

MWI

SECTION

METER, WARNING LAMP & INDICATOR

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000011559134

DETAILED FLOW

1.CONFIRM SYMPTOM

Confirm symptom or customer complaint.

>> GO TO 2

2.CHECK SELF-DIAGNOSIS OPERATION OF COMBINATION METER

Perform self-diagnosis of combination meter. Refer to [MWI-27. "Diagnosis Description"](#).

Does self-diagnosis mode operate?

YES >> GO TO 3

NO >> Check power supply and ground circuit of combination meter. Refer to [MWI-33. "COMBINATION METER : Diagnosis Procedure"](#). Then, GO TO 4

3.CHECK COMBINATION METER (CONSULT)

Select "METER/M&A" on CONSULT and perform "SELF-DIAGNOSIS" of combination meter. Refer to [MWI-28. "CONSULT Function \(METER/M&A\)"](#).

Self-diagnostic results content

No malfunction detected>>Repair or replace the cause of symptom. Then, GO TO 4

Malfunction detected>>Refer to [MWI-45. "DTC Index"](#). Then, GO TO 4

4.CONFIRM OPERATION

Does the combination meter operate normally?

YES or NO

YES >> Inspection End.

NO >> GO TO 1

METER SYSTEM

< SYSTEM DESCRIPTION >

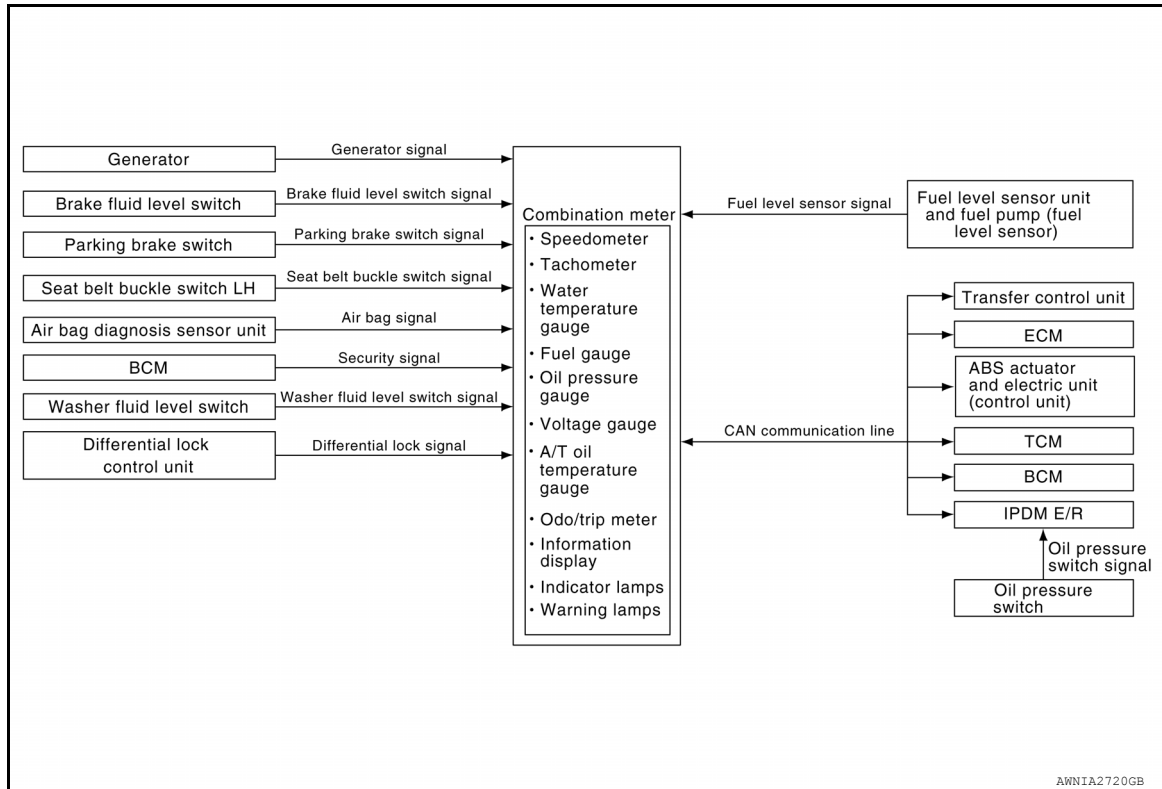
SYSTEM DESCRIPTION

METER SYSTEM

METER SYSTEM

METER SYSTEM : System Diagram

INFOID:0000000011559135



METER SYSTEM : System Description

INFOID:0000000011559136

COMBINATION METER

- Speedometer, odo/trip meter, tachometer, fuel gauge, engine coolant temperature gauge, engine oil pressure gauge (if equipped), voltage gauge (if equipped), A/T oil temperature gauge (if equipped) and information display are controlled by the unified meter control unit, which is built into the combination meter.
- Warning and indicator lamps are controlled by the unified meter control unit and by components connected directly to the combination meter.
- Digital meter is adopted for odo/trip meter.*
*The record of the odometer is kept even if the battery cable is disconnected. The record of the trip meter is erased when the battery cable is disconnected.
- Odo/trip meter segments can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

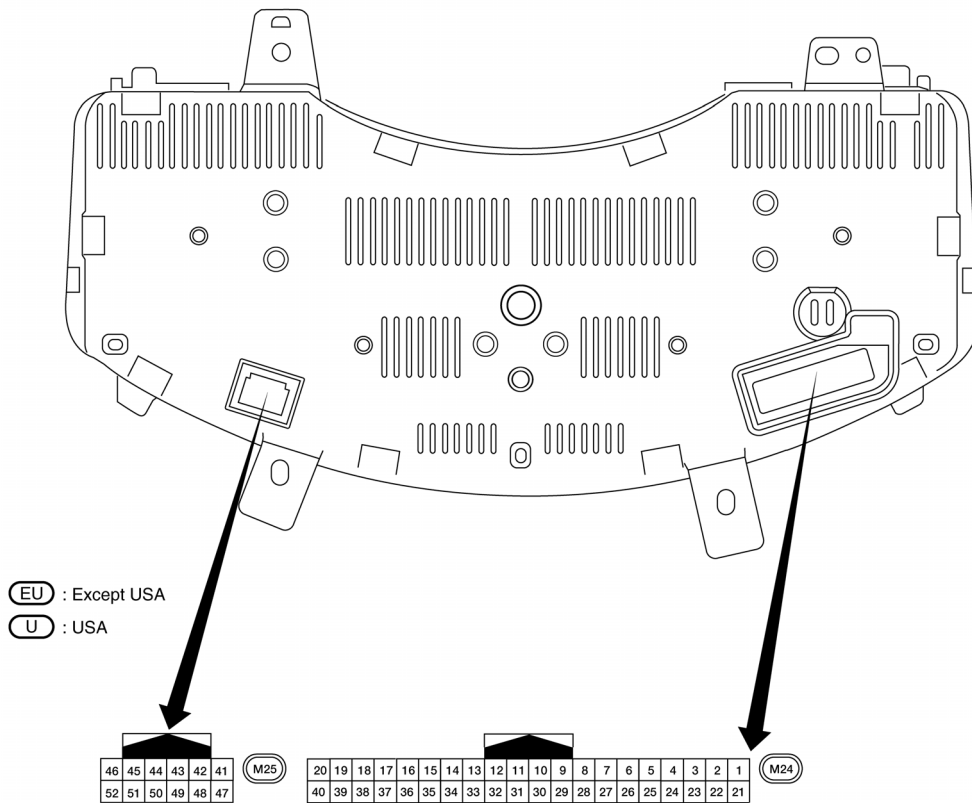
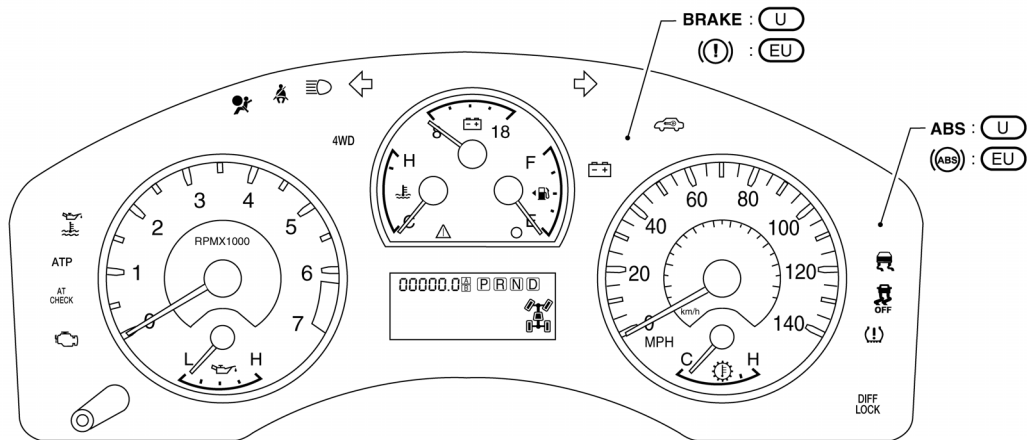
MWI

METER SYSTEM

< SYSTEM DESCRIPTION >

METER SYSTEM : Arrangement of Combination Meter

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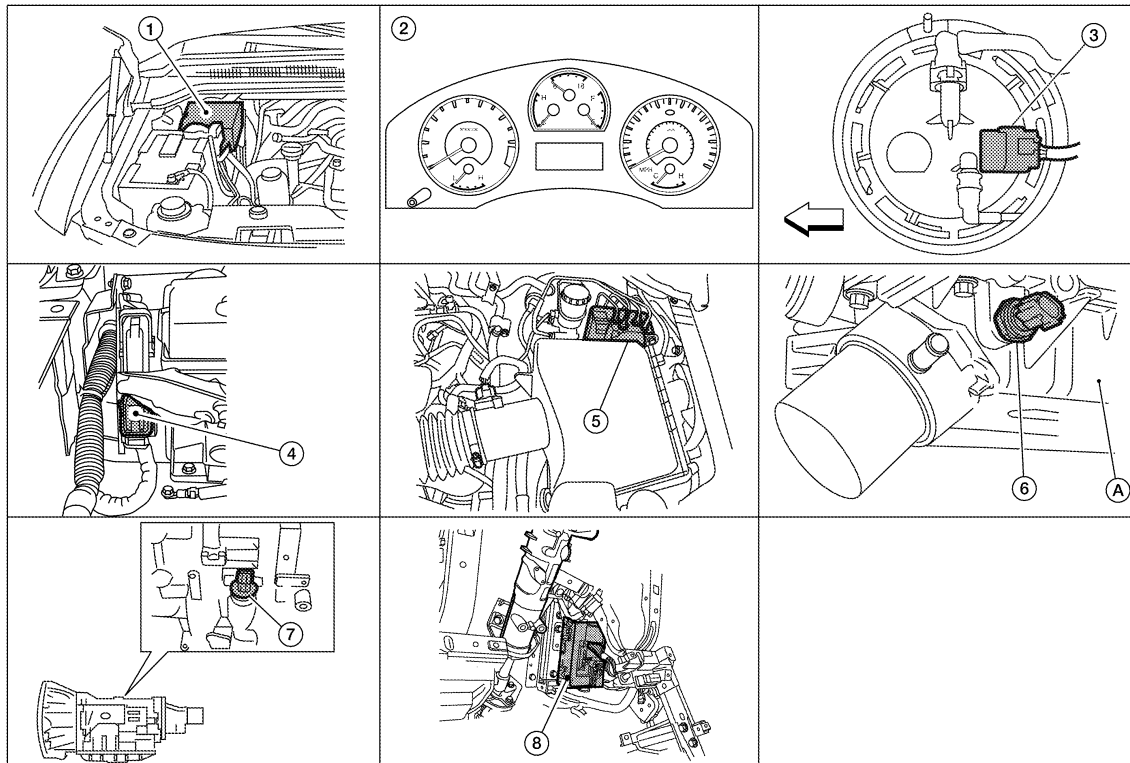
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METER SYSTEM

< SYSTEM DESCRIPTION >

METER SYSTEM : Component Parts Location

INFOID:0000000011559138



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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
<-: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit) E125
6. Oil pressure switch F4
A: Oil pan (upper)
7. A/T assembly
F9 (with floor shift)
F17 (with column shift)
8. BCM M18, M19 (view with instrument lower panel LH removed)

METER SYSTEM : Component Description

INFOID:0000000011559139

Unit	Description
Combination meter	Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors. - Speedometer - Engine coolant temperature gauge - Engine oil pressure gauge (if equipped) - Voltage gauge (if equipped) - Warning lamps - Information display - Tachometer - Fuel gauge - A/T oil temperature gauge (if equipped) - Odo/trip meter - Indicator lamps - Warning chime
IPDM E/R	IPDM E/R reads the ON/OFF signals of the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with CAN communication line.
Fuel level sensor unit and fuel pump (fuel level sensor)	Refer to MWI-37, "Description" .
Oil pressure switch	Refer to MWI-39, "Description" .

METER SYSTEM

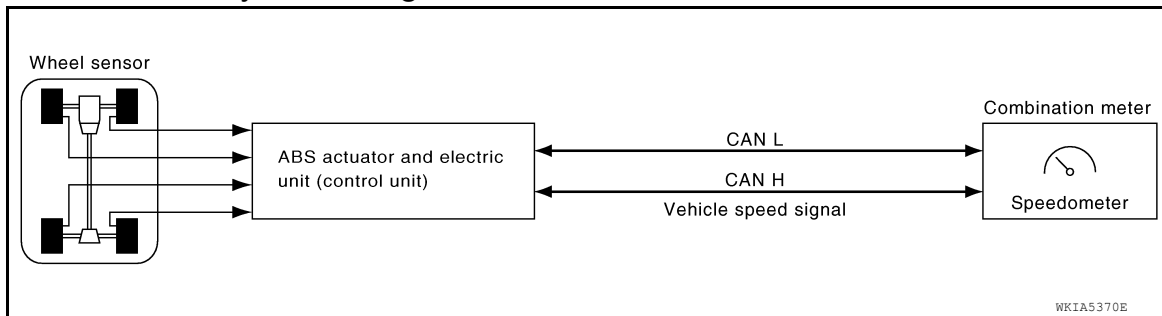
< SYSTEM DESCRIPTION >

Unit	Description
ECM	Transmits the following signals to the combination meter with CAN communication line. • Engine speed signal • Engine coolant temperature signal • Fuel consumption monitor signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter with CAN communication line.
BCM	• Transmits signals provided by various units to the combination meter with CAN communication line. • Transmits the security signal to the combination meter.
TCM	• Transmits shift position signal to the combination meter with CAN communication line. • Transmits A/T oil temperature signal to the combination meter with CAN communication line.
Washer fluid level switch	Transmits the washer fluid level signal to the combination meter.
Brake fluid level switch	Transmits the brake fluid level switch signal to the combination meter.
Parking brake switch	Refer to MWI-41, "Description" .

SPEEDOMETER

SPEEDOMETER : System Diagram

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SPEEDOMETER : System Description

INFOID:0000000011559141

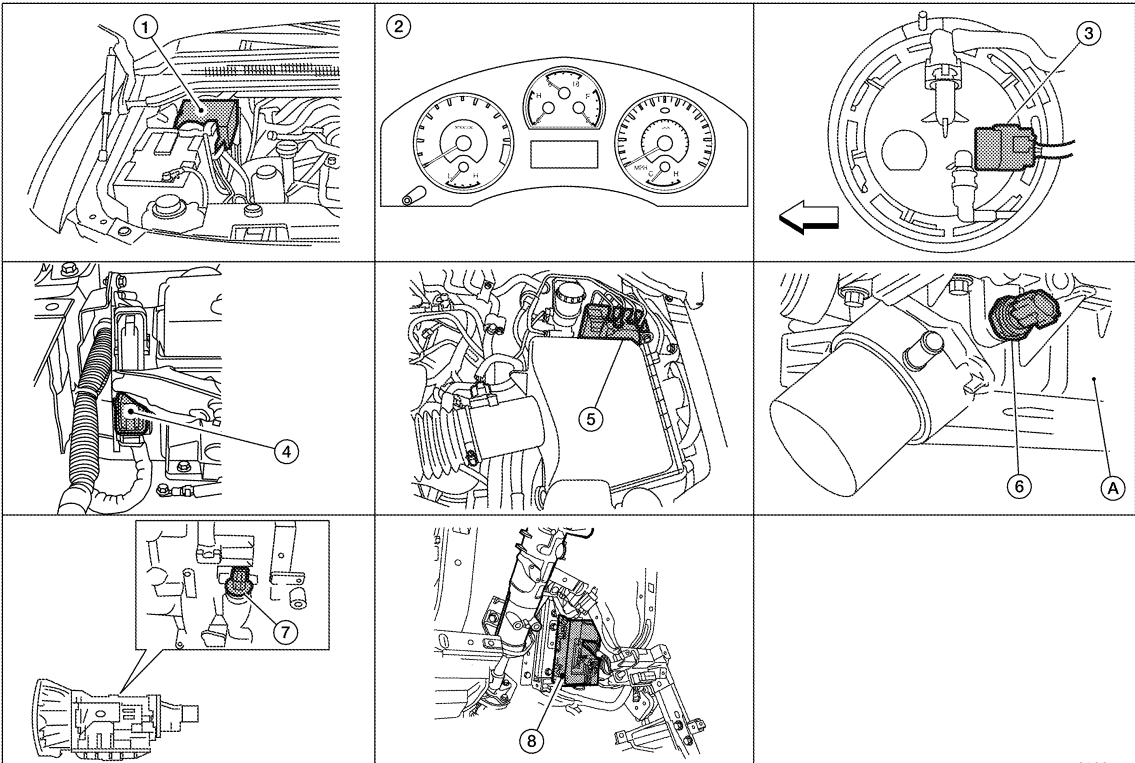
The ABS actuator and electric unit (control unit) provides a vehicle speed signal to the combination meter via CAN communication lines.

METER SYSTEM

< SYSTEM DESCRIPTION >

SPEEDOMETER : Component Parts Location

INFOID:0000000011559142



AWNIA01902Z

- 1. IPDM E/R E122, E124
- 2. Combination meter M24, M25
- 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front
- 4. ECM E16 (view with battery removed)
- 5. ABS actuator and electric unit (control unit) E125
- 6. Oil pressure switch F4
A: Oil pan (upper)
- 7. A/T assembly
F9 (with floor shift)
F17 (with column shift)
- 8. BCM M18, M19 (view with instrument lower panel LH removed)

SPEEDOMETER : Component Description

INFOID:0000000011559143

Unit	Description
Combination meter	Indicates the vehicle speed according to the vehicle speed signal received from ABS actuator and electric unit (control unit) via CAN communication.
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter with CAN communication line.

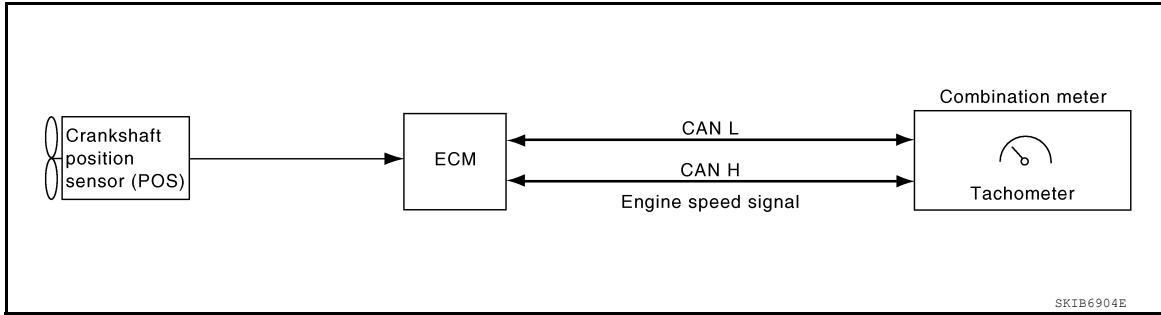
TACHOMETER

METER SYSTEM

< SYSTEM DESCRIPTION >

TACHOMETER : System Diagram

INFOID:0000000011559144



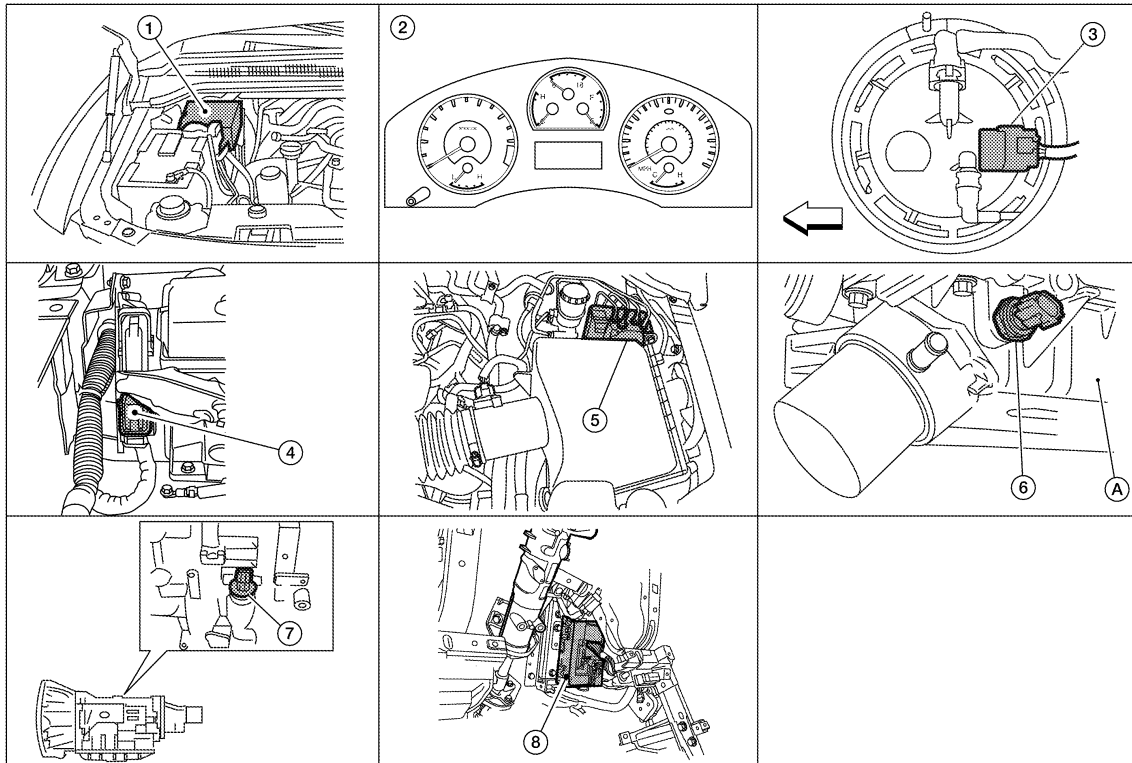
TACHOMETER : System Description

INFOID:0000000011559145

The tachometer indicates engine speed in revolutions per minute (rpm).
The ECM provides an engine speed signal to the combination meter via CAN communication lines.

TACHOMETER : Component Parts Location

INFOID:0000000011559146



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- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

METER SYSTEM

< SYSTEM DESCRIPTION >

TACHOMETER : Component Description

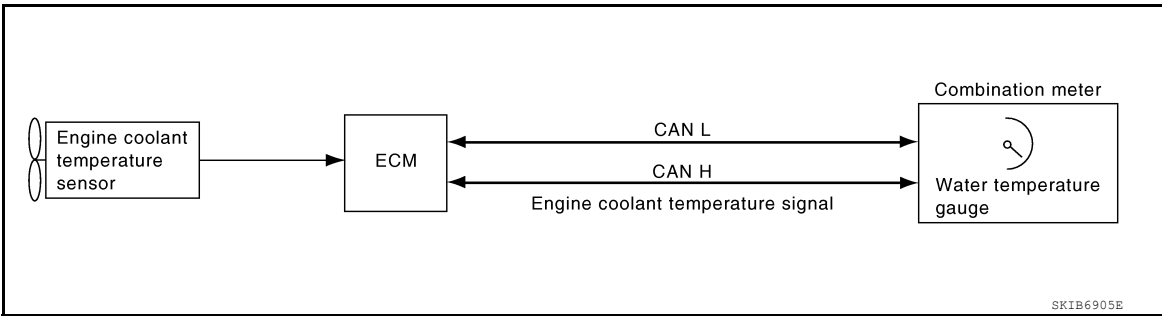
INFOID:0000000011559147

Unit	Description
Combination meter	Indicates the engine speed in RPM according to the engine speed signal received from ECM via CAN communication.
ECM	Transmits the engine speed signal to the combination meter with CAN communication line.

ENGINE COOLANT TEMPERATURE GAUGE

ENGINE COOLANT TEMPERATURE GAUGE : System Diagram

INFOID:0000000011559148



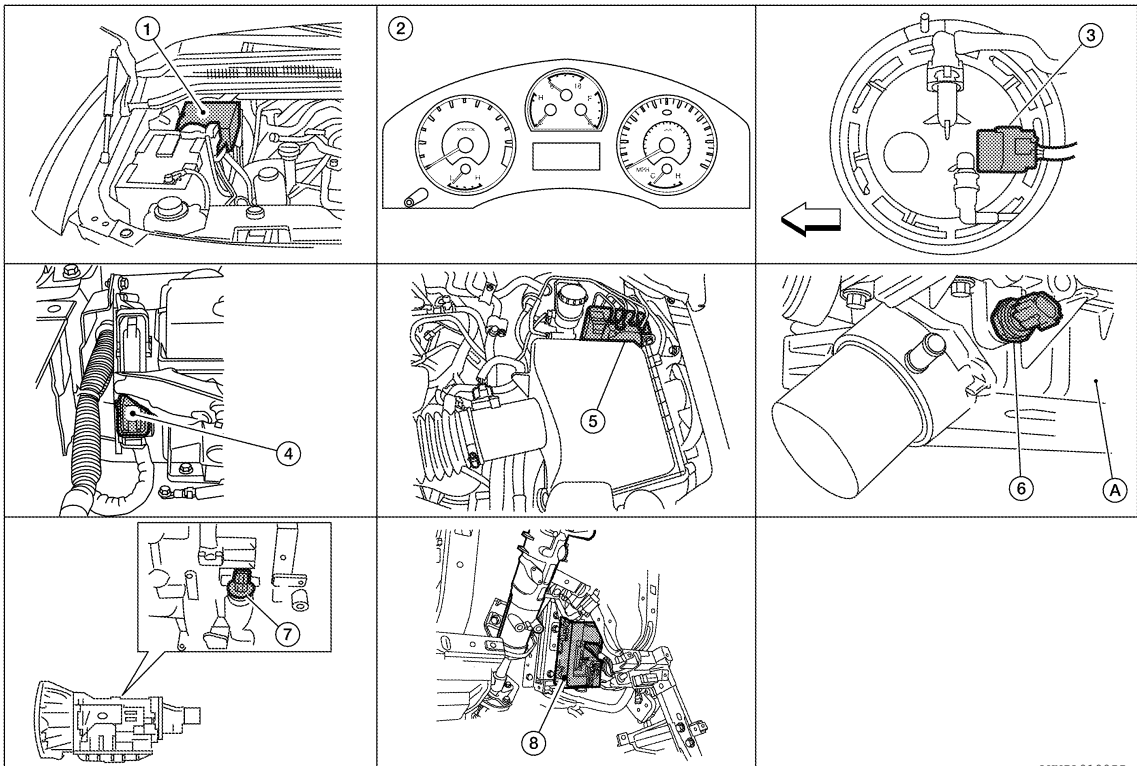
ENGINE COOLANT TEMPERATURE GAUGE : System Description

INFOID:0000000011559149

The engine coolant temperature gauge indicates the engine coolant temperature.
The ECM provides an engine coolant temperature signal to the combination meter via CAN communication lines.

ENGINE COOLANT TEMPERATURE GAUGE : Component Parts Location

INFOID:0000000011559150



METER SYSTEM

< SYSTEM DESCRIPTION >

- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

ENGINE COOLANT TEMPERATURE GAUGE : Component Description

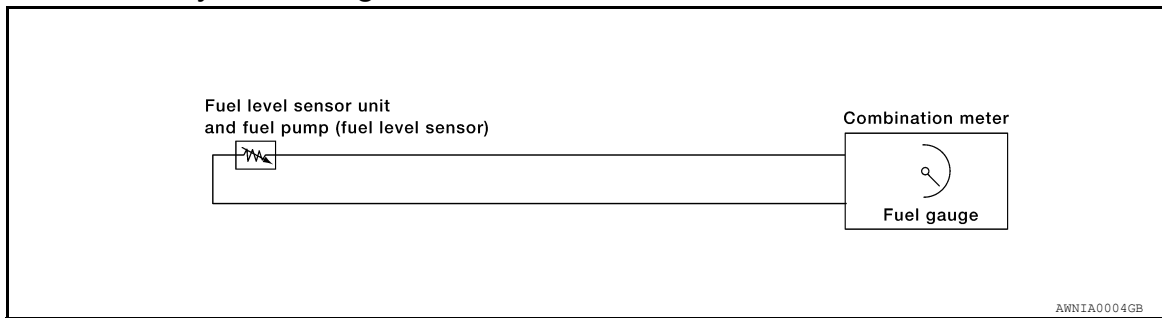
INFOID:0000000011559151

Unit	Description
Combination meter	Indicates the engine coolant temperature according to the engine coolant temperature signal received from ECM via CAN communication.
ECM	Transmits the engine coolant temperature signal to the combination meter via CAN communication.

FUEL GAUGE

FUEL GAUGE : System Diagram

INFOID:0000000011559152



FUEL GAUGE : System Description

INFOID:0000000011559153

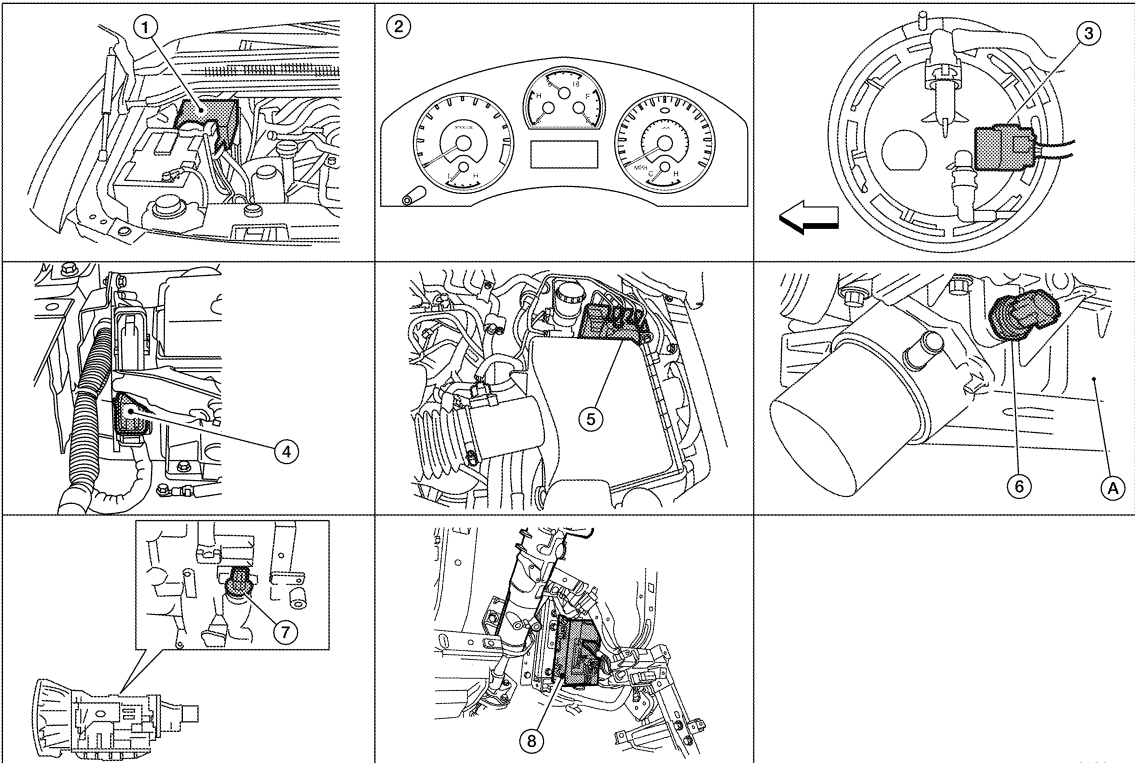
The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by the unified meter control unit and a variable resistor signal supplied by the fuel level sensor unit and fuel pump (fuel level sensor).

METER SYSTEM

< SYSTEM DESCRIPTION >

FUEL GAUGE : Component Parts Location

INFOID:0000000011559154



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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
<-: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit) E125
6. Oil pressure switch F4
A: Oil pan (upper)
7. A/T assembly
F9 (with floor shift)
F17 (with column shift)
8. BCM M18, M19 (view with instrument lower panel LH removed)

FUEL GAUGE : Component Description

INFOID:0000000011559155

Unit	Description
Combination meter	Indicates the fuel level according to the fuel level sensor signal received from the fuel level sensor unit and fuel pump (fuel level sensor).
Fuel level sensor unit and fuel pump (fuel level sensor)	Refer to MWI-37, "Description" .

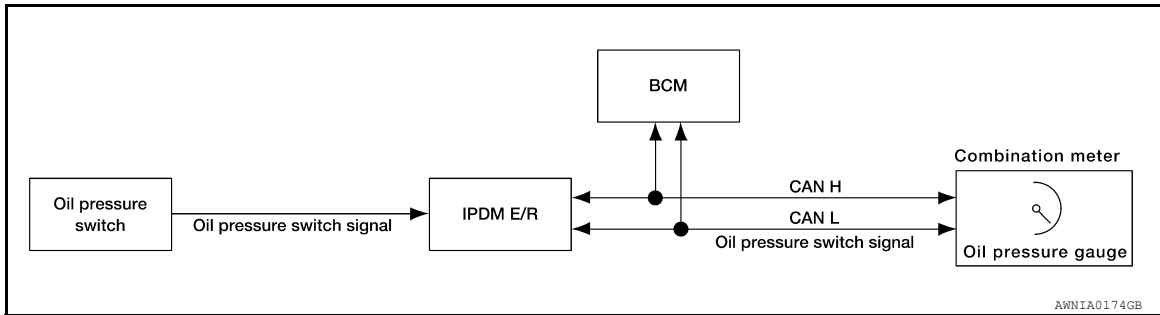
ENGINE OIL PRESSURE GAUGE

METER SYSTEM

< SYSTEM DESCRIPTION >

ENGINE OIL PRESSURE GAUGE : System Diagram

INFOID:0000000011559156



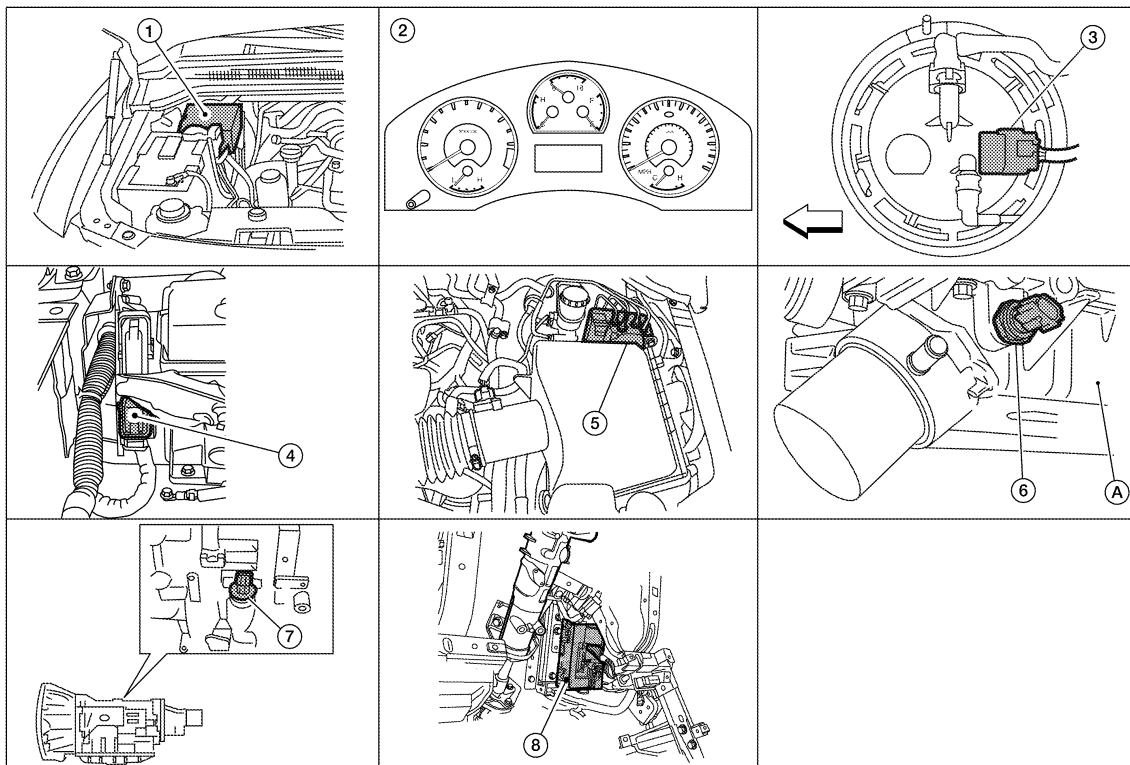
ENGINE OIL PRESSURE GAUGE : System Description

INFOID:0000000011559157

The engine oil pressure gauge indicates whether the engine oil pressure is low or normal. The oil pressure gauge is controlled by the IPDM E/R. The IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication line. The oil pressure gauge displays a low or normal indication according to the oil pressure switch signal received via CAN communication.

ENGINE OIL PRESSURE GAUGE : Component Parts Location

INFOID:0000000011559158



- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

METER SYSTEM

< SYSTEM DESCRIPTION >

ENGINE OIL PRESSURE GAUGE : Component Description

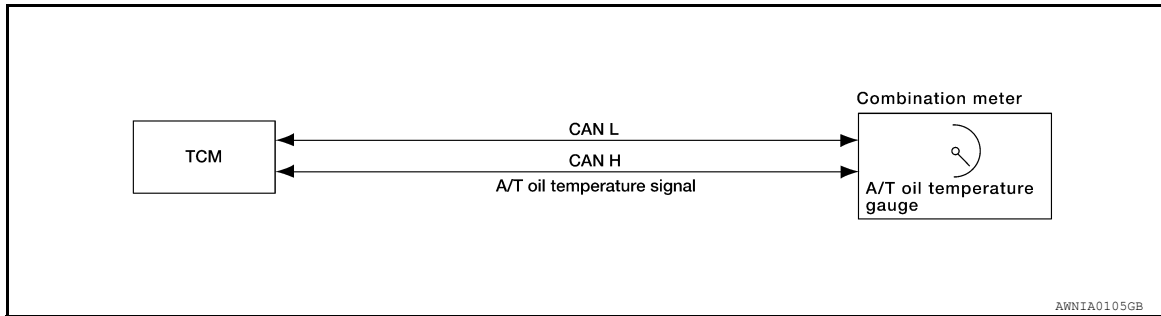
INFOID:0000000011559159

Unit	Description
Combination meter	Indicates the engine oil pressure (low/normal) according to the oil pressure switch signal received from BCM with CAN communication line.
IPDM E/R	Reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication line.
Oil pressure switch	Refer to MWI-39, "Description" .
BCM	Transmits the oil pressure switch signal received from IPDM E/R via CAN communication to the combination meter via CAN communication.

A/T OIL TEMPERATURE GAUGE

A/T OIL TEMPERATURE GAUGE : System Diagram

INFOID:0000000011559160



A/T OIL TEMPERATURE GAUGE : System Description

INFOID:0000000011559161

The A/T oil temperature gauge indicates the A/T fluid temperature.
The TCM (transmission control module) provides an A/T fluid temperature signal to combination meter via CAN communication lines.

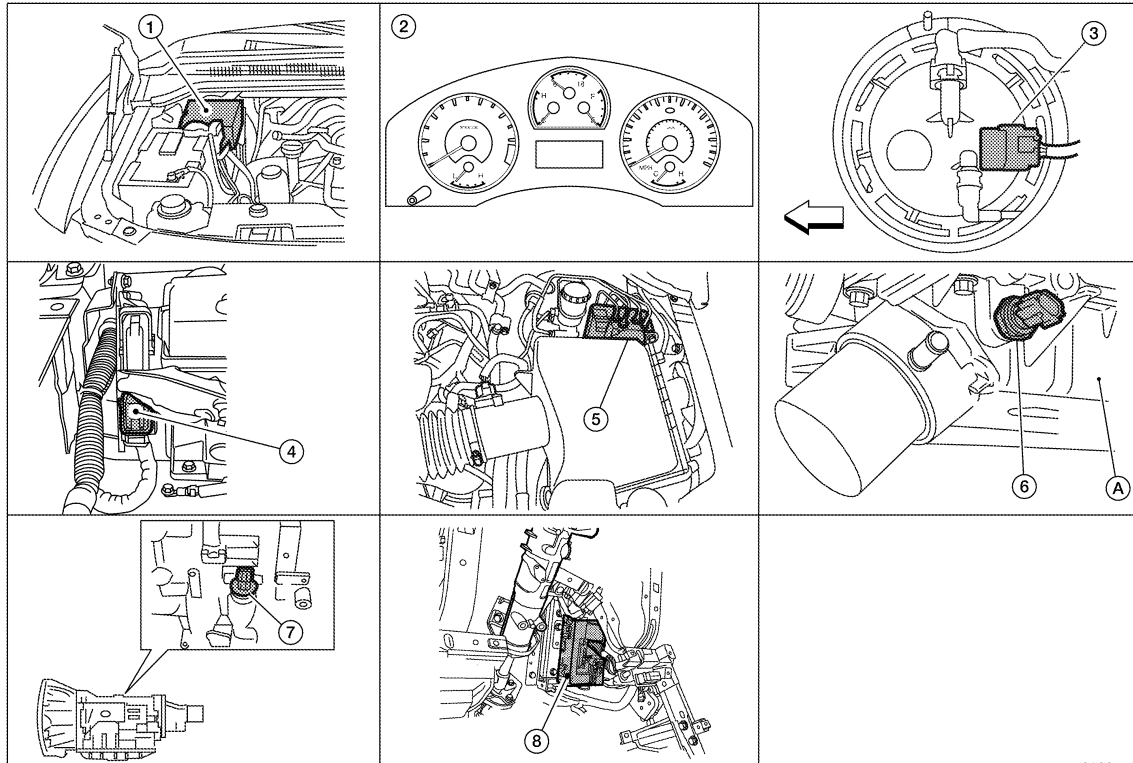
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METER SYSTEM

< SYSTEM DESCRIPTION >

A/T OIL TEMPERATURE GAUGE : Component Parts Location

INFOID:0000000011559162



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- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

A/T OIL TEMPERATURE GAUGE : Component Description

INFOID:0000000011559163

Unit	Description
Combination meter	Indicates the A/T oil temperature according to the A/T oil temperature signal received from TCM via CAN communication.
TCM	Transmits the A/T oil temperature signal to the combination meter via CAN communication.

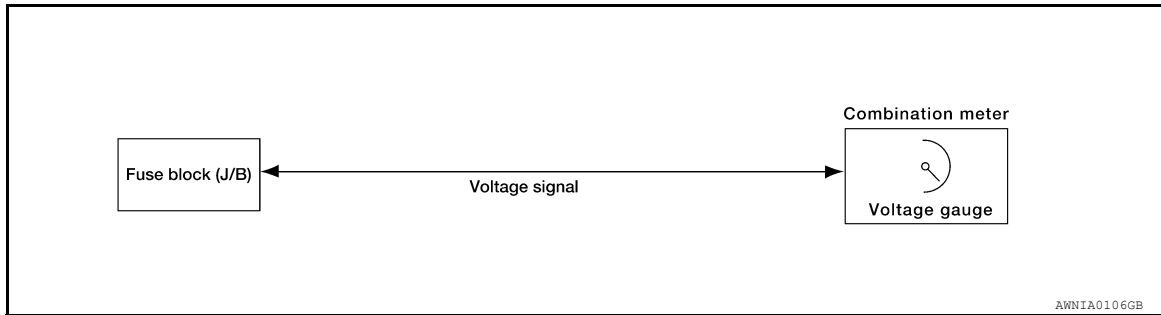
VOLTAGE GAUGE

METER SYSTEM

< SYSTEM DESCRIPTION >

VOLTAGE GAUGE : System Diagram

INFOID:0000000011559164



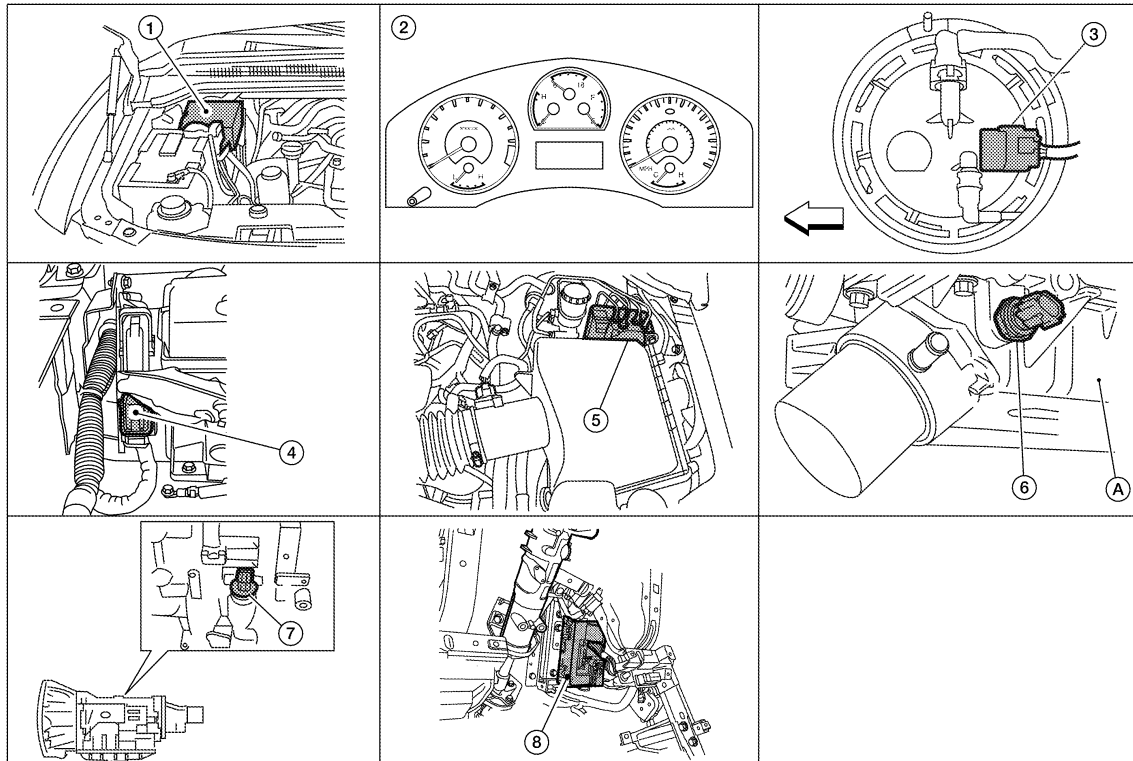
VOLTAGE GAUGE : System Description

INFOID:0000000011559165

The voltage gauge indicates the battery/charging system voltage.
The voltage gauge is regulated by the unified meter control unit.

VOLTAGE GAUGE : Component Parts Location

INFOID:0000000011559166



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|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
⇐: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

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METER SYSTEM

< SYSTEM DESCRIPTION >

VOLTAGE GAUGE : Component Description

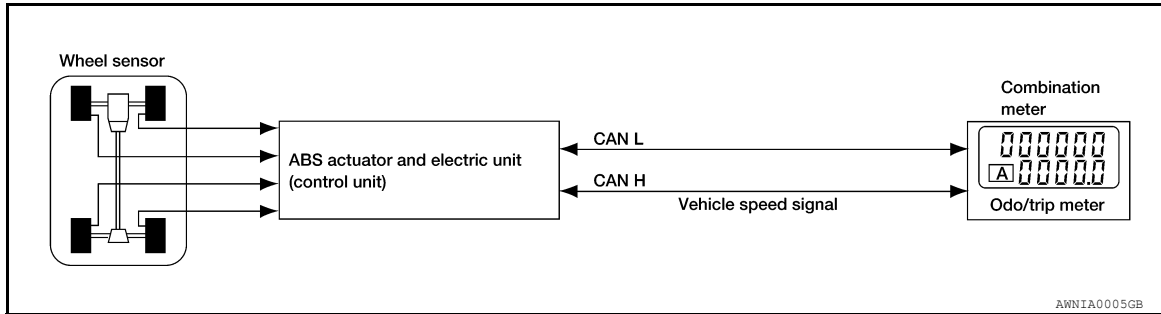
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Unit	Description
Combination meter	Indicates the battery voltage according to the voltage signal received from the fuse block (J/B).
Fuse block (J/B)	Transmits the battery voltage signal to the combination meter.

ODO/TRIP METER

ODO/TRIP METER : System Diagram

INFOID:0000000011559168



ODO/TRIP METER : System Description

INFOID:0000000011559169

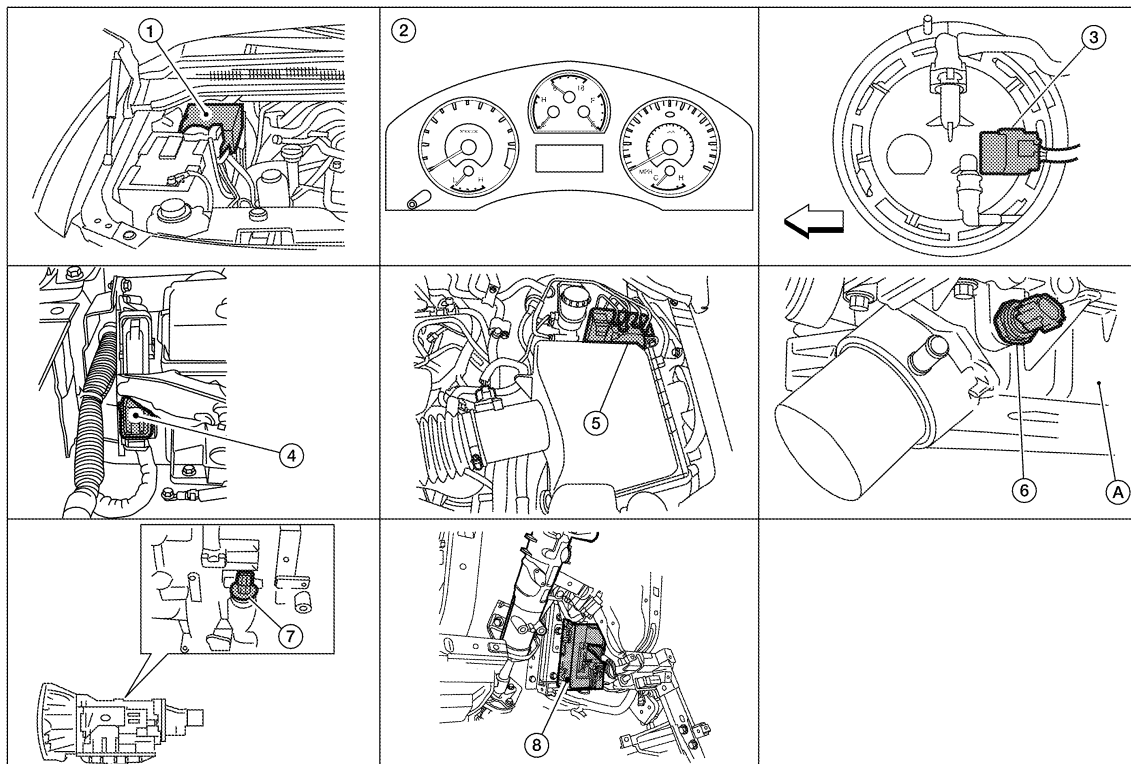
The vehicle speed signal and the memory signals from the meter memory circuit are processed by the combination meter and the mileage is displayed.

HOW TO CHANGE THE DISPLAY FOR ODO/TRIP METER

Refer to Owner's Manual for odo/trip meter operating instructions.

ODO/TRIP METER : Component Parts Location

INFOID:0000000011559170



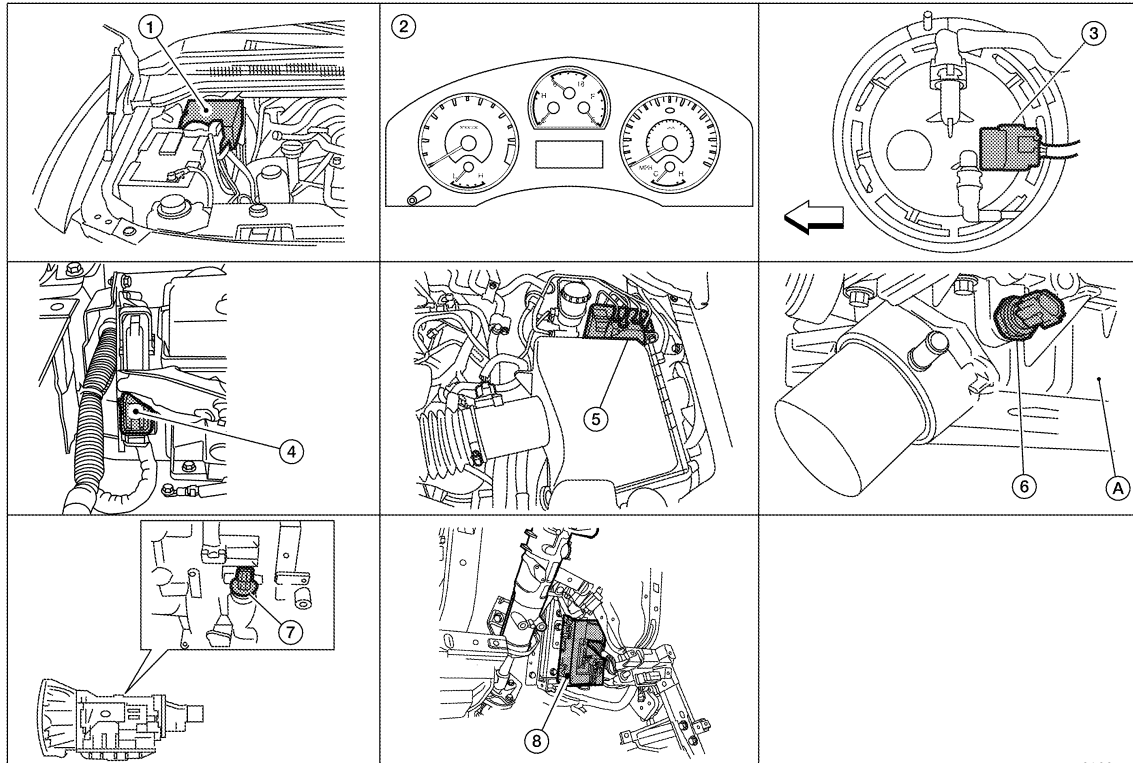
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METER SYSTEM

< SYSTEM DESCRIPTION >

SHIFT POSITION INDICATOR : Component Parts Location

INFOID:0000000011559174



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- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

SHIFT POSITION INDICATOR : Component Description

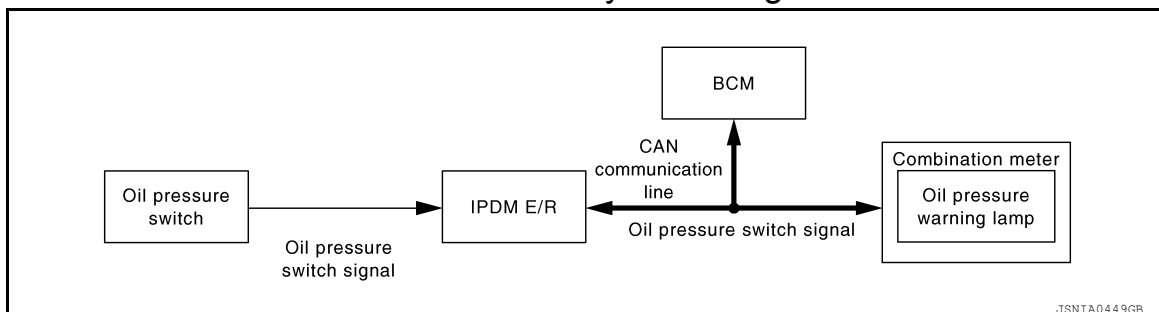
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Unit	Description
Combination meter	Displays the shift position on the information display using shift position signal received from TCM.
TCM	Transmits the shift position signal to the combination meter via CAN communication.

WARNING LAMPS/INDICATOR LAMPS

WARNING LAMPS/INDICATOR LAMPS : System Diagram

INFOID:0000000011559176



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METER SYSTEM

< SYSTEM DESCRIPTION >

WARNING LAMPS/INDICATOR LAMPS : System Description

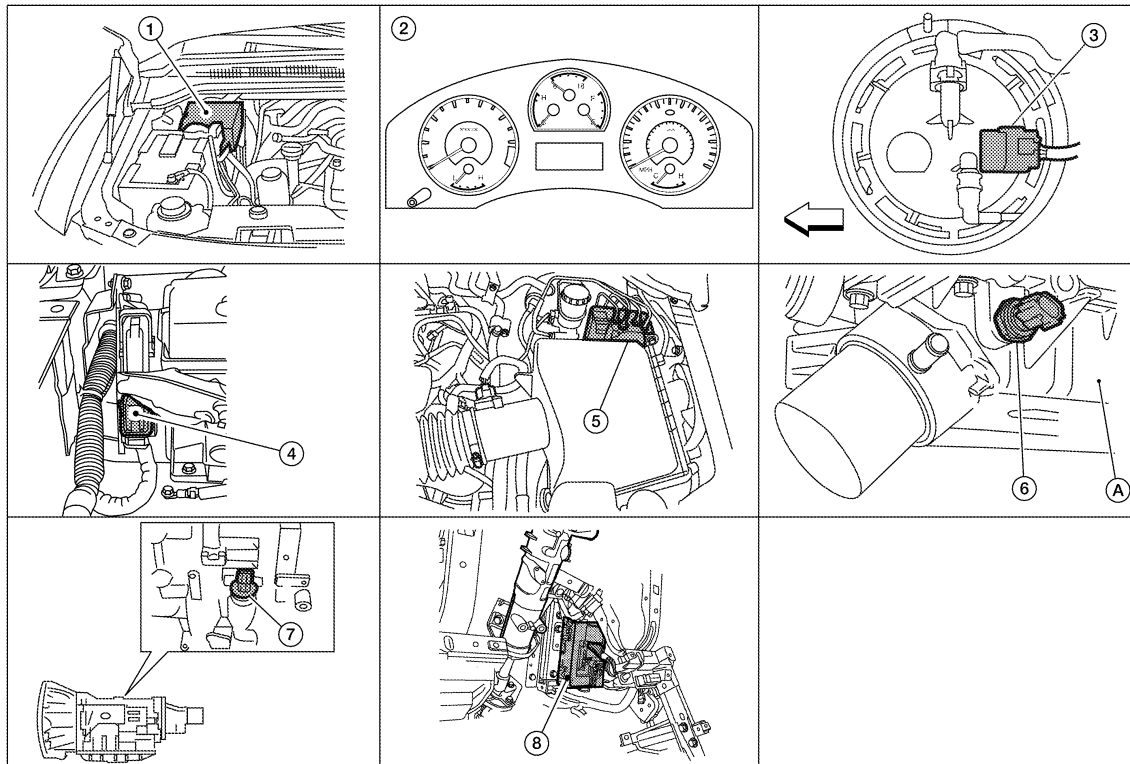
INFOID:0000000011559177

OIL PRESSURE WARNING LAMP

- IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication line.
- The combination meter turns the oil pressure warning lamp ON/OFF according to the oil pressure switch signal received via CAN communication.

WARNING LAMPS/INDICATOR LAMPS : Component Parts Location

INFOID:0000000011559178



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- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
←: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

WARNING LAMPS/INDICATOR LAMPS : Component Description

INFOID:0000000011559179

Unit	Description
Combination meter	Turns the oil pressure warning lamp ON/OFF according to the oil pressure switch signal received from BCM by means of communication.
IPDM E/R	Reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication line.
Oil pressure switch	Refer to MWI-39. "Description" .
BCM	Transmits the oil pressure switch signal received from IPDM E/R via CAN communication to the combination meter via CAN communication.

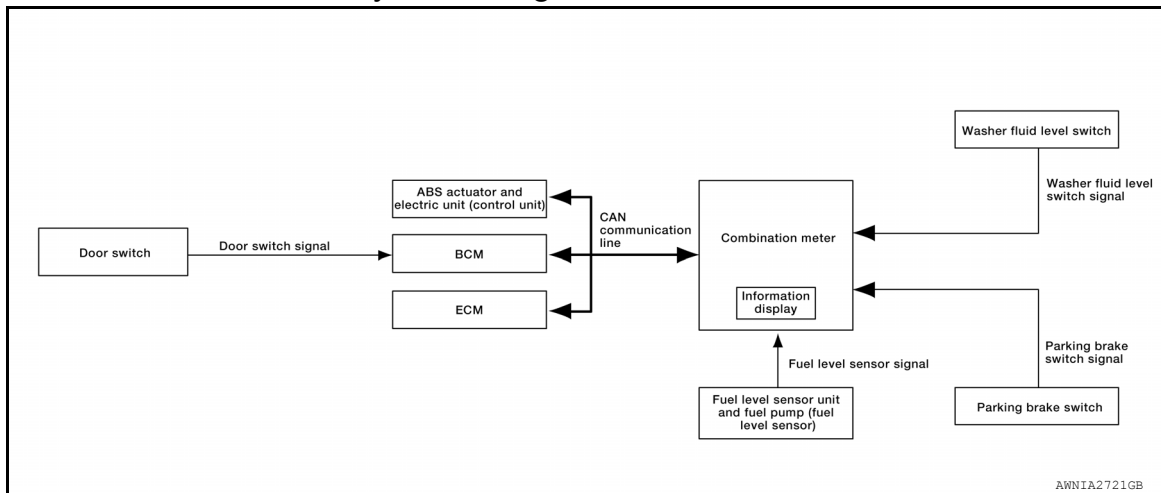
METER SYSTEM

< SYSTEM DESCRIPTION >

INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

INFOID:0000000011559180



INFORMATION DISPLAY : System Description

INFOID:0000000011559181

FUNCTION

The information display can indicate the following items.

- Trip/fuel consumption readings
- Maintenance information
- Warning/Indication messages (door open, low fuel, low washer fluid, parking brake, loose fuel cap, check tire pressure)

MPG

Average fuel consumption indication is calculated using vehicle speed signals from the ABS actuator and electric unit (control unit) and fuel consumption information from the ECM.

TIME/MILES

The travel time and distance since last reset is displayed.

MPG/MPH

The average speed mode can be selected to display the average fuel consumption and average speed since last reset. The indications are calculated using vehicle speed signals from the ABS actuator and electric unit (control unit) and fuel consumption information from the ECM.

RANGE

The range indication provides the driver with an estimation of the distance that can be driven before refueling. The range is calculated using signals from the fuel level sensor unit (fuel remaining), ECM (fuel consumption) and vehicle speed signals from the ABS actuator and electric unit (control unit).

DOOR OPEN WARNING

This warning appears when the ignition switch is ON and the front door LH, front door RH, rear door LH (crew cab) or rear door RH (crew cab) is opened. The BCM receives a door switch signal from the front door switch LH, front door switch RH, rear door switch LH (crew cab) and rear door switch RH (crew cab). The BCM sends the door switch signal to the combination meter via CAN communication lines. Then, when the ignition switch is turned ON, the warning message is displayed.

LOW FUEL WARNING

This warning appears when the fuel level in the fuel tank is less than approximately 11.4 ℓ (3 US gal, 2.5 Imp gal). A variable resistor signal is supplied to the combination meter from the fuel level sensor unit and fuel pump (fuel level sensor) to determine the amount of fuel in the fuel tank.

LOOSE FUEL CAP WARNING

The LOOSE FUEL CAP indicator will display in the information display when the fuel-filler cap is not tightened correctly. The indicator will turn off as soon as the ECM detects the fuel-filler cap is properly tightened. The ECM provides a loose fuel cap signal to the combination meter via CAN communication lines.

METER SYSTEM

< SYSTEM DESCRIPTION >

CHECK TIRE PRESSURE WARNING

The CHECK TIRE PRESSURE indicator will display in the information display when BCM has detected a low tire pressure condition.

LOW WINDSHIELD WASHER FLUID WARNING

This warning appears when the windshield washer fluid level is low. When the windshield washer fluid level is low, the washer fluid level switch provides a ground signal to the combination meter (unified meter control unit). Once fluid is added, the message will stay on for 30 seconds and then turn off.

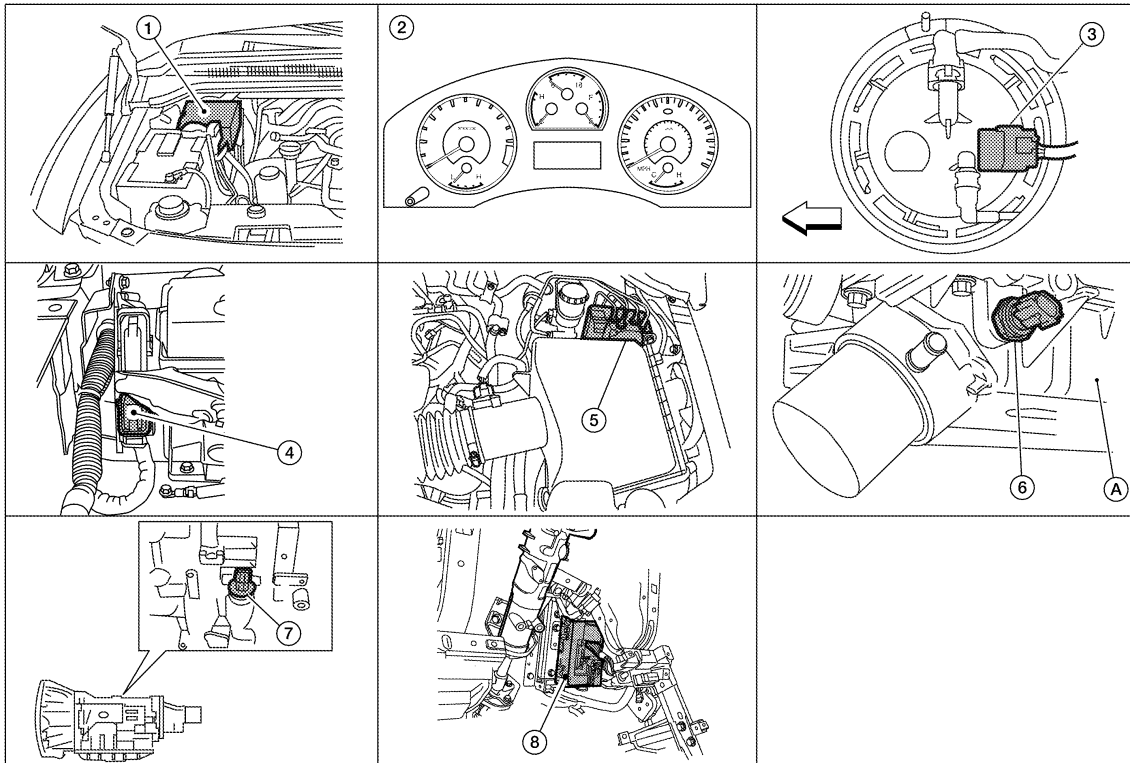
PARKING BRAKE INDICATOR

When the parking brake is applied, the parking brake switch provides a ground signal to the combination meter (unified meter control unit). Then, when the ignition switch is turned ON and vehicle speed is greater than 7 km/h (4 MPH), the message is displayed.

Refer to Owner's Manual for additional information display items.

INFORMATION DISPLAY : Component Parts Location

INFOID:000000011559182



AWNIA0190ZZ

- | | | |
|---|---|--|
| 1. IPDM E/R E122, E124 | 2. Combination meter M24, M25 | 3. Fuel level sensor unit and fuel pump (fuel level sensor) C5 (view with fuel tank removed)
⇐: Front |
| 4. ECM E16 (view with battery removed) | 5. ABS actuator and electric unit (control unit) E125 | 6. Oil pressure switch F4
A: Oil pan (upper) |
| 7. A/T assembly
F9 (with floor shift)
F17 (with column shift) | 8. BCM M18, M19 (view with instrument lower panel LH removed) | |

MWI

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P

METER SYSTEM

< SYSTEM DESCRIPTION >

INFORMATION DISPLAY : Component Description

INFOID:0000000011559183

Unit	Description
Combination meter	Controls the information display according to the signal received from each unit.
Fuel level sensor unit and fuel pump (fuel level sensor)	Refer to MWI-37, "Description" .
ECM	Transmits the following signals to the combination meter via CAN communication line. • Engine speed signal • Fuel consumption monitor signal • Loose fuel cap signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication line.
BCM	Transmits signals provided by various units to the combination meter via CAN communication line.
Washer fluid level switch	Transmits the washer fluid level signal to the combination meter.
Parking brake switch	Refer to MWI-41, "Description" .
Door switch	Transmits the door switch signals to BCM.

COMPASS

< SYSTEM DESCRIPTION >

COMPASS

Description

INFOID:0000000011559184

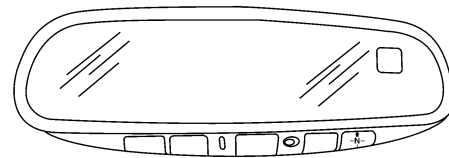
DESCRIPTION

With the ignition switch in the ON position, and the mode or (N) switch ON, the compass display will indicate the direction the vehicle is heading.

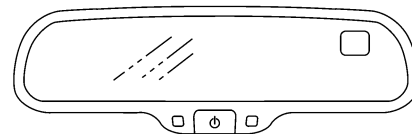
Vehicle direction is displayed as follows:

- N: north
- E: east
- S: south
- W: west

With HomeLink® universal transceiver



Without HomeLink® universal transceiver

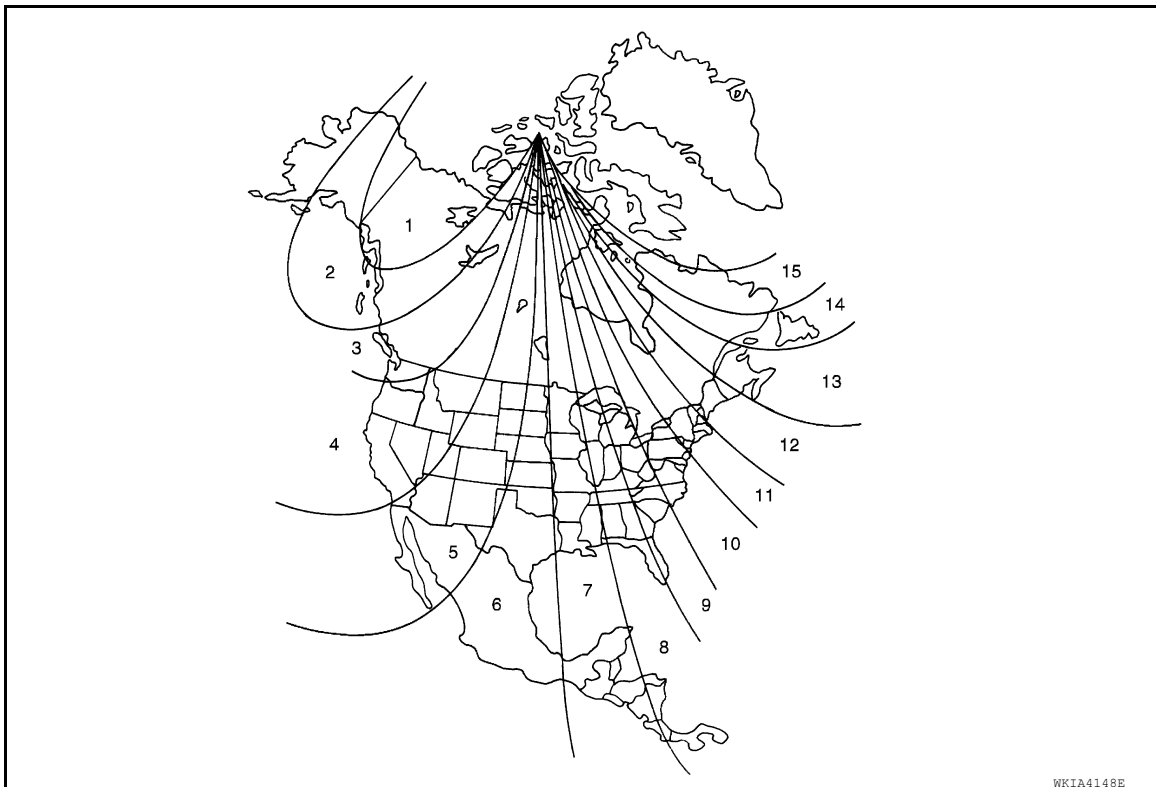


WKIA4889E

ZONE VARIATION SETTING PROCEDURE

The difference between magnetic north and geographical north can sometimes be great enough to cause false compass readings. This difference is known as variance. In order for the compass to operate properly (accurately) in a particular zone, the zone variation must be calibrated using the following procedure.

Zone Variation Chart



COMPASS

< SYSTEM DESCRIPTION >

1. Determine your location on the zone map.
2. Turn the ignition switch to the ON position.
3. Press and hold the (N) switch (with HomeLink universal transceiver) or the mode switch (without HomeLink universal transceiver) until the current zone number appears in the display.
4. Press the mode or (N) switch repeatedly until the desired zone number appears in the display.

Once the desired zone number is displayed, stop pressing the mode or (N) switch and the display will show a compass direction after a few seconds.

NOTE:

Use zone number 5 for Hawaii.

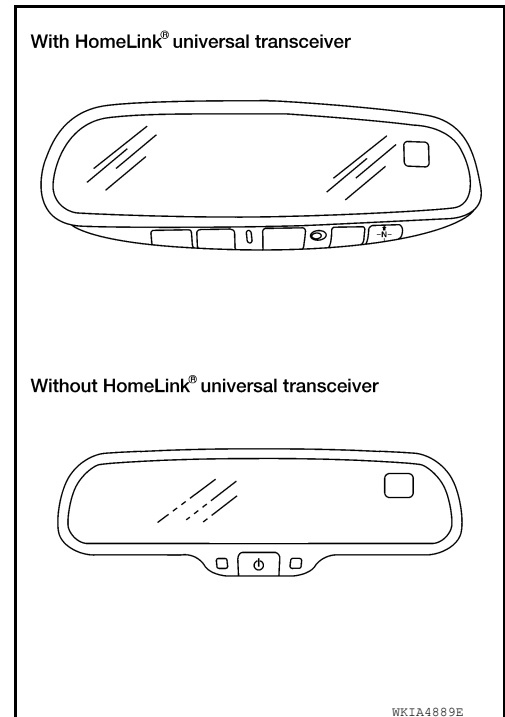
CALIBRATION PROCEDURE

The compass display is equipped with an automatic correction function. If the compass display reads "CAL" or the direction is not shown correctly, perform the correction procedure below.

1. Press and hold the (N) switch (with HomeLink universal transceiver) or the mode switch (without HomeLink universal transceiver) until the display reads "CAL".
2. Drive the vehicle slowly in a circle, in an open, safe place. The initial calibration is completed in about 3 turns.

NOTE:

In places where the terrestrial magnetism is extremely disturbed, the initial correction may start automatically.



DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (METER)

Diagnosis Description

INFOID:0000000011559185

SELF-DIAGNOSIS MODE

The following items can be checked during Combination Meter Self-Diagnosis Mode.

- Gauge sweep and present gauge values.
- Illuminates all odometer/trip meters and A/T indicator segments.
- Illuminates all micro controlled lamps/LEDs regardless of switch position.
- Displays estimated present battery voltage.
- Displays seat belt buckle switch LH status.

OPERATION PROCEDURE

NOTE:

- Once entered, combination meter self-diagnosis mode will function with the ignition switch in ON or START. Combination meter self-diagnosis mode will exit upon turning the ignition switch to OFF or ACC.
- If the diagnosis function is activated with trip A displayed, the mileage on trip A is reset to 0000.0. (Trip B operates the same way.)

To initiate combination meter self-diagnosis mode, refer to the following procedure.

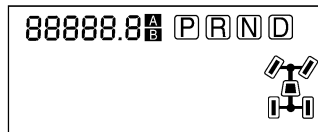
1. Turn the ignition switch ON, while pressing the odometer/trip meter switch for 5 - 8 seconds. When the diagnosis function is activated, the odometer/trip meter will display tEst.

NOTE:

Check combination meter power supply and ground circuit when self-diagnosis mode of combination meter does not start. Refer to [MWI-33, "COMBINATION METER : Diagnosis Procedure"](#). Replace combination meter if normal. Refer to [MWI-95, "Removal and Installation"](#).

COMBINATION METER SELF-DIAGNOSIS MODE FUNCTIONS

To interpret combination meter self-diagnosis mode functions, refer to the following table.

Event	Odometer Display	Description of Test/Data	Notes:
Odometer/trip meter A/B switch held from 5 to 8 seconds (or until released)	tEst		Initiating self-diagnosis mode
Switch released	GAGE	Performs sweep of all gauges, then displays present gauge values.	Gauges sweep within 10 seconds
Switch pressed	(All segments illuminated)	Lights all LCD segments. Compare with picture.	 ALNIA0280ZZ
Switch pressed	bulb	Illuminates all micro-controlled lamps/LEDs.	Part may not be configured for all lamps (functions) that turn on during test. This is normal.
Switch pressed	r XXXX, FAIL	Return to normal operation of all lamps/LEDs and displays "r XXXX".	If a malfunction exists, "FAIL" will flash.
Switch pressed	nrXXXX	Displays Hex ROM rev as stored in NVM.	
Switch pressed	EE XX, FAIL	Displays "EE XX".	If a malfunction exists, "FAIL" will flash.
Switch pressed	dtXXXX	Hex coding of final manufacturing test date.	

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

Event	Odometer Display	Description of Test/Data	Notes:
Switch pressed (3 times)	Sc1 XX through Epr XX	Displays 8 bit software configuration value in Hex format	
Switch pressed	1nF XX	Displays 8-bit market info value in Hex format.	\$31 = USA \$2A = Canada \$FF = Other
Switch pressed (3 times)	cYL XX through tF	N/A	
Switch pressed	ot1 XX	Displays oil pressure tell-tale "" in Hex format.	
Switch pressed	ot0 XX	Displays oil pressure tell-tale "" in Hex format.	
Switch pressed	XXXXX	"Corrected" speed value in hundredths of MPH. Gauge indication may be slightly higher. This is normal.	Will display "----" if message is not received. Will display "99999" if data received is invalid.
Switch pressed	XXXXX	"Corrected" speed value in hundredths of KPH. Gauge indication may be slightly different. This is normal.	Will display "----" if message is not received. Will display "99999" if data received is invalid.
Switch pressed	t XXXX	Tachometer value in RPM. Gauge indication may be higher at higher RPM. This is normal.	Will display "----" if message is not received.
Switch pressed	F1XXXX	Present fuel level A/D input. This input represents fuel sender input.	000-009 = Short circuit 010-254 = Normal range 255 = Open circuit
Switch pressed	F2XXX	Present FLPS.	010-254 = Normal range
Switch pressed	XXXXC	Last temperature gauge input value in degrees C. Temperature gauge indicates present temperature per indication standard.	Will display "---"C if message is not received. Will display "999" if data received is invalid. High = 130 deg C Normal = 70 - 105 deg C Low = less than 50 deg C
Switch pressed	BAtXX.X	Estimated present battery voltage.	
Switch pressed	rES -X	Seat belt buckle switch LH status.	1= Buckled 0 = Unbuckled
Switch pressed (33 times)	PA -XX through PA1-XX	N/A	
Switch pressed	GAGE		Return to beginning of self-diagnosis cycle.

CONSULT Function (METER/M&A)

INFOID:0000000011559186

CONSULT can display each diagnostic item using the diagnostic test modes shown following.

METER/M&A diagnosis mode	Description
SELF DIAGNOSTIC RESULT	Displays combination meter self-diagnosis results.
DATA MONITOR	Displays combination meter input/output data in real time.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

SELF-DIAG RESULTS

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

Display Item List

Refer to [MWI-45, "DTC Index"](#).

DATA MONITOR

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	SELECTION FROM MENU	Description
SPEED METER [km/h] or [mph]	X	X	Displays the value of vehicle speed signal.
SPEED OUTPUT [km/h] or [mph]	X	X	Displays the value of vehicle speed signal, which is transmitted to each unit with CAN communication.
TACHO METER [rpm]	X	X	Displays the value of engine speed signal, which is input from ECM.
W TEMP METER [°C] or [°F]	X	X	Displays the value of engine coolant temperature signal, which is input from ECM.
FUEL METER [lit.]	X	X	Displays the value, which processes a resistance signal from fuel gauge.
DISTANCE [km] or [mile]	X	X	Displays the value, which is calculated by vehicle speed signal, fuel gauge and fuel consumption from ECM.
FUEL W/L [ON/OFF]	X	X	Displays [ON/OFF] condition of fuel warning lamp.
C-ENG W/L [ON/OFF]		X	Displays [ON/OFF] condition of malfunction indicator lamp.
AIR PRES W/L [ON/OFF]		X	Displays [ON/OFF] condition of tire pressure warning lamp.
SEAT BELT W/L [ON/OFF]		X	Indicates [ON/OFF] condition of seat belt warning lamp.
BUZZER [ON/OFF]	X	X	Displays [ON/OFF] condition of buzzer.
DOOR W/L [ON/OFF]		X	Displays [ON/OFF] condition of door warning lamp.
HI-BEAM IND [ON/OFF]		X	Displays [ON/OFF] condition of high beam indicator.
TURN IND [ON/OFF]		X	Displays [ON/OFF] condition of turn indicator.
OIL W/L [ON/OFF]		X	Displays [ON/OFF] condition of oil pressure warning lamp.
VDC/TCS IND [ON/OFF]		X	Displays [ON/OFF] condition of VDC OFF indicator lamp.
ABS W/L [ON/OFF]		X	Displays [ON/OFF] condition of ABS warning lamp.
SLIP IND [ON/OFF]		X	Displays [ON/OFF] condition of SLIP indicator lamp.
BRAKE W/L [ON/OFF]		X	Displays [ON/OFF] condition of brake warning lamp.*
M RANGE SW [ON/OFF]	X	X	Displays [ON/OFF] condition of manual mode range switch.
NM RANGE SW [ON/OFF]	X	X	Displays [ON/OFF] condition of except for manual mode range switch.
AT SFT UP SW [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift-up switch.
AT SFT DWN SW [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift-down switch.
AT-M GEAR [1, 2, 3, 4, 5]	X	X	Indicates [1, 2, 3, 4, 5] condition of A/T manual mode gear position.
P RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift P range indicator.
R RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift R range indicator.
N RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift N range indicator.
D RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift D range indicator.
4 RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift 4 range indicator.
3 RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift 3 range indicator.
2 RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift 2 range indicator.
1 RANGE IND [ON/OFF]	X	X	Indicates [ON/OFF] condition of A/T shift 1 range indicator.
AT CHECK W/L [ON/OFF]		X	Displays [ON/OFF] condition of AT CHECK warning lamp.
CRUISE IND [ON/OFF]		X	Displays [ON/OFF] condition of CRUISE indicator.
SET IND [ON/OFF]		X	Displays [ON/OFF] condition of SET indicator.

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	SELECTION FROM MENU	Description
CRUISE W/L [ON/OFF]		X	Indicates [ON/OFF] condition of CRUISE warning lamp.
4WD LOCK SW [ON/OFF]		X	Indicates [ON/OFF] condition of 4WD lock switch.
4WD LOCK IND [ON/OFF]		X	Indicates [ON/OFF] condition of 4WD lock indicator.
4WD W/L [ON/OFF]		X	Displays [ON/OFF] condition of 4WD warning lamp.
FUEL CAP W/L [ON/OFF]		X	Displays [ON/OFF] condition of loose fuel cap indicator.
TPMS PRESS L [ON/OFF]		X	Displays [ON/OFF] condition of check tire pressure indicator.

NOTE:

Some items are not available due to vehicle specification.

*: The monitor will indicate "OFF" even though the brake warning lamp is on if either of the following conditions exist.

- The parking brake is engaged
- The brake fluid level is low

DTC U1000 CAN COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

DTC U1000 CAN COMMUNICATION

DTC Logic

INFOID:0000000011559187

DTC DETECTION LOGIC

DTC	CONSULT display	Detection condition
U1000	CAN COMM CIRC [U1000]	When combination meter is not receiving CAN communication signals for 2 seconds or more.

Diagnosis Procedure

INFOID:0000000011559188

Symptom: Displays “CAN COMM CIRC [U1000]” as a self-diagnosis result of combination meter.

1.CHECK CAN COMMUNICATION

Select “SELF DIAGNOSTIC RESULT” mode for “METER/M&A” with CONSULT.

>> Go to “LAN system”. Refer to [LAN-14, "Trouble Diagnosis Flow Chart"](#).

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DTC B2205 VEHICLE SPEED CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC B2205 VEHICLE SPEED CIRCUIT

Description

INFOID:0000000011559189

The ABS actuator and electric unit (control unit) provides a vehicle speed signal to the combination meter via CAN communication lines.

DTC Logic

INFOID:0000000011559190

DTC	CONSULT display	Detection condition
B2205	VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is received for 2 seconds or more.

Diagnosis Procedure

INFOID:0000000011559191

Symptom: Displays "VEHICLE SPEED CIRC [B2205]" as a self-diagnosis result of combination meter.

1. CHECK COMBINATION METER INPUT SIGNAL

1. Start engine and select "METER/M&A" on CONSULT.
2. Using "SPEED METER" on "DATA MONITOR", compare the value of DATA MONITOR with speedometer pointer of combination meter. Speedometer and DATA MONITOR indications should be close.

Is the inspection result normal?

- YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to [BRC-24, "CONSULT Function \(ABS\)".](#)
- NO >> Replace combination meter. Refer to [MWI-95, "Removal and Installation".](#)

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000011559192

Regarding Wiring Diagram information, refer to [MWI-67. "Wiring Diagram"](#).

1. CHECK FUSES

Check for blown combination meter fuses.

Unit	Power source	Fuse No.
Combination meter	Battery	19
	Ignition switch ON or START	14
	Ignition switch ACC or ON	4

Is the inspection result normal?

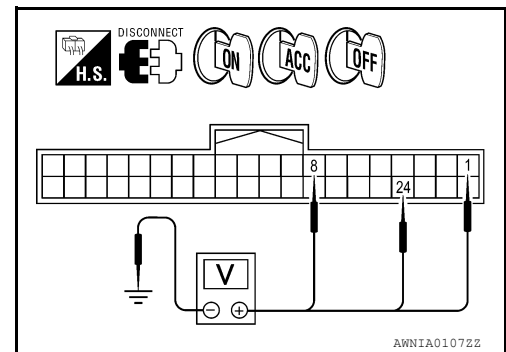
YES >> GO TO 2

NO >> If fuse is blown, be sure to eliminate cause of malfunction before installing new fuse.

2. POWER SUPPLY CIRCUIT CHECK

1. Disconnect combination meter connector M24.
2. Check voltage between combination meter harness connector M24 terminals 1, 8, 24 and ground.

Terminals		Ignition switch position			
(+) (–)					
Connector	Terminal	OFF	ACC	ON	START
M24	1	0V	Battery voltage	Battery voltage	0V
	8	Battery voltage	Battery voltage	Battery voltage	Battery voltage
	24	0V	0V	Battery voltage	Battery voltage



Is the inspection result normal?

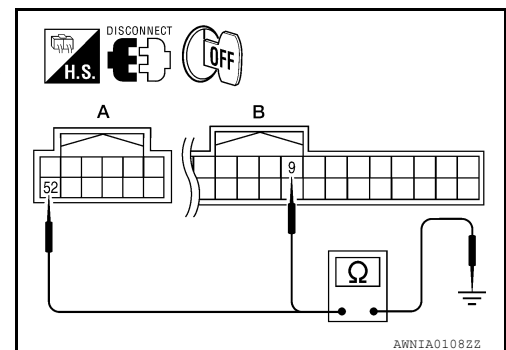
YES >> GO TO 3

NO >> Check harness for open between combination meter and fuse.

3. GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect combination meter connector M25.
3. Check continuity between combination meter harness connector M25 terminal 52 and ground, and connector M24 terminal 9 and ground.

Terminals		(–)	Continuity
(+)			
Connector	Terminal		
A: M25	52	Ground	Yes
B: M24	9		



Is the inspection result normal?

YES >> Inspection End.

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

NO >> Check ground harness.

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000011883751

Regarding Wiring Diagram information, refer to [BCS-47. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

Check that the following fuses and fusible link are not blown:

Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	22 (15A)
70		F (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	59 (10A)

Is the fuse blown?

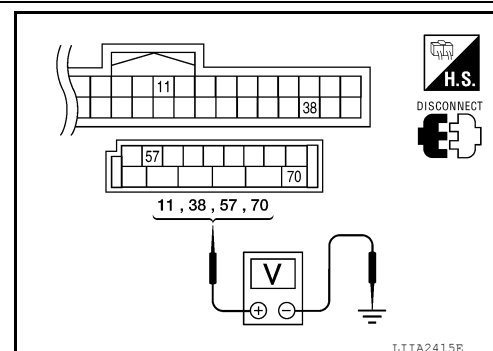
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect BCM.
3. Check voltage between BCM harness connector and ground.

Connector	Terminals		Power source	Condition	Voltage (V) (Approx.)
	(+)	(-)			
M18	11	Ground	ACC power supply	Ignition switch ACC or ON	Battery voltage
	38	Ground	Ignition power supply	Ignition switch ON or START	Battery voltage
M20	57	Ground	Battery power supply	Ignition switch OFF	Battery voltage
	70	Ground	Battery power supply	Ignition switch OFF	Battery voltage



Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

POWER SUPPLY AND GROUND CIRCUIT

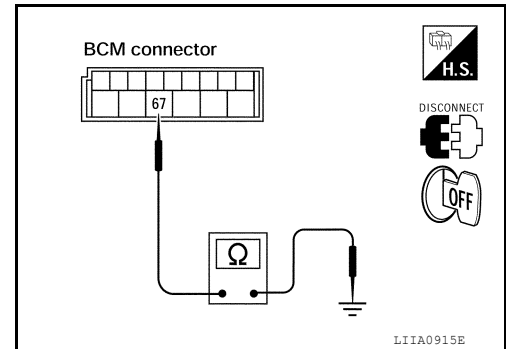
< DTC/CIRCUIT DIAGNOSIS >

Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M20	67		Yes

Does continuity exist?

YES >> Inspection End.
NO >> Repair or replace harness.



IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) : Diagnosis Procedure

INFOID:0000000011883752

Regarding Wiring Diagram information, refer to [PCS-23. "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

Check that the following IPDM E/R fuses or fusible link are not blown:

Terminal No.	Signal name	Fuses and fusible link No.
1	Battery	A (140A), D (80A)
2	Battery	C (80A)
12	Ignition switch ON or START	59 (10A)

Is the fuse blown?

YES >> Replace the blown fuse or fusible link after repairing the affected circuit.
NO >> GO TO 2.

2. CHECK BATTERY POWER SUPPLY CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R.
3. Check voltage between IPDM E/R harness connectors and ground.

Terminals		Ignition switch position	OFF	ON	START
(+)	(-)				
Connector	Terminal				
E118	1	Ground	Battery voltage	Battery voltage	Battery voltage
	2		Battery voltage	Battery voltage	Battery voltage
E119	12		0V	Battery voltage	Battery voltage

Is the measurement value normal?

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

3. CHECK GROUND CIRCUIT

1. Turn ignition switch OFF.

POWER SUPPLY AND GROUND CIRCUIT

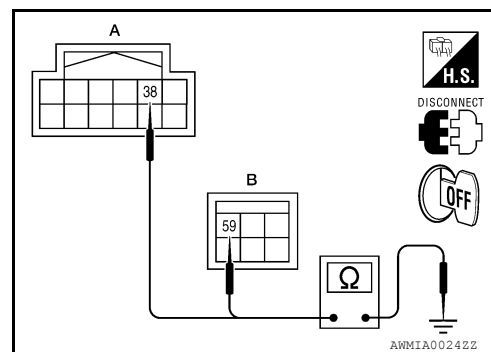
< DTC/CIRCUIT DIAGNOSIS >

- Check continuity between IPDM E/R harness connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		Yes
E122 (A)	38		
E124 (B)	59		

Does continuity exist?

- YES >> Inspection End.
 NO >> Repair or replace harness.



AWMIA0024ZZ

FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:0000000011559195

The fuel level sensor unit and fuel pump (fuel level sensor) detects the approximate fuel level in the fuel tank and transmits the fuel level signal to the combination meter.

Component Function Check

INFOID:0000000011559196

1.COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on CONSULT.
2. Using "FUEL METER" of "DATA MONITOR", compare the value of DATA MONITOR with fuel gauge pointer of combination meter.

Fuel gauge pointer	Reference value of data monitor [lit.]	
	Short wheelbase models (SWB)	Long wheelbase models (LWB)
Full	Approx. 93	Approx. 122
3/4	Approx. 73	Approx. 97
1/2	Approx. 52	Approx. 68
1/4	Approx. 30	Approx. 40
Empty	Approx. 11	Approx. 15

NOTE:

For model identification, refer to [GI-22. "Model Variation"](#).

Does the data monitor value approximately match the fuel gauge indication?

YES >> Inspection End.

NO >> Replace combination meter. Refer to [MWI-95. "Removal and Installation"](#).

Diagnosis Procedure

INFOID:0000000011559197

Regarding Wiring Diagram information, refer to [MWI-67. "Wiring Diagram"](#).

1.CHECK HARNESS CONNECTOR

1. Turn ignition switch OFF.
2. Check combination meter and fuel level sensor unit and fuel pump (fuel level sensor) terminals (meter-side and harness-side) for poor connection.

Is the inspection result normal?

YES >> GO TO 2

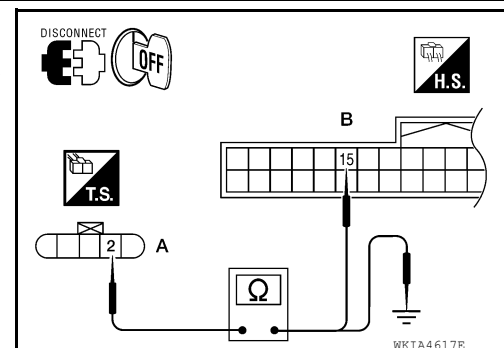
NO >> Repair or replace terminals or connectors.

2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR) CIRCUIT

1. Disconnect combination meter connector and fuel level sensor unit and fuel pump (fuel level sensor) connector.
2. Check continuity between combination meter harness connector (B) and fuel level sensor unit and fuel pump (fuel level sensor) harness connector (A).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
C5	2	M24	15	Yes

3. Check continuity between fuel level sensor unit and fuel pump (fuel level sensor) harness connector (A) and ground.



FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

A		Ground	Continuity
Connector	Terminal		
C5	2		No

Is the inspection result normal?

YES >> GO TO 3

NO >> Repair harness or connector.

3.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR) GROUND CIRCUIT

1. Check continuity between combination meter harness connector (B) and fuel level sensor unit and fuel pump (fuel level sensor) harness connector (A).

A		B		Continuity
Connector	Terminal	Connector	Terminal	
C5	5	M24	16	Yes

2. Check continuity between fuel level sensor unit and fuel pump (fuel level sensor) harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
C5	5		No

Is the inspection result normal?

YES >> GO TO 4

NO >> Repair harness or connector.

4.CHECK INSTALLATION CONDITION

Check fuel level sensor unit and fuel pump (fuel level sensor) installation, and check whether the float arm interferes or binds with any of the internal components in the fuel tank.

Is the inspection result normal?

YES >> Inspection End.

NO >> Install the fuel level sensor unit and fuel pump (fuel level sensor) properly.

Component Inspection

INFOID:0000000011559198

1.REMOVE FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR)

Remove the fuel level sensor unit and fuel pump (fuel level sensor). Refer to [FL-11, "Removal and Installation"](#).

>> GO TO 2

2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR)

Check the resistance between terminals 2 and 5.

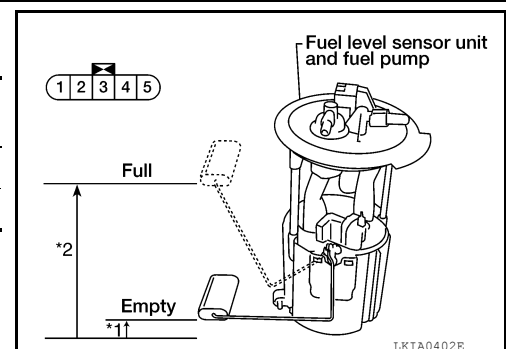
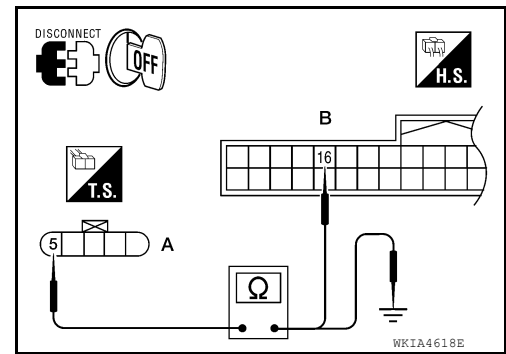
Terminal		Float position mm (in)		Resistance value (Approx.)
2	5	*1	Empty	7.5 (0.3)
		*2	Full	218.9 (8.6)

*1 and *2: When float arm is in contact with stopper.

Is inspection result normal?

YES >> Inspection End.

NO >> Replace fuel level sensor unit and fuel pump (fuel level sensor). Refer to [FL-11, "Removal and Installation"](#).



OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000011559199

Detects the engine oil pressure and transmits the oil pressure switch signal to the IPDM E/R.

Component Function Check

INFOID:0000000011559200

1.COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on CONSULT.
2. Monitor "OIL W/L" of "DATA MONITOR" while operating ignition switch.

OIL W/L

When ignition switch is in ON : ON
position (Engine stopped)

When engine is running : OFF

>> Inspection End.

Diagnosis Procedure

INFOID:0000000011559201

Regarding Wiring Diagram information, refer to [MWI-67, "Wiring Diagram"](#).

1.CHECK OIL PRESSURE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E122 and oil pressure switch connector F4.
3. Check continuity between IPDM E/R harness connector E122 terminal 42 and oil pressure switch harness connector F4 terminal 1.

Continuity should exist.

4. Check continuity between IPDM E/R harness connector E122 terminal 42 and ground.

Continuity should not exist.

Are the inspection results normal?

- YES >> Inspection End.
NO >> Repair harness or connector.

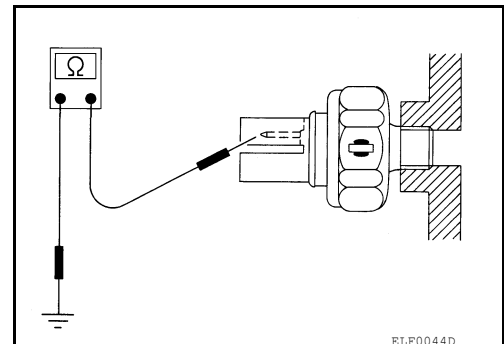
Component Inspection

INFOID:0000000011559202

1.CHECK OIL PRESSURE SWITCH

Check continuity between oil pressure switch and ground.

Condition	Oil pressure [kPa (kg/cm ² , psi)]	Continuity
Engine stopped	Less than 29 (0.3, 4)	Yes
Engine running	More than 29 (0.3, 4)	No



Is the inspection result normal?

OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

YES >> Inspection End.
NO >> Replace the oil pressure switch.

PARKING BRAKE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

PARKING BRAKE SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000011559203

Transmits the parking brake switch signal to the combination meter.

Component Function Check

INFOID:0000000011559204

1.COMBINATION METER INPUT SIGNAL

1. Start engine.
2. Monitor "BRAKE" warning lamp while applying and releasing the parking brake.

BRAKE warning lamp

Parking brake applied : ON

Parking brake released : OFF

>> Inspection End.

Diagnosis Procedure

INFOID:0000000011559205

Regarding Wiring Diagram information, refer to [MWI-67, "Wiring Diagram"](#).

1.CHECK PARKING BRAKE SWITCH CIRCUIT

1. Disconnect combination meter connector and parking brake switch connector.
2. Check continuity between combination meter harness connector M24 (A) terminal 23 and parking brake switch harness connector M11 (B) terminal 1.

23 - 1 : Continuity should exist.

3. Check continuity between combination meter harness connector M24 (A) terminal 23 and ground.

23 - Ground : Continuity should not exist.

Is the inspection result normal?

- YES >> Inspection End.
NO >> Repair harness or connector.

Component Inspection

INFOID:0000000011559206

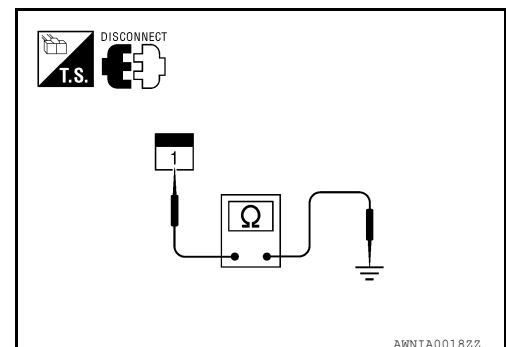
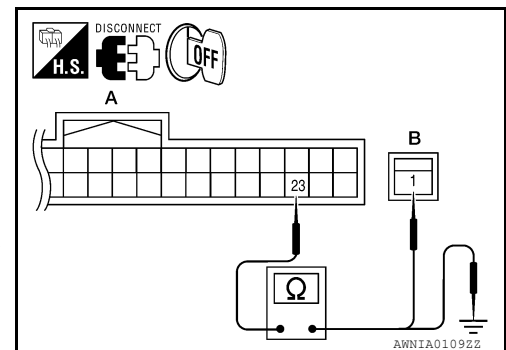
1.CHECK PARKING BRAKE SWITCH

Check continuity between parking brake switch terminal 1 and switch case ground.

Component	Terminal	Condition	Continuity
Parking brake switch	1	Parking brake applied	Yes
		Parking brake released	No

Is the inspection result normal?

- YES >> Inspection End.
NO >> Replace parking brake switch.



WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000011559207

Transmits the washer fluid level switch signal to the combination meter.

Diagnosis Procedure

INFOID:0000000011559208

Regarding Wiring Diagram information, refer to [MWI-67, "Wiring Diagram"](#).

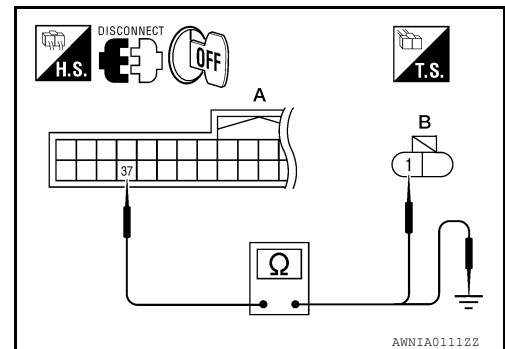
1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and washer fluid level switch connector.
3. Check continuity between combination meter harness connector M24 (A) terminal 37 and washer fluid level switch harness connector E106 (B) terminal 1.

37 - 1 : Continuity should exist.

4. Check continuity between combination meter harness connector M24 (A) terminal 37 and ground.

37 - Ground : Continuity should not exist.



Is the inspection result normal?

YES >> GO TO 2

NO >> Repair harness or connector.

2.CHECK WASHER FLUID LEVEL SWITCH GROUND CIRCUIT

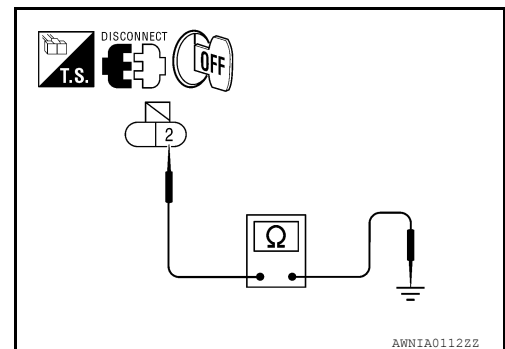
Check continuity between washer fluid level switch harness connector E106 terminal 2 and ground.

2 - Ground : Continuity should exist.

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.



Component Inspection

INFOID:0000000011559209

1.CHECK WASHER FLUID LEVEL SWITCH

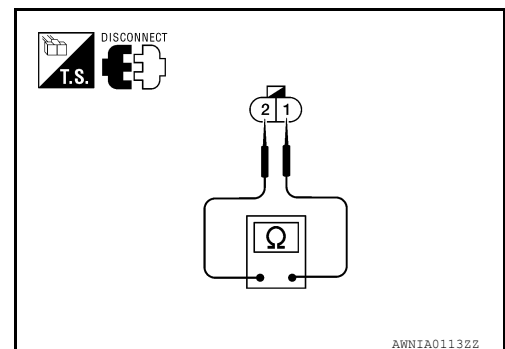
Check continuity between washer fluid level switch terminals 1 and 2.

Terminal	Washer fluid level	Continuity
1 - 2	Low	Yes
	Other	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace washer fluid level switch.



COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

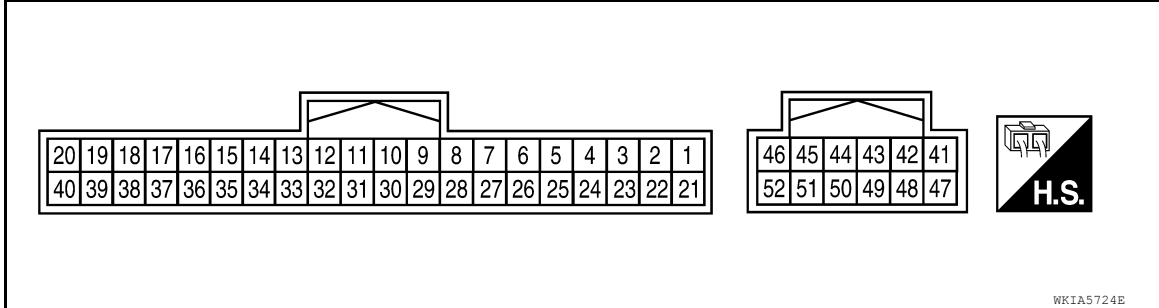
ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000011559210

TERMINAL LAYOUT

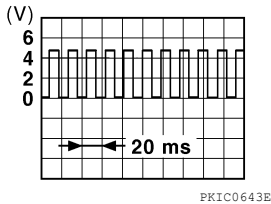


PHYSICAL VALUES

Terminal	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
1	O	Ignition switch ACC or ON	—	—	Battery voltage
2	P	Air bag warning lamp input	ON	Air bag warning lamp ON	4
				Air bag warning lamp OFF	0
8	Y/R	Battery power supply	—	—	Battery voltage
9	B	Ground	—	—	0
11	L	CAN-H	—	—	—
12	P	CAN-L	—	—	—
14	L	DIFF LOCK indicator input	ON	DIFF LOCK indicator ON	0
				DIFF LOCK indicator OFF	Battery voltage
15	Y/L	Fuel level sensor signal	—	—	Refer to MWI-12, "FUEL GAUGE : System Description" .
16	B/P	Fuel level sensor ground	ON	—	0
18	P/B	Brake fluid level switch	ON	Brake fluid level low	0
				Brake fluid level normal	Battery voltage
23	G	Parking brake switch	ON	Parking brake applied	0
				Parking brake released	Battery voltage
24	O/L	Ignition switch ON or START	ON	—	Battery voltage
27	O/B	Seat belt buckle switch LH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage
28	G/O	Security indicator input	OFF	Security indicator ON	0
				Security indicator OFF	Battery voltage

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
29	W/R	Vehicle speed signal output (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	NOTE: Maximum voltage may be 12V due to specifications (connected units). 
37	W/L	Washer fluid level switch	ON	Washer fluid level low	0
				Washer fluid level normal	Battery voltage
41	P/L	Seat belt buckle switch RH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage
45	BR/W	Generator	ON	Generator voltage low	0
				Generator voltage normal	Battery voltage
50	BR	Illumination output	—	—	Refer to INL-10, "System Description" .
52	B	Ground	—	—	0

Fail Safe

INFOID:0000000011559211

The combination meter performs a fail-safe operation for the functions listed below when communication is lost.

Function		Specifications
Speedometer		Zero indication.
Tachometer		
Fuel gauge		
Engine coolant temperature gauge		
Engine oil pressure gauge (if equipped)		
Voltage gauge (if equipped)		
A/T oil temperature gauge (if equipped)		
Illumination control	Meter illumination	Change to nighttime mode when communication is lost.
Segment LCD	Odometer	Freeze current indication.
	A/T position	Display turns off.
Buzzer		Buzzer turns off.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Function		Specifications
Warning lamp/indicator lamp	ABS warning lamp	Lamp turns on when communication is lost.
	Brake warning lamp	
	VDC OFF indicator lamp	
	SLIP indicator lamp	
	A/T CHECK warning lamp	Lamp turns off when communication is lost.
	Oil pressure/coolant temperature warning lamp	
	Malfunction indicator lamp	
	Master warning lamp	
	Air bag warning lamp	
	High beam indicator	Lamp turns off when disconnected.
	Turn signal indicator lamp	
	Driver and passenger seat belt warning lamp	
	Charge warning lamp	
	Security indicator lamp	
	4WD indicator lamp	
	ATP indicator lamp	
	DIFF LOCK indicator lamp	
	Low tire pressure warning lamp	Lamp will flash every second for 1 minute and then stay on continuously thereafter.

DTC Index

INFOID:0000000011559212

CONSULT display	Malfunction	Reference page
CAN COMM CIRC [U1000]	Malfunction is detected in CAN communication. CAUTION: Even when there is no malfunction on CAN communication system, malfunction may be misinterpreted when battery has low voltage (when maintaining 7 - 8 V for about 2 seconds) or 10A fuse [No. 19, located in the fuse block (J/B)] is disconnected.	MWI-31
VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is input. CAUTION: Even when there is no malfunction on speed signal system, malfunction may be misinterpreted when battery has low voltage (when maintaining 7 - 8 V for about 2 seconds).	MWI-32

NOTE:

"TIME" indicates the following.

- 0: Indicates that a malfunction is detected at present.
- 1-63: Indicates that a malfunction was detected in the past. (Displays number of ignition switch OFF → ON cycles after malfunction is detected. Self-diagnosis result is erased when "63" is exceeded.)

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:0000000011883834

NOTE:

The Signal Tech II Tool [– (J-50190)] can be used to perform the following functions. Refer to the Signal Tech II User Guide for additional information:

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs
- Test remote keyless entry keyfob relative signal strength

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition	Value/Status
ACC ON SW	Ignition switch OFF or ON	Off
	Ignition switch ACC	On
AIR COND SW	A/C switch OFF	Off
	A/C switch ON	On
AIR PRESS FL	Front left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS FR	Front right tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RL	Rear left tire air pressure value	kPa, kg/cm ² , psi
AIR PRESS RR	Rear right tire air pressure value	kPa, kg/cm ² , psi
AUTO LIGHT SW	Lighting switch OFF	Off
	Lighting switch AUTO	On
BRAKE SW	Brake pedal released	Off
	Brake pedal applied	On
BUCKLE SW	Seat belt buckle unfastened	Off
	Seat belt buckle fastened	On
BUZZER	Buzzer in combination meter OFF	Off
	Buzzer in combination meter ON	On
CARGO LAMP SW	Cargo lamp switch OFF	Off
	Cargo lamp switch ON	On
CDL LOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the LOCK side	On
CDL UNLOCK SW	Door lock/unlock switch does not operate	Off
	Press door lock/unlock switch to the UNLOCK side	On
DOOR SW-AS	Front door RH closed	Off
	Front door RH opened	On
DOOR SW-DR	Front door LH closed	Off
	Front door LH opened	On
DOOR SW-RL	Rear door LH closed	Off
	Rear door LH opened	On
DOOR SW-RR	Rear door RH closed	Off
	Rear door RH opened	On
FAN ON SIG	Blower motor fan switch OFF	Off
	Blower motor fan switch ON	On

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status	
FR FOG SW	Front fog lamp switch OFF	Off	A
	Front fog lamp switch ON	On	
FR WASHER SW	Front washer switch OFF	Off	B
	Front washer switch ON	On	
FR WIPER LOW	Front wiper switch OFF	Off	C
	Front wiper switch LO	On	
FR WIPER HI	Front wiper switch OFF	Off	D
	Front wiper switch HI	On	
FR WIPER INT	Front wiper switch OFF	Off	E
	Front wiper switch INT	On	
FR WIPER STOP	Any position other than front wiper stop position	Off	F
	Front wiper stop position	On	
HAZARD SW	When hazard switch is not pressed	Off	G
	When hazard switch is pressed	On	
HEAD LAMP SW1	Headlamp switch OFF	Off	H
	Headlamp switch 1st	On	
HEAD LAMP SW2	Headlamp switch OFF	Off	I
	Headlamp switch 1st	On	
HI BEAM SW	High beam switch OFF	Off	J
	High beam switch HI	On	
ID REGST FL1	ID registration of front left tire incomplete	YET	K
	ID registration of front left tire complete	DONE	
ID REGST FR1	ID registration of front right tire incomplete	YET	L
	ID registration of front right tire complete	DONE	
ID REGST RL1	ID registration of rear left tire incomplete	YET	M
	ID registration of rear left tire complete	DONE	
ID REGST RR1	ID registration of rear right tire incomplete	YET	MWI
	ID registration of rear right tire complete	DONE	
IGN ON SW	Ignition switch OFF or ACC	Off	O
	Ignition switch ON	On	
IGN SW CAN	Ignition switch OFF or ACC	Off	P
	Ignition switch ON	On	
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7	
KEY CYL LK-SW	Door key cylinder LOCK position	Off	
	Door key cylinder other than LOCK position	On	
KEY CYL UN-SW	Door key cylinder UNLOCK position	Off	
	Door key cylinder other than UNLOCK position	On	
KEY ON SW	Mechanical key is removed from key cylinder	Off	
	Mechanical key is inserted to key cylinder	On	
KEYLESS LOCK	LOCK button of key fob is not pressed	Off	
	LOCK button of key fob is pressed	On	
KEYLESS PANIC	PANIC button of key fob is not pressed	Off	
	PANIC button of key fob is pressed	On	

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

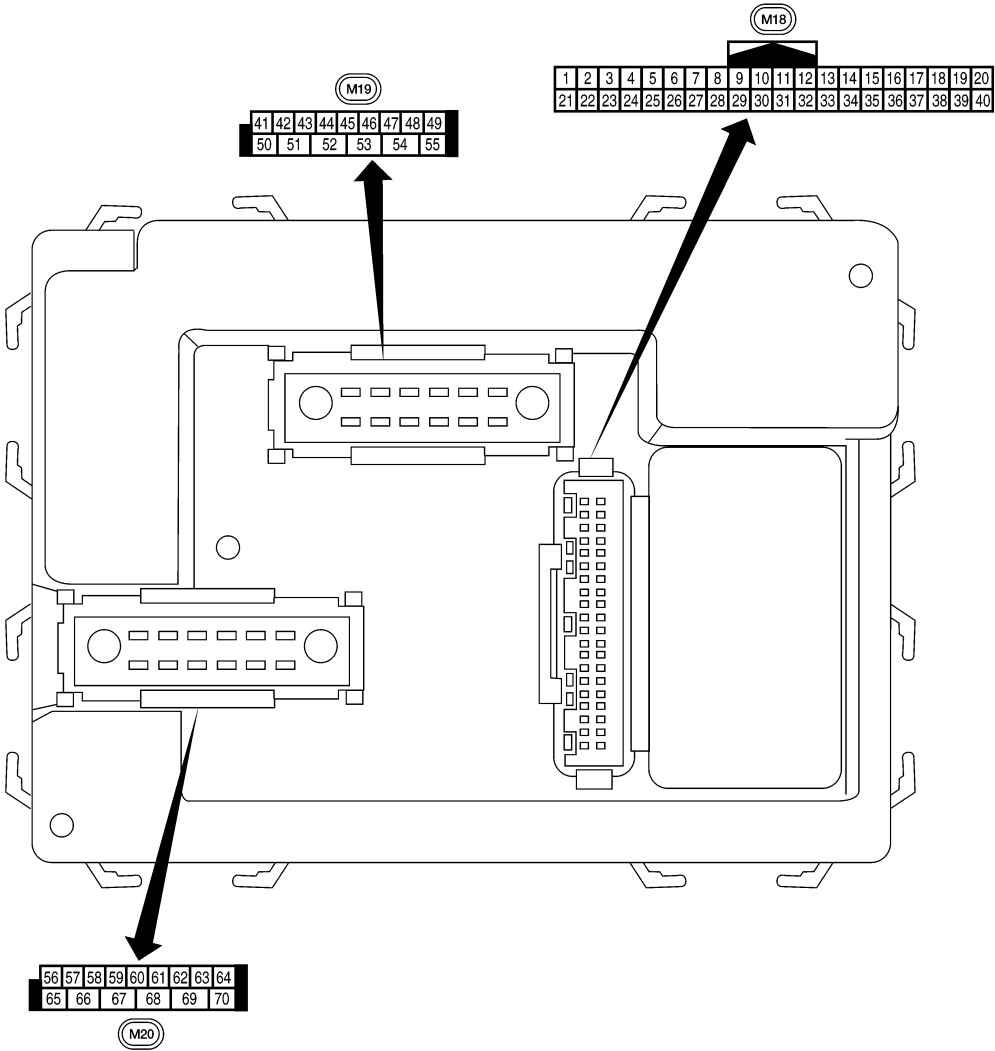
Monitor Item	Condition	Value/Status
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off
	UNLOCK button of key fob is pressed	On
LIGHT SW 1ST	Lighting switch OFF	Off
	Lighting switch 1st	On
OIL PRESS SW	- Ignition switch OFF or ACC - Engine running	Off
	Ignition switch ON	On
OPTICAL SENSOR	Bright outside of the vehicle	Close to 5V
	Dark outside of the vehicle	Close to 0V
PASSING SW	Other than lighting switch PASS	Off
	Lighting switch PASS	On
REAR DEF SW	Rear window defogger switch OFF	Off
	Rear window defogger switch ON	On
TURN SIGNAL L	Turn signal switch OFF	Off
	Turn signal switch LH	On
TURN SIGNAL R	Turn signal switch OFF	Off
	Turn signal switch RH	On
VEHICLE SPEED	While driving	Equivalent to speedometer reading
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off
	Low tire pressure warning lamp in combination meter ON	On

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:0000000011883835



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MWI

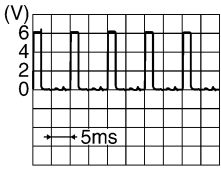
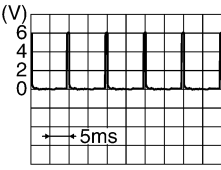
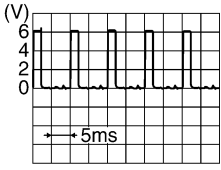
Physical Values

AWMIA1542ZZ

INFOID:0000000011883836

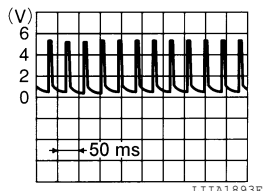
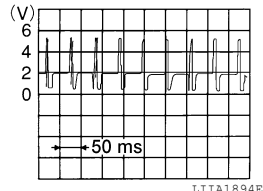
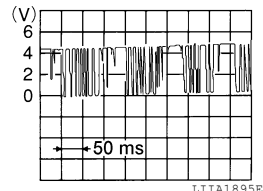
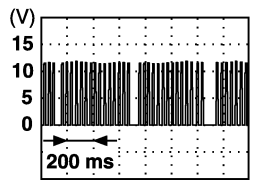
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR/W	Key ring output	Output	OFF	ON (driver door open)	0V
					OFF (driver door closed)	Battery voltage
2	SB	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
3	G/Y	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
4	Y	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
5	G/B	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
6	V	Combination switch input 1				
9	R/G	Brake switch	Input	ON	Brake pedal depressed	Battery voltage
					Brake pedal released	0V
11	O	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	R/L	Front door switch RH (All)	Input	OFF	ON (open)	0V
		Rear door switch lower RH (King Cab)			OFF (closed)	Battery voltage
		Rear door switch upper RH (King Cab)				
13	GR	Rear door switch RH (Crew Cab)	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
15	L/W	Tire pressure warning check connector	Input	OFF	—	5V
18	P	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V

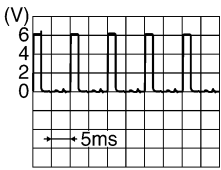
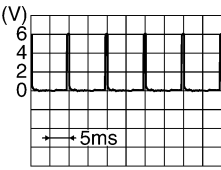
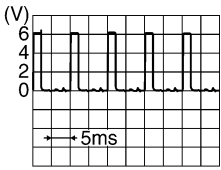
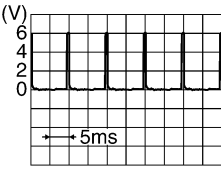
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
19	V/W	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 LIT1A1893E
20	G/W	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 LIT1A1894E
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 LIT1A1895E
21	G	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
22	G	BUS	—	—	Ignition switch ON or power window timer operates	 PIT1A2344E
23	G/O	Security indicator lamp	Output	OFF	Goes OFF → illuminates (Every 2.4 seconds)	Battery voltage → 0V
25	BR	NATS antenna amp.	Input	OFF → ON	Ignition switch (OFF → ON)	Just after turning ignition switch ON: Pointer of tester should move for approx. 1 second, then return to battery voltage.
27	W/R	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	L/R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	W/B	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	P/L	Cargo lamp switch	Input	OFF	Cargo lamp switch ON	0
					Cargo lamp switch OFF	Battery voltage

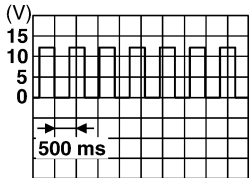
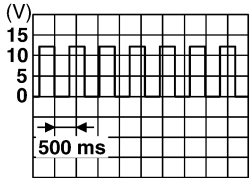
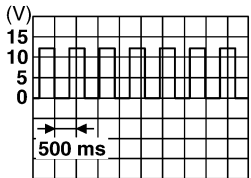
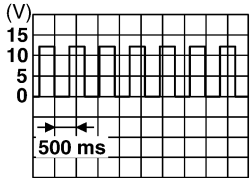
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	R/G	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
33	R/Y	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
34	L	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5291E
35	O/B	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 SKIA5292E
36	R/W	Combination switch output 1				
37	B/R	Key switch and key lock solenoid	Input	OFF	Key inserted Key removed	Battery voltage 0V
38	W/L	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
41	Y/B	Rear defogger switch	Input	ON	Rear defogger switch ON Rear defogger switch OFF	0V 5V
47	SB	Front door switch LH (All) Rear door switch lower LH (King Cab) Rear door switch upper LH (King Cab)	Input	OFF	ON (open) OFF (closed)	0V Battery voltage
48	R/Y	Rear door switch LH (Crew Cab)	Input	OFF	ON (open) OFF (closed)	0V Battery voltage
50	R/Y	Cargo bed lamp control	Output	OFF	Cargo lamp switch (ON) Cargo lamp switch (OFF)	0V Battery voltage

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
51	Y/B	Trailer turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
52	G/B	Trailer turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
56	R/G	Battery saver output	Output	OFF	15 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	Y/R	Battery power supply	Input	OFF	—	Battery voltage
58	W/R	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
					When optical sensor is not illuminated	0.6V or less
59	G	Front door lock assembly LH actuator (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
60	G/B	Turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
61	G/Y	Turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
63	L	Interior room/map lamp	Output	OFF	Any door switch ON (open)	0V
					Any door switch OFF (closed)	Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V
					ON (lock)	Battery voltage
66	G/Y	Front door lock actuator RH and rear door lock actuators LH/RH (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
67	B	Ground	Input	ON	—	0V

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
68	W/L	Power window power supply (RAP)	Output	—	Ignition switch ON	Battery voltage
					Within 45 seconds after ignition switch OFF	Battery voltage
					More than 45 seconds after ignition switch OFF	0V
					When front door LH or RH is open or power window timer operates	0V
69	W/R	Power window power supply	Output	—	—	Battery voltage
70	W/B	Battery power supply	Input	OFF	—	Battery voltage

Fail Safe

INFOID:0000000011883837

Fail-safe index

BCM performs fail-safe control when any DTC listed below is detected.

Display contents of CONSULT	Fail-safe	Cancellation
U1000: CAN COMM CIRCUIT	Inhibit engine cranking	When the BCM re-establishes communication with the other modules.

DTC Inspection Priority Chart

INFOID:0000000011883838

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

Priority	DTC
1	U1000: CAN COMM CIRCUIT
2	- B2190: NATS ANTENNA AMP - B2191: DIFFERENCE OF KEY - B2192: ID DISCORD BCM-ECM - B2193: CHAIN OF BCM-ECM

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Priority	DTC
3	• C1729: VHCL SPEED SIG ERR • C1735: IGNITION SIGNAL
4	• C1704: LOW PRESSURE FL • C1705: LOW PRESSURE FR • C1706: LOW PRESSURE RR • C1707: LOW PRESSURE RL • C1708: [NO DATA] FL • C1709: [NO DATA] FR • C1710: [NO DATA] RR • C1711: [NO DATA] RL • C1712: [CHECKSUM ERR] FL • C1713: [CHECKSUM ERR] FR • C1714: [CHECKSUM ERR] RR • C1715: [CHECKSUM ERR] RL • C1716: [PRESSDATA ERR] FL • C1717: [PRESSDATA ERR] FR • C1718: [PRESSDATA ERR] RR • C1719: [PRESSDATA ERR] RL • C1720: [CODE ERR] FL • C1721: [CODE ERR] FR • C1722: [CODE ERR] RR • C1723: [CODE ERR] RL • C1724: [BATT VOLT LOW] FL • C1725: [BATT VOLT LOW] FR • C1726: [BATT VOLT LOW] RR • C1727: [BATT VOLT LOW] RL

DTC Index

INFOID:0000000011883839

NOTE:

- Details of time display
- CRNT: Displays when there is a malfunction now or after returning to the normal condition until turning ignition switch OFF → ON again.
- 1 - 39: Displayed if any previous malfunction is present when current condition is normal. It increases like 1 → 2 → 3...38 → 39 after returning to the normal condition whenever ignition switch OFF → ON. The counter remains at 39 even if the number of cycles exceeds it. It is counted from 1 again when turning ignition switch OFF → ON after returning to the normal condition if the malfunction is detected again.

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	—	—	BCS-30
B2190: NATS ANTENA AMP	—	—	SEC-18
B2191: DIFFERENCE OF KEY	—	—	SEC-21
B2192: ID DISCORD BCM-ECM	—	—	SEC-22
B2193: CHAIN OF BCM-ECM	—	—	SEC-24
C1708: [NO DATA] FL	—	—	WT-15
C1709: [NO DATA] FR	—	—	WT-15
C1710: [NO DATA] RR	—	—	WT-15
C1711: [NO DATA] RL	—	—	WT-15
C1712: [CHECKSUM ERR] FL	—	—	WT-17
C1713: [CHECKSUM ERR] FR	—	—	WT-17
C1714: [CHECKSUM ERR] RR	—	—	WT-17
C1715: [CHECKSUM ERR] RL	—	—	WT-17

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Tire pressure monitor warning lamp ON	Reference page
C1716: [PRESSDATA ERR] FL	—	—	WT-19
C1717: [PRESSDATA ERR] FR	—	—	WT-19
C1718: [PRESSDATA ERR] RR	—	—	WT-19
C1719: [PRESSDATA ERR] RL	—	—	WT-19
C1720: [CODE ERR] FL	—	—	WT-17
C1721: [CODE ERR] FR	—	—	WT-17
C1722: [CODE ERR] RR	—	—	WT-17
C1723: [CODE ERR] RL	—	—	WT-17
C1724: [BATT VOLT LOW] FL	—	—	WT-17
C1725: [BATT VOLT LOW] FR	—	—	WT-17
C1726: [BATT VOLT LOW] RR	—	—	WT-17
C1727: [BATT VOLT LOW] RL	—	—	WT-17
C1729: VHCL SPEED SIG ERR	—	—	WT-21
C1735: IGNITION SIGNAL	—	—	WT-23

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

Reference Value

INFOID:0000000011883840

VALUES ON THE DIAGNOSIS TOOL

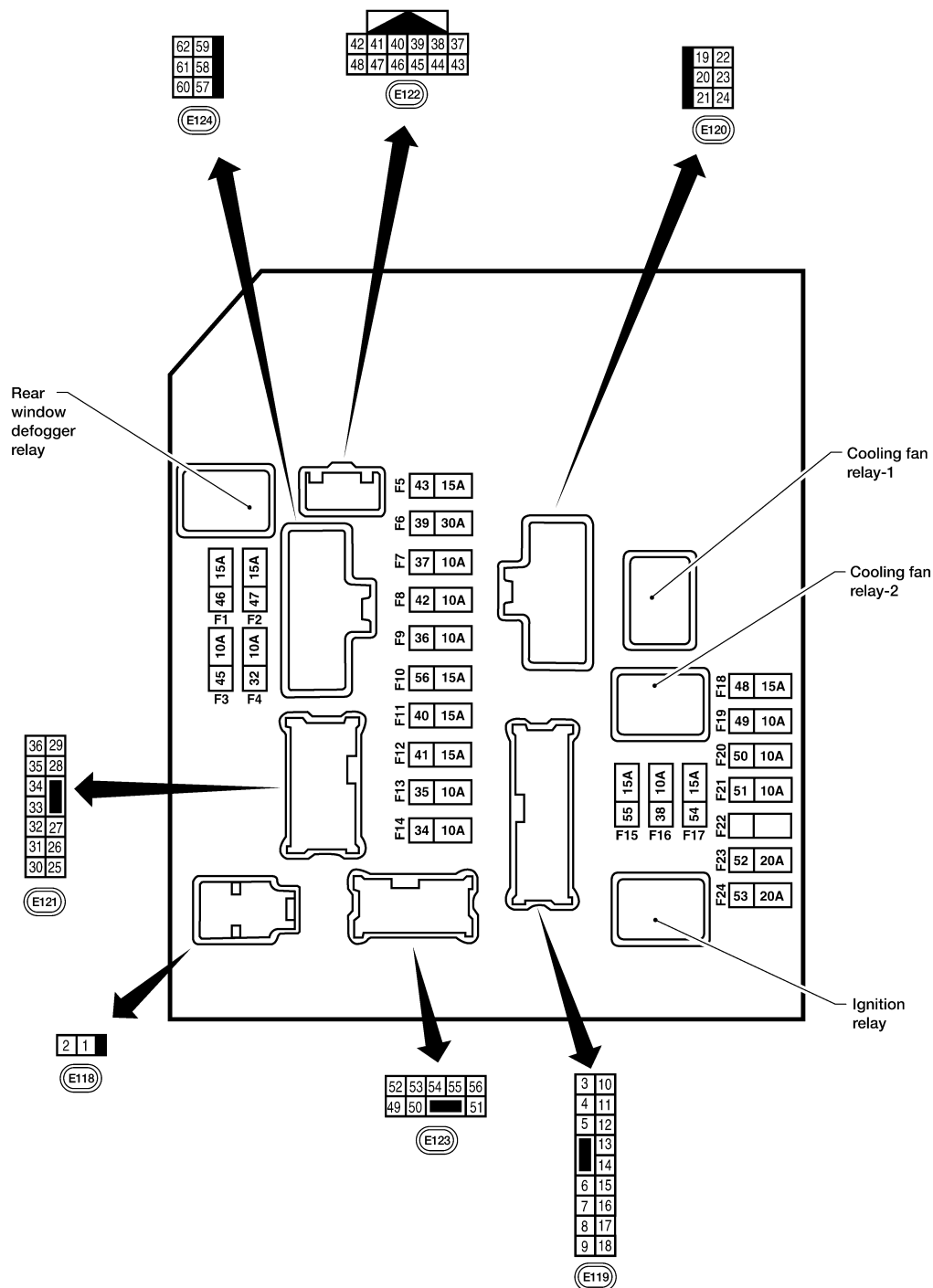
Monitor Item	Condition		Value/Status
A/C COMP REQ	A/C switch OFF		Off
	A/C switch ON		On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		On
HL LO REQ	Lighting switch OFF		Off
	Lighting switch 2ND HI or AUTO (Light is illuminated)		On
HL HI REQ	Lighting switch OFF		Off
	Lighting switch HI		On
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	Off
		- Front fog lamp switch ON - Daytime light activated (Canada only)	On
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	Stop
		Front wiper switch INT	1LOW
		Front wiper switch LO	Low
		Front wiper switch HI	Hi
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	Off
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		Off
	Ignition switch START		On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
RR DEF REQ	Rear defogger switch OFF		Off
	Rear defogger switch ON		On
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close
DTRL REQ	Not operated		Off
	Daytime Running Lights ON		On
THFT HRN REQ	Not operated		Off
	- Panic alarm is activated - Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM		On
HORN CHIRP	Not operated		Off
	Door locking with keyfob (horn chirp mode)		On

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:0000000011883841



NOTE:

Numbers preceded by an "F" represent the fuse numbers imprinted on the IPDM E/R. The other numbers represent the fuse numbers as they appear in the wiring diagrams.

Physical Values

INFOID:0000000011883842

PHYSICAL VALUES

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
1	B/Y	Battery power supply	Input	OFF	—	Battery voltage
2	R	Battery power supply	Input	OFF	—	Battery voltage
3	BR	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
4	W/L	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
6	L	Throttle control motor relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
7	W/B	ECM relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
8	R/B	Fuse 54	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
10	G	Fuse 45 (Canada only)	Output	ON	Daytime light system active	0V
					Daytime light system inactive	Battery voltage
11	Y/B	A/C compressor	Output	ON or START	A/C switch ON or defrost A/C switch	Battery voltage
					A/C switch OFF or defrost A/C switch	0V
12	L/W	Ignition switch supplied power	Input	—	OFF or ACC	0V
					ON or START	Battery voltage
13	B/Y	Fuel pump relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
14	Y/R	Fuse 49	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
15	LG/B	Fuse 50	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
16	G	Fuse 51	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
17	W	Fuse 55	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
19	W/R	Starter motor	Output	START	—	Battery voltage
21	BR	Ignition switch supplied power	Input	—	OFF or ACC	0V
					START	Battery voltage
22	G	Battery power supply	Output	OFF	—	Battery voltage
23	GR/W	Door mirror defogger output signal (if equipped)	Output	—	When rear defogger switch is ON	Battery voltage
					When rear defogger switch is OFF	0V
27	W/B	Fuse 38	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
30	W	Fuse 53	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
32	L	Wiper low speed signal	Output	ON or START	Wiper switch	0V
					LO or INT	Battery voltage

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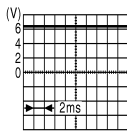
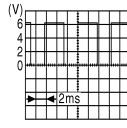
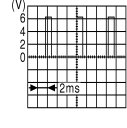
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition			Reference value (Approx.)
				Ignition switch	Operation or condition		
35	L/B	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT HI	0V Battery voltage
37	Y	Power generation command signal	Output	—	Ignition switch ON		 6.3 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 3.8 V
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"		 1.4 V
38	B	Ground	Input	—	—		0V
39	L	CAN-H	—	ON	—		—
40	P	CAN-L	—	ON	—		—
42	GR	Oil pressure switch	Input	—	Engine running		Battery voltage
					Engine stopped		0V
43	L/Y	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
44	BR	Daytime light relay control (Canada only)	Input	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
45	G/W	Horn relay control	Input	ON	When door locks are operated using keyfob (OFF → ON)*		Battery voltage → 0V
46	GR	Fuel pump relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
47	O	Throttle control motor relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
48	B/R	Starter relay (inhibit switch)	Input	ON or START	Selector lever in "P" or "N"		0V
					Selector lever any other position		Battery voltage
49	R/L	Trailer tow relay Illumination	Output	ON	Lighting switch must be in the 1st position	OFF	0V
						ON	Battery voltage

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
50	W/R	Front fog lamp (LH) (if equipped)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	0V
					OFF	Battery voltage
51	W/R	Front fog lamp (RH) (if equipped)	Output	ON or START	Lighting switch must be in the 2nd position (LOW beam is ON) and the front fog lamp switch	0V
					OFF	Battery voltage
52	L	LH low beam headlamp	Output	—	Lighting switch in 2nd position	Battery voltage
54	R/Y	RH low beam headlamp	Output	—	Lighting switch in 2nd position	Battery voltage
55	G	LH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position	Battery voltage
56	Y (With DTRL) L/W (Without DTRL)	RH high beam headlamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position	Battery voltage
57	R/L	Parking, license and tail lamp	Output	ON	Lighting switch 1st position	0V
					OFF	Battery voltage
59	B	Ground	Input	—	—	0V
60	B/W	Rear window defogger relay (if equipped)	Output	ON or START	Rear defogger switch ON	Battery voltage
					Rear defogger switch OFF	0V
61	BR	Fuse 32	Output	OFF	—	Battery voltage

*: When horn reminder is ON

Fail Safe

INFOID:0000000011883843

CAN COMMUNICATION CONTROL

When CAN communication with ECM and BCM is impossible, IPDM E/R performs fail-safe control. After CAN communication recovers normally, it also returns to normal control.

If No CAN Communication Is Available With BCM

Control part	Fail-safe in operation
Headlamp	• Turns ON the headlamp low relay when the ignition switch is turned ON • Turns OFF the headlamp low relay when the ignition switch is turned OFF • Headlamp high relay OFF
• Parking lamps • License plate lamps • Tail lamps	• Turns ON the tail lamp relay when the ignition switch is turned ON • Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed. • The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Rear window defogger (if equipped)	Rear window defogger relay OFF

IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe in operation
A/C compressor	A/C relay OFF
Front fog lamps (if equipped)	Front fog lamp relay OFF

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

- IPDM E/R monitors the voltage at the contact circuit and excitation coil circuit of the ignition relay inside it.
- IPDM E/R judges the ignition relay error if the voltage differs between the contact circuit and the excitation coil circuit.
- If the ignition relay cannot turn OFF due to contact seizure, it activates the tail lamp relay for 10 minutes to alert the user to the ignition relay malfunction when the ignition switch is turned OFF.

Ignition switch	Ignition relay	Tail lamp relay
ON	ON	—
OFF	OFF	—

NOTE:

The tail lamp turns OFF when the ignition switch is turned ON.

FRONT WIPER CONTROL

IPDM E/R detects front wiper stop position by a front wiper auto stop signal.

When a front wiper auto stop signal is in the conditions listed below, IPDM E/R stops power supply to wiper after repeating a front wiper 10 seconds activation and 20 seconds stop five times.

Ignition switch	Front wiper switch	Auto stop signal
ON	OFF	Front wiper stop position signal cannot be input 10 seconds.
	ON	The signal does not change for 10 seconds.

NOTE:

This operation status can be confirmed on the IPDM E/R “DATA MONITOR” that displays “Block” for the item “WIP PROT” while the wiper is stopped.

STARTER MOTOR PROTECTION FUNCTION

IPDM E/R turns OFF the starter control relay to protect the starter motor when the starter control relay remains active for 90 seconds.

DTC Index

INFOID:0000000011883844

CONSULT display	Fail-safe	TIME ^{NOTE}		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-15

NOTE:

The details of TIME display are as follows.

- CRNT: The malfunctions that are detected now
- 1 - 39: The number is indicated when it is normal at present and a malfunction was detected in the past. It increases like 0 → 1 → 2 ... 38 → 39 after returning to the normal condition whenever IGN OFF → ON. It is fixed to 39 until the self-diagnosis results are erased if it is over 39. It returns to 0 when a malfunction is detected again in the process.

< WIRING DIAGRAM >

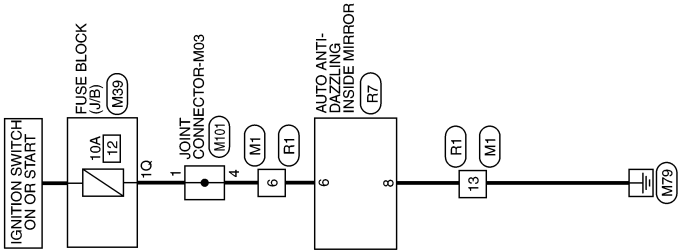
WIRING DIAGRAM

COMPASS

Wiring Diagram - With Homelink Universal Transceiver

INFOID:0000000011559224

COMPASS - WITH HOMELINK UNIVERSAL TRANSCEIVER



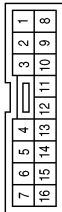
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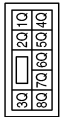
COMPASS CONNECTORS - WITH HOMELINK UNIVERSAL TRANSCIEVER

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



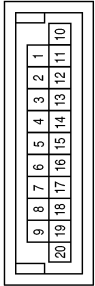
Terminal No.	Color of Wire	Signal Name
6	G/R	—
13	B	—

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



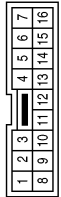
Terminal No.	Color of Wire	Signal Name
1Q	G/R	—

Connector No.	M101
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



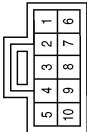
Terminal No.	Color of Wire	Signal Name
1	G/R	—
4	G/R	—

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



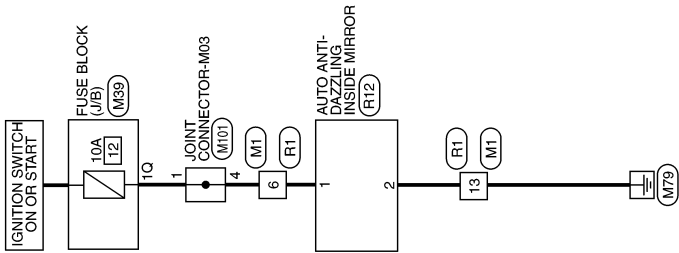
Terminal No.	Color of Wire	Signal Name
6	G/R	—
13	B	—

Connector No.	R7
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITH HOMELINK UNIVERSAL TRANSCIEVER)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
6	G/R	—
8	B	—

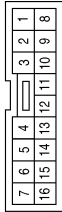
COMPASS - WITHOUT HOMELINK UNIVERSAL TRANSCEIVER



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COMPASS CONNECTORS - WITHOUT HOMELINK UNIVERSAL TRANSCEIVER

Connector No.	M1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



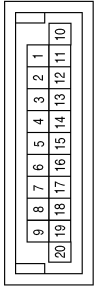
Terminal No.	Color of Wire	Signal Name
6	G/R	-
13	B	-

Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



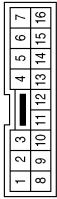
Terminal No.	Color of Wire	Signal Name
1Q	G/R	-

Connector No.	M101
Connector Name	JOINT CONNECTOR-M03
Connector Color	BLUE



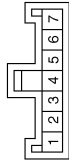
Terminal No.	Color of Wire	Signal Name
1	G/R	-
4	G/R	-

Connector No.	R1
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	G/R	-
13	B	-

Connector No.	R12
Connector Name	AUTO ANTI-DAZZLING INSIDE MIRROR (WITHOUT HOMELINK UNIVERSAL TRANSCIEVER)
Connector Color	RED

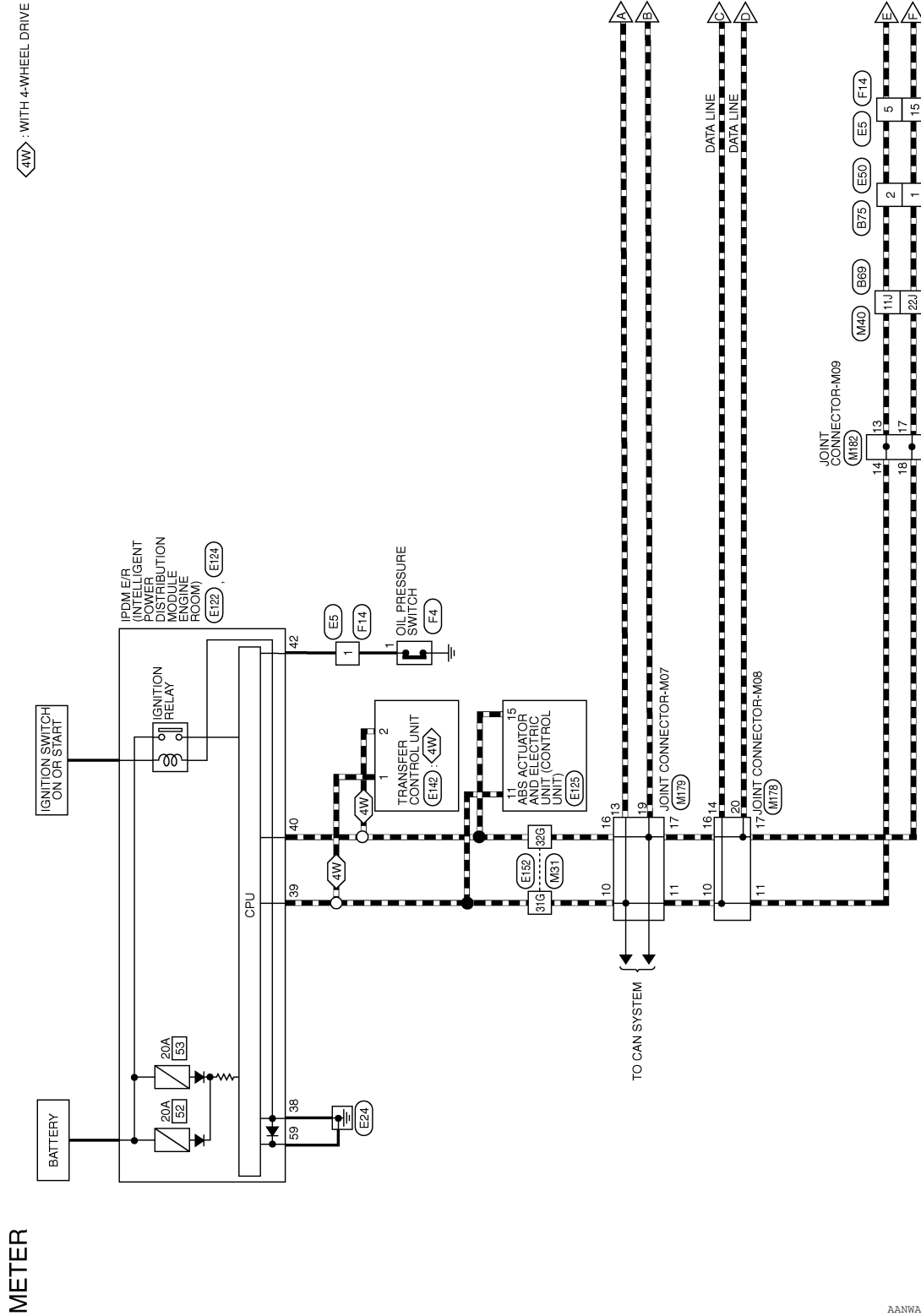


Terminal No.	Color of Wire	Signal Name
1	G/R	-
2	B	-

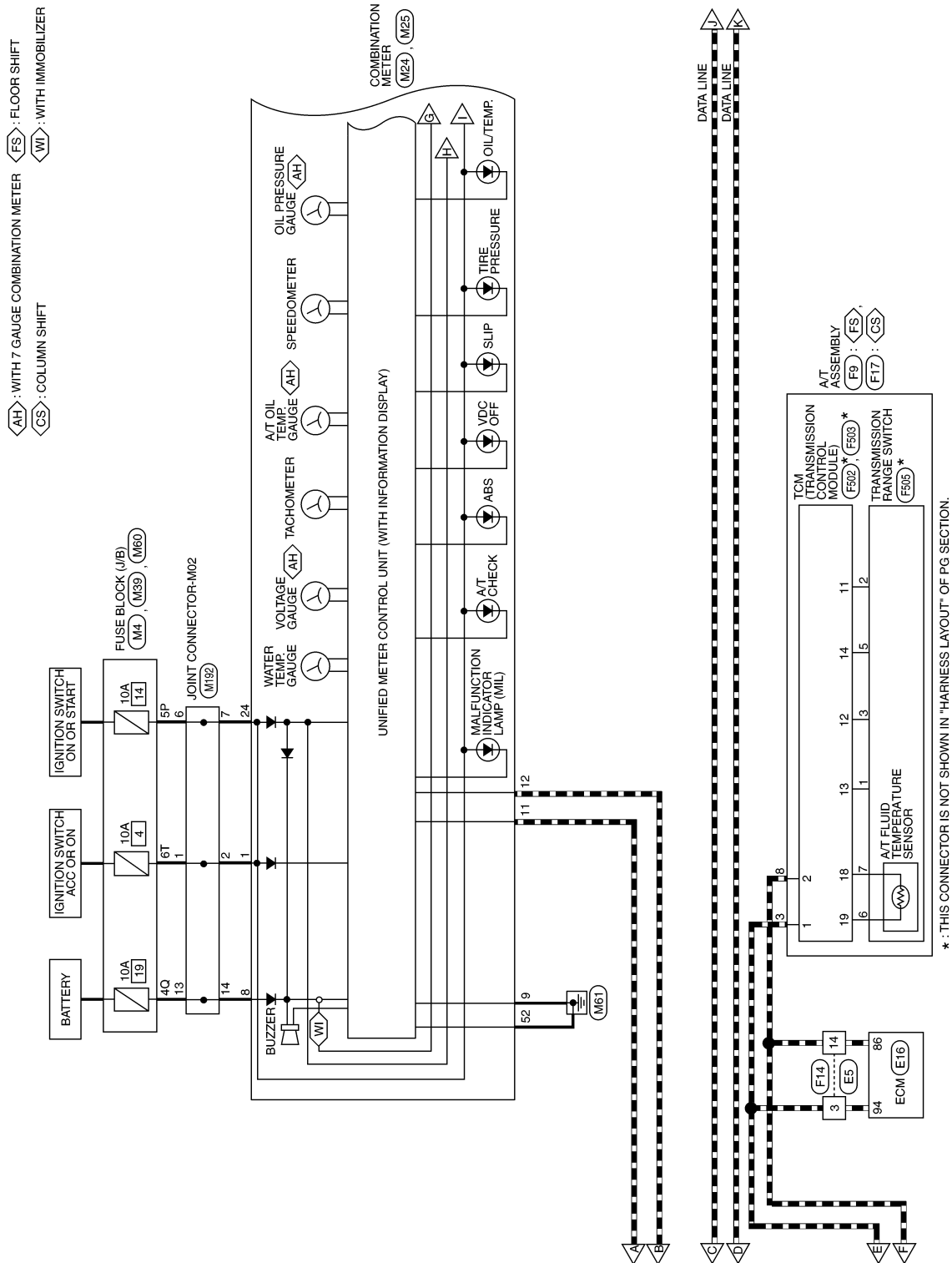
METER

Wiring Diagram

INFOID:0000000011559226



< WIRING DIAGRAM >

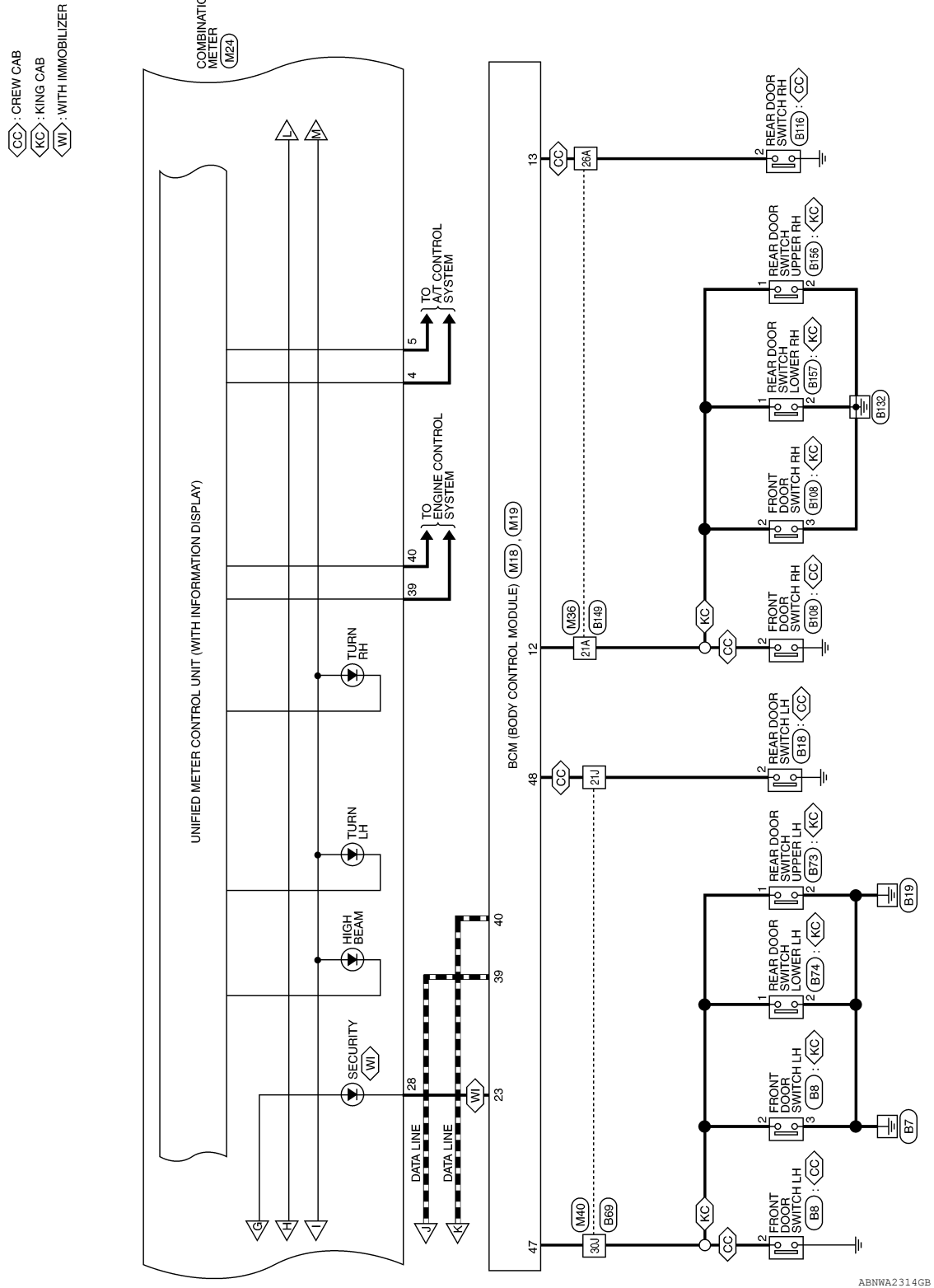


* : THIS CONNECTOR IS NOT SHOWN IN "HARNES LAYOUT" OF PG SECTION.

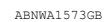
ABNWA2313GB

METER

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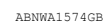


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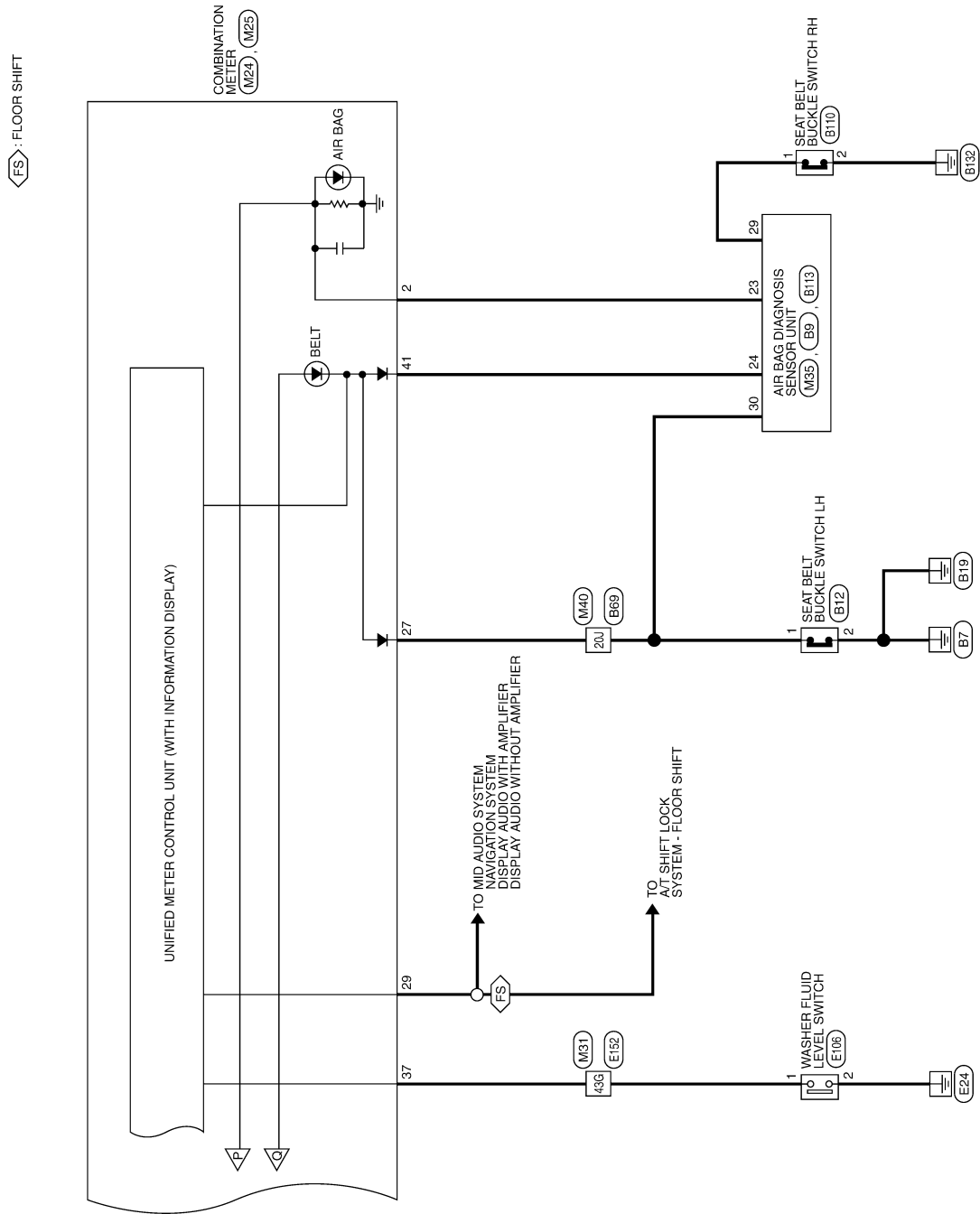
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METER

< WIRING DIAGRAM >



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METER CONNECTORS

Connector No.	M4
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



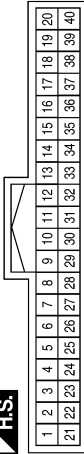
Terminal No.	Color of Wire	Signal Name
5P	O/L	-

Connector No.	M11
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	G	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
12	R/L	DOOR SW (AS)
13	GR	DOOR SW (RR)
23	G/O	SECURITY INDICATOR OUTPUT
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
47	SB	DOOR SW (DR)
48	R/Y	DOOR SW (RL)

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Terminal No.	Color of Wire	Signal Name
28	G/O	SECURITY
29	W/R	SPEED OUT
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	LG/R	TOW MODE
36	Y/V	TOW MODE LAMP
37	W/L	WASHER FLUID
38	V/W	MANUAL MODE
39	B/R	PN ATCU
40	GR/R	PN REVERSE

Terminal No.	Color of Wire	Signal Name
10	-	-
11	L	CAN-H
12	P	CAN-L
13	-	-
14	L	DIFF LOCK
15	Y/L	FUEL IN
16	B/P	ANALOG GND
17	-	-
18	P/B	BRAKE FLUID
19	-	-
20	-	-
21	-	-
22	-	-
23	G	PARK BRAKE
24	O/L	RUN/START
25	-	-
26	-	-
27	O/B	SEATBELT

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
1	O	ACCESSORY
2	P	AIR BAG
3	-	-
4	Y/G	AT 1 RANGE DN
5	SB	AT 4 RANGE UP
6	-	-
7	-	-
8	Y/R	BATTERY
9	B	GND

Connector No.	M25
Connector Name	COMBINATION METER
Connector Color	WHITE



46	45	44	43	42	41
52	51	50	49	48	47

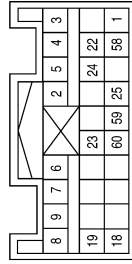
Terminal No.	Color of Wire	Signal Name
41	P/L	PASS SEAT BELT
42	-	-
43	-	-
44	-	-

Terminal No.	Color of Wire	Signal Name
45	BR/W	CHARGE IN
46	-	-
47	-	-
48	-	-
49	-	-
50	BR	ILL LED CON OUTPUT
51	-	-
52	B	ILL GND

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< WIRING DIAGRAM >

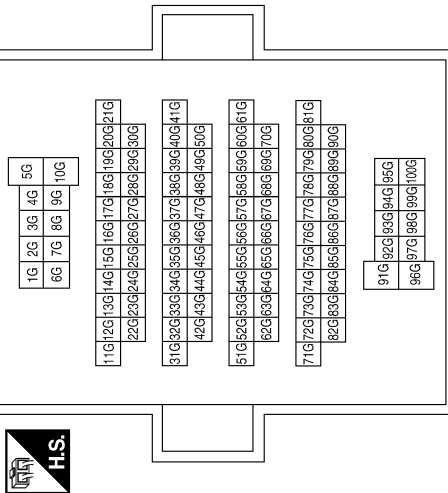
Connector No.	M35
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
23	P	WARN LAMP
24	P/L	SEATBELT MINDER

Terminal No.	Color of Wire	Signal Name
31G	L	-
32G	P	-
41G	B/P	-
43G	W/L	-
44G	BRW	-
45G	P/B	-
46G	Y/L	-

Connector No.	M31
Connector Name	WIRE TO WIRE
Connector Color	WHITE



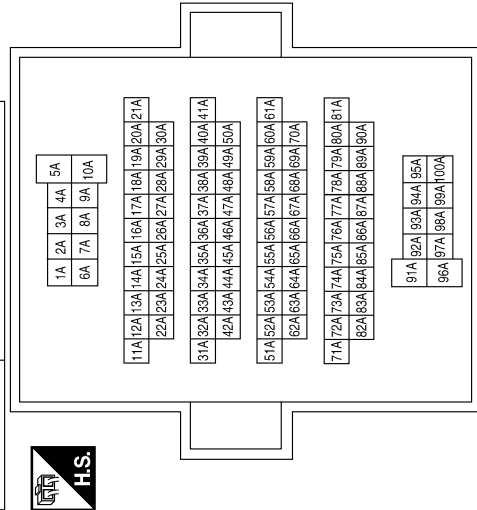
Connector No.	M39
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
4Q	Y/R	-

Terminal No.	Color of Wire	Signal Name
21A	R/L	-
26A	GR	-

Connector No.	M36
Connector Name	WIRE TO WIRE
Connector Color	WHITE



ABNIA391 6GB

< WIRING DIAGRAM >

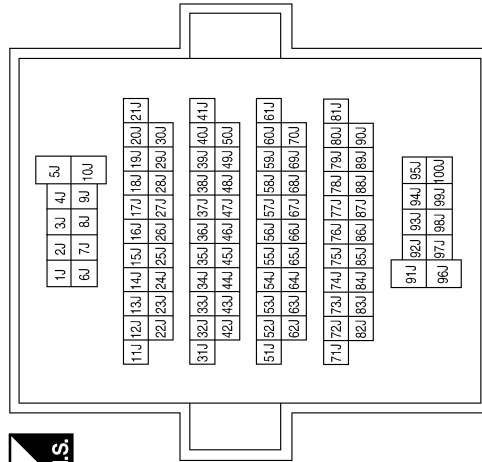
Connector No.	M60
Connector Name	FUSE BLOCK (J/B)
Connector Color	WHITE

2T	1T
6T	5T
4T	3T

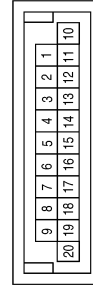
6T	Color of Wire	Signal Name
6T	O	—

Terminal No.	Color of Wire	Signal Name
11J	L	—
20J	O/B	—
21J	R/Y	—
22J	P	—
30J	SB	—
33J	L	—

Connector No.	M40
Connector Name	WIRE TO WIRE
Connector Color	WHITE

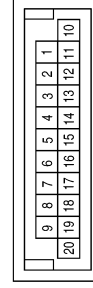


Connector No.	M182
Connector Name	JOINT CONNECTOR-M09
Connector Color	GREEN



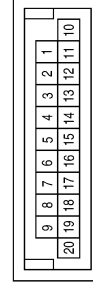
Terminal No.	Color of Wire	Signal Name
13	L	—
14	L	—
17	P	—
18	P	—

Connector No.	M179
Connector Name	JOINT CONNECTOR-M07
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	L	—
11	L	—
13	L	—
16	P	—
17	P	—
19	P	—

Connector No.	M178
Connector Name	JOINT CONNECTOR-M08
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	L	—
11	L	—
14	L	—
16	P	—
17	P	—
20	P	—

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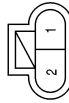
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Connector No.	E50
Connector Name	WIRE TO WIRE
Connector Color	BROWN



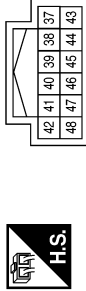
Terminal No.	Color of Wire	Signal Name
1	P	-
2	L	-

Connector No.	E106
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
1	W/L	-
2	B	-

Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



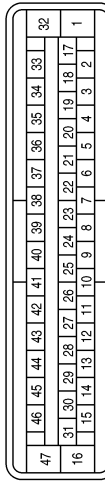
Terminal No.	Color of Wire	Signal Name
38	B	GND (SIGNAL)
39	L	CAN-H
40	P	CAN-L
42	GR	OIL PRESSURE SW

Connector No.	E124
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BLACK



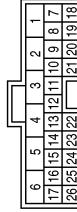
Terminal No.	Color of Wire	Signal Name
59	B	GND (POWER)

Connector No.	E125
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
11	L	CAN-H
15	P	CAN-L

Connector No.	E142
Connector Name	TRANSFER CONTROL UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L

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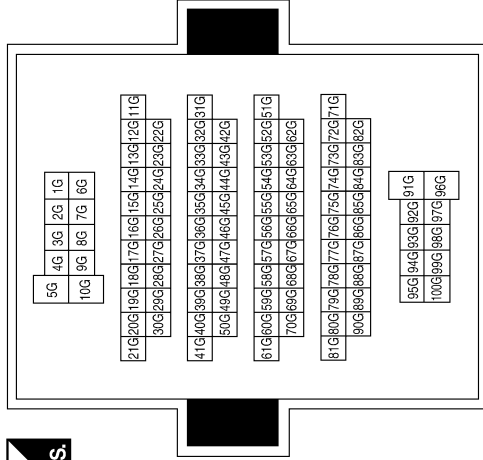
Connector No.	E201
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
3	BRW	—

Terminal No.	Color of Wire	Signal Name
31G	L	—
32G	P	—
41G	B/P	—
43G	W/L	—
44G	BR/W	—
45G	P/B	—
46G	Y/L	—

Connector No.	E152
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Connector No.	F4
Connector Name	OIL PRESSURE SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	GR	—

Connector No.	E206
Connector Name	GENERATOR
Connector Color	—



Terminal No.	Color of Wire	Signal Name
5	B	—

Connector No.	E205
Connector Name	GENERATOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	BR/W	—

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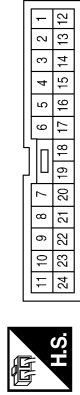
< WIRING DIAGRAM >

Connector No.	F9
Connector Name	A/T ASSEMBLY (FLOOR SHIFT)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
3	L	-
8	P	-

Connector No.	F14
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	GR	-
3	L	-
5	L	-
14	P	-
15	P	-

Connector No.	F17
Connector Name	A/T ASSEMBLY (COLUMN SHIFT)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
3	L	-
8	P	-

Connector No.	F502
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY



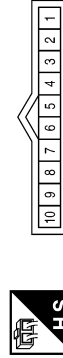
Terminal No.	Color of Wire	Signal Name
1	B/R	CAN-H
2	L/Y	CAN-L

Connector No.	F503
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GREEN



Terminal No.	Color of Wire	Signal Name
11	W	TR SW 4
12	GR	TR SW 2
13	BR	TR SW 1
14	L	TR SW 3
18	O	ATF SENS
19	G	ATF SENS

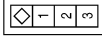
Connector No.	F505
Connector Name	TRANSMISSION RANGE SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	BR	-
2	W	-
3	GR	-
5	L	-
6	G	-
7	O	-

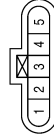
< WIRING DIAGRAM >

Connector No.	B8
Connector Name	FRONT DOOR SWITCH LH
Connector Color	WHITE



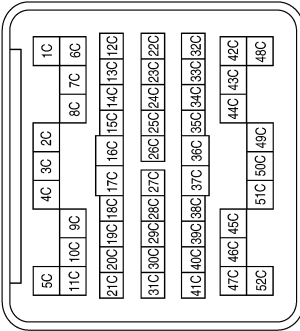
Terminal No.	Color of Wire	Signal Name
2	SB	–
3	B	–

Connector No.	C5
Connector Name	FUEL LEVEL SENSOR UNIT AND FUEL PUMP
Connector Color	GRAY



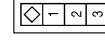
Terminal No.	Color of Wire	Signal Name
2	Y/L	–
5	B/P	–

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
43C	B/P	–
44C	Y/L	–

Connector No.	B18
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



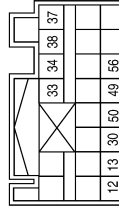
Terminal No.	Color of Wire	Signal Name
2	R/Y	–

Connector No.	B12
Connector Name	SEAT BELT BUCKLE SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	O/B	–
2	B	–

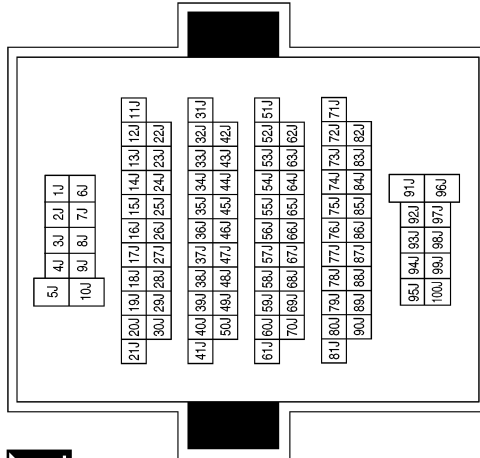
Connector No.	B9
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
30	O/B	BUCKLE SW LH

ABNIA3922GB

Connector No.	B69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
11J	L	-
20J	O/B	-
21J	R/Y	-
22J	P	-
30J	SB	-
33J	L	-

Connector No.	B73
Connector Name	REAR DOOR SWITCH UPPER LH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-

Connector No.	B74
Connector Name	REAR DOOR SWITCH LOWER LH
Connector Color	BLACK



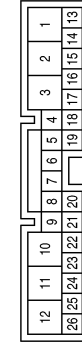
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-

Connector No.	B75
Connector Name	WIRE TO WIRE
Connector Color	BROWN



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

Connector No.	B77
Connector Name	DIFFERENTIAL LOCK CONTROL UNIT
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
21	L	IND

METER

< WIRING DIAGRAM >

Connector No.	B108
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



1	2	3
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Connector No.	B110
Connector Name	SEAT BELT BUCKLE SWITCH RH
Connector Color	WHITE



4	3	2	1
---	---	---	---

Connector No.	B113
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



35	36	31	32
		26	
55	47	48	29
11	10		

Terminal No.	Color of Wire	Signal Name
2	R/L	-
3	B	-

Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

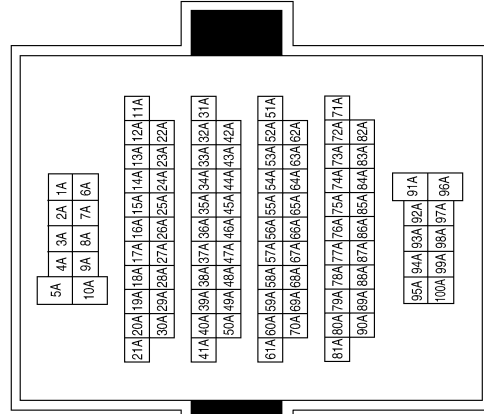
Terminal No.	Color of Wire	Signal Name
29	L	BUCKLE SW RH

Connector No.	B116
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



1	2	3
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Connector No.	B149
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
21A	R/L	-
26A	GR	-

Connector No.	B157
Connector Name	REAR DOOR SWITCH LOWER RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R/L	-
2	B	-

Connector No.	B156
Connector Name	REAR DOOR SWITCH UPPER RH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	R/L	-
2	B	-

ABNIA3925GB

THE FUEL GAUGE POINTER DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

THE FUEL GAUGE POINTER DOES NOT MOVE

Description

INFOID:0000000011559227

Fuel gauge needle will not move from a certain position.

Diagnosis Procedure

INFOID:0000000011559228

1.CHECK COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on CONSULT.
2. Using "FUEL METER" of "DATA MONITOR", compare the monitor value with the fuel gauge reading on the combination meter. Refer to [MWI-37, "Component Function Check"](#).

Does monitor value match fuel gauge reading?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to [MWI-37, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3

NO >> Repair harness or connector.

3.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR)

Perform a unit check for the fuel level sensor unit and fuel pump (fuel level sensor). Refer to [MWI-38, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4

NO >> Replace fuel level sensor unit and fuel pump (fuel level sensor). Refer to [FL-11, "Removal and Installation"](#).

4.CHECK FLOAT INTERFERENCE

Check that the float arm does not interfere or bind with any of the components in the fuel tank.

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

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MWI

THE FUEL GAUGE POINTER DOES NOT MOVE TO "F" WHEN REFUELING

< SYMPTOM DIAGNOSIS >

THE FUEL GAUGE POINTER DOES NOT MOVE TO "F" WHEN REFUELING

Description

INFOID:0000000011559229

The fuel gauge needle will not move to "F" position when refueling.

Diagnosis Procedure

INFOID:0000000011559230

1.OBSERVE FUEL GAUGE

Does it take a long time for the pointer to move to FULL position?

YES or NO

YES >> GO TO 2

NO >> GO TO 3

2.IDENTIFY FUELING CONDITION

Was the vehicle fueled with the ignition switch ON?

YES or NO

YES >> Be sure to fuel the vehicle with the ignition switch OFF. Otherwise, it will take a long time to move to FULL position because of the characteristic of the fuel gauge.

NO >> GO TO 3

3.OBSERVE VEHICLE POSITION

Is the vehicle parked on an incline?

YES or NO

YES >> Check the fuel level indication with vehicle on a level surface.

NO >> GO TO 4

4.OBSERVE FUEL GAUGE POINTER

During driving, does the fuel gauge pointer move gradually toward EMPTY position?

YES or NO

YES >> Check the components. Refer to [MWI-38. "Component Inspection"](#).

NO >> The float arm may interfere or bind with any of the components in the fuel tank.

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000011559231

The oil pressure warning lamp stays off when the ignition switch is turned ON.

Diagnosis Procedure

INFOID:0000000011559232

1.CHECK OIL PRESSURE WARNING LAMP

Perform IPDM E/R auto active test. Refer to [PCS-11, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

2.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-39, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3

NO >> Repair harness or connector.

3.CHECK OIL PRESSURE SWITCH UNIT

Perform a unit check for the oil pressure switch. Refer to [MWI-39, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation of IPDM E/R"](#).

NO >> Replace oil pressure switch.

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THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000011559233

The oil pressure warning lamp remains illuminated while the engine is running (normal oil pressure).

Diagnosis Procedure

INFOID:0000000011559234

Regarding Wiring Diagram information, refer to [MWI-67, "Wiring Diagram"](#).

1. CHECK OIL PRESSURE WARNING LAMP

Perform IPDM E/R auto active test. Refer to [PCS-11, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

2. CHECK IPDM E/R OUTPUT VOLTAGE

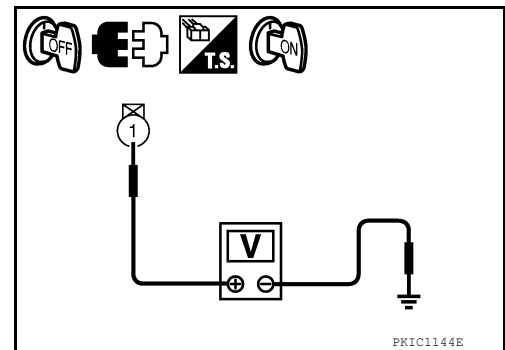
1. Turn ignition switch OFF.
2. Disconnect the oil pressure switch connector.
3. Turn ignition switch ON.
4. Check voltage between the oil pressure switch harness connector F4 terminal 1 and ground.

1 – Ground : Approx. 12V

Is the inspection result normal?

YES >> GO TO 3

NO >> GO TO 4



3. CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to [MWI-39, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation of IPDM E/R"](#).

NO >> Replace oil pressure switch.

4. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-39, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-28, "Removal and Installation of IPDM E/R"](#).

NO >> Repair harness or connector.

THE PARKING BRAKE RELEASE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE PARKING BRAKE RELEASE WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000011559235

- The parking brake warning is displayed while driving the vehicle even though the parking brake is released.
- The parking brake warning is not displayed even though driving the vehicle with the parking brake applied.

Diagnosis Procedure

INFOID:0000000011559236

1.CHECK PARKING BRAKE WARNING LAMP OPERATION

1. Start engine.
2. Monitor "BRAKE" warning lamp while applying and releasing the parking brake.

BRAKE warning lamp

Parking brake applied : ON

Parking brake released : OFF

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).
NO >> GO TO 2

2.CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Check the parking brake switch signal circuit. Refer to [MWI-41, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 3
NG >> Repair harness or connector.

3.CHECK PARKING BRAKE SWITCH UNIT

Perform a unit check for the parking brake switch. Refer to [MWI-41, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).
NO >> Replace parking brake switch.

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THE LOW WASHER FLUID WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE LOW WASHER FLUID WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000011559237

- The warning is still displayed even after washer fluid is added.
- The warning is not displayed even though the washer tank is empty.

Diagnosis Procedure

INFOID:0000000011559238

1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to [MWI-42. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair harness or connector.

2.CHECK WASHER FLUID LEVEL SWITCH UNIT

Perform a unit check for the washer fluid level switch. Refer to [MWI-42. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-95. "Removal and Installation"](#).

NO >> Replace washer fluid level switch.

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000011559239

- The door open warning is displayed even though all of the doors are closed.
- The door open warning is not displayed even though a door is open.

Diagnosis Procedure

INFOID:0000000011559240

1.CHECK SELF-DIAGNOSIS OF COMBINATION METER

Select "METER/M&A" on CONSULT and perform "SELF-DIAGNOSIS".

Is the inspection result normal?

YES >> GO TO 2

NO >> Refer to [MWI-45, "DTC Index"](#).

2.CHECK SELF-DIAGNOSIS OF BCM

Select "BCM" on CONSULT and perform "SELF-DIAGNOSIS".

Is the inspection result normal?

YES >> GO TO 3

NO >> Refer to [BCS-45, "DTC Index"](#).

3.CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to [DLK-28, "CREW CAB : Diagnosis Procedure"](#) (crew cab) or [DLK-26, "KING CAB : Diagnosis Procedure"](#) (king cab).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-95, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION COMPASS

COMPASS : Description

INFOID:0000000011559241

COMPASS

- The electronic compass is highly protected from changes in most magnetic fields. However, some large changes in magnetic fields can affect it. Some examples are (but not limited to): high tension power lines, large steel buildings, subways, steel bridges, automatic car washes, large piles of scrap metal, etc. While this does not happen very often, it is possible.
- During normal operation, the Compass Mirror will continuously update the compass calibration to adjust for gradual changes in the vehicle's magnetic "remnant" field. If the vehicle is subjected to high magnetic influences, the compass may appear to indicate false headings, become locked, or appear that it is unable to be calibrated. If this occurs, perform the calibration procedure.
- If at any time the compass continually displays the incorrect direction or the reading is erratic or locked, verify the correct zone variance.

Symptom Chart

Symptom	Cause	Solution / Reference
The compass display reads "C".	• Compass is not calibrated. • Incorrect zone variance setting. • Large change in magnetic field (Steel bridges, subways, concentrations of metal, car washes, etc.) • Compass was calibrated incorrectly or in the presence of a strong magnetic field.	Perform Calibration. Refer to MWI-25, "Description" .
Compass shows the wrong direction.		
Compass does not change direction appears "Locked".		
Compass does not show all the directions, one or more is missing.		
The compass was calibrated but it "loses" calibration.		Perform Zone Variation Setting if correct reading is desired in that location. Refer to MWI-25, "Description" .
On long trips the compass shows the wrong direction.		

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:0000000011559242

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 SR and SB section 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 SR section.
- 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 WHEN USING POWER TOOLS (AIR OR ELECTRIC) AND HAMMERS

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT 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 three minutes before performing any service.

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PREPARATION

< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tool

INFOID:0000000011559243

Tool name	Description
Power tool  PIIB1407E	Loosening nuts, screws and bolts

COMBINATION METERS

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

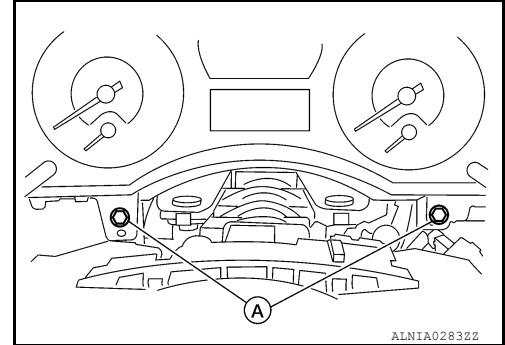
COMBINATION METERS

Removal and Installation

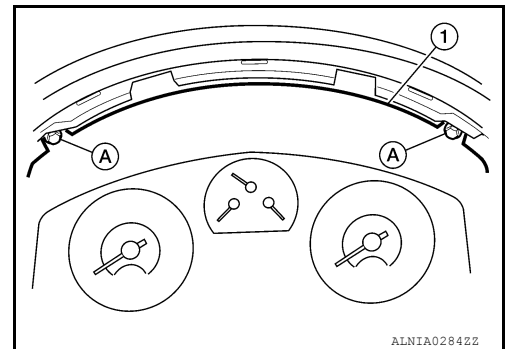
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REMOVAL

1. Disconnect battery negative terminal. Refer to [PG-85, "Removal and Installation"](#).
2. Remove cluster lid A. Refer to [JP-14, "Removal and Installation"](#).
3. Remove the combination meter lower screws (A).



4. Remove the combination meter upper screws (A) and pull out the combination meter (1).
5. Disconnect the harness connectors from the combination meter (1) and remove.



INSTALLATION

Installation is in the reverse order of removal.

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COMBINATION METERS

< UNIT DISASSEMBLY AND ASSEMBLY >

UNIT DISASSEMBLY AND ASSEMBLY

COMBINATION METERS

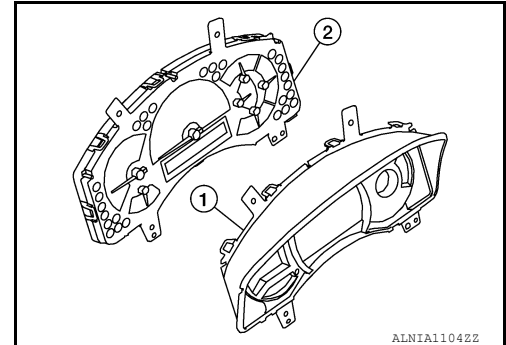
Removal and Installation

INFOID:0000000011559245

Disassembly and Assembly

Disassembly

1. Disconnect battery negative terminal. Refer to [PG-85, "Removal and Installation"](#).
2. Remove cluster lid A. Refer to [IP-14, "Removal and Installation"](#).
3. Release the tabs to separate front cover (1) from the unified meter control unit assembly (2).



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Assembly

Assembly is in the reverse order of disassembly.