

MWI

SECTION

METER, WARNING LAMP & INDICATOR

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

CONTENTS

<p>BASIC INSPECTION 4</p> <p>DIAGNOSIS AND REPAIR WORKFLOW 4</p> <p style="padding-left: 20px;">Work Flow4</p> <p>SYSTEM DESCRIPTION 5</p> <p>METER SYSTEM 5</p> <p>METER SYSTEM5</p> <p style="padding-left: 20px;">METER SYSTEM : System Diagram5</p> <p style="padding-left: 20px;">METER SYSTEM : System Description5</p> <p style="padding-left: 20px;">METER SYSTEM : Arrangement of Combination Meter6</p> <p style="padding-left: 20px;">METER SYSTEM : Component Parts Location7</p> <p style="padding-left: 20px;">METER SYSTEM : Component Description7</p> <p>SPEEDOMETER8</p> <p style="padding-left: 20px;">SPEEDOMETER : System Diagram8</p> <p style="padding-left: 20px;">SPEEDOMETER : System Description8</p> <p style="padding-left: 20px;">SPEEDOMETER : Component Parts Location8</p> <p style="padding-left: 20px;">SPEEDOMETER : Component Description9</p> <p>TACHOMETER9</p> <p style="padding-left: 20px;">TACHOMETER : System Diagram9</p> <p style="padding-left: 20px;">TACHOMETER : System Description9</p> <p style="padding-left: 20px;">TACHOMETER : Component Parts Location 10</p> <p style="padding-left: 20px;">TACHOMETER : Component Description 10</p> <p>ENGINE COOLANT TEMPERATURE GAUGE 10</p> <p style="padding-left: 20px;">ENGINE COOLANT TEMPERATURE GAUGE : System Diagram 10</p> <p style="padding-left: 20px;">ENGINE COOLANT TEMPERATURE GAUGE : System Description 11</p> <p style="padding-left: 20px;">ENGINE COOLANT TEMPERATURE GAUGE : Component Parts Location 11</p> <p style="padding-left: 20px;">ENGINE COOLANT TEMPERATURE GAUGE : Component Description 11</p> <p>FUEL GAUGE 11</p> <p style="padding-left: 20px;">FUEL GAUGE : System Diagram 12</p> <p style="padding-left: 20px;">FUEL GAUGE : System Description 12</p> <p style="padding-left: 20px;">FUEL GAUGE : Component Parts Location 12</p>	<p style="padding-left: 20px;">FUEL GAUGE : Component Description13</p> <p>ENGINE OIL PRESSURE GAUGE13</p> <p style="padding-left: 20px;">ENGINE OIL PRESSURE GAUGE : System Diagram 13</p> <p style="padding-left: 20px;">ENGINE OIL PRESSURE GAUGE : System Description 13</p> <p style="padding-left: 20px;">ENGINE OIL PRESSURE GAUGE : Component Parts Location 13</p> <p style="padding-left: 20px;">ENGINE OIL PRESSURE GAUGE : Component Description 14</p> <p>VOLTAGE GAUGE14</p> <p style="padding-left: 20px;">VOLTAGE GAUGE : System Diagram 14</p> <p style="padding-left: 20px;">VOLTAGE GAUGE : System Description 14</p> <p style="padding-left: 20px;">VOLTAGE GAUGE : Component Parts Location 15</p> <p style="padding-left: 20px;">VOLTAGE GAUGE : Component Description 15</p> <p>ODO/TRIP METER15</p> <p style="padding-left: 20px;">ODO/TRIP METER : System Diagram 15</p> <p style="padding-left: 20px;">ODO/TRIP METER : System Description 16</p> <p style="padding-left: 20px;">ODO/TRIP METER : Component Parts Location 16</p> <p style="padding-left: 20px;">ODO/TRIP METER : Component Description 17</p> <p>SHIFT POSITION INDICATOR17</p> <p style="padding-left: 20px;">SHIFT POSITION INDICATOR : System Diagram 17</p> <p style="padding-left: 20px;">SHIFT POSITION INDICATOR : System Description 17</p> <p style="padding-left: 20px;">SHIFT POSITION INDICATOR : Component Parts Location 17</p> <p style="padding-left: 20px;">SHIFT POSITION INDICATOR : Component Description 18</p> <p>WARNING LAMPS/INDICATOR LAMPS18</p> <p style="padding-left: 20px;">WARNING LAMPS/INDICATOR LAMPS : System Diagram 18</p> <p style="padding-left: 20px;">WARNING LAMPS/INDICATOR LAMPS : System Description 18</p> <p style="padding-left: 20px;">WARNING LAMPS/INDICATOR LAMPS : Component Parts Location 19</p> <p style="padding-left: 20px;">WARNING LAMPS/INDICATOR LAMPS : Component Description 19</p>
---	--

MWI

TRIP COMPUTER	19	Fail Safe	49
TRIP COMPUTER : System Diagram	20	DTC Inspection Priority Chart	49
TRIP COMPUTER : System Description	20	DTC Index	50
TRIP COMPUTER : Component Parts Location ...	21		
TRIP COMPUTER : Component Description	21		
COMPASS	22	IPDM E/R (INTELLIGENT POWER DISTRI- BUTION MODULE ENGINE ROOM)	52
Description	22	Reference Value	52
DIAGNOSIS SYSTEM (METER)	24	Terminal Layout	53
Diagnosis Description	24	Physical Values	53
CONSULT Function (METER/M&A)	25	Fail Safe	57
DTC/CIRCUIT DIAGNOSIS	28	DTC Index	58
DTC U1000 CAN COMMUNICATION	28	WIRING DIAGRAM	59
DTC Logic	28	COMPASS	59
Diagnosis Procedure	28	Wiring Diagram	59
DTC B2205 VEHICLE SPEED CIRCUIT	29	METER	61
Description	29	Wiring Diagram	61
DTC Logic	29	SYMPTOM DIAGNOSIS	77
Diagnosis Procedure	29	THE FUEL GAUGE POINTER DOES NOT MOVE	77
POWER SUPPLY AND GROUND CIRCUIT	30	Description	77
COMBINATION METER	30	Diagnosis Procedure	77
COMBINATION METER : Diagnosis Procedure ...	30	THE FUEL GAUGE POINTER DOES NOT MOVE TO "F" WHEN REFUELING	78
BCM (BODY CONTROL MODULE)	30	Description	78
BCM (BODY CONTROL MODULE) : Diagnosis Procedure	31	Diagnosis Procedure	78
IPDM E/R (INTELLIGENT POWER DISTRI- BUTION MODULE ENGINE ROOM)	31	THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON	79
IPDM E/R (INTELLIGENT POWER DISTRI- BUTION MODULE ENGINE ROOM) : Diagnosis Pro- cedure	32	Description	79
FUEL LEVEL SENSOR SIGNAL CIRCUIT	33	Diagnosis Procedure	79
Description	33	THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF	80
Component Function Check	33	Description	80
Diagnosis Procedure	33	Diagnosis Procedure	80
Component Inspection	34	NORMAL OPERATING CONDITION	81
OIL PRESSURE SWITCH SIGNAL CIRCUIT ...	36	COMPASS	81
Description	36	COMPASS : Description	81
Component Function Check	36	PRECAUTION	82
Diagnosis Procedure	36	PRECAUTIONS	82
Component Inspection	36	Precaution for Supplemental Restraint System (SRS) "AIR BAG" and "SEAT BELT PRE-TEN- SIONER"	82
ECU DIAGNOSIS INFORMATION	38	PREPARATION	83
COMBINATION METER	38	PREPARATION	83
Reference Value	38	Commercial Service Tools	83
Fail Safe	39	REMOVAL AND INSTALLATION	84
DTC Index	40	COMBINATION METER	84
BCM (BODY CONTROL MODULE)	41		
Reference Value	41		
Terminal Layout	44		
Physical Values	44		

A

B

C

D

E

F

G

H

I

J

K

L

M

MWI

O

P

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000009483151

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-24, "Diagnosis Description"](#).

Does self-diagnosis mode operate?

YES >> GO TO 3

NO >> Check power supply and ground circuit of combination meter. Refer to [MWI-30, "COMBINATION METER : Diagnosis Procedure"](#). Then, GO TO 4

3.CHECK COMBINATION METER (CONSULT)

Select "METER/M&A" on CONSULT and perform "SELF-DIAGNOSIS" of combination meter. Refer to [MWI-25, "CONSULT Function \(METER/M&A\)"](#).

Self-diagnostic results content

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

Malfunction detected>>Refer to [MWI-40, "DTC Index"](#). Then, GO TO 4

4.CONFIRM OPERATION

Does the combination meter operate normally?

YES or NO

YES >> Inspection End.

NO >> GO TO 1

METER SYSTEM

< SYSTEM DESCRIPTION >

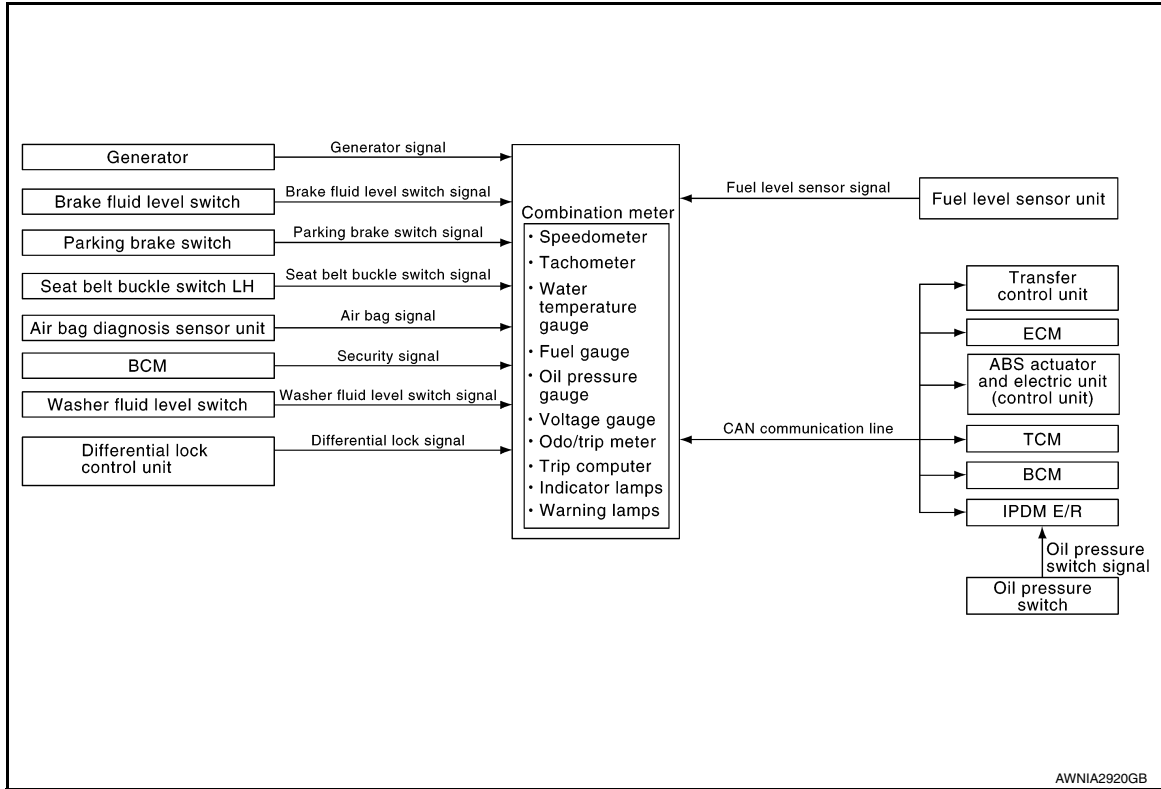
SYSTEM DESCRIPTION

METER SYSTEM

METER SYSTEM

METER SYSTEM : System Diagram

INFOID:000000009483152



METER SYSTEM : System Description

INFOID:000000009483153

COMBINATION METER

- Speedometer, odo/trip meter, tachometer, fuel gauge, engine coolant temperature gauge, engine oil pressure gauge, voltage gauge and trip computer 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*, as well as the A/T position indicator display.
*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 and A/T indicator segments can be checked in diagnosis mode.
- Meter/gauge can be checked in diagnosis mode.

NOTE:

Under the following conditions, the meters will perform a homing function. The meter pointers will move down slightly and then move back to the resting position. This is a normal design condition.

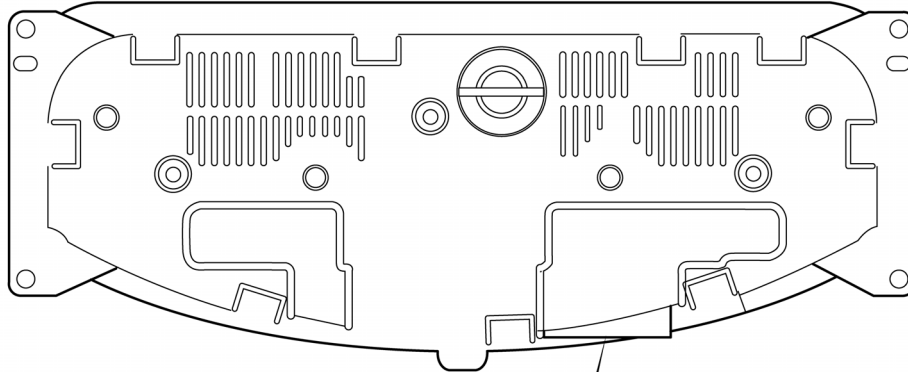
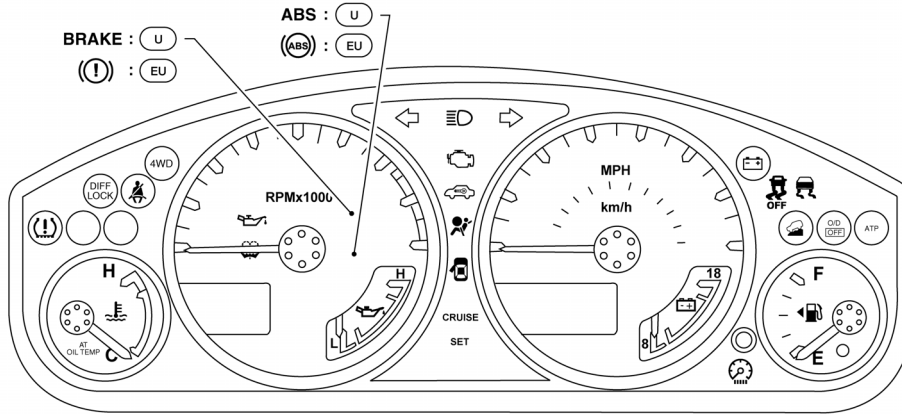
- Approximately 60 seconds after turning the ignition switch from the ON to the OFF position
- If the battery is disconnected and then reconnected

METER SYSTEM

< SYSTEM DESCRIPTION >

METER SYSTEM : Arrangement of Combination Meter

INFOID:000000009483154



20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	M24
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	

EU : Except USA

U : USA

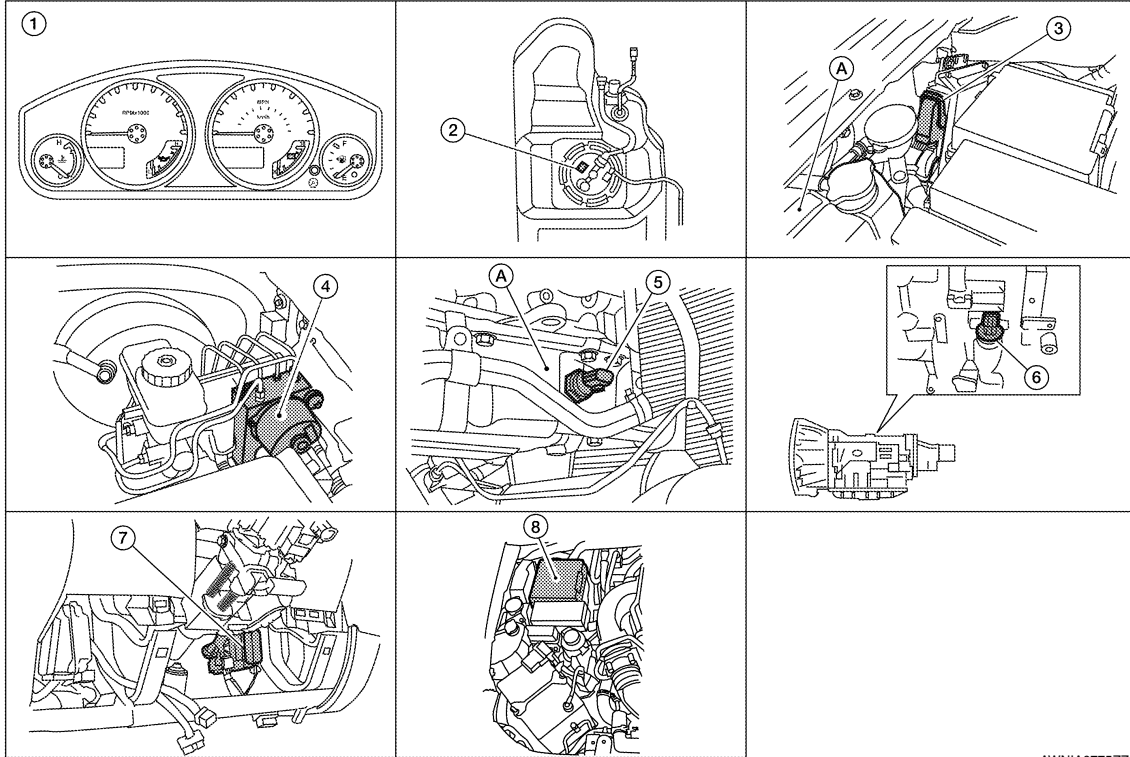
AWNIA2494GB

METER SYSTEM

< SYSTEM DESCRIPTION >

METER SYSTEM : Component Parts Location

INFOID:000000009483155



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

METER SYSTEM : Component Description

INFOID:000000009483156

Unit	Description
Combination meter	<p>Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors.</p> <ul style="list-style-type: none"> • Speedometer • Engine coolant temperature gauge • Engine oil pressure gauge • Voltage gauge • Warning lamps • Trip computer • Tachometer • Fuel gauge • Odo/trip meter • Indicator lamps • Warning chime
IPDM E/R	IPDM E/R reads the ON/OFF signals of the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with CAN communication line.
Fuel level sensor unit	Refer to MWI-33. "Description" .
Oil pressure switch	Refer to MWI-36. "Description" .
ECM	<p>Transmits the following signals to the combination meter with CAN communication line.</p> <ul style="list-style-type: none"> • Engine speed signal • Engine coolant temperature signal • Fuel consumption monitor signal

METER SYSTEM

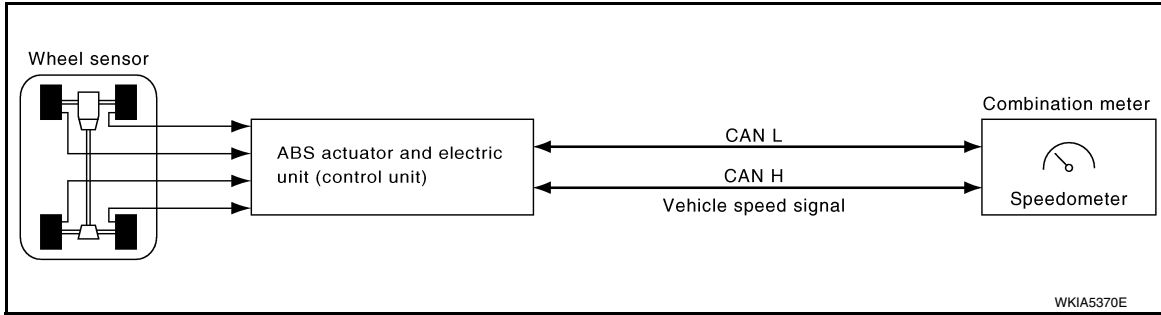
< SYSTEM DESCRIPTION >

Unit	Description
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter with CAN communication line.
BCM	<ul style="list-style-type: none"> Transmits signals provided by various units to the combination meter with CAN communication line. Transmits the security signal to the combination meter.
TCM	Transmits shift position signal to the combination meter with CAN communication line.

SPEEDOMETER

SPEEDOMETER : System Diagram

INFOID:000000009483157



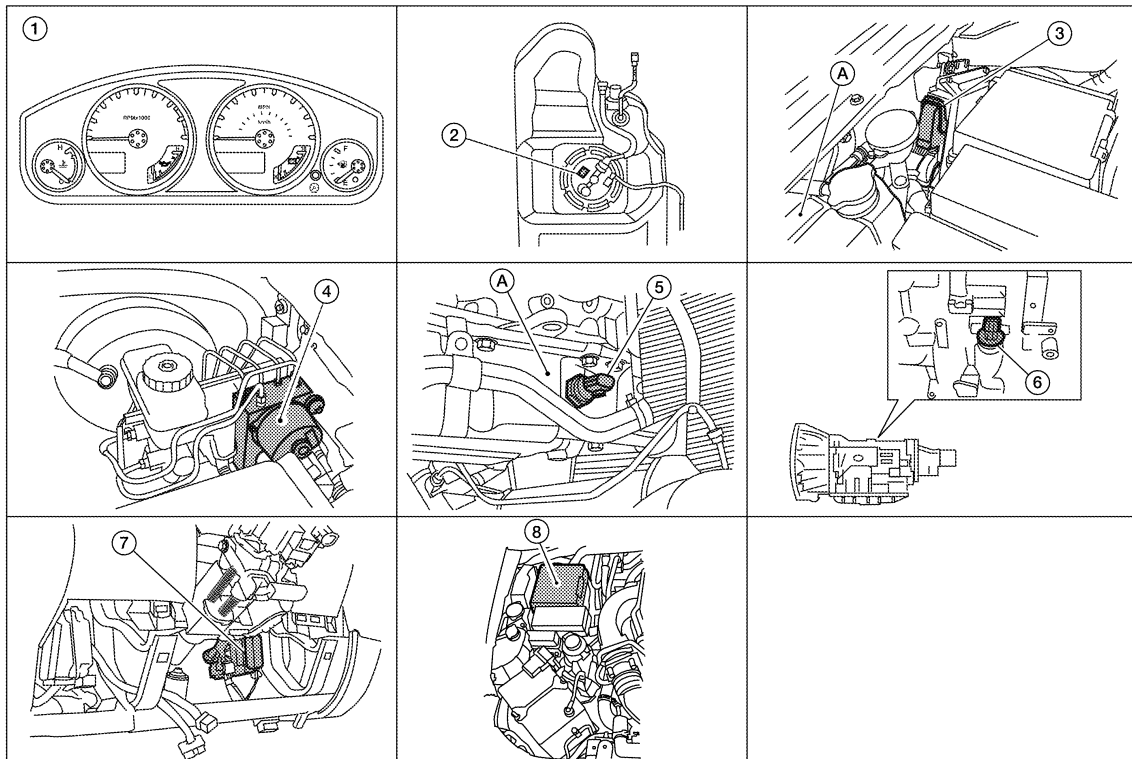
SPEEDOMETER : System Description

INFOID:000000009483158

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:000000009483159



AWNIA0775ZZ

METER SYSTEM

< SYSTEM DESCRIPTION >

- | | | |
|---|---|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5
(view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

SPEEDOMETER : Component Description

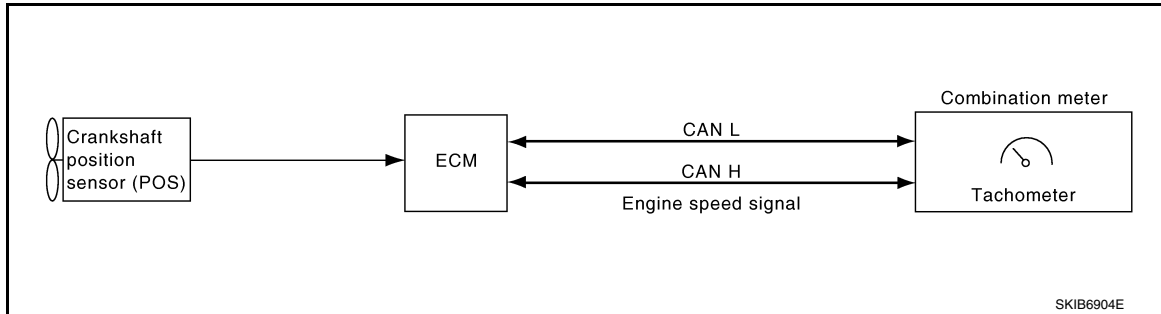
INFOID:000000009483160

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:000000009483161



TACHOMETER : System Description

INFOID:000000009483162

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.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

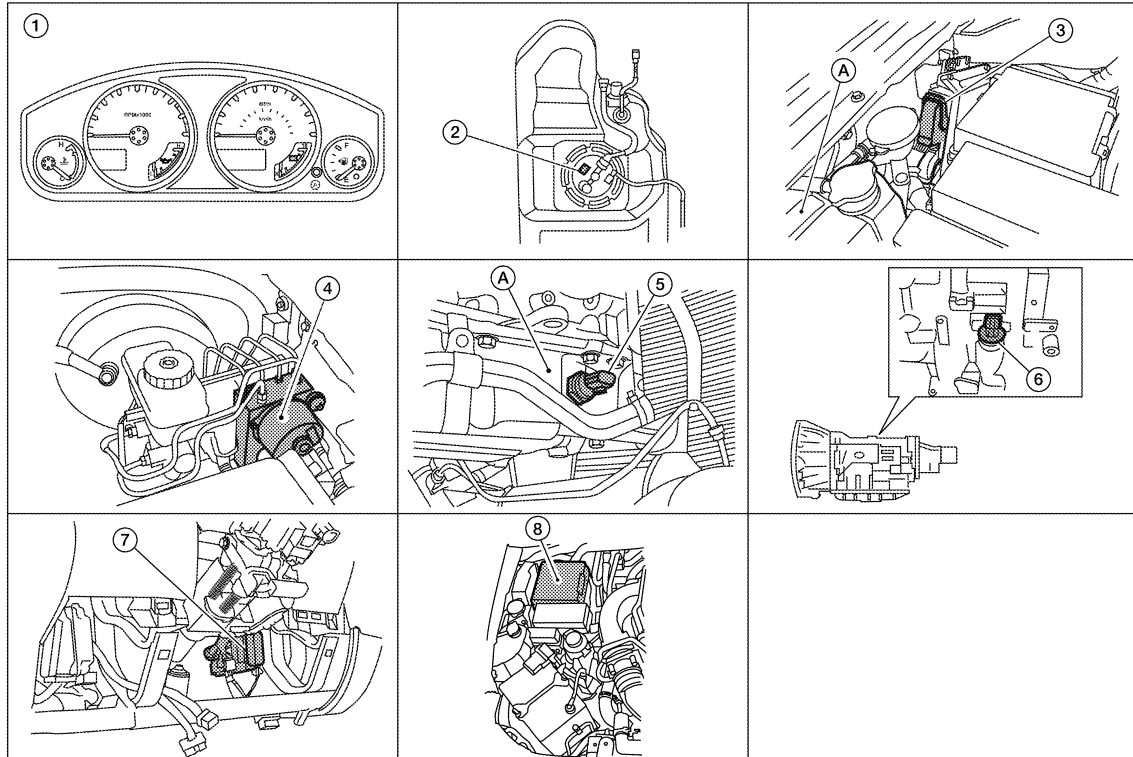
MWI

METER SYSTEM

< SYSTEM DESCRIPTION >

TACHOMETER : Component Parts Location

INFOID:000000009483163



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

TACHOMETER : Component Description

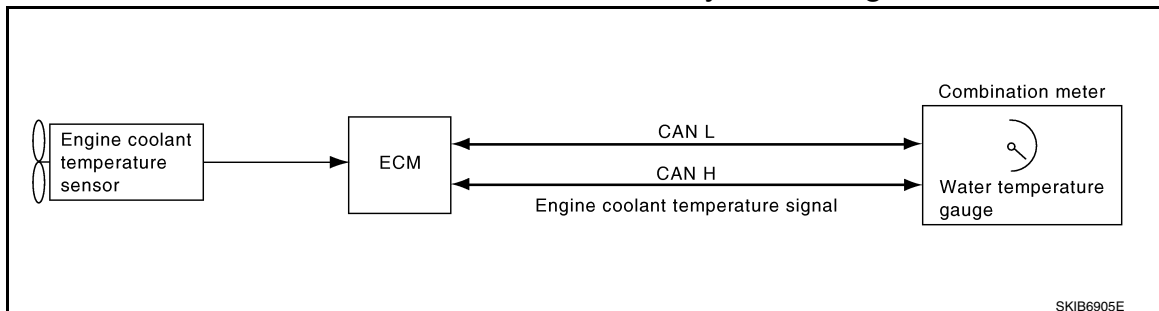
INFOID:000000009483164

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:000000009483165



SKIB6905E

METER SYSTEM

< SYSTEM DESCRIPTION >

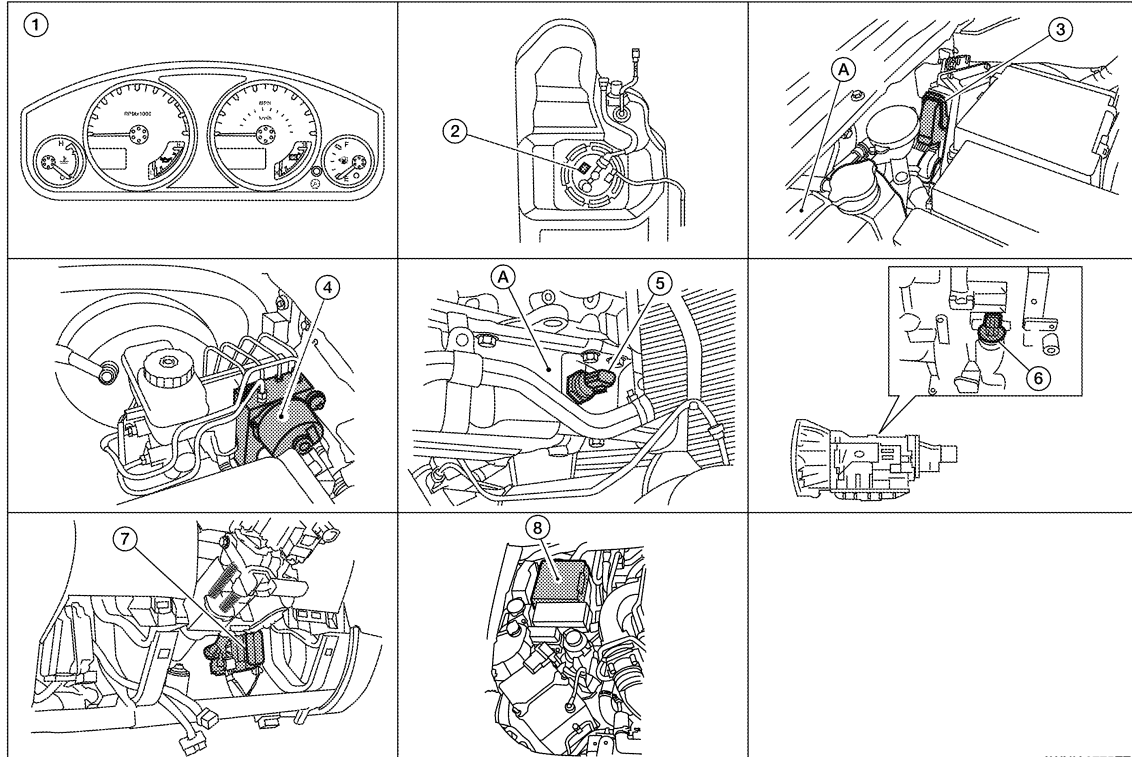
ENGINE COOLANT TEMPERATURE GAUGE : System Description

INFOID:000000009483166

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:000000009483167



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

ENGINE COOLANT TEMPERATURE GAUGE : Component Description

INFOID:000000009483168

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.

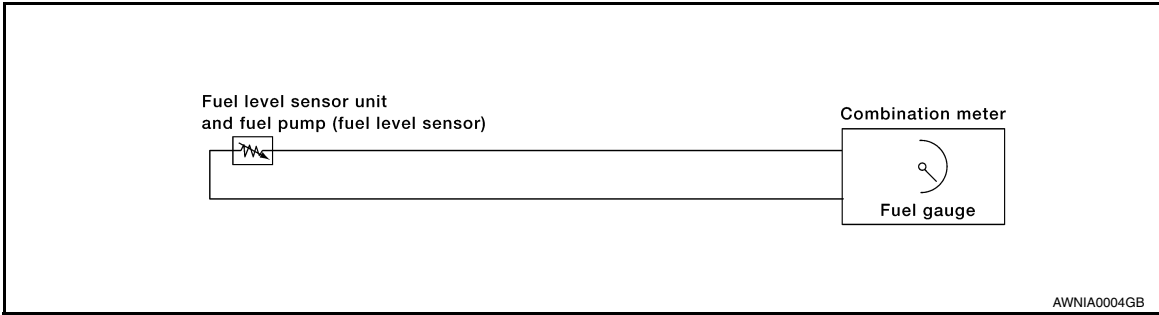
FUEL GAUGE

METER SYSTEM

< SYSTEM DESCRIPTION >

FUEL GAUGE : System Diagram

INFOID:000000009483169



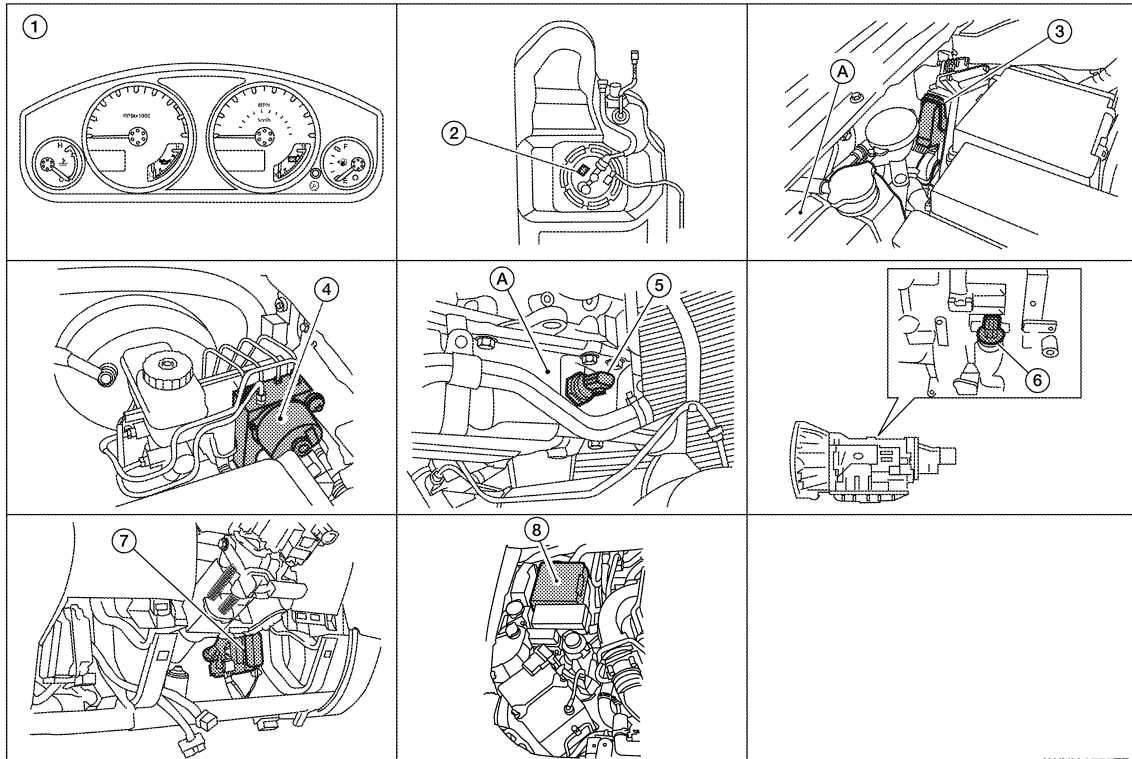
FUEL GAUGE : System Description

INFOID:000000009483170

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:000000009483171



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

METER SYSTEM

< SYSTEM DESCRIPTION >

FUEL GAUGE : Component Description

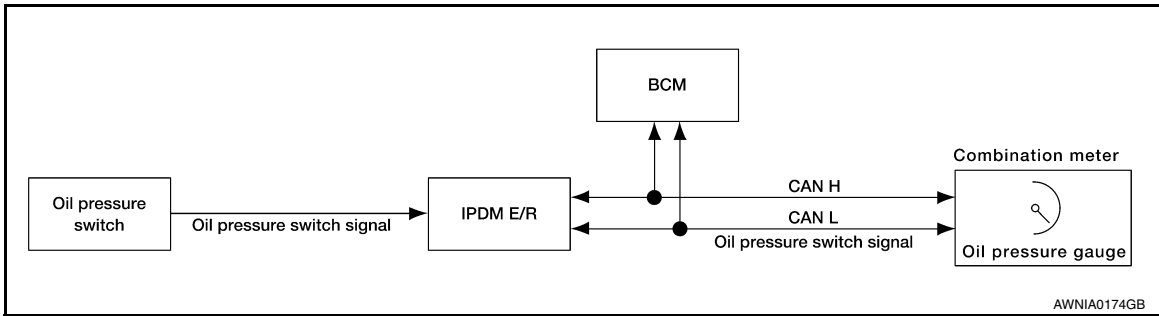
INFOID:000000009483172

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-33, "Description" .

ENGINE OIL PRESSURE GAUGE

ENGINE OIL PRESSURE GAUGE : System Diagram

INFOID:000000009483173



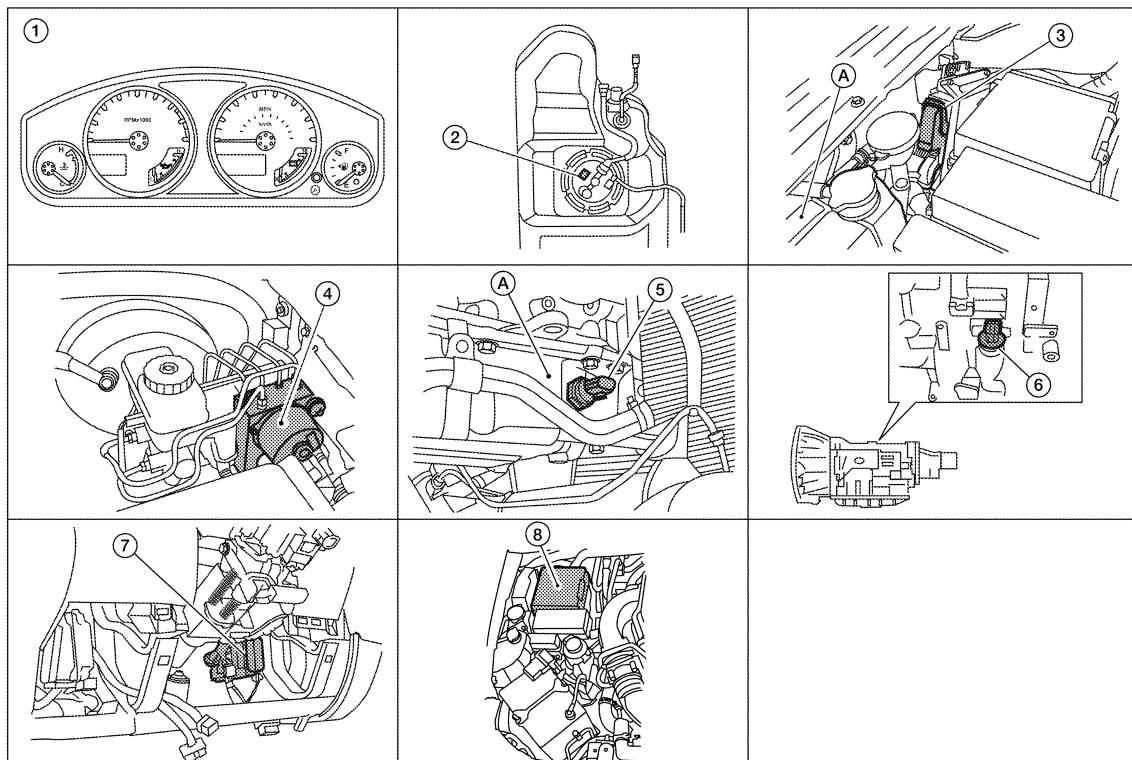
ENGINE OIL PRESSURE GAUGE : System Description

INFOID:000000009483174

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:000000009483175



AWNIA0775ZZ

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

METER SYSTEM

< SYSTEM DESCRIPTION >

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

ENGINE OIL PRESSURE GAUGE : Component Description

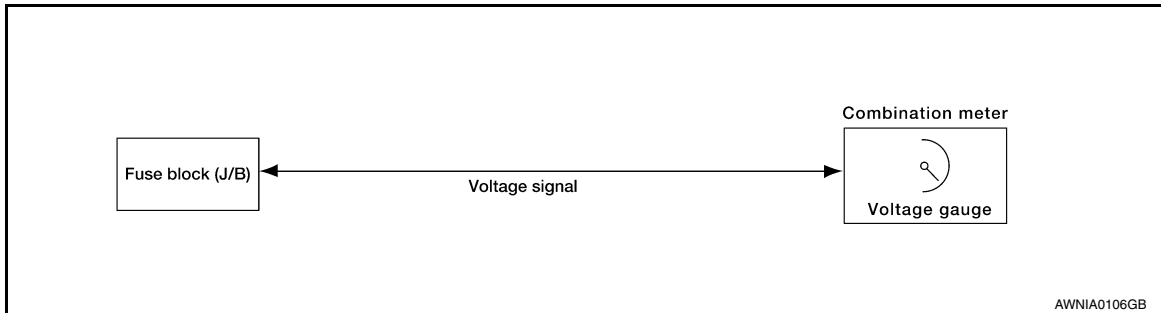
INFOID:000000009483176

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-36, "Description" .
BCM	Transmits the oil pressure switch signal received from IPDM E/R via CAN communication to the combination meter via CAN communication.

VOLTAGE GAUGE

VOLTAGE GAUGE : System Diagram

INFOID:000000009483177



VOLTAGE GAUGE : System Description

INFOID:000000009483178

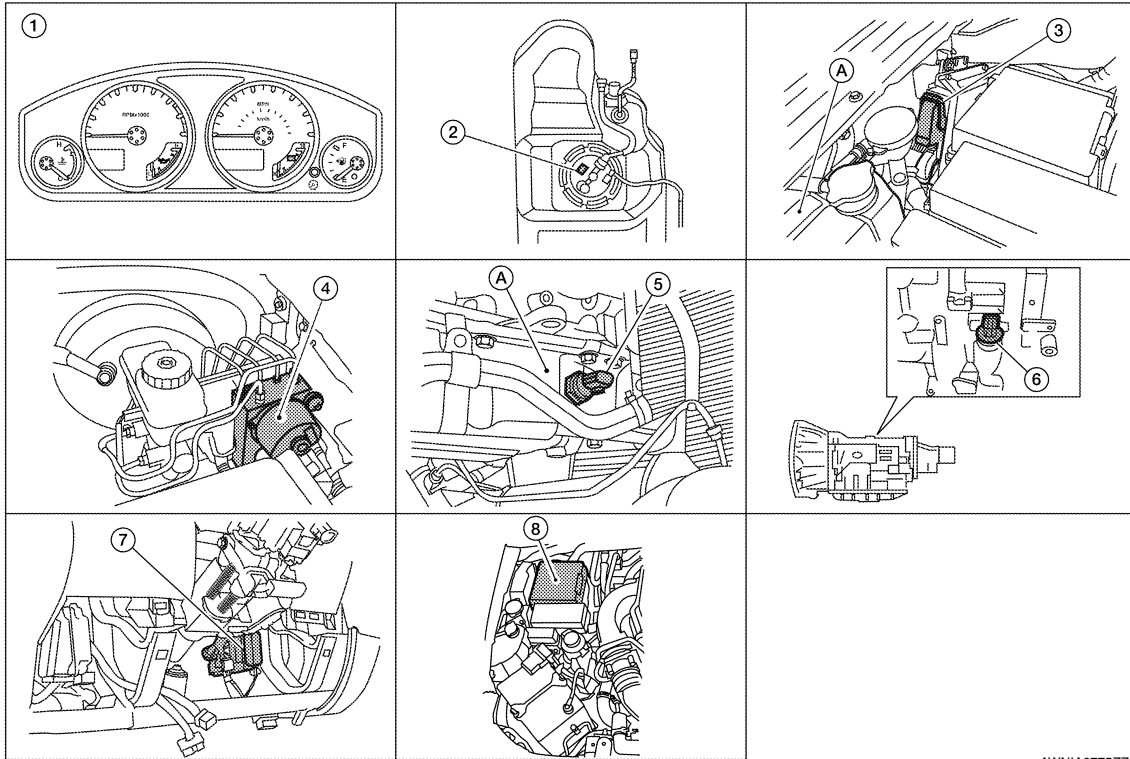
The voltage gauge indicates the battery/charging system voltage.
The voltage gauge is regulated by the unified meter control unit.

METER SYSTEM

< SYSTEM DESCRIPTION >

VOLTAGE GAUGE : Component Parts Location

INFOID:000000009483179



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

VOLTAGE GAUGE : Component Description

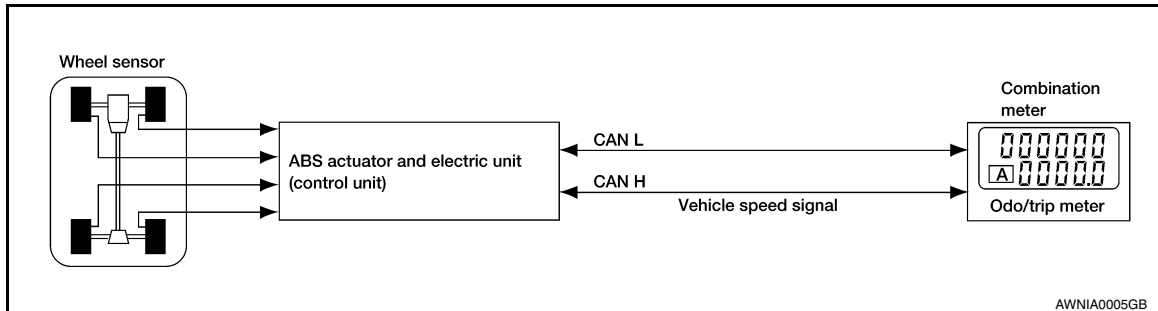
INFOID:000000009483180

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:000000009483181



AWNIA0005GB

METER SYSTEM

< SYSTEM DESCRIPTION >

ODO/TRIP METER : System Description

INFOID:000000009483182

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

LOOSE FUEL CAP WARNING

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

CHECK TIRE PRESSURE WARNING

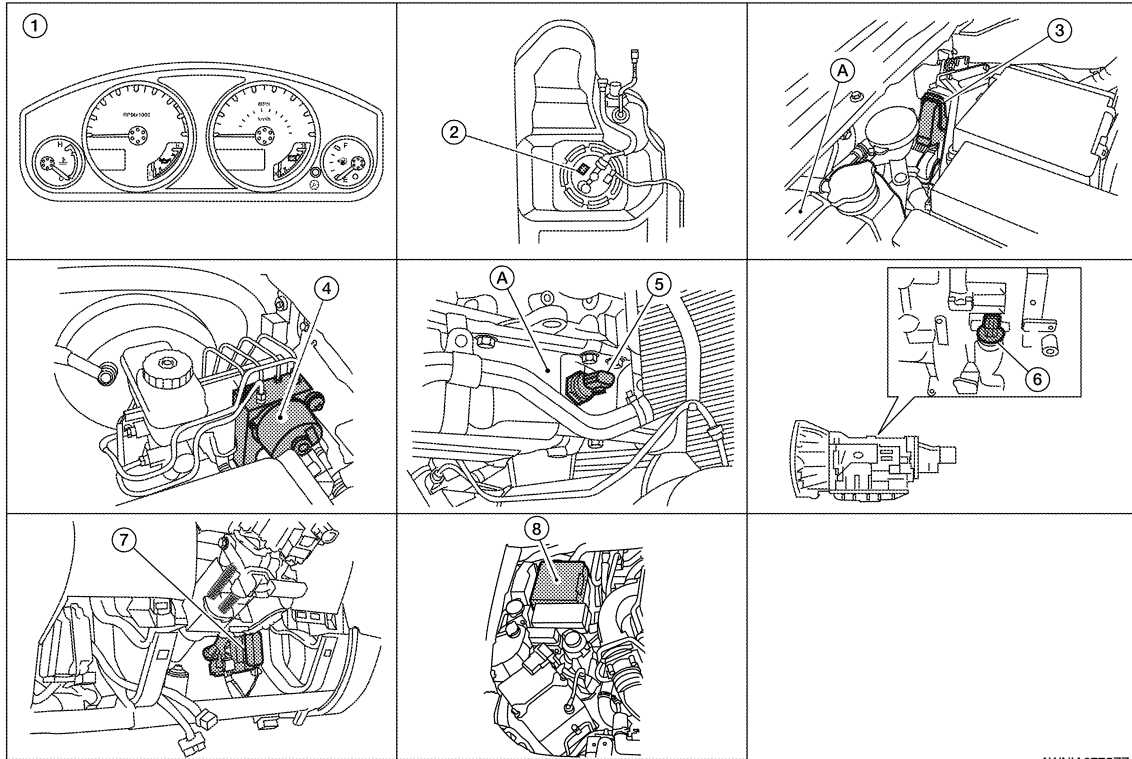
The CHECK TIRE PRESSURE indicator will display in the odometer when BCM has detected a low tire pressure condition.

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:000000009483183



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

METER SYSTEM

< SYSTEM DESCRIPTION >

ODO/TRIP METER : Component Description

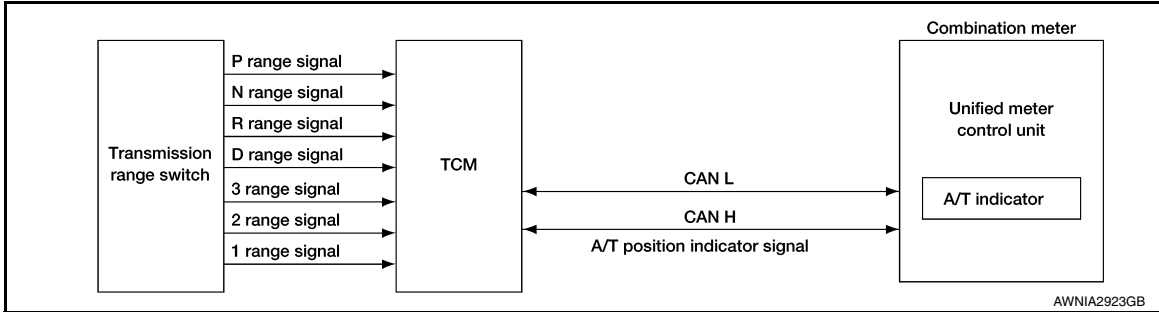
INFOID:000000009483184

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:000000009483185



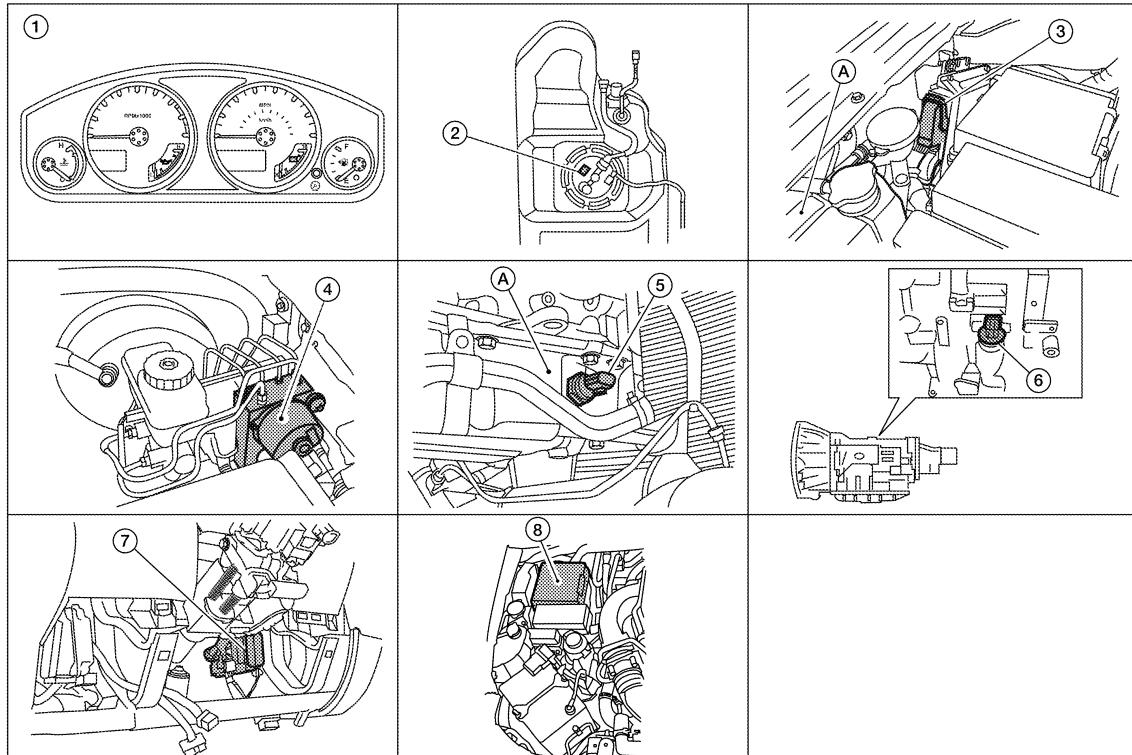
SHIFT POSITION INDICATOR : System Description

INFOID:000000009483186

The TCM receives A/T indicator signals from the transmission range 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:000000009483187



AWNIA0775ZZ

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

METER SYSTEM

< SYSTEM DESCRIPTION >

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

SHIFT POSITION INDICATOR : Component Description

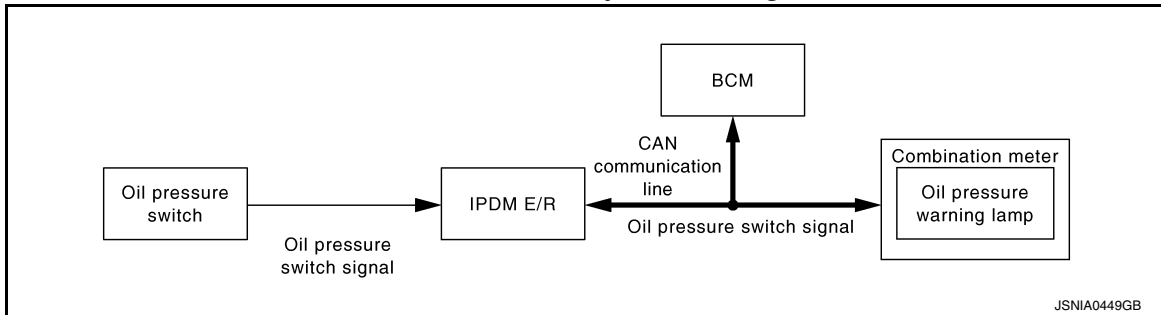
INFOID:000000009483188

Unit	Description
Combination meter	Displays the shift position 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:000000009483189



WARNING LAMPS/INDICATOR LAMPS : System Description

INFOID:000000009483190

OIL PRESSURE WARNING LAMP

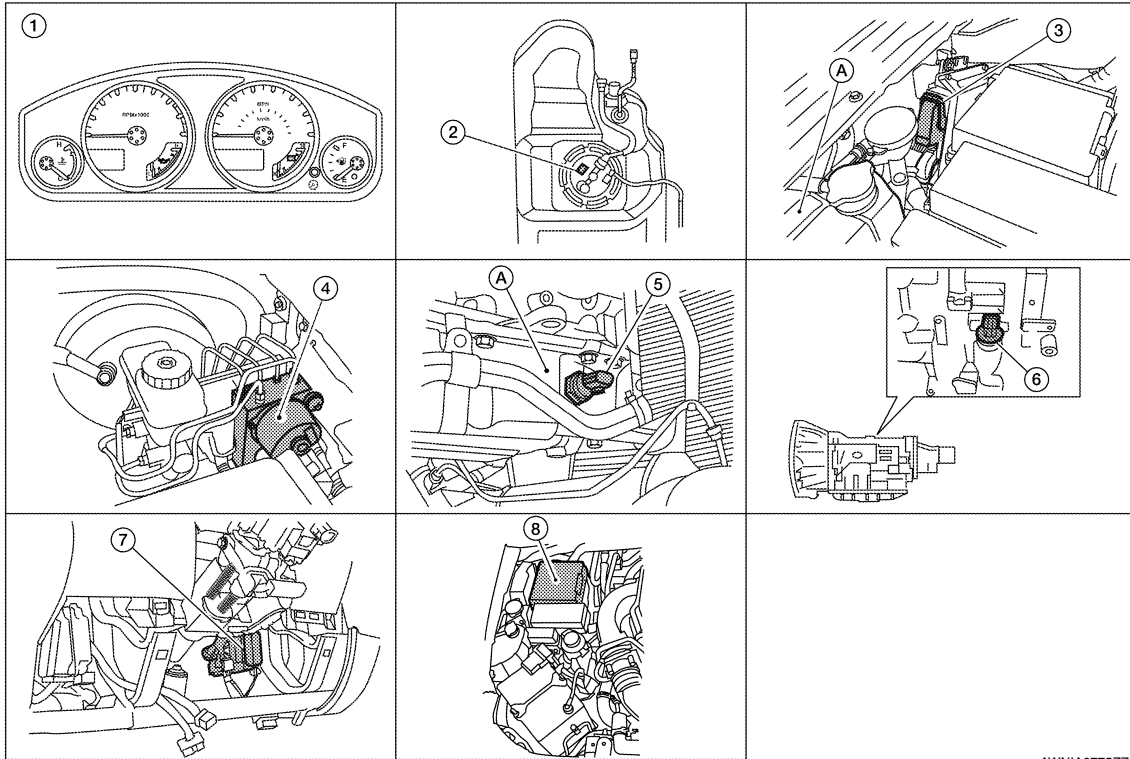
- IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication line.
- The combination meter turns the oil pressure warning lamp ON/OFF according to the oil pressure switch signal received via CAN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

METER SYSTEM

< SYSTEM DESCRIPTION >

WARNING LAMPS/INDICATOR LAMPS : Component Parts Location

INFOID:000000009483191



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

WARNING LAMPS/INDICATOR LAMPS : Component Description

INFOID:000000009483192

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-36. "Description" .
BCM	Transmits the oil pressure switch signal received from IPDM E/R via CAN communication to the combination meter via CAN communication.

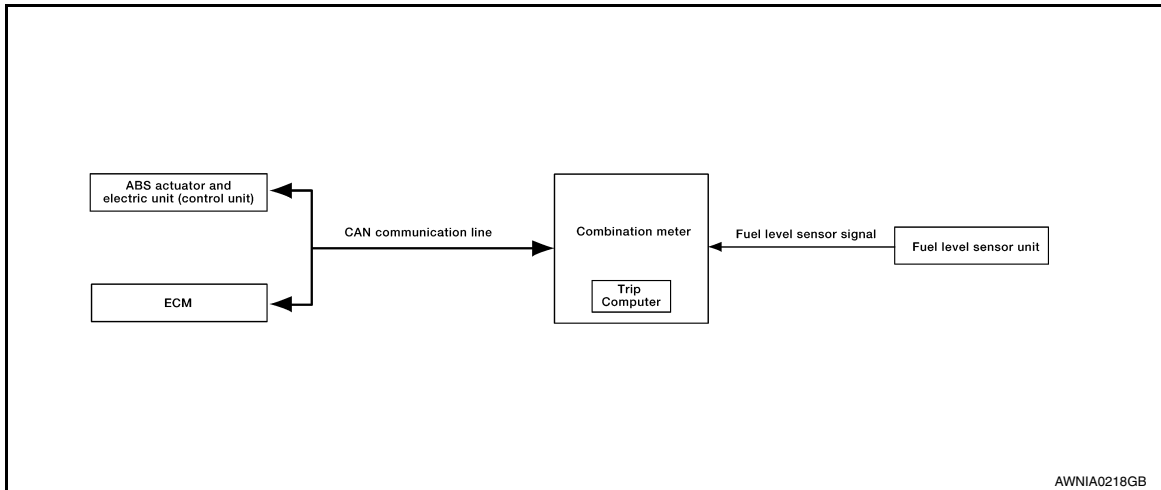
TRIP COMPUTER

METER SYSTEM

< SYSTEM DESCRIPTION >

TRIP COMPUTER : System Diagram

INFOID:000000009483193



TRIP COMPUTER : System Description

INFOID:000000009483194

FUNCTION

The trip computer can indicate the following items.

- DTE (distance to empty)
- Trip distance
- Trip time
- Average fuel consumption
- Average vehicle speed

DTE (DISTANCE TO EMPTY) INDICATION

The range indication provides the driver with an estimation of the distance that can be driven before refueling. The range is calculated by signals from the fuel level sensor unit (fuel remaining), ECM (fuel consumption) and the ABS actuator and electric unit (vehicle speed). The indication will be refreshed every 30 seconds. When fuel remaining is less than approximately 11.6 ℓ (3 1/8 US gal, 2 1/2 Imp gal), the indication will blink as a warning. If the fuel remaining is less than approximately 9.6 ℓ (2 1/2 US gal, 2 1/8 Imp gal), the indication will show “---”. In this case, the display will change to the DTE mode even though the display is showing a different mode. When the battery is disconnected and reconnected, DTE mode will display “---” until the vehicle is driven 0.3 miles (0.5 km).

TRIP DISTANCE

Trip distance is calculated by signal from the ABS actuator and electric unit (vehicle speed). If trip distance is reset, trip time will be reset at the same time.

TRIP TIME

Trip time displays cumulative ignition switch ON time. If trip time is reset, trip distance will be reset at the same time.

AVERAGE FUEL CONSUMPTION

Average fuel consumption indication is calculated by signals from the ABS actuator and electric unit (vehicle speed) and the ECM (fuel consumption). The indication will be refreshed every 30 seconds.

AVERAGE VEHICLE SPEED

Average vehicle speed indication is calculated by running distance and running time. The indication will be refreshed every 30 seconds. If average vehicle speed is reset, average fuel consumption will be reset at the same time. After resetting, the display will show “---” for 30 seconds.

HOW TO CHANGE/RESET INDICATION

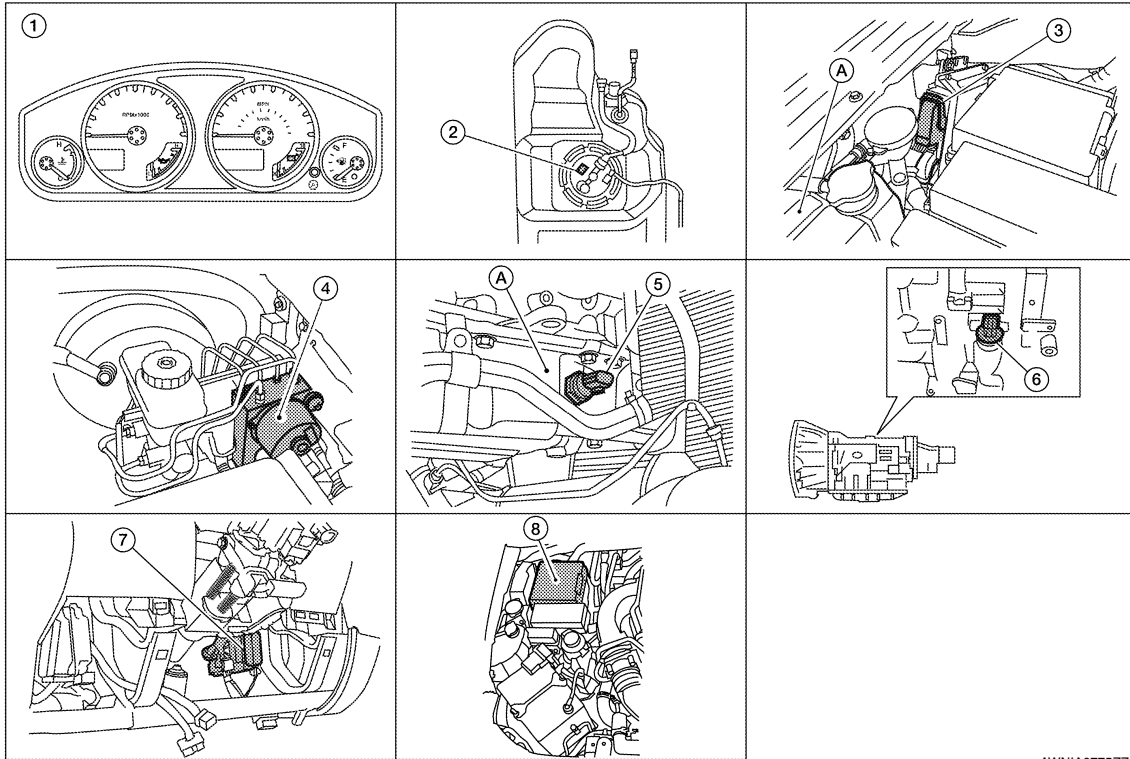
Refer to Owner's Manual for trip computer operating instructions.

METER SYSTEM

< SYSTEM DESCRIPTION >

TRIP COMPUTER : Component Parts Location

INFOID:000000009483195



AWNIA0775ZZ

- | | | |
|---|--|--|
| 1. Combination meter M24 | 2. Fuel level sensor unit and fuel pump C5 (view with fuel tank removed) | 3. ECM E16 (view with ECM cover removed)
A. Coolant reservoir |
| 4. ABS actuator and electric unit (control unit) E125 | 5. Oil pressure switch E208
A. Oil pan (upper) | 6. A/T assembly F9 |
| 7. BCM M18, M19 (view with lower instrument panel LH removed) | 8. IPDM E/R E122, E124 | |

TRIP COMPUTER : Component Description

INFOID:000000009483196

Unit	Description
Combination meter	Controls the information display according to the signal received from each unit.
Fuel level sensor unit	Refer to MWI-33, "Description" .
ECM	Transmits the following signals to the combination meter via CAN communication line. <ul style="list-style-type: none"> • Engine speed signal • Fuel consumption monitor signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication line.

COMPASS

< SYSTEM DESCRIPTION >

COMPASS

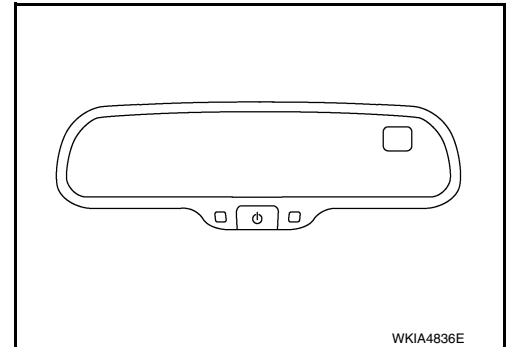
Description

INFOID:000000009483197

DESCRIPTION

With the ignition switch in the ON position, and the mode switch ON, the compass display will indicate the direction the vehicle is heading. Vehicle direction is displayed as follows:

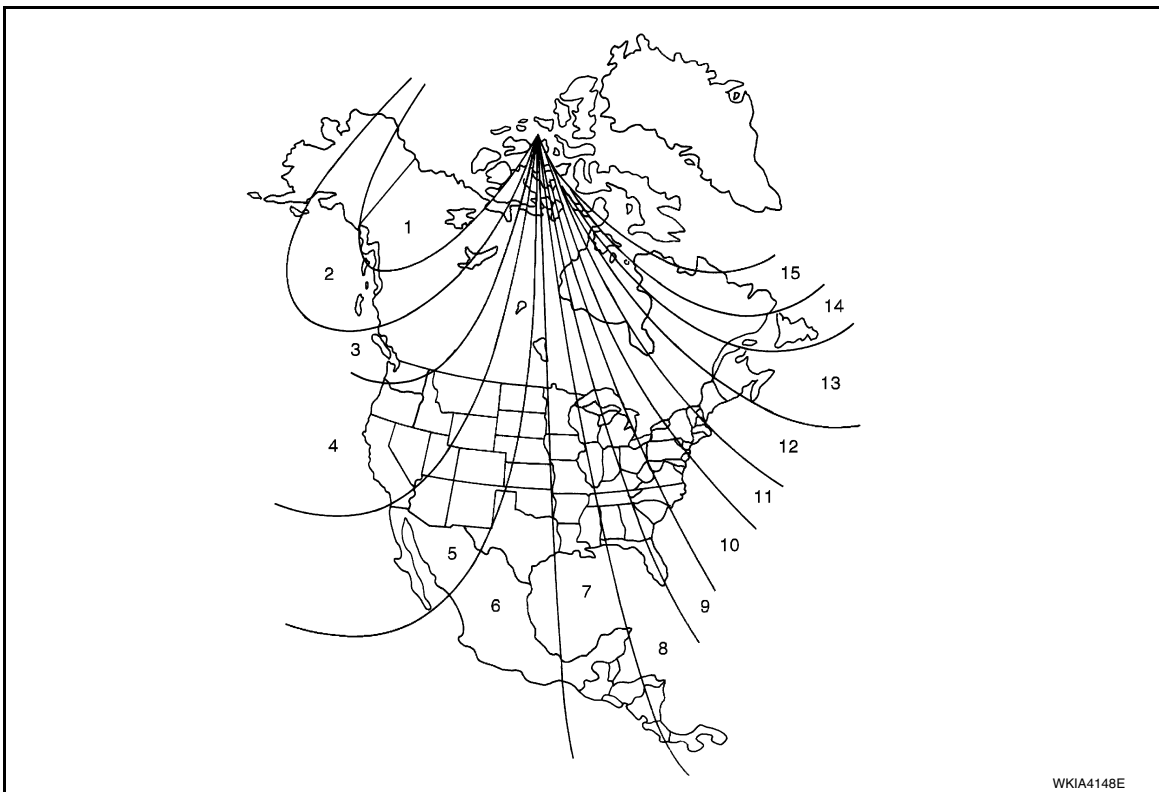
- N: north
- E: east
- S: south
- W: west



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 mode switch until the current zone number appears in the display.
4. Press the mode switch repeatedly until the desired zone number appears in the display.

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

NOTE:

Use zone number 5 for Hawaii.

CALIBRATION PROCEDURE

COMPASS

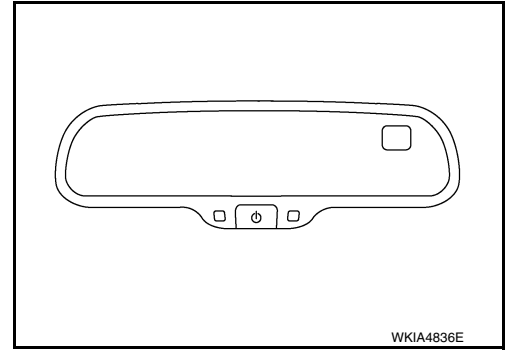
< SYSTEM DESCRIPTION >

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 mode switch until the display reads "CAL".
2. Drive the vehicle slowly in a circle, in an open, safe place. The initial calibration is completed in about 3 turns.

NOTE:

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



A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (METER)

Diagnosis Description

INFOID:000000009483198

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.

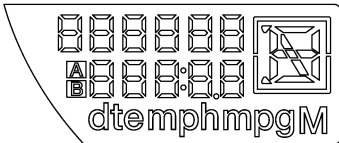
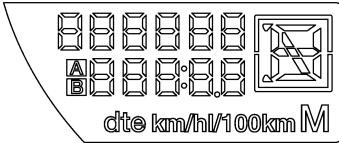
1. Turn the ignition switch ON, while pressing the odometer/trip meter switch for 5 - 8 seconds. When the diagnosis function is activated, the odometer/trip meter will display tEst.

NOTE:

Check combination meter power supply and ground circuit when self-diagnosis mode of combination meter does not start. Refer to [MWI-30, "COMBINATION METER : Diagnosis Procedure"](#). Replace combination meter if normal. Refer to [MWI-84, "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.	USA  <small>AWNIA0219ZZ</small> Canada  <small>AWNIA0220ZZ</small>
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.

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

Event	Odometer Display	Description of Test/Data	Notes:	
Switch pressed	nrXXXX	Displays Hex ROM rev as stored in NVM.		A
Switch pressed	EE XX, FAIL	Displays "EE XX".	If a malfunction exists, "FAIL" will flash.	B
Switch pressed	dtXXXX	Hex coding of final manufacturing test date.		C
Switch pressed (3 times)	Sc1 XX through Epr XX	Displays 8 bit software configuration value in Hex format		
Switch pressed	1nF XX	Displays 8-bit market info value in Hex format.	\$31 = USA \$2A = Canada	D
Switch pressed (3 times)	cYL XX through tF	N/A		E
Switch pressed	ot1 XX	Displays oil pressure tell-tale "" in Hex format.		
Switch pressed	ot0 XX	Displays oil pressure tell-tale "" in Hex format.		F
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.	G
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.	H
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.	I
Switch pressed	F1XXXX	Present fuel level A/D input. This input represents fuel sender input.	000-009 = Short circuit 010-254 = Normal range 255 = Open circuit	J
Switch pressed	XXXXC	Last temperature gauge input value in degrees C. Temperature gauge indicates present temperature per indication standard.	Will display "---"C if message is not received. Will display "999" if data received is invalid. High = 130 deg C Normal = 70 - 105 deg C Low = less than 50 deg C	K
Switch pressed	BAtXX.X	Estimated present battery voltage.		L
Switch pressed	rES -X	Seat belt buckle switch LH status.	1= Buckled 0 = Unbuckled	M
Switch pressed (30 times)	PA -XX through PA1-XX	N/A		
Switch pressed	GAGE		Return to beginning of self-diagnosis cycle.	O
				P

CONSULT Function (METER/M&A)

INFOID:000000009483199

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

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

METER/M&A diagnosis mode	Description
Self Diagnostic Result	Displays combination meter self-diagnosis results.
Data Monitor	Displays combination meter input/output data in real time.
Work Support	Displays diagnosis procedure of each work item.
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-40, "DTC Index"](#).

DATA MONITOR

Display Item List

X: Applicable

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

DIAGNOSIS SYSTEM (METER)

< SYSTEM DESCRIPTION >

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

NOTE:

Some items are not available due to vehicle specification.

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

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

WORK SUPPORT

Work support item	Description
Turn signal buzzer diagnosis	A possible malfunction can be narrowed down by following displayed instructions.
Fuel meter diagnosis (Analog pointer)	

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

DTC U1000 CAN COMMUNICATION

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

DTC U1000 CAN COMMUNICATION

DTC Logic

INFOID:000000009483200

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000009483201

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.

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

DTC B2205 VEHICLE SPEED CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC B2205 VEHICLE SPEED CIRCUIT

Description

INFOID:000000009483202

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

DTC Logic

INFOID:000000009483203

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

Diagnosis Procedure

INFOID:000000009483204

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

1. CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

- YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to [BRC-29, "CONSULT Function \(ABS\)"](#) (TYPE 1) or [BRC-145, "CONSULT Function \(ABS\)"](#) (TYPE 2).
- NO >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:000000009483205

Regarding Wiring Diagram information, refer to [MWI-61. "Wiring Diagram"](#).

1. CHECK FUSES

Check for blown combination meter fuses.

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

Is the inspection result normal?

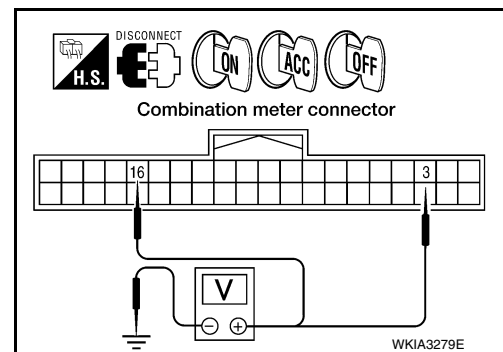
YES >> GO TO 2

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 3, 16 and ground.

Terminals		(-)	Ignition switch position		
(+)			OFF	ACC	ON
Connector	Terminal	Ground			
M24	3			Battery voltage	Battery voltage
	16		0V	0V	Battery voltage



Is the inspection result normal?

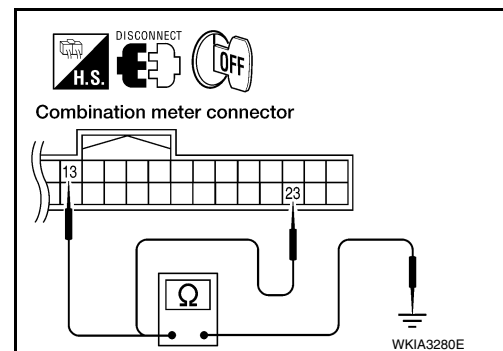
YES >> GO TO 3

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

3. GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between combination meter harness connector M24 terminals 13, 23 and ground.

Terminals		(-)	Continuity
(+)			
Connector	Terminal	Ground	Yes
M24	13		
	23		



Is the inspection result normal?

YES >> Inspection End.

NO >> Check ground harness.

BCM (BODY CONTROL MODULE)

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:000000010244803

Regarding Wiring Diagram information, refer to [BCS-44, "Wiring Diagram"](#).

1. CHECK FUSES AND FUSIBLE LINK

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

Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	21 (10A)
70		G (50A)
11	Ignition ACC or ON	4 (10A)
38	Ignition ON or START	1 (10A)

Is the fuse blown?

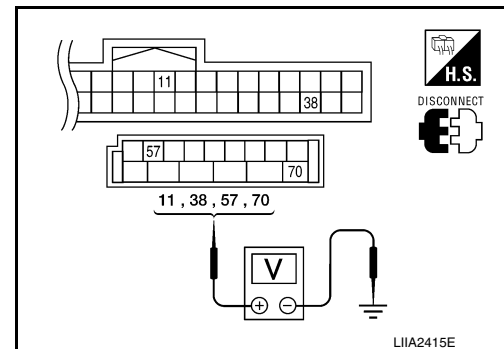
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK POWER SUPPLY CIRCUIT

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

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



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

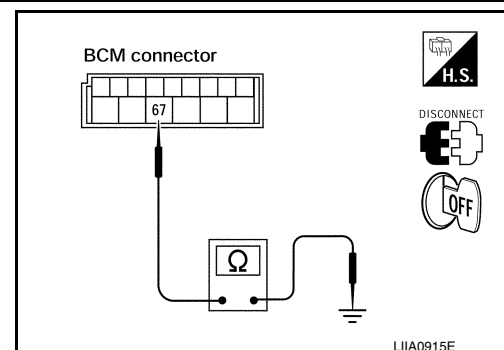
Check continuity between BCM harness connector and ground.

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)

A
B
C
D
E
F
G
H
I
J
K
L
M

MWI

O
P

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

INFOID:000000010244804

Regarding Wiring Diagram information, refer to [PCS-22, "Wiring Diagram"](#).

1. CHECK FUSIBLE LINKS

Check that the following IPDM E/R fusible links are not blown.

Terminal No.	Signal name	Fusible link No.
1	Battery	A, D
2		C
22		A, E, I

Is the fusible link blown?

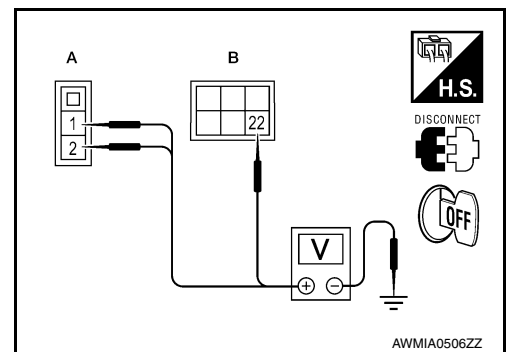
YES >> Replace the blown fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK BATTERY POWER SUPPLY CIRCUIT

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

Terminals		Ignition switch position	Voltage (V) (Approx.)
(+)	(-)		
Connector	Terminal	Ground	OFF
E118 (A)	1		
	2		
E120 (B)	22		



Is there voltage on all pins?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

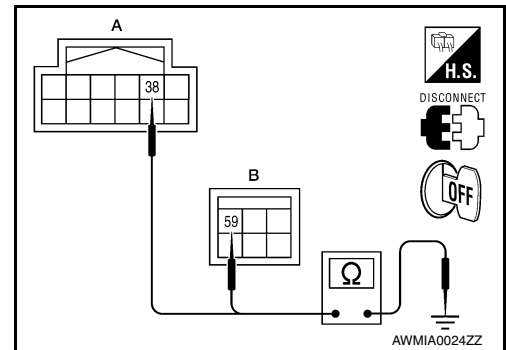
- Turn ignition switch OFF.
- Check continuity between IPDM E/R harness connectors and ground.

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

Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.



FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:000000009483208

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:000000009483209

1.COMBINATION METER INPUT SIGNAL

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

Fuel gauge pointer	Reference value of data monitor [lit.]
Full	Approx. 79.3
3/4	Approx. 58.5
1/2	Approx. 37.1
1/4	Approx. 22.4
Empty	Approx. 7.6

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

YES >> Inspection End.

NO >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

Diagnosis Procedure

INFOID:000000009483210

Regarding Wiring Diagram information, refer to [MWI-61, "Wiring Diagram"](#).

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

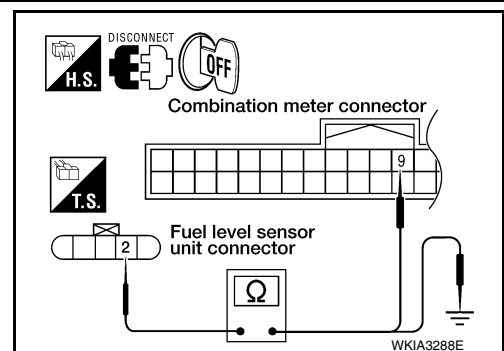
NO >> Repair or replace terminals or connectors.

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 and fuel level sensor unit and fuel pump harness connector.

Terminals				Continuity
(+)		(-)		
Connector	Terminal	Connector	Terminal	
C5	2	M24	9	Yes

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



FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminals		Continuity
(+)	(-)	
Connector	Terminal	Ground
C5	2	
		No

Is the inspection result normal?

YES >> GO TO 3

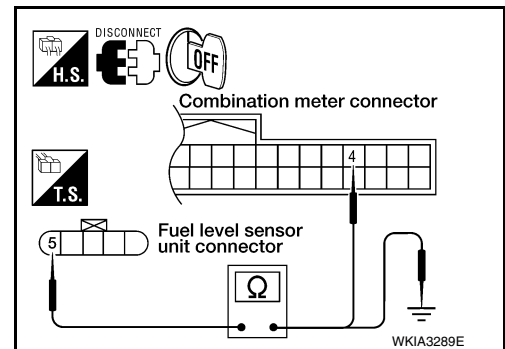
NO >> Repair harness or connector.

3. CHECK FUEL LEVEL SENSOR UNIT GROUND CIRCUIT

1. Check continuity between combination meter harness connector and fuel level sensor unit and fuel pump harness connector.

Terminals				Continuity
(+)		(-)		
Connector	Terminal	Connector	Terminal	Yes
C5	5	M24	4	

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



Terminals		Continuity
(+)	(-)	
Connector	Terminal	Ground
C5	5	
		No

Is the inspection result normal?

YES >> GO TO 4

NO >> Repair harness or connector.

4. CHECK INSTALLATION CONDITION

Check fuel level sensor unit 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:00000009483211

1. REMOVE FUEL LEVEL SENSOR UNIT

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

>> GO TO 2

2. CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP

FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Check the resistance between terminals 2 and 5.

Terminal		Float position mm (in)		Resistance value (Approx.)
2	5	*1	Empty	10 (0.4)
		*2	Full	211.1 (8.3)

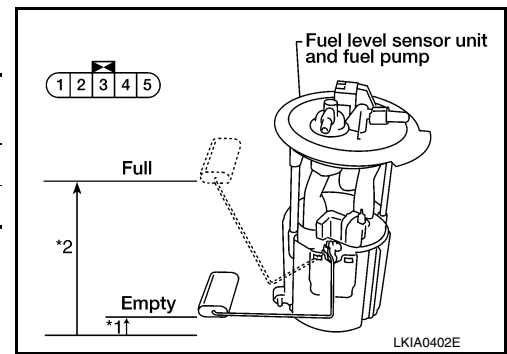
*1 and *2: When float arm is in contact with stopper.

Is inspection result normal?

YES >> Inspection End.

NO >> Replace fuel level sensor unit and fuel pump. Refer to

[FL-11, "Removal and Installation"](#).



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Description

INFOID:000000009483212

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

Component Function Check

INFOID:000000009483213

1.COMBINATION METER INPUT SIGNAL

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

OIL W/L

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

When engine is running : OFF

>> Inspection End.

Diagnosis Procedure

INFOID:000000009483214

Regarding Wiring Diagram information, refer to [MWI-61, "Wiring Diagram"](#).

1.CHECK OIL PRESSURE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E122 and oil pressure switch connector E208.
3. Check continuity between IPDM E/R harness connector E122 terminal 42 and oil pressure switch harness connector E208 terminal 1.

Continuity should exist.

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

Continuity should not exist.

Are the inspection results normal?

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

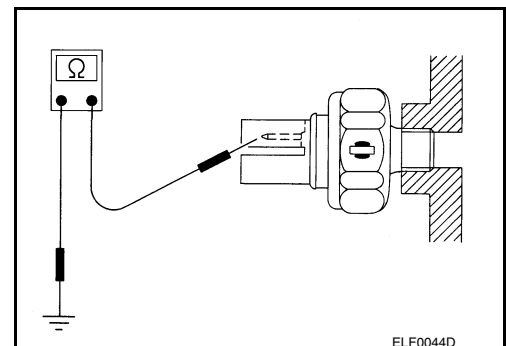
Component Inspection

INFOID:000000009483215

1.CHECK OIL PRESSURE SWITCH

Check continuity between oil pressure switch and ground.

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



Is the inspection result normal?

OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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

A

B

C

D

E

F

G

H

I

J

K

L

M

MWI

O

P

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

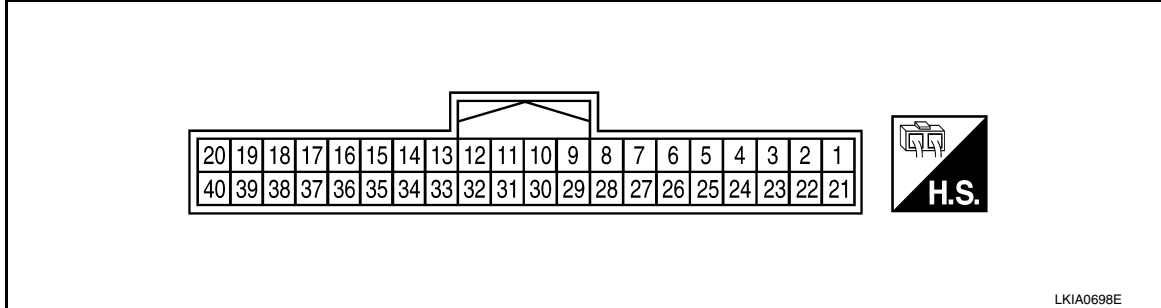
ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:000000009483216

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
2	P	Generator	ON	Generator voltage low	0
				Generator voltage normal	Battery voltage
3	R/Y	Battery power supply	—	—	Battery voltage
4	B/Y	Fuel level sensor ground	ON	—	0
6	SB	Vehicle speed signal output (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	<p>NOTE: Maximum voltage may be 12V due to specifications (connected units).</p> <p>PKIC0643E</p>
7	G	PNP signal	ON	Selector lever: P or N (A/T), Neutral (M/T)	0
				Except above	Battery voltage
9	BR	Fuel level sensor signal	—	—	Refer to MWI-12, "FUEL GAUGE : System Description" .
11	P	CAN-L	—	—	—
12	L	CAN-H	—	—	—
13	GR	Ground	—	—	0
16	W/G	Ignition switch ON or START	ON	—	Battery voltage
17	B	Starter relay	ON	Selector lever: P or N	Battery voltage
				Except above	0
22	BR	Illumination control switch	—	—	Refer to INL-9, "System Description" .
23	B	Ground	—	—	0
24	V	Seat belt buckle switch LH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
25	SB	DIFF LOCK indicator input	ON	DIFF LOCK indicator ON	0
				DIFF LOCK indicator OFF	Battery voltage
31	G	Parking brake switch	ON	Parking brake depressed	0
				Parking brake released	Battery voltage
32	SB	Brake fluid level switch	ON	Brake fluid level low	0
				Brake fluid level normal	Battery voltage
34	L	Washer fluid level switch	ON	Washer fluid level low	0
				Washer fluid level normal	Battery voltage
37	SB	Air bag warning lamp input	ON	Air bag warning lamp ON	4
				Air bag warning lamp OFF	0
39	G	Security indicator input	OFF	Security indicator ON	0
				Security indicator OFF	Battery voltage
40	LG	Seat belt buckle switch RH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage

Fail Safe

INFOID:000000009483217

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		
Voltage gauge		
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.

MWI

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

	Function	Specifications
Warning lamp/indicator lamp	ABS warning lamp	Lamp turns on when communication is lost.
	Brake warning lamp	
	VDC OFF indicator lamp	
	Malfunction indicator lamp	
	SLIP indicator lamp	
	AT oil temp warning lamp	Lamp turns off when communication is lost.
	Low washer fluid warning lamp	
	Hill descent control indicator lamp	
	Door ajar warning lamp	
	CRUISE indicator lamp	
	SET indicator lamp	
	O/D OFF indicator lamp	
	Oil pressure warning lamp	
	Air bag warning lamp	
	High beam indicator	
	Turn signal indicator lamp	Lamp turns off when disconnected.
	Driver and passenger seat belt warning lamp	
	Charge warning lamp	
	Security indicator lamp	
	4WD indicator lamp	
ATP indicator lamp		
Differential 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:000000009483218

CONSULT display	Malfunction	Reference page
CAN COMM CIRC [U1000]	Malfunction is detected in CAN communication. CAUTION: Even when there is no malfunction on CAN communication system, malfunction may be misinterpreted when battery has low voltage (when maintaining 7 - 8 V for about 2 seconds) or 10A fuse [No. 19, located in the fuse block (J/B)] is disconnected.	MWI-28
VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is input. CAUTION: Even when there is no malfunction on speed signal system, malfunction may be misinterpreted when battery has low voltage (when maintaining 7 - 8 V for about 2 seconds).	MWI-29

NOTE:

“TIME” indicates the following.

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000010244806

NOTE:

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

- Activate and display TPMS transmitter IDs
- Display tire pressure reported by the TPMS transmitter
- Read TPMS DTCs
- Register TPMS transmitter IDs

VALUES ON THE DIAGNOSIS TOOL

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition	Value/Status
ENGINE RUN	Engine stopped	Off
	Engine running	On
FAN ON SIG	Blower motor fan switch OFF	Off
	Blower motor fan switch ON	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
HEAD LAMP SW 1	Headlamp switch OFF	Off
	Headlamp switch 1st	On
HEAD LAMP SW 2	Headlamp switch OFF	Off
	Headlamp switch 1st	On
HI BEAM SW	High beam switch OFF	Off
	High beam switch HI	On
ID REGST FL1	ID registration of front left tire incomplete	YET
	ID registration of front left tire complete	DONE
ID REGST FR1	ID registration of front right tire incomplete	YET
	ID registration of front right tire complete	DONE
ID REGST RL1	ID registration of rear left tire incomplete	YET
	ID registration of rear left tire complete	DONE
ID REGST RR1	ID registration of rear right tire incomplete	YET
	ID registration of rear right tire complete	DONE
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 CYL LK-SW	Door key cylinder LOCK position	Off
	Door key cylinder other than LOCK position	On
KEY CYL UN-SW	Door key cylinder UNLOCK position	Off
	Door key cylinder other than UNLOCK position	On
KEY ON SW	Mechanical key is removed from key cylinder	Off
	Mechanical key is inserted to key cylinder	On

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

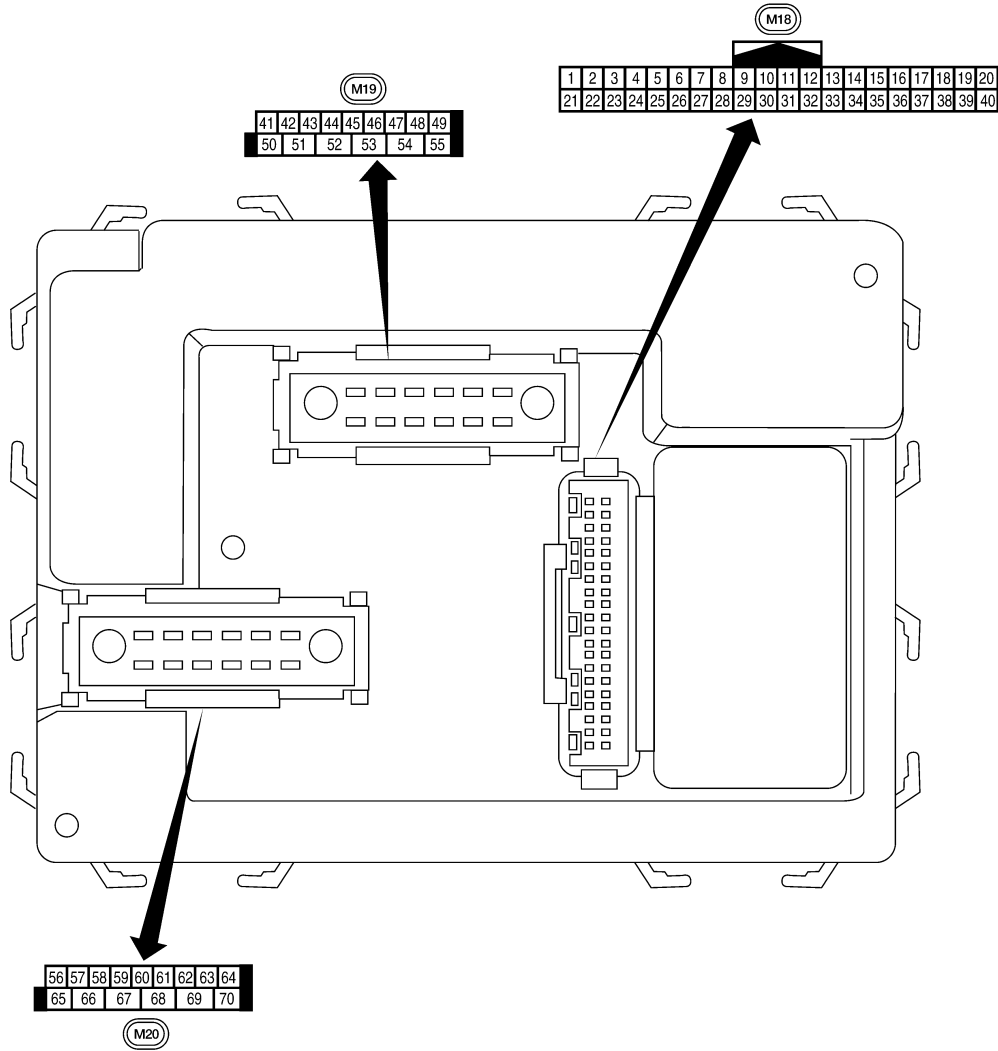
Monitor Item	Condition	Value/Status	
KEYLESS LOCK	LOCK button of key fob is not pressed	Off	A
	LOCK button of key fob is pressed	On	
KEYLESS PANIC	PANIC button of key fob is not pressed	Off	B
	PANIC button of key fob is pressed	On	
KEYLESS UNLOCK	UNLOCK button of key fob is not pressed	Off	C
	UNLOCK button of key fob is pressed	On	
LIGHT SW 1ST	Lighting switch OFF	Off	D
	Lighting switch 1st	On	
OIL PRESS SW	<ul style="list-style-type: none"> • Ignition switch OFF or ACC • Engine running 	Off	E
	Ignition switch ON	On	
OPTICAL SENSOR	Bright outside of the vehicle	Close to 5V	F
	Dark outside of the vehicle	Close to 0V	
PASSING SW	Other than lighting switch PASS	Off	G
	Lighting switch PASS	On	
PKB SW	Parking brake released	Off	H
	Parking brake engaged	On	
REAR DEF SW	Rear window defogger switch OFF	Off	I
	Rear window defogger switch ON	On	
RR WASHER SW	Rear washer switch OFF	Off	J
	Rear washer switch ON	On	
RR WIPER INT	Rear wiper switch OFF	Off	K
	Rear wiper switch INT	On	
RR WIPER ON	Rear wiper switch OFF	Off	L
	Rear wiper switch ON	On	
RR WIPER STOP	Rear wiper stop position	Off	M
	Other than rear wiper stop position	On	
TURN SIGNAL L	Turn signal switch OFF	Off	
	Turn signal switch LH	On	
TURN SIGNAL R	Turn signal switch OFF	Off	
	Turn signal switch RH	On	
VEHICLE SPEED	While driving	Equivalent to speedometer reading	
WARNING LAMP	Low tire pressure warning lamp in combination meter OFF	Off	MWI
	Low tire pressure warning lamp in combination meter ON	On	

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:000000010244807



LIIA2443E

Physical Values

INFOID:000000010244808

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

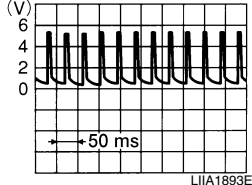
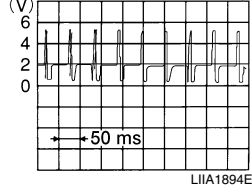
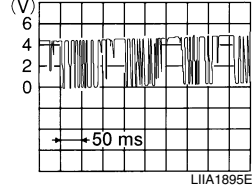
Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
1	BR	Ignition keyhole illumination	Output	OFF	Door is locked (SW OFF)	Battery voltage
					Door is unlocked (SW ON)	0V
2	P	Combination switch input 5	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right; font-size: small;">SKIA5291E</p>
3	SB	Combination switch input 4	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right; font-size: small;">SKIA5292E</p>
4	V	Combination switch input 3	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right; font-size: small;">SKIA5291E</p>
5	L	Combination switch input 2	Input	ON	Lighting, turn, wiper OFF Wiper dial position 4	<p style="text-align: right; font-size: small;">SKIA5292E</p>
6	R	Combination switch input 1				
7	GR	Front door lock assembly LH (key cylinder switch) and back door key cylinder switch (unlock)	Input	OFF	ON (open, 2nd turn)	Momentary 1.5V
					OFF (closed)	0V
8	SB	Front door lock assembly LH (key cylinder switch) and back door key cylinder switch (lock)	Input	OFF	ON (open)	Momentary 1.5V
					OFF (closed)	0V
9	LG	Stop lamp switch	Input	OFF	Brake pedal depressed	Battery voltage
					Brake pedal released	0V
11	G/B	Ignition switch (ACC or ON)	Input	ACC or ON	Ignition switch ACC or ON	Battery voltage
12	LG	Front door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
13	L	Rear door switch RH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

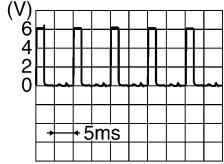

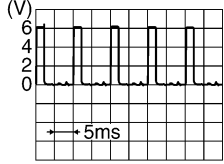
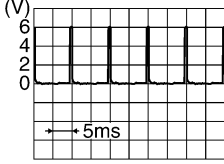
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
15	W	Tire pressure warning check connector	Input	OFF	—	5V
18	BR	Remote keyless entry receiver and optical sensor (ground)	Output	OFF	—	0V
19	V	Remote keyless entry receiver (power supply)	Output	OFF	Ignition switch OFF	 <small>LIIA1893E</small>
20	G	Remote keyless entry receiver (signal)	Input	OFF	Stand-by (keyfob buttons released)	 <small>LIIA1894E</small>
					When remote keyless entry receiver receives signal from keyfob (keyfob buttons pressed)	 <small>LIIA1895E</small>
21	GR	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.
23	G	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	Compressor ON signal	Input	ON	A/C switch OFF	5V
					A/C switch ON	0V
28	R	Front blower monitor	Input	ON	Front blower motor OFF	Battery voltage
					Front blower motor ON	0V
29	G	Hazard switch	Input	OFF	ON	0V
					OFF	5V
31	R	Off-road lamps switch	Input	ON	ON	0V
					OFF	5V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

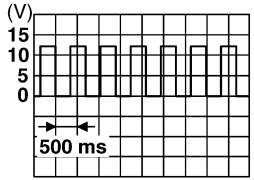
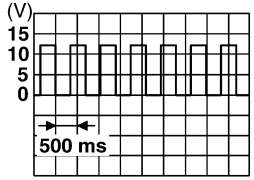
Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
32	BG	Combination switch output 5	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
33	GR	Combination switch output 4	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
34	G	Combination switch output 3	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5291E</p>
35	BR	Combination switch output 2	Output	ON	Lighting, turn, wiper OFF Wiper dial position 4	 <p style="text-align: right; font-size: small;">SKIA5292E</p>
36	LG	Combination switch output 1				
37	B	Key switch and key lock solenoid	Input	OFF	Key inserted	Battery voltage
					Key removed	0V
38	W/R	Ignition switch (ON)	Input	ON	—	Battery voltage
39	L	CAN-H	—	—	—	—
40	P	CAN-L	—	—	—	—
41	Y	Rear window defogger switch	Input	ON	Rear window defogger switch ON	0V
					Rear window defogger switch OFF	5V
42	L	Off-road lamps	Output	ON	Off-road lamps switch ON	0V
					Off-road lamps switch OFF	Battery voltage
43	Y	Back door switch	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
44	BG	Rear wiper auto stop switch	Input	ON	Rise up position (rear wiper arm on stopper)	0V
					A Position (full clockwise stop position)	Battery voltage
					Forward sweep (counterclockwise direction)	Fluctuating
					B Position (full counterclockwise stop position)	0V
					Reverse sweep (clockwise direction)	Fluctuating
45	V	Lock switch	Input	OFF	ON (lock)	0V
					OFF	Battery voltage
46	LG	Unlock switch	Input	OFF	ON (unlock)	0V
					OFF	Battery voltage
47	GR	Front door switch LH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
48	P	Rear door switch LH	Input	OFF	ON (open)	0V
					OFF (closed)	Battery voltage
49	L	Cargo lamp	Output	OFF	Any door open (ON)	0V
					All doors closed (OFF)	Battery voltage
50	W	Off-road lamps relay	Output	ON	Off-road lamps switch	ON
					OFF	Battery voltage
51	BG	Trailer turn signal (right)	Output	ON	Turn right ON	 <p style="text-align: right; font-size: small;">SKIA3009J</p>
52	LG	Trailer turn signal (left)	Output	ON	Turn left ON	 <p style="text-align: right; font-size: small;">SKIA3009J</p>
55	W	Rear wiper output circuit 1	Output	ON	OFF	0
					ON	Battery voltage
56	R/Y	Battery saver output	Output	OFF	10 minutes after ignition switch is turned OFF	0V
				ON	—	Battery voltage
57	R/Y	Battery power supply	Input	OFF	—	Battery voltage
58	W	Optical sensor	Input	ON	When optical sensor is illuminated	3.1V or more
					When optical sensor is not illuminated	0.6V or less

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value or waveform (Approx.)
				Ignition switch	Operation or condition	
59	GR	Front door lock assembly LH actuator (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
60	LG	Turn signal (left)	Output	ON	Turn left ON	 SKIA3009J
61	G	Turn signal (right)	Output	ON	Turn right ON	 SKIA3009J
63	BR	Interior room/map lamp	Output	OFF	Any door switch ON (open)	0V
					OFF (closed)	Battery voltage
65	V	All door lock actuators (lock)	Output	OFF	OFF (neutral)	0V
					ON (lock)	Battery voltage
66	L	Front door lock actuator RH, rear door lock actuators LH/RH and back door lock actuator (unlock)	Output	OFF	OFF (neutral)	0V
					ON (unlock)	Battery voltage
67	B	Ground	Input	ON	—	0V
68	SB	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
70	W	Battery power supply	Input	OFF	—	Battery voltage

Fail Safe

INFOID:0000000010244809

MWI

Fail-safe index

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

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

DTC Inspection Priority Chart

INFOID:0000000010244810

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

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

Priority	DTC
1	<ul style="list-style-type: none"> U1000: CAN COMM CIRCUIT
2	<ul style="list-style-type: none"> B2190: NATS ANTENNA AMP B2191: DIFFERENCE OF KEY B2192: ID DISCORD BCM-ECM B2193: CHAIN OF BCM-ECM
3	<ul style="list-style-type: none"> C1729: VHCL SPEED SIG ERR C1735: IGNITION SIGNAL
4	<ul style="list-style-type: none"> C1704: LOW PRESSURE FL C1705: LOW PRESSURE FR C1706: LOW PRESSURE RR C1707: LOW PRESSURE RL C1708: [NO DATA] FL C1709: [NO DATA] FR C1710: [NO DATA] RR C1711: [NO DATA] RL C1712: [CHECKSUM ERR] FL C1713: [CHECKSUM ERR] FR C1714: [CHECKSUM ERR] RR C1715: [CHECKSUM ERR] RL C1716: [PRESSDATA ERR] FL C1717: [PRESSDATA ERR] FR C1718: [PRESSDATA ERR] RR C1719: [PRESSDATA ERR] RL C1720: [CODE ERR] FL C1721: [CODE ERR] FR C1722: [CODE ERR] RR C1723: [CODE ERR] RL C1724: [BATT VOLT LOW] FL C1725: [BATT VOLT LOW] FR C1726: [BATT VOLT LOW] RR C1727: [BATT VOLT LOW] RL

DTC Index

INFOID:0000000010244811

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	Low tire pressure warning lamp ON	Reference page
No DTC is detected. further testing may be required.	—	—	—
U1000: CAN COMM CIRCUIT	X	—	BCS-27
B2190: NATS ANTENNA AMP	—	—	SEC-18
B2191: DIFFERENCE OF KEY	—	—	SEC-21
B2192: ID DISCORD BCM-ECM	—	—	SEC-22
B2193: CHAIN OF BCM-ECM	—	—	SEC-24
C1708: [NO DATA] FL	—	X	WT-15
C1709: [NO DATA] FR	—	X	WT-15
C1710: [NO DATA] RR	—	X	WT-15
C1711: [NO DATA] RL	—	X	WT-15

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

CONSULT display	Fail-safe	Low tire pressure warning lamp ON	Reference page
C1712: [CHECKSUM ERR] FL	—	X	WT-17
C1713: [CHECKSUM ERR] FR	—	X	WT-17
C1714: [CHECKSUM ERR] RR	—	X	WT-17
C1715: [CHECKSUM ERR] RL	—	X	WT-17
C1716: [PRESSDATA ERR] FL	—	X	WT-19
C1717: [PRESSDATA ERR] FR	—	X	WT-19
C1718: [PRESSDATA ERR] RR	—	X	WT-19
C1719: [PRESSDATA ERR] RL	—	X	WT-19
C1720: [CODE ERR] FL	—	X	WT-17
C1721: [CODE ERR] FR	—	X	WT-17
C1722: [CODE ERR] RR	—	X	WT-17
C1723: [CODE ERR] RL	—	X	WT-17
C1724: [BATT VOLT LOW] FL	—	X	WT-17
C1725: [BATT VOLT LOW] FR	—	X	WT-17
C1726: [BATT VOLT LOW] RR	—	X	WT-17
C1727: [BATT VOLT LOW] RL	—	X	WT-17
C1729: VHCL SPEED SIG ERR	—	X	WT-21
C1735: IGNITION SIGNAL	—	X	WT-22

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

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

< ECU DIAGNOSIS INFORMATION >

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

Reference Value

INFOID:000000010244814

VALUES ON THE DIAGNOSIS TOOL

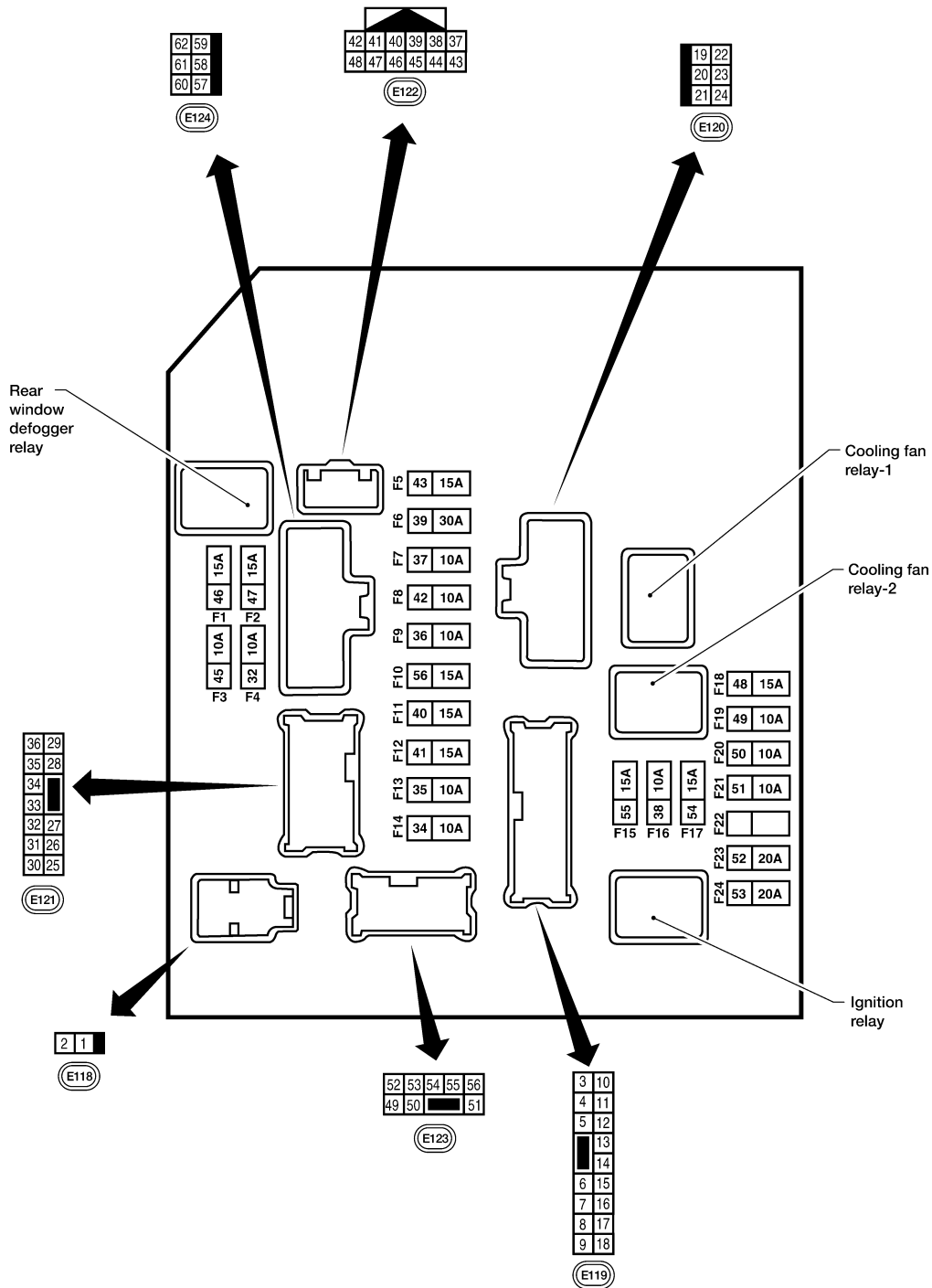
Monitor Item	Condition		Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	1, 2, 3, 4
A/C COMP REQ	A/C switch OFF		Off
	A/C switch ON		On
TAIL&CLR REQ	Lighting switch OFF		Off
	Lighting switch 1ST, 2ND, HI 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	Front fog lamp switch OFF	Off
		Front fog lamp switch ON	On
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	Stop
		Front wiper switch INT	1LOW
		Front wiper switch LO	Low
		Front wiper switch HI	Hi
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	Off
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		Off
	Ignition switch START		On
IGN RLY	Ignition switch OFF or ACC		Off
	Ignition switch ON		On
RR DEF REQ	Rear defogger switch OFF		Off
	Rear defogger switch ON		On
OIL P SW	Ignition switch OFF, ACC or engine running		Open
	Ignition switch ON		Close
DTRL REQ	Daytime light system requested OFF with CONSULT.		Off
	Daytime light system requested ON with CONSULT.		On
THFT HRN REQ	Not operated		Off
	<ul style="list-style-type: none"> Panic alarm is activated Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM 		On
HORN CHIRP	Not operated		Off
	Door locking with keyfob (horn chirp mode)		On

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

< ECU DIAGNOSIS INFORMATION >

Terminal Layout

INFOID:000000010244815



A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

AAMIA0386GB

INFOID:000000010244816

Physical Values

PHYSICAL VALUES

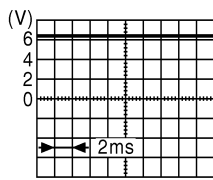
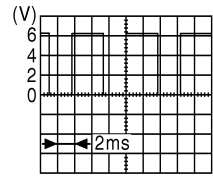
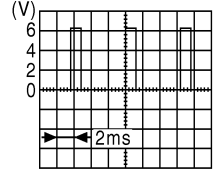
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
1	W	Battery power supply	Input	OFF	—	Battery voltage
2	R	Battery power supply	Input	OFF	—	Battery voltage
3	G	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
4	R	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
6	V	Throttle control motor relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
7	BR	ECM relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
8	W/R	Fuse 54	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
10	R/B	Fuse 45	Output	ON	Daytime light system active	0V
					Daytime light system inactive	Battery voltage
11	Y	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	W/G	Ignition switch supplied power	Input	—	OFF or ACC	0V
					ON or START	Battery voltage
13	R	Fuel pump relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
14	W/G	Fuse 49	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
15	W/R	Fuse 50 (ABS)	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
16	W/G	Fuse 51	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
17	W/G	Fuse 55	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
19	W	Starter motor	Output	START	—	Battery voltage
20	BR	Cooling fan motor (low)	Output	ON or START	—	Battery voltage
21	GR	Ignition switch supplied power	Input	—	OFF or ACC	0V
					START	Battery voltage
22	G	Battery power supply	Output	OFF	—	Battery voltage
23	LG	Door mirror defogger output signal	Output	—	When rear defogger switch is ON	Battery voltage
					When raker defogger switch is OFF	0V

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

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
24	P	Cooling fan motor (high)	Output	—	Conditions correct for cooling fan operation	Battery voltage
					Conditions not correct for cooling fan operation	0V
27	W/G	Fuse 38	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
28	R	LH front parking and front side marker lamp	Output	OFF	Lighting switch 1st position OFF	0V
					Lighting switch 1st position ON	Battery voltage
29	G	Trailer tow relay	Output	ON	Lighting switch 1st position OFF	0V
					Lighting switch 1st position ON	Battery voltage
30	R/B	Fuse 53	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
32	GR	Wiper low speed signal	Output	ON or START	Wiper switch OFF	0V
					Wiper switch LO or INT	Battery voltage
35	L	Wiper high speed signal	Output	ON or START	Wiper switch OFF, LO, INT	0V
					Wiper switch HI	Battery voltage
37	Y	Power generation command signal	Output	—	Ignition switch ON	 <p style="text-align: right;">JPMIA0001GB 6.3 V</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	 <p style="text-align: right;">JPMIA0002GB 3.8 V</p>
					40% is set on "Active test," "ALTERNATOR DUTY" of "ENGINE"	 <p style="text-align: right;">JPMIA0003GB 1.4 V</p>
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

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

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

< ECU DIAGNOSIS INFORMATION >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)	
				Ignition switch	Operation or condition		
43	G	Wiper auto stop signal	Input	ON or START	Wiper switch	OFF, LO, INT	Battery voltage
44	R	Daytime light relay control (Canada only)	Input	ON	Daytime light system active		0V
					Daytime light system inactive		Battery voltage
45	LG	Horn relay control	Input	ON	When door locks are operated using keyfob (OFF → ON)*		Battery voltage → 0V
46	V	Fuel pump relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
47	BG	Throttle control motor relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
48	R	Starter relay (range switch)	Input	ON or START	Selector lever in "P" or "N"		0V
					Selector lever any other position		Battery voltage
49	GR	Front RH parking and front side marker lamp	Output	OFF	Lighting switch 1st position	OFF	0V
						ON	Battery voltage
50	W	Front fog lamp (LH)	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	V	Front fog lamp (RH)	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	P	LH low beam head-lamp	Output	—	Lighting switch in 2nd position		Battery voltage
54	R	RH low beam head-lamp	Output	—	Lighting switch in 2nd position		Battery voltage
55	G	LH high beam head-lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
56	L	RH high beam head-lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position		Battery voltage
57	GR	Parking, license and tail lamps and off-road lamp switch	Output	ON	Lighting switch 1st position	OFF	0V
						ON	Battery voltage
59	B	Ground	Input	—	—		0V
60	GR	Rear window defogger relay	Output	ON or START	Rear defogger switch ON		Battery voltage
					Rear defogger switch OFF		0V
61	R/B	Fuse 32	Output	OFF	—		Battery voltage

*: When horn reminder is ON

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

< ECU DIAGNOSIS INFORMATION >

Fail Safe

INFOID:000000010244817

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	<ul style="list-style-type: none">• Turns ON the cooling fan relay when the ignition switch is turned ON• 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	<ul style="list-style-type: none">• Turns ON the headlamp low relay when the ignition switch is turned ON• Turns OFF the headlamp low relay when the ignition switch is turned OFF• Headlamp high relay OFF
<ul style="list-style-type: none">• Parking lamps• License plate lamps• Tail lamps	<ul style="list-style-type: none">• Turns ON the tail lamp relay when the ignition switch is turned ON• Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	<ul style="list-style-type: none">• The status just before activation of fail-safe control is maintained until the ignition switch is turned OFF while the front wiper is operating at LO or HI speed.• The wiper is operated at LO speed until the ignition switch is turned OFF if the fail-safe control is activated while the front wiper is set in the INT mode and the front wiper motor is operating.
Rear window defogger	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 seconds activation and 20 seconds stop five times.

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

A
B
C
D
E
F
G
H
I
J
K
L
M

MWI

O
P

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

< ECU DIAGNOSIS INFORMATION >

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:0000000010244818

CONSULT display	Fail-safe	TIME ^{NOTE}		Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	×	CRNT	1 – 39	PCS-13

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.

COMPASS

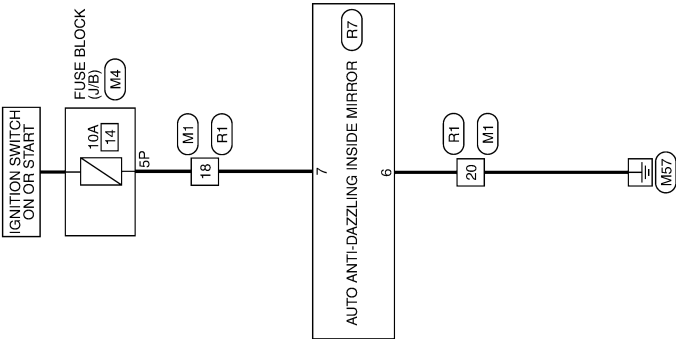
< WIRING DIAGRAM >

WIRING DIAGRAM

COMPASS

Wiring Diagram

INFOID:000000009483230



A
B
C
D
E
F
G
H
I
J
K
L
M

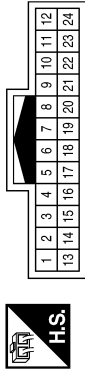
MWI

COMPASS

ABNWA0186GB

COMPASS CONNECTORS

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



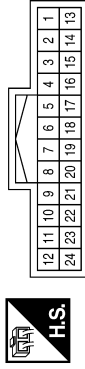
Terminal No.	Color of Wire	Signal Name
18	W/G	-
20	B	-

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



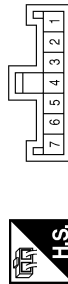
Terminal No.	Color of Wire	Signal Name
5P	W/G	-

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



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

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



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

ABNIA4238GB

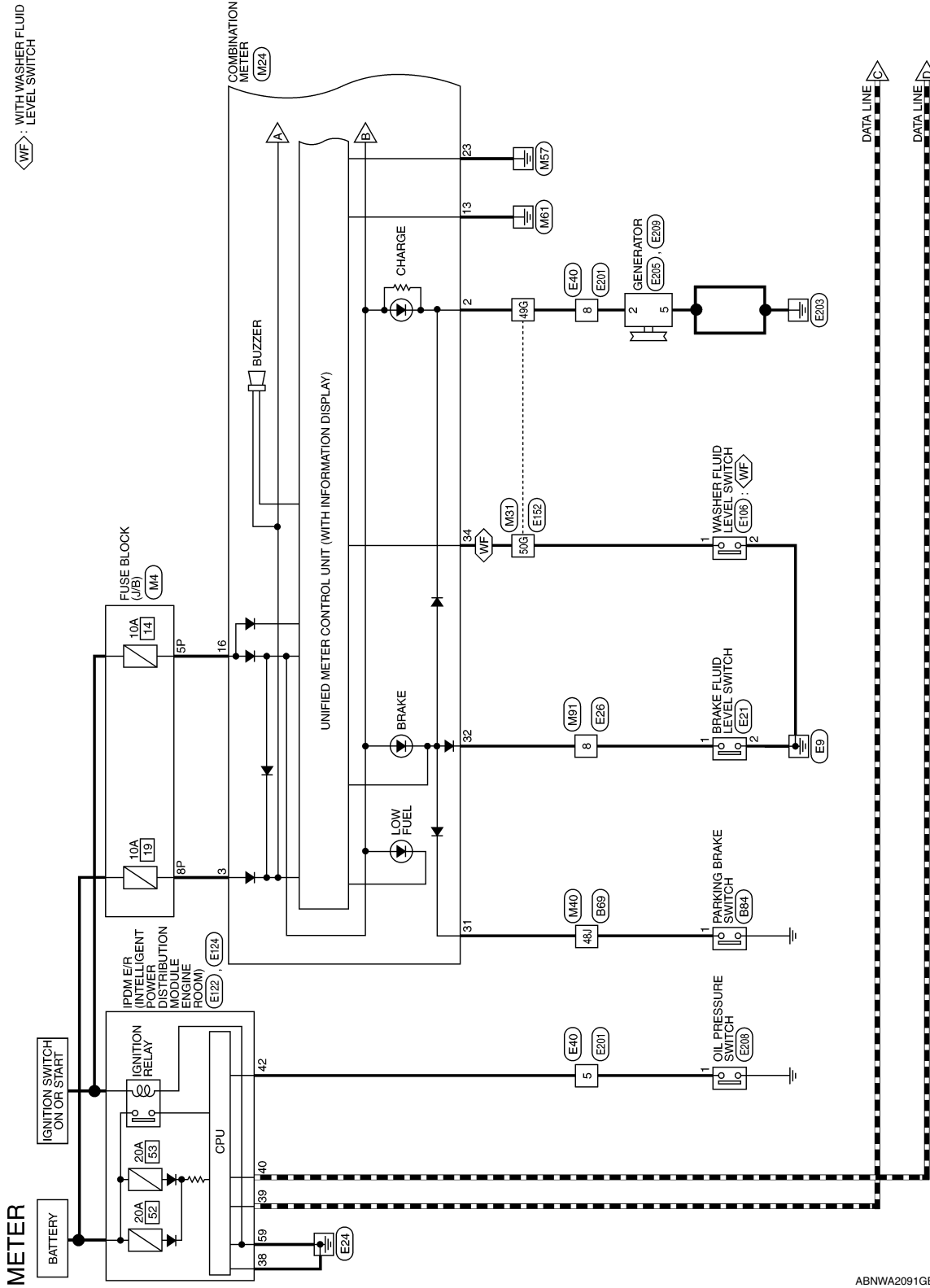
METER

< WIRING DIAGRAM >

METER

Wiring Diagram

INFOID:000000009483231



METER

WF : WITH WASHER FLUID LEVEL SWITCH

ABNWA2091GB

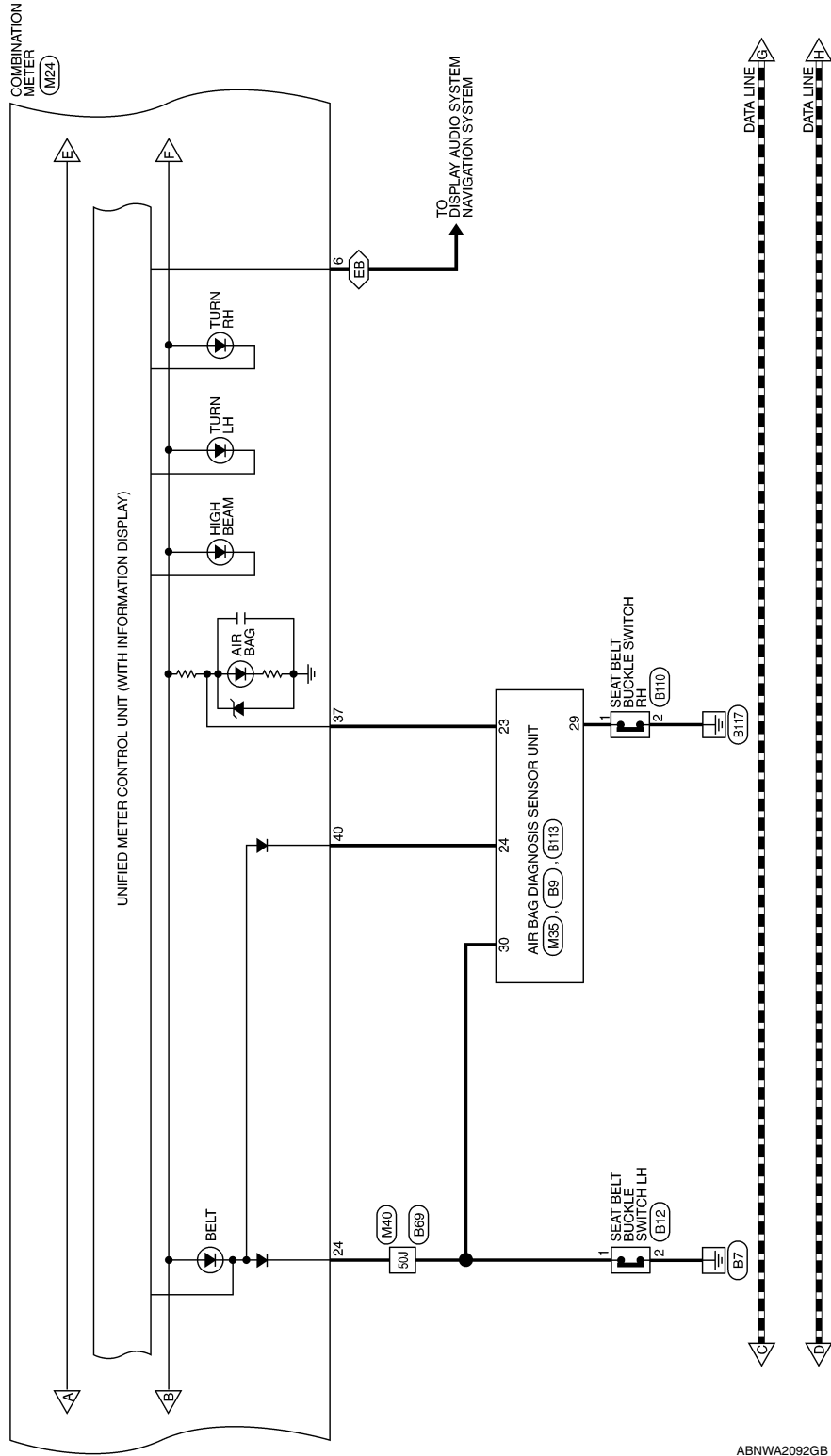
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

METER

< WIRING DIAGRAM >

EB: EXCEPT BASE AUDIO SYSTEM

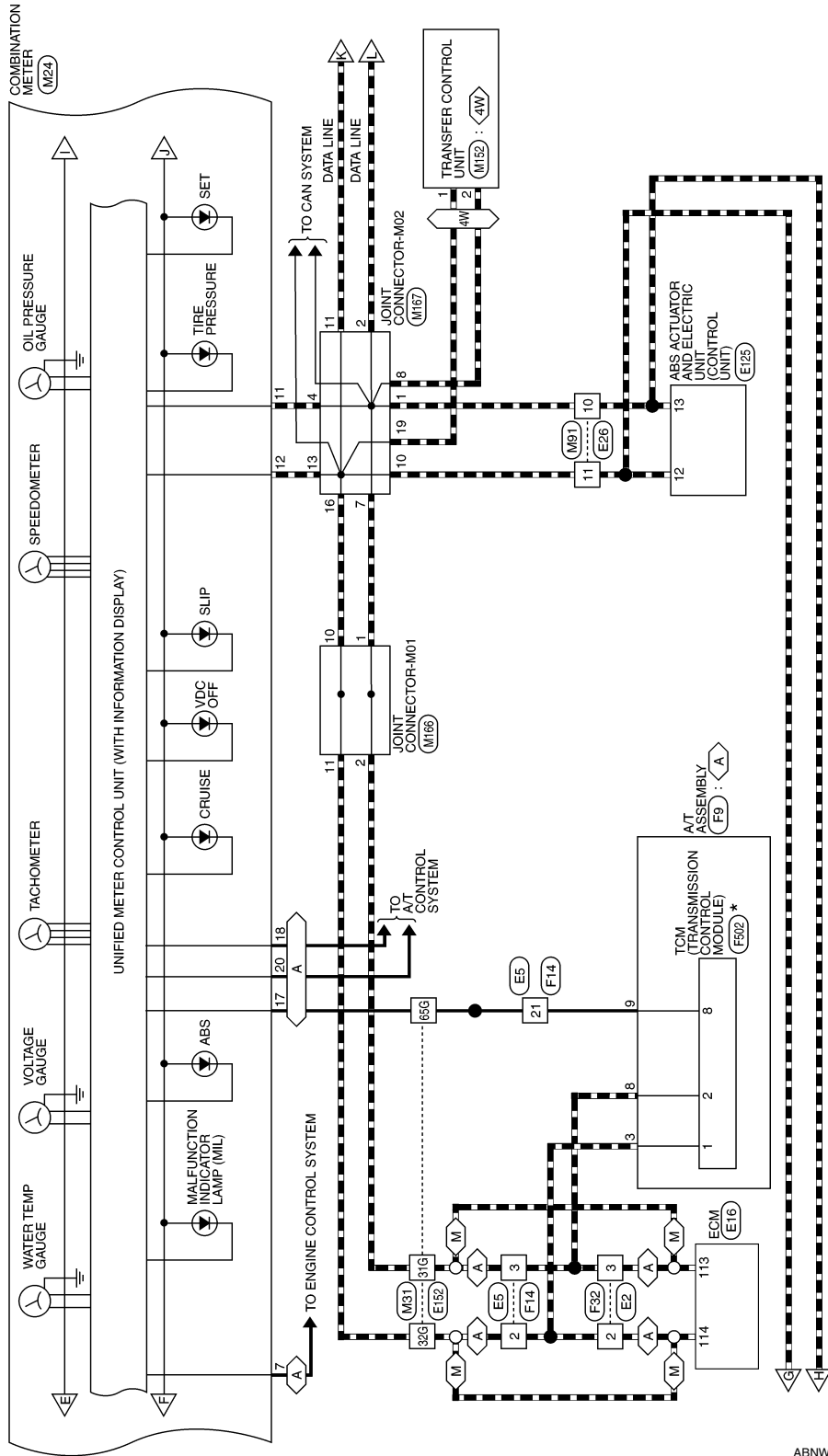


ABNWA2092GB

METER

< WIRING DIAGRAM >

◊4W : WITH 4-WHEEL DRIVE
 ◊A : WITH A/T
 ◊M : WITH M/T



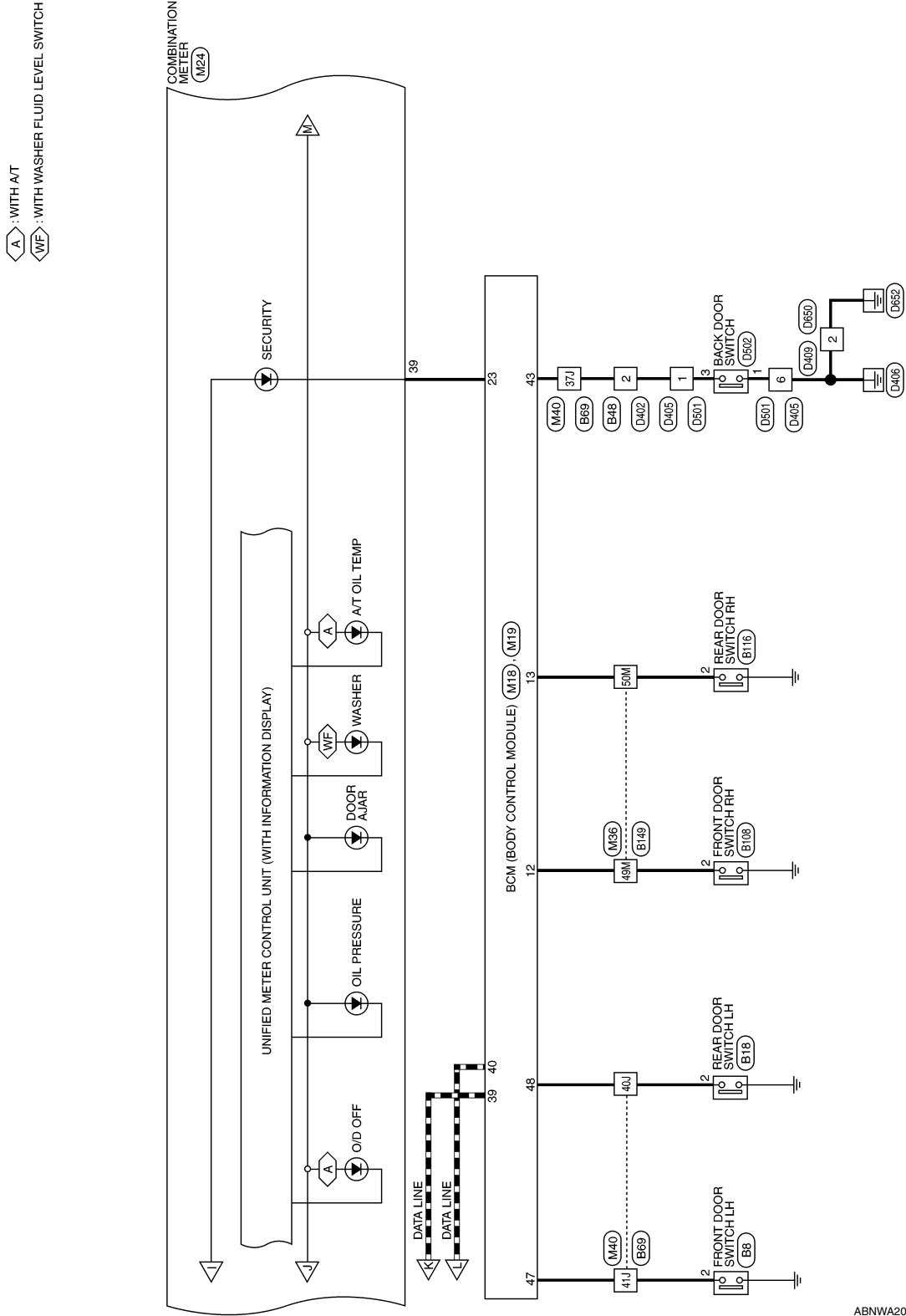
ABNWA2093GB

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

A
B
C
D
E
F
G
H
I
J
K
L
M
MWI
O
P

METER

< WIRING DIAGRAM >

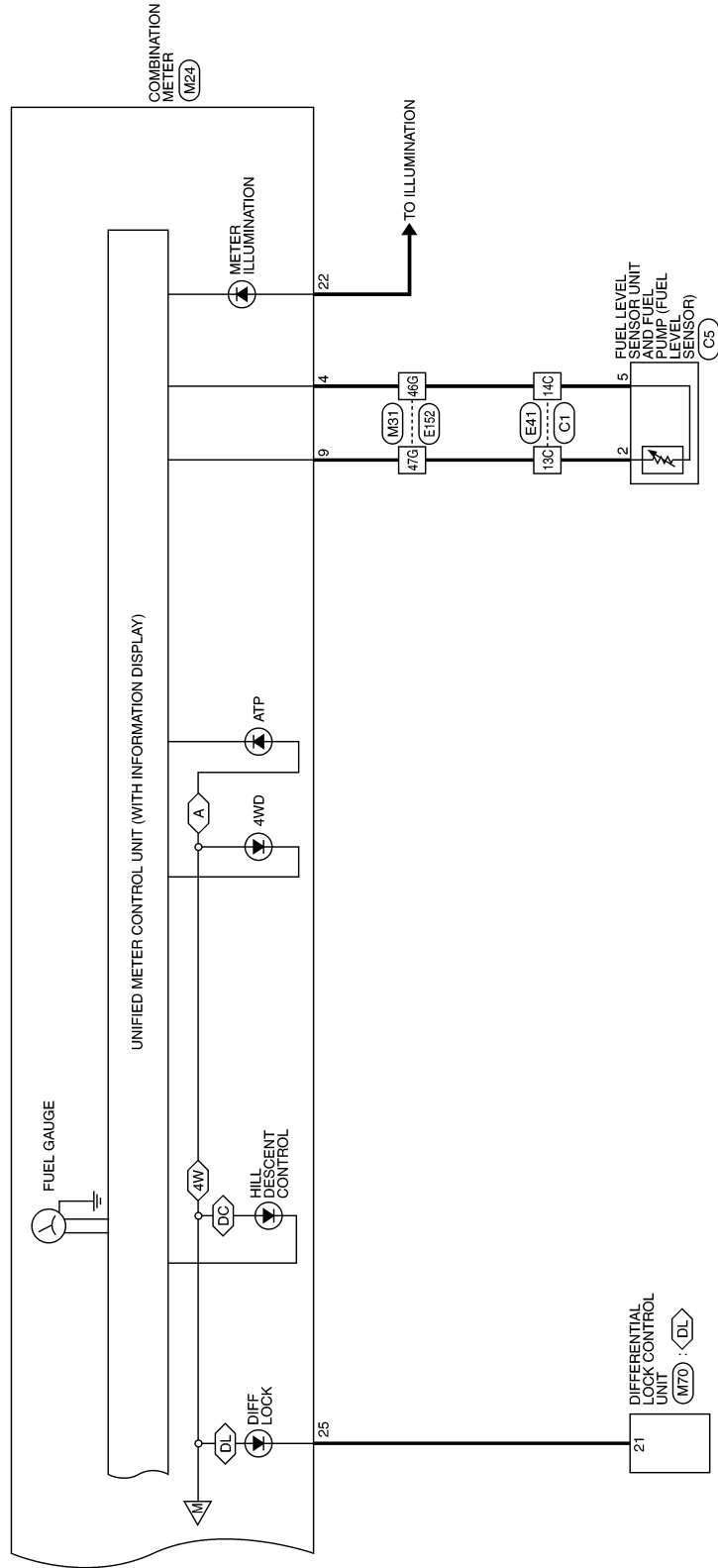


ABNWA2094GB

METER

< WIRING DIAGRAM >

- ◊4W◊ : WITH 4-WHEEL DRIVE
- ◊A◊ : WITH A/T
- ◊DC◊ : WITH HILL DESCENT CONTROL AND HILL START ASSIST
- ◊DL◊ : WITH ELECTRONIC LOCKING REAR DIFFERENTIAL



ABNWA2095GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

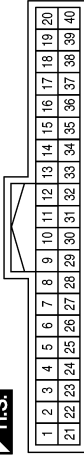
METER CONNECTORS

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



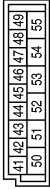
Terminal No.	Color of Wire	Signal Name
5P	W/G	-
8P	R/Y	-

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



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

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

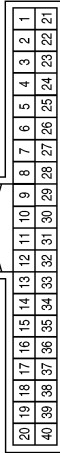


Terminal No.	Color of Wire	Signal Name
43	Y	BACK DOOR SW
47	GR	DOOR SW (DF)
48	P	DOOR SW (RL)

METER

< WIRING DIAGRAM >

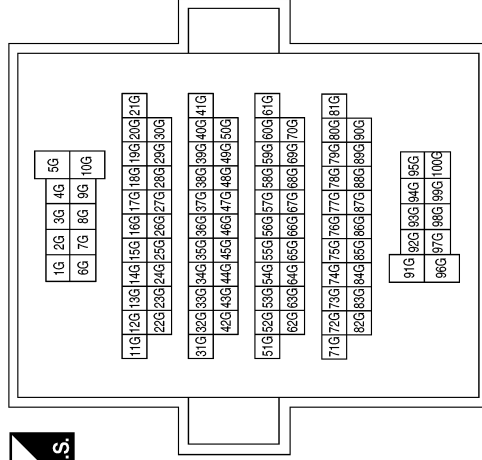
Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	-	-
2	P	CHARGE (ALT) INPUT
3	R/Y	BATTERY
4	B/Y	FUEL SENDER RETURN
5	-	-
6	SB	SPEED OUT 8
7	G	AT-PN ECM
8	-	-
9	BR	FUEL SENDER INPUT
10	-	-
11	P	CAN-L
12	L	CAN-H
13	GR	GROUND
14	-	-
15	-	-
16	W/G	RUN START
17	B	AT-PN SWITCH
18	L	AT 1 RANGE SWITCH
19	-	-
20	Y	O/D OFF SWITCH
21	-	-
22	BR	ILLUMINATION CONTROL
23	B	POWER GND
24	V	BUCKLE (SEATBELT) SW

Terminal No.	Color of Wire	Signal Name
25	SB	DIFF LOCK
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	G	PARK BRAKE SW
32	SB	BRAKE OIL SWITCH
33	-	-
34	L	WASHER FLUID SW
35	-	-
36	-	-
37	SB	AIRBAG CONT
38	-	-
39	G	SECURITY
40	LG	PASS SEATBELT

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



Terminal No.	Color of Wire	Signal Name
31G	P	-
32G	L	-
46G	B/Y	-
47G	BR	-
49G	P	-
50G	L	-
65G	B	-

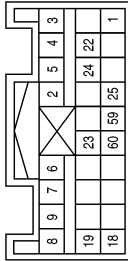
A
B
C
D
E
F
G
H
I
J
K
L
M
MWI
O
P

ABNIA5684GB

METER

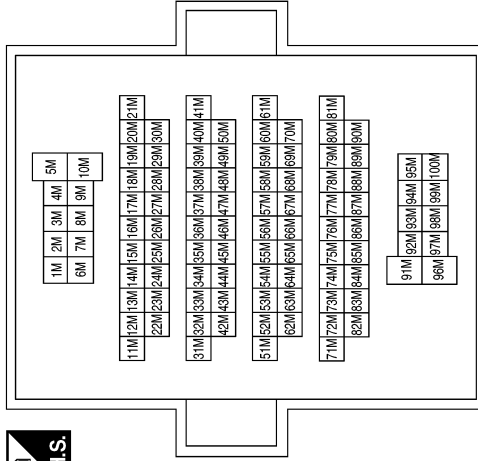
< WIRING DIAGRAM >

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



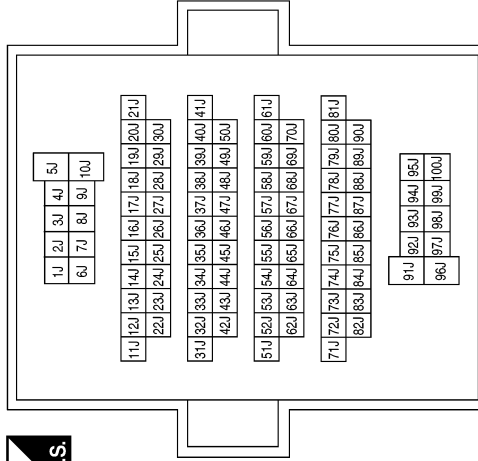
Terminal No.	Color of Wire	Signal Name
23	SB	AIRBAG W/L
24	LG	SEATBELT REMINDER

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



Terminal No.	Color of Wire	Signal Name
49M	LG	-
50M	L	-

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


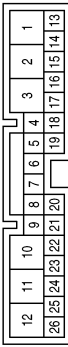


Terminal No.	Color of Wire	Signal Name
37J	Y	-
40J	P	-
41J	GR	-
48J	G	-
50J	V	-

METER


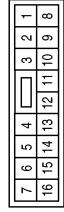
< WIRING DIAGRAM >

Connector No.	M70
Connector Name	DIFFERENTIAL LOCK CONTROL UNIT
Connector Color	WHITE


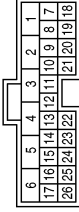
Terminal No.	Color of Wire	Signal Name
21	SB	DIFF LOCK IND

Connector No.	M91
Connector Name	WIRE TO WIRE
Connector Color	WHITE


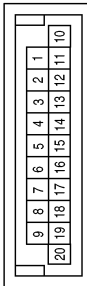
Terminal No.	Color of Wire	Signal Name
8	SB	-
10	P	-
11	L	-

Connector No.	M152
Connector Name	TRANSFER CONTROL UNIT
Connector Color	WHITE


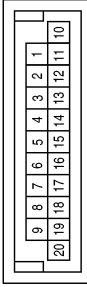
Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L

Connector No.	M166
Connector Name	JOINT CONNECTOR-M01
Connector Color	BLUE


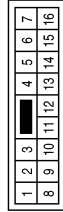
Terminal No.	Color of Wire	Signal Name
1	P	-
2	P	-
10	L	-
11	L	-

Connector No.	M167
Connector Name	JOINT CONNECTOR-M02
Connector Color	BLUE

Terminal No.	Color of Wire	Signal Name
1	P	-
2	P	-
4	P	-
7	P	-
8	P	-
10	L	-
11	L	-
13	L	-
16	L	-
19	L	-

Connector No.	E2
Connector Name	WIRE TO WIRE
Connector Color	WHITE

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

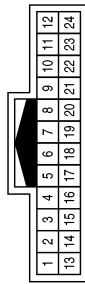
ABNIA5686GB

A
B
C
D
E
F
G
H
I
J
K
L
M
MWI
O
P

METER

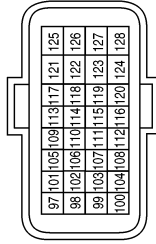
< WIRING DIAGRAM >

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



Terminal No.	Color of Wire	Signal Name
2	L	-
3	P	-
21	R	-

Connector No.	E16
Connector Name	ECM
Connector Color	GRAY



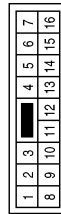
Terminal No.	Color of Wire	Signal Name
113	P	CAN-L
114	L	CAN-H

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



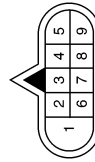
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-

Connector No.	E26
Connector Name	WIRE TO WIRE
Connector Color	WHITE



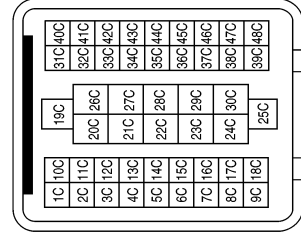
Terminal No.	Color of Wire	Signal Name
8	SB	-
10	P	-
11	L	-

Connector No.	E40
Connector Name	WIRE TO WIRE
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
5	GR	-
8	P	-

Connector No.	E41
Connector Name	WIRE TO WIRE
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
13C	BR	-
14C	B/Y	-

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



59	58	57
62	61	60

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

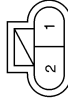
Connector No.	E122
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE



42	41	40	39	38	37
48	47	46	45	44	43

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

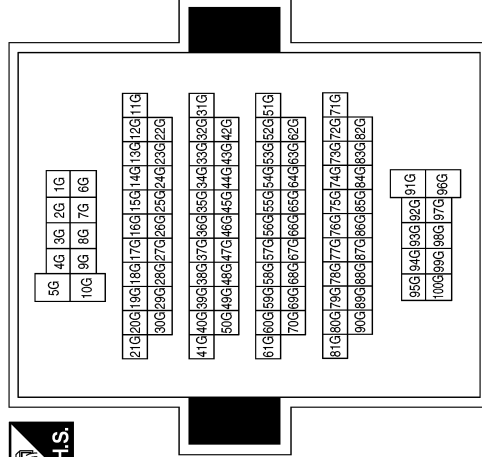
Connector No.	E106
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



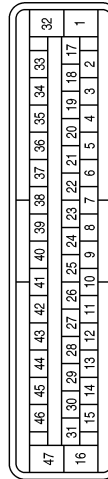
Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

Terminal No.	Color of Wire	Signal Name
31G	P	-
32G	L	-
46G	B/Y	-
47G	BR	-
49G	P	-
50G	L	-
65G	B	-

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



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



Terminal No.	Color of Wire	Signal Name
12	L	CAN-H
13	P	CAN-L

ABNIA5688GB

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

METER

< WIRING DIAGRAM >

Connector No.	E208
Connector Name	OIL PRESSURE SWITCH
Connector Color	GRAY



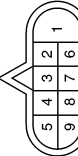
Terminal No.	Color of Wire	Signal Name
1	GR	-

Connector No.	E205
Connector Name	GENERATOR
Connector Color	BLACK



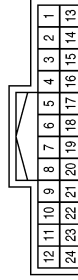
Terminal No.	Color of Wire	Signal Name
2	P	-

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



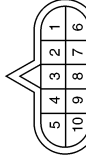
Terminal No.	Color of Wire	Signal Name
5	GR	-
8	P	-

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



Terminal No.	Color of Wire	Signal Name
2	L	-
3	P	-
21	R	-

Connector No.	F9
Connector Name	A/T ASSEMBLY
Connector Color	GREEN



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

Connector No.	E209
Connector Name	GENERATOR
Connector Color	-



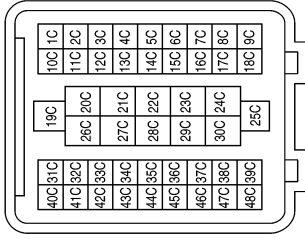
Terminal No.	Color of Wire	Signal Name
5	B	-

ABNIA5689GB

METER

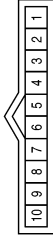
< WIRING DIAGRAM >

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



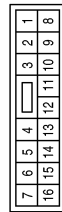
Terminal No.	Color of Wire	Signal Name
13C	BR	-
14C	BY	-

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



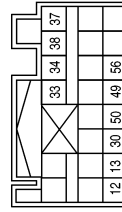
Terminal No.	Color of Wire	Signal Name
1	BR	CAN-H
2	LY	CAN-L
8	G	START-RLY

Connector No.	F32
Connector Name	WIRE TO WIRE
Connector Color	WHITE



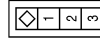
Terminal No.	Color of Wire	Signal Name
2	L	-
3	P	-

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



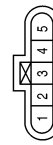
Terminal No.	Color of Wire	Signal Name
30	BG	LH BUCKLE SW INPUT

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



Terminal No.	Color of Wire	Signal Name
2	GR	-

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



Terminal No.	Color of Wire	Signal Name
2	BR	-
5	BY	-

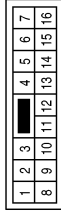
ABNIA5690GB

A
B
C
D
E
F
G
H
I
J
K
L
M
MWI
O
P

METER

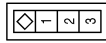
< WIRING DIAGRAM >

Connector No.	B48
Connector Name	WIRE TO WIRE
Connector Color	WHITE



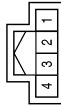
Terminal No.	2	Color of Wire	Y	Signal Name	-
--------------	---	---------------	---	-------------	---

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



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

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



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

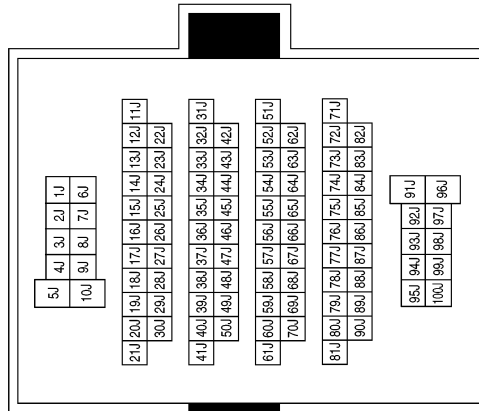
Connector No.	B84
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



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

Terminal No.	37J	Color of Wire	Y	Signal Name	-
40J	P				-
41J	GR				-
48J	G				-
50J	V				-

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

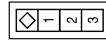


ABNIA5691GB

METER

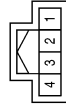
< WIRING DIAGRAM >

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



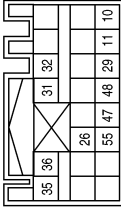
Terminal No.	Color of Wire	Signal Name
2	LG	-

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



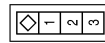
Terminal No.	Color of Wire	Signal Name
1	L	-
2	B	-

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



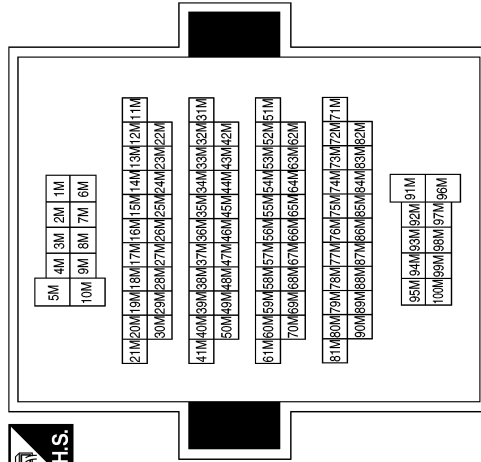
Terminal No.	Color of Wire	Signal Name
29	L	RH BUCKLE SW INPUT

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



Terminal No.	Color of Wire	Signal Name
2	L	-

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



Terminal No.	Color of Wire	Signal Name
49M	LG	-
50M	L	-

A
B
C
D
E
F
G
H
I
J
K
L
M
MWI
O
P

METER

< WIRING DIAGRAM >

Connector No.	D409
Connector Name	WIRE TO WIRE
Connector Color	WHITE



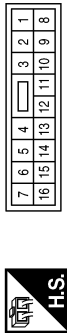
Terminal No.	2	Color of Wire	B	Signal Name	-
--------------	---	---------------	---	-------------	---

Connector No.	D405
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	1	Color of Wire	Y	Signal Name	-
6		B		-	

Connector No.	D402
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	Y	Signal Name	-
--------------	---	---------------	---	-------------	---

Connector No.	D650
Connector Name	WIRE TO WIRE
Connector Color	WHITE



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

Connector No.	D502
Connector Name	BACK DOOR SWITCH
Connector Color	WHITE



Terminal No.	1	Color of Wire	B	Signal Name	-
3		Y		-	

Connector No.	D501
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	1	Color of Wire	Y	Signal Name	-
6		B		-	

ABNIA5693GB

THE FUEL GAUGE POINTER DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

THE FUEL GAUGE POINTER DOES NOT MOVE

Description

INFOID:000000009483232

Fuel gauge needle will not move from a certain position.

Diagnosis Procedure

INFOID:000000009483233

1. CHECK COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on CONSULT.
2. Using "FUEL METER" of "DATA MONITOR", compare the monitor value with the fuel gauge reading on the combination meter. Refer to [MWI-33, "Component Function Check"](#).

Does monitor value match fuel gauge reading?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

2. CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to [MWI-33, "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-34, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4

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

4. CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

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

< SYMPTOM DIAGNOSIS >

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

Description

INFOID:000000009483234

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

Diagnosis Procedure

INFOID:000000009483235

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-34. "Component Inspection"](#).

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

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:000000009483236

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

Diagnosis Procedure

INFOID:000000009483237

1. CHECK OIL PRESSURE WARNING LAMP

Perform IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

2. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-36, "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-36, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-27, "Removal and Installation"](#).

NO >> Replace oil pressure switch.

A
B
C
D
E
F
G
H
I
J
K
L
M
O
P

MWI

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:000000009483238

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

Diagnosis Procedure

INFOID:000000009483239

Regarding Wiring Diagram information, refer to [MWI-61, "Wiring Diagram"](#).

1. CHECK OIL PRESSURE WARNING LAMP

Perform IPDM E/R auto active test. Refer to [PCS-9, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-84, "Removal and Installation"](#).

2. CHECK IPDM E/R OUTPUT VOLTAGE

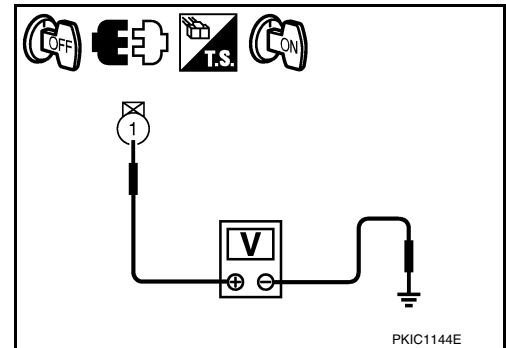
1. Turn ignition switch OFF.
2. Disconnect the oil pressure switch connector.
3. Turn ignition switch ON.
4. Check voltage between the oil pressure switch harness connector E208 terminal 1 and ground.

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-36, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-27, "Removal and Installation"](#).

NO >> Replace oil pressure switch.

4. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-36, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-27, "Removal and Installation"](#).

NO >> Repair harness or connector.

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION COMPASS

COMPASS : Description

INFOID:000000009483240

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".	<ul style="list-style-type: none"> • Compass is not calibrated. • Incorrect zone variance setting. • Large change in magnetic field (Steel bridges, subways, concentrations of metal, car washes, etc.) • Compass was calibrated incorrectly or in the presence of a strong magnetic field. 	Perform Calibration. Refer to MWI-22, "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-22, "Description" .	

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P



PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000010208477

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

WARNING:

- To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.
- Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the SR section.
- Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.

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

WARNING:

- When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.
- When using air or electric power tools or hammers, always switch the Ignition OFF, disconnect the battery and wait at least three minutes before performing any service.

PREPARATION


< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:000000009483242

Tool name	Description
<p data-bbox="175 411 289 438">Power tool</p>  <p data-bbox="829 630 898 646">PIIB1407E</p>	<p data-bbox="1003 411 1344 441">Loosening nuts, screws and bolts</p>

A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

MWI

COMBINATION METER

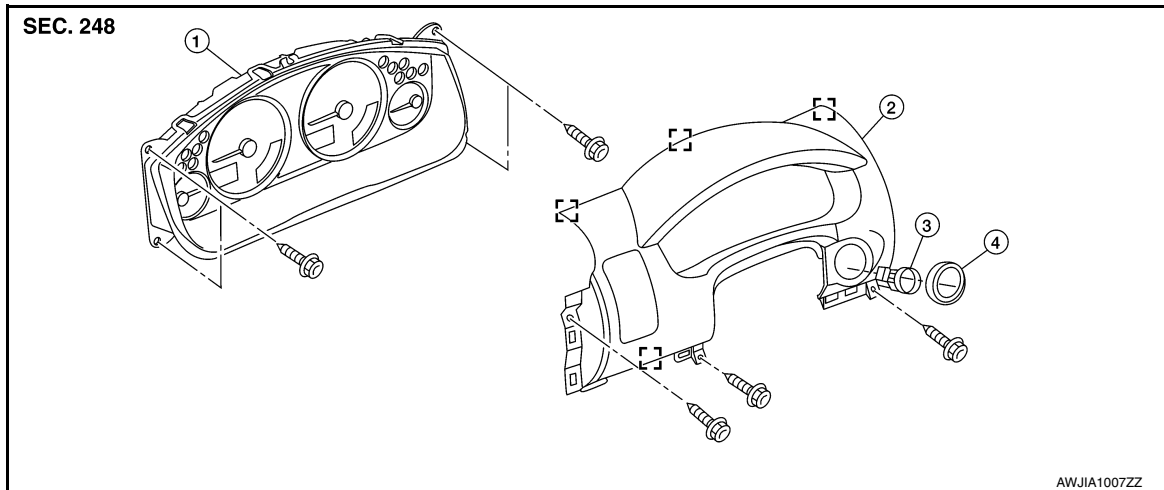
< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

COMBINATION METER

Removal and Installation

INFOID:000000009483243



- | | | |
|-----------------------------|------------------|-------------------------------|
| 1. Combination meter | 2. Cluster lid A | 3. Ignition key lamp assembly |
| 4. Steering lock escutcheon | ☐ Metal clip | |

REMOVAL

1. Remove cluster lid A. Refer to [JP-13. "Removal and Installation"](#).
2. Remove the combination meter screws using power tool.
3. Pull out the combination meter and disconnect the harness connector from the combination meter.
4. Remove the combination meter.

INSTALLATION

Installation is in the reverse order of removal.