION DIAGNOSIS

### CAN COMMUNICATION SYSTEM

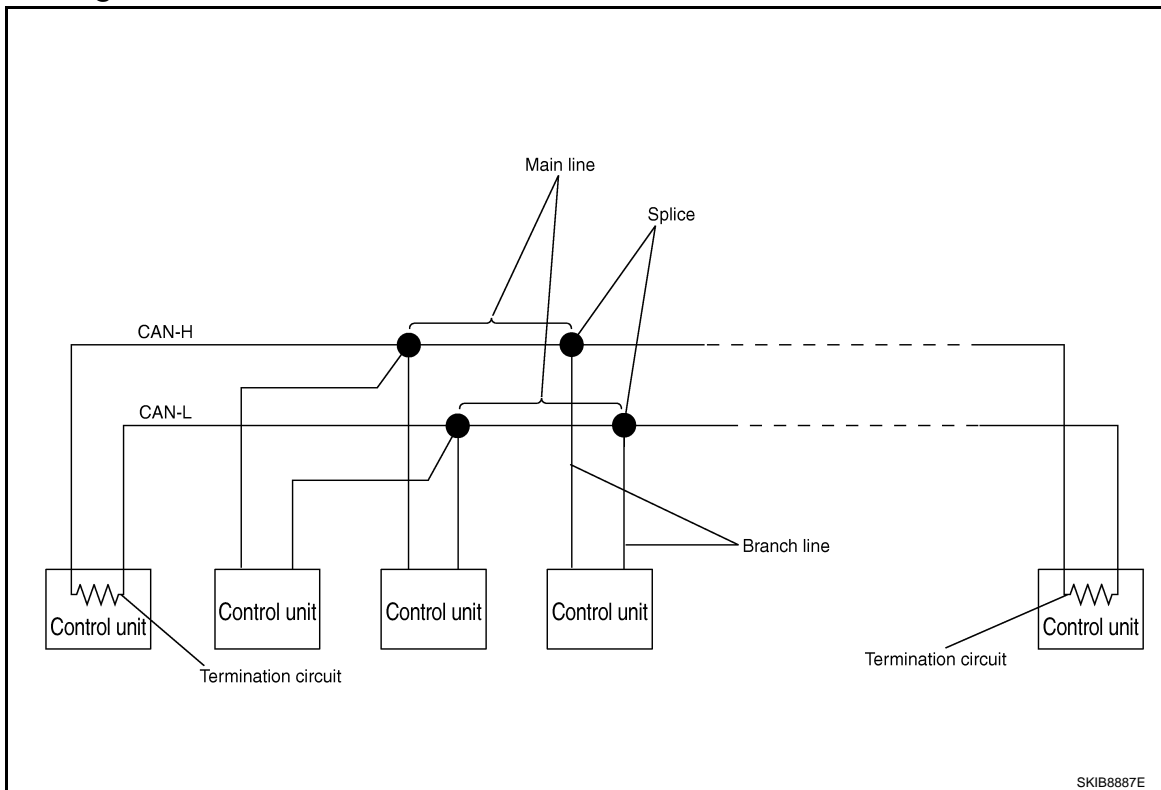
#### System Description

INFOID:000000001208728

- 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:000000001208729



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 <a href="#">LAN-5, "CAN Communication Control Circuit"</a> .

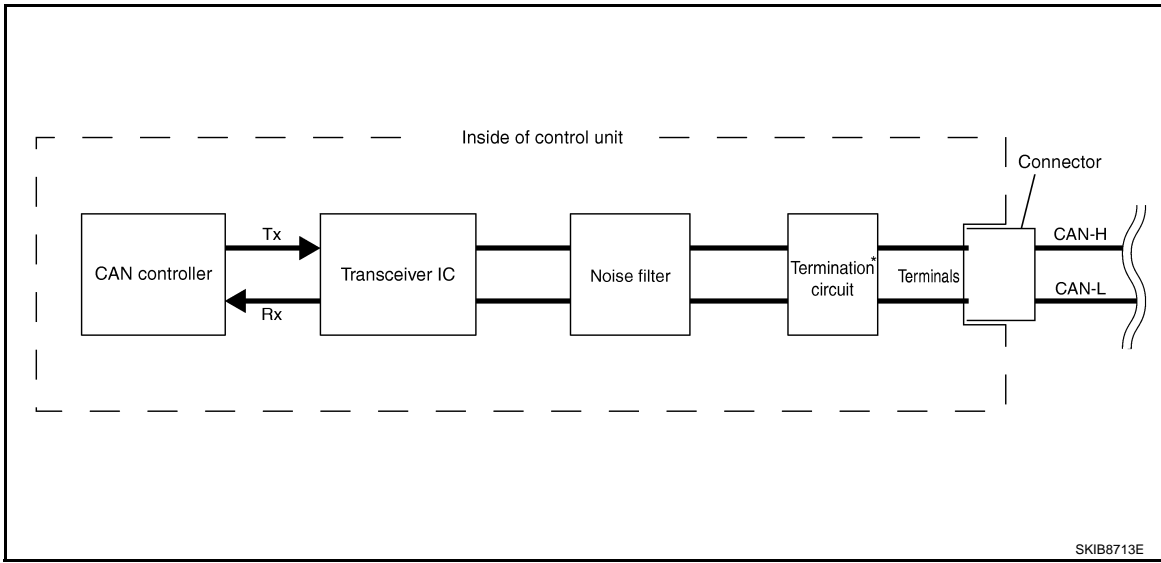
# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

## CAN Communication Control Circuit

INFOID:000000001208730



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.

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## DIAG ON CAN

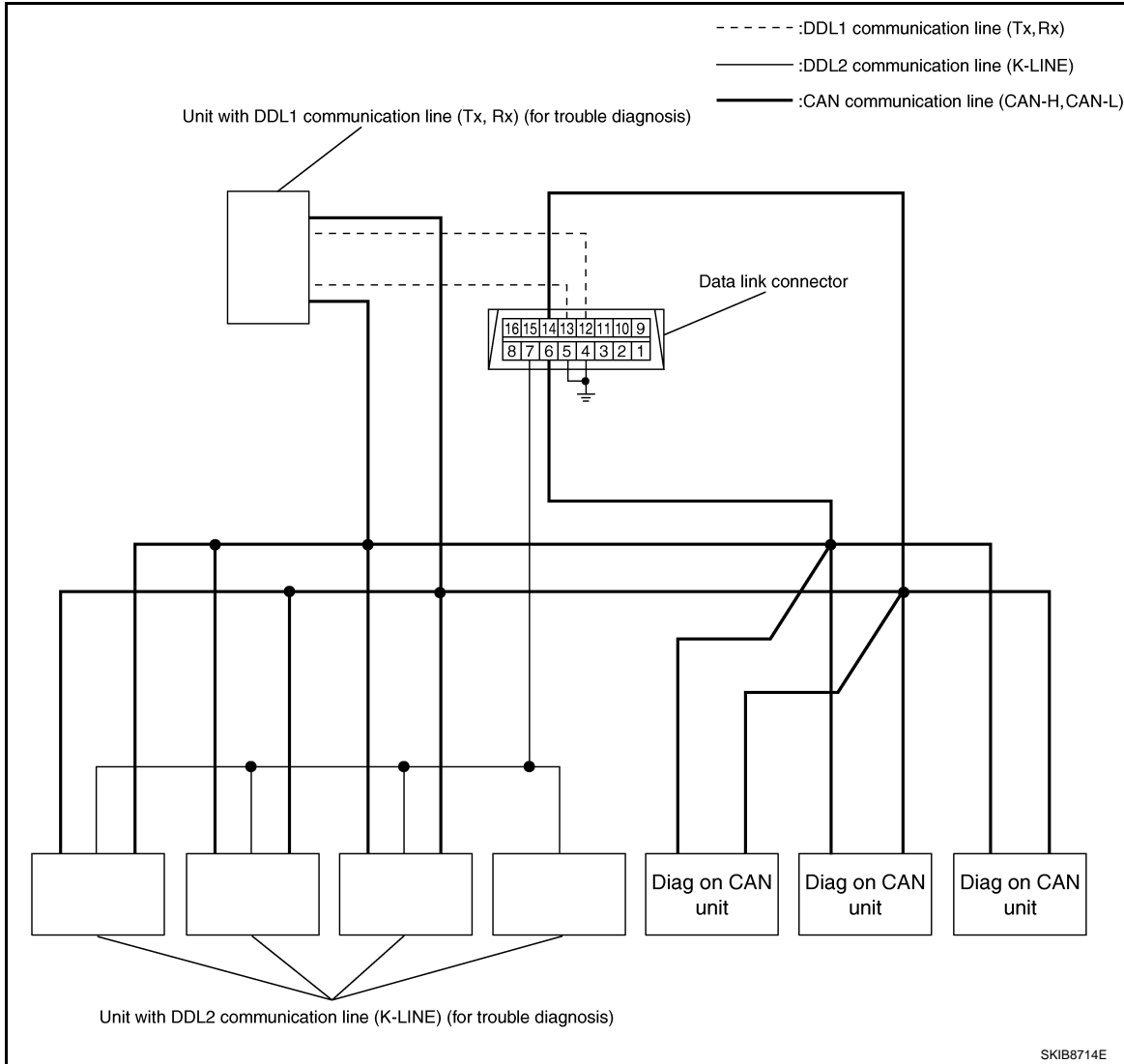
### Description

INFOID:000000001208731

“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

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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:000000001208733

“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:000000001208734

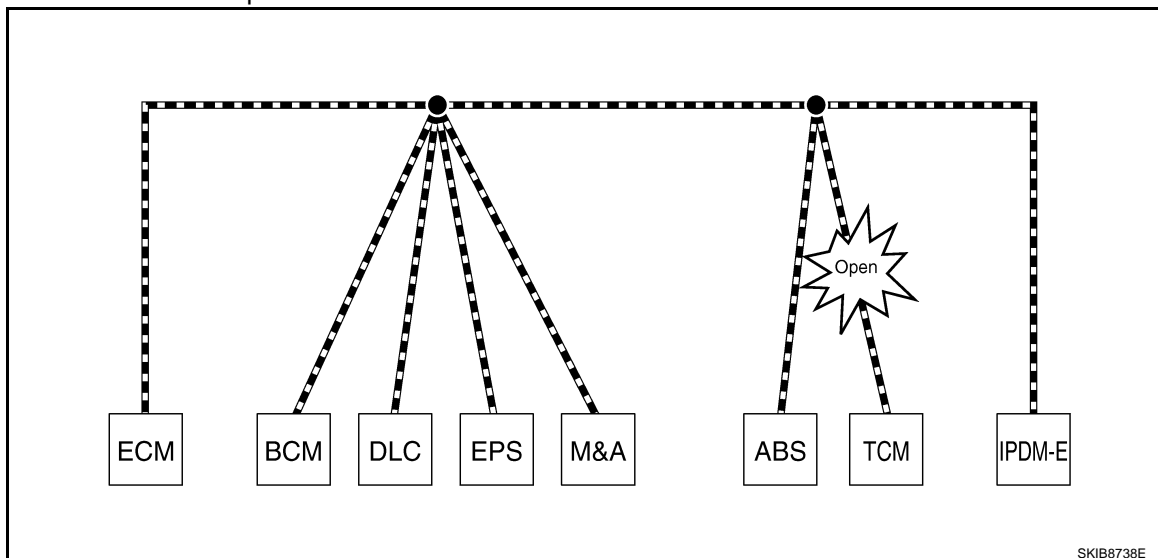
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

#### ERROR EXAMPLE

**NOTE:**

- Each vehicle differs in symptom of each unit under fail-safe mode and CAN communication line wiring.
- Refer to [LAN-18. "Abbreviation List"](#) for the unit abbreviation.

Example: TCM branch line open circuit



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

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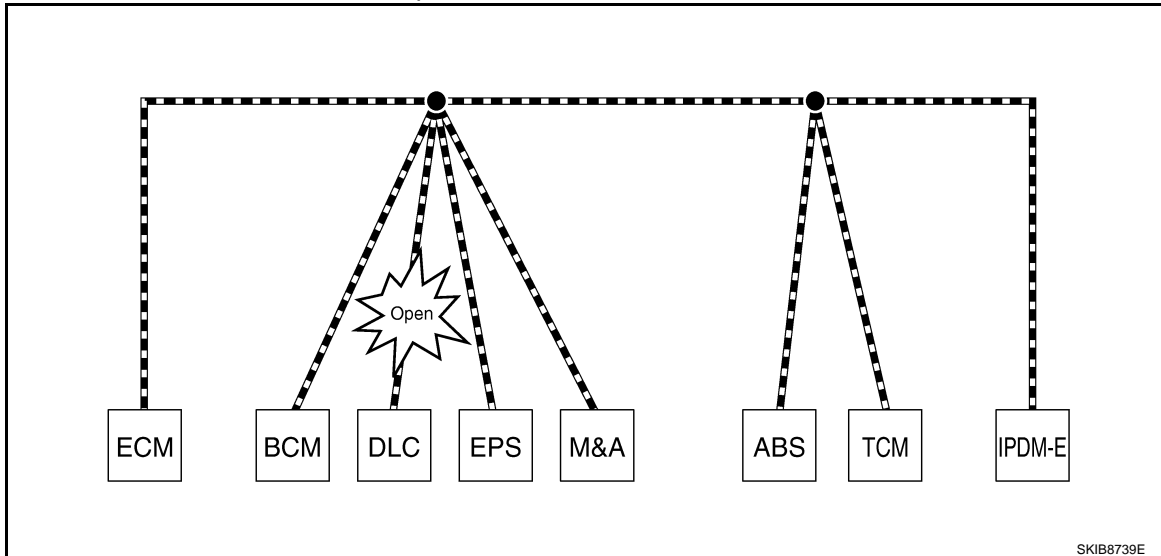
# TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Unit name	Symptom
EPS control unit	Normal operation.
Combination meter	<ul style="list-style-type: none"> <li>Shift position indicator and OD OFF indicator turn OFF.</li> <li>Warning lamps turn ON.</li> </ul>
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.

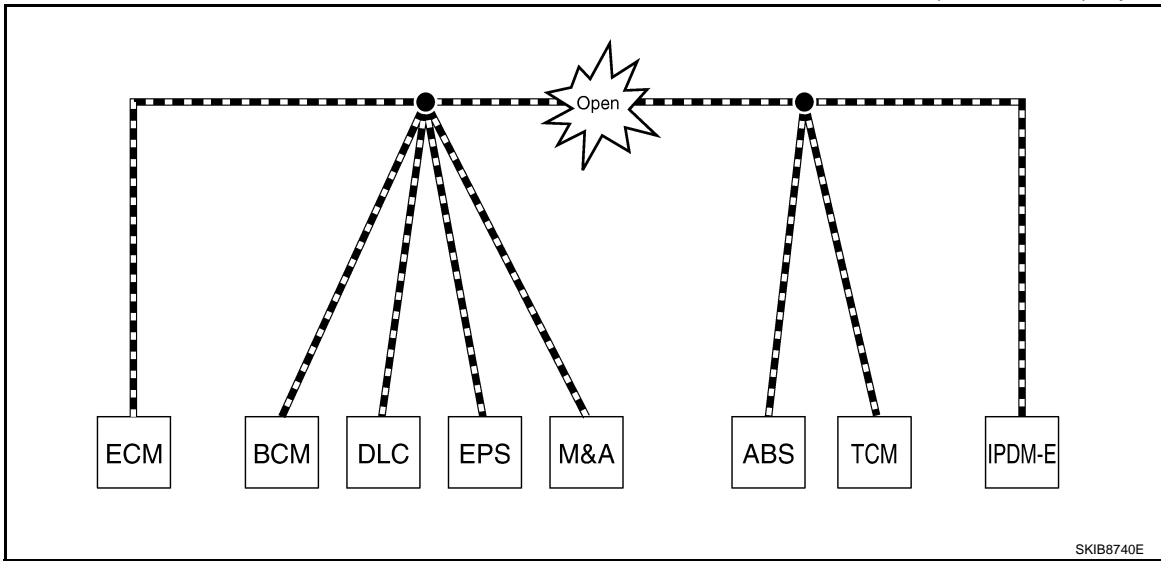


# TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

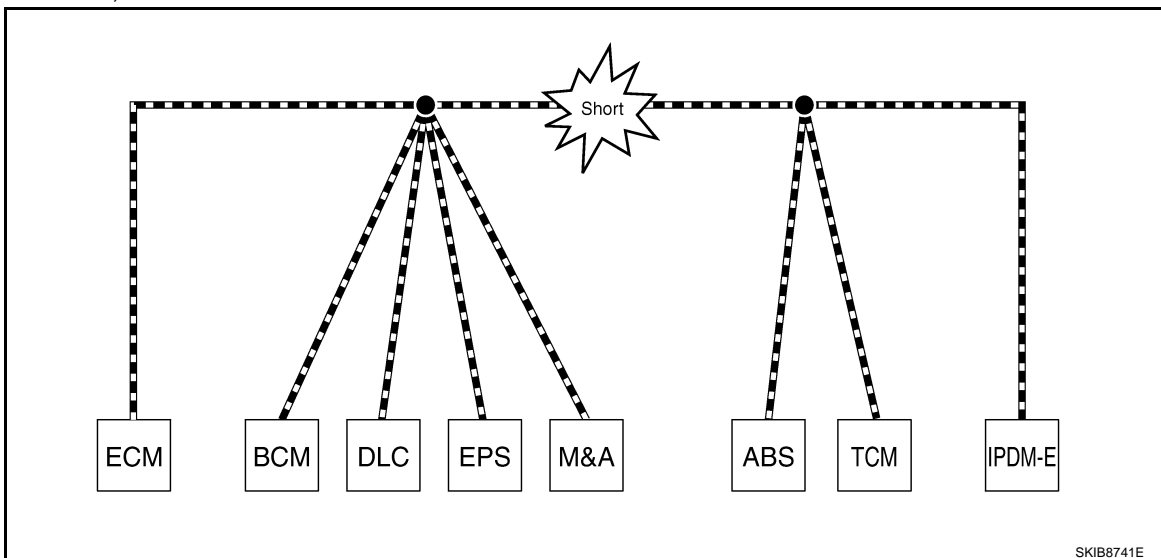
[CAN FUNDAMENTAL]

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	<ul style="list-style-type: none"> <li>• Reverse warning chime does not sound.</li> <li>• The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> </ul>
EPS control unit	The steering effort increases.
Combination meter	<ul style="list-style-type: none"> <li>• The shift position indicator and OD OFF indicator turn OFF.</li> <li>• The speedometer is inoperative.</li> <li>• The odo/trip meter stops.</li> </ul>
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, <ul style="list-style-type: none"> <li>• The headlamps (Lo) turn ON.</li> <li>• The cooling fan continues to rotate.</li> </ul>

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



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# TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Unit name	Symptom
ECM	<ul style="list-style-type: none"> <li>Engine torque limiting is affected, and shift harshness increases.</li> <li>Engine speed drops.</li> </ul>
BCM	<ul style="list-style-type: none"> <li>Reverse warning chime does not sound.</li> <li>The front wiper moves under continuous operation mode even though the front wiper switch being in the intermittent position.</li> <li>The room lamp does not turn ON.</li> <li>The engine does not start (if an error or malfunction occurs while turning the ignition switch OFF.)</li> <li>The steering lock does not release (if an error or malfunction occurs while turning the ignition switch OFF.)</li> </ul>
EPS control unit	The steering effort increases.
Combination meter	<ul style="list-style-type: none"> <li>The tachometer and the speedometer do not move.</li> <li>Warning lamps turn ON.</li> <li>Indicator lamps do not turn ON.</li> </ul>
ABS actuator and electric unit (control unit)	Normal operation.
TCM	No impact on operation.
IPDM E/R	When the ignition switch is ON, <ul style="list-style-type: none"> <li>The headlamps (Lo) turn ON.</li> <li>The cooling fan continues to rotate.</li> </ul>

## CAN Diagnosis with CONSULT-III

INFOID:000000001208735

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:000000001208736

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.	

## CAN Diagnostic Support Monitor

INFOID:000000001208737

MONITOR ITEM (CONSULT-III)

# TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Example: CAN DIAG SUPPORT MNTR indication

Without PAST			With PAST		
ECM			ECM		
	PRSNT	PAST		PRSNT	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	PRSNT	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
	UNKWN	No control unit for receiving signals. (No applicable optional parts)

With PAST

Item	PRSNT	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

[CAN FUNDAMENTAL]

< FUNCTION DIAGNOSIS >

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:000000001208738

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

↓

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

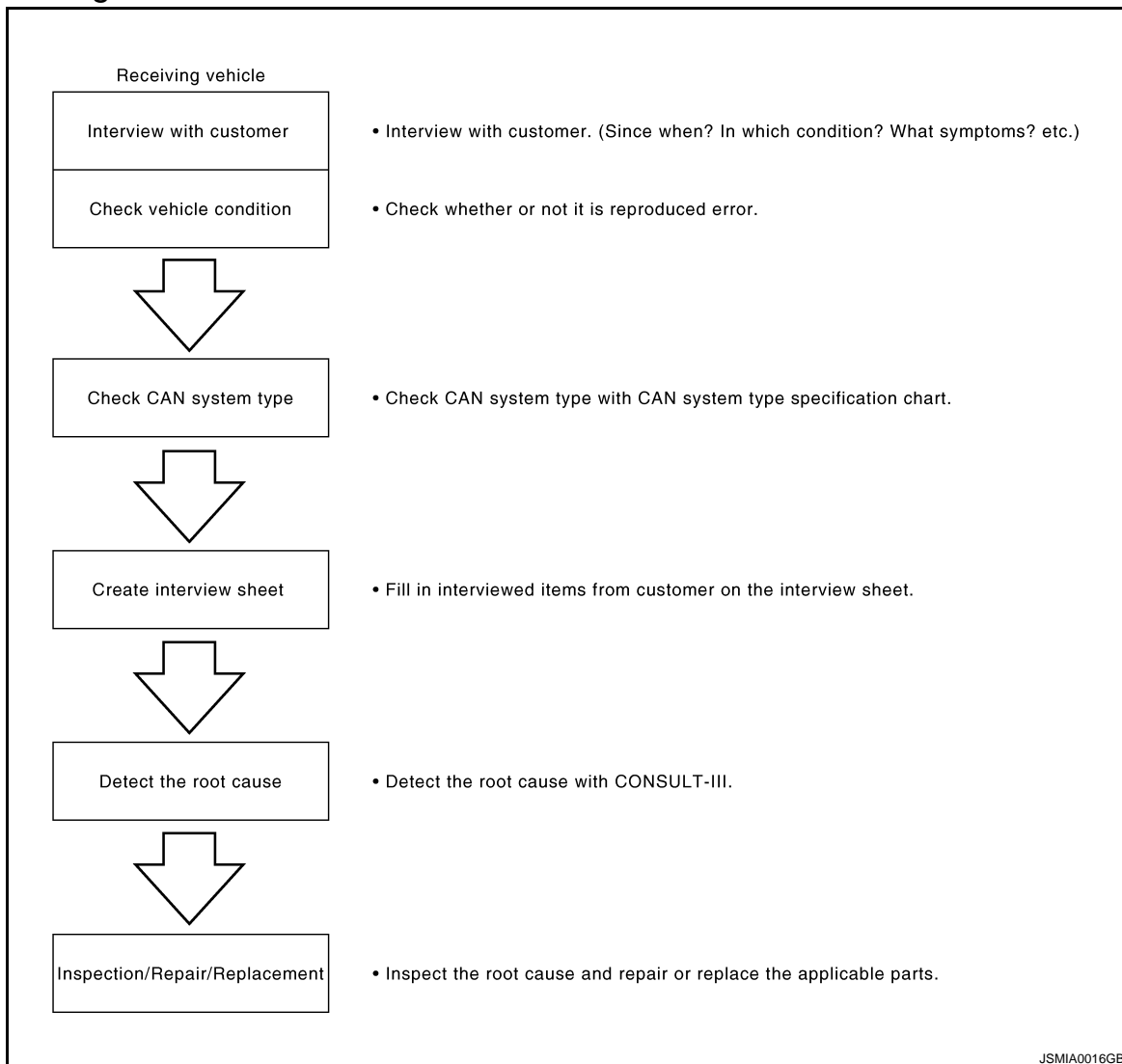
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## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW

#### Trouble Diagnosis Flow Chart

INFOID:000000001208739



#### Trouble Diagnosis Procedure

INFOID:000000001208740

##### 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:

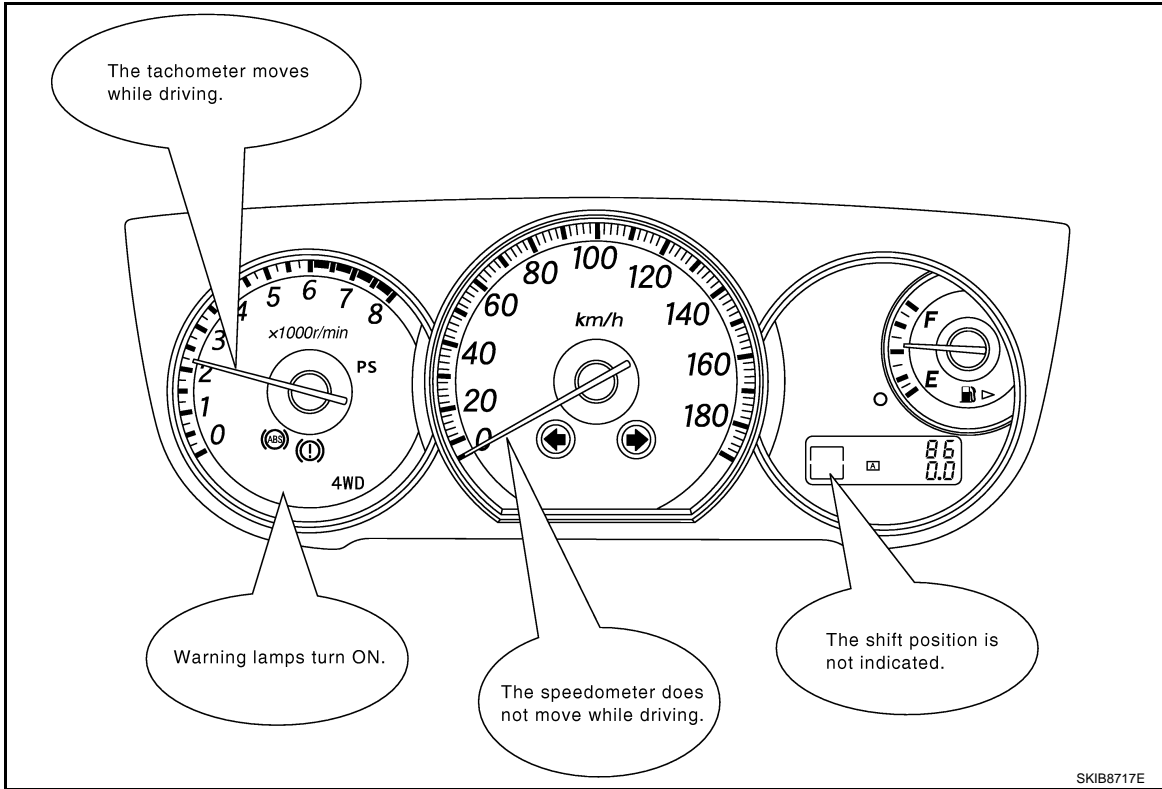
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.

# 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:

# 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.)

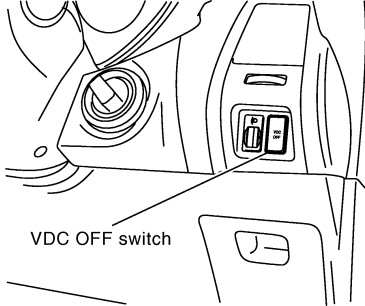
**CAN System Specification Chart**  
Determine CAN system type from the following specification chart.

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

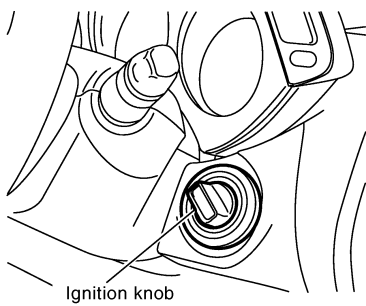
**VEHICLE EQUIPMENT IDENTIFICATION INFORMATION**  
**NOTE:**  
Check CAN system type from the vehicle shape and equipment.

With VDC



VDC OFF switch

With Intelligent Key system



Ignition knob

[ For the above case, CAN system type is "6". ]

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CAN System Type Specification Chart (Style B)

**NOTE:**

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# DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

[CAN FUNDAMENTAL]

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)	
<ul style="list-style-type: none"><li>• Headlamps suddenly turn ON while driving the vehicle.</li><li>• The engine does not restart after stopping the vehicle and turning the ignition switch OFF.</li><li>• The cooling fan continues rotating while turning the ignition switch ON.</li></ul>	
Condition at inspection	
Error Symptom: Present / Past	
<p>The engine does not start. While turning the ignition switch ON,</p> <ul style="list-style-type: none"><li>• The headlamps (Lo) turn ON, and the cooling fan continues rotating.</li><li>• The interior lamp does not turn ON.</li></ul>	

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**DETECT THE ROOT CAUSE**

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

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## HOW TO USE THIS MANUAL

### HOW TO USE THIS SECTION

#### Caution

INFOID:000000001208741

- This section describes information peculiar to a vehicle and inspection procedures.
- For trouble diagnosis procedure, refer to [LAN-13, "Trouble Diagnosis Procedure"](#).

#### Abbreviation List

INFOID:000000001208742

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

Abbreviation	Unit name
4WD	4WD control unit
ABS	ABS actuator and electric unit (control unit)
AV	NAVI control unit
BCM	BCM
DLC	Data link connector
ECM	ECM
EPS	EPS control unit
HVAC	Auto amp.
I-KEY	Intelligent Key unit
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:000000001308691

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".
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

Precautions for Trouble Diagnosis

INFOID:000000001208744

**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.

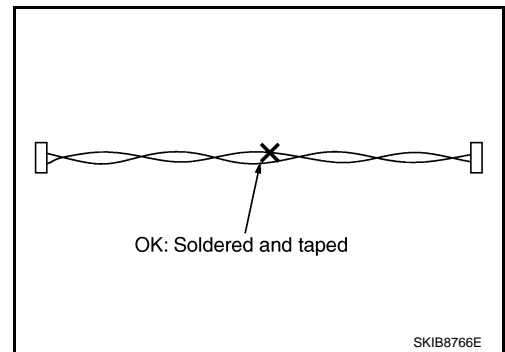
Precautions for Harness Repair

INFOID:000000001208745

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

**NOTE:**

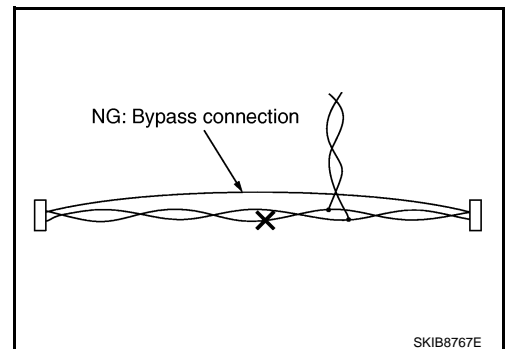
A fray of twisted lines must be within 110 mm (4.33 in).



- 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.

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# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Interview Sheet

INFOID:000000001208746

#### CAN Communication System Diagnosis Interview Sheet

Date received:

Type:

VIN No.:

Model:

First registration:

Mileage:

CAN system type:

Symptom (Results from interview with customer)

Condition at inspection

Error symptom : Present / Past

SKIB8898E

# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

## FUNCTION DIAGNOSIS

### CAN COMMUNICATION SYSTEM

#### CAN System Specification Chart

INFOID:000000001209020

**NOTE:**

Refer to [LAN-13, "Trouble Diagnosis Procedure"](#) for how to use CAN system specification chart.

Refer to the specification as shown in the chart.

Body type	Wagon							
Axle	2WD				4WD			
Engine	M9R	MR20DE	M9R		MR20DE		QR25DE	
Transmission	M/T			A/T	M/T	CVT	M/T	CVT
Brake control	ABS/ESP							
Specification chart	SPECIFICATION CHART A		SPECIFICATION CHART B		SPECIFICATION CHART C		SPECIFICATION CHART D	

#### SPECIFICATION CHART A

Determine CAN system type from the following specification chart.

Body type	5-door wagon												
Axle	2WD												
Engine	M9R						MR20DE						
Transmission	M/T												
Brake control	ABS				ESP				ABS				
Navigation system		×		×		×		×		×		×	
Intelligent Key system			×	×			×	×			×	×	
CAN system type	LHD	1	2	3	4	5	6	7	8	9	10	11	12
	RHD	61	62	63	64	—				65	66	67	68
Start CAN Diagnosis (CONSULT-III)	LHD	1	2	3	4	5	6	7	8	9	10	11	12
	RHD	61	62	63	64	—				65	66	67	68

×: Applicable

#### VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

**NOTE:**

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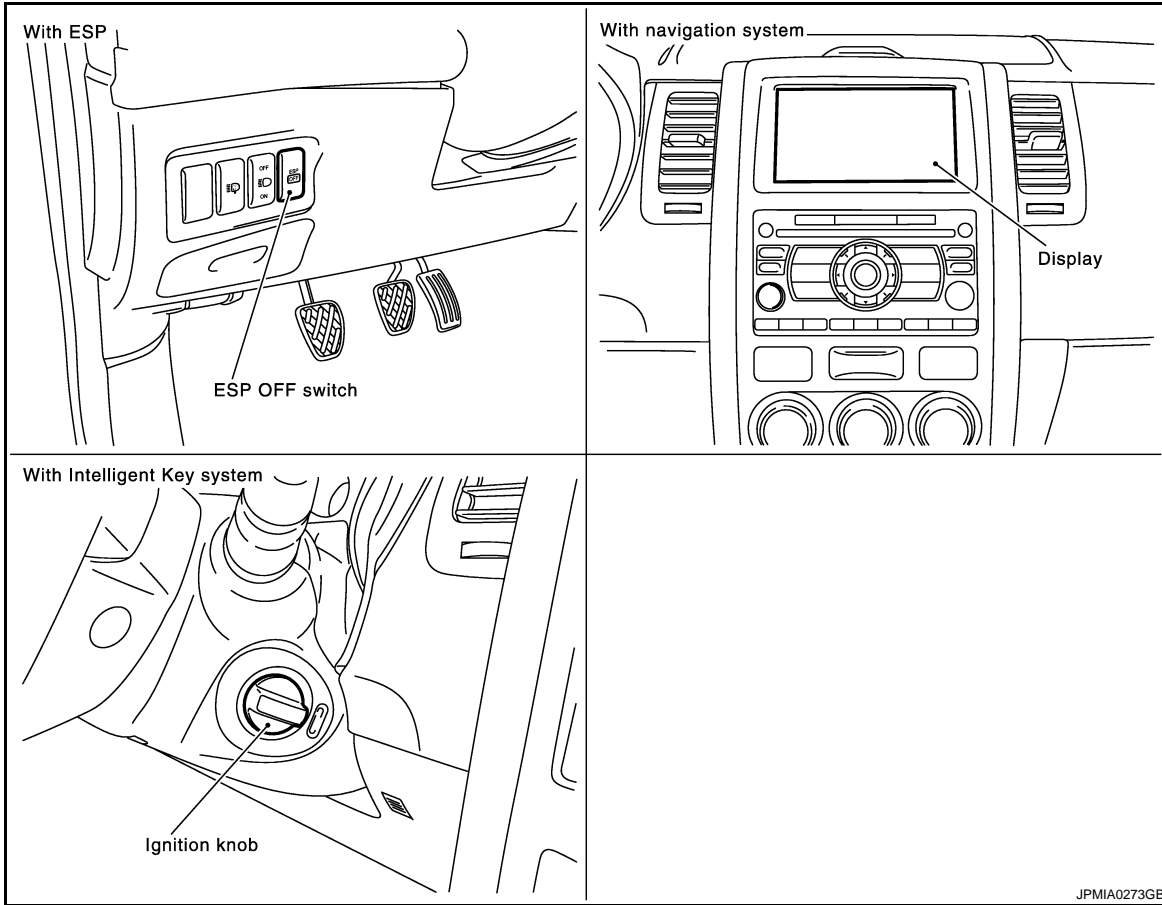
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# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



## SPECIFICATION CHART B

Determine CAN system type from the following specification chart.

Body type	5-door wagon																
Axle	4WD																
Engine	M9R																
Transmission	M/T								A/T								
Brake control	ABS				ESP				ABS				ESP				
Navigation system		x		x		x		x		x		x		x		x	
Intelligent Key system			x	x		x	x			x	x			x	x		
CAN system type	LHD	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	RHD	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84
Start CAN Diagnosis (CONSULT-III)	LHD	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
	RHD	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84

x: Applicable

### VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

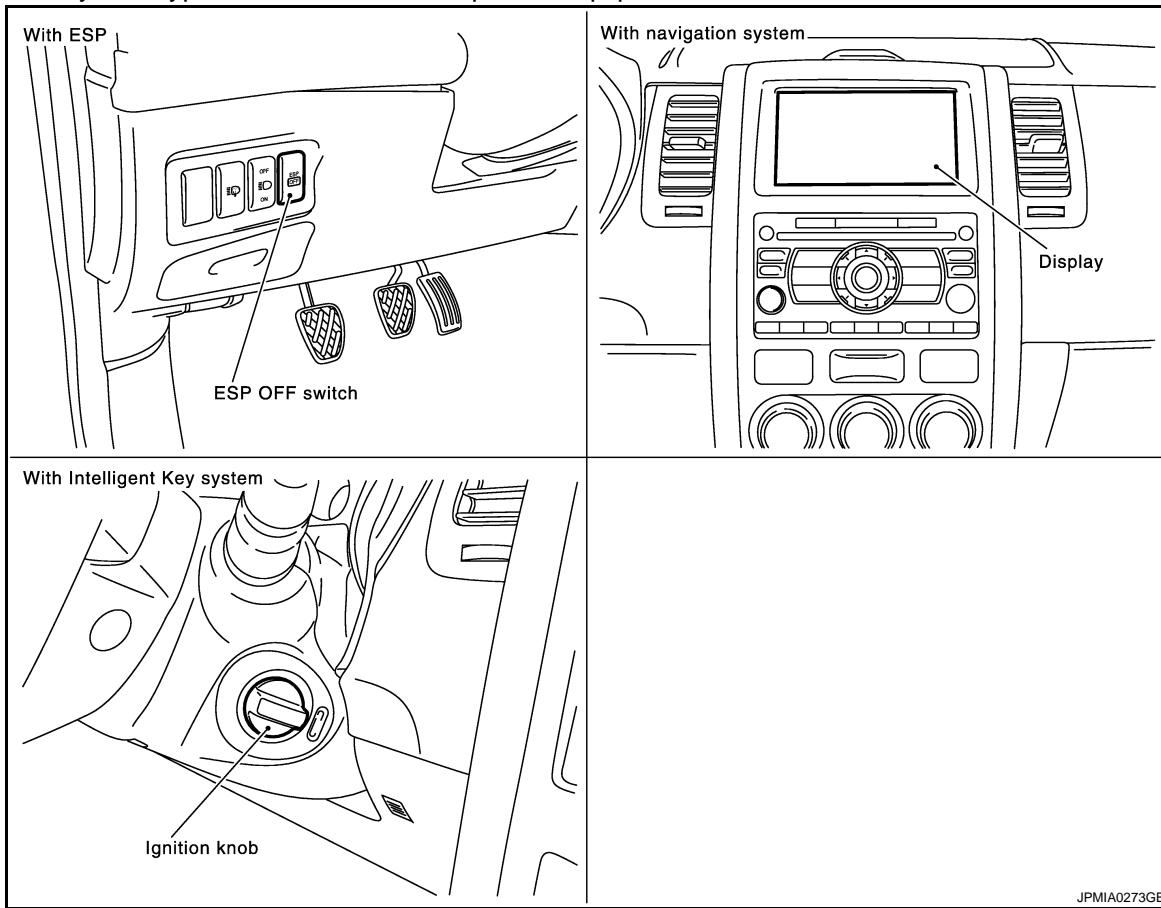
**NOTE:**

# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



## SPECIFICATION CHART C

Determine CAN system type from the following specification chart.

Body type	5-door wagon																
Axle	4WD																
Engine	MR20DE																
Transmission	M/T								CVT								
Brake control	ABS				ESP				ABS				ESP				
Navigation system		x		x		x		x		x		x		x		x	
Intelligent Key system			x	x		x	x			x	x			x	x		
CAN system type	LHD	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	RHD	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Start CAN Diagnosis (CONSULT-III)	LHD	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
	RHD	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

x: Applicable

### VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

**NOTE:**

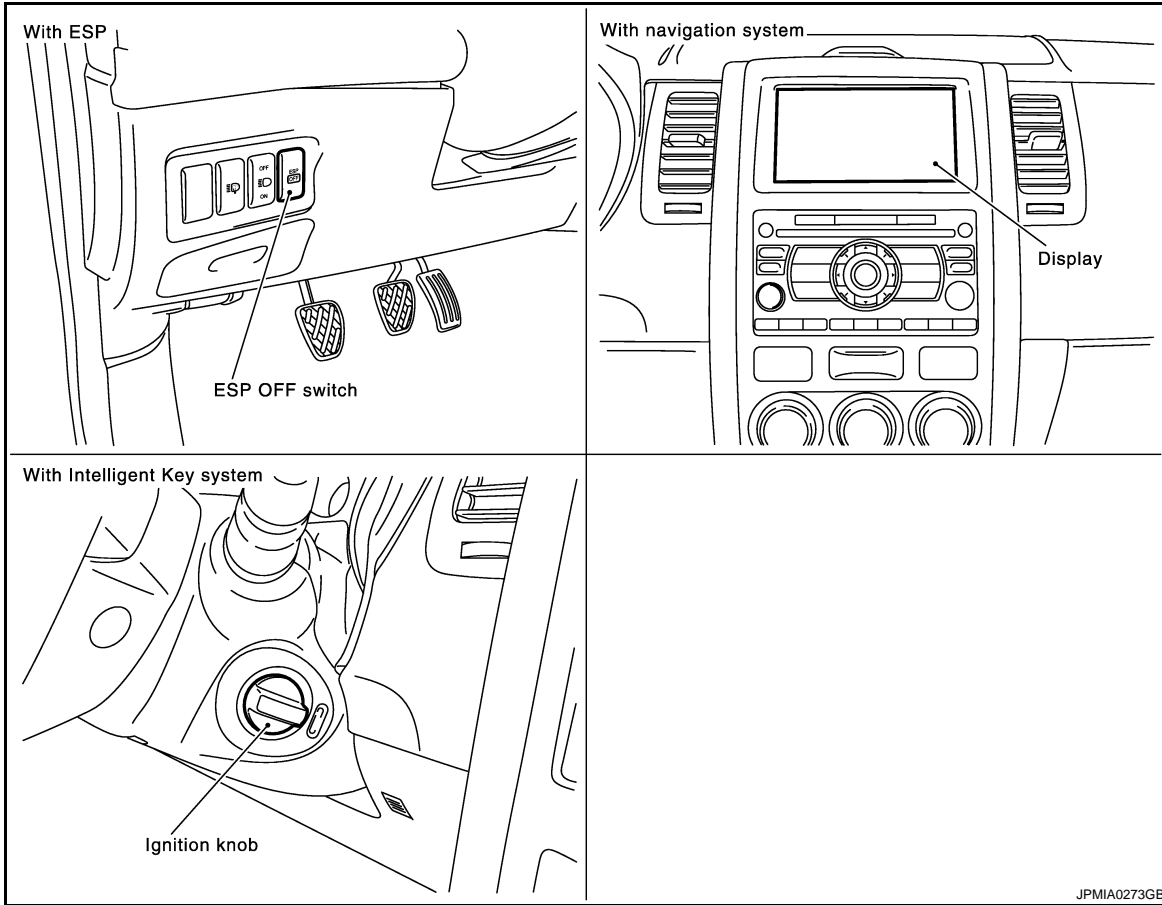
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# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



## SPECIFICATION CHART D

Determine CAN system type from the following specification chart.

Body type	5-door wagon																
Axle	4WD																
Engine	QR25DE																
Transmission	M/T								CVT								
Brake control	ABS				ESP				ABS				ESP				
Navigation system		x		x			x		x		x			x		x	
Intelligent Key system			x	x			x	x			x	x			x	x	
CAN system type	LHD	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	RHD	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116
Start CAN Diagnosis (CONSULT-III)	LHD	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
	RHD	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116

x: Applicable

### VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

**NOTE:**

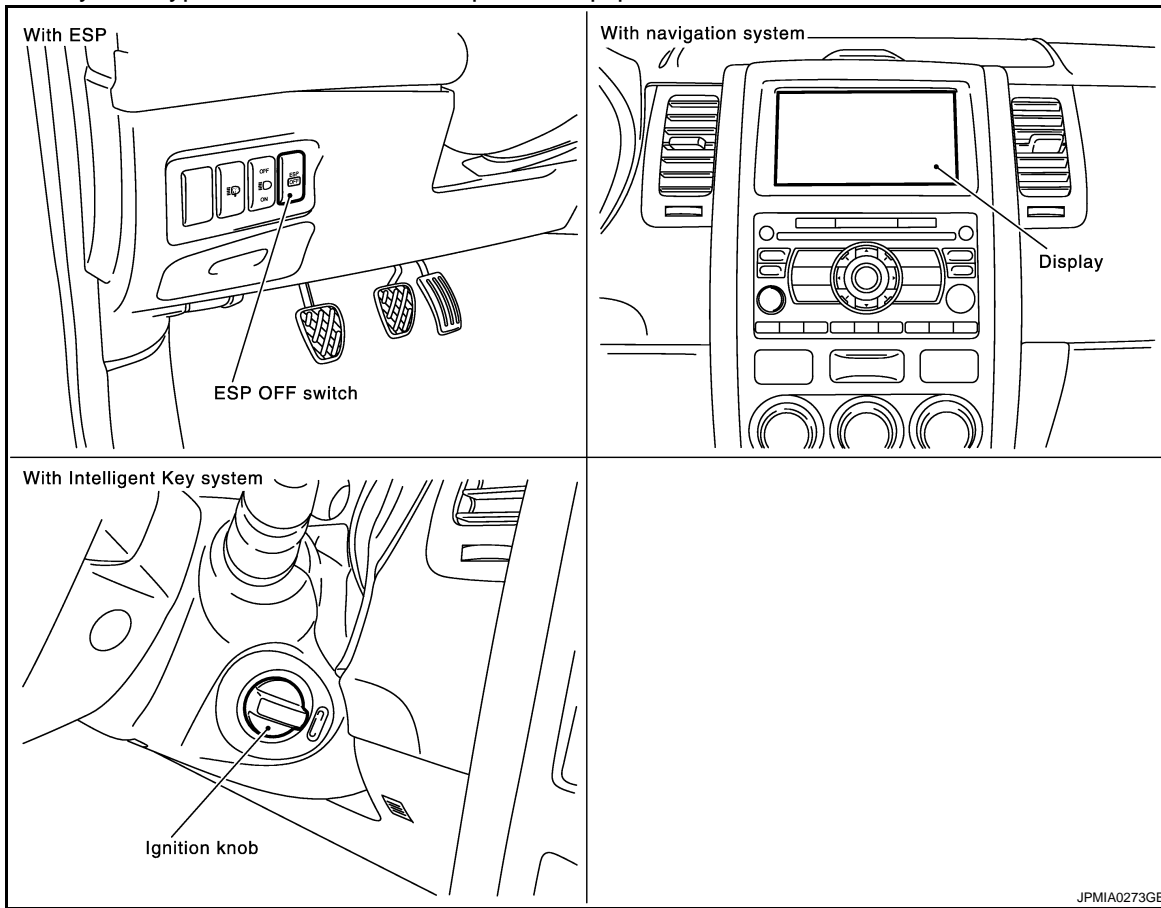


# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



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## CAN Communication Signal Chart

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Refer to [LAN-12. "How to Use CAN Communication Signal Chart"](#) for how to use CAN communication signal chart.

**NOTE:**

Refer to [LAN-18. "Abbreviation List"](#) for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	AV	EPS	I-KEY	M&A	STRG	4WD	BCM	HVAC*1	ABS	TCM*2	TCM*3	IPDM-E
A/C compressor request signal	T												R
Accelerator pedal position signal	T						R			R	R	R	
ASCD status signal	T				R								
Cooling fan speed request signal	T								R				R
Electrical power cut_freeze	T								R				
Engine and A/T integrated control signal	T										R		
	R										T		
Engine and CVT integrated control signal*4	T											R	
	R											T	
Engine coolant temperature signal	T				R				R		R	R	
Engine speed signal	T				R		R		R	R	R	R	
Engine status signal	T		R					R	R				
Engine torque without GB request signal	T										R		

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# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	AV	EPS	I-KEY	M&A	STRG	4WD	BCM	HVAC <sup>*1</sup>	ABS	TCM <sup>*2</sup>	TCM <sup>*3</sup>	IPDM-E
Fuel consumption monitor signal	T				R								
Glow indicator signal <sup>*1</sup>	T				R								
Malfunctioning indicator lamp signal	T				R								
Mean effective torque signal	T										R		
Wide open throttle position signal	T										R		
EPS operation signal <sup>*4</sup>	R		T										
EPS warning lamp signal			T		R								
Anti-Hijack request signal				T				R					
Buzzer output signal				T	R								
					R			T					
Door lock/unlock trunk open request signal				T				R					
Hazard request signal				T				R					
Key warning lamp signal				T	R								
LOCK warning lamp signal				T	R								
Super lock release signal				T				R					
Sleep-ready signal				T	T			R					T
Wake up signal				T	T			R					T
Manual mode shift down signal					T						R	R	
Manual mode shift up signal					T						R	R	
Manual mode signal					T						R	R	
Not manual mode signal					T						R	R	
Parking brake switch signal					T		R <sup>*5</sup>			R <sup>*6</sup>			
Sport mode switch signal					T							R	
Vehicle speed signal		R	R		T			R				R	
	R		R		R		R			T	R		
Steering angle sensor signal						T				R			
4WD warning lamp signal					R		T <sup>*5</sup>			T <sup>*6</sup>			
Mode lamp signal					R		T <sup>*5</sup>			T <sup>*6</sup>			
A/C switch signal	R							T					
Day time running light request signal								T					R
Door lock/unlock signal				R				T					
Door switch signal				R	R			T					
Front fog light request signal					R			T	R				R
Front wiper request signal								T					R
Headlamp washer request signal								T					R
High beam request signal					R			T					R
Horn request signal								T					R
Ignition switch ON signal								T					R
Ignition switch signal				R				T					
Low beam request signal								T					R

# CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	AV	EPS	I-KEY	M&A	STRG	4WD	BCM	HVAC*1	ABS	TCM*2	TCM*3	IPDM-E
Oil pressure switch signal					R			T					
								R					T
Position light request signal					R			T	R				R
Rear fog lamp status signal					R			T	R				
Rear window defogger switch signal								T					R
Sleep wake up signal				R	R			T					R
Stop lamp switch signal	R							T			R	R	
Turn indicator signal					R			T					
Idle up request signal*1	R								T				
ABS operation signal										T	R		
ABS warning lamp signal					R					T			
ESP OFF indicator lamp signal					R					T			
ESP operation signal										T	R		
Shift schedule change demand signal										T	R		
Side G sensor signal										T	R		
SLIP indicator lamp signal					R					T			
Stop lamp switch signal							R			T			
A/T CHECK indicator lamp signal					R						T		
Manual mode indicator signal					R						T	T	
Shift position signal					R					R	T	T	
CVT self-diagnosis signal*4	R											T	
Current gear position signal										R	T	T	
Input shaft revolution signal*4	R											T	
Output shaft revolution signal*4	R											T	
Sport mode indicator signal					R							T	
Front wiper stop position signal								R					T
High beam status signal*4	R												T
Hood switch signal								R					T
Low beam status signal*4	R												T
Rear window defogger control signal*4	R												T

\*1: Diesel engine models only

\*2: A/T models

\*3: CVT models

\*4: Gasoline engine models only

\*5: Without ESP

\*6: With ESP

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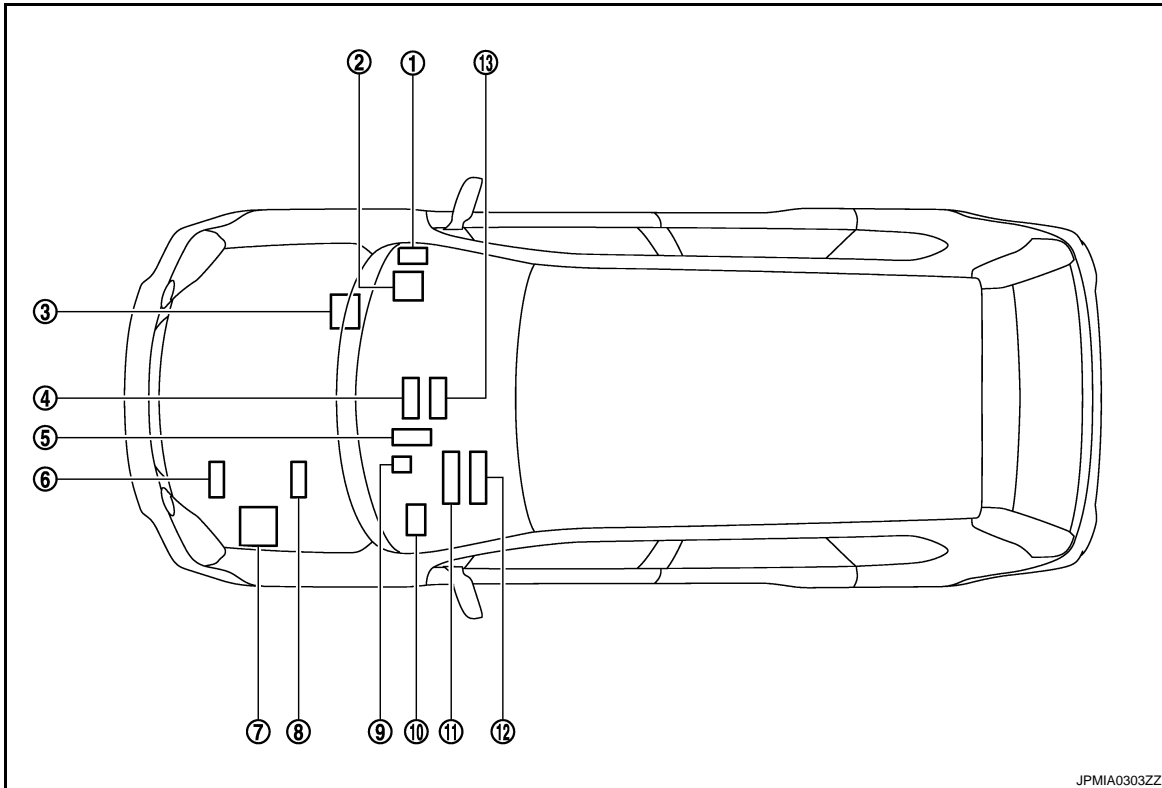
## COMPONENT DIAGNOSIS

### CAN COMMUNICATION SYSTEM

#### Component Parts Location

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#### LHD MODELS



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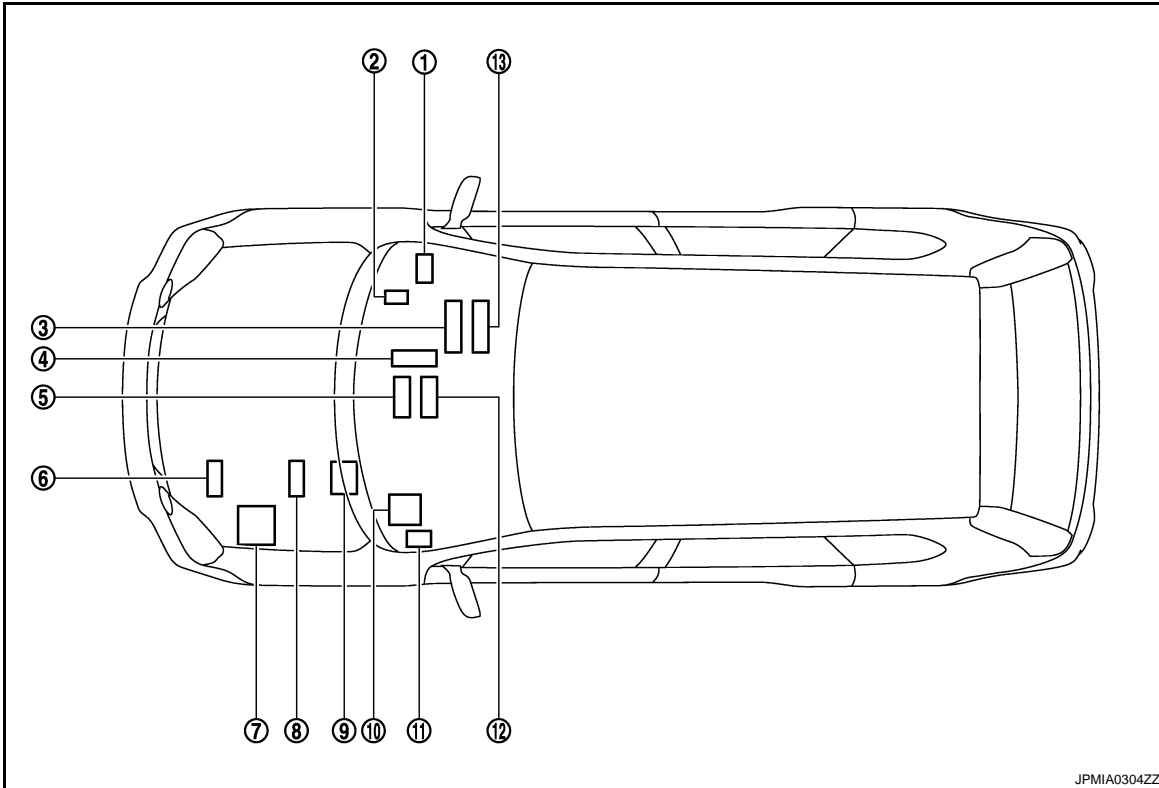
- |                            |   |  |
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| 1. 4WD control unit M69    | 2. BCM M65  | 3. ABS actuator and electric unit (control unit)<br>E34: With ABS<br>E36: With ESP |
| 4. Auto amp. M53           | 5. Intelligent Key unit M40   | 6. TCM<br>F23: A/T models<br>F25: CVT models                                       |
| 7. IPDM E/R E13            | 8. ECM<br>E60: M9R models<br>E16: MR20DE models<br>E19: QR25DE models | 9. EPS control unit M37  |
| 10. Data link connector M4 | 11. Combination meter M34   | 12. Steering angle sensor M30  |
| 13. NAVI control unit M72  |   |  |

#### RHD MODELS

# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]



- |                               |   |  |
|-------------------------------|---|--|
| 1. Data link connector M4     | 2. EPS control unit M37   | 3. Combination meter M34   |
| 4. Intelligent Key unit M40   | 5. Auto amp. M53  | 6. TCM<br>F23: A/T models<br>F25: CVT models                                       |
| 7. IPDM E/R E13               | 8. ECM<br>E60: M9R models<br>E16: MR20DE models<br>E19: QR25DE models | 9. ABS actuator and electric unit (control unit)<br>E34: With ABS<br>E36: With ESP |
| 10. BCM M65                   | 11. 4WD control unit M69  | 12. NAVI control unit M72  |
| 13. Steering angle sensor M30 |   |  |

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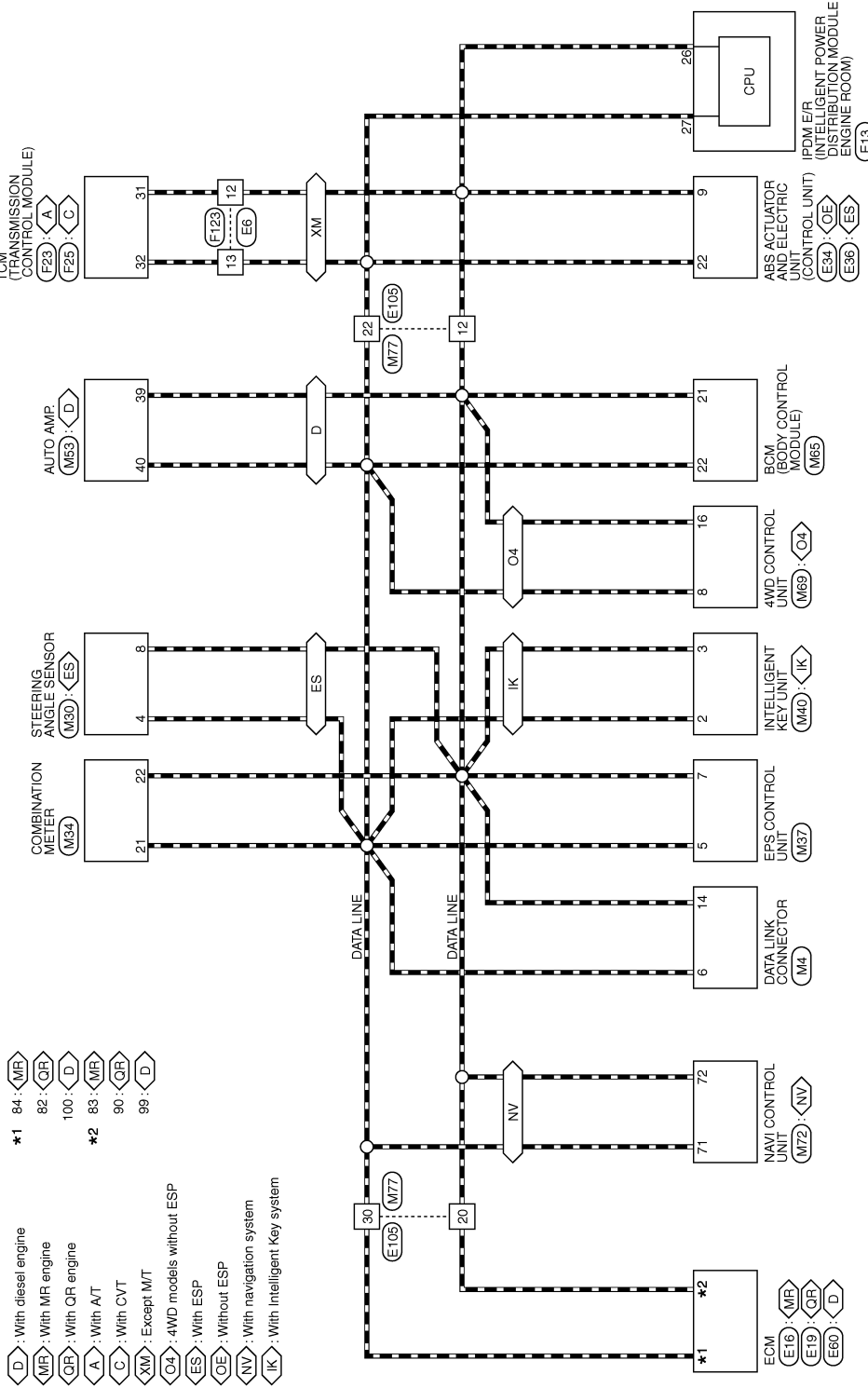
[CAN]

< COMPONENT DIAGNOSIS >

## Wiring Diagram - CAN SYSTEM (LHD MODELS) -

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### CAN SYSTEM (LHD MODELS)



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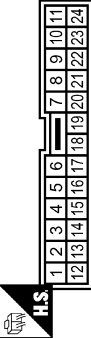
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

## CAN SYSTEM (LHD MODELS)


Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TK24MW-1V



Terminal No.	Signal Name [Specification]
12	- [Except M/T]
13	- [Except M/T]

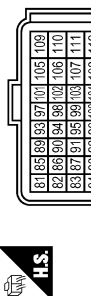
Connector No.	E13
Connector Name	IPDM E/R INTELLIGENT POWER DISTRIBUTION MODULE (ENGINE ROOM)
Connector Type	TH12FW-NH



Terminal No.	Color of Wire	Signal Name [Specification]
26	P	-
27	L	-

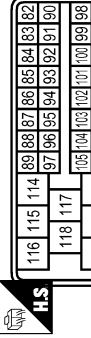
Connector No.	E16
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



Terminal No.	Color of Wire	Signal Name [Specification]
83	P	CAN-LI
84	L	CAN-HI


  

Connector No.	E19
Connector Name	ECM
Connector Type	BAA32FB-AH18



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

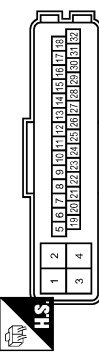
Connector No.	E34
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	RH28FB-NU4-DH



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

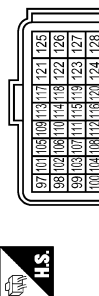
Connector No.	E36
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	RH28FB-NU4-DH



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


Connector No.	E60
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



Terminal No.	Color of Wire	Signal Name [Specification]
99	P	MAIN CAN-(BODY)
100	L	MAIN CAN-(BODY)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-GS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
12	P	-
20	P	-
22	L	-
30	L	-

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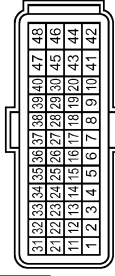
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

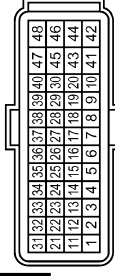
## CAN SYSTEM (LHD MODELS)

Connector No.	F23
Connector Name	TOM (TRANSMISSION CONTROL MODULE)
Connector Type	MAA40FB-MEA8-LH



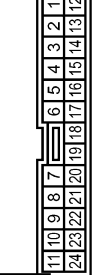
Terminal No.	Color of Wire	Signal Name [Specification]
31	P	CAN-L
32	L	CAN-H

Connector No.	F25
Connector Name	TOM (TRANSMISSION CONTROL MODULE)
Connector Type	MAA40FB-MEA8-LH



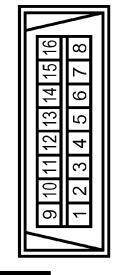
Terminal No.	Color of Wire	Signal Name [Specification]
31	P	CAN-L
32	L	CAN-H

Connector No.	F123
Connector Name	WIRE TO WIRE
Connector Type	TK24FW-IV



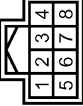
Terminal No.	Color of Wire	Signal Name [Specification]
12	P	- [Except M/T]
13	L	- [Except M/T]

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD18FW



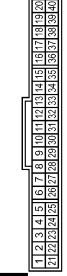
Terminal No.	Color of Wire	Signal Name [Specification]
6	L	-
14	P	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	THB8FW-NH




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

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	SAB40FW




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

Connector No.	M37
Connector Name	EPS CONTROL UNIT
Connector Type	Molex 98545-0001



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

Connector No.	M40
Connector Name	INTELLIGENT KEY UNIT
Connector Type	TH40FW-NH



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

JCMWA0509GE



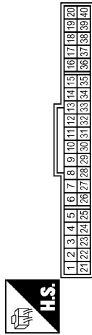
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

## CAN SYSTEM (LHD MODELS)

Connector No.	M53
Connector Name	AUTO AMP.
Connector Type	SAB4FW



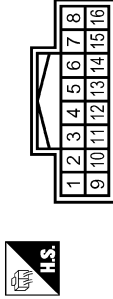
Terminal No.	Color of Wire	Signal Name [Specification]
39	P	CAN-L
40	L	CAN-H

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAAB4FB



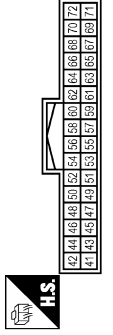
Terminal No.	Color of Wire	Signal Name [Specification]
21	P	CAN-L
22	L	CAN-H

Connector No.	M69
Connector Name	4WD CONTROL UNIT
Connector Type	TH1BFW-NH



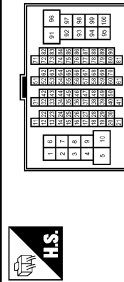
Terminal No.	Color of Wire	Signal Name [Specification]
8	L	CAN-H
16	P	CAN-L

Connector No.	M72
Connector Name	NAVI CONTROL UNIT
Connector Type	TH52FW-NH



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

Connector No.	M77
Connector Name	WIPE TO WIRE
Connector Type	TH80MW-CS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
20	P	-
22	L	-
30	L	-

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LAN

JCMWA0510GE

# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

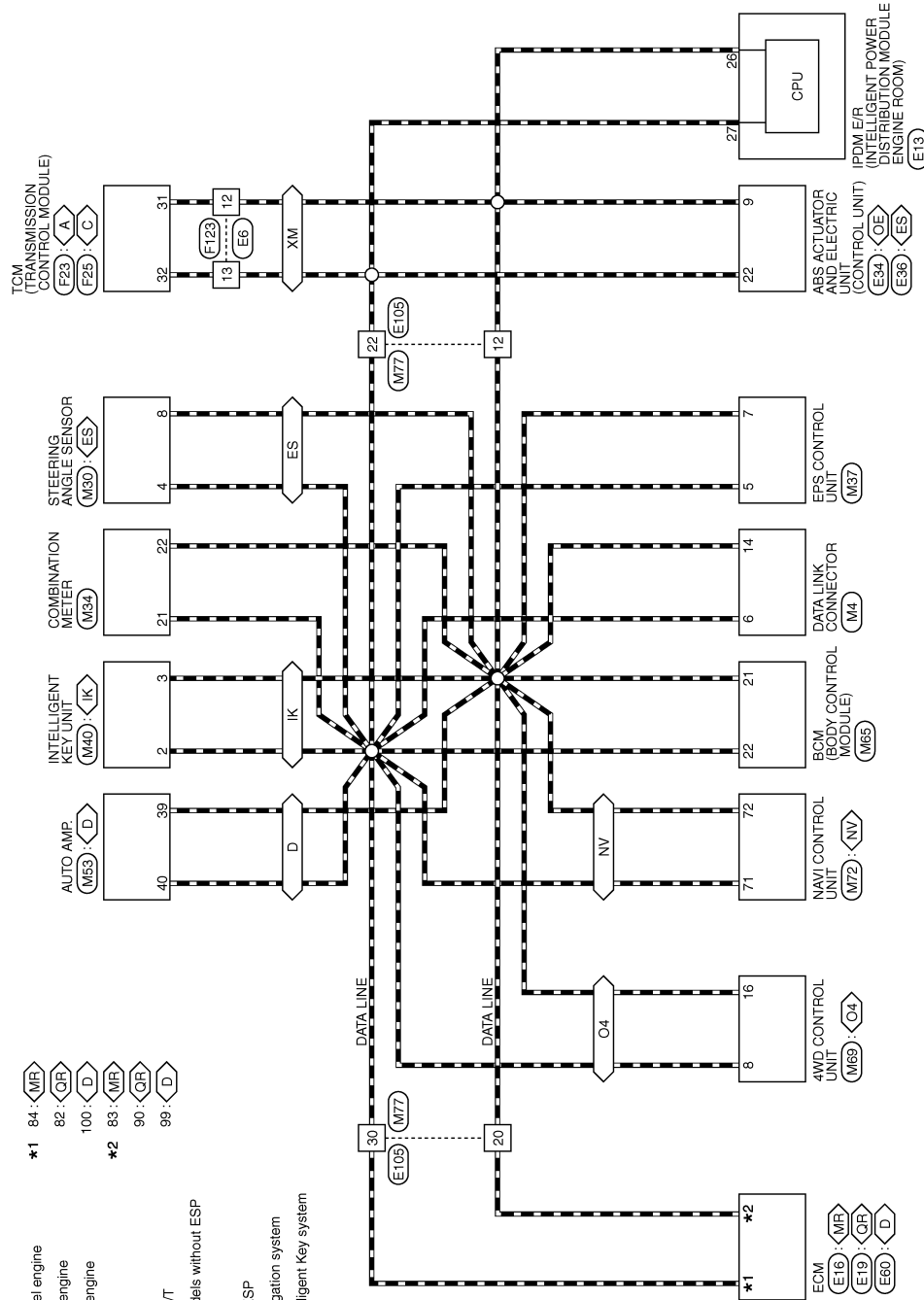
## Wiring Diagram - CAN SYSTEM (RHD MODELS) -

INFOID:000000001208751

### CAN SYSTEM (RHD MODELS)

- ★1 84: <ME>
- 82: <OR>
- 100: <D>
- ★2 83: <ME>
- 90: <OR>
- 99: <D>

- <D> : With diesel engine
- <MR> : With MR engine
- <QR> : With QR engine
- <A> : With A/T
- <C> : With CVT
- <XM> : Except M/T
- <O4> : 4WD models without ESP
- <ES> : With ESP
- <OE> : Without ESP
- <NV> : With navigation system
- <IK> : With Intelligent Key system



2007/02/28

JCMWA0511GE

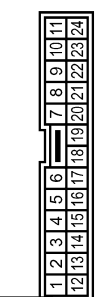
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

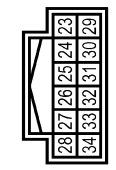
## CAN SYSTEM (RHD MODELS)

Connector No.	E6
Connector Name	WIRE TO WIRE
Connector Type	TK24MW-1V



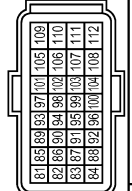
Terminal No.	Signal Name [Specification]
12	- [Except M/T]
13	- [Except M/T]

Connector No.	E13
Connector Name	IPDM E/R INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH



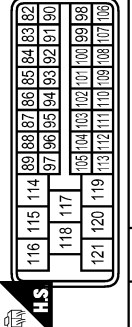
Terminal No.	Signal Name [Specification]
26	-
27	-

Connector No.	E16
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



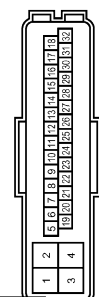
Terminal No.	Signal Name [Specification]
83	CAN-LI
84	CAN-HI

Connector No.	E19
Connector Name	ECM
Connector Type	BAA32FB-AH18




Terminal No.	Signal Name [Specification]
82	VEHCAN-H
90	VEHCAN-L

Connector No.	E34
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	RH2FB-NU4-DH



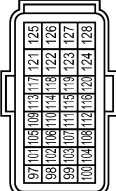
Terminal No.	Signal Name [Specification]
9	CAN-L
22	CAN-H

Connector No.	E36
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	RH2FB-NU4-DH



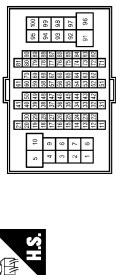
Terminal No.	Signal Name [Specification]
9	CAN-L
22	CAN-H

Connector No.	E60
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



Terminal No.	Signal Name [Specification]
99	MAIN CAN-(BODY)
100	MAIN CAN-(BODY)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-GS16-TM4



Terminal No.	Signal Name [Specification]
12	-
20	-
22	-
30	-

JCMWA0512GE

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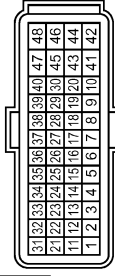
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

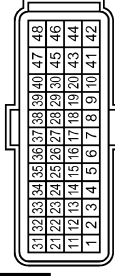
## CAN SYSTEM (RHD MODELS)

Connector No.	F23
Connector Name	TOM (TRANSMISSION CONTROL MODULE)
Connector Type	MAA40FB-MEA8-LH



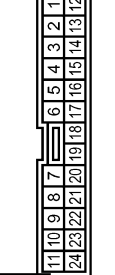
Terminal No.	Color of Wire	Signal Name [Specification]
31	P	CAN-L
32	L	CAN-H

Connector No.	F25
Connector Name	TOM (TRANSMISSION CONTROL MODULE)
Connector Type	MAA40FB-MEA8-LH



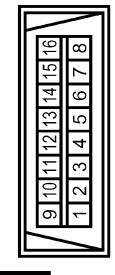
Terminal No.	Color of Wire	Signal Name [Specification]
31	P	CAN-L
32	L	CAN-H

Connector No.	F123
Connector Name	WIRE TO WIRE
Connector Type	TK24FW-IV



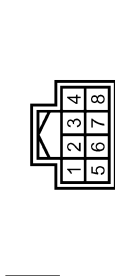
Terminal No.	Color of Wire	Signal Name [Specification]
12	P	- [Except M/T]
13	L	- [Except M/T]

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	BD18FW



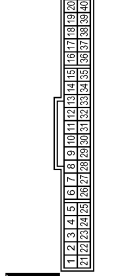
Terminal No.	Color of Wire	Signal Name [Specification]
6	L	-
14	P	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	THB8FW-NH



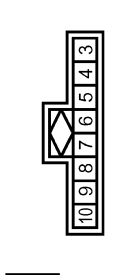
Terminal No.	Color of Wire	Signal Name [Specification]
4	L	CAN-H
8	P	CAN-L

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	SAB40FW



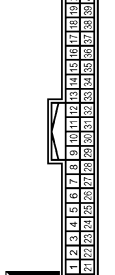
Terminal No.	Color of Wire	Signal Name [Specification]
21	L	CAN-H
22	P	CAN-L

Connector No.	M37
Connector Name	EPS CONTROL UNIT
Connector Type	Molex 98545-0001



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

Connector No.	M40
Connector Name	INTELLIGENT KEY UNIT
Connector Type	TH40FW-NH



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

JCMWA0513GE


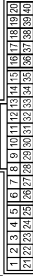
# CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]



## CAN SYSTEM (RHD MODELS)

Connector No.	M53
Connector Name	AUTO AMP.
Connector Type	SAB4FW


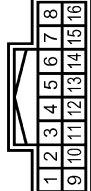
Terminal No.	Color of Wire	Signal Name [Specification]
39	P	CAN-L
40	L	CAN-H

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAAB4FB



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

Connector No.	M69
Connector Name	4WD CONTROL UNIT
Connector Type	TH1BFV-NH


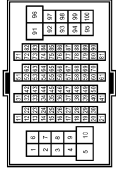
Terminal No.	Color of Wire	Signal Name [Specification]
8	L	CAN-H
16	P	CAN-L

Connector No.	M72
Connector Name	NAVI CONTROL UNIT
Connector Type	TH52FW-NH

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

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

Terminal No.	Color of Wire	Signal Name [Specification]
12	P	-
20	P	-
22	L	-
30	L	-

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# MALFUNCTION AREA CHART

< COMPONENT DIAGNOSIS >

[CAN]

## MALFUNCTION AREA CHART

### Main Line

INFOID:000000001208752

Malfunction Area	Reference
Main line between NAVI control unit and data link connector	<a href="#">LAN-39. "Diagnosis Procedure"</a>
Main line between data link connector and BCM	<a href="#">LAN-40. "Diagnosis Procedure"</a>
Main line between BCM and ABS actuator and electric unit (control unit) (LHD models)	<a href="#">LAN-41. "Diagnosis Procedure"</a>
Main line between data link connector and ABS actuator and electric unit (control unit)	<a href="#">LAN-42. "Diagnosis Procedure"</a>

### Branch Line

INFOID:000000001208753

Malfunction Area	Reference
ECM branch line circuit	<a href="#">LAN-43. "Diagnosis Procedure"</a>
NAVI control unit branch line circuit	<a href="#">LAN-45. "Diagnosis Procedure"</a>
Data link connector branch line circuit	<a href="#">LAN-46. "Diagnosis Procedure"</a>
EPS control unit branch line circuit	<a href="#">LAN-47. "Diagnosis Procedure"</a>
Intelligent Key unit branch line circuit	<a href="#">LAN-48. "Diagnosis Procedure"</a>
Combination meter branch line circuit	<a href="#">LAN-49. "Diagnosis Procedure"</a>
Steering angle sensor branch line circuit	<a href="#">LAN-50. "Diagnosis Procedure"</a>
4WD control unit branch line circuit	<a href="#">LAN-51. "Diagnosis Procedure"</a>
BCM branch line circuit	<a href="#">LAN-52. "Diagnosis Procedure"</a>
Auto amp. branch line circuit	<a href="#">LAN-53. "Diagnosis Procedure"</a>
ABS actuator and electric unit (control unit) branch line circuit	<a href="#">LAN-54. "Diagnosis Procedure"</a>
TCM branch line circuit	<a href="#">LAN-55. "Diagnosis Procedure"</a>
IPDM E/R branch line circuit	<a href="#">LAN-56. "Diagnosis Procedure"</a>

### Short Circuit

INFOID:000000001208754

Malfunction Area	Reference
CAN communication circuit	<a href="#">LAN-57. "Diagnosis Procedure"</a>

# MAIN LINE BETWEEN AV AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN AV AND DLC CIRCUIT

### Diagnosis Procedure

INFOID:000000001208755

#### 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
  - NAVI control unit
4. Check the continuity between the NAVI control unit harness connector and data link connector.

NAVI control unit harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M72	71	M4	6	Existed
	72		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 NAVI control unit and the data link connector.

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

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# MAIN LINE BETWEEN DLC AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND BCM CIRCUIT

### Diagnosis Procedure

INFOID:000000001208756

#### 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	M65	22	Existed
	14		21	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]

## MAIN LINE BETWEEN BCM AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000001208757

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - 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 M77 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.	
M65	22	M77	22	Existed
	21		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

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

##### 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	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	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).

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# MAIN LINE BETWEEN DLC AND ABS CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## MAIN LINE BETWEEN DLC AND ABS CIRCUIT

### Diagnosis Procedure

INFOID:000000001208758

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the following terminals and connectors for damage, bend and loose connection (connector side and harness side).
  - Harness connector M77
  - 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 harness connectors M77 and E105.
2. Check the continuity between the data link connector and the harness connector.

Data link connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M4	6	M77	22	Existed
	14		12	Existed

Is the inspection result normal?

YES >> GO TO 3.

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

##### 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	22	E34	22	Existed
	12		9	Existed

- Models with ESP

Harness connector		ABS actuator and electric unit (control unit) harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E105	22	E36	22	Existed
	12		9	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 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

[CAN]

< COMPONENT DIAGNOSIS >

## ECM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208762

#### 1. CHECK CONNECTOR

1. Turn the ignition 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 M77

Is the 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.
  - M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E60	100	99	Approx. 108 – 132

- MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	Approx. 108 – 132

- QR25DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E19	82	90	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 the following.

- M9R: [ECR-111, "Diagnosis Procedure"](#)
- MR20DE: [ECM-104, "Diagnosis Procedure"](#)
- QR25DE (With EURO-OBD): [ECQ-106, "Diagnosis Procedure"](#)
- QR25DE (Without EURO-OBD): [ECQ-447, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE: [ECM-13, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (With EURO-OBD): [ECQ-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- QR25DE (Without EURO-OBD): [ECQ-366, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

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

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## ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

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

# AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## AV BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208768

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

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

NAVI control unit harness connector		Resistance (Ω)
Connector No.	Terminal No.	
M72	71	Approx. 54 – 66
	72	

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the NAVI control unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the NAVI control unit. Refer to [AV-107, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-257, "Exploded View"](#).

YES (Past error)>>Error was detected in the NAVI control unit 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:000000001208769

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

Check the resistance between the data link connector terminals.

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

Is the measurement value within the specification?

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

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

NO >> Repair the data link connector branch line.

# EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## EPS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208770

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2. CHECK HARNESS FOR OPEN CIRCUIT

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

EPS control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M37	5	7	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the EPS control unit branch line.

##### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the EPS control unit. Refer to [STC-8, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the EPS control unit. Refer to [ST-10, "Exploded View"](#).

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

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

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# I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## I-KEY BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208771

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

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

Intelligent Key unit harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M40	2	3	Approx. 54 – 66

Is the measurement value within the specification?

YES >> GO TO 3.

NO >> Repair the Intelligent Key unit branch line.

##### 3.CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the Intelligent Key unit. Refer to [SEC-58, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [SEC-13, "Component Parts Location"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit 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:000000001208767

#### INSPECTION PROCEDURE

##### 1. CHECK CONNECTOR

1. Turn the ignition switch OFF.
2. Disconnect the battery cable from the negative terminal.
3. Check the terminals and connectors of the 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	Approx. 54 – 66
	22	

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-35, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-83, "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:000000001208772

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

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

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair the terminal and connector.

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

Steering angle sensor harness connector			Resistance ( $\Omega$ )
Connector No.	Terminal No.		
M30	4	8	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-179, "Wiring Diagram -BRAKE CONTROL SYSTEM"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-205, "Exploded View"](#).

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

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

# 4WD BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## 4WD BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208765

#### 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 4WD control unit connector for damage, bend and loose connection (unit side and connector side).

Is the inspection result normal?

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

#### 2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of 4WD control unit.
2. Check the resistance between the 4WD control unit harness connector terminals.

4WD control unit harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M69	8	16	Approx. 54 – 66

Is the measurement value within the specification?

- YES >> GO TO 3.  
NO >> Repair the 4WD control unit branch line.

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the 4WD control unit. Refer to [DLN-32, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- LHD models: [DLN-66, "LHD : Exploded View"](#)
  - RHD models: [DLN-67, "RHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.  
NG >> Repair the power supply and the ground circuit.

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# BCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## BCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208766

#### 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.		
M65	22	21	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-35. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the BCM. Refer to [BCS-68. "Exploded View"](#).  
YES (Past error)>>Error was detected in the BCM branch line.  
NO >> Repair the power supply and the ground circuit.

# HVAC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## HVAC BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001209021

#### 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 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 auto amp.
2. Check the resistance between the auto amp. harness connector terminals.

Auto amp. harness connector			Resistance (Ω)
Connector No.	Terminal No.		
M53	40	39	Approx. 54 – 66

Is the measurement value within the specification?

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

#### 3. CHECK POWER SUPPLY AND GROUND CIRCUIT

Check the power supply and the ground circuit of the auto amp. Refer to [HAC-103, "M9R : Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the auto amp. Refer to [HAC-18, "Component Part Location"](#).  
YES (Past error)>>Error was detected in the auto amp. branch line.  
NO >> Repair the power supply and the ground circuit.

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# ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## ABS BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208763

#### 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	22	9	Approx. 54 – 66

- Models with ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	22	9	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-26. "Diagnosis Procedure"](#)
- Models with ESP: [BRC-115. "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to [BRC-70. "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

< COMPONENT DIAGNOSIS >

[CAN]

## TCM BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208764

#### 1. CHECK CONNECTOR

1. Turn the ignition 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.
  - A/T models

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

- CVT models

TCM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
F25	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.

- A/T models: [TM-283, "Diagnosis Procedure"](#)
- CVT models: [TM-442, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the TCM. Refer to the following.
- A/T models: [TM-340, "Exploded View"](#)
  - CVT models (MR20DE): [TM-513, "MR20DE : Exploded View"](#)
  - CVT models (QR25DE): [TM-514, "QR25DE : Exploded View"](#)

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

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# IPDM-E BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## IPDM-E BRANCH LINE CIRCUIT

### Diagnosis Procedure

INFOID:000000001208773

#### INSPECTION PROCEDURE

##### 1.CHECK CONNECTOR

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

Is the inspection result normal?

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

##### 2.CHECK HARNESS FOR OPEN CIRCUIT

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

IPDM E/R harness connector		Resistance (Ω)
Connector No.	Terminal No.	
E13	27	Approx. 108 – 132
	26	

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-15, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the IPDM E/R. Refer to [PCS-28, "Exploded View"](#).  
YES (Past error)>>Error was detected in the IPDM E/R branch line.  
NO >> Repair the power supply and the ground circuit.



# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

## CAN COMMUNICATION CIRCUIT

### Diagnosis Procedure

INFOID:000000001208774

#### INSPECTION PROCEDURE

#### 1. CONNECTOR INSPECTION

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

Is the inspection result normal?

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

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

Check the continuity between the data link connector terminals.

Data link connector		Continuity
Connector No.	Terminal No.	
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

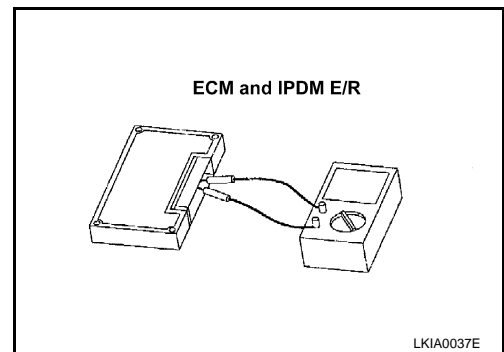
1. Remove the ECM and the IPDM E/R.
2. Check the resistance between the ECM terminals.
  - M9R models

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

- MR20DE models

ECM		Resistance (Ω)
Terminal No.		
84	83	Approx. 108 – 132

- QR25DE models



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# CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

ECM		Resistance ( $\Omega$ )
Terminal No.		
82	90	Approx. 108 – 132

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

IPDM E/R		Resistance ( $\Omega$ )
Terminal No.		
27	26	Approx. 108 – 132

Is the measurement value within the specification?

YES >> GO TO 5.

NO >> Replace the ECM and/or the IPDM E/R.

## 5.CHECK SYMPTOM

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

Inspection result

Reproduced>>GO TO 6.

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

## 6.CHECK UNIT REPRODUCTION

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

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

**NOTE:**

ECM and IPDM E/R have a termination circuit. Check other units first.

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

**NOTE:**

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

Inspection result

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

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