SECTION LAN
LAN SYSTEM

CONTENTS

PRECAUTION

PRECAUTIONS

Precautions for Trouble Diagnosis

INFOID:0000000009163475

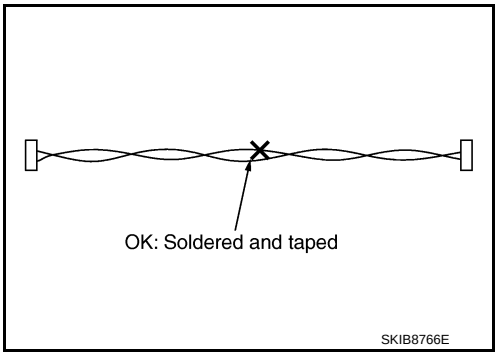
CAUTION:

- **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.**

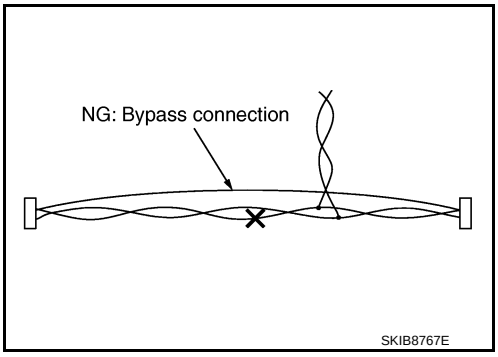
Precautions for Harness Repair

INFOID:0000000009163476

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



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



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

SYSTEM DESCRIPTION

CAN COMMUNICATION SYSTEM

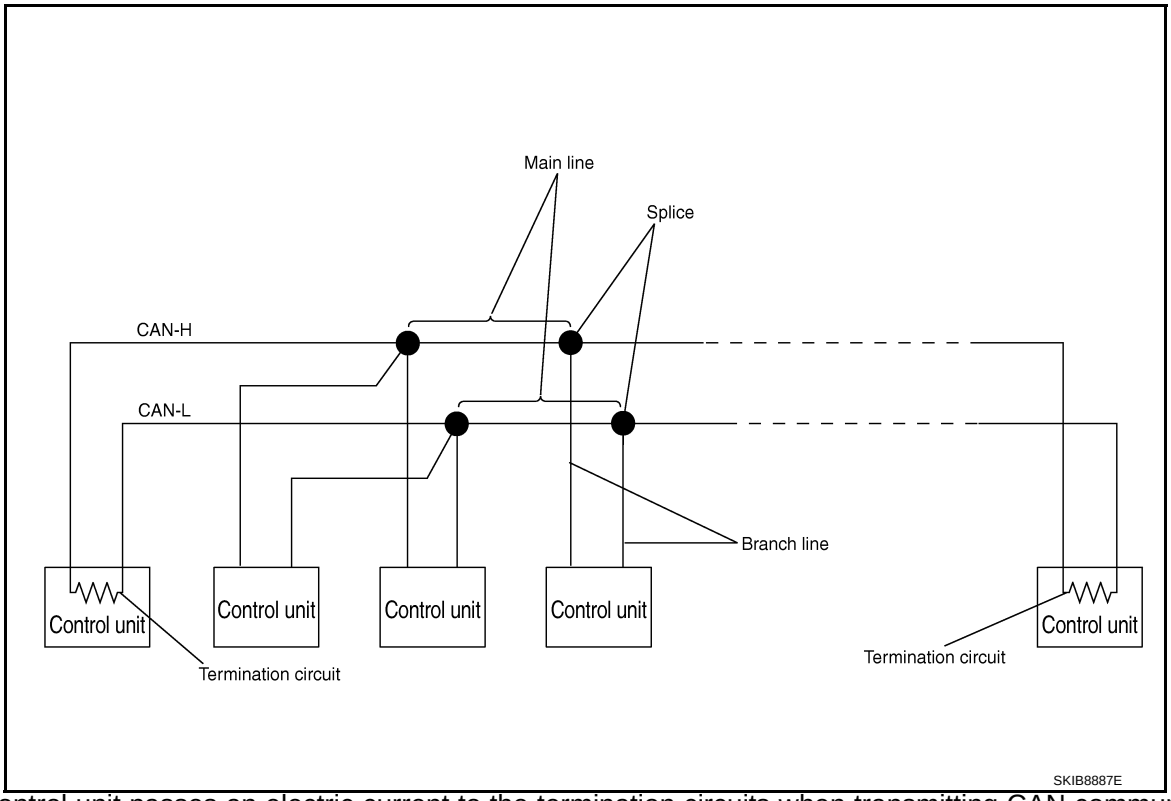
System Description

INFOID:0000000009163477

- 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:0000000009163478

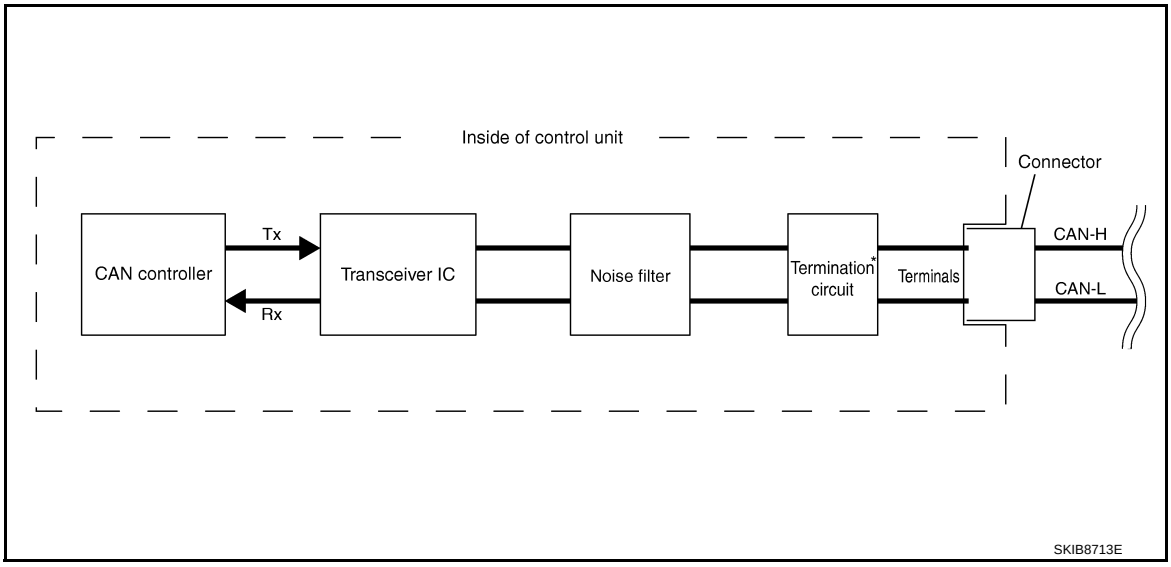


Each control unit passes an electric current to the termination circuits when transmitting CAN communication signal. The termination circuits produce an electrical potential difference between CAN-H and CAN-L. CAN communication system transmits and receives CAN communication signals by the potential 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-4, "CAN Communication Control Circuit".

CAN Communication Control Circuit

INFOID:0000000009163479



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

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

DIAG ON CAN

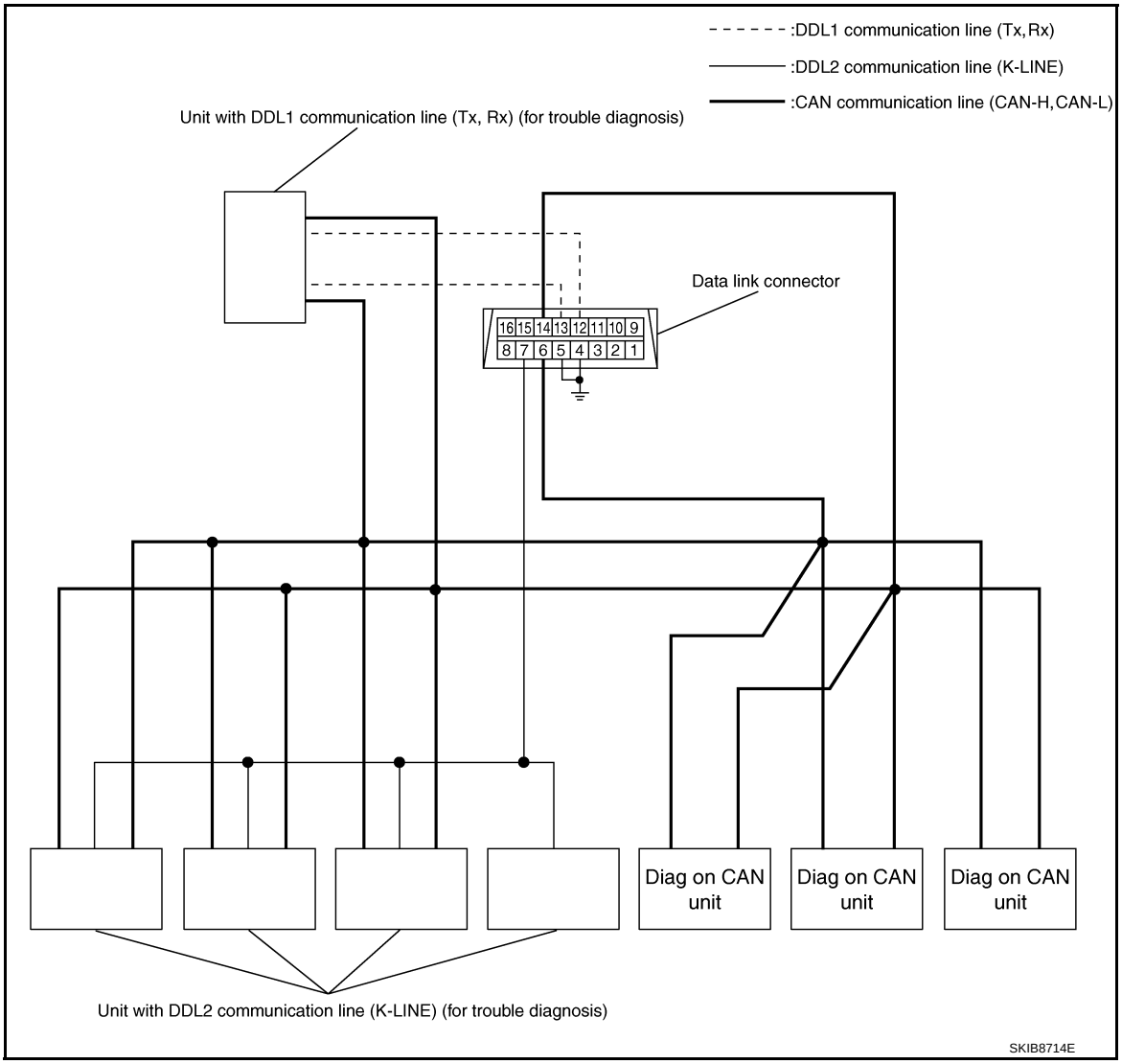
Description

INFOID:0000000009163480

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

System Diagram

INFOID:0000000009163481



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

How to Use CAN Communication Signal Chart

INFOID:0000000009163487

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.

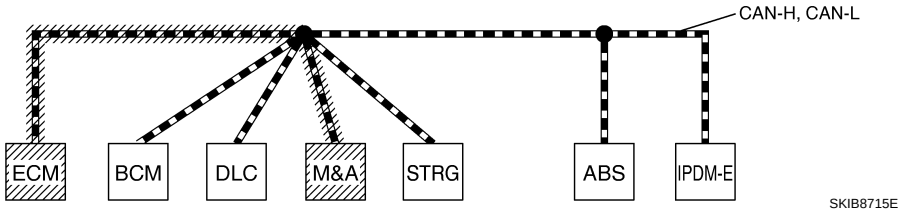
Example: Tachometer does not move even though the engine rotates.

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).



HOW TO USE THIS MANUAL

HOW TO USE THIS SECTION

Caution

INFOID:0000000009163490

This section describes information peculiar to a vehicle and inspection procedures.

Abbreviation List

INFOID:0000000009163491

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

Abbreviation	Unit name
4WD	AWD control unit
A-BAG	Air bag diagnosis sensor unit
ABS	ABS actuator and electric unit (control unit)
AV	AV control unit
BCM	BCM
DLC	Data link connector
ECM	ECM
E-SUS	E-SUS control unit
HVAC	A/C auto amp.
IPDM-E	IPDM E/R
M&A	Combination meter
STRG	Steering angle sensor
TCM	TCM
TPMS	Low tire pressure warning control unit

PRECAUTION

PRECAUTIONS

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

INFOID:0000000009163492

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

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

Always observe the following items for preventing accidental activation.

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

Precaution for Battery Service

INFOID:0000000009163493

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

Precaution for Working Range at a Regular Dealership

INFOID:0000000009188120

CAUTION:

The service items unmentioned on this manual are recommended to be performed by a GT-R certified NISSAN dealer. Because those service items require special equipment and a GT-R certified technical staff who completed special training.

Precautions for Trouble Diagnosis

INFOID:0000000009163494

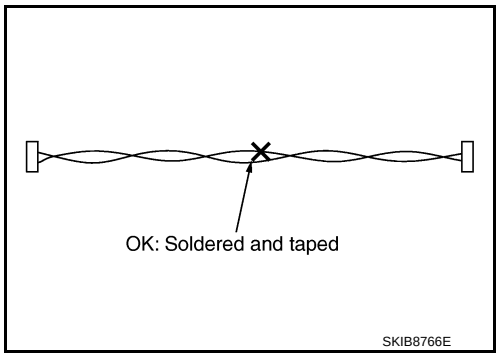
CAUTION:

- **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.**

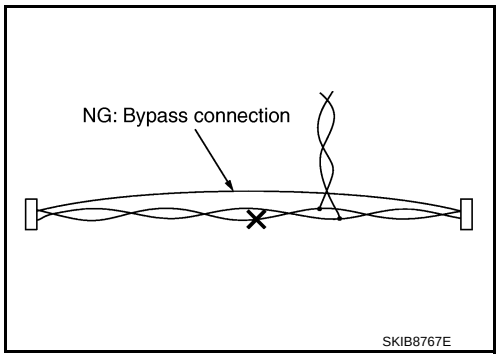
Precautions for Harness Repair

INFOID:0000000009163495

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



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



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

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Interview Sheet

INFOID:0000000009163496

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

SYSTEM DESCRIPTION

CAN COMMUNICATION SYSTEM

CAN System Specification Chart

INFOID:0000000009163497

Determine CAN system type from the following specification chart.

Body type	Coupe
Axle	AWD
Engine	VR38DETT
Transmission	Dual clutch transmission
Brake control	VDC
CAN system type	1

CAN Communication Signal Chart

INFOID:0000000009163498

Refer to LAN-6, "How to Use CAN Communication Signal Chart" for how to use CAN communication signal chart.

NOTE:

Refer to LAN-7, "Abbreviation List" for the abbreviations of the connecting units.

T: Transmit R: Receive

Signal name/Connecting unit	ECM	4WD	BCM	E-SUS	AV	HVAC	M&A	STRG	TPMS	TCM	ABS	IPDM-E
A/C compressor feedback signal	T					R						
A/C compressor request signal	T											R
Accelerator pedal position signal	T	R			R					R	R	
ASCD status signal	T				R		R					
Cooling fan speed request signal	T											R
Engine and transmission integrated control signal	T									R		
	R									T		
Engine coolant temperature signal	T					R	R					
					R		T					
Engine estimated torque signal	T									R		
Engine speed signal	T	R		R			R			R	R	
Engine status signal	T		R		R		R					
Fuel consumption monitor signal	T						R					
					R		T					
Malfunctioning indicator lamp signal	T						R					
Power generation command value signal	T											R
AWD clutch high temperature warning display signal		T					R					
AWD signal		T									R	
AWD system warning display signal		T					R					
AWD warning lamp signal		T					R					
Front/rear tire size discrepancy warning display signal		T					R					
Front torque distribution rate signal		T					R					
					R		T					

Signal name/Connecting unit	ECM	4WD	BCM	E-SUS	AV	HVAC	M&A	STRG	TPMS	TCM	ABS	IPDM-E
Buzzer output signal			T				R					
Buzzer request signal			T				R					
			R						T			
Daytime running light request signal			T									R
Door switch signal			T				R					R
Front wiper request signal			T									R
High beam request signal			T				R					R
Horn reminder signal			T									R
Ignition switch ON signal			T									R
			R									T
Key warning lamp signal			T				R					
Low beam request signal			T									R
Meter display signal			T				R					
Position light request signal			T				R					R
Rear window defogger control signal			T									R
	R				R							T
Run-flat tire warning display signal			T				R					
			R						T			
Sleep wake up signal			T				R					R
Starter control relay signal			T									R
Starter relay status signal			T									R
			R									T
Steering lock relay signal			T									R
			R									T
Theft warning horn request signal			T									R
Tire pressure warning lamp signal			T		R		R					
			R		R				T			
Trunk switch signal			T				R					
Turn indicator signal			T				R					
A/C switch operation signal					T	R						
Rear window defogger switch signal			R		T							
Voice recognition signal					T	R						
A/C switch signal	R					T						
Blower fan motor switch signal	R					T						
Air-Fuel ration signal					R		T					
Boost pressure signal					R		T					
Distance to empty signal					R		T					
Engine oil pressure signal					R		T					
Engine oil temperature signal					R		T					
Fuel level sensor signal	R						T					
Odometer signal			R				T					
Parking brake switch signal		R	R				T					
Seat belt buckle switch signal			R				T					

Signal name/Connecting unit	ECM	4WD	BCM	E-SUS	AV	HVAC	M&A	STRG	TPMS	TCM	ABS	IPDM-E
Shift position signal					R		T					
			R*				R			T	R	
Sleep-ready signal			R				T					
			R									T
Transmission oil pressure signal					R		T					
							R			T		
Transmission oil temperature signal					R		T					
		R					R			T		
Vehicle speed signal	R		R		R		T		R	R		R
	R	R	R	R	R		R		R	R	T	
Wake up signal			R				T					
Steering angle sensor signal		R		R	R			T			R	
Low tire pressure warning display signal							R		T			
Tire pressure monitoring system warning display signal							R		T			
Tire pressure signal					R				T			
Input shaft revolution signal	R									T		
Output shaft revolution signal	R									T		
SAVE mode control signal	R	R								T		
Shift lever position check display signal							R			T		
Shift lever position warning display signal							R			T		
Snow mode switch signal	R									T		
Transmission clutch high temperature warning display signal							R			T		
Transmission oil high temperature warning display signal							R			T		
Transmission self-diagnosis signal	R									T		
Transmission system check display signal							R			T		
Transmission system warning display signal							R			T		
Transmission warning light signal							R			T		
ABS malfunction signal							R				T	
ABS operation signal				R						R	T	
ABS warning display signal							R				T	
Brake pressure control signal				R	R						T	
Brake warning lamp signal							R				T	
Decel G signal		R			R						T	
Side G sensor signal		R		R	R					R	T	
Stop lamp switch signal				R							T	
VDC OFF indicator lamp signal							R				T	
VDC malfunction signal							R				T	
VDC operation signal										R	T	
VDC-R mode signal		R									T	
VDC warning display signal							R				T	

Signal name/Connecting unit	ECM	4WD	BCM	E-SUS	AV	HVAC	M&A	STRG	TPMS	TCM	ABS	IPDM-E
VDC warning lamp signal							R				T	
Yaw rate sensor 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
Push-button ignition switch status signal			R									T
Steering lock unit status signal			R									T

*: P, N position signal only

NOTE:

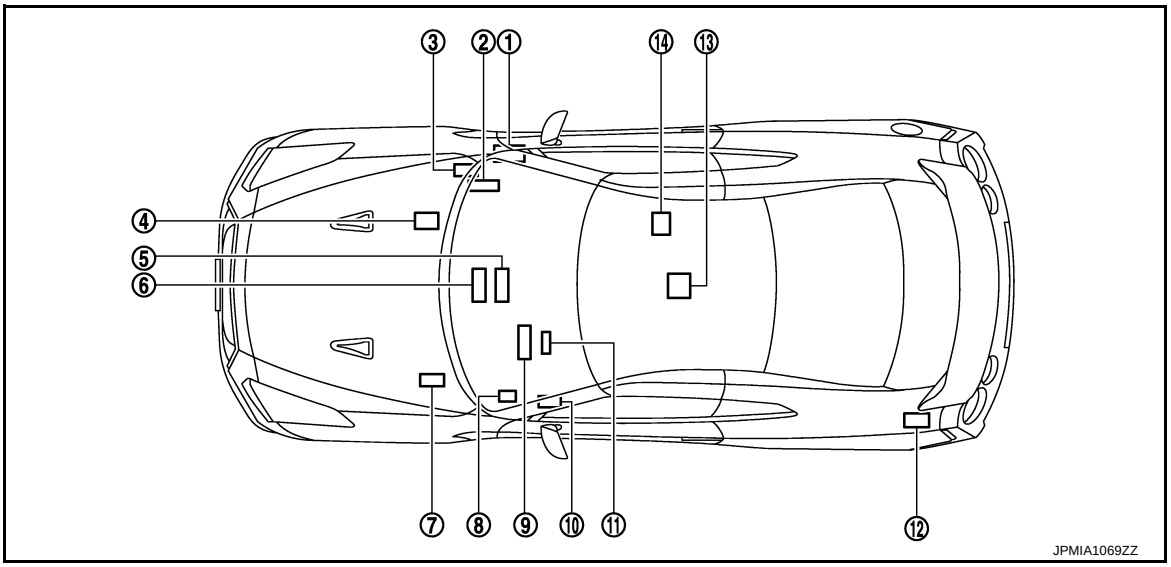
CAN data of the air bag diagnosis sensor unit is not used by usual service work, thus it is omitted.

DTC/CIRCUIT DIAGNOSIS

CAN COMMUNICATION SYSTEM

Component Parts Location

INFOID:0000000009163499

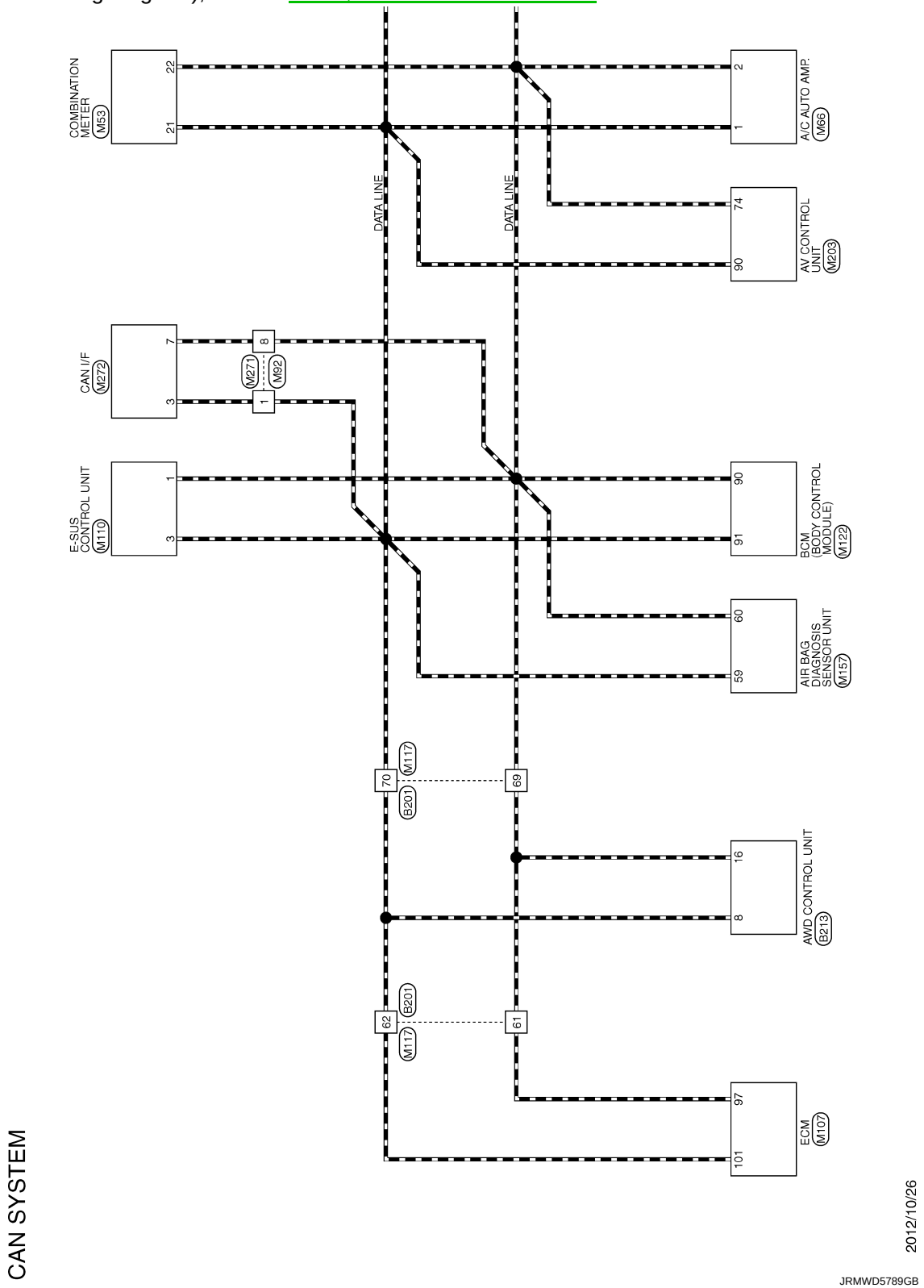


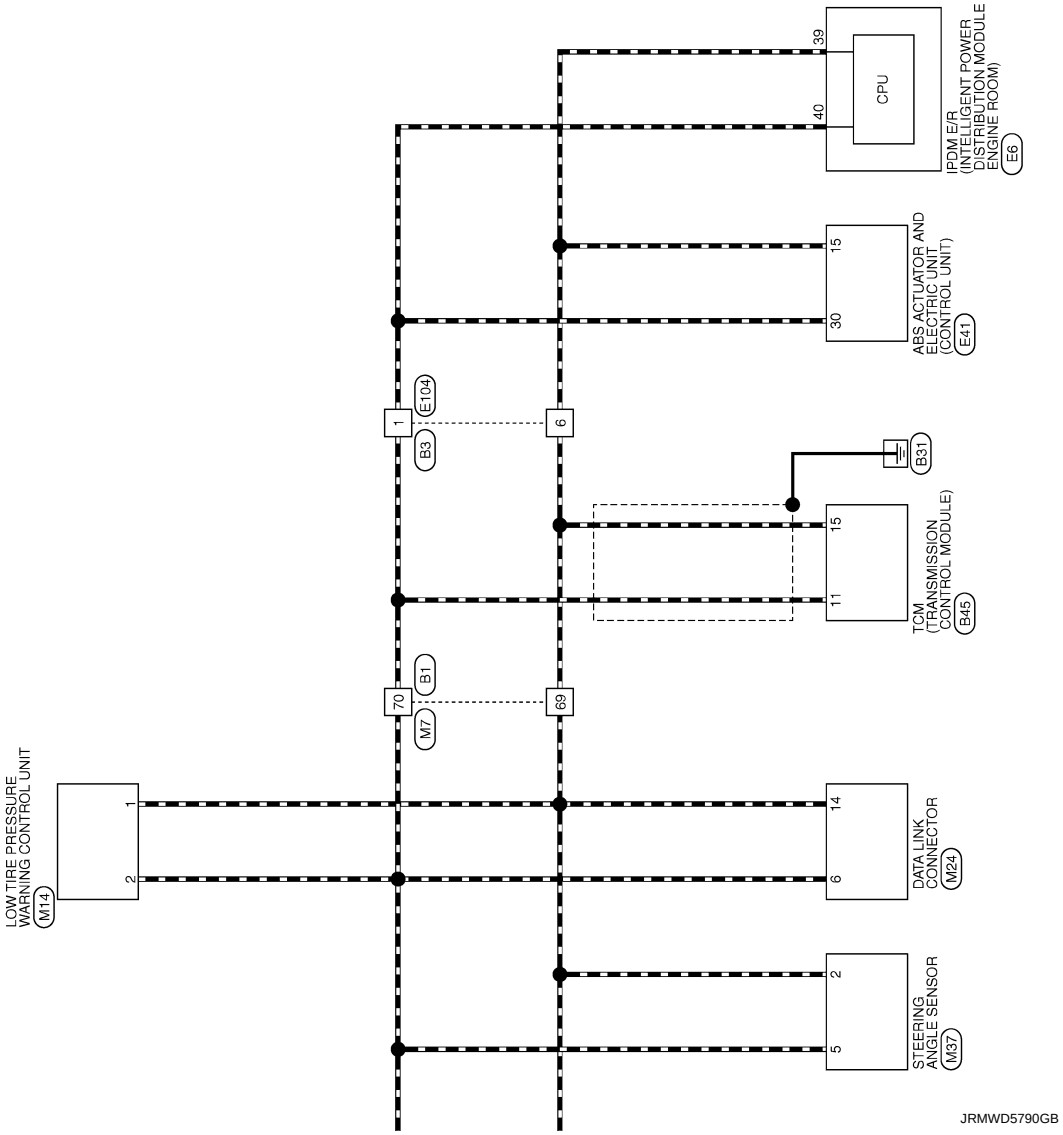
1. BCM M122
2. ECM M107
3. E-SUS control unit M110
4. IPDM E/R E6
5. AV control unit M203
6. A/C auto amp. M66
7. ABS actuator and electric unit (control unit) E41
8. Data link connector M24
9. Combination meter M53
10. Low tire pressure warning control unit M14
11. Steering angle sensor M37
12. TCM B45
13. Air bag diagnosis sensor unit M157
14. AWD control unit B213

Wiring Diagram - CAN SYSTEM -

INFOID:0000000009163500

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information".




IPDM E/R
(INTELLIGENT POWER
DISTRIBUTION MODULE
ENGINE ROOM)
E6
CPU
39
40
ABS ACTUATOR AND
ELECTRIC UNIT
(CONTROL UNIT)
E41
15
30
E104
B3
1
6
B31
TCM
(TRANSMISSION
CONTROL MODULE)
B45
15
11
B1
M7
70
69
LOW TIRE PRESSURE
WARNING CONTROL UNIT
M14
1
2
DATA LINK
CONNECTOR
M24
14
6
STEERING
ANGLE SENSOR
M37
2
5
JRMWD5790GB