# SECTION MWI
# METER, WARNING LAMP & INDICATOR

## CONTENTS

# BASIC INSPECTION

## DIAGNOSIS AND REPAIR WORKFLOW

### Work Flow

INFOID:0000000003790386

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-III)

Select “METER/M&A” on CONSULT-III and perform “SELF-DIAGNOSIS” of combination meter. Refer to MWI-28, "CONSULT-III 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-65, "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

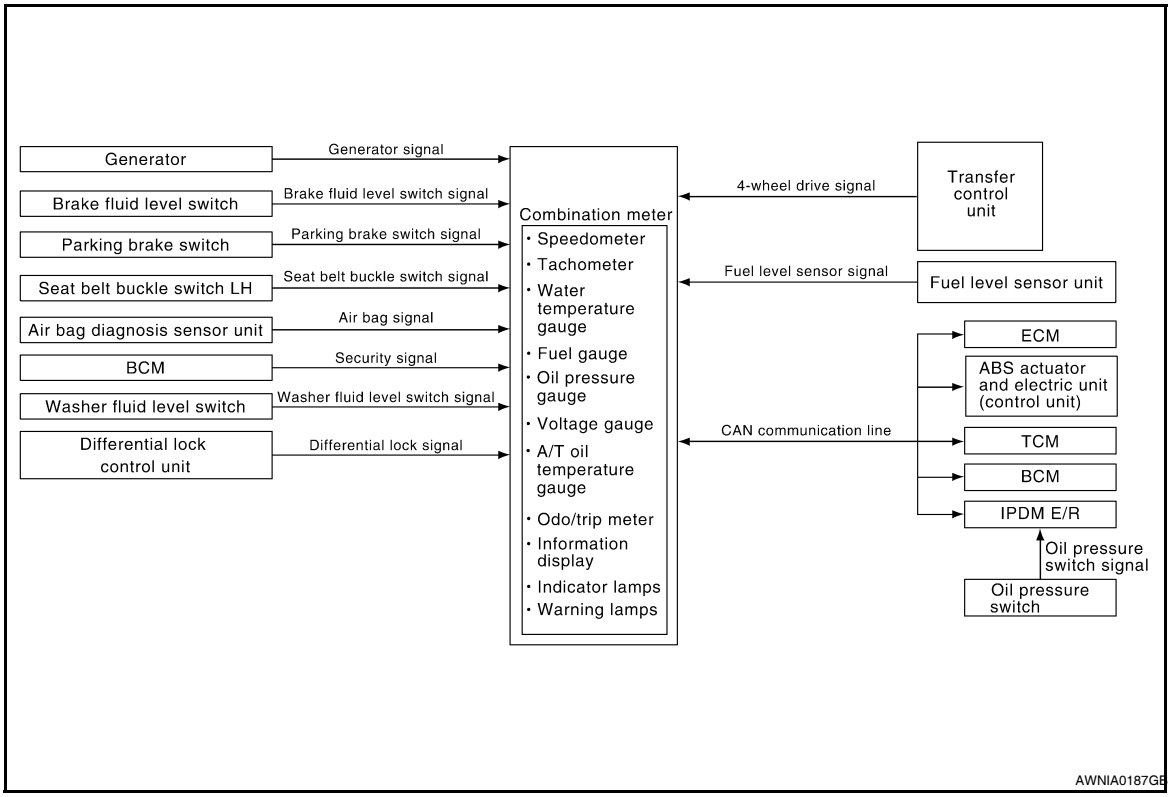
# FUNCTION DIAGNOSIS

## METER SYSTEM

## METER SYSTEM

### METER SYSTEM : System Diagram

INFOID:0000000003790387




### METER SYSTEM : System Description

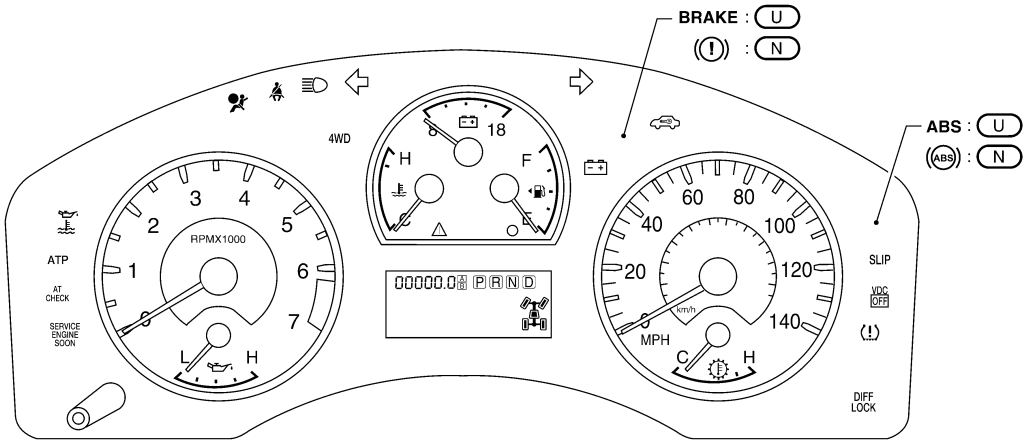
INFOID:0000000003790388

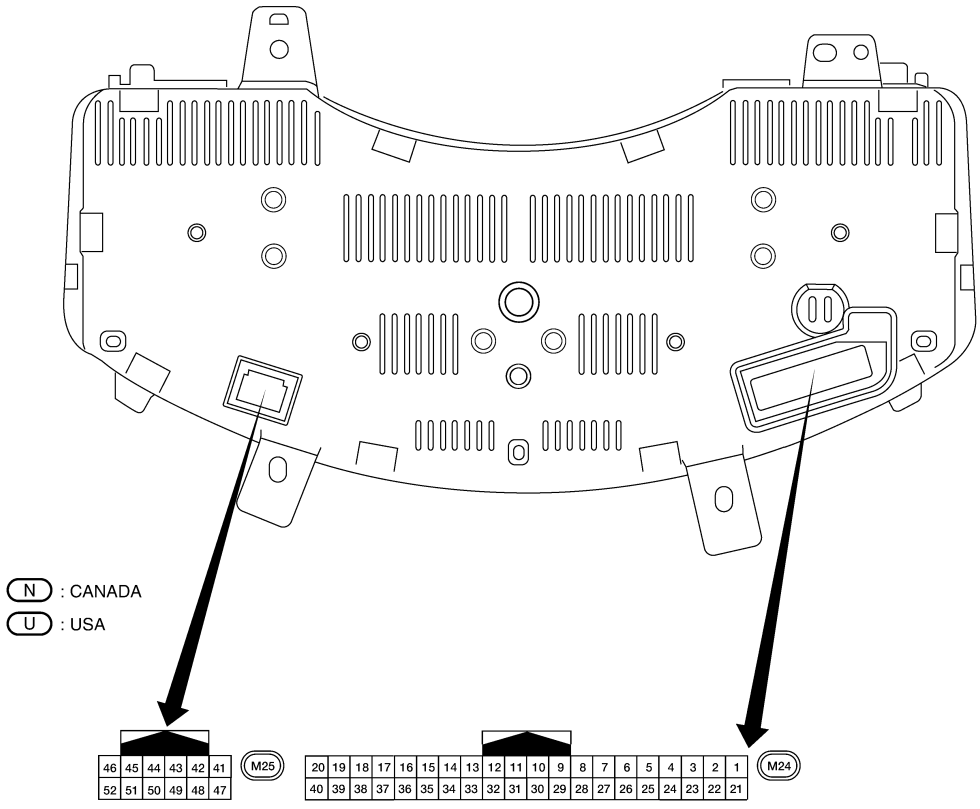
COMBINATION METER

- 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.

# METER SYSTEM : Arrangement of Combination Meter

INFOID:0000000003790389

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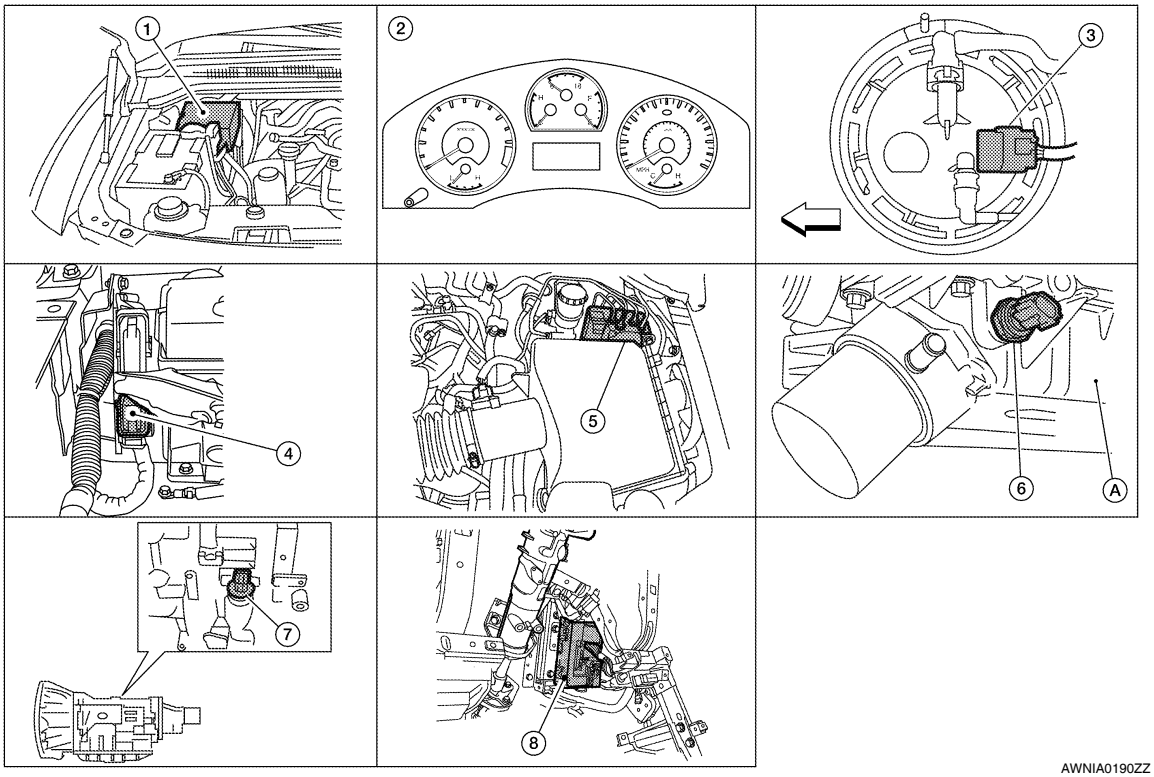
## METER SYSTEM : Component Parts Location

INFOID:0000000003790390

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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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:0000000003790391

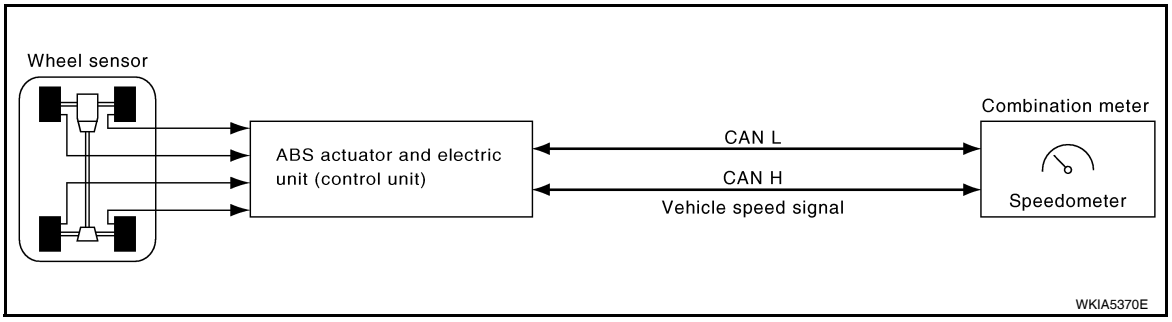
| Unit | Description |
|---|---|
| Combination meter | Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors.<br>• Speedometer<br>• Tachometer<br>• Engine coolant temperature gauge<br>• Fuel gauge<br>• Engine oil pressure gauge (if equipped)<br>• A/T oil temperature gauge (if equipped)<br>• Voltage gauge (if equipped)<br>• Odo/trip meter<br>• Warning lamps<br>• Indicator lamps<br>• Information display<br>• 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 | Refer to MWI-36, "Description". |

| Unit | Description |
|---|---|
| Oil pressure switch | Refer to MWI-39, "Description". |
| ECM | Transmits the following signals to the combination meter with CAN communication line.<br>• Engine speed signal<br>• Engine coolant temperature signal<br>• 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.<br>• Transmits the security signal to the combination meter. |
| TCM | • Transmits shift position signal to the combination meter with CAN communication line.<br>• Transmits A/T oil temperature signal to the combination meter with CAN communication line. |
| Washer level switch | Transmits the washer 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-40, "Description". |

# SPEEDOMETER

## SPEEDOMETER : System Diagram

INFOID:0000000003790392



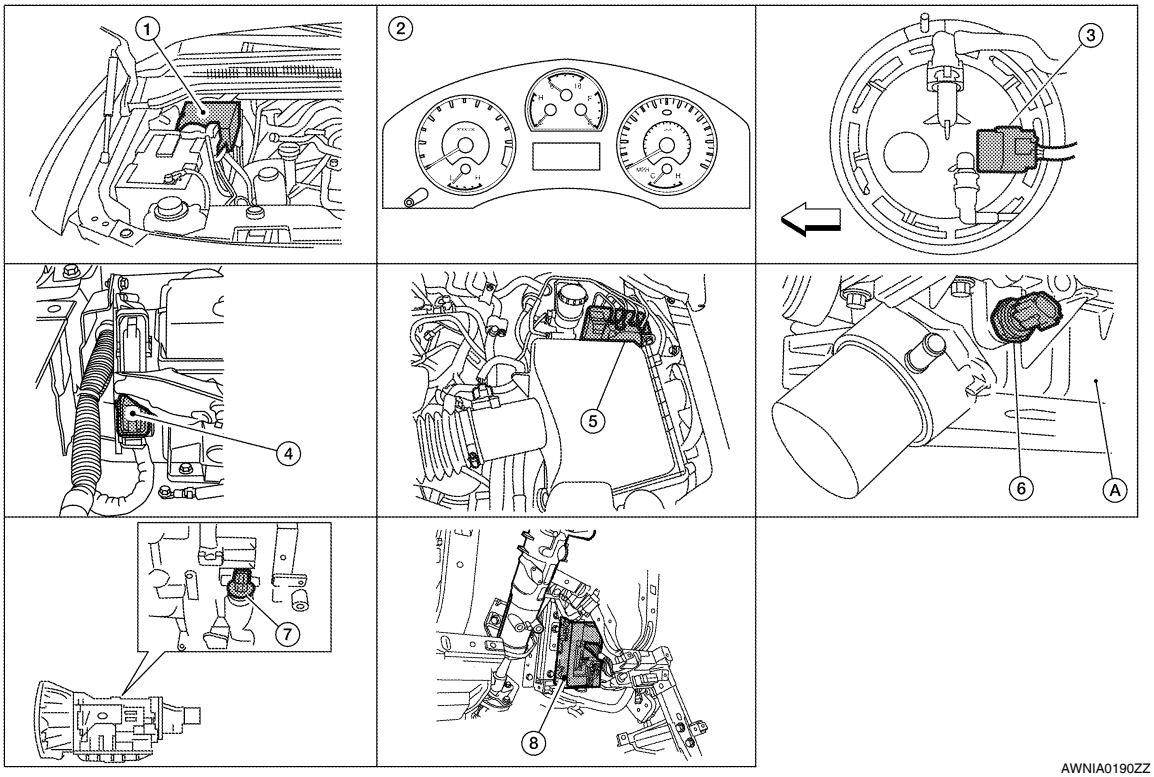

## SPEEDOMETER : System Description

INFOID:0000000003790393

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

## SPEEDOMETER : Component Parts Location

INFOID:0000000004215479

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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

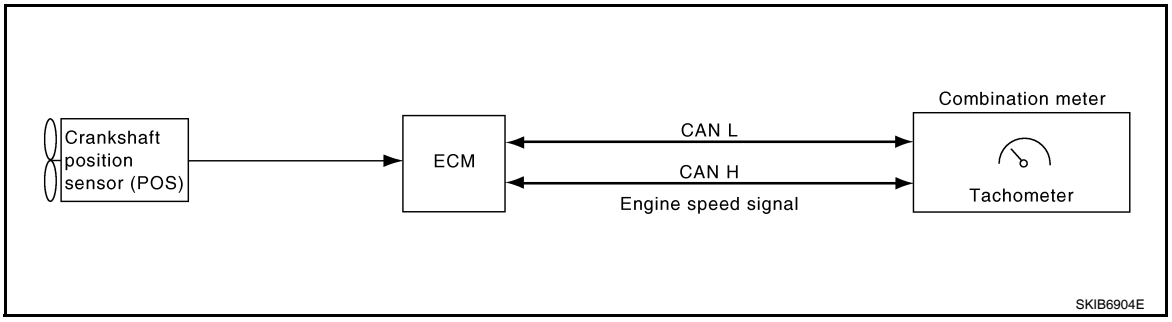
INFOID:0000000003790395

| 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

## TACHOMETER : System Diagram

INFOID:0000000003790396



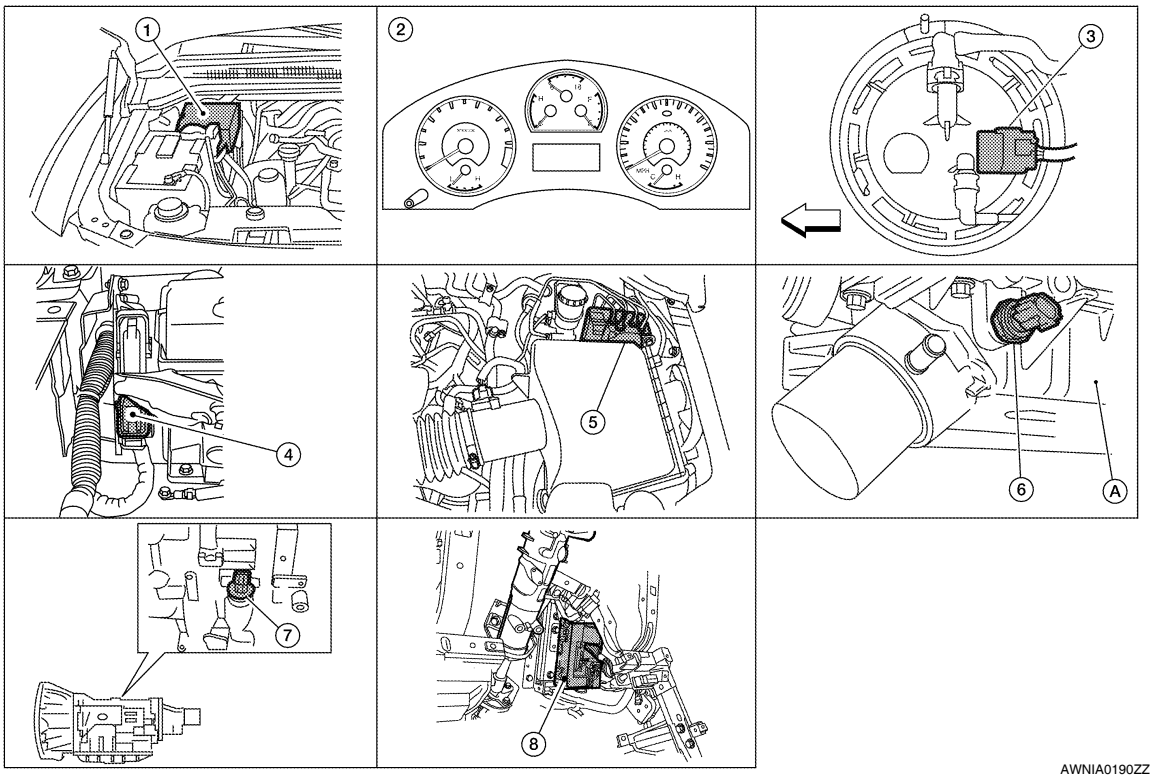

## TACHOMETER : System Description

INFOID:0000000003790397

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:0000000004215480




1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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)

## TACHOMETER : Component Description

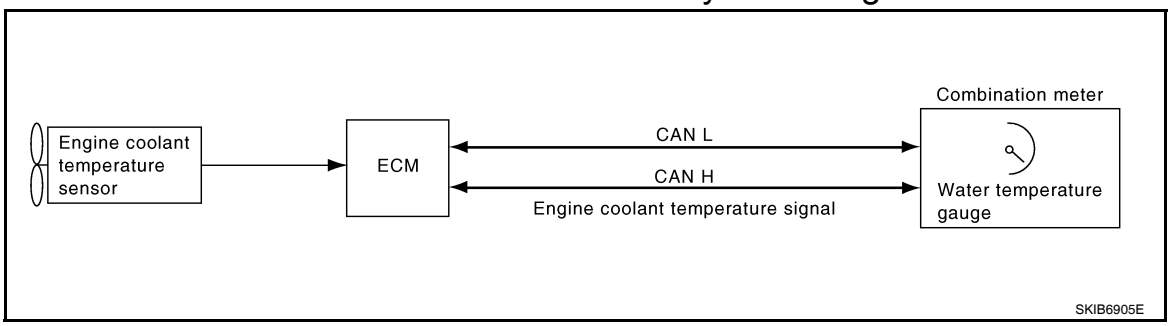
INFOID:0000000003790399

| 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:0000000003790400



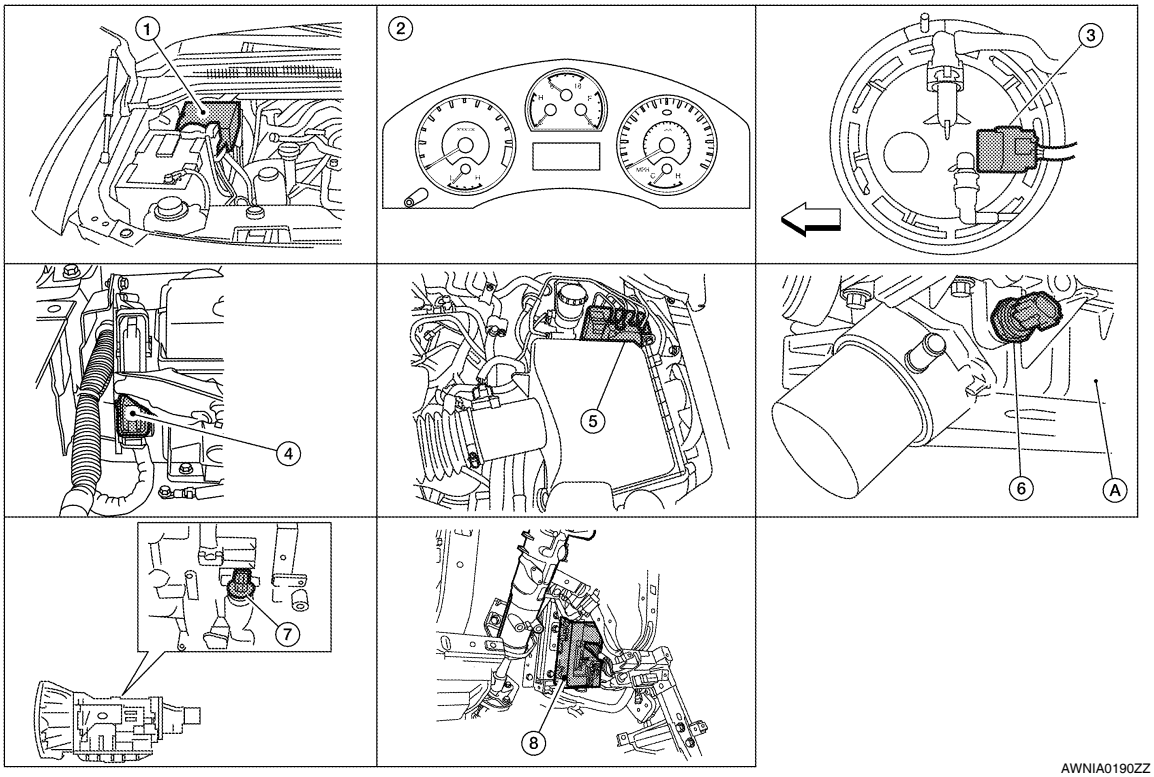

## ENGINE COOLANT TEMPERATURE GAUGE : System Description

INFOID:0000000003790401

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:0000000004215481



1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

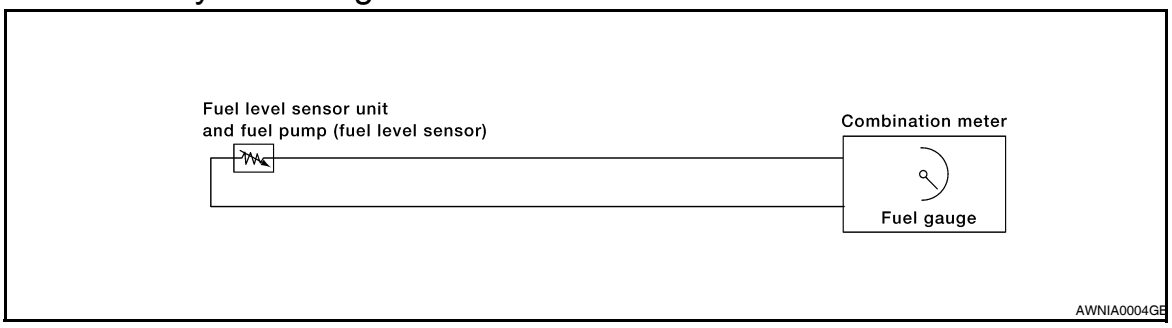
INFOID:0000000003790403

| 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:0000000003790404



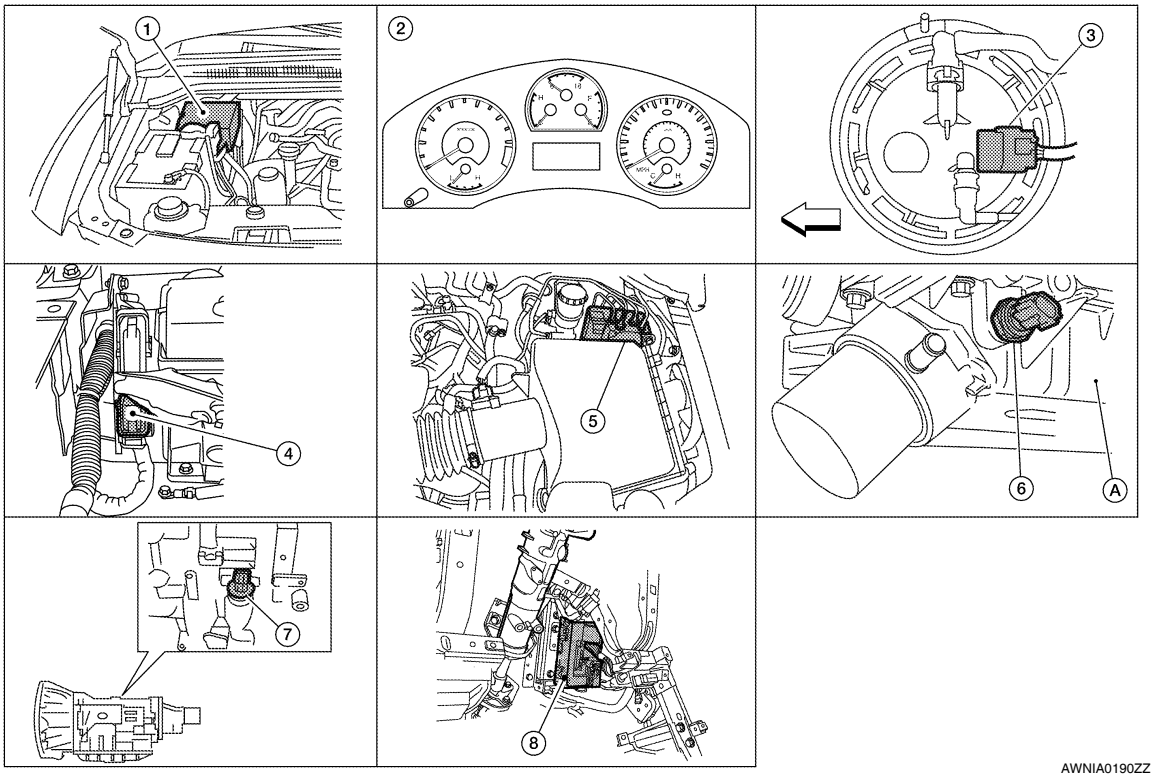

## FUEL GAUGE : System Description

INFOID:0000000003790405

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.

## FUEL GAUGE : Component Parts Location

INFOID:0000000004215482

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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

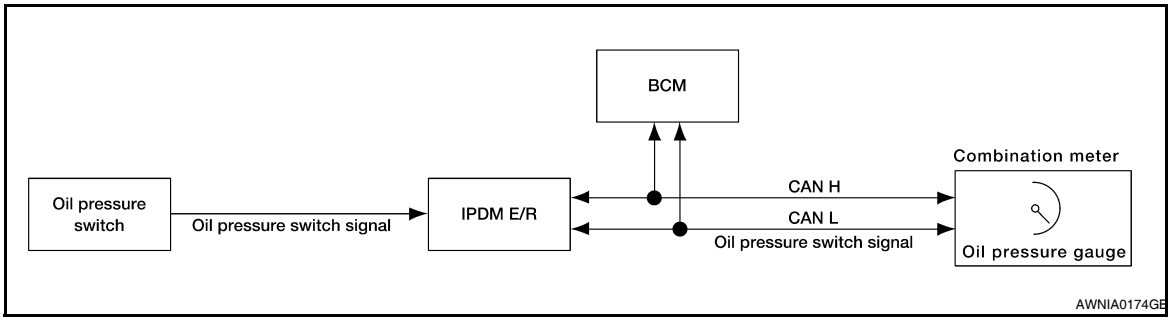
INFOID:0000000003790407

| Unit | Description |
|---|---|
| Combination meter | Indicates the fuel level according to the fuel level sensor signal received from the fuel level sensor unit. |
| Fuel level sensor unit | Refer to MWI-36, "Description". |

## ENGINE OIL PRESSURE GAUGE

## ENGINE OIL PRESSURE GAUGE : System Diagram

INFOID:0000000003790408



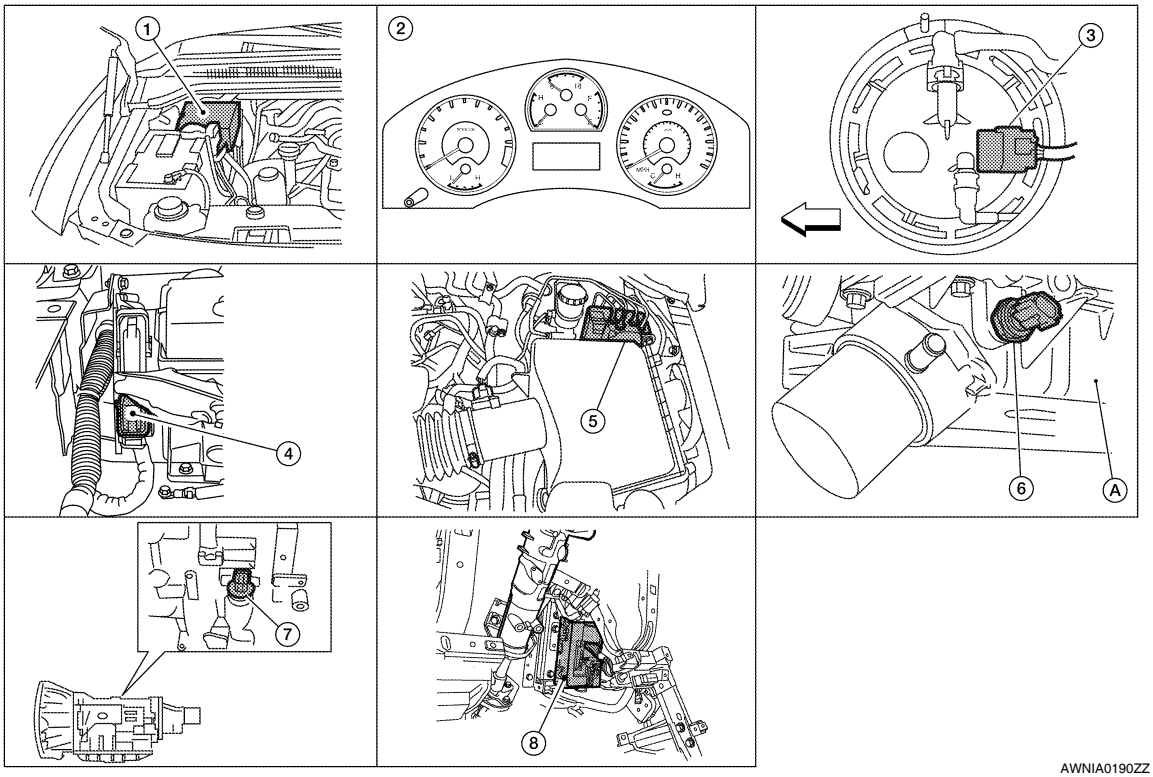

## ENGINE OIL PRESSURE GAUGE : System Description

INFOID:0000000003790409

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:0000000004215483




1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front

4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
E126 (with VDC)
E125 (without VDC)
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 OIL PRESSURE GAUGE : Component Description

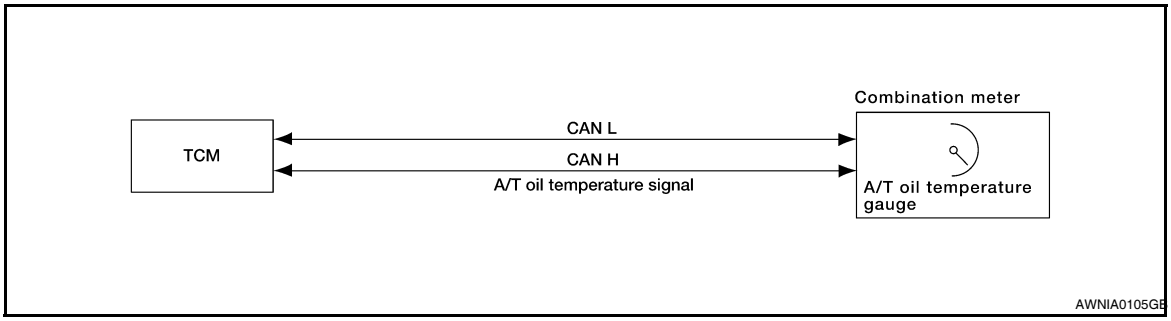
INFOID:0000000003790411

| 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:0000000003790412



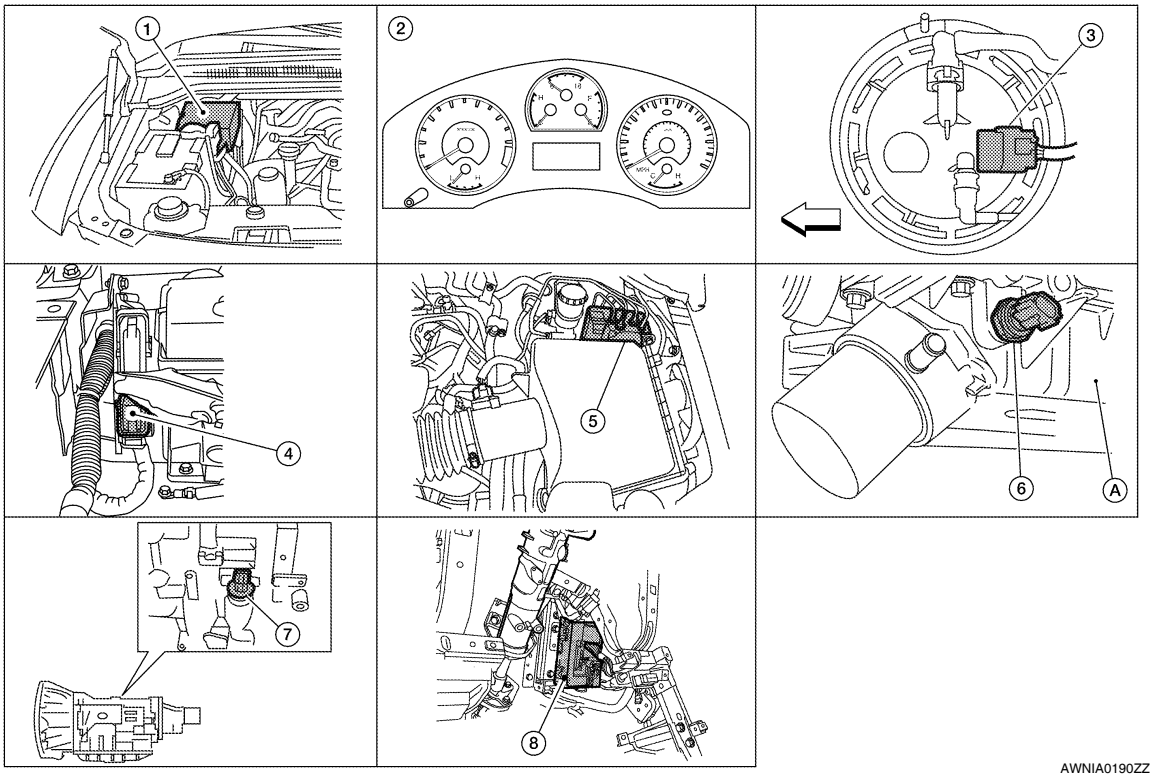

## A/T OIL TEMPERATURE GAUGE : System Description

INFOID:0000000003790413

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.

## A/T OIL TEMPERATURE GAUGE : Component Parts Location

INFOID:0000000004215484

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1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

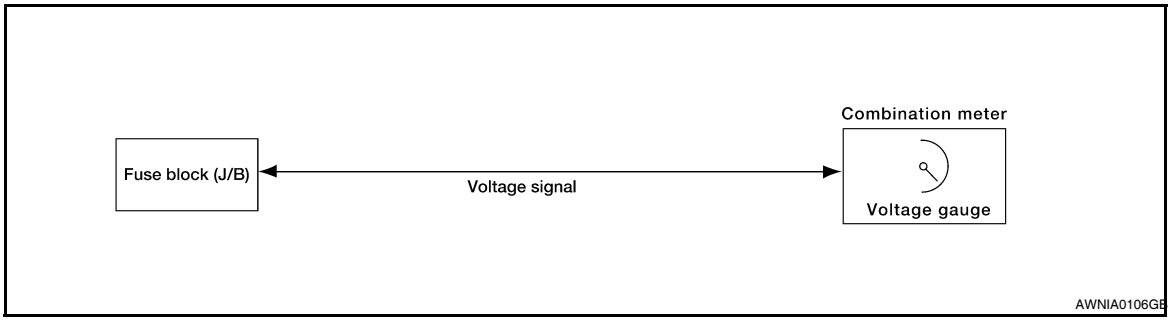
INFOID:0000000003790415

| 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

## VOLTAGE GAUGE : System Diagram

INFOID:0000000003790416



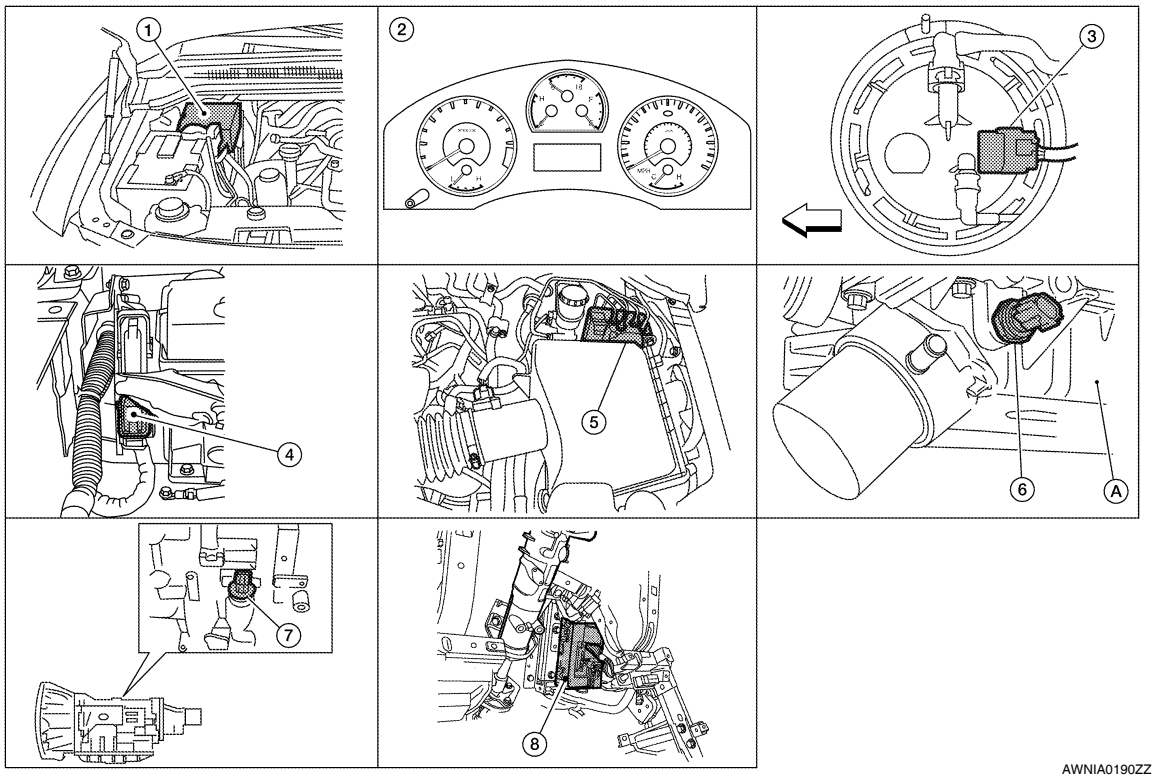

## VOLTAGE GAUGE : System Description

INFOID:0000000003790417

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:0000000004215485




1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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)

## VOLTAGE GAUGE : Component Description

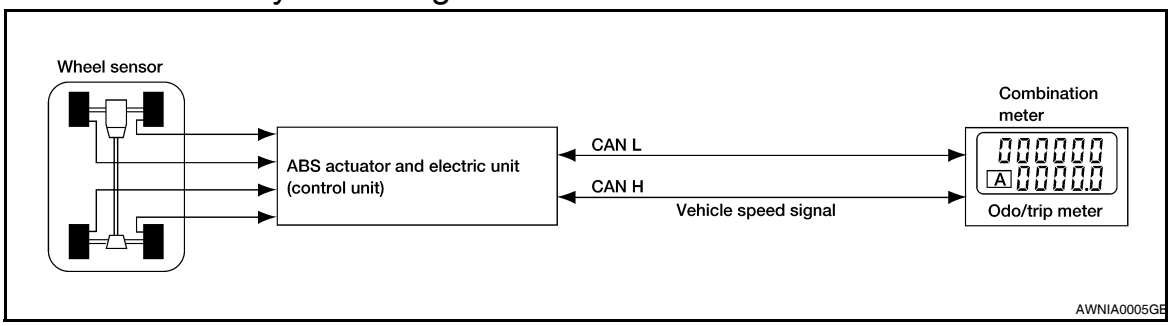
INFOID:0000000003790419

| 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:0000000003790420




## ODO/TRIP METER : System Description

INFOID:0000000003790421

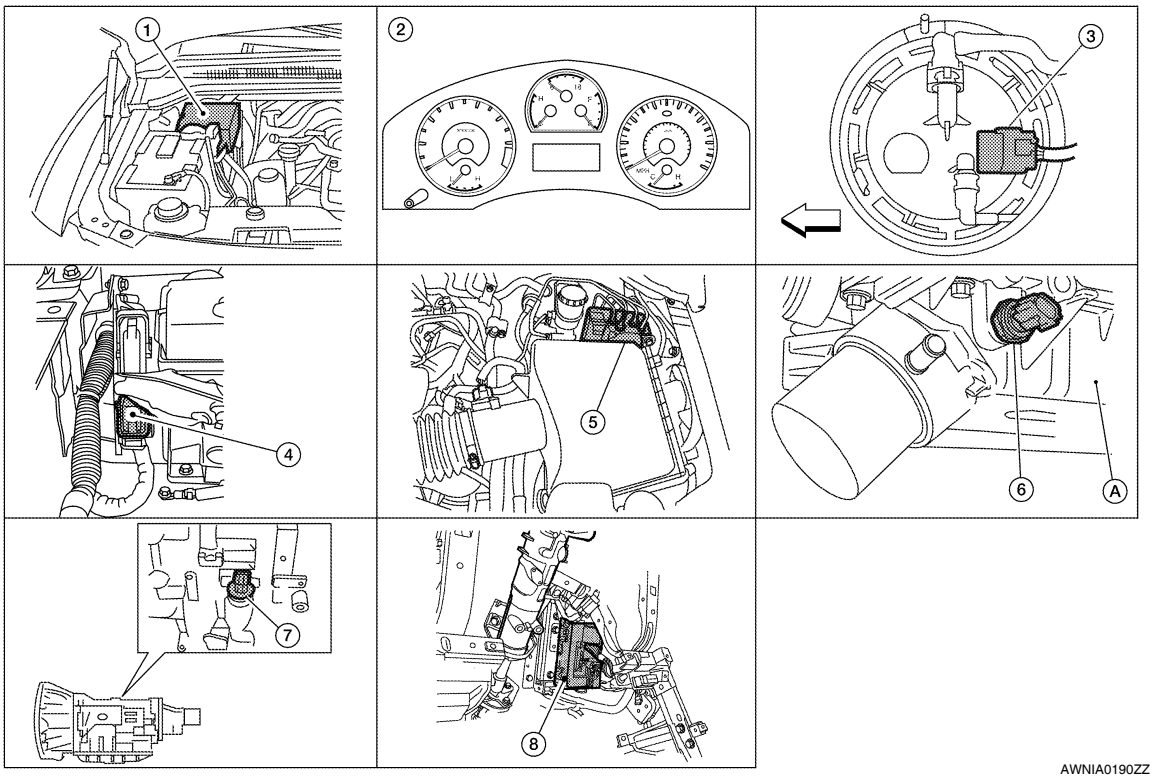
The vehicle speed signal and the memory signals from the meter memory circuit are processed by the combination meter and the mileage is displayed.

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:0000000004215486



1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed) C7 (with Flexible Fuel) C5 (without Flexible Fuel) ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit) E126 (with VDC) E125 (without VDC)
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)

## ODO/TRIP METER : Component Description

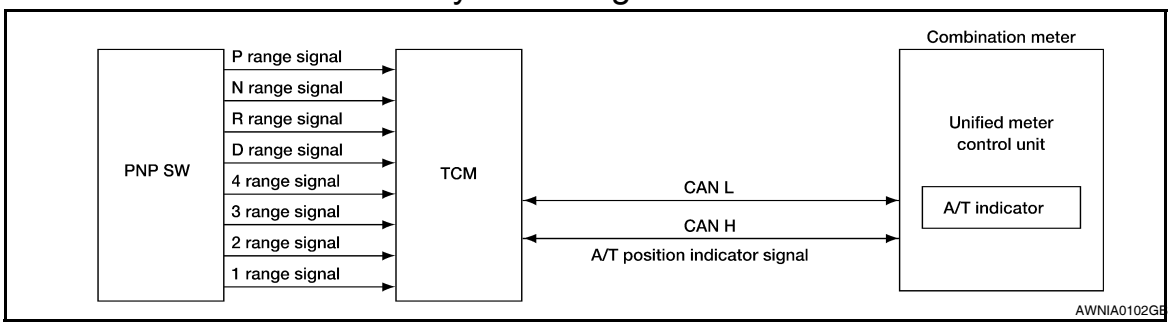
INFOID:0000000003790423

| Unit | Description |
|---|---|
| Combination meter | Converts the vehicle speed signal received from the ABS actuator and electric unit (control unit) via CAN communication to mileage, and it displays the accumulated mileage to the odo/trip meter. |
| ABS actuator and electric unit (control unit) | Transmits the vehicle speed signal to the combination meter via CAN communication. |

# SHIFT POSITION INDICATOR

## SHIFT POSITION INDICATOR : System Diagram

INFOID:0000000003790424



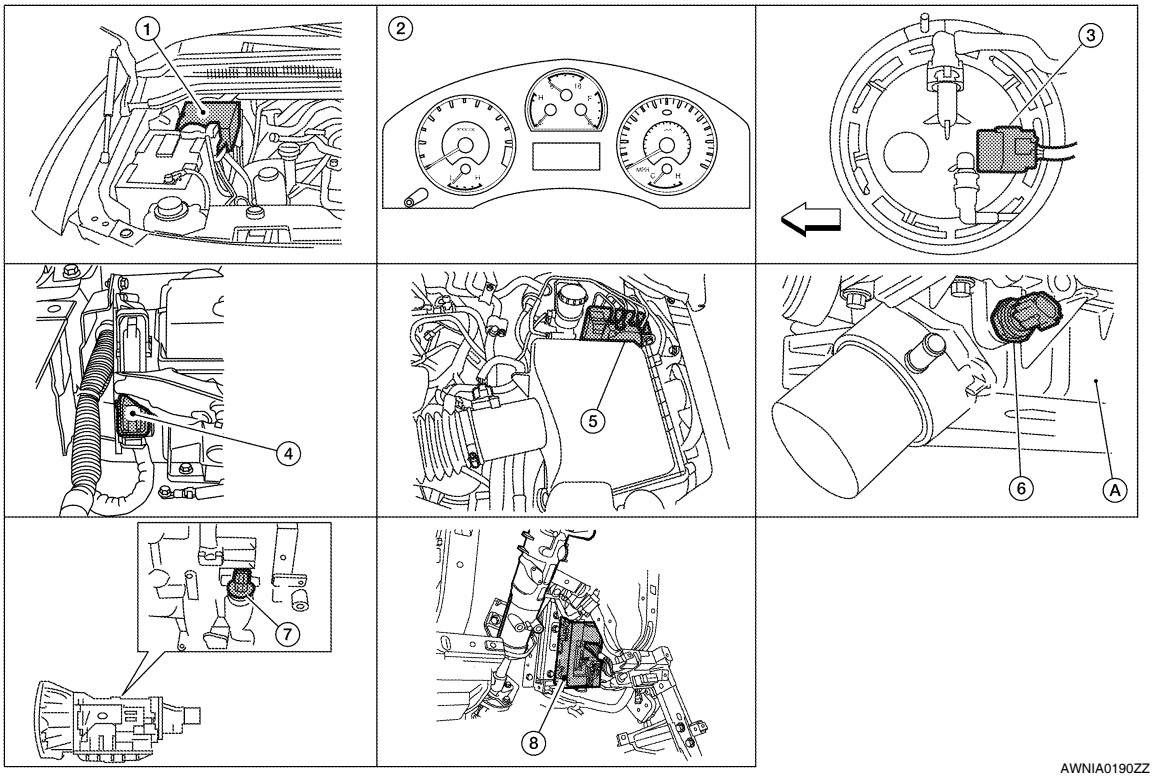

## SHIFT POSITION INDICATOR : System Description

INFOID:0000000003790425

The TCM receives A/T indicator signals from the park/neutral position (PNP) switch. The TCM then sends A/T position indicator signals to the combination meter via CAN communication lines. The combination meter indicates the received shift position.

## SHIFT POSITION INDICATOR : Component Parts Location

INFOID:0000000004215487

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1. IPDM E/R E122, E124
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3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

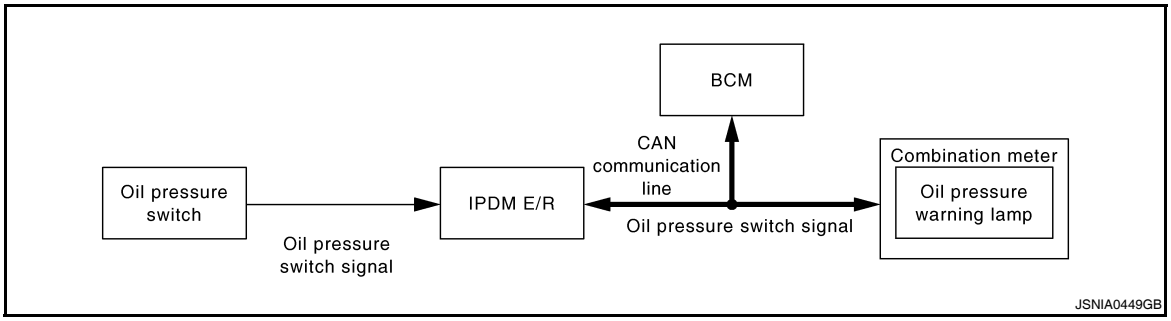
INFOID:0000000003790427

| 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:0000000003790428




## WARNING LAMPS/INDICATOR LAMPS : System Description

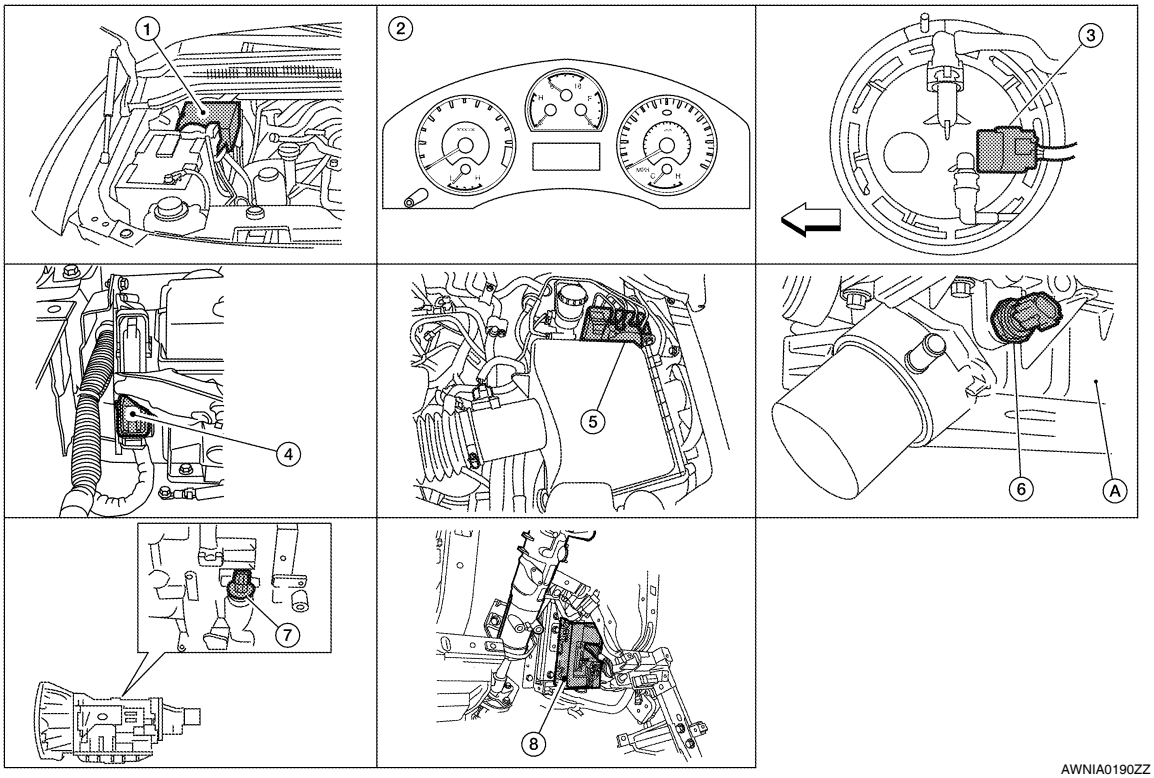
INFOID:0000000003790429

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:0000000004215488




1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed) C7 (with Flexible Fuel) C5 (without Flexible Fuel) ⇐: Front

4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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

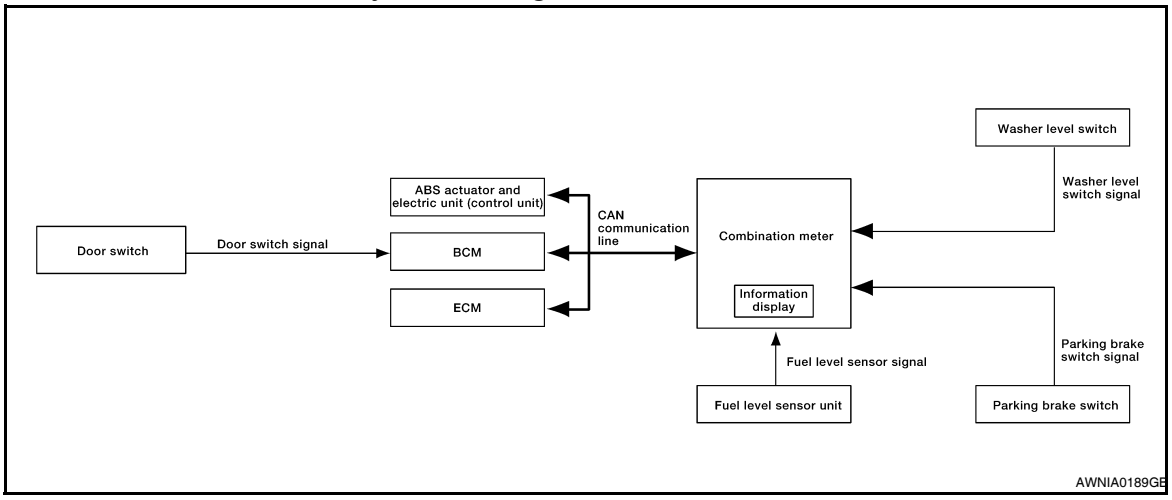
INFOID:0000000003790431

| 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. |

# INFORMATION DISPLAY

## INFORMATION DISPLAY : System Diagram

INFOID:0000000003790432




## INFORMATION DISPLAY : System Description

INFOID:0000000003790433

### 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)

### 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 to determine the amount of fuel in the fuel tank.

### 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 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.

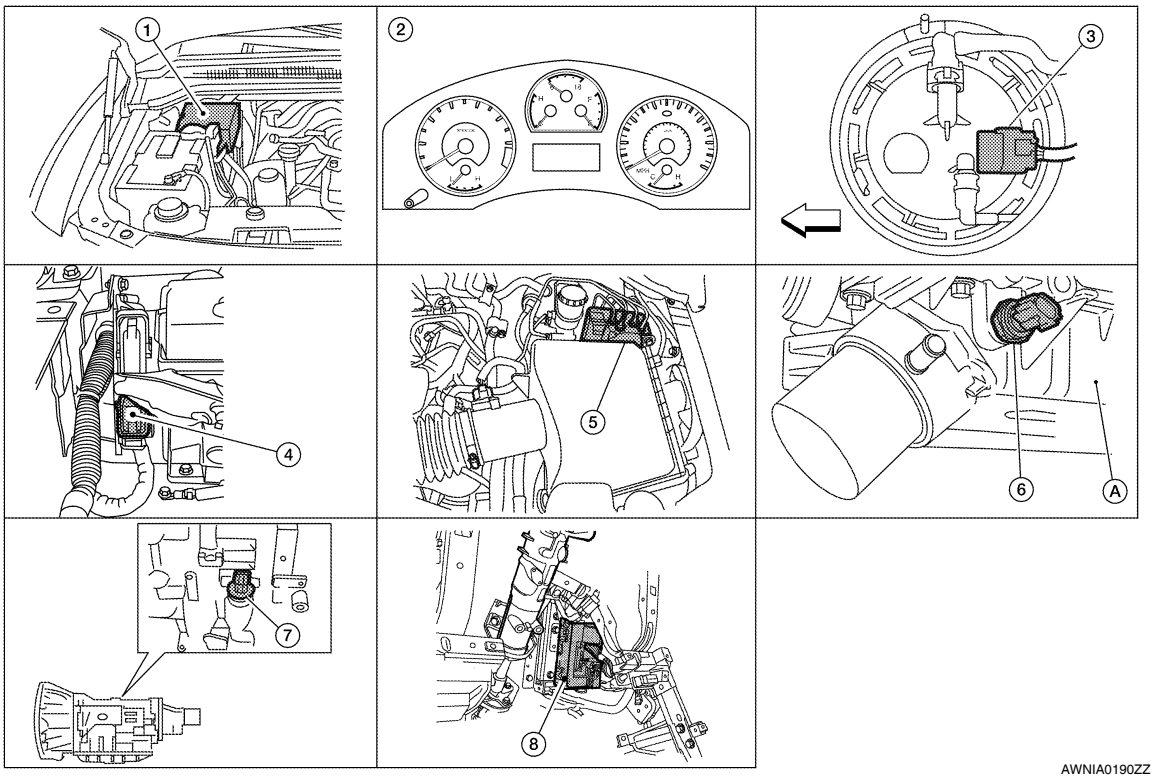
### PARKING BRAKE INDICATOR

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:0000000004215489




AWNIA0190ZZ

1. IPDM E/R E122, E124
2. Combination meter M24, M25
3. Fuel level sensor unit and fuel pump (view with fuel tank removed)
   C7 (with Flexible Fuel)
   C5 (without Flexible Fuel)
   ⇐: Front
4. ECM E16 (view with battery removed)
5. ABS actuator and electric unit (control unit)
   E126 (with VDC)
   E125 (without VDC)
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)

## INFORMATION DISPLAY : Component Description

INFOID:0000000003790435

| Unit | Description |
|---|---|
| Combination meter | Controls the information display according to the signal received from each unit. |
| Fuel level sensor unit | Refer to MWI-36, "Description". |
| ECM | Transmits the following signals to the combination meter via CAN communication line.<br>• Engine speed signal<br>• Fuel consumption monitor 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 level switch | Transmits the washer level signal to the combination meter. |
| Parking brake switch | Refer to MWI-40, "Description". |
| Door switch | Transmits the door switch signals to BCM. |

# COMPASS

## Description

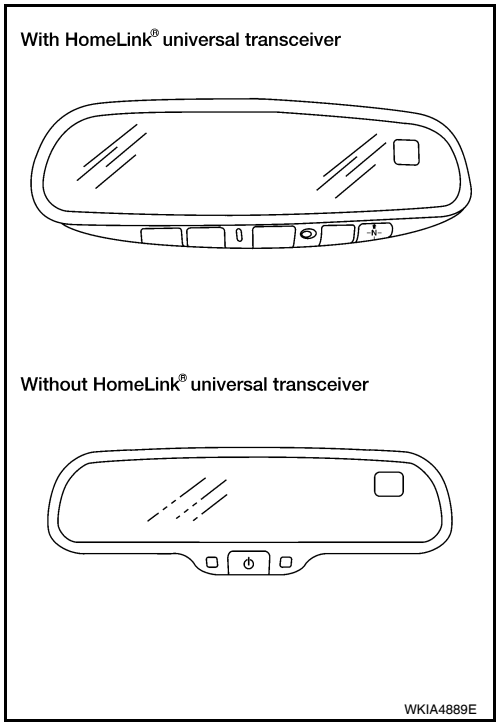
INFOID:0000000004244567

### 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:

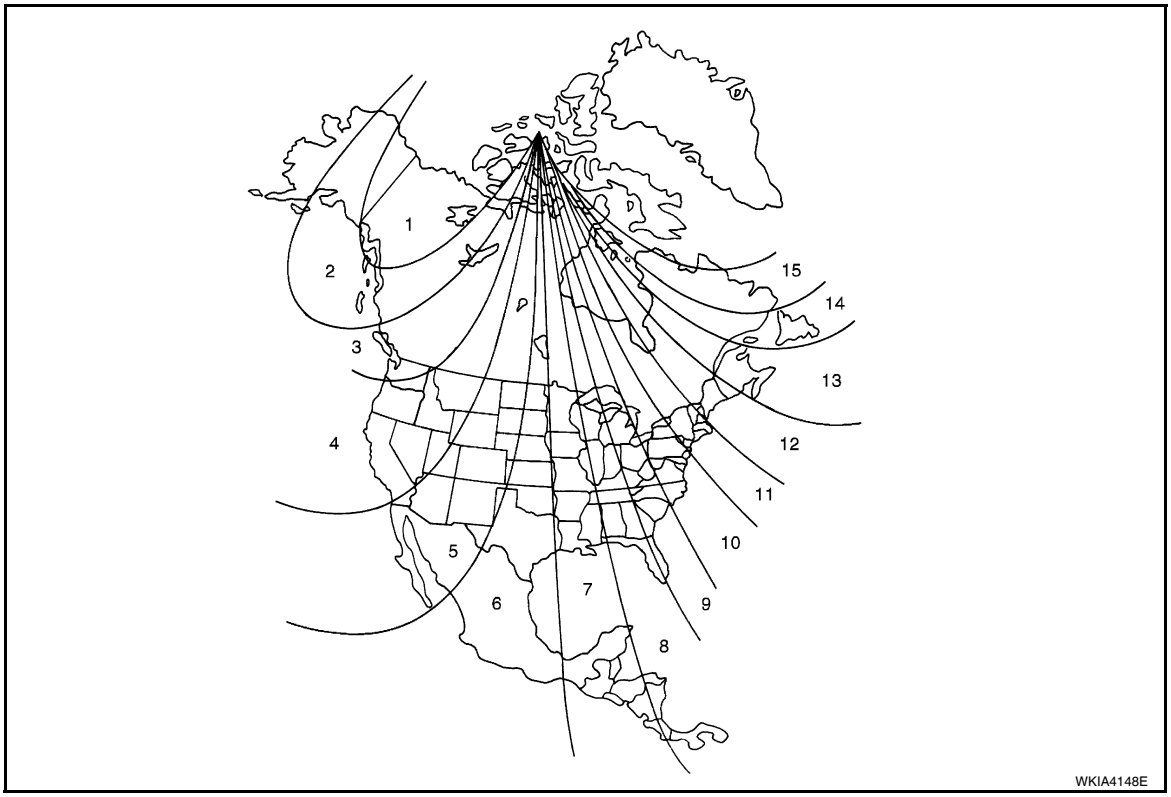
- N: north
- E: east
- S: south
- W: west




### 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



1. Determine your location on the zone map.
2. Turn the ignition switch to the ON position.
3. Press and hold the (N) switch for about 8 seconds (with HomeLink universal transceiver) or the mode switch for about 11 seconds (without HomeLink universal transceiver). The current zone number will appear 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.

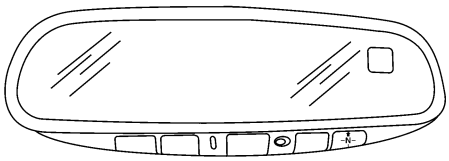
## CALIBRATION PROCEDURE

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.

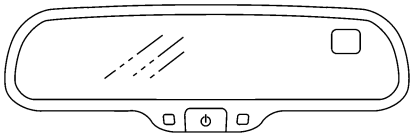
1. Press and hold the (N) switch for about 10 seconds (with HomeLink universal transceiver) or the mode switch for about 13 seconds (without HomeLink universal transceiver). The display will read “CAL”.
2. Drive the vehicle slowly in a circle, in an open, safe place. The initial calibration is completed in about 3 turns.

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

With HomeLink® universal transceiver



Without HomeLink® universal transceiver



WKIA4889E

# DIAGNOSIS SYSTEM (METER)

## Diagnosis Description

INFOID:0000000003790437

### 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.)

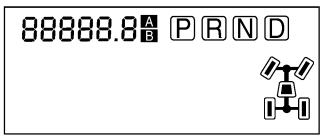
To initiate combination meter self-diagnosis mode, refer to the following procedure.

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-103, "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. | |

| 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<br>$2A = Canada |
| Switch pressed (3 times) | cYL XX through tF | N/A | |
| Switch pressed | ot1 XX | Displays oil pressure telltale “” in Hex format. | |
| Switch pressed | ot0 XX | Displays oil pressure telltale “” 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<br>010-254 = Normal range<br>255 = Open circuit |
| Switch pressed | F2XXX | Present FLPS. | 010-254 = Normal range |
| Switch pressed | XXXC | Last temperature gauge input value in degrees C. Temperature gauge indicates present temperature per indication standard. | Will display “---”C if message is not received.<br>Will display “999” if data received is invalid.<br>High = 130 deg C<br>Normal = 70 - 105 deg C<br>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<br>0 = Unbuckled |
| Switch pressed (33 times) | PA -XX through PA1-XX | N/A | |
| Switch pressed | GAGE | | Return to beginning of self-diagnosis cycle. |

## CONSULT-III Function (METER/M&A)

INFOID:0000000003790438

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

| METER/M&A diagnosis mode | Description |
|---|---|
| SELF-DIAG RESULTS | 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

Display Item List

Refer to MWI-65, "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. |
| FUEL METER [lit.] | X | X | Displays the value, which processes a resistance signal from fuel gauge. |
| W TEMP METER [°C] or [°F] | X | X | Displays the value of engine coolant temperature signal, which is input from ECM. |
| ABS W/L [ON/OFF] | | X | Displays [ON/OFF] condition of ABS warning lamp. |
| VDC/TCS IND [ON/OFF] | | X | Displays [ON/OFF] condition of VDC OFF indicator 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.* |
| DOOR W/L [ON/OFF] | | X | Displays [ON/OFF] condition of door warning lamp. |
| TRUNK W/L [ON/OFF] | | X | This item is not used for this model. “OFF” is always displayed. |
| 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. |
| C-ENG W/L [ON/OFF] | | X | Displays [ON/OFF] condition of malfunction indicator 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. |
| AT CHECK W/L [ON/OFF] | | X | Displays [ON/OFF] condition of AT CHECK warning lamp. |
| AIR PRES W/L [ON/OFF] | | X | Displays [ON/OFF] condition of tire pressure warning lamp. |
| KEY G/Y W/L [ON/OFF] | | X | This item is not used for this model. “OFF” is always displayed. |
| KEY R W/L [ON/OFF] | | X | This item is not used for this model. “OFF” is always displayed. |
| KEY KNOB W/L [ON/OFF] | | X | This item is not used for this model. “OFF” is always displayed. |
| 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. |
| DISTANCE [km] or [mile] | X | X | Displays the value, which is calculated by vehicle speed signal, fuel gauge and fuel consumption from ECM. |
| BUZZER [ON/OFF] | X | X | Displays [ON/OFF] condition of buzzer. |
| BRAKE SW [ON/OFF] | | X | Indicates [ON/OFF] condition of parking brake 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. |

| Display item [Unit] | MAIN SIGNALS | SELECTION FROM MENU | Description |
|---|---|---|---|
| 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 1range indicator. |
| 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. |
| SEAT BELT W/L [ON/OFF] | | X | Indicates [ON/OFF] condition of seat belt warning lamp. |

**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

# COMPONENT DIAGNOSIS

## DTC U1000 CAN COMMUNICATION

### DTC Logic

INFOID:0000000003790439

#### DTC DETECTION LOGIC

| DTC | CONSULT-III 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:0000000003790440

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

1.CHECK CAN COMMUNICATION

Select “SELF-DIAG RESULTS” mode for “METER/M&A” with CONSULT-III.

>> Go to “LAN system”. Refer to LAN-14, "Trouble Diagnosis Flow Chart".

# DTC B2205 VEHICLE SPEED CIRCUIT

## Description

INFOID:0000000003790441

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

## DTC Logic

INFOID:0000000003790442

| DTC | CONSULT-III 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:0000000003790443

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-III.
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.
- ABS: BRC-16, "CONSULT-III Function (ABS)"
- ABLS/ABS: BRC-78, "CONSULT-III Function (ABS)"
- VDC/TCS/ABS: BRC-164, "CONSULT-III Function (ABS)"

NO >> Replace combination meter. Refer to MWI-103, "Removal and Installation".

# POWER SUPPLY AND GROUND CIRCUIT
# COMBINATION METER

## COMBINATION METER : Diagnosis Procedure

INFOID:0000000003790444

### 1.CHECK FUSES

Check for blown combination meter fuses.

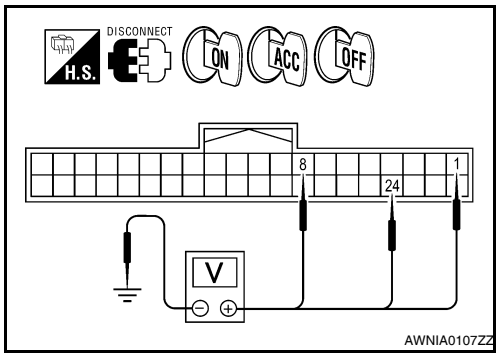
| Unit | Power source | Fuse No. |
|---|---|---|
| Combination meter | Battery | 3 |
| | Ignition switch ON or START | 14 |
| | Ignition switch ACC or ON | 4 |

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.



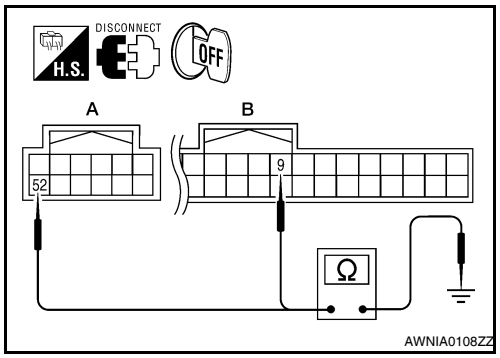

| Terminals | | | Ignition switch position | | | |
|---|---|---|---|---|---|---|
| (+) | | (–) | OFF | ACC | ON | START |
| Connector | Terminal | | | | | |
| M24 | 1 | Ground | 0V | Battery voltage | Battery voltage | 0V |
| | 8 | | Battery voltage | Battery voltage | Battery voltage | Battery voltage |
| | 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.
NO >> Check ground harness.

# BCM (BODY CONTROL MODULE)

## BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000004215413

### 1. CHECK FUSES AND FUSIBLE LINK

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

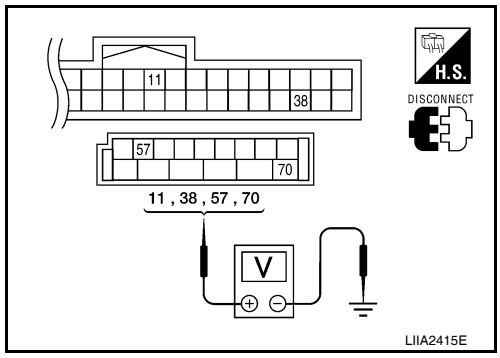
| Terminal No. | Signal name | Fuses and fusible link No. |
|---|---|---|
| 57 | Battery power supply | 22 (15A) |
| 70 | | F (50A) |
| 11 | Ignition ACC or ON | 4 (10A) |
| 38 | Ignition ON or START | 59 (10A) |

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.



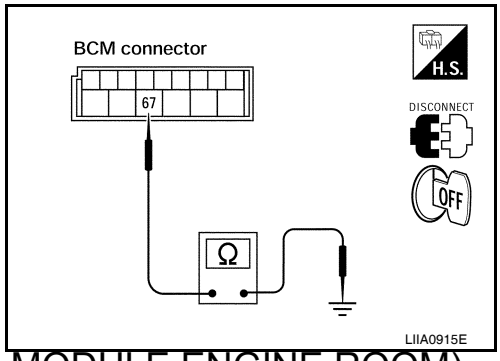

| Connector | Terminals (+) | Terminals (-) | Power source | Condition | Voltage (V) (Approx.) |
|---|---|---|---|---|---|
| M18 | 11 | Ground | ACC power supply | Ignition switch ACC or ON | Battery voltage |
| | 38 | Ground | Ignition power supply | Ignition switch ON or START | Battery voltage |
|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

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) : Di-

## agnosis Procedure

INFOID:0000000004215414

### 1. CHECK FUSES AND FUSIBLE LINK

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

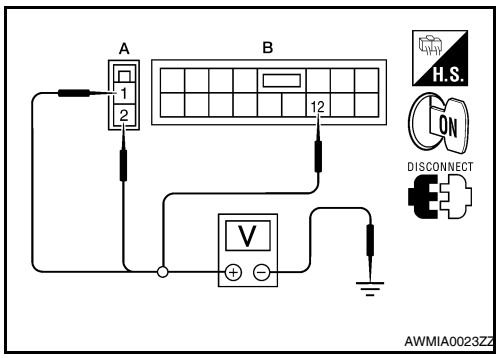
| Terminal No. | Signal name | Fuses and fusible link No. |
|---|---|---|
| 1 | Battery | A (140A), D (80A) |
| 2 | Battery | C (80A) |
| 12 | Ignition switch ON or START | 59 (10A) |

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.



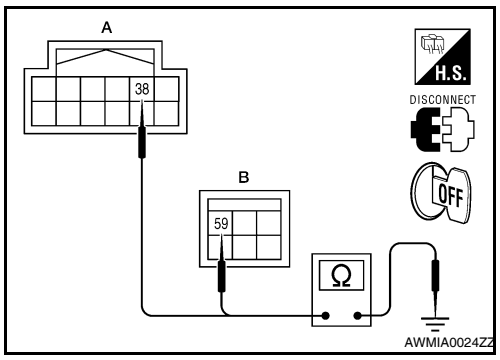

| Terminals | | | Ignition switch position | | |
|---|---|---|---|---|---|
| (+) | | (–) | OFF | ON | START |
| Connector | Terminal | | | | |
| E118 (A) | 1 | Ground | Battery voltage | Battery voltage | Battery voltage |
| | 2 | | Battery voltage | Battery voltage | Battery voltage |
| E119 (B) | 12 | | 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.
2. Check continuity between IPDM E/R harness connectors and ground.




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

Does continuity exist?

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

# FUEL LEVEL SENSOR SIGNAL CIRCUIT

## Description

INFOID:0000000003790447

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

## Component Function Check

INFOID:0000000003790448

### 1.COMBINATION METER INPUT SIGNAL

1. Select “METER/M&A” on CONSULT-III.
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-19, "Model Variation".

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

YES >> Inspection End.
NO >> Replace combination meter. Refer to MWI-103, "Removal and Installation".

## Diagnosis Procedure

INFOID:0000000003790449

### 1.CHECK HARNESS CONNECTOR

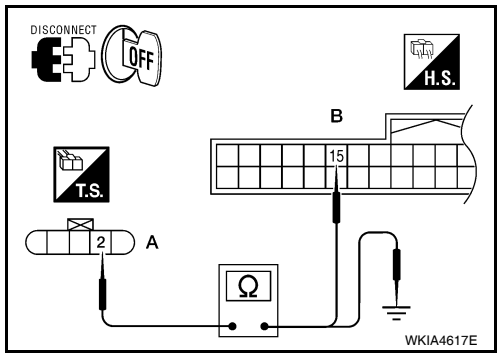
1. Turn ignition switch OFF.
2. Check combination meter and fuel level sensor unit terminals (meter-side and harness-side) for poor connection.

Is the inspection result normal?

YES >> GO TO 2
NO >> Repair or replace terminals or connectors.

### 2.CHECK FUEL LEVEL SENSOR UNIT CIRCUIT

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




| A | | B | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| C7 (with Flexible Fuel) C5 (without Flexible Fuel) | 2 | M24 | 15 | Yes |

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

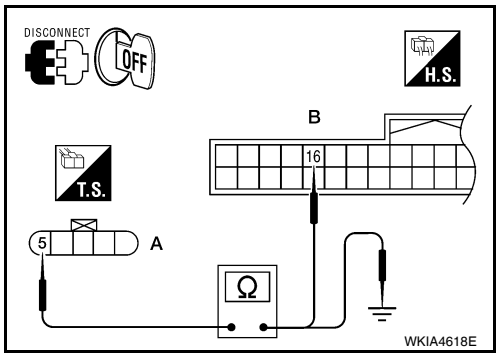
| A | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| C7 (with Flexible Fuel) C5 (without Flexible Fuel) | 2 | | No |

Is the inspection result normal?

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

## 3.CHECK FUEL LEVEL SENSOR UNIT GROUND CIRCUIT

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




| A | | B | | Continuity |
|---|---|---|---|---|
| Connector | Terminal | Connector | Terminal | |
| C7 (with Flexible Fuel) C5 (without Flexible Fuel) | 5 | M24 | 16 | Yes |

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

| A | | Ground | Continuity |
|---|---|---|---|
| Connector | Terminal | | |
| C7 (with Flexible Fuel) C5 (without Flexible Fuel) | 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 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 properly.

# Component Inspection

INFOID:0000000003790450

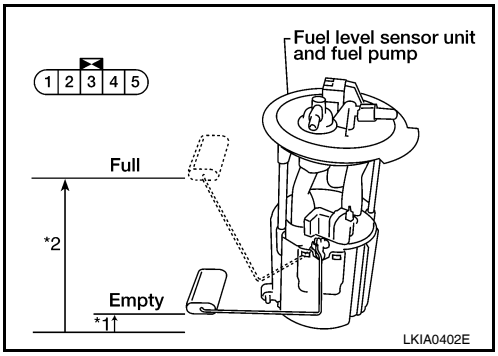
## 1.REMOVE FUEL LEVEL SENSOR UNIT

Remove the fuel level sensor unit. Refer to FL-12, "Removal and Installation".

>> GO TO 2

## 2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP

Check the resistance between terminals 2 and 5.




| Terminal | | Float position mm (in) | | | Resistance value (Approx.) |
|---|---|---|---|---|---|
| 2 | 5 | *1 | Empty | 7.5 (0.3) | 80Ω |
| | | *2 | Full | 218.9 (8.6) | 6Ω |

*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. Refer to FL-12, "Removal and Installation".

# OIL PRESSURE SWITCH SIGNAL CIRCUIT

## Description

INFOID:0000000003790451

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

## Component Function Check

INFOID:0000000003790452

### 1.COMBINATION METER INPUT SIGNAL

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

**OIL W/L**

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

**When engine is running : OFF**

>> Inspection End.

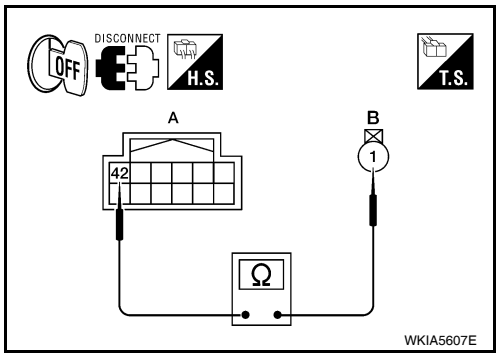
## Diagnosis Procedure

INFOID:0000000003790453

### 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 (A) terminal 42 and oil pressure switch harness connector F4 (B) terminal 1.

**Continuity should exist.**




Is the inspection result normal?

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

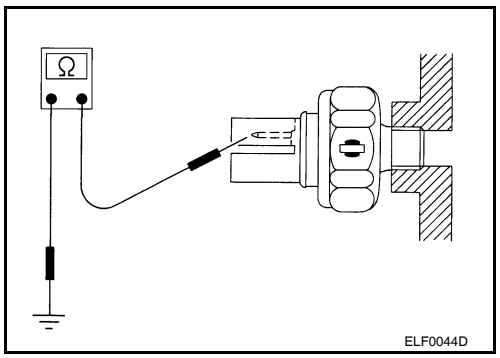
## Component Inspection

INFOID:0000000003790454

### 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?

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

# PARKING BRAKE SWITCH SIGNAL CIRCUIT

## Description

INFOID:0000000003790455

Transmits the parking brake switch signal to the combination meter.

## Component Function Check

INFOID:0000000003790456

### 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:0000000003790457

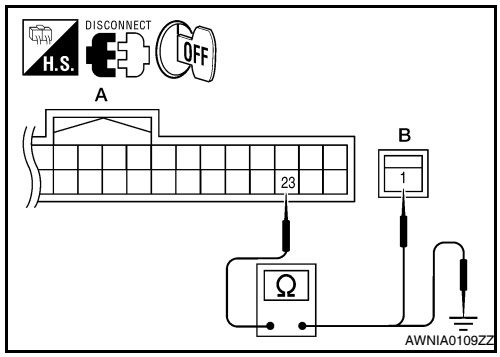
### 1.CHECK PARKING BRAKE SWITCH CIRCUIT

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.

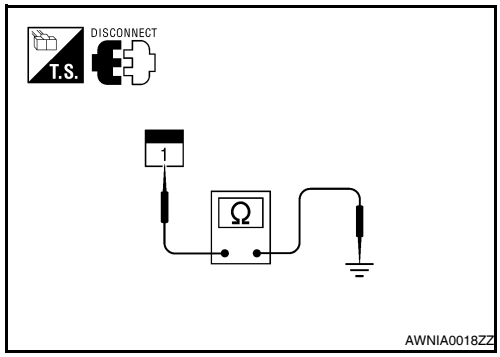
## Component Inspection

INFOID:0000000003790458

### 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

## Description

INFOID:0000000003790459

Transmits the washer level switch signal to the combination meter.

## Diagnosis Procedure

INFOID:0000000003790460

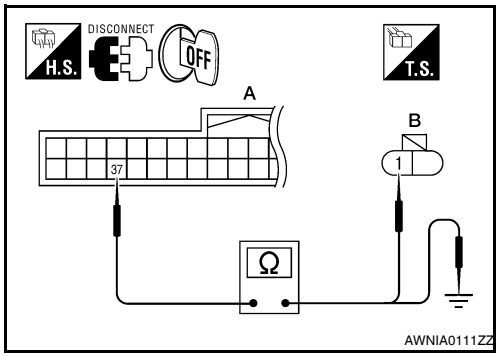
### 1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

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.**



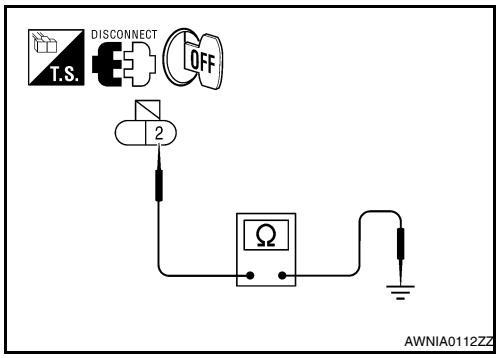

Is the inspection result normal?

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.

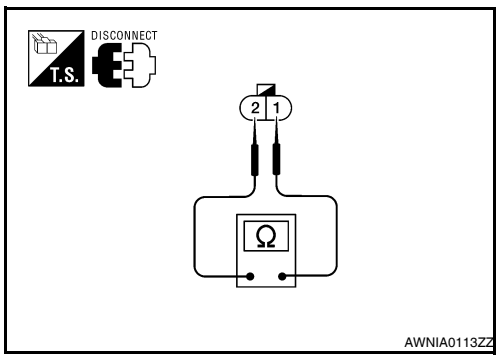
## Component Inspection

INFOID:0000000003790461

### 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?

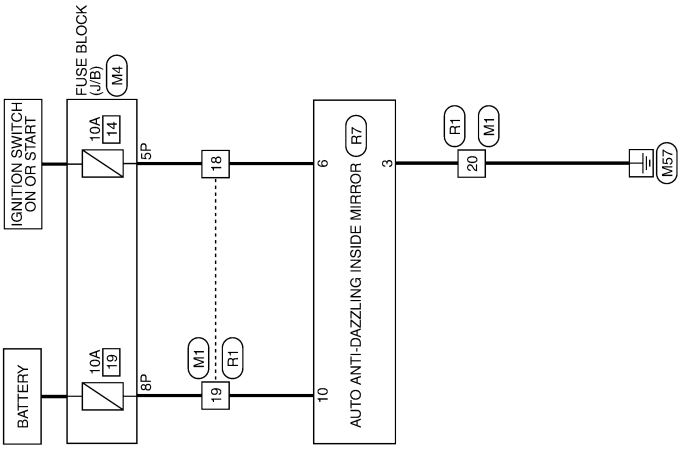
YES >> Inspection End.
NO >> Replace washer fluid level switch.

# COMPASS

## Wiring Diagram - With HomeLink® Universal Transceiver -

INFOID:0000000004244597

COMPASS - WITH HOMELINK UNIVERSAL TRANSCEIVER




AWNWA0034G

## COMPASS CONNECTORS - WITH HOMELINK UNIVERSAL TRANSCEIVER

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

H.S.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 18 | W/G | – |
| 19 | R/Y | – |
| 20 | B | – |

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

H.S.

| 7P | 6P | 5P | 4P | | 3P | 2P | 1P |
|---|---|---|---|---|---|---|---|
| 16P | 15P | 14P | 13P | 12P | 11P | 10P | 9P | 8P |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 5P | W/G | – |
| 8P | R/Y | – |

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

H.S.

| 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 18 | W/G | – |
| 19 | R/Y | – |
| 20 | B | – |

| Connector No. | R7 |
|---|---|
| Connector Name | AUTO ANTI-DAZZLING INSIDE MIRROR |
| Connector Color | BLACK |

H.S.

| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| 10 | 9 | 8 | 7 | 6 |

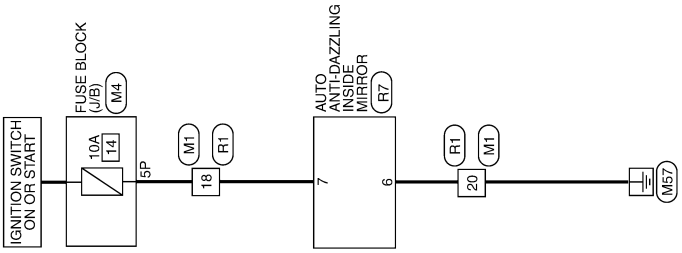
| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 3 | B | GND |
| 6 | W/G | IGN |
| 10 | R/Y | B |

AWNIA0391GB

# Wiring Diagram - Without HomeLink® Universal Transceiver -

INFOID:0000000004244598

COMPASS - WITHOUT HOMELINK UNIVERSAL TRANSCEIVER




AWNWA0035G

COMPASS CONNECTORS - WITHOUT HOMELINK UNIVERSAL TRANSCEIVER

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

H.S.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 18 | W/G | – |
| 20 | B | – |

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

H.S.

| 7P | 6P | 5P | 4P | 3P | 2P | 1P |
|---|---|---|---|---|---|---|
| 16P | 15P | 14P | 13P | 12P | 11P | 10P | 9P | 8P |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 5P | W/G | – |

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

H.S.

| 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 18 | W/G | – |
| 20 | B | – |

| Connector No. | R7 |
|---|---|
| Connector Name | AUTO ANTI-DAZZLING INSIDE MIRROR |
| Connector Color | RED |

H.S.

| 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 6 | B | GND |
| 7 | W/G | IGN |

AWNIA0392GB

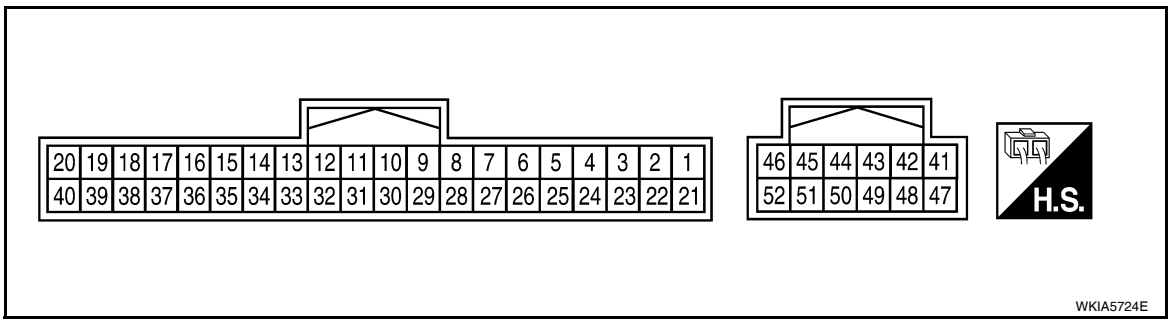
# ECU DIAGNOSIS

## COMBINATION METER

### Reference Value

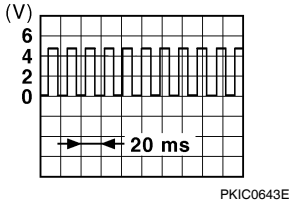
INFOID:0000000003790463

#### 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*1 | Battery power supply | — | — | Battery voltage |
| 8 | P*2 | 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 |
| 17 | R/G | Stop lamp switch | — | Brake pedal depressed | Battery voltage |
| | | | | Brake pedal released | 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 |

| 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).   PKIC0643E |
| 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 |

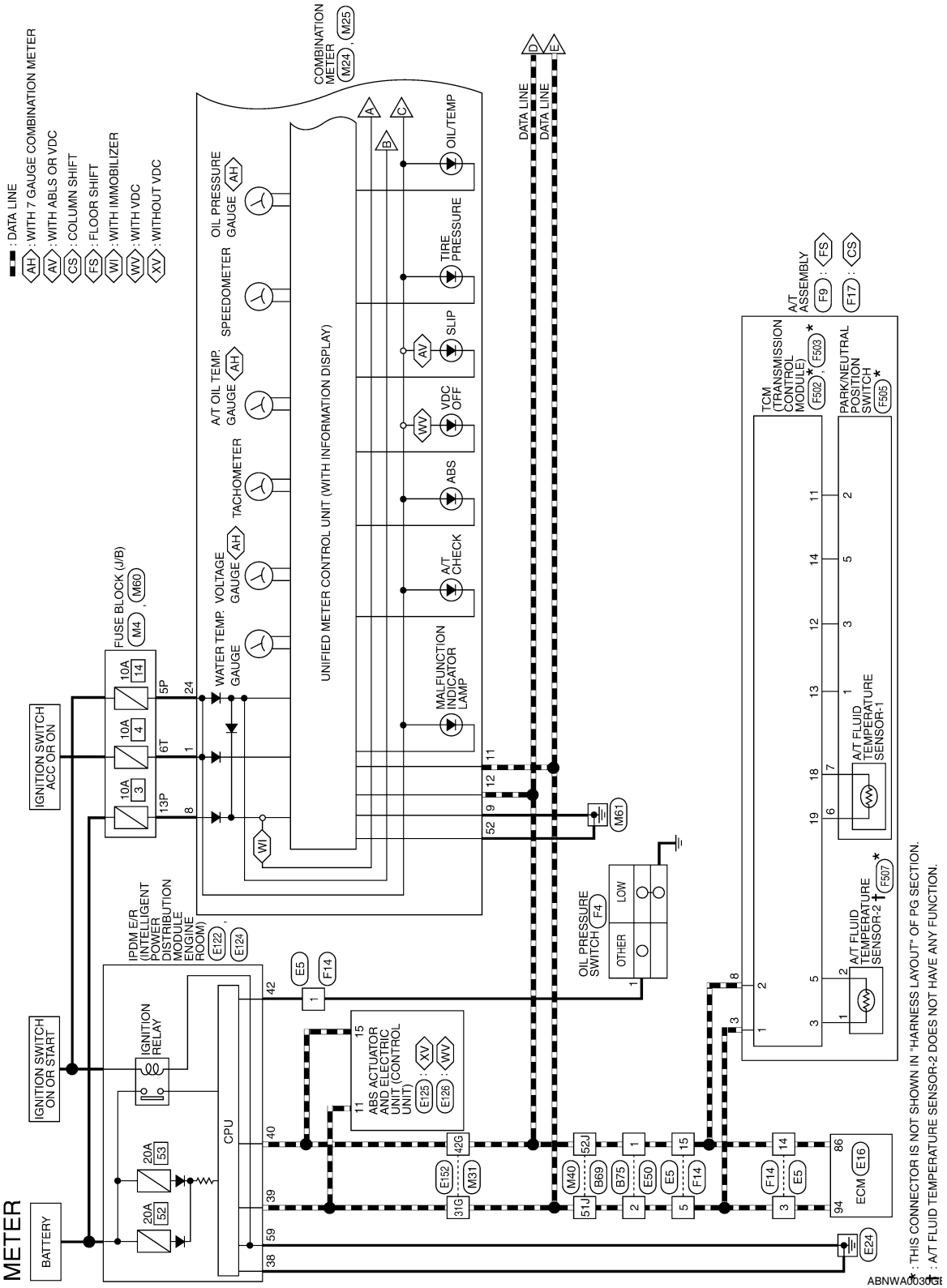
**NOTE:**

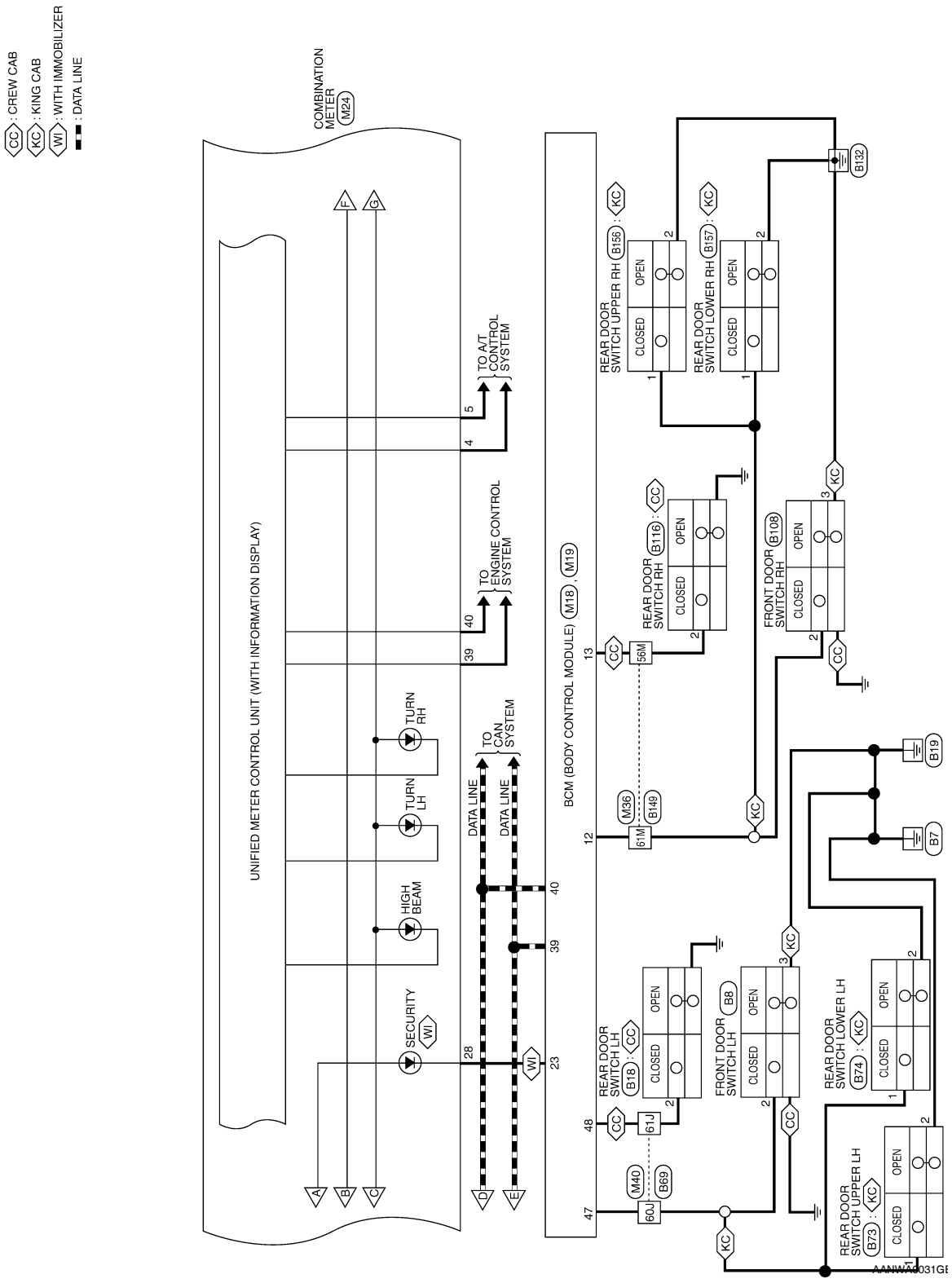
*1: With Type A main harness. For definition of Type A main harness, refer to PG-38, "Harness Layout".

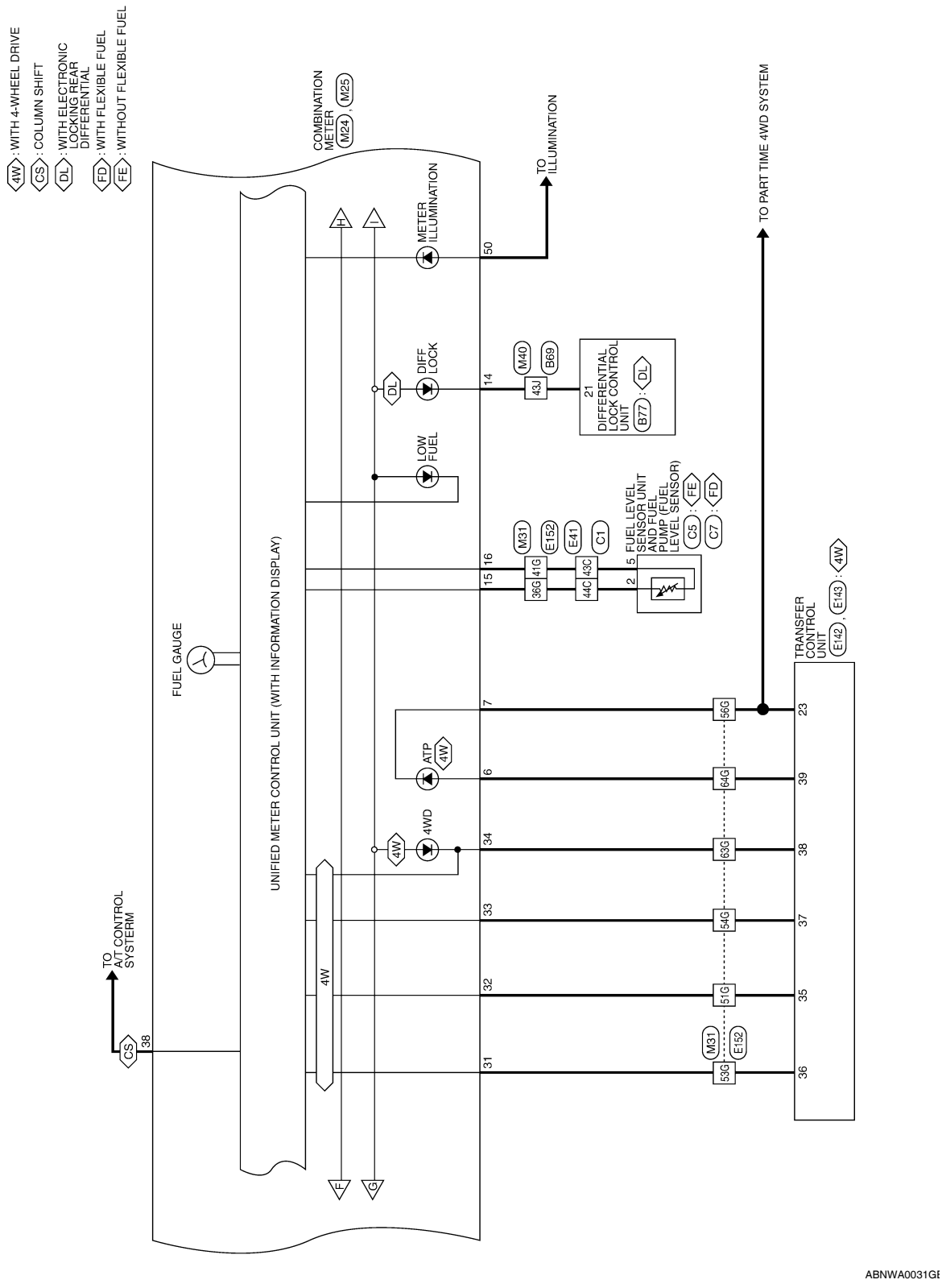
*2: With Type B main harness. For definition of Type B main harness, refer to PG-38, "Harness Layout".

## Wiring Diagram

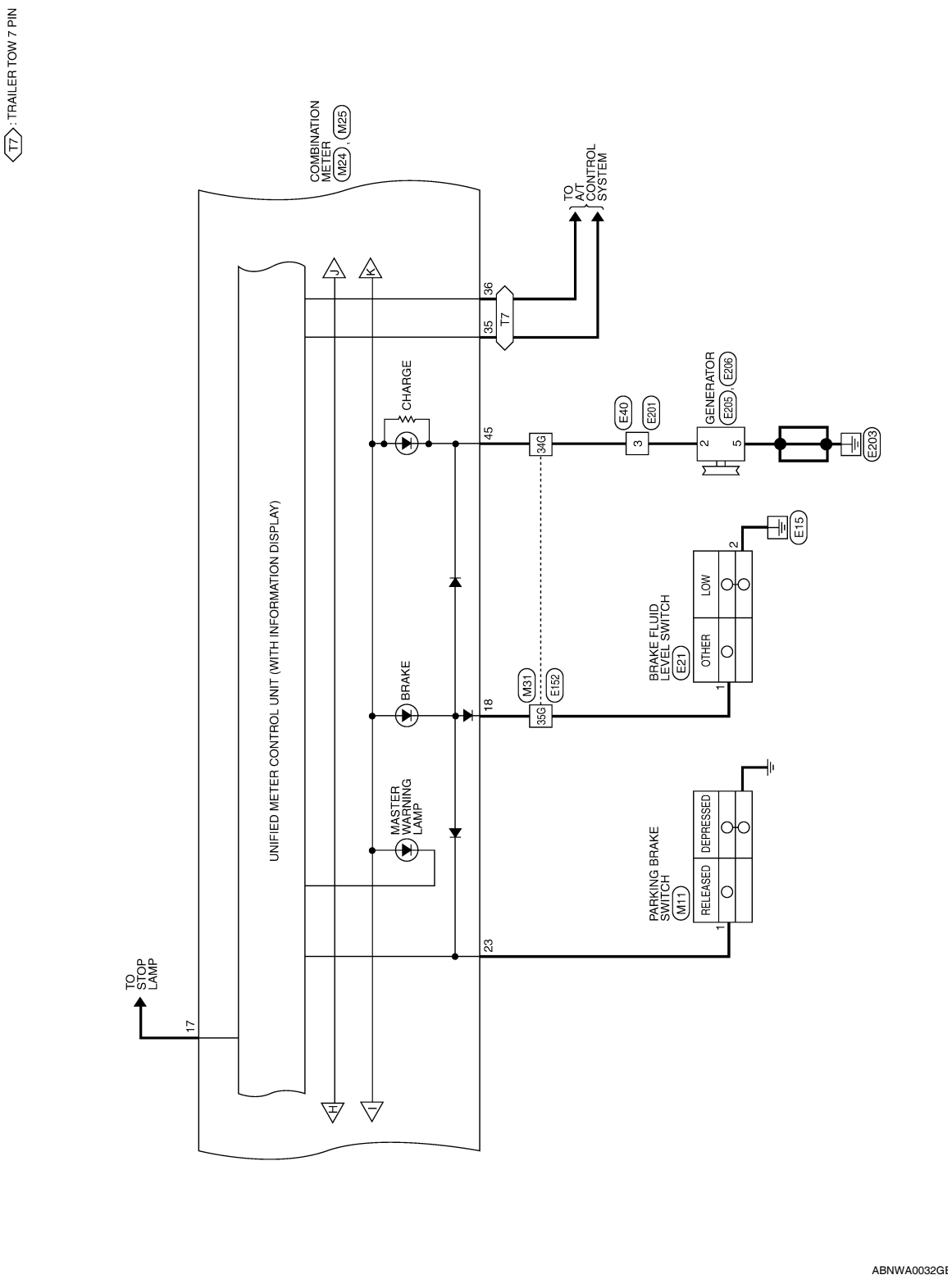
INFOID:0000000003790464



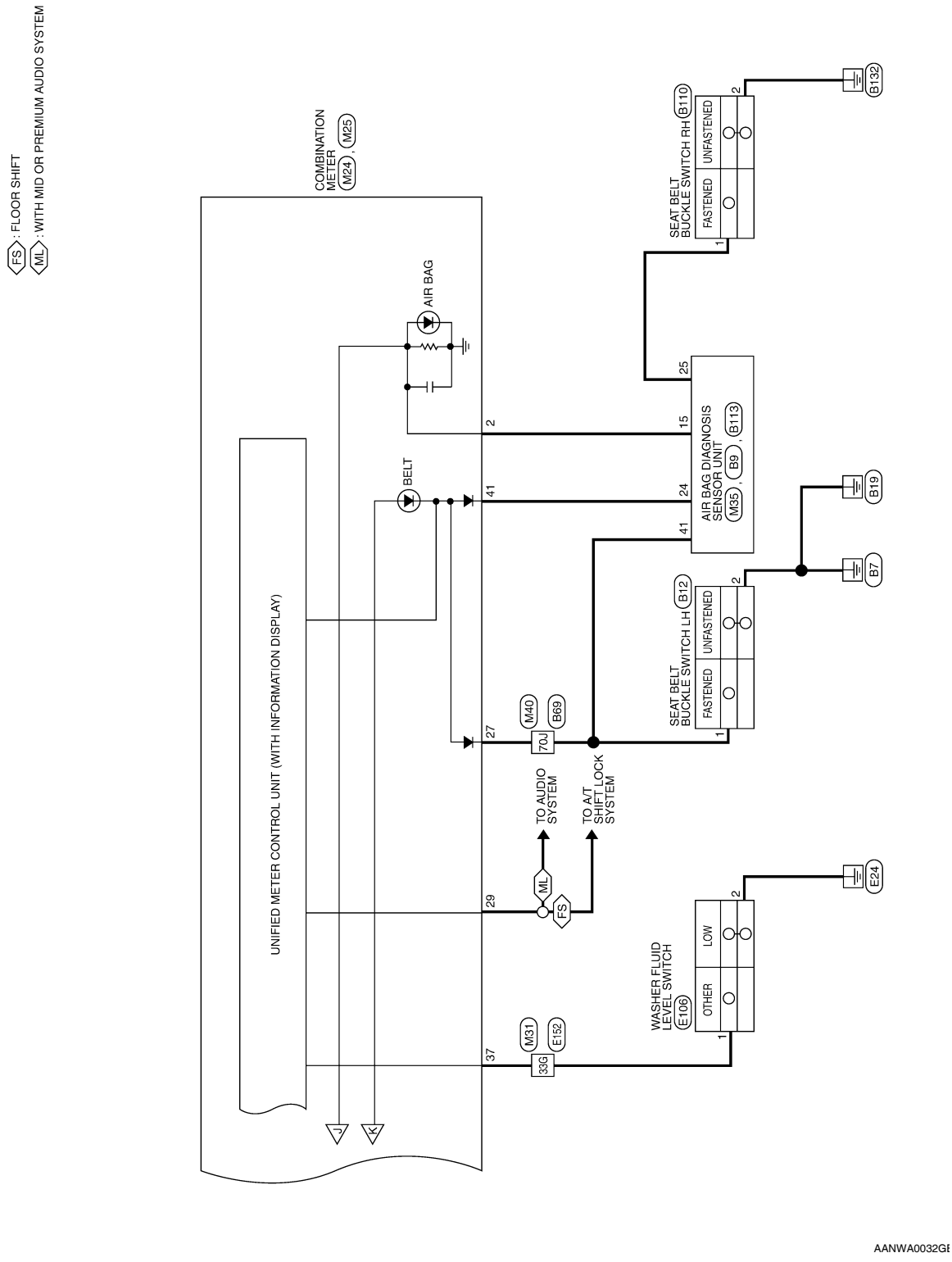

CC : CREW CAB
KC : KING CAB
WI : WITH IMMOBILIZER
: DATA LINE
COMBINATION METER (M24)
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
BCM (BODY CONTROL MODULE) (M18), (M19)
TO A/T CONTROL SYSTEM
TO ENGINE CONTROL SYSTEM
TO CAN SYSTEM
DATA LINE
TURN RH
TURN LH
HIGH BEAM
SECURITY
REAR DOOR SWITCH UPPER RH (B156) : KC
REAR DOOR SWITCH LOWER RH (B157) : KC
REAR DOOR SWITCH RH (B116) : CC
FRONT DOOR SWITCH RH (B108)
REAR DOOR SWITCH LH (B18) : CC
FRONT DOOR SWITCH LH (B8)
REAR DOOR SWITCH LOWER LH (B74) : KC
REAR DOOR SWITCH UPPER LH (B73) : KC
CLOSED
OPEN
AANWA0031GB




ABNWA0031GB

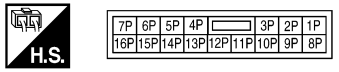



ABNWA0032GB


FS : FLOOR SHIFT
ML : WITH MID OR PREMIUM AUDIO SYSTEM
COMBINATION METER (M24), (M25)
AIR BAG
BELT
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
J
K
2
41
27
29
37
SEAT BELT BUCKLE SWITCH RH (B110)
FASTENED
UNFASTENED
SEAT BELT BUCKLE SWITCH LH (B12)
AIR BAG DIAGNOSIS SENSOR UNIT (M35), (B9), (B113)
25
15
24
41
M40
B69
70J
M31
E152
33G
TO AUDIO SYSTEM
TO A/T SHIFT LOCK SYSTEM
ML
FS
WASHER FLUID LEVEL SWITCH (E106)
OTHER
LOW
B132
B19
B7
E24
AANWA0032GB

## METER CONNECTORS

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

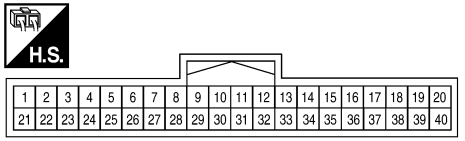



| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 5P | O/L | – |
| 13P | P | – |

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

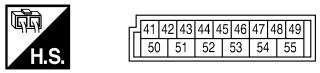

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | G | – |

| 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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| Connector No. | M24 |
|---|---|
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |

H.S.

| 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 1RANGE DN |
| 5 | SB | AT 4RANGE UP |
| 6 | L/B | ATP+ |
| 7 | R/B | ATP- |
| 8 | Y/R | BATTERY (TYPE A*) |
| 8 | P | BATTERY (TYPE B*) |
| 9 | B | GND |
| 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 | R/G | BRAKE PEDAL |
| 18 | P/B | BRAKE FLUID |
| 19 | – | – |
| 20 | – | – |
| 21 | – | – |
| 22 | – | – |
| 23 | G | PARK BRAKE |
| 24 | O/L | RUN START |
| 25 | – | – |
| 26 | – | – |
| 27 | O/B | SEATBELT |
| 28 | G/O | SECURITY |
| 29 | W/R | SPEED OUT |
| 30 | – | – |
| 31 | L | TF LOCK |
| 32 | B/W | TF 2WD |
| 33 | W/G | TF 4LO |
| 34 | W/B | TF 4WD |
| 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 |

| Connector No. | M25 |
|---|---|
| Connector Name | COMBINATION METER |
| Connector Color | WHITE |

H.S.

| 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 | – | – |
| 45 | BR/W | CHARGE IN |
| 46 | – | – |
| 47 | – | – |
| 48 | – | – |
| 49 | – | – |
| 50 | BR | ILL LED CON OUTPUT |
| 51 | – | – |
| 52 | B | ILL GND |

*: REFER TO HARNESS LAYOUT OF PG SECTION FOR DEFINITION OF TYPE A AND TYPE B.

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

H.S.

| 5G | 4G | 3G | 2G | 1G |
|---|---|---|---|---|
| | 9G | 8G | 7G | 6G |
| 10G | | | | |

| 21G | 20G | 19G | 18G | 17G | 16G | 15G | 14G | 13G | 12G | 11G |
|---|---|---|---|---|---|---|---|---|---|---|
| | 30G | 29G | 28G | 27G | 26G | 25G | 24G | 23G | 22G | |

| 41G | 40G | 39G | 38G | 37G | 36G | 35G | 34G | 33G | 32G | 31G |
|---|---|---|---|---|---|---|---|---|---|---|
| | 50G | 49G | 48G | 47G | 46G | 45G | 44G | 43G | 42G | |

| 61G | 60G | 59G | 58G | 57G | 56G | 55G | 54G | 53G | 52G | 51G |
|---|---|---|---|---|---|---|---|---|---|---|
| | 70G | 69G | 68G | 67G | 66G | 65G | 64G | 63G | 62G | |

| 75G | 74G | 73G | 72G | 71G |
|---|---|---|---|---|
| | 80G | 79G | 78G | 77G | 76G |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 31G | L | – |
| 33G | W/L | – |
| 34G | BR/W | – |
| 35G | P/B | – |
| 36G | Y/L | – |
| 41G | B/P | – |
| 42G | P | – |
| 51G | B/W | – |
| 53G | L | – |
| 54G | W/G | – |
| 56G | R/B | – |
| 63G | W/B | – |
| 64G | L/B | – |

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

H.S.

| 20 | 21 | | | | | | | 24 | 49 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 11 | 46 | 48 | 47 | 45 | | 3 | 4 | 6 | 5 |
| 16 | 12 | | 15 | 14 | | | 50 | 18 | 52 | 2 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 15 | P | WARN LAMP |
| 24 | P/L | SEATBELT MINDER |

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

H.S.

| 5M | 4M | 3M | 2M | 1M |
|---|---|---|---|---|
| | 9M | 8M | 7M | 6M |
| 10M | | | | |

| 21M | 20M | 19M | 18M | 17M | 16M | 15M | 14M | 13M | 12M | 11M |
|---|---|---|---|---|---|---|---|---|---|---|
| | 30M | 29M | 28M | 27M | 26M | 25M | 24M | 23M | 22M | |

| 41M | 40M | 39M | 38M | 37M | 36M | 35M | 34M | 33M | 32M | 31M |
|---|---|---|---|---|---|---|---|---|---|---|
| | 50M | 49M | 48M | 47M | 46M | 45M | 44M | 43M | 42M | |

| 61M | 60M | 59M | 58M | 57M | 56M | 55M | 54M | 53M | 52M | 51M |
|---|---|---|---|---|---|---|---|---|---|---|
| | 70M | 69M | 68M | 67M | 66M | 65M | 64M | 63M | 62M | |

| 75M | 74M | 73M | 72M | 71M |
|---|---|---|---|---|
| | 80M | 79M | 78M | 77M | 76M |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 56M | GR | – |
| 61M | R/L | – |

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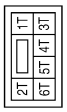
| Connector No. | M60 |
|---|---|
| Connector Name | FUSE BLOCK (J/B) |
| Connector Color | WHITE |

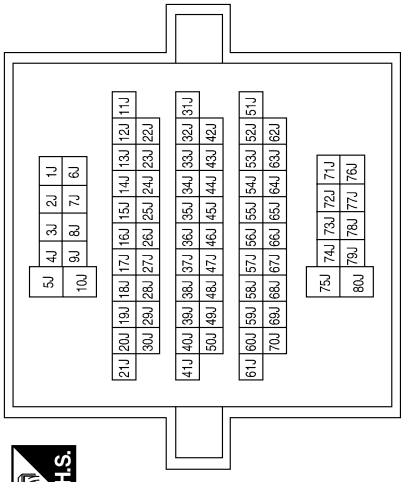
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 6T | O | – |

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

H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 43J | L | – |
| 51J | L | – |
| 52J | P | – |
| 60J | SB | – |
| 61J | R/Y | – |
| 70J | O/B | – |

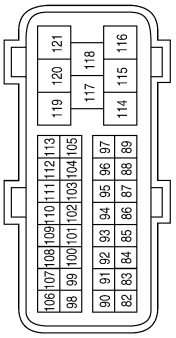
| Connector No. | E21 |
|---|---|
| Connector Name | BRAKE FLUID LEVEL SWITCH |
| Connector Color | GRAY |

H.S.


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | P/B | – |
| 2 | B | – |

| Connector No. | E16 |
|---|---|
| Connector Name | ECM |
| Connector Color | BLACK |

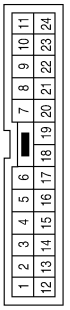
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 86 | P | CAN-L |
| 94 | L | CAN-H |

| Connector No. | E5 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |

H.S.




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

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

H.S.




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

| Connector No. | E41 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Color | GRAY |

H.S.




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

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

H.S.




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

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

H.S.




| 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. | E40 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Color | BLACK |

H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 3 | BR/W | – |

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

H.S.




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

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| Connector No. | E125 |
|---|---|
| Connector Name | ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITHOUT VDC) |
| Connector Color | BLACK |

H.S.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | |
| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |

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

| Connector No. | E126 |
|---|---|
| Connector Name | ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (WITH VDC) |
| Connector Color | BLACK |

H.S.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | |
| 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 |

| 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 |

H.S.

| 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|
| 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 |
| 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 23 | R/B | ATP SW |

| Connector No. | E143 |
|---|---|
| Connector Name | TRANSFER CONTROL UNIT |
| Connector Color | WHITE |

H.S.

| 32 | 31 | 30 | 29 | 28 | 27 |
|---|---|---|---|---|---|
| 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| 50 | 49 | 48 | 47 | 46 | 45 | 44 | 43 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 35 | B/W | 2WD IND |
| 36 | L | LOCK IND |
| 37 | W/G | 4LD IND |
| 38 | W/B | 4WD FAIL |
| 39 | L/B | ATP IND |

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

H.S.

| 1G | 2G | 3G | 4G | 5G |
|---|---|---|---|---|
| 6G | 7G | 8G | 9G | 10G |

| 11G | 12G | 13G | 14G | 15G | 16G | 17G | 18G | 19G | 20G | 21G |
|---|---|---|---|---|---|---|---|---|---|---|
| 22G | 23G | 24G | 25G | 26G | 27G | 28G | 29G | 30G |
| 31G | 32G | 33G | 34G | 35G | 36G | 37G | 38G | 39G | 40G | 41G |
| 42G | 43G | 44G | 45G | 46G | 47G | 48G | 49G | 50G |
| 51G | 52G | 53G | 54G | 55G | 56G | 57G | 58G | 59G | 60G | 61G |
| 62G | 63G | 64G | 65G | 66G | 67G | 68G | 69G | 70G |
| 71G | 72G | 73G | 74G | 75G |
| 76G | 77G | 78G | 79G | 80G |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 31G | L | – |
| 33G | W/L | – |
| 34G | BR/W | – |
| 35G | P/B | – |
| 36G | Y/L | – |
| 41G | B/P | – |
| 42G | P | – |
| 51G | B/W | – |
| 53G | L | – |
| 54G | W/G | – |
| 56G | R/B | – |
| 63G | W/B | – |
| 64G | L/B | – |

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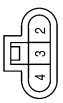
| Connector No. | E206 |
|---|---|
| Connector Name | GENERATOR |
| Connector Color | – |

H.S.


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 5 | B | – |

| Connector No. | E205 |
|---|---|
| Connector Name | GENERATOR |
| Connector Color | BLACK |

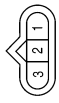
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 2 | BR/W | – |

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

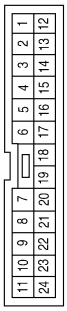
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 3 | BR/W | – |

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

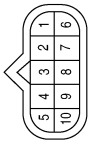
H.S.




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

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

H.S.




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

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

H.S.


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | GR | – |

ABNIA0071GB

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

H.S.

| 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|
| 10 | 9 | 8 | 7 | 6 |

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

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

H.S.

| 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | B/R | CAN-H |
| 2 | L/Y | CAN-L |
| 3 | W/Y | ATF SENS 2- |
| 5 | W/R | ATF SENS 2+ |

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

H.S.

| 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 |
|---|---|---|---|---|---|---|---|---|---|

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 11 | W | INH-SW4 |
| 12 | GR | INH-SW2 |
| 13 | BR | INH-SW1 |
| 14 | L | INH-SW3 |
| 18 | O | ATF SENS 1- |
| 19 | G | ATF SENS 1+ |

| Connector No. | F505 |
|---|---|
| Connector Name | PARK/NEUTRAL POSTION SWITCH |
| Connector Color | GRAY |

H.S.

| 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | BR | S1 |
| 2 | W | S4 |
| 3 | GR | S2 |
| 5 | L | S3 |
| 6 | G | – |
| 7 | O | – |

| Connector No. | F507 |
|---|---|
| Connector Name | A/T FLUID TEMPERATURE SENSOR-2 |
| Connector Color | WHITE |

H.S.

| 2 | 1 |
|---|---|

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | W/Y | – |
| 2 | W/R | – |

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

H.S.

| 5C | | 4C | 3C | 2C | | 1C |
|---|---|---|---|---|---|---|
| 11C | 10C | 9C | | 8C | 7C | 6C |

| 21C | 20C | 19C | 18C | 17C | 16C | 15C | 14C | 13C | 12C |
|---|---|---|---|---|---|---|---|---|---|
| 31C | 30C | 29C | 28C | 27C | 26C | 25C | 24C | 23C | 22C |
| 41C | 40C | 39C | 38C | 37C | 36C | 35C | 34C | 33C | 32C |
| 47C | 46C | 45C | | | | 44C | 43C | 42C | |
| 52C | | | | 51C | 50C | 49C | | 48C | |

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

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| Connector No. | C5 |
|---|---|
| Connector Name | FUEL LEVEL SENSOR UNIT AND FUEL PUMP (WITHOUT FLEXIBLE FUEL) |
| Connector Color | GRAY |


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

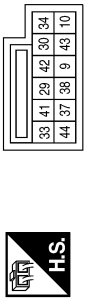
| Connector No. | C7 |
|---|---|
| Connector Name | FUEL LEVEL SENSOR UNIT AND FUEL PUMP (WITH FLEXIBLE FUEL) |
| Connector Color | GRAY |


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

| 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. | B9 |
|---|---|
| Connector Name | AIR BAG DIAGNOSIS SENSOR UNIT |
| Connector Color | YELLOW |




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 41 | O/B | BUCKLE SW LH |

| Connector No. | B12 |
|---|---|
| Connector Name | SEAT BUCKLE SWITCH LH |
| Connector Color | WHITE |


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

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


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

ABNIA0073GB

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

H.S.

| 1J | 2J | 3J | 4J | 5J |
|---|---|---|---|---|
| 6J | 7J | 8J | 9J | 10J |

| 11J | 12J | 13J | 14J | 15J | 16J | 17J | 18J | 19J | 20J | 21J |
|---|---|---|---|---|---|---|---|---|---|---|
| | 22J | 23J | 24J | 25J | 26J | 27J | 28J | 29J | 30J | |

| 31J | 32J | 33J | 34J | 35J | 36J | 37J | 38J | 39J | 40J | 41J |
|---|---|---|---|---|---|---|---|---|---|---|
| | 42J | 43J | 44J | 45J | 46J | 47J | 48J | 49J | 50J | |

| 51J | 52J | 53J | 54J | 55J | 56J | 57J | 58J | 59J | 60J | 61J |
|---|---|---|---|---|---|---|---|---|---|---|
| | 62J | 63J | 64J | 65J | 66J | 67J | 68J | 69J | 70J | |

| 71J | 72J | 73J | 74J | 75J |
|---|---|---|---|---|
| 76J | 77J | 78J | 79J | 80J |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 43J | L | – |
| 51J | L | – |
| 52J | P | – |
| 60J | SB | – |
| 61J | R/Y | – |
| 70J | O/B | – |

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

H.S.

2 1

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

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

H.S.

2 1

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

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

H.S.

1 2

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

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

H.S.

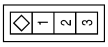
| 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 21 | L | IND |

ABNIA0074GB

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

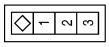
H.S.




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

| Connector No. | B110 |
|---|---|
| Connector Name | SEAT BELT BUCKLE SWITCH RH |
| Connector Color | WHITE |

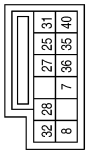
H.S.




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

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

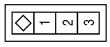
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 25 | L | BUCKLE SW RH |

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

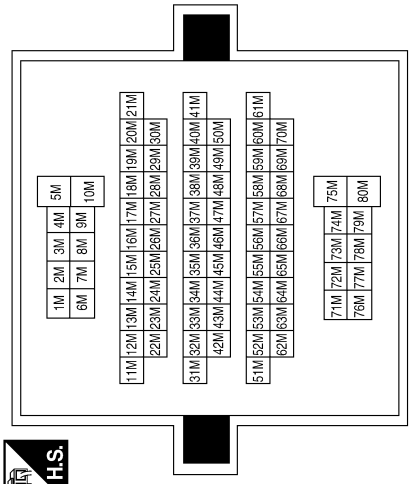
H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 2 | GR | – |

| Connector No. | B149 |
|---|---|
| Connector Name | WIRE TO WIRE |
| Connector Color | WHITE |

H.S.




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 56M | GR | – |
| 61M | R/L | – |

ABNIA0075GB

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

H.S.

| 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 |

H.S.

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

ABNIA0076GB

## Fail Safe

*INFOID:0000000003790465*

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. |
| 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 | |
| | Turn signal indicator lamp | |
| | Driver and passenger seat belt warning lamp | Lamp turns off when disconnected. |
| | 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:0000000003790466

| CONSULT-III display | Malfunction | Reference page |
|---|---|---|
| CAN COMM CIRC [U1000] | Malfunction is detected in CAN communication.<br>**CAUTION:**<br>**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. 3, 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.<br>**CAUTION:**<br>**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)

## Reference Value

INFOID:0000000004215466

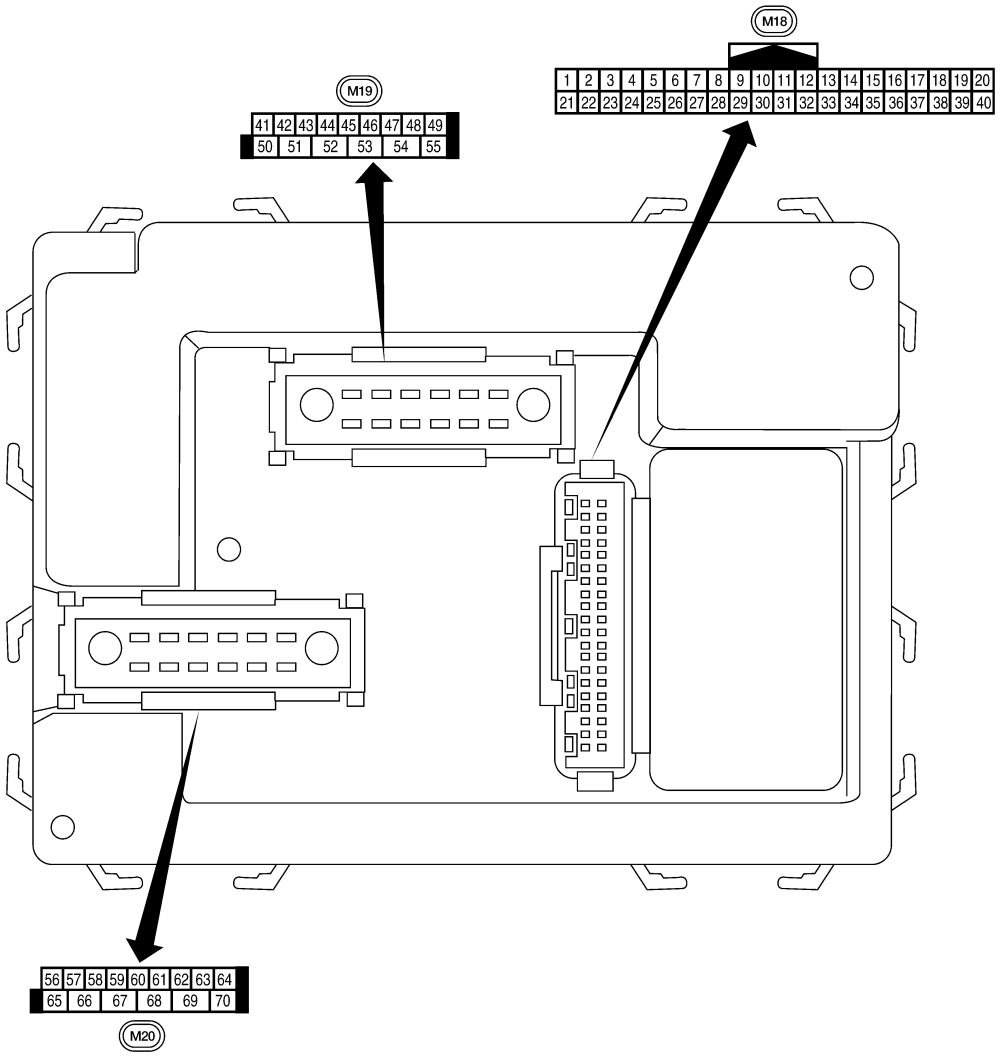
### VALUES ON THE DIAGNOSIS TOOL

| Monitor Item | Condition | Value/Status |
|---|---|---|
| AIR COND SW | A/C switch OFF | OFF |
| | A/C switch ON | ON |
| AUT LIGHT SYS | Outside of the room is dark | OFF |
| | Outside of the room is bright | ON |
| AUTO LIGHT SW | Lighting switch OFF | OFF |
| | Lighting switch AUTO | 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 |
| ENGINE RUN | Engine stopped | OFF |
| | Engine running | ON |
| FR FOG SW | Front fog lamp switch OFF | OFF |
| | Front fog lamp switch ON | ON |
| FR WASHER SW | Front washer switch OFF | OFF |
| | Front washer switch ON | ON |
| FR WIPER LOW | Front wiper switch OFF | OFF |
| | Front wiper switch LO | ON |
| FR WIPER HI | Front wiper switch OFF | OFF |
| | Front wiper switch HI | ON |
| FR WIPER INT | Front wiper switch OFF | OFF |
| | Front wiper switch INT | ON |
| FR WIPER STOP | Any position other than front wiper stop position | OFF |
| | Front wiper stop position | ON |
| HAZARD SW | When hazard switch is not pressed | OFF |
| | When hazard switch is pressed | ON |
| LIGHT SW 1ST | Lighting switch OFF | OFF |
| | Lighting switch 1st | ON |
| HEADLAMP SW1 | Headlamp switch OFF | OFF |
| | Headlamp switch 1st | ON |

| Monitor Item | Condition | Value/Status |
|---|---|---|
| HEADLAMP SW2 | Headlamp switch OFF | OFF |
| | Headlamp switch 1st | ON |
| HI BEAM SW | High beam switch OFF | OFF |
| | High beam switch HI | ON |
| H/L WASH SW | **NOTE:**<br>The item is indicated, but not monitored | OFF |
| IGN ON SW | Ignition switch OFF or ACC | OFF |
| | Ignition switch ON | ON |
| IGN SW CAN | Ignition switch OFF or ACC | OFF |
| | Ignition switch ON | ON |
| INT VOLUME | Wiper intermittent dial is in a dial position 1 - 7 | 1 - 7 |
| KEY ON SW | Key is removed from key cylinder | OFF |
| | 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 UNLOCK | UNLOCK button of key fob is not pressed | OFF |
| | UNLOCK button of key fob is pressed | ON |
| OIL PRESS SW | • Ignition switch OFF or ACC<br>• Engine running | OFF |
| | Ignition switch ON | ON |
| 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 |
| RKE LOCK AND UN-LOCK | **NOTE:**<br>The item is indicated, but not monitored | OFF |
| | | ON |
| TAIL LAMP SW | Lighting switch OFF | OFF |
| | Lighting switch 1ST | 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 |

## Terminal Layout

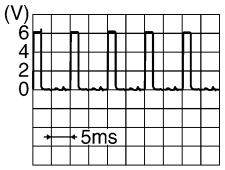
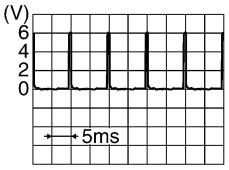
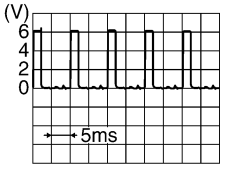
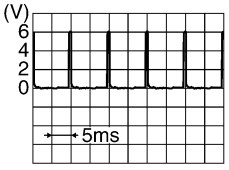
INFOID:0000000004215467

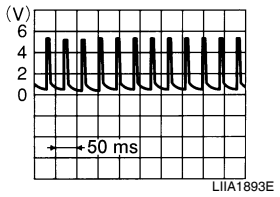
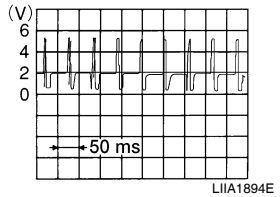
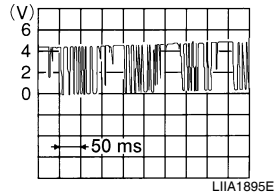
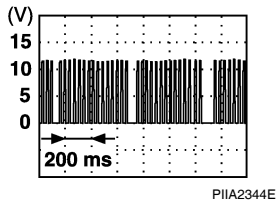


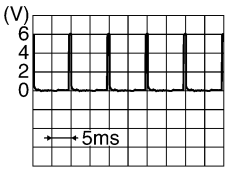
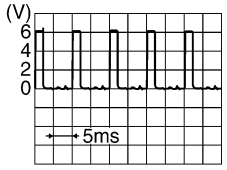
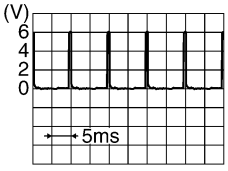

LIIA2443E

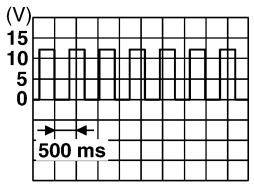
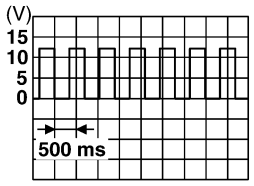
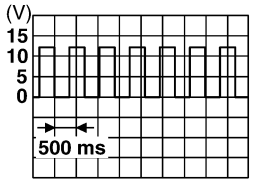
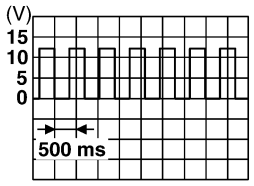
## Physical Values

INFOID:0000000004215468

| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | Reference value or waveform (Approx.) |
|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | |
| 1 | BR/W | Ignition keyhole illumination | Output | OFF | Door is locked (SW OFF) | Battery voltage |
| | | | | | Door is unlocked (SW OFF) | 0V |
| 2 | SB | Combination switch input 5 | Input | ON | Lighting, turn, wiper OFF<br>Wiper dial position 4 |  <br>SKIA5291E |
| 3 | G/Y | Combination switch input 4 | Input | ON | Lighting, turn, wiper OFF<br>Wiper dial position 4 |  <br>SKIA5292E |
| 4 | Y | Combination switch input 3 | Input | ON | Lighting, turn, wiper OFF<br>Wiper dial position 4 |  <br>SKIA5291E |
| 5 | G/B | Combination switch input 2 | Input | ON | Lighting, turn, wiper OFF<br>Wiper dial position 4 |  <br>SKIA5292E |
| 6 | V | Combination switch input 1 | | | | |
| 9 | Y/B | Rear window defogger switch (Crew Cab) | Input | ON | Rear window defogger switch ON | 0V |
| | | | | | Rear window defogger switch OFF | 5V |
| 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) | | | | |
| | | Rear door switch upper RH (King Cab) | | | OFF (closed) | Battery voltage |
| 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 |

| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | Reference value or waveform (Approx.) |
|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | |
| 18 | P | Remote keyless entry receiver and optical sensor (ground) | Output | OFF | — | 0V |
| 19 | V/W | Remote keyless entry receiver (power supply) | Output | OFF | Ignition switch OFF |  LIIA1893E |
| 20 | G/W | Remote keyless entry receiver (signal) | Input | OFF | Stand-by (keyfob buttons released) |  LIIA1894E |
| | | | | | When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed) |  LIIA1895E |
| 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 |  PIIA2344E |
| 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 |

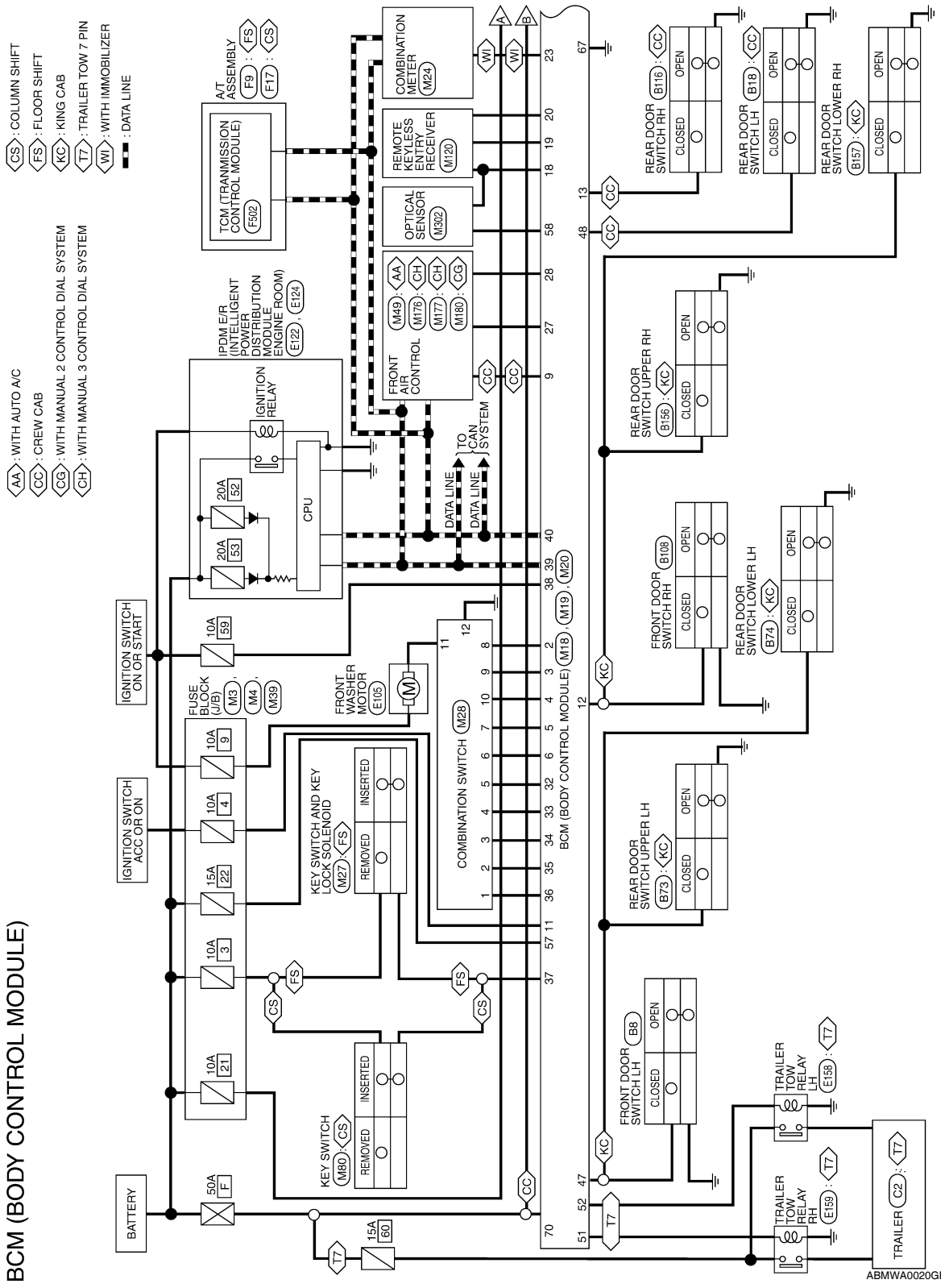
| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | Reference value or waveform (Approx.) |
|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | |
| 32 | R/G | Combination switch output 5 | Output | ON | Lighting, turn, wiper OFF<br>Wiper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

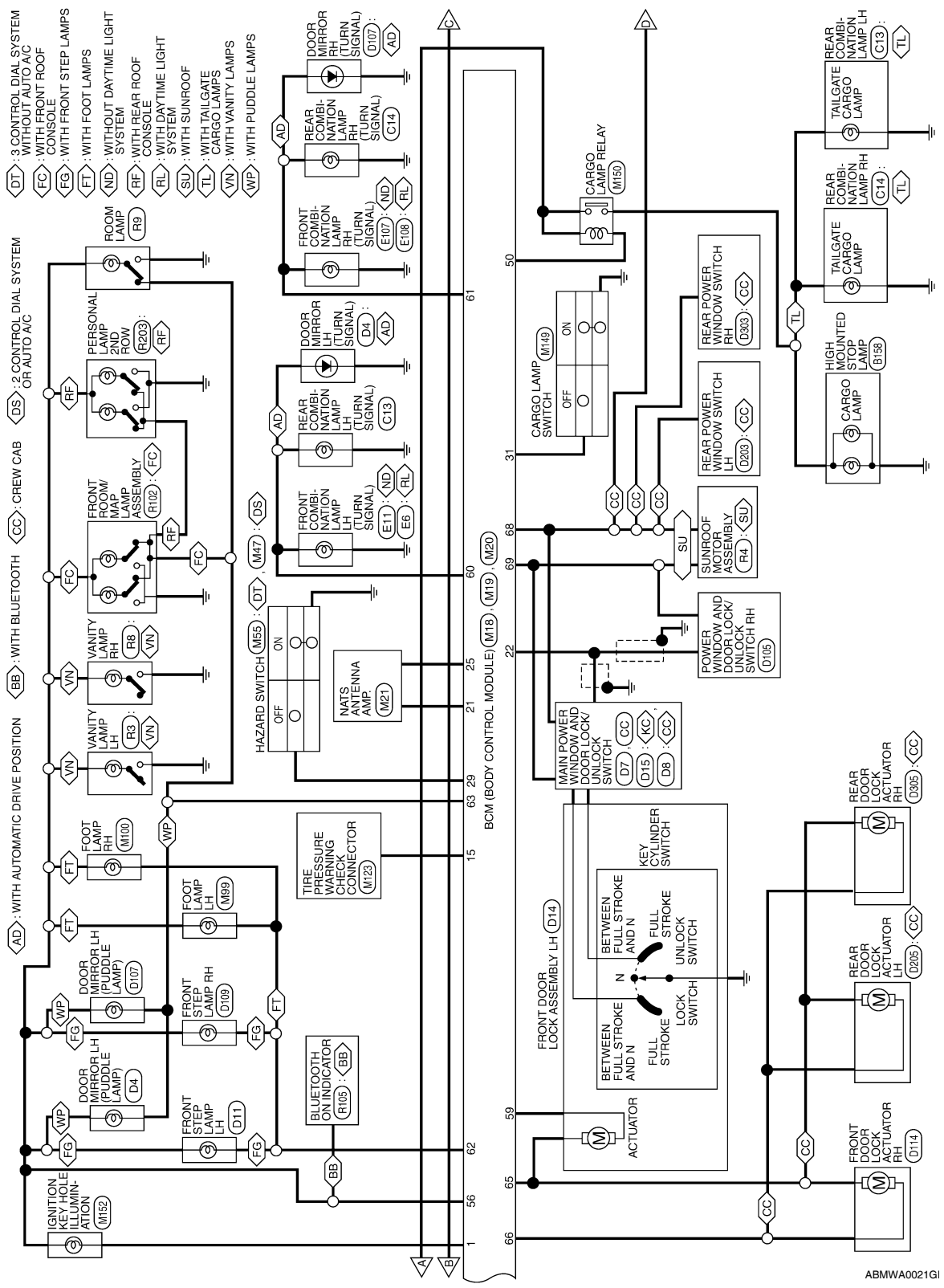
| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | Reference value or waveform (Approx.) |
|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | |
| 51 | G/Y | Trailer turn signal (right) | Output | ON | Turn right ON |  SKIA3009J |
| 52 | G/B | Trailer turn signal (left) | Output | ON | Turn left ON |  SKIA3009J |
| 56 | R/G | Battery saver output | Output | OFF | 30 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 |
| 62 | R/W | Step lamp LH and RH | Output | OFF | ON (any door open) | 0V |
| | | | | | OFF (all doors closed) | Battery voltage |
| 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 |

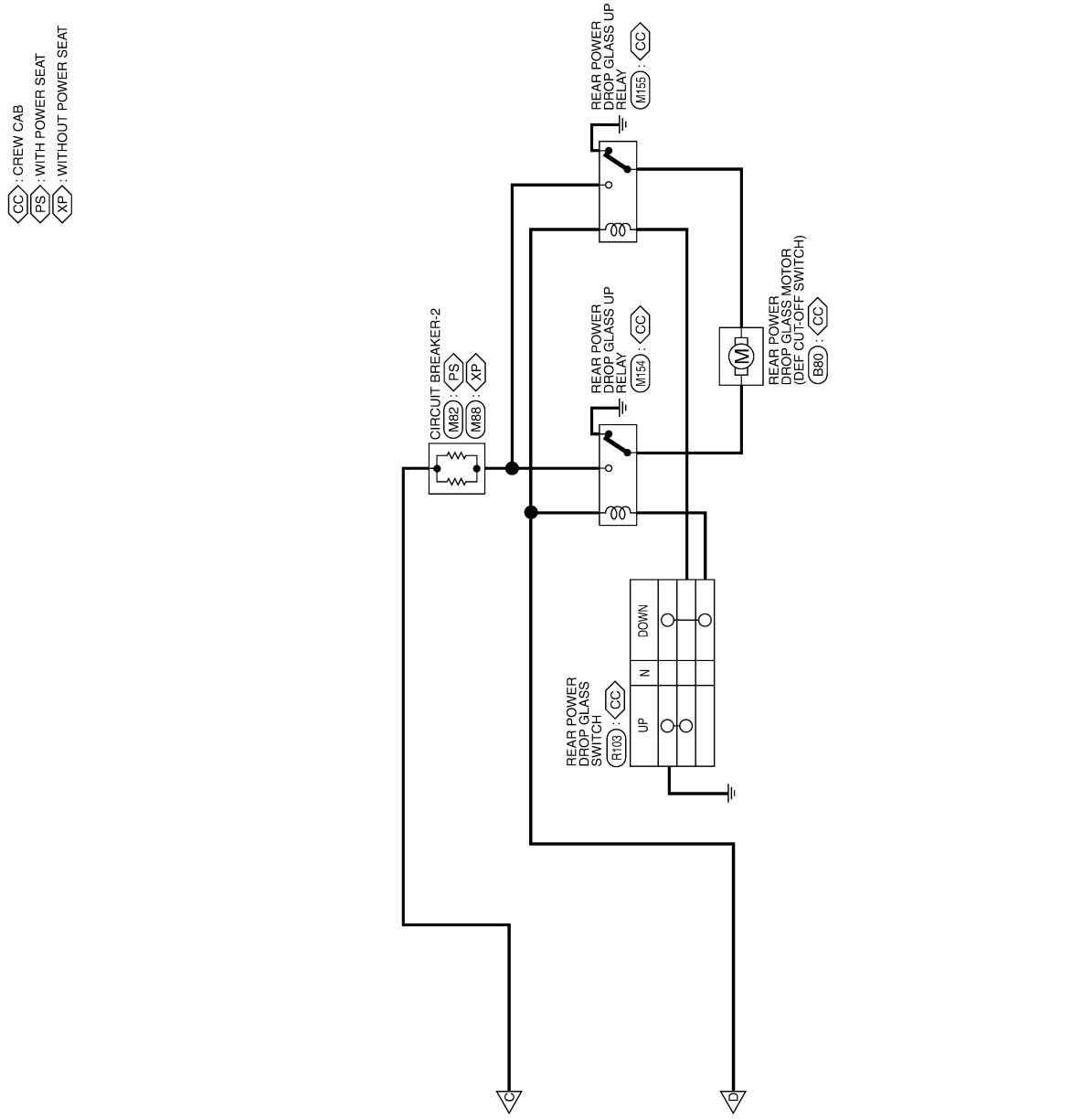
| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | Reference value or waveform (Approx.) |
|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | |
| 67 | B | Ground | Input | ON | — | 0V |
| 68 | W/L | Power window power supply (RAP) | 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 |

## Wiring Diagram

INFOID:0000000004215469



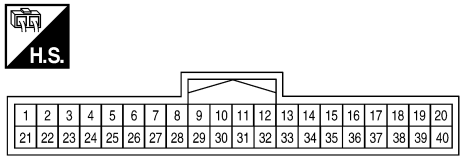

AD : WITH AUTOMATIC DRIVE POSITION
BB : WITH BLUETOOTH
CC : CREW CAB
DS : 2 CONTROL DIAL SYSTEM OR AUTO A/C
DT : 3 CONTROL DIAL SYSTEM WITHOUT AUTO A/C
FC : WITH FRONT ROOM CONSOLE
FG : WITH FRONT STEP LAMPS
FT : WITH FOOT LAMPS
ND : WITHOUT DAYTIME LIGHT SYSTEM
RF : WITH REAR ROOF CONSOLE
RL : WITH DAYTIME LIGHT SYSTEM
SU : WITH SUNROOF
TL : WITH TAILGATE CARGO LAMPS
VN : WITH VANITY LAMPS
WP : WITH PUDDLE LAMPS
BCM (BODY CONTROL MODULE) (M18), (M19), (M20)
IGNITION KEY HOLE ILLUMINATION M152
DOOR MIRROR LH (PUDDLE LAMP) D4
DOOR MIRROR LH (PUDDLE LAMP) D107
FRONT STEP LAMP LH D11
FRONT STEP LAMP RH D109
FOOT LAMP LH M99
FOOT LAMP RH M100
BLUETOOTH ON INDICATOR R105
TIRE PRESSURE WARNING CHECK CONNECTOR M123
ROOM LAMP R9
PERSONAL LAMP 2ND ROW R203
FRONT ROOM/ MAP LAMP ASSEMBLY R102
VANITY LAMP LH R3
VANITY LAMP RH R8
HAZARD SWITCH M55
NATS ANTENNA AMP. M21
DOOR MIRROR LH (TURN SIGNAL) D4
DOOR MIRROR RH (TURN SIGNAL) D107
REAR COMBI-NATION LAMP LH (TURN SIGNAL) C13
REAR COMBI-NATION LAMP RH (TURN SIGNAL) C14
FRONT COMBI-NATION LAMP LH (TURN SIGNAL) E11 E6
FRONT COMBI-NATION LAMP RH (TURN SIGNAL) E107 E108
CARGO LAMP SWITCH M149
CARGO LAMP RELAY M150
REAR POWER WINDOW SWITCH RH D303
REAR POWER WINDOW SWITCH LH D203
SUNROOF MOTOR ASSEMBLY R4
POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH RH D105
MAIN POWER WINDOW AND DOOR LOCK/ UNLOCK SWITCH D7 D15 D8
FRONT DOOR LOCK ASSEMBLY LH D14
KEY CYLINDER SWITCH
BETWEEN FULL STROKE AND N
FULL STROKE
UNLOCK SWITCH
LOCK SWITCH
ACTUATOR
FRONT DOOR LOCK ACTUATOR RH D114
REAR DOOR LOCK ACTUATOR LH D205
REAR DOOR LOCK ACTUATOR RH D305
TAILGATE CARGO LAMP
HIGH MOUNTED STOP LAMP B158
CARGO LAMP
REAR COMBI-NATION LAMP LH C13
REAR COMBI-NATION LAMP RH C14
ABMWA0021GI




ABMWA0022GI

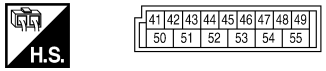
## BCM (BODY CONTROL MODULE) CONNECTORS

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




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | BR/W | KEY RING OUTPUT |
| 2 | SB | INPUT 5 |
| 3 | G/Y | INPUT 4 |
| 4 | Y | INPUT 3 |
| 5 | G/B | INPUT 2 |
| 6 | V | INPUT 1 |
| 7 | – | – |
| 8 | – | – |
| 9 | Y/B | REAR DEFOGGER SW |
| 10 | – | – |
| 11 | O | ACC SW |
| 12 | R/L | DOOR SW (AS) |
| 13 | GR | DOOR SW (RR) |
| 14 | – | – |
| 15 | L/W | TPMS MODE TRIGGER SW |
| 16 | – | – |
| 17 | – | – |
| 18 | P | KEYLESS AND AUTO LIGHT SENSOR GND |
| 19 | V/W | KEYLESS TUNER POWER SUPPLY OUTPUT |
| 20 | G/W | KEYLESS TUNER SIGNAL |
| 21 | G | IMMOBILIZER ANTENNA SIGNAL (CLOCK) |
| 22 | G | ANTI-PINCH SERIAL LINK (RX,TX) |
| 23 | G/O | SECURITY INDICATOR OUTPUT |
| 24 | – | – |
| 25 | BR | IMMOBILIZER ANTENNA SIGNAL (RX, TX) |
| 26 | – | – |
| 27 | W/R | AIRCON SW |
| 28 | L/R | BLOWER FAN SW |
| 29 | W/B | HAZARD SW |
| 30 | – | – |
| 31 | P/L | CARGO LAMP SW |
| 32 | R/G | OUTPUT 5 |
| 33 | R/Y | OUTPUT 4 |
| 34 | L | OUTPUT 3 |
| 35 | O/B | OUTPUT 2 |
| 36 | R/W | OUTPUT 1 |
| 37 | B/R | KEY SW |
| 38 | W/L | IGN SW |
| 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 |
|---|---|---|
| 41 | – | – |
| 42 | – | – |
| 43 | – | – |
| 44 | – | – |
| 45 | – | – |
| 46 | – | – |
| 47 | SB | DOOR SW (DR) |
| 48 | R/Y | DOOR SW (RL) |
| 49 | – | – |
| 50 | R/Y | CARGO LAMP OUTPUT |
| 51 | G/Y | TRAILER FLASHER OUTPUT (RIGHT) |
| 52 | G/B | TRAILER FLASHER OUTPUT (LEFT) |
| 53 | – | – |
| 54 | – | – |
| 55 | – | – |

ABMIA0027GB

| Connector No. | M20 |
|---|---|
| Connector Name | BCM (BODY CONTROL MODULE) |
| Connector Color | BLACK |

H.S.

| 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 |
|---|---|---|---|---|---|---|---|---|
| 65 | 66 | 67 | 68 | 69 | 70 | | | |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 56 | R/G | BATTERY SAVER OUTPUT |
| 57 | Y/R | BAT (FUSE) |
| 58 | W/R | AUTO LIGHT SENSOR INPUT 2 |
| 59 | G | DOOR UNLOCK OUTPUT (DR) |
| 60 | G/B | FLASHER OUTPUT (LEFT) |
| 61 | G/Y | FLASHER OUTPUT (RIGHT) |
| 62 | R/W | STEP LAMP OUTPUT |
| 63 | L | ROOM LAMP |
| 64 | – | – |
| 65 | V | DOOR LOCK OUTPUT (ALL) |
| 66 | G/Y | DOOR UNLOCK OUTPUT (OTHER) |
| 67 | B | GND (POWER) |
| 68 | W/L | POWER WINDOW POWER SUPPLY (RAP) |
| 69 | W/R | POWER WINDOW POWER SUPPLY (BAT) |
| 70 | W/B | BAT (F/L) |

| Connector No. | M28 |
|---|---|
| Connector Name | COMBINATION SWITCH |
| Connector Color | WHITE |

H.S.

| 12 | 13 | 10 | 9 | 8 | 7 |
|---|---|---|---|---|---|
| 14 | 11 | 1 | 2 | 3 | 4 | 5 | 6 |

| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | R/W | INPUT 1 |
| 2 | O/B | INPUT 2 |
| 3 | L | INPUT 3 |
| 4 | R/Y | INPUT 4 |
| 5 | R/G | INPUT 5 |
| 6 | V | OUTPUT 1 |
| 7 | G/B | OUTPUT 2 |
| 8 | SB | OUTPUT 5 |
| 9 | G/Y | OUTPUT 4 |
| 10 | Y | OUTPUT 3 |
| 11 | V/W | WASHER MOTOR |
| 12 | B | GND |
| 13 | – | – |
| 14 | – | – |

ABMIA0028GB

## Fail Safe

*INFOID:0000000004215470*

### 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. |
| U1010: CONTROL UNIT (CAN) | Inhibit engine cranking | When the BCM re-start communicating with the other modules. |

## DTC Inspection Priority Chart

INFOID:0000000004215471

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<br>• U1010: CONTROL UNIT (CAN) |
| 2 | • B2190: NATS ANTENNA AMP<br>• B2191: DIFFERENCE OF KEY<br>• B2192: ID DISCORD BCM-ECM<br>• B2193: CHAIN OF BCM-ECM |
| 3 | • C1729: VHCL SPEED SIG ERR<br>• C1735: IGNITION SIGNAL |
| 4 | • C1704: LOW PRESSURE FL<br>• C1705: LOW PRESSURE FR<br>• C1706: LOW PRESSURE RR<br>• C1707: LOW PRESSURE RL<br>• C1708: [NO DATA] FL<br>• C1709: [NO DATA] FR<br>• C1710: [NO DATA] RR<br>• C1711: [NO DATA] RL<br>• C1712: [CHECKSUM ERR] FL<br>• C1713: [CHECKSUM ERR] FR<br>• C1714: [CHECKSUM ERR] RR<br>• C1715: [CHECKSUM ERR] RL<br>• C1716: [PRESSDATA ERR] FL<br>• C1717: [PRESSDATA ERR] FR<br>• C1718: [PRESSDATA ERR] RR<br>• C1719: [PRESSDATA ERR] RL<br>• C1720: [CODE ERR] FL<br>• C1721: [CODE ERR] FR<br>• C1722: [CODE ERR] RR<br>• C1723: [CODE ERR] RL<br>• C1724: [BATT VOLT LOW] FL<br>• C1725: [BATT VOLT LOW] FR<br>• C1726: [BATT VOLT LOW] RR<br>• C1727: [BATT VOLT LOW] RL |

## DTC Index

INFOID:0000000004215472

**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-28 |
| U1010: CONTROL UNIT (CAN) | — | — | BCS-29 |
| B2190: NATS ANTTENA AMP | — | — | SEC-17 |
| B2191: DIFFERENCE OF KEY | — | — | SEC-20 |
| B2192: ID DISCORD BCM-ECM | — | — | SEC-21 |
| B2193: CHAIN OF BCM-ECM | — | — | SEC-23 |
| C1708: [NO DATA] FL | — | — | WT-14 |
| C1709: [NO DATA] FR | — | — | WT-14 |
| C1710: [NO DATA] RR | — | — | WT-14 |
| C1711: [NO DATA] RL | — | — | WT-14 |
| C1712: [CHECKSUM ERR] FL | — | — | WT-16 |
| C1713: [CHECKSUM ERR] FR | — | — | WT-16 |
| C1714: [CHECKSUM ERR] RR | — | — | WT-16 |
| C1715: [CHECKSUM ERR] RL | — | — | WT-16 |
| C1716: [PRESSDATA ERR] FL | — | — | WT-18 |
| C1717: [PRESSDATA ERR] FR | — | — | WT-18 |
| C1718: [PRESSDATA ERR] RR | — | — | WT-18 |
| C1719: [PRESSDATA ERR] RL | — | — | WT-18 |
| C1720: [CODE ERR] FL | — | — | WT-16 |
| C1721: [CODE ERR] FR | — | — | WT-16 |
| C1722: [CODE ERR] RR | — | — | WT-16 |
| C1723: [CODE ERR] RL | — | — | WT-16 |
| C1724: [BATT VOLT LOW] FL | — | — | WT-16 |
| C1725: [BATT VOLT LOW] FR | — | — | WT-16 |
| C1726: [BATT VOLT LOW] RR | — | — | WT-16 |
| C1727: [BATT VOLT LOW] RL | — | — | WT-16 |
| C1729: VHCL SPEED SIG ERR | — | — | WT-19 |
| C1735: IGNITION SIGNAL | — | — | WT-20 |

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

## Reference Value

INFOID:0000000004215473

### VALUES ON THE DIAGNOSIS TOOL

| Monitor Item | Condition | | Value/Status |
|---|---|---|---|
| MOTOR FAN REQ | Engine idle speed | Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc. | 0 - 100 % |
| 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<br>• Daytime light activated (Canada only) | ON |
| HL WASHER REQ | **NOTE:**<br>This item is displayed, but cannot be monitored. | | OFF |
| 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 | **NOTE:**<br>This item is displayed, but cannot be monitored. | | OFF |
| HOOD SW | **NOTE:**<br>This item is displayed, but cannot be monitored. | | OFF |

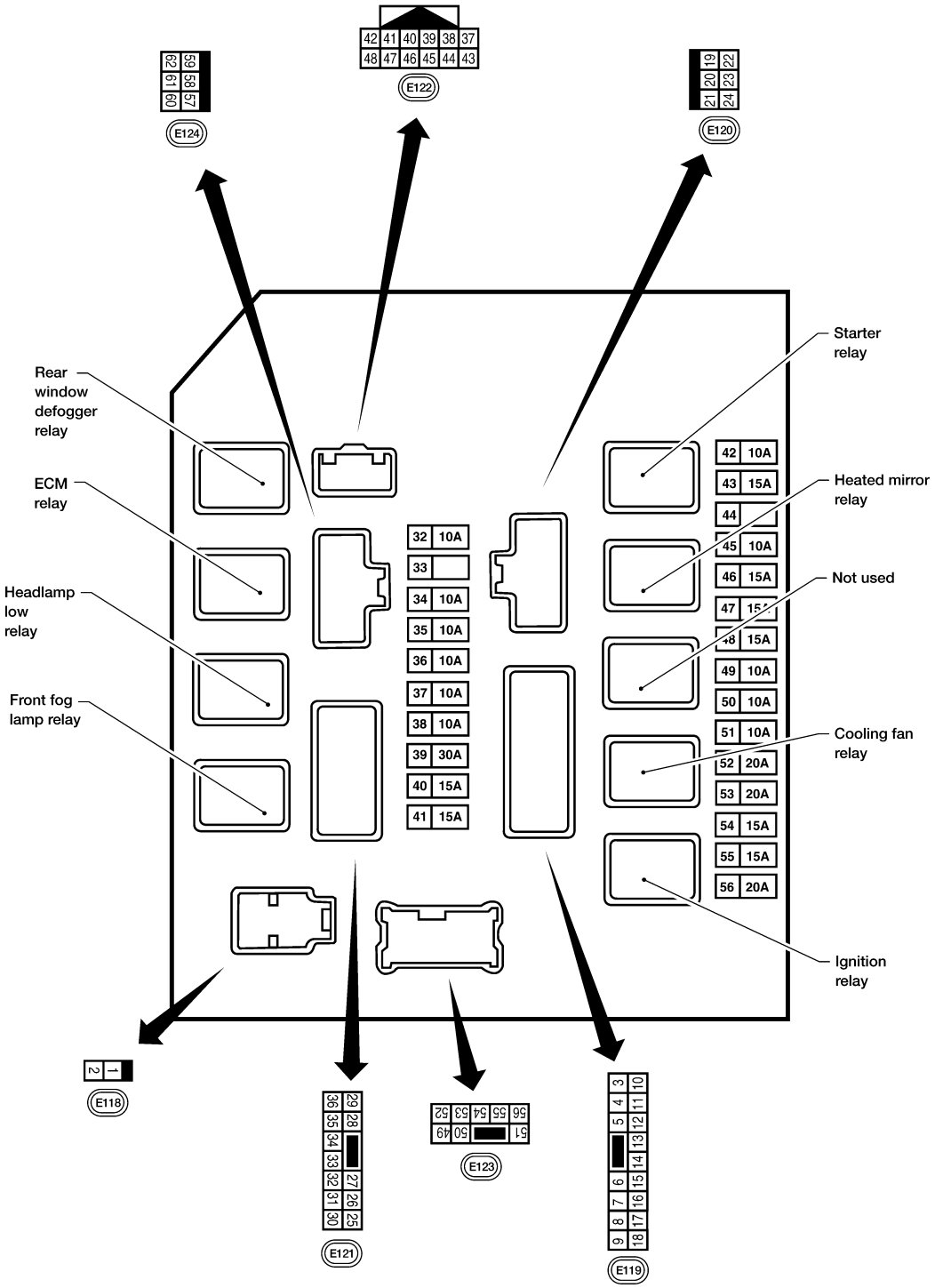
| Monitor Item | Condition | Value/Status |
|---|---|---|
| THFT HRN REQ | Not operated | OFF |
| | • Panic alarm is activated<br>• Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM | ON |
| HORN CHIRP | Not operated | OFF |
| | Door locking with keyfob (horn chirp mode) | ON |

*: If equipped

## Terminal Layout

INFOID:0000000004244475

TERMINAL LAYOUT



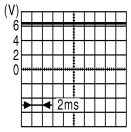
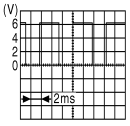
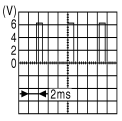

WKIA5852E

## Physical Values

INFOID:0000000004215475

PHYSICAL VALUES

| 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 ony) | 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 (with VDC) GR (with ABS) G/R (with ABLS) | 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 raker defogger switch is OFF | | 0V |
| 27 | W/B | Fuse 38 (With trailer tow) | 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 | OFF | Battery voltage |
| | | | | | | LO or INT | 0V |

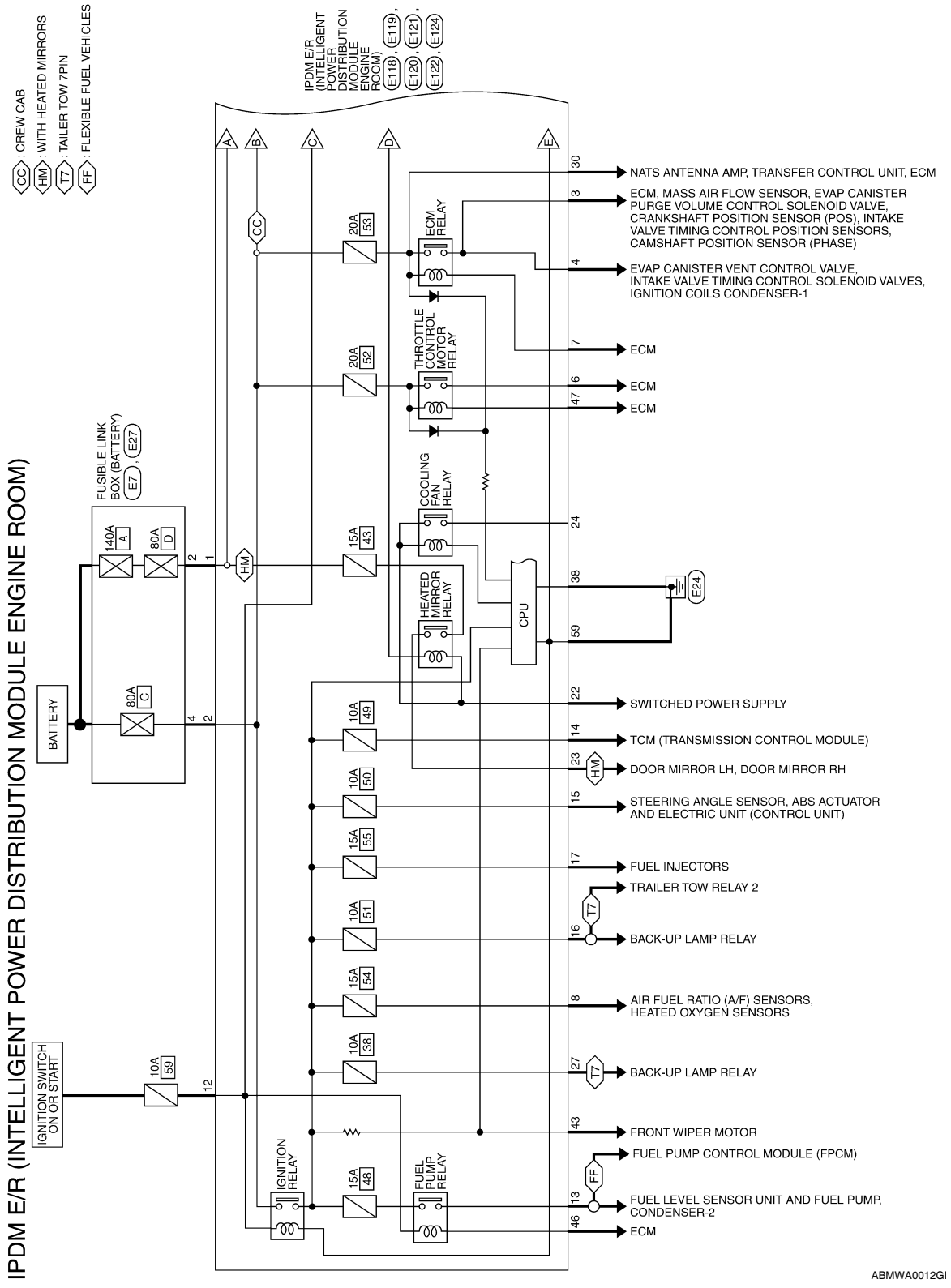
| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | | |
| 35 | L/B | Wiper high speed signal | Output | ON or START | Wiper switch | OFF, LO, INT | Battery voltage |
| | | | | | | HI | 0V |
| 37 | Y | Power generation command signal | Output | — | Ignition switch ON | |  JPMIA0001GB 6.3 V |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" | |  JPMIA0002GB 3.8 V |
| | | | | | 40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE" | |  JPMIA0003GB 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 ony) | 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 |

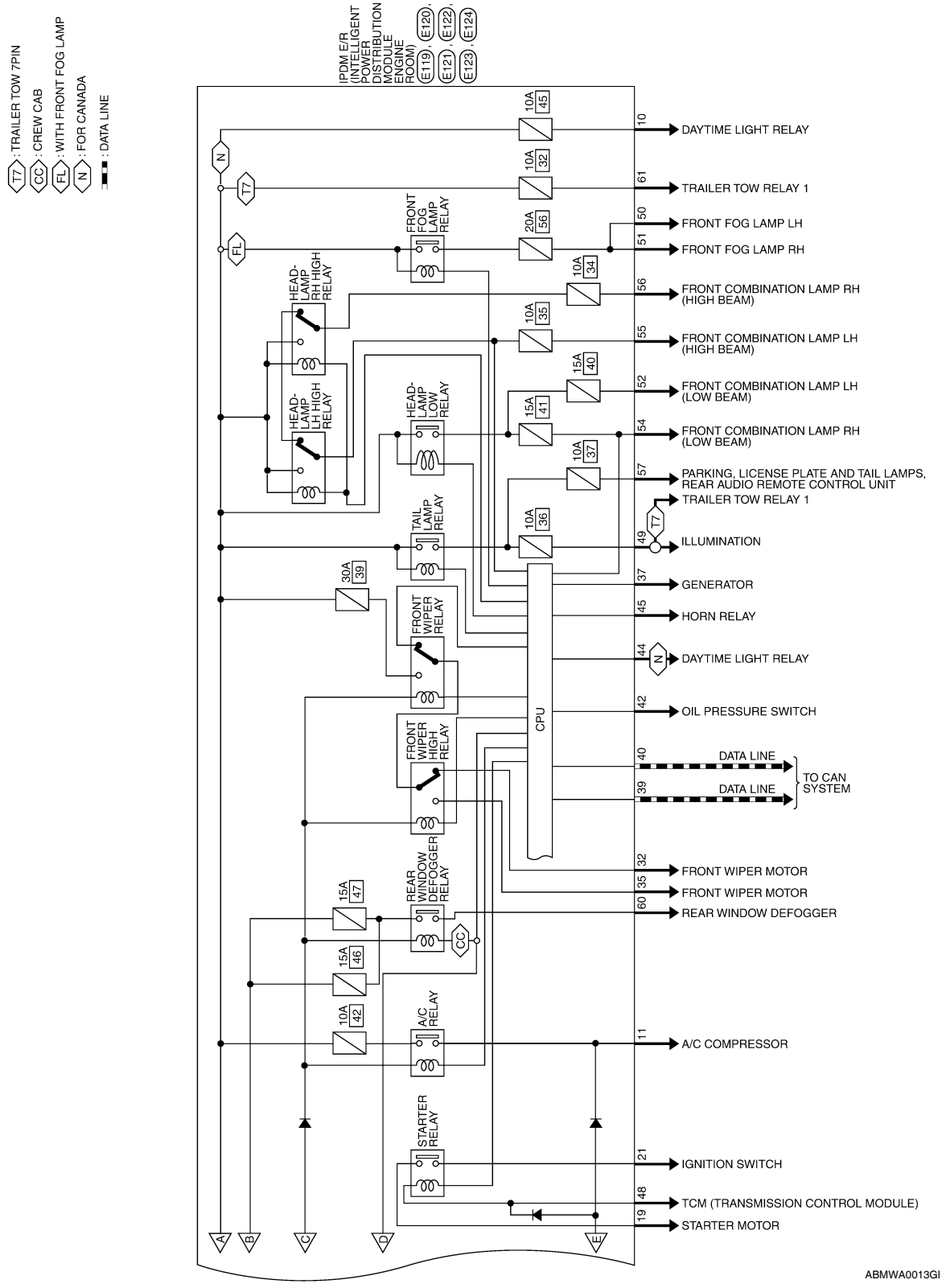
| Terminal | Wire color | Signal name | Signal input/ output | Measuring condition | | | Reference value (Approx.) |
|---|---|---|---|---|---|---|---|
| | | | | Ignition switch | Operation or condition | | |
| 49 | R/L | Trailer tow relay (With trailer tow) Illumination (Without trailer tow) | Output | ON | Lighting switch must be in the 1st position | OFF | 0V |
| | | | | | | ON | Battery voltage |
| 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 | OFF | 0V |
| | | | | | | ON | 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 | OFF | 0V |
| | | | | | | ON | 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, tail lamp and rear audio remote control unit | Output | ON | Lighting switch 1st position | OFF | 0V |
| | | | | | | ON | 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 (With trailer tow) | Output | OFF | — | | Battery voltage |

*: When horn reminder is ON

## Wiring Diagram

INFOID:0000000004215476




T7 : TRAILER TOW 7PIN
CC : CREW CAB
FL : WITH FRONT FOG LAMP
N : FOR CANADA
: DATA LINE
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
E119, E120, E121, E122, E123, E124
10A 45
10A 32
20A 56
10A 34
10A 35
15A 40
15A 41
10A 37
10A 36
30A 39
15A 47
15A 46
10A 42
FRONT FOG LAMP RELAY
HEAD-LAMP RH HIGH RELAY
HEAD-LAMP LH HIGH RELAY
HEAD-LAMP LOW RELAY
TAIL LAMP RELAY
FRONT WIPER RELAY
FRONT WIPER HIGH RELAY
REAR WINDOW DEFOGGER RELAY
A/C RELAY
STARTER RELAY
CPU
10 DAYTIME LIGHT RELAY
61 TRAILER TOW RELAY 1
50 FRONT FOG LAMP LH
51 FRONT FOG LAMP RH
56 FRONT COMBINATION LAMP RH (HIGH BEAM)
55 FRONT COMBINATION LAMP LH (HIGH BEAM)
52 FRONT COMBINATION LAMP LH (LOW BEAM)
54 FRONT COMBINATION LAMP RH (LOW BEAM)
57 PARKING, LICENSE PLATE AND TAIL LAMPS, REAR AUDIO REMOTE CONTROL UNIT
TRAILER TOW RELAY 1
49 ILLUMINATION
37 GENERATOR
45 HORN RELAY
44 DAYTIME LIGHT RELAY
42 OIL PRESSURE SWITCH
40 DATA LINE
39 DATA LINE
TO CAN SYSTEM
32 FRONT WIPER MOTOR
35 FRONT WIPER MOTOR
60 REAR WINDOW DEFOGGER
11 A/C COMPRESSOR
21 IGNITION SWITCH
48 TCM (TRANSMISSION CONTROL MODULE)
19 STARTER MOTOR
A
B
C
D
E
ABMWA0013GI

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

| Connector No. | E7 |
|---|---|
| Connector Name | FUSIBLE LINK BOX (BATTERY) |
| Connector Color | BLACK |


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 4 | R | – |

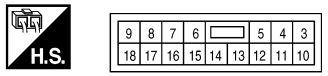
| Connector No. | E27 |
|---|---|
| Connector Name | FUSIBLE LINK BOX (BATTERY) |
| Connector Color | BROWN |


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 2 | B/Y | – |

| Connector No. | E118 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | BLACK |


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 1 | B/Y | F/L USM |
| 2 | R | F/L MAIN |

| Connector No. | E119 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE |




| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 3 | BR | IGN COIL |
| 4 | W/L | ECM |
| 5 | – | – |
| 6 | L | ETC |
| 7 | W/B | ECM RLY CONT |
| 8 | R/B | 02_SENSOR |
| 9 | – | – |
| 10 | G | DTRL RLY SUPPLY |
| 11 | Y/B | A/C COMPRESSOR |
| 12 | L/W | IGN SW (IG) |
| 13 | B/Y | FUEL PUMP |
| 14 | Y/R | A/T CU IGN SUPPLY |
| 15 | LG/B | ABS IGN SUPPLY (WITH VDC) |
| 15 | GR | ABS IGN SUPPLY (WITH ABS) |
| 15 | G/R | ABS IGN SUPPLY (WITH ABLS) |
| 16 | G | REVERSE LAMP |
| 17 | W | INJECTOR |
| 18 | – | – |

| Connector No. | E120 |
|---|---|
| Connector Name | IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM) |
| Connector Color | WHITE |


| Terminal No. | Color of Wire | Signal Name |
|---|---|---|
| 19 | W/R | STARTER MTR |
| 20 | – | – |
| 21 | BR | IGN SW(ST) |
| 22 | G | F/L MOTOR FAN |
| 23 | GR/W | HEATED MIRROR |
| 24 | – | – |

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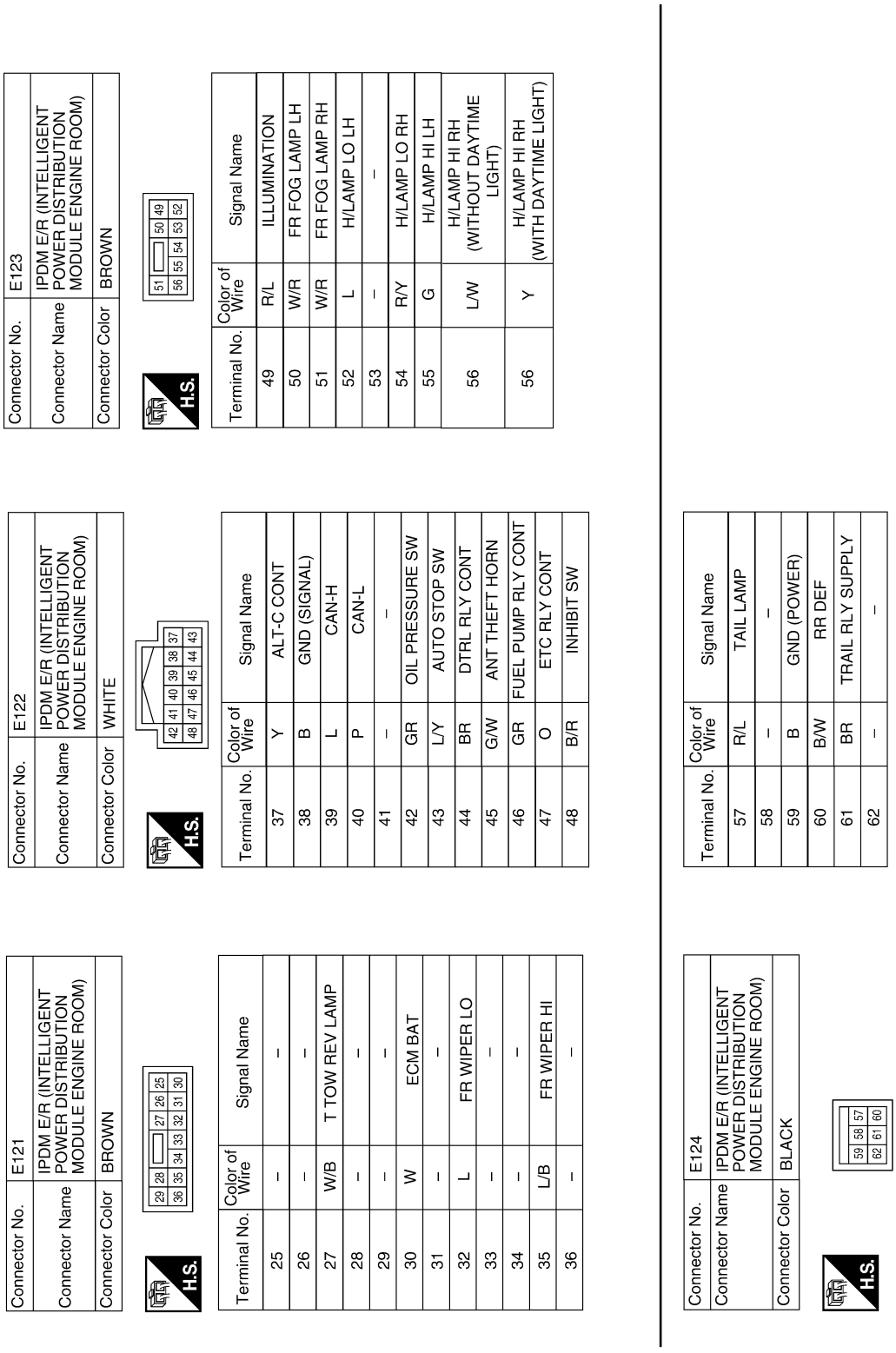


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## Fail Safe

*INFOID:0000000004215477*

### 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 ECM

| Control part | Fail-safe in operation |
|---|---|
| Cooling fan | • Turns ON the cooling fan relay when the ignition switch is turned ON<br>• Turns OFF the cooling fan relay when the ignition switch is turned OFF |

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<br>• Turns OFF the headlamp low relay when the ignition switch is turned OFF<br>• Headlamp high LH/RH relays OFF |
| • Parking lamps<br>• License plate lamps<br>• Tail lamps | • Turns ON the tail lamp relay when the ignition switch is turned ON<br>• 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.<br>• 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 |
| 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 second activation and 20 second 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:0000000004215478

| CONSULT-III 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.

# SYMPTOM DIAGNOSIS

## THE FUEL GAUGE POINTER DOES NOT MOVE

### Description

INFOID:0000000003790479

Fuel gauge needle will not move from a certain position.

### Diagnosis Procedure

INFOID:0000000003790480

#### 1.CHECK COMBINATION METER INPUT SIGNAL

1. Select “METER/M&A” on CONSULT-III.
2. Using “FUEL METER” of “DATA MONITOR”, compare the monitor value with the fuel gauge reading on the combination meter. Refer to MWI-36, "Component Function Check".

Does monitor value match fuel gauge reading?

YES >> GO TO 2
NO >> Replace combination meter. Refer to MWI-103, "Removal and Installation".

#### 2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-36, "Diagnosis Procedure".

Is the inspection result normal?

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

#### 3.CHECK FUEL LEVEL SENSOR UNIT

Perform a unit check for the fuel level sensor unit. Refer to MWI-37, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4
NO >> Replace fuel level sensor unit. Refer to FL-12, "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-103, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

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

## Description

INFOID:0000000003790481

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

## Diagnosis Procedure

INFOID:0000000003790482

### 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-37, "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

## Description

INFOID:0000000003790483

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

## Diagnosis Procedure

INFOID:0000000003790484

### 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-103, "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-30, "Removal and Installation of IPDM E/R".
NO >> Replace oil pressure switch.

# THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

## Description

INFOID:0000000003790485

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

## Diagnosis Procedure

INFOID:0000000003790486

### 1.CHECK OIL PRESSURE WARNING LAMP

Perform IPDM E/R auto active test. Refer to PCS-11, "Diagnosis Description".

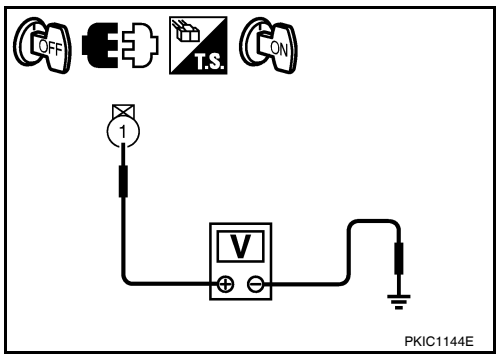
Is oil pressure warning lamp illuminated?

YES >> GO TO 2
NO >> Replace combination meter. Refer to MWI-103, "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-30, "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-30, "Removal and Installation of IPDM E/R".
NO >> Repair harness or connector.

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

## Description

INFOID:0000000003790487

- 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:0000000003790488

### 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-103, "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-40, "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-40, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-103, "Removal and Installation".
NO >> Replace parking brake switch.

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

## Description

INFOID:0000000003790489

- 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:0000000003790490

### 1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to MWI-41, "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-41, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-103, "Removal and Installation".
NO >> Replace washer level switch.

# THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

## Description

INFOID:0000000003790491

- 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:0000000003790492

### 1.CHECK SELF-DIAGNOSIS OF COMBINATION METER

Select “METER/M&A” on CONSULT-III and perform “SELF-DIAGNOSIS”.

Is the inspection result normal?

YES >> GO TO 2
NO >> Refer to MWI-65, "DTC Index".

### 2.CHECK SELF-DIAGNOSIS OF BCM

Select “BCM” on CONSULT-III and perform “SELF-DIAGNOSIS”.

Is the inspection result normal?

YES >> GO TO 3
NO >> Refer to BCS-49, "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-103, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

# NORMAL OPERATING CONDITION
## COMPASS

### COMPASS : Description

INFOID:0000000003790493

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.<br>• Incorrect zone variance setting.<br>• Large change in magnetic field (Steel bridges, subways, concentrations of metal, car washes, etc.)<br>• 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. | | |
| On long trips the compass shows the wrong direction. | | Perform Zone Variation Setting if correct reading is desired in that location. Refer to MWI-25, "Description". |

# PRECAUTION

## PRECAUTIONS

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

INFOID:0000000003790494

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.**

# ON-VEHICLE REPAIR

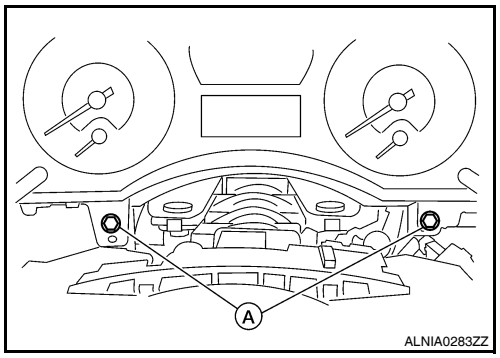
## COMBINATION METERS

### Removal and Installation

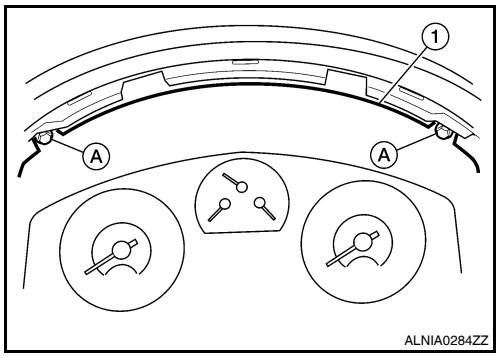
INFOID:0000000003790495

REMOVAL

1. Disconnect battery negative terminal.
2. Remove the cluster lid A. Refer to IP-12, "Removal and Installation".
3. Remove the combination meter lower screws (A), using power tool.




4. Remove the combination meter upper screws (A) using power tool, and pull out the combination meter (1).
5. Disconnect the combination meter connectors, and remove the combination meter (1).




INSTALLATION

Installation is the reverse order of removal.

# DISASSEMBLY AND ASSEMBLY

## COMBINATION METERS

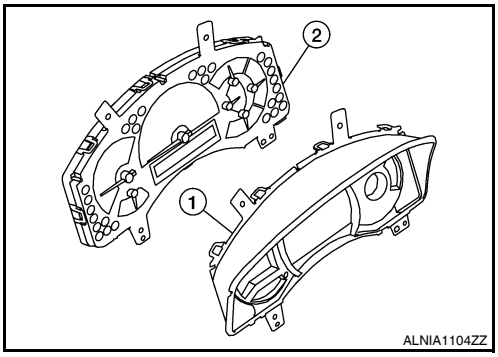
### Removal and Installation

INFOID:0000000003790496

#### Disassembly and Assembly

Disassembly

1. Disconnect battery negative terminal.
2. Remove the cluster lid A. Refer to IP-12, "Removal and Installation".
3. Disengage the tabs to separate front cover (1), from the unified meter control unit assembly (2).




Assembly

Assembly is in the reverse order of disassembly.