

SECTION LAN

LAN SYSTEM

A
B
C

CONTENTS

D
E

CAN FUNDAMENTAL

PRECAUTION	3
PRECAUTIONS	3
Precautions for Trouble Diagnosis	3
Precautions for Harness Repair	3
FUNCTION DIAGNOSIS	4
CAN COMMUNICATION SYSTEM	4
System Description	4
System Diagram	4
CAN Communication Control Circuit	5
DIAG ON CAN	6
Description	6
System Diagram	6
TROUBLE DIAGNOSIS	7
Condition of Error Detection	7
Symptom When Error Occurs in CAN Communi- cation System	7
CAN Diagnosis with CONSULT-III	10
Self-Diagnosis	10
CAN Diagnostic Support Monitor	10
How to Use CAN Communication Signal Chart	12
BASIC INSPECTION	13
DIAGNOSIS AND REPAIR WORKFLOW	13
Trouble Diagnosis Flow Chart	13
Trouble Diagnosis Procedure	13
CAN	
HOW TO USE THIS MANUAL	18
HOW TO USE THIS SECTION	18
Caution	18
Abbreviation List	18
PRECAUTION	19

PRECAUTIONS	19
Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	19
Precautions for Trouble Diagnosis	19
Precautions for Harness Repair	19
BASIC INSPECTION	21
DIAGNOSIS AND REPAIR WORKFLOW	21
Interview Sheet	21
FUNCTION DIAGNOSIS	22
CAN COMMUNICATION SYSTEM	22
CAN System Specification Chart	22
CAN Communication Signal Chart	28
COMPONENT DIAGNOSIS	31
CAN COMMUNICATION SYSTEM	31
Component Parts Location	31
Wiring Diagram - CAN SYSTEM (LHD MODELS) -	33
Wiring Diagram - CAN SYSTEM (RHD MODELS) -	37
MALFUNCTION AREA CHART	41
Main Line	41
Branch Line	41
Short Circuit	41
MAIN LINE BETWEEN ABS AND BCM CIR- CUIT	42
Diagnosis Procedure	42
MAIN LINE BETWEEN ABS AND TCM CIR- CUIT	43
Diagnosis Procedure	43
MAIN LINE BETWEEN TCM AND BCM CIR- CUIT	44

F
G
H
I
J
K
L

LAN

N
O
P

Diagnosis Procedure	44	Diagnosis Procedure	53
MAIN LINE BETWEEN BCM AND DLC CIR- CUIT	45	BCM BRANCH LINE CIRCUIT	54
Diagnosis Procedure	45	Diagnosis Procedure	54
MAIN LINE BETWEEN ABS AND DLC CIR- CUIT	46	M&A BRANCH LINE CIRCUIT	55
Diagnosis Procedure	46	Diagnosis Procedure	55
MAIN LINE BETWEEN TCM AND DLC CIR- CUIT	47	AV BRANCH LINE CIRCUIT	56
Diagnosis Procedure	47	Diagnosis Procedure	56
MAIN LINE BETWEEN DLC AND BCM CIR- CUIT	48	DLC BRANCH LINE CIRCUIT	57
Diagnosis Procedure	48	Diagnosis Procedure	57
ECM BRANCH LINE CIRCUIT	49	EPS BRANCH LINE CIRCUIT	58
Diagnosis Procedure	49	Diagnosis Procedure	58
ABS BRANCH LINE CIRCUIT	51	I-KEY BRANCH LINE CIRCUIT	59
Diagnosis Procedure	51	Diagnosis Procedure	59
TCM BRANCH LINE CIRCUIT	52	STRG BRANCH LINE CIRCUIT	60
Diagnosis Procedure	52	Diagnosis Procedure	60
4WD BRANCH LINE CIRCUIT	53	IPDM-E BRANCH LINE CIRCUIT	61
		Diagnosis Procedure	61
		CAN COMMUNICATION CIRCUIT	62
		Diagnosis Procedure	62

PRECAUTION

PRECAUTIONS

Precautions for Trouble Diagnosis

INFOID:000000001189913

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.

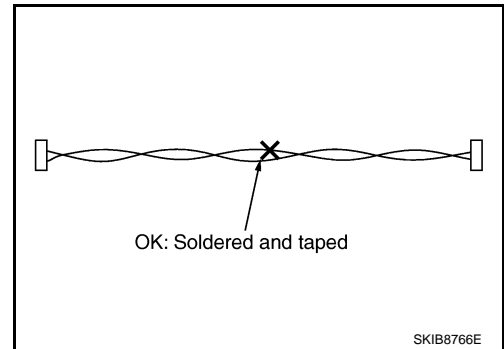
Precautions for Harness Repair

INFOID:000000001189914

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

NOTE:

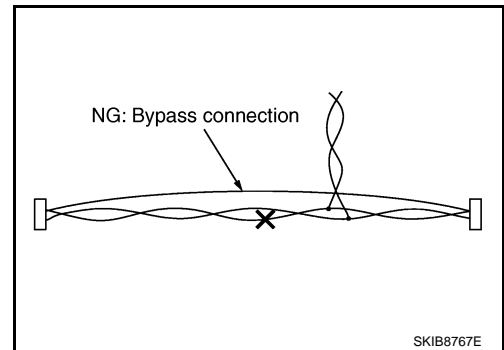
A fray of twisted lines must be within 110 mm (4.33 in).



- 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

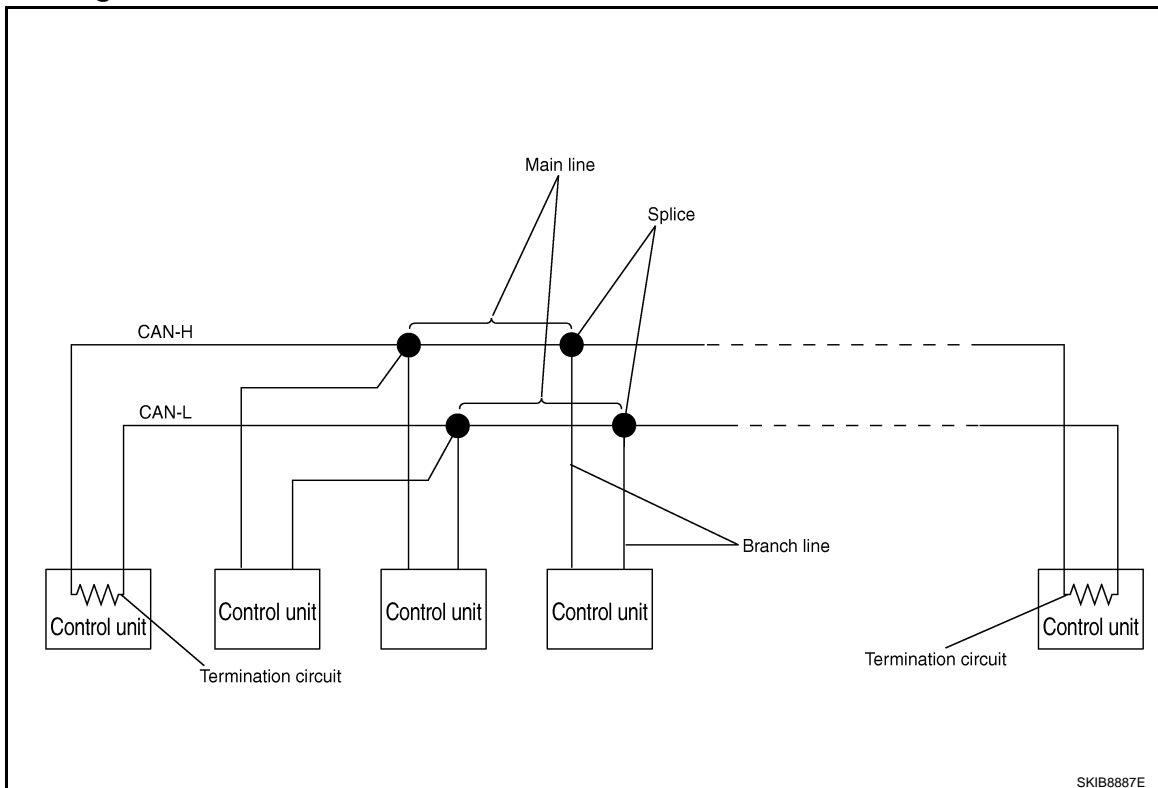
System Description

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

System Diagram

INFOID:000000001189916



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-5, "CAN Communication Control Circuit" .

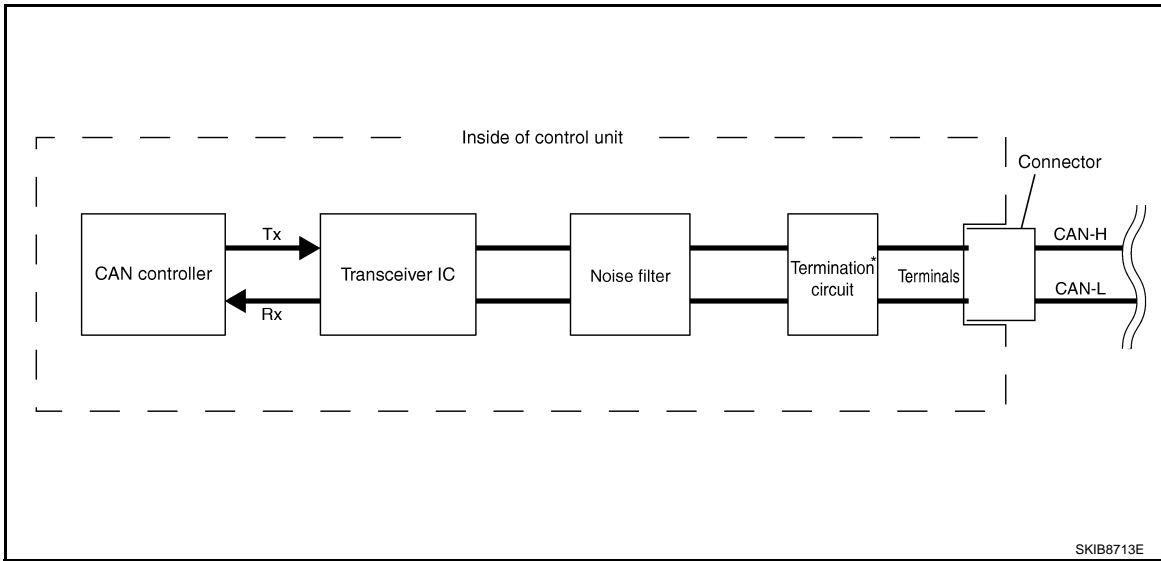
CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

CAN Communication Control Circuit

INFOID:000000001189917



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

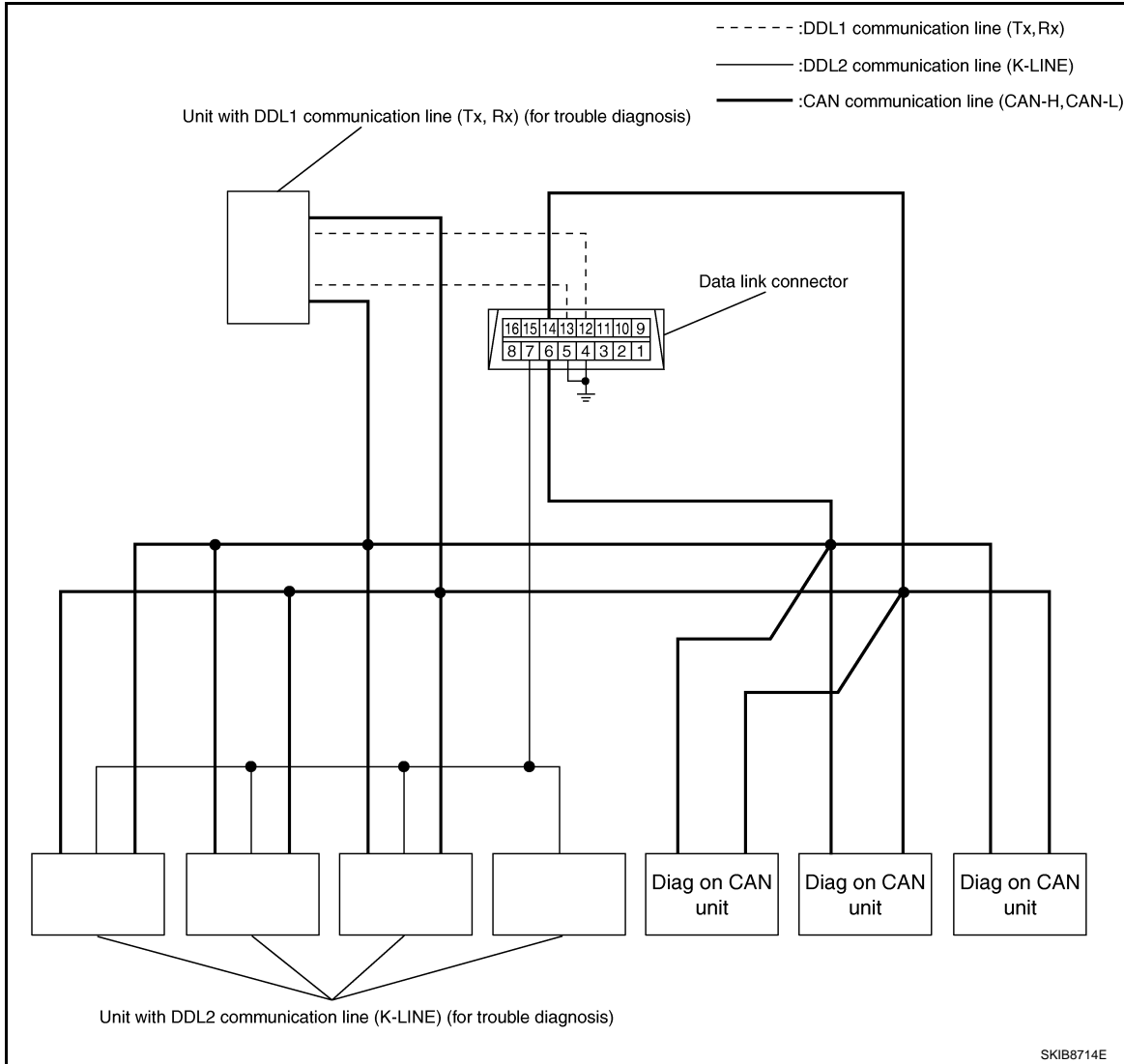
Description

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“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:000000001189920

“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

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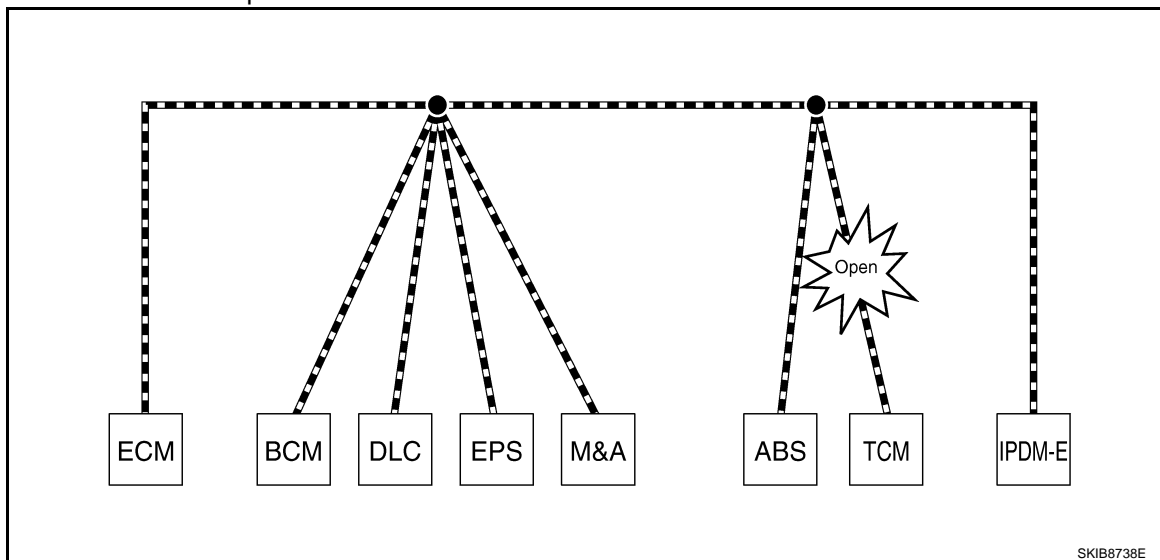
In CAN communication system, multiple units mutually transmit and receive signals. Each unit cannot transmit and receive signals if any error occurs on CAN communication line. Under this condition, multiple control units related to the root cause malfunction or go into fail-safe mode.

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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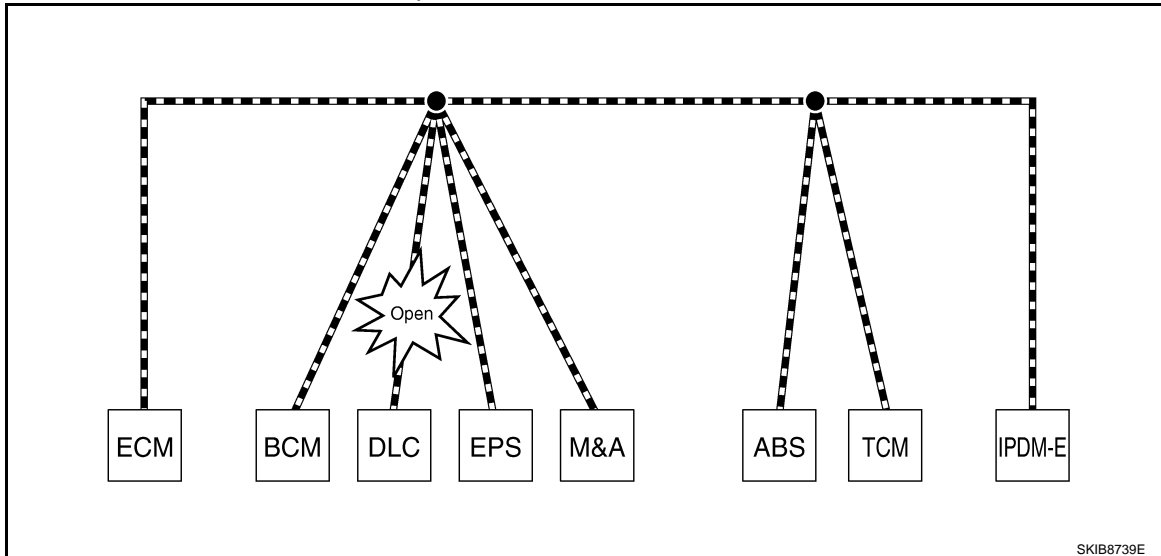
TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Unit name	Symptom
EPS control unit	Normal operation.
Combination meter	<ul style="list-style-type: none"> 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.

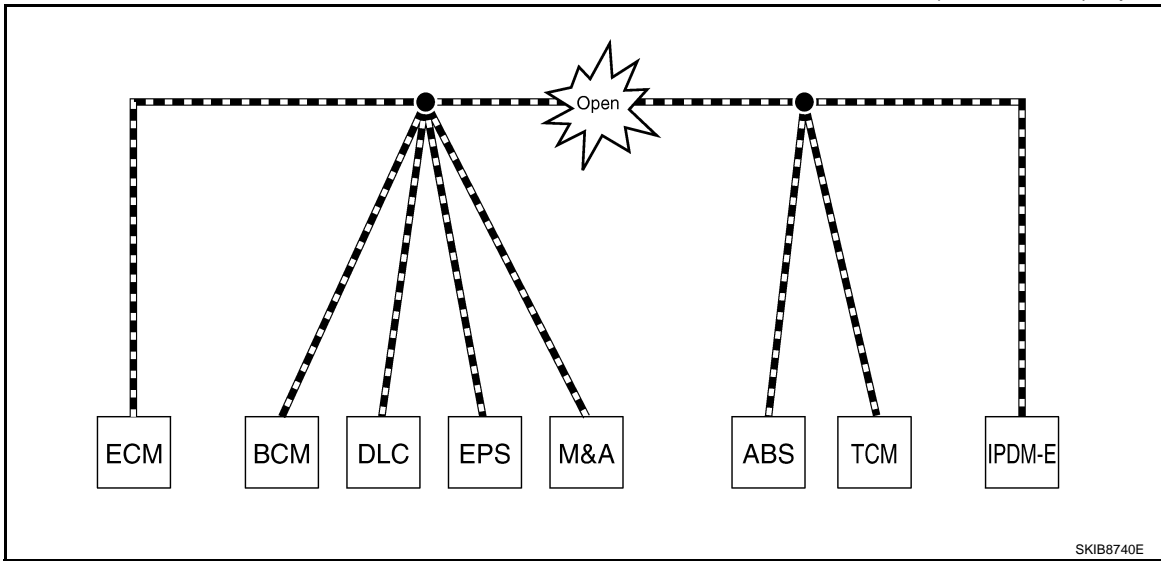
Error	Difference of symptom
Data link connector branch line open circuit	Normal operation.
CAN-H, CAN-L harness short-circuit	Most of the units which are connected to the CAN communication system enter fail-safe mode or are deactivated.

TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

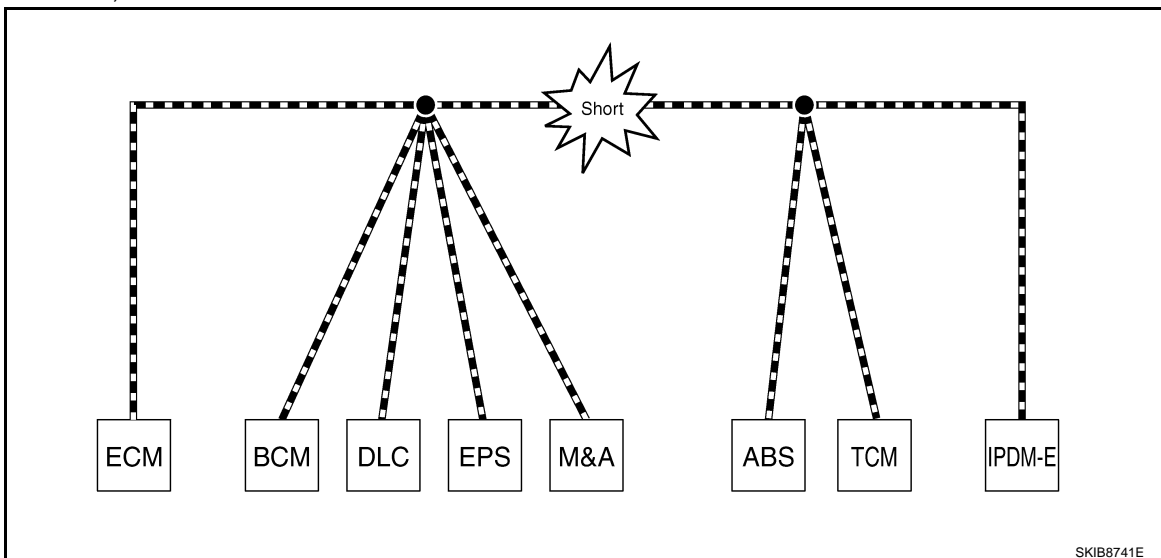
[CAN FUNDAMENTAL]

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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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, <ul style="list-style-type: none"> The headlamps (Lo) turn ON. The cooling fan continues to rotate.

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



A
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LAN

TROUBLE DIAGNOSIS

< FUNCTION DIAGNOSIS >

[CAN FUNDAMENTAL]

Unit name	Symptom
ECM	<ul style="list-style-type: none"> Engine torque limiting is affected, and shift harshness increases. Engine speed drops.
BCM	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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, <ul style="list-style-type: none"> The headlamps (Lo) turn ON. The cooling fan continues to rotate.

CAN Diagnosis with CONSULT-III

INFOID:000000001189922

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:000000001189923

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.	Replace the control unit indicating "U1010".

CAN Diagnostic Support Monitor

INFOID:000000001189924

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

< 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:000000001189925

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

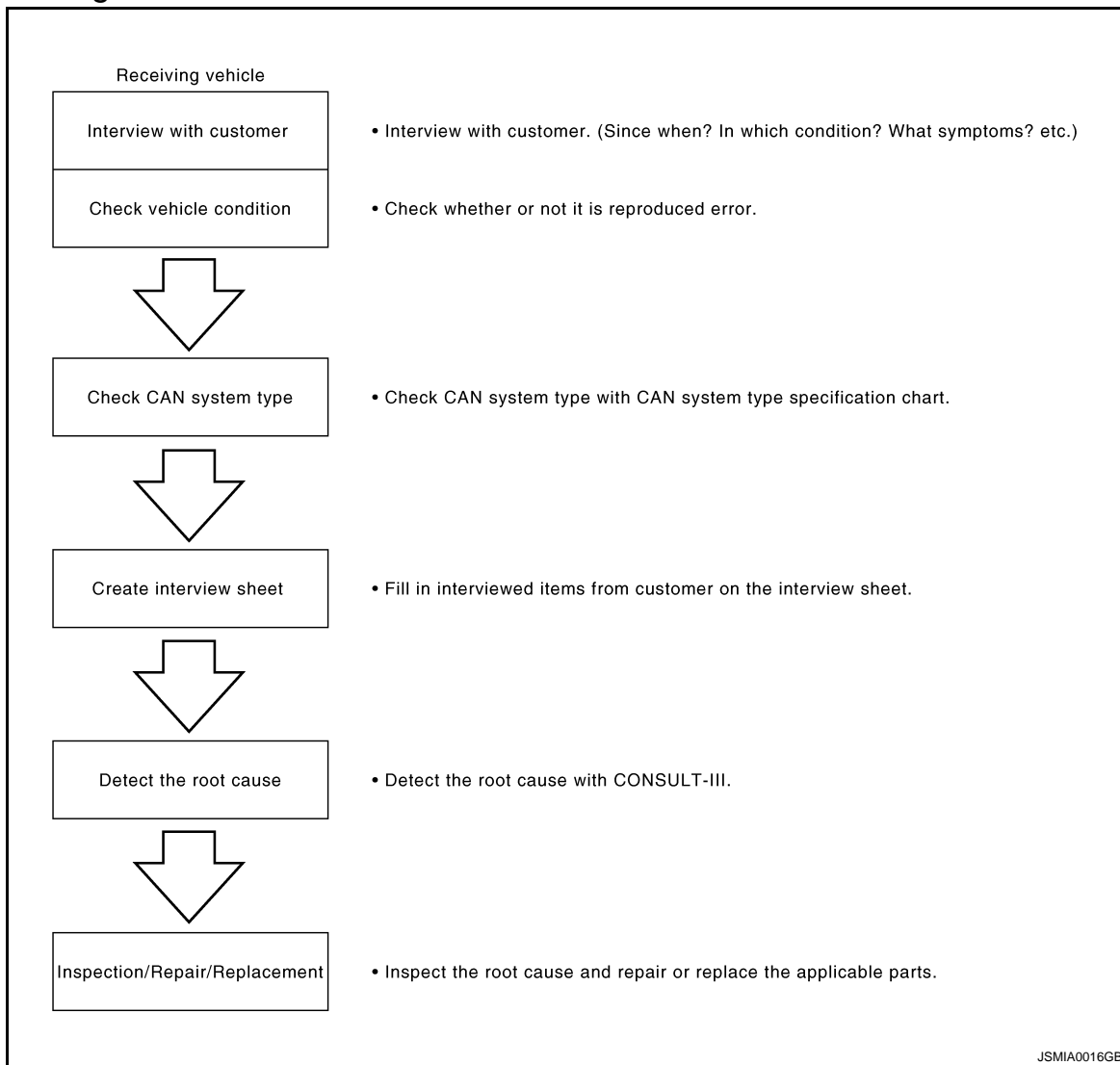
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BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Trouble Diagnosis Flow Chart

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Trouble Diagnosis Procedure

INFOID:000000001189927

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:

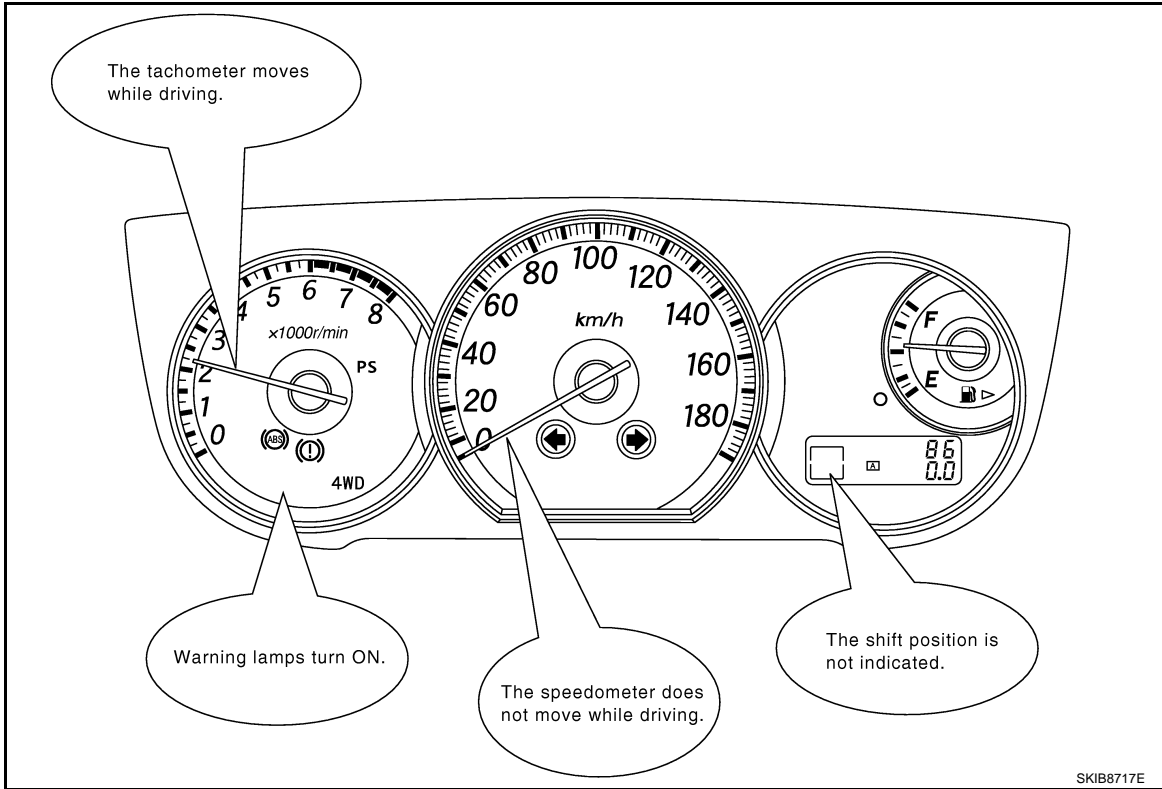
- Check normal units as well as error symptoms.
- Example: Circuit between ECM and the combination meter is judged normal if the customer indicates tachometer functions normally.
- When a CAN communication system error is present, multiple control units may malfunction or go into fail-safe mode.

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.)

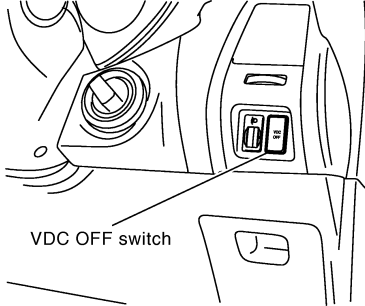
CAN System Specification Chart
Determine CAN system type from the following specification chart.

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

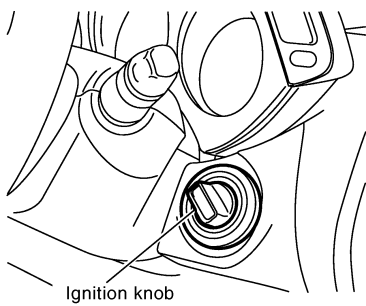
VEHICLE EQUIPMENT IDENTIFICATION INFORMATION
NOTE:
Check CAN system type from the vehicle shape and equipment.

With VDC



VDC OFF switch

With Intelligent Key system



Ignition knob

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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C
D
E
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CAN System Type Specification Chart (Style B)

NOTE:

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P

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		
Axle	2WD		AWD
Engine	HR15DE	MR20DE	HR15DE
Transmission	AT	CVT	AT
Brake control	ABS		
Specification chart	XXX SPECIFICATION CHART A	YYY SPECIFICATION CHART B	XXX SPECIFICATION CHART C

Check the vehicle equipment with the vehicle identification number plate.

Check the vehicle equipment.

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

x: Applicable

SPECIFICATION CHART B

Determine CAN system type from the following specification chart.

Body type	Sedan											
Axle	2WD											
Engine	MR20DE											
Transmission	CVT											
Brake control	ABS											
Active AFS	x			x	x			x	x	x	x	
Intelligent Key system		x		x		x	x	x	x	x	x	
Navigation system			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	XXX SPECIFICATION CHART A											

Check the vehicle equipment.

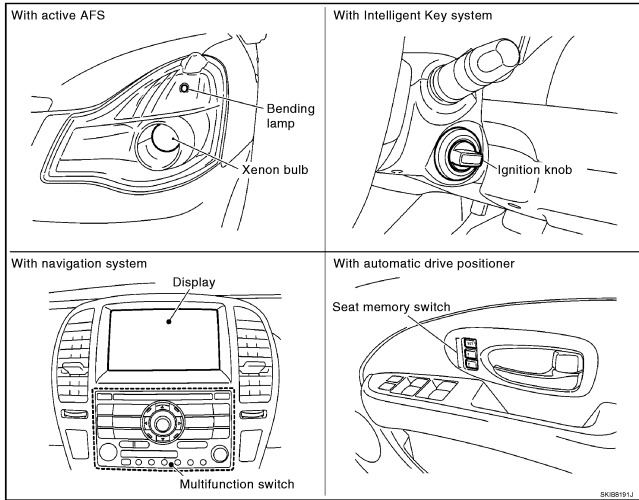
The number indicates the CAN system type of the vehicle.

x: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

Check CAN system type from the vehicle shape and equipment.



In the above example,

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

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

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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.

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">• 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	
<p>The engine does not start. While turning the ignition switch ON,</p> <ul style="list-style-type: none">• 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.

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HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Caution

INFOID:00000000118928

- 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:00000000118929

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
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:000000001583063

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the "SRS 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:000000001189931

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.

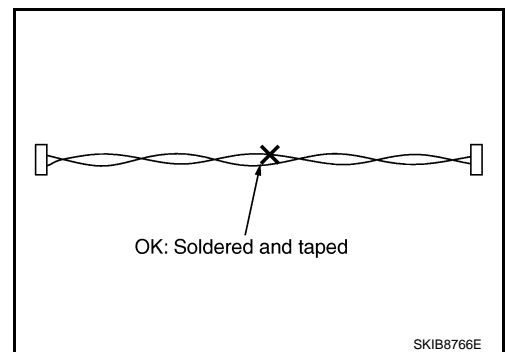
Precautions for Harness Repair

INFOID:000000001189932

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

NOTE:

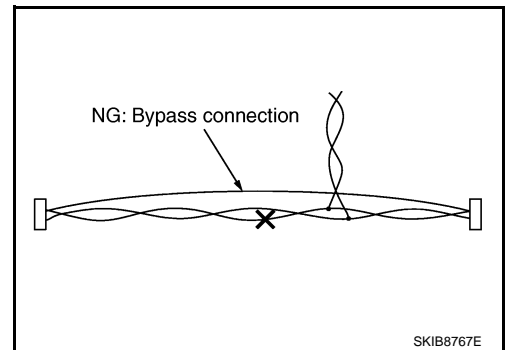
A fray of twisted lines must be within 110 mm (4.33 in).



- 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.



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PRECAUTIONS

< PRECAUTION >

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-
- 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:000000001189933

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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CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

FUNCTION DIAGNOSIS

CAN COMMUNICATION SYSTEM

CAN System Specification Chart

INFOID:000000001189934

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	Hatchback							
Axle	2WD				4WD			
Engine	K9K	M9R	HR16DE	MR20DE	M9R		MR20DE	
Transmission	M/T			CVT	M/T	A/T	M/T	CVT
Brake control	ABS/ESP							
Specification chart	SPECIFICATION CHART A	SPECIFICATION CHART B	SPECIFICATION CHART C	SPECIFICATION CHART D	SPECIFICATION CHART E		SPECIFICATION CHART F	

SPECIFICATION CHART A

Determine CAN system type from the following specification chart.

Body type	Hatchback								
Axle	2WD								
Engine	K9K								
Transmission	M/T								
Brake control	ABS				ESP				
Intelligent Key system			×	×			×	×	
Navigation system		×		×		×		×	
CAN system type	RHD	1	2	3	4	5	6	7	8
	LHD	49	50	51	52	53	54	55	56
Start CAN Diagnosis (CONSULT-III)	RHD	1	2	3	4	5	6	7	8
	LHD	49	50	51	52	53	54	55	56

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

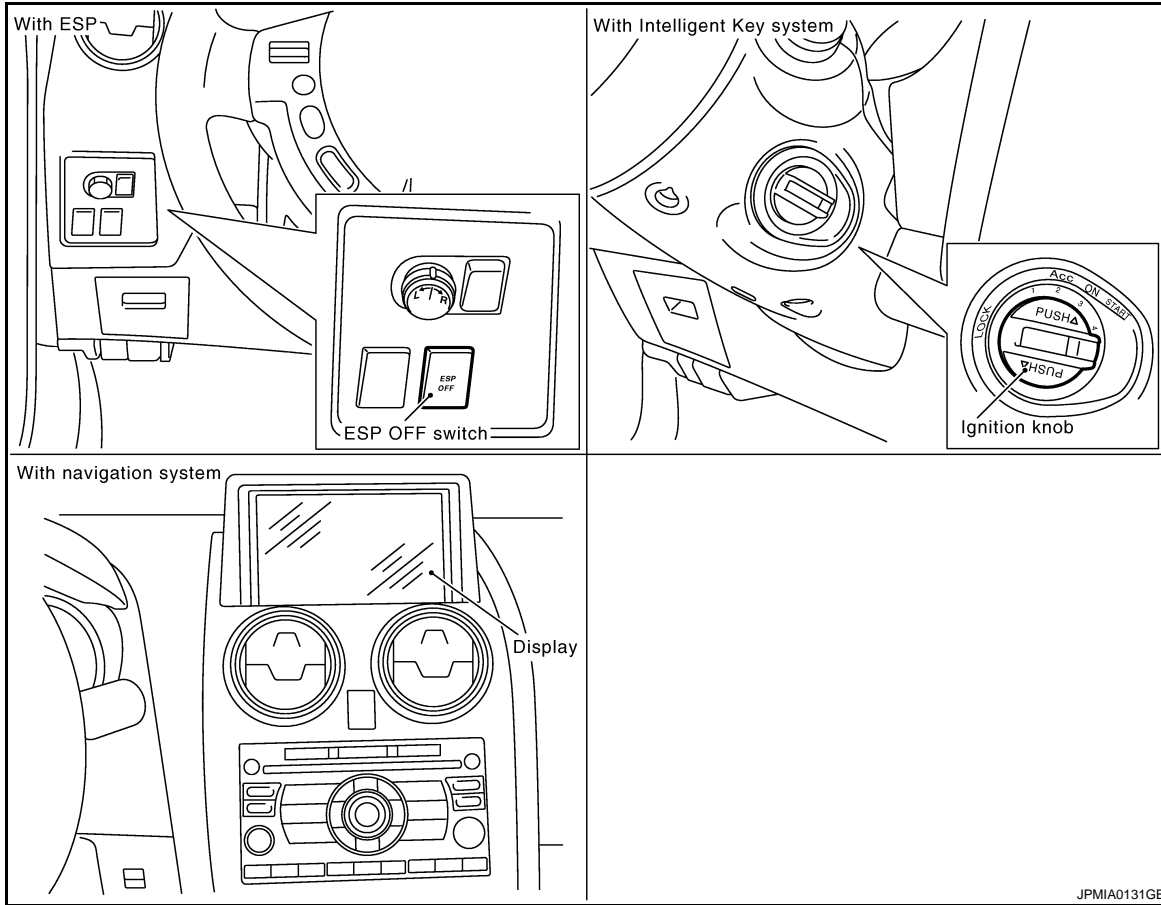
NOTE:

CAN COMMUNICATION SYSTEM

[CAN]

< FUNCTION DIAGNOSIS >

Check CAN system type from the vehicle shape and equipment.



SPECIFICATION CHART B

Determine CAN system type from the following specification chart.

Body type	Hatchback								
Axle	2WD								
Engine	M9R								
Transmission	M/T								
Brake control	ABS					ESP			
Intelligent Key system				×	×			×	×
Navigation system		×			×		×		×
CAN system type	RHD	97	98	99	100	101	102	103	104
	LHD	121	122	123	124	125	126	127	128
Start CAN Diagnosis (CONSULT-III)	RHD	97	98	99	100	101	102	103	104
	LHD	121	122	123	124	125	126	127	128

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

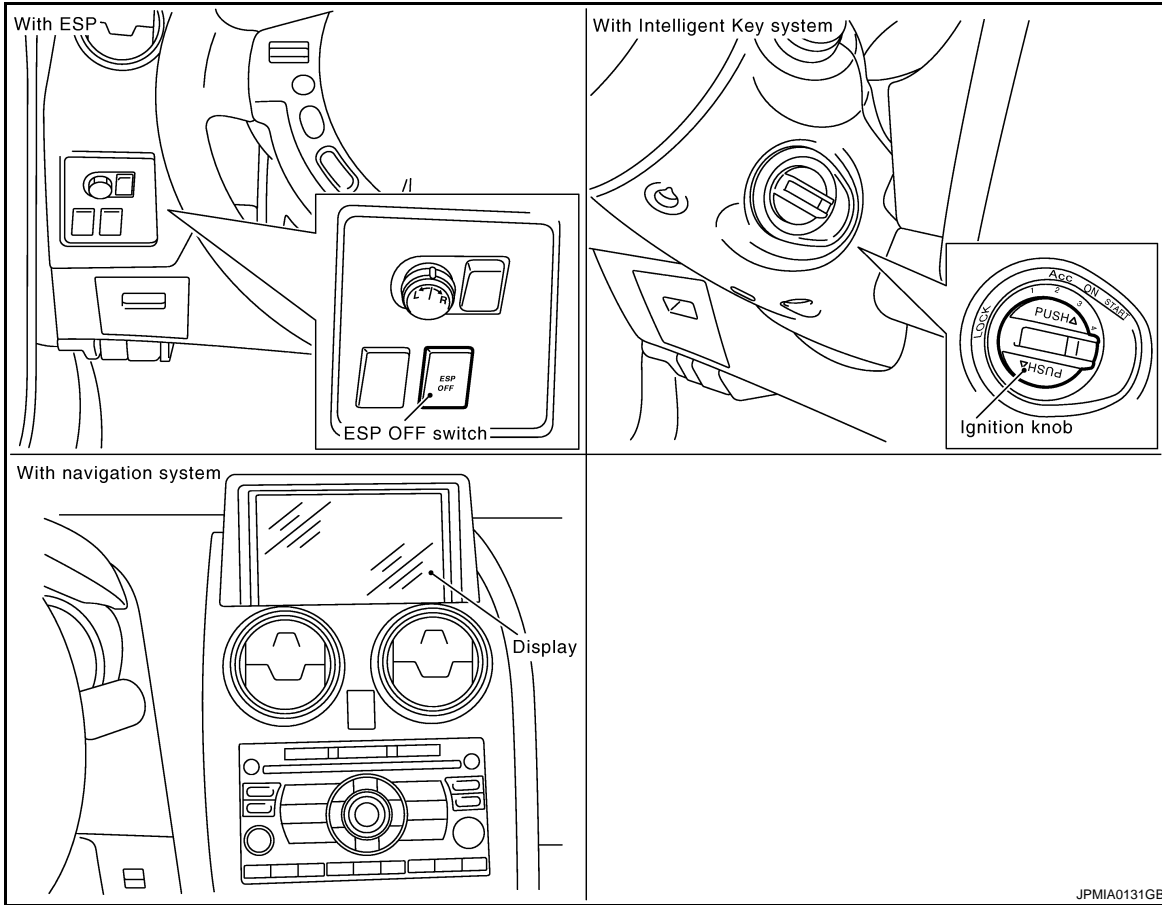
NOTE:

CAN COMMUNICATION SYSTEM

[CAN]

< FUNCTION DIAGNOSIS >

Check CAN system type from the vehicle shape and equipment.



SPECIFICATION CHART C

Determine CAN system type from the following specification chart.

Body type	Hatchback								
Axle	2WD								
Engine	HR16DE								
Transmission	M/T								
Brake control	ABS					ESP			
Intelligent Key system			×	×	×			×	×
Navigation system		×			×		×		×
CAN system type	RHD	9	10	11	12	13	14	15	16
	LHD	57	58	59	60	61	62	63	64
Start CAN Diagnosis (CONSULT-III)	RHD	9	10	11	12	13	14	15	16
	LHD	57	58	59	60	61	62	63	64

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

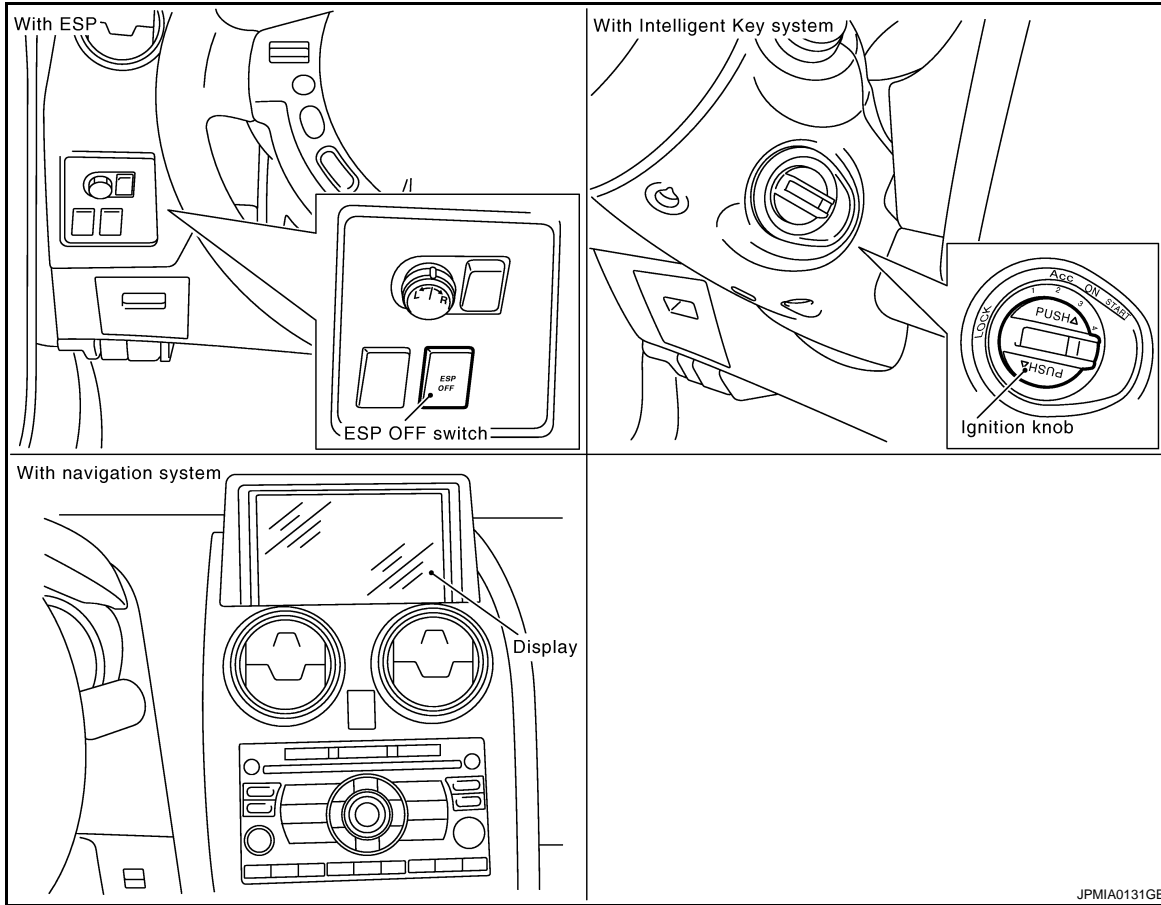
NOTE:

CAN COMMUNICATION SYSTEM

[CAN]

< FUNCTION DIAGNOSIS >

Check CAN system type from the vehicle shape and equipment.



SPECIFICATION CHART D

Determine CAN system type from the following specification chart.

Body type		Hatchback															
Axle		2WD															
Engine		MR20DE															
Transmission		M/T								CVT							
Brake control		ABS				ESP				ABS				ESP			
Intelligent Key system				x	x			x	x			x	x			x	x
Navigation system			x		x		x		x		x		x		x		x
CAN system type	RHD	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	LHD	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Start CAN Diagnosis (CONSULT-III)	RHD	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
	LHD	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

x: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

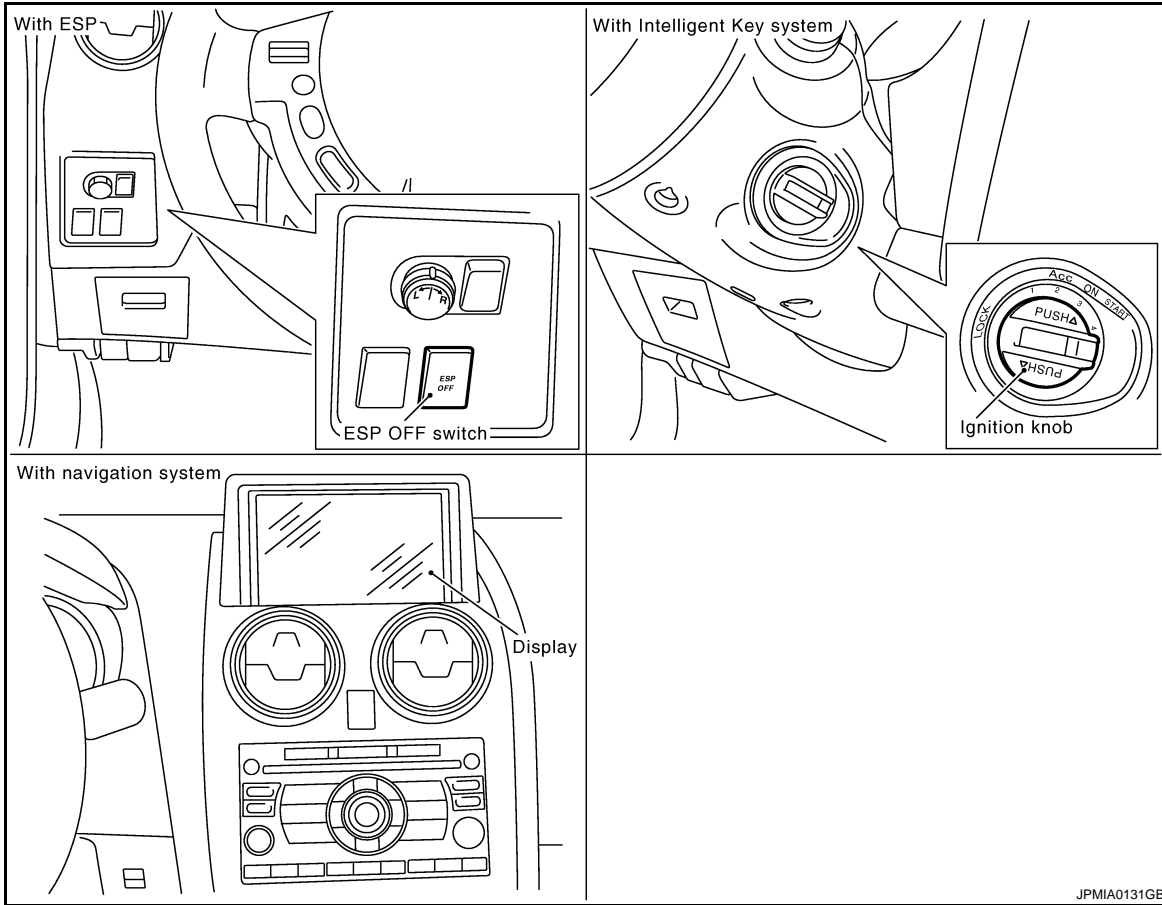
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CAN COMMUNICATION SYSTEM

[CAN]

< FUNCTION DIAGNOSIS >

Check CAN system type from the vehicle shape and equipment.



SPECIFICATION CHART E

Determine CAN system type from the following specification chart.

Body type	Hatchback																
Axle	4WD																
Engine	M9R																
Transmission	M/T								A/T								
Brake control	ABS				ESP				ABS				ESP				
Intelligent Key system			×	×			×	×			×	×			×	×	
Navigation system		×		×		×		×		×		×		×		×	
CAN system type	RHD	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
	LHD	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144
Start CAN Diagnosis (CONSULT-III)	RHD	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120
	LHD	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

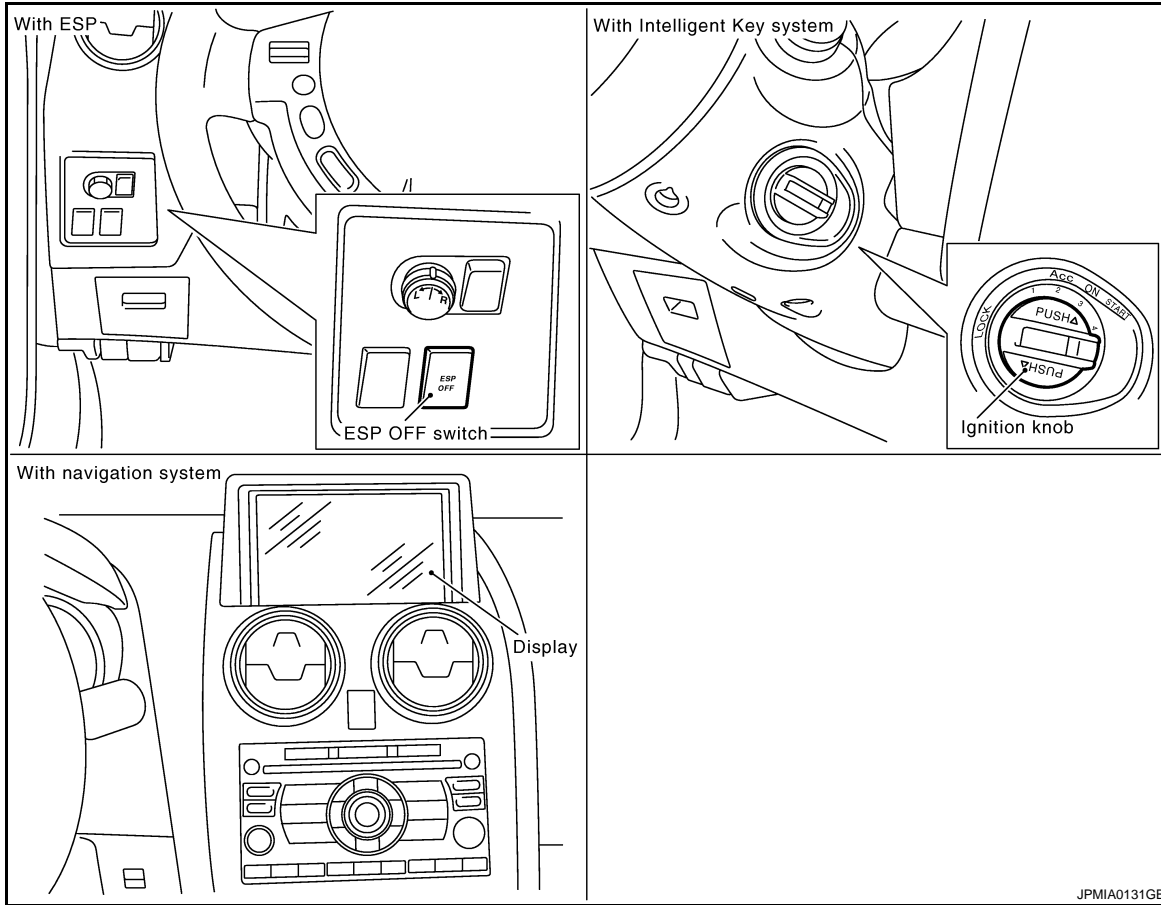
NOTE:

CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



SPECIFICATION CHART F

Determine CAN system type from the following specification chart.

Body type	Hatchback																
Axle	4WD																
Engine	MR20DE																
Transmission	M/T								CVT								
Brake control	ABS				ESP				ABS				ESP				
Intelligent Key system			×	×			×	×			×	×			×	×	
Navigation system		×		×		×		×		×		×		×		×	
CAN system type	RHD	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	LHD	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96
Start CAN Diagnosis (CONSULT-III)	RHD	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
	LHD	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96

×: Applicable

VEHICLE EQUIPMENT IDENTIFICATION INFORMATION

NOTE:

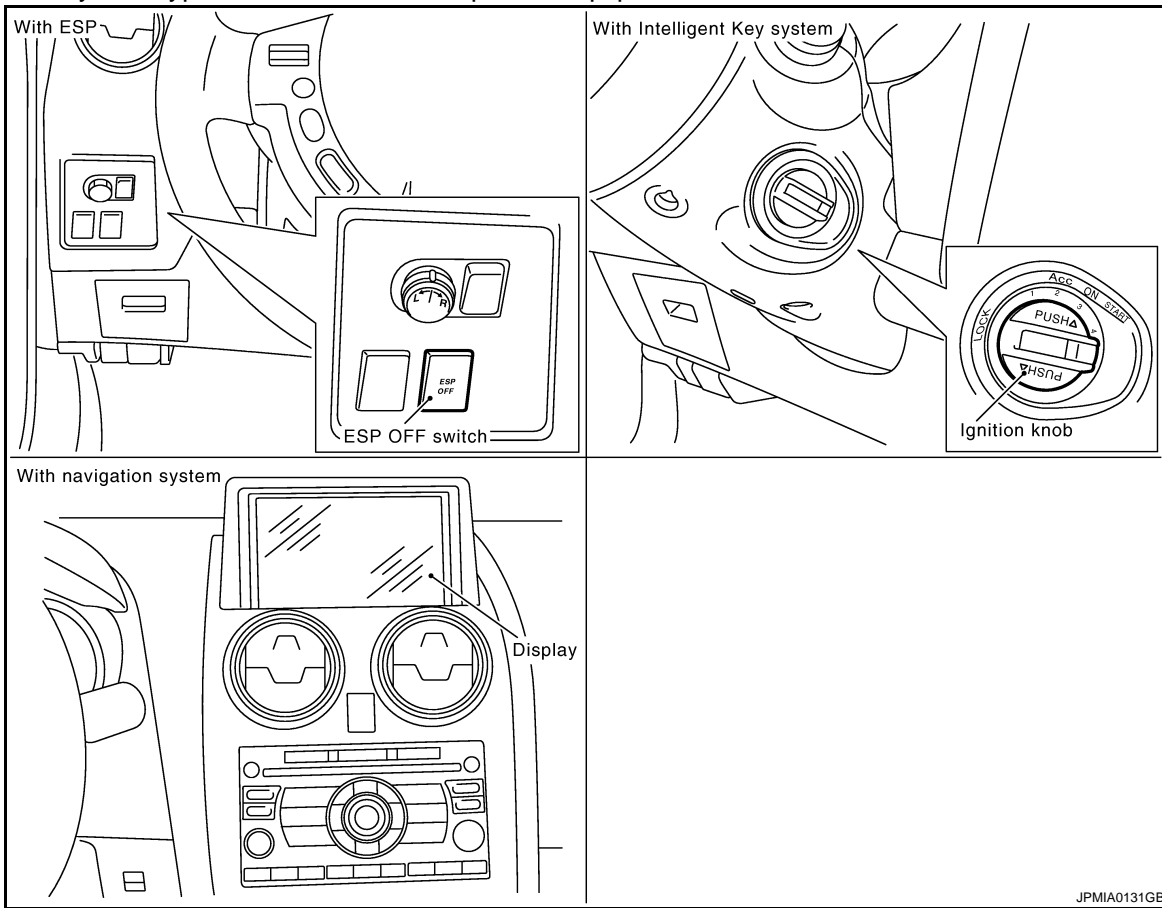
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CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Check CAN system type from the vehicle shape and equipment.



CAN Communication Signal Chart

INFOID:000000001189935

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	ABS	TCM*1	TCM*2	AV	EPS	I-KEY	STRG	4WD	BCM	M&A	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
Engine and A/T integrated control signal	T		R									
	R		T									
Engine and CVT integrated control signal	T			R								
	R			T								
Engine coolant temperature signal	T		R							R*3	R	
Engine speed signal	T	R	R	R		R	R		R	R*3	R	
Engine status signal	T				R	R				R		
Engine torque without GB request signal	T		R									
Fuel consumption monitor signal	T				R						R	
Glow indicator signal*3	T										R	

CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	ABS	TCM*1	TCM*2	AV	EPS	I-KEY	STRG	4WD	BCM	M&A	IPDM-E
Malfunctioning indicator lamp signal	T										R	
Mean effective torque signal	T		R									
Snow mode switch signal	T	R										
Wide open throttle position signal	T		R									
ABS warning lamp signal		T									R	
SLIP indicator lamp signal		T									R	
ESP OFF indicator lamp signal		T									R	
Vehicle speed signal				R	R	R				R	T	
	R	T				R			R		R	
A/T CHECK indicator lamp signal			T								R	
Current gear position signal		R	T	T								
Manual mode indicator signal			T	T							R	
Shift position signal		R	T	T							R	
CVT self-diagnosis signal*4	R			T								
Input shaft revolution signal	R			T								
Output shaft revolution signal	R			T								
EPS operation signal	R					T						
EPS warning lamp signal						T					R	
Anti-Hijack request signal							T			R		
Buzzer output signal							T			R	R	
										T	R	
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			R	T	
										R		T
Wake up signal							T			R	T	
										R		T
Steering angle sensor signal		R						T	R*5			
4WD signal		R							T			
4WD warning lamp signal									T		R	
A/C switch signal	R									T		
Day time running light request signal										T		R
Door lock/unlock signal							R			T		
Door switch signal							R			T	R	
Front fog light request signal										T	R	R
Front wiper request signal										T		R
Headlamp washer request signal										T		R

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CAN COMMUNICATION SYSTEM

< FUNCTION DIAGNOSIS >

[CAN]

Signal name/Connecting unit	ECM	ABS	TCM*1	TCM*2	AV	EPS	I-KEY	STRG	4WD	BCM	M&A	IPDM-E
High beam request signal										T	R	R
Horn request signal										T		R
Ignition switch ON signal										T		R
Ignition switch signal							R			T		
Low beam request signal										T		R
Oil pressure switch signal										T	R	
										R		T
Position light request signal										T	R	R
PTC RLY request*3										T		R
Rear fog lamp status signal										T	R	
Rear window defogger switch signal										T		R
Sleep wake up signal							R			T	R	R
Stop lamp switch signal			R	R			R			T		
Turn indicator signal										T	R	
Distance to empty signal					R						T	
Fuel level low warning signal					R						T	
Manual mode shift down signal			R	R							T	
Manual mode shift up signal			R	R							T	
Manual mode signal			R	R							T	
Not manual mode signal			R	R							T	
Outside air temperature signal*3										R	T	
Parking brake switch signal									R		T	
Stop lamp switch signal							R		R		T	
Front wiper stop position signal										R		T
High beam status signal	R											T
Hood switch signal										R		T
Low beam status signal	R											T
Rear window defogger control signal	R											T
Reverse switch signal	R*3									R		T

*1: A/T models

*2: CVT models

*3: Diesel engine models only

*4: MR engine models only

*5: Models with ESP only

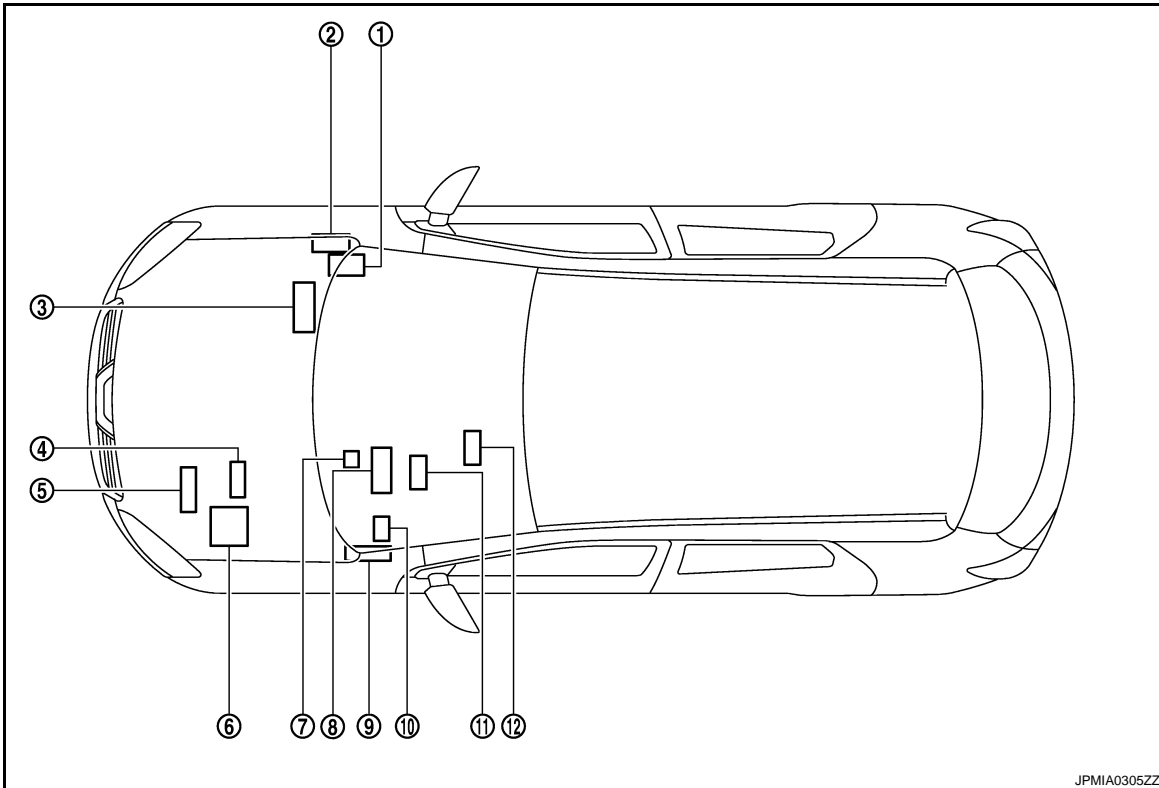
COMPONENT DIAGNOSIS

CAN COMMUNICATION SYSTEM

Component Parts Location

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LHD MODELS



- | | | |
|--|--|--|
| 1. BCM M65 | 2. 4WD control unit M69 | 3. ABS actuator and electric unit (control unit)
E34: With ABS
E36: With ESP |
| 4. ECM
E16: HR16DE/MR20DE models
E60: K9K models
E121: M9R models | 5. TCM
F23: A/T models
F25: CVT models | 6. IPDM E/R E12 |
| 7. EPS control unit M37 | 8. Combination meter M34 | 9. Intelligent Key unit M40 |
| 10. Data link connector M4 | 11. Steering angle sensor M30 | 12. NAVI control unit B96 |

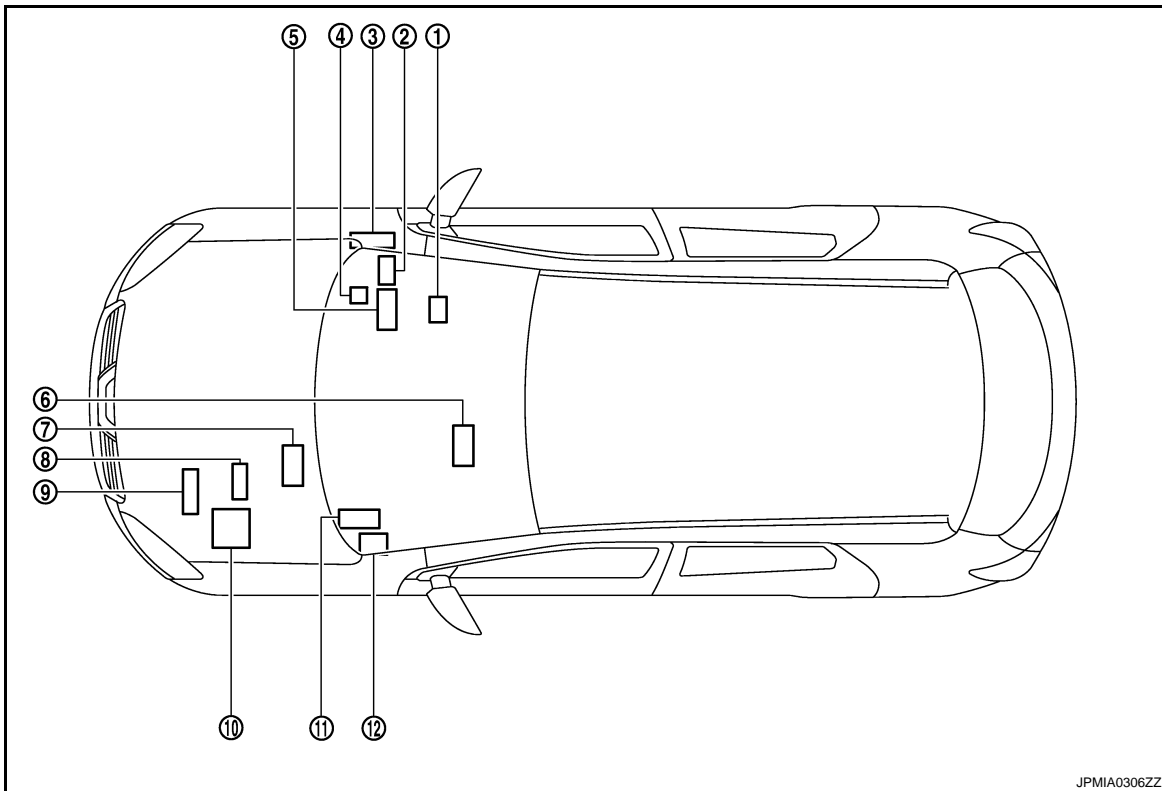
RHD MODELS

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CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

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|--|--|--|
| 1. Steering angle sensor M30 | 2. Data link connector M4 | 3. Intelligent Key unit M40 |
| 4. EPS control unit M37 | 5. Combination meter M34 | 6. NAVI control unit B96 |
| 7. ABS actuator and electric unit (control unit)
E34: With ABS
E36: With ESP | 8. ECM
E16: HR16DE/MR20DE models
E60: K9K models
E121: M9R models | 9. TCM
F23: A/T models
F25: CVT models |
| 10. IPDM E/R E12 | 11. BCM M65 | 12. 4WD control unit M69 |

CAN COMMUNICATION SYSTEM

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< COMPONENT DIAGNOSIS >

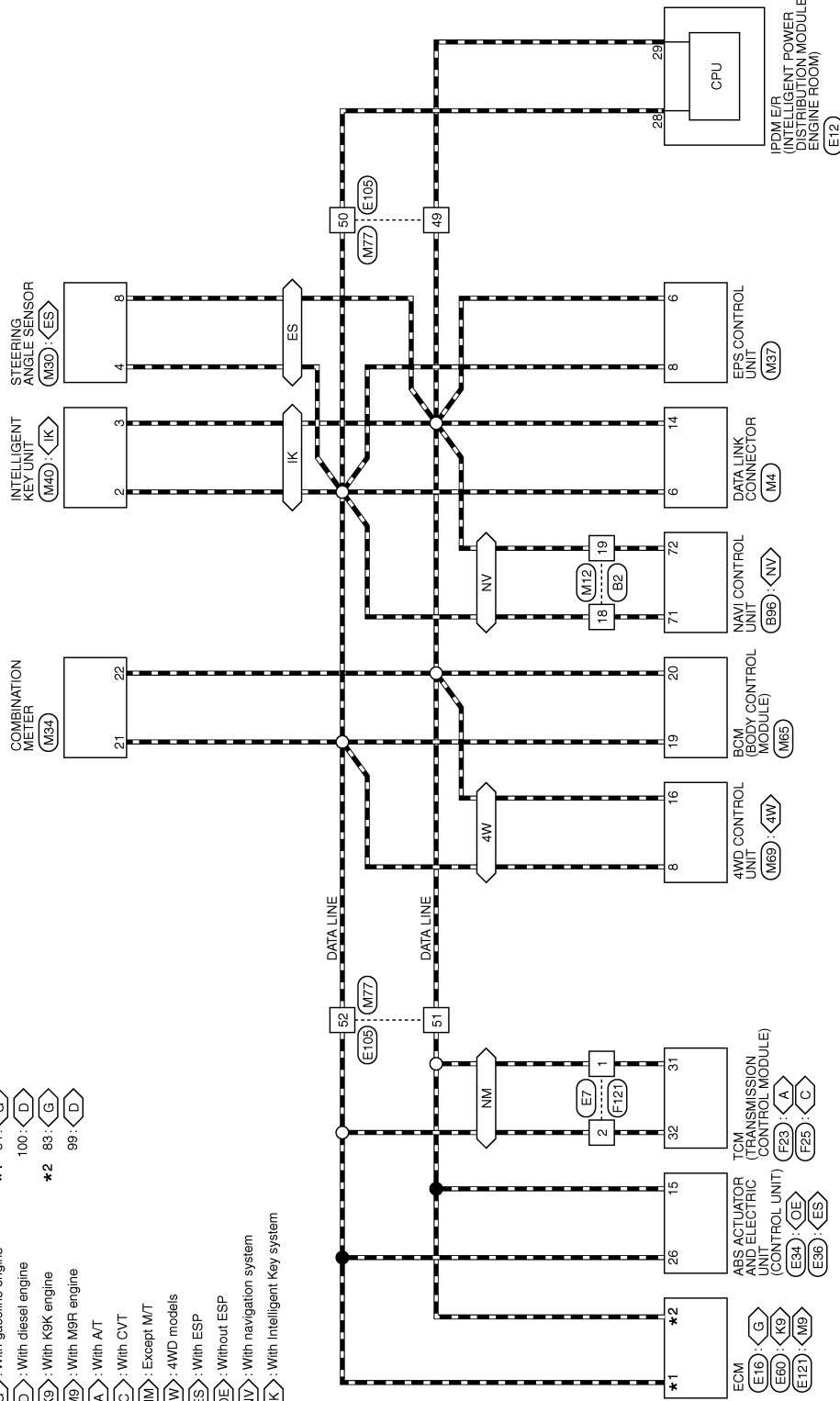
Wiring Diagram - CAN SYSTEM (LHD MODELS) -

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CAN SYSTEM (LHD MODELS)

- ★1 84: G
- 100: D
- ★2 83: G
- 99: D

- G : With gasoline engine
- D : With diesel engine
- K9 : With K9K engine
- M9 : With M9R engine
- A : With AT
- C : With CVT
- NM : Except M/T
- 4W : 4WD models
- ES : With ESP
- OE : Without ESP
- NV : With navigation system
- IK : With Intelligent Key system



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CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

CAN SYSTEM (LHD MODELS)

Connector No.	B2
Connector Name	WIRE TO WIRE
Connector Type	TH24MW

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

Connector No.	E36
Connector Name	NAVI CONTROL UNIT
Connector Type	TH22FW

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

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS

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

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS

Terminal No.	Color of Wire	Signal Name [Specification]
28	L	-
29	P	-

Connector No.	E16
Connector Name	ECM
Connector Type	MAA2FEB-MEA8-LH

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

Connector No.	E34
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	EAA22FEB-AH24-LH

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

Connector No.	E38
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA22FEB-AH24-LH

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

Connector No.	E60
Connector Name	ECM
Connector Type	MAA2FEB-MEA8-LH

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

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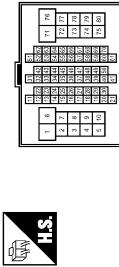
CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

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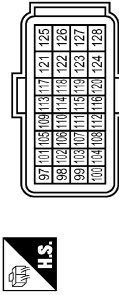
CAN SYSTEM (LHD MODELS)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	THR60MW-NS16-TM4



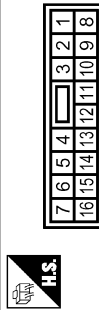
Terminal No.	Color of Wire	Signal Name (Specification)
49	P	-
50	L	-
51	P	-
52	L	-

Connector No.	E121
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



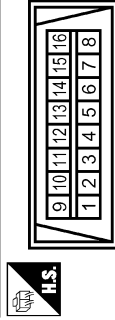
Terminal No.	Color of Wire	Signal Name (Specification)
99	P	MAIN CAN-L(BODY)
100	L	MAIN CAN-R(BODY)

Connector No.	F121
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS



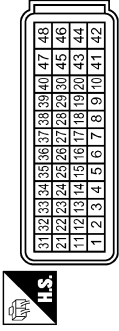
Terminal No.	Color of Wire	Signal Name (Specification)
1	P	-
2	L	-

Connector No.	M4
Connector Name	DATA LINK CONNECTOR
Connector Type	ED16FW



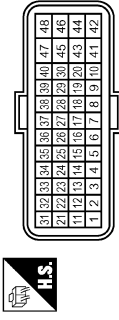
Terminal No.	Color of Wire	Signal Name (Specification)
6	L	-
14	P	-

Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	MOLEX 500934-4111



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

Connector No.	F25
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	MOLEX 500934-4111



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

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH09FW



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

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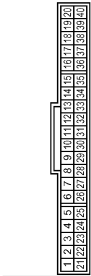
CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]


CAN SYSTEM (LHD MODELS)

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	SAB40FW



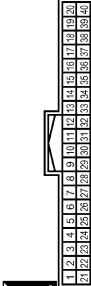
Terminal No.	Color of Wire	Signal Name [Specification]
21	L	CAN-H
22	P	CAN-L

Connector No.	M37
Connector Name	EPS CONTROL UNIT
Connector Type	Molex 38545-0001



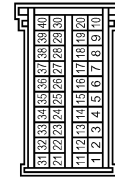
Terminal No.	Color of Wire	Signal Name [Specification]
6	P	CAN-L
8	L	CAN-H

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



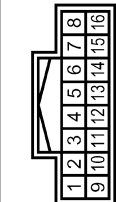
Terminal No.	Color of Wire	Signal Name [Specification]
2	L	CAN-H
3	P	CAN-L

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAB40FB



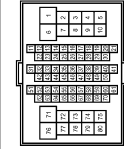
Terminal No.	Color of Wire	Signal Name [Specification]
19	L	CAN-H
20	P	CAN-L

Connector No.	M69
Connector Name	4WD CONTROL UNIT
Connector Type	TH18FW



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

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-NS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
49	P	-
50	L	-
51	P	-
52	L	-

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CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

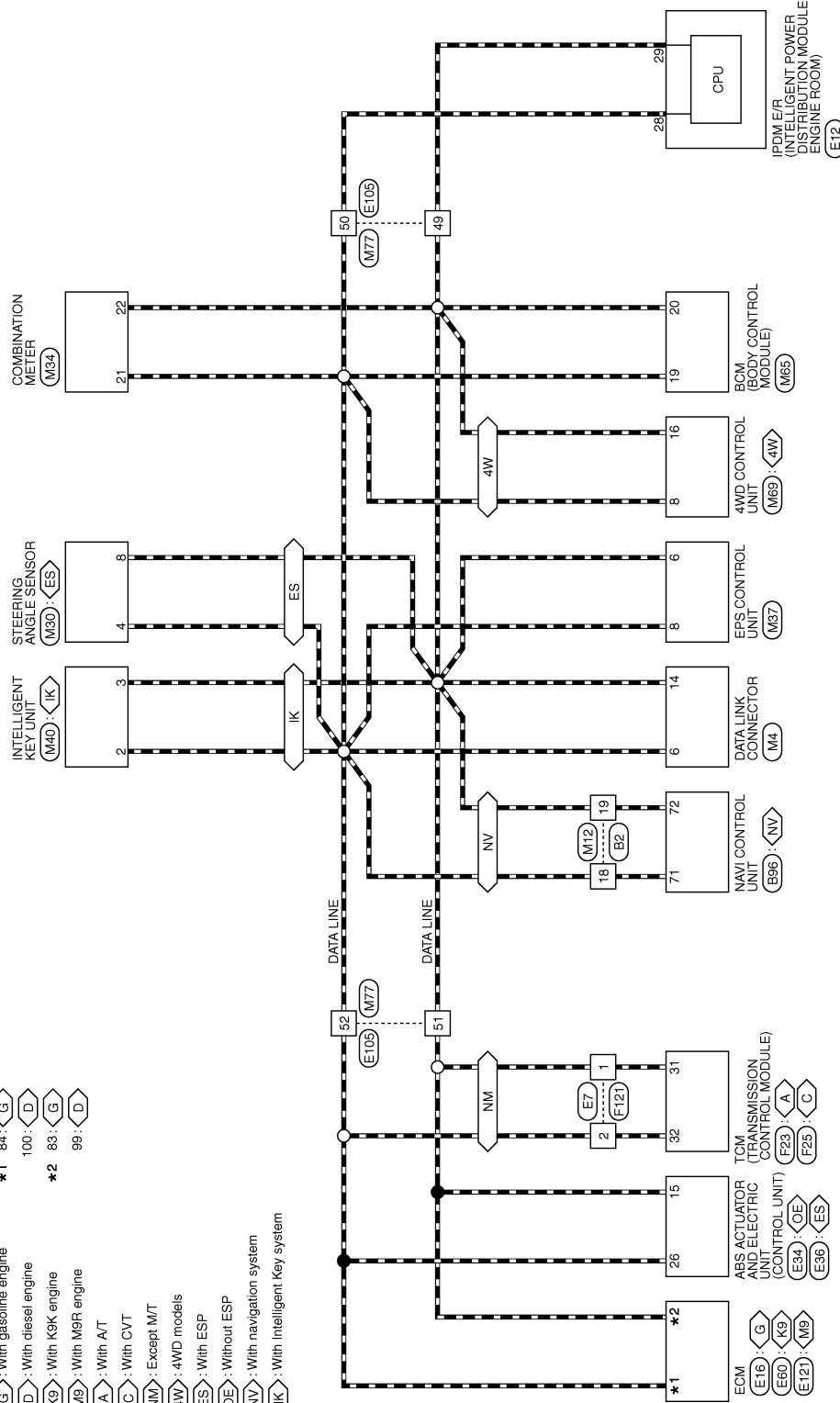
[CAN]

Wiring Diagram - CAN SYSTEM (RHD MODELS) -

INFOID:000000001470375

CAN SYSTEM (RHD MODELS)

- ★1 84:
- 100:
- ★2 83:
- 99:
- : With gasoline engine
- : With diesel engine
- : With K9K engine
- : With M9R engine
- : With AT
- : With CVT
- : Except M/T
- : 4WD models
- : With ESP
- : Without ESP
- : With navigation system
- : With Intelligent Key system



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2007/04/27

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CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

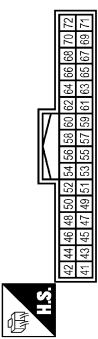
CAN SYSTEM (RHD MODELS)

Connector No.	B2
Connector Name	WIRE TO WIRE
Connector Type	TH24MW




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

Connector No.	E36
Connector Name	NAVI CONTROL UNIT
Connector Type	TH22FW



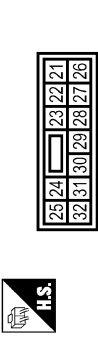
Terminal No.	Color of Wire	Signal Name [Specification]
71	L	CAN-H
72	P	CAN-L

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Type	NS16MW-CS



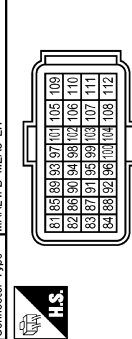
Terminal No.	Color of Wire	Signal Name [Specification]
1	P	-
2	L	-

Connector No.	E12
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	NS12FW-CS



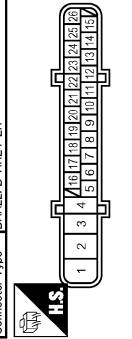
Terminal No.	Color of Wire	Signal Name [Specification]
28	L	-
29	P	-

Connector No.	E16
Connector Name	ECM
Connector Type	MAA2FEB-MEA8-LH



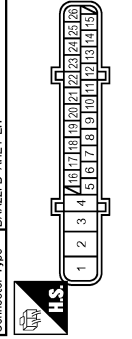
Terminal No.	Color of Wire	Signal Name [Specification]
83	P	CAN-L
84	L	CAN-H

Connector No.	E34
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	EAA22FEB-AHZA-LH



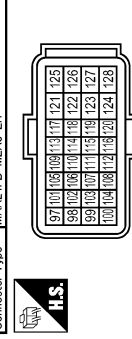
Terminal No.	Color of Wire	Signal Name [Specification]
15	P	CAN-L
26	L	CAN-H

Connector No.	E38
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	BAA22FEB-AHZA-LH



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

Connector No.	E60
Connector Name	ECM
Connector Type	MAA2FEB-MEA8-LH



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

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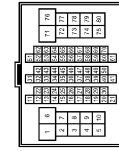
CAN COMMUNICATION SYSTEM

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[CAN]

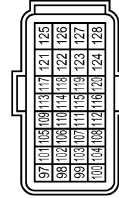
CAN SYSTEM (RHD MODELS)

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	THR60MW-NS16-TM4



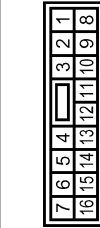
Terminal No.	Color of Wire	Signal Name (Specification)
49	P	-
50	L	-
51	P	-
52	L	-

Connector No.	E121
Connector Name	ECM
Connector Type	MAA24FB-MEA8-LH



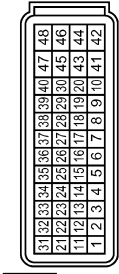
Terminal No.	Color of Wire	Signal Name (Specification)
99	P	MAIN CAN-L(BODY)
100	L	MAIN CAN-R(BODY)

Connector No.	F121
Connector Name	WIRE TO WIRE
Connector Type	NS16FW-CS



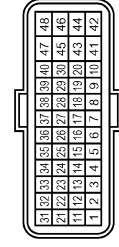
Terminal No.	Color of Wire	Signal Name (Specification)
1	P	-
2	L	-

Connector No.	F23
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	MOLEX 500934-4111



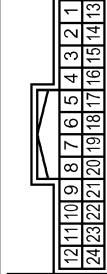
Terminal No.	Color of Wire	Signal Name (Specification)
31	P	CAN-L
32	L	CAN-H

Connector No.	F25
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Type	MOLEX 500934-4111



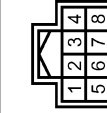
Terminal No.	Color of Wire	Signal Name (Specification)
31	P	CAN-L
32	L	CAN-H

Connector No.	M12
Connector Name	WIRE TO WIRE
Connector Type	TH24FW



Terminal No.	Color of Wire	Signal Name (Specification)
18	L	-
19	P	-

Connector No.	M30
Connector Name	STEERING ANGLE SENSOR
Connector Type	TH09FW



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

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CAN COMMUNICATION SYSTEM

< COMPONENT DIAGNOSIS >

[CAN]

CAN SYSTEM (RHD MODELS)

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 38545-0001



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

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



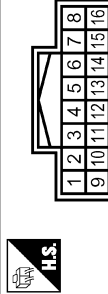
Terminal No.	Color of Wire	Signal Name [Specification]
2	L	CAN-H
3	P	CAN-L

Connector No.	M65
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	AAB40FB



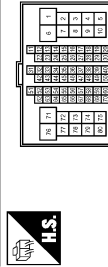
Terminal No.	Color of Wire	Signal Name [Specification]
19	L	CAN-H
20	P	CAN-L

Connector No.	M69
Connector Name	4WD CONTROL UNIT
Connector Type	TH18FW



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

Connector No.	M77
Connector Name	WIRE TO WIRE
Connector Type	TH80FW-NS16-TM4



Terminal No.	Color of Wire	Signal Name [Specification]
49	P	-
50	L	-
51	P	-
52	L	-

JCMWA0676GE

MALFUNCTION AREA CHART

< COMPONENT DIAGNOSIS >

[CAN]

MALFUNCTION AREA CHART

Main Line

INFOID:000000001470376

Malfunction Area	Reference
Main line between ABS actuator and electric unit (control unit) and BCM	LAN-42. "Diagnosis Procedure"
Main line between ABS actuator and electric unit (control unit) and TCM	LAN-43. "Diagnosis Procedure"
Main line between TCM and BCM	LAN-44. "Diagnosis Procedure"
Main line between BCM and data link connector	LAN-45. "Diagnosis Procedure"
Main line between ABS actuator and electric unit (control unit) and data link connector	LAN-46. "Diagnosis Procedure"
Main line between TCM and data link connector	LAN-47. "Diagnosis Procedure"
Main line between data link connector and BCM	LAN-48. "Diagnosis Procedure"

Branch Line

INFOID:000000001470377

Malfunction Area	Reference
ECM branch line circuit	LAN-49. "Diagnosis Procedure"
ABS actuator and electric unit (control unit) branch line circuit	LAN-51. "Diagnosis Procedure"
TCM branch line circuit	LAN-52. "Diagnosis Procedure"
4WD control unit branch line circuit	LAN-53. "Diagnosis Procedure"
BCM branch line circuit	LAN-54. "Diagnosis Procedure"
Combination meter branch line circuit	LAN-55. "Diagnosis Procedure"
NAVI control unit branch line circuit	LAN-56. "Diagnosis Procedure"
Data link connector branch line circuit	LAN-57. "Diagnosis Procedure"
EPS control unit branch line circuit	LAN-58. "Diagnosis Procedure"
Intelligent Key unit branch line circuit	LAN-59. "Diagnosis Procedure"
Steering angle sensor branch line circuit	LAN-60. "Diagnosis Procedure"
IPDM E/R branch line circuit	LAN-61. "Diagnosis Procedure"

Short Circuit

INFOID:000000001470378

Malfunction Area	Reference
CAN communication circuit	LAN-62. "Diagnosis Procedure"

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MAIN LINE BETWEEN ABS AND BCM CIRCUIT

[CAN]

< COMPONENT DIAGNOSIS >

MAIN LINE BETWEEN ABS AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000001470379

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 E105
 - 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 following harness connectors.
 - ABS actuator and electric unit (control unit)
 - Harness connectors E105 and M77
2. Check the continuity between the ABS actuator and electric unit (control unit) and the harness connector.
 - Models with ABS

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	26	E105	52	Existed
	15		51	Existed

- Models with ESP

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	26	E105	52	Existed
	15		51	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) harness connector and the harness connector E105.

3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	52	M65	19	Existed
	51		20	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 ABS actuator and electric unit (control unit) and the BCM.

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

MAIN LINE BETWEEN ABS AND TCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN ABS AND TCM CIRCUIT

Diagnosis Procedure

INFOID:000000001470380

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
 - ABS actuator and electric unit (control unit)
 - Harness connectors E7 and F121
4. Check the continuity between the ABS actuator and electric unit (control unit) harness connector and the harness connector.
 - Models with ABS

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	26	E7	2	Existed
	15		1	Existed

- Models with ESP

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	26	E7	2	Existed
	15		1	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 ABS actuator and electric unit (control unit) and the harness connector E7.

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

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MAIN LINE BETWEEN TCM AND BCM CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN TCM AND BCM CIRCUIT

Diagnosis Procedure

INFOID:000000001470381

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 E105
 - 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 following harness connectors.
 - Harness connector F121 and E7
 - Harness connector E105 and M77
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E7	2	E105	52	Existed
	1		51	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connectors E7 and E105.

3. CHECK HARNESS CONTINUITY (OPEN CIRCUIT)

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

Harness connector		BCM harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M77	52	M65	19	Existed
	51		20	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 TCM and the BCM.

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

MAIN LINE BETWEEN BCM AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN BCM AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000001470382

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 BCM harness connector and the data link connector.

BCM harness connector		Data link connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
M65	19	M4	6	Existed
	20		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 BCM and the data link connector.

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

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MAIN LINE BETWEEN ABS AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN ABS AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000001470383

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 E105
 - 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 following harness connectors.
 - ABS actuator and electric unit (control unit)
 - Harness connectors E105 and M77
2. Check the continuity between the harness connectors.
 - Models with ABS

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E34	26	E105	52	Existed
	15		51	Existed

- Models with ESP

ABS actuator and electric unit (control unit) harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E36	26	E105	52	Existed
	15		51	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the ABS actuator and electric unit (control unit) and the harness connector E105.

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	52	M4	6	Existed
	51		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 ABS actuator and electric unit (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 TCM AND DLC CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

MAIN LINE BETWEEN TCM AND DLC CIRCUIT

Diagnosis Procedure

INFOID:000000001470384

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 E105
 - 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 following harness connectors.
 - Harness connectors F121 and E7
 - Harness connectors E105 and M77
2. Check the continuity between the harness connectors.

Harness connector		Harness connector		Continuity
Connector No.	Terminal No.	Connector No.	Terminal No.	
E7	2	E105	52	Existed
	1		51	Existed

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair the main line between the harness connector E7 and the harness connector E105.

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	52	M4	6	Existed
	51		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 TCM and the data link connector.

NO >> Repair the main line between the harness connector M77 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:000000001470385

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	19	Existed
	14		20	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.

ECM BRANCH LINE CIRCUIT

[CAN]

< COMPONENT DIAGNOSIS >

ECM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470386

1. CHECK CONNECTOR

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

Is the inspection result normal?

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

2. CHECK HARNESS FOR OPEN CIRCUIT

1. Disconnect the connector of ECM.
 2. Check the resistance between the ECM harness connector terminals.
- K9K models

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

- M9R models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E121	100	99	Approx. 108 – 132

- HR16DE/MR20DE models

ECM harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E16	84	83	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.

- K9K: [ECK-65, "Diagnosis Procedure"](#)
- M9R: [ECR-271, "Diagnosis Procedure"](#)
- HR16DE (With EURO-OBD): [ECH-106, "Diagnosis Procedure"](#)
- HR16DE (Without EURO-OBD): [ECH-435, "Diagnosis Procedure"](#)
- MR20DE (With EURO-OBD): [ECM-108, "Diagnosis Procedure"](#)
- MR20DE (Without EURO-OBD): [ECM-440, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- K9K: [ECK-21, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- M9R: [ECR-12, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- HR16DE (With EURO-OBD): [ECH-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- HR16DE (Without EURO-OBD): [ECH-356, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)
- MR20DE (With EURO-OBD): [ECM-17, "ADDITIONAL SERVICE WHEN REPLACING CONTROL UNIT : Special Repair Requirement"](#)

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ECM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

- MR20DE (Without EURO-OBD): [ECM-360. "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.

ABS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

ABS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470387

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 ESP

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E36	26	15	Approx. 54 – 66

- Models with ABS

ABS actuator and electric unit (control unit) harness connector			Resistance (Ω)
Connector No.	Terminal No.		
E34	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.

- ABS models: [BRC-26, "Diagnosis Procedure"](#)
- ESP models: [BRC-105, "Diagnosis Procedure"](#)

Is the inspection result normal?

- YES (Present error)>>Replace the ABS actuator and electric unit (control unit). Refer to the following.
- ABS models: [BRC-69, "Exploded View"](#).
 - ESP models: [BRC-174, "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.

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TCM BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

TCM BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470388

1. CHECK CONNECTOR

1. Turn the ignition 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 F121
 - Harness connector E7

Is the 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-325, "Diagnosis Procedure"](#)
- CVT models: [TM-480, "Diagnosis Procedure"](#)

Is the inspection result normal?

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

- A/T models: [TM-382, "Exploded View"](#)
- CVT models: [TM-540, "Exploded View"](#)

YES (Past error)>>Error was detected in the TCM 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:000000001470389

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-26, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES (Present error)>>Replace the 4WD control unit. Refer to the following.
- RHD models: [DLN-58, "RHD : Exploded View"](#)
 - LHD models: [DLN-57, "LHD : Exploded View"](#)
- YES (Past error)>>Error was detected in the 4WD control unit branch line.
NO >> 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:000000001470390

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	19	20	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-65. "Exploded View"](#).
YES (Past error)>>Error was detected in the BCM 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:000000001470391

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-34, "COMBINATION METER : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the combination meter. Refer to [MWI-78, "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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AV BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

AV BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470392

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 (unit side and connector side).
 - NAVI control unit
 - Harness connector B2
 - Harness connector M12

Is the 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.		
B96	71	72	Approx. 54 – 66

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-103, "NAVI CONTROL UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the NAVI control unit. Refer to [AV-204, "Exploded View"](#).

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

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

DLC BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

DLC BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470393

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 (Ω)
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.

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EPS BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

EPS BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470394

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	8 6	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.

I-KEY BRANCH LINE CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

I-KEY BRANCH LINE CIRCUIT

Diagnosis Procedure

INFOID:000000001470395

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 (Ω)
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-56, "INTELLIGENT KEY UNIT : Diagnosis Procedure"](#).

Is the inspection result normal?

YES (Present error)>>Replace the Intelligent Key unit. Refer to [DLK-548, "Exploded View"](#).

YES (Past error)>>Error was detected in the Intelligent Key unit 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:000000001470396

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 (Ω)
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-155, "Wiring Diagram - BRAKE CONTROL SYSTEM -"](#).

Is the inspection result normal?

YES (Present error)>>Replace the steering angle sensor. Refer to [BRC-178, "Exploded View"](#).

YES (Past error)>>Error was detected in the steering angle sensor 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:000000001470397

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 (unit side and connector side).
 - IPDM E/R connector
 - 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 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.		
E12	28	29	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-33, "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:000000001470398

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

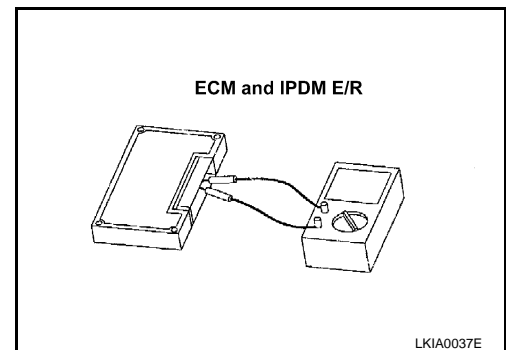
1. Remove the ECM and the IPDM E/R.
 2. Check the resistance between the ECM terminals.
- HR16DE/MR20DE models

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

- K9K/M9R models

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

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



CAN COMMUNICATION CIRCUIT

< COMPONENT DIAGNOSIS >

[CAN]

IPDM E/R		Resistance (Ω)
Terminal No.		
28	29	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.

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