

MWI

SECTION

METER, WARNING LAMP & INDICATOR

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:000000001374645

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-21. "Diagnosis Description"](#).

Does self-diagnosis mode operate?

YES >> GO TO 3

NO >> Check power supply and ground circuit of combination meter. Refer to [MWI-26. "COMBINATION METER : Diagnosis Procedure"](#). Then, GO TO 4

3.CHECK COMBINATION METER (CONSULT-III)

Select "METER/M&A" on CONSULT-III and perform "SELF-DIAGNOSIS" of combination meter. Refer to [MWI-22. "CONSULT-III Function \(METER/M&A\)"](#).

Self-diagnostic results content

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

Malfunction detected>>Refer to [MWI-54. "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

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

MWI

METER SYSTEM

< FUNCTION DIAGNOSIS >

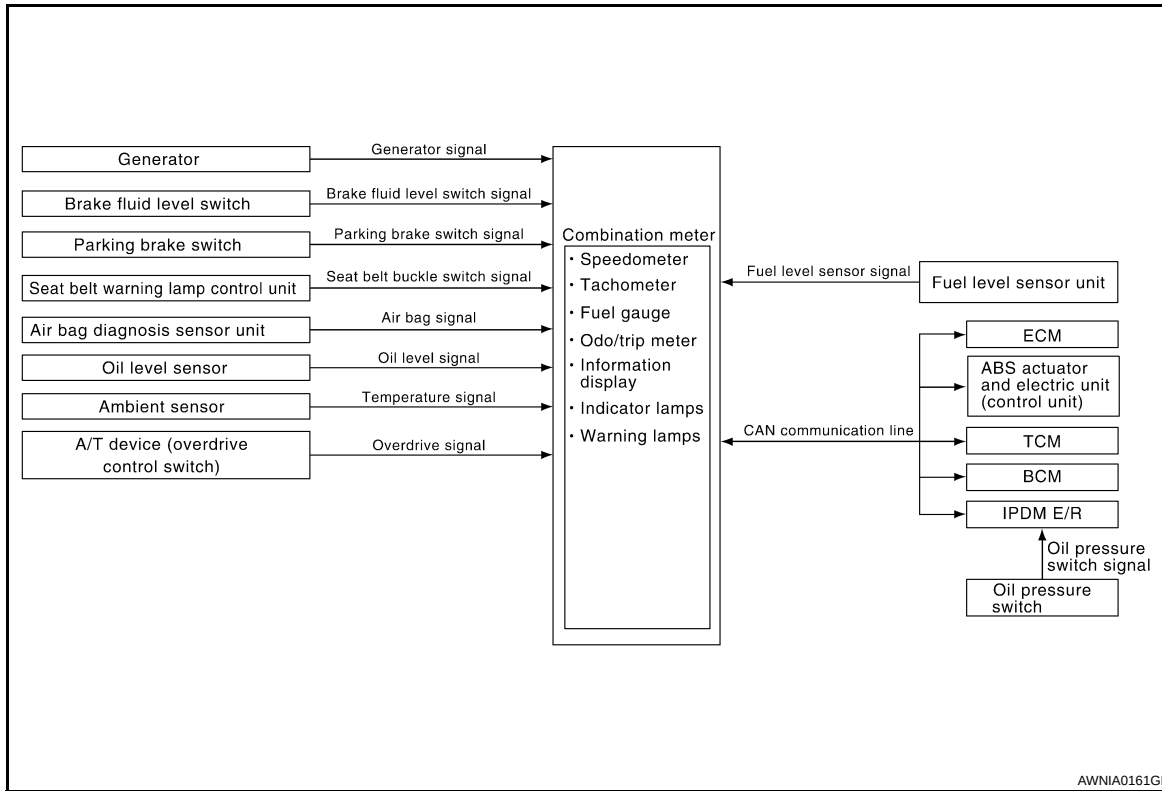
FUNCTION DIAGNOSIS

METER SYSTEM

METER SYSTEM

METER SYSTEM : System Diagram

INFOID:000000001374646



METER SYSTEM : System Description

INFOID:000000001374647

COMBINATION METER

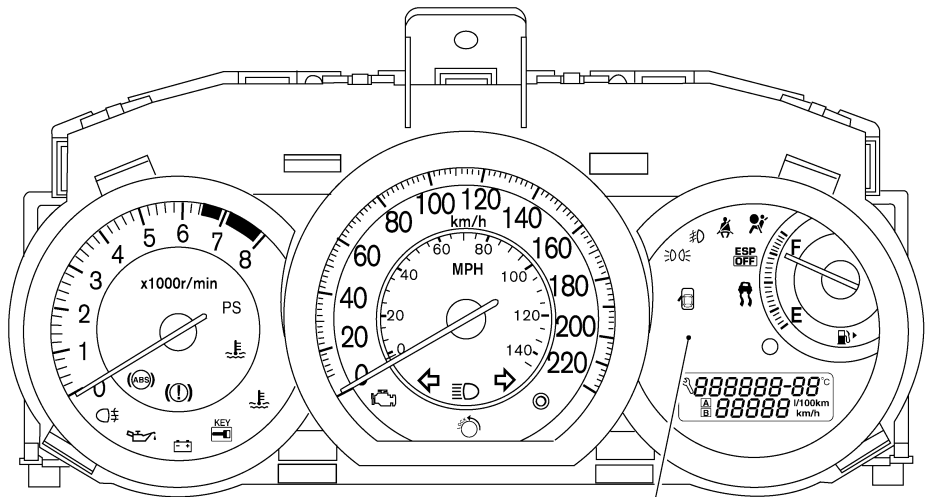
- Speedometer, tachometer, fuel gauge, odo/trip meter and information display are controlled by the unified meter control unit, which is built into the combination meter.
- Warning and indicator lamps are controlled by the unified meter control unit and by components connected directly to the combination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

METER SYSTEM

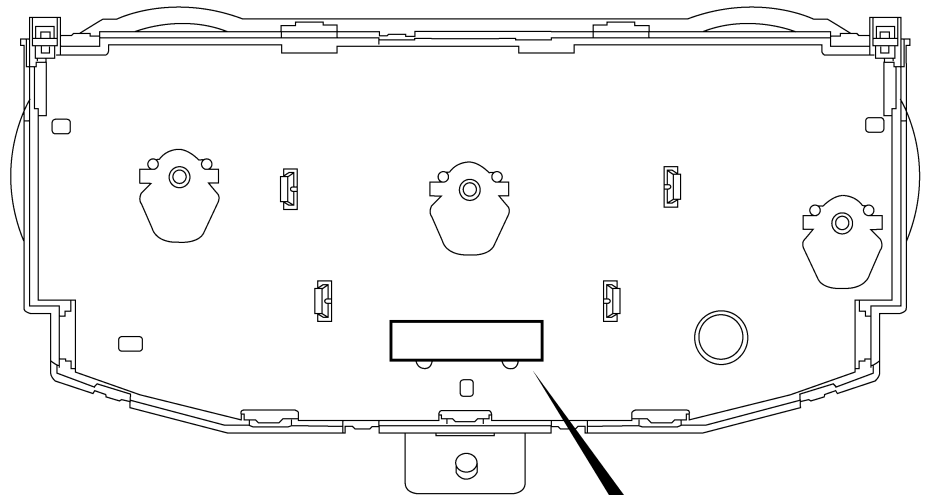
< FUNCTION DIAGNOSIS >

METER SYSTEM : Arrangement of Combination Meter

INFOID:000000001374648



O/D : A
OFF : DI



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

(A) : WITH A/T
(DI) : WITH DIESEL

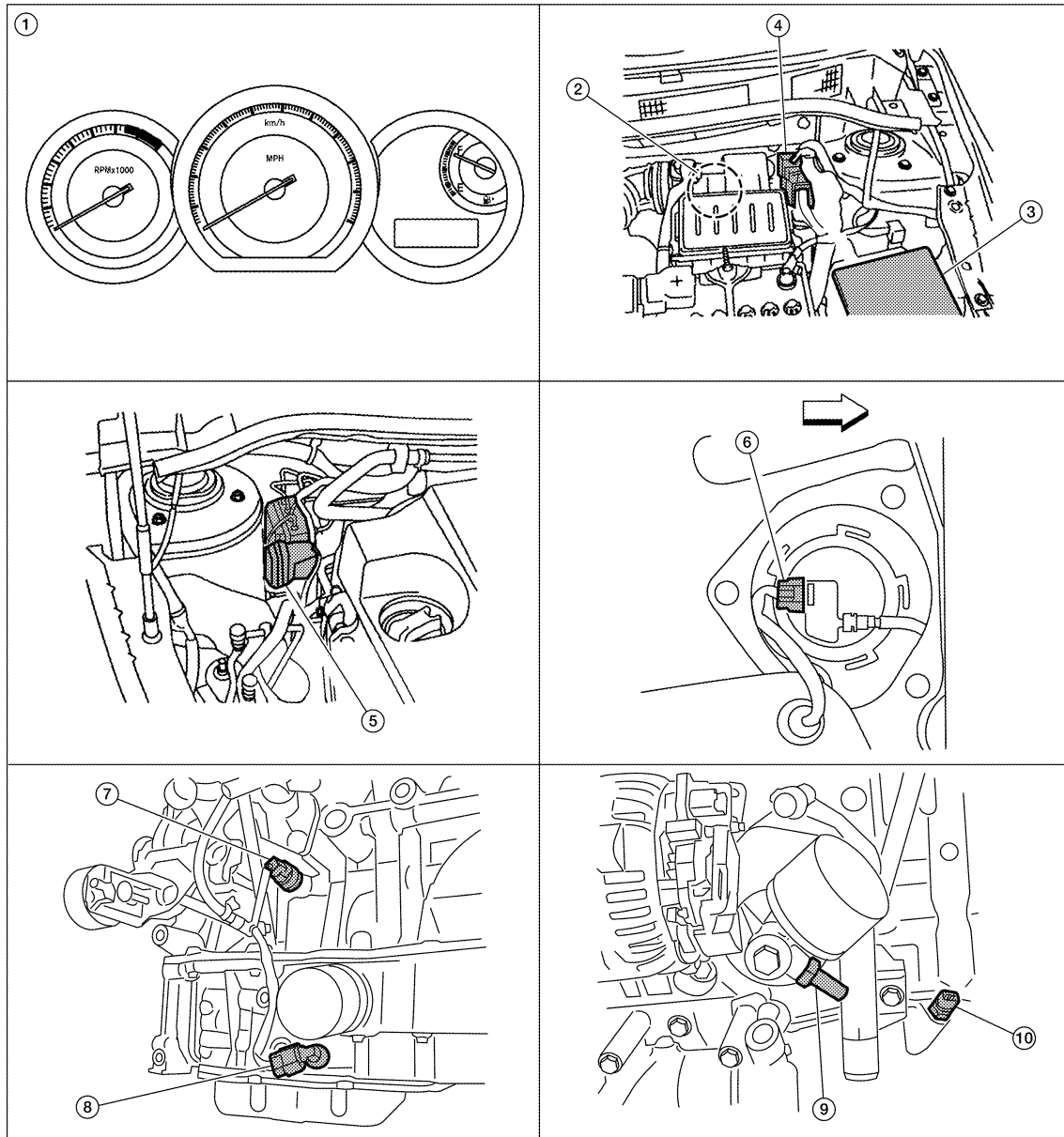
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METER SYSTEM

< FUNCTION DIAGNOSIS >

METER SYSTEM : Component Parts Location

INFOID:000000001374649



ALNIA0624Z2

- | | | |
|--|--|---|
| 1. Combination meter M24 | 2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar) | 3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar) |
| 4. ECM E16 (MR18DE shown, HR16DE and K9K similar) | 5. ABS actuator and electric unit (control unit) E33 (LHD models) | 6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front |
| 7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed) | 8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed) | 9. Oil pressure switch F32 (K9K models) (view with engine removed) |
| 10. Oil level sensor F60 (K9K models) (view with engine removed) | | |

METER SYSTEM

< FUNCTION DIAGNOSIS >

METER SYSTEM : Component Description

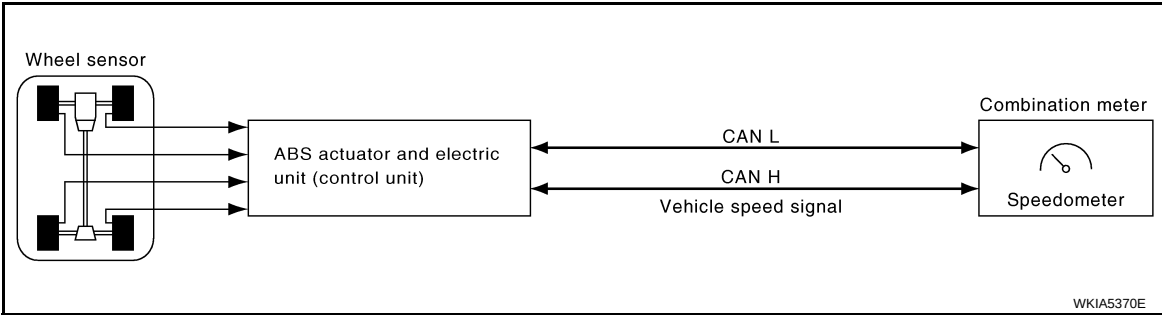
INFOID:000000001537306

Unit	Description
Combination meter	Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors. • Speedometer • Warning lamps • Information display • Fuel gauge • Tachometer • Indicator lamps • Warning chime
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-29, "Description" .
Oil pressure switch	Refer to MWI-31, "Description" .
Oil level sensor	Refer to MWI-32, "Description" .
Ambient sensor	Refer to MWI-34, "Description" .
ECM	Transmits the following signals to the combination meter with CAN communication line. • Engine speed signal • Fuel consumption monitor signal • Engine coolant temperature signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter with CAN communication line.
BCM	Transmits signals provided by various units to the combination meter with CAN communication line.

SPEEDOMETER

SPEEDOMETER : System Diagram

INFOID:000000001374650



SPEEDOMETER : System Description

INFOID:000000001374651

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

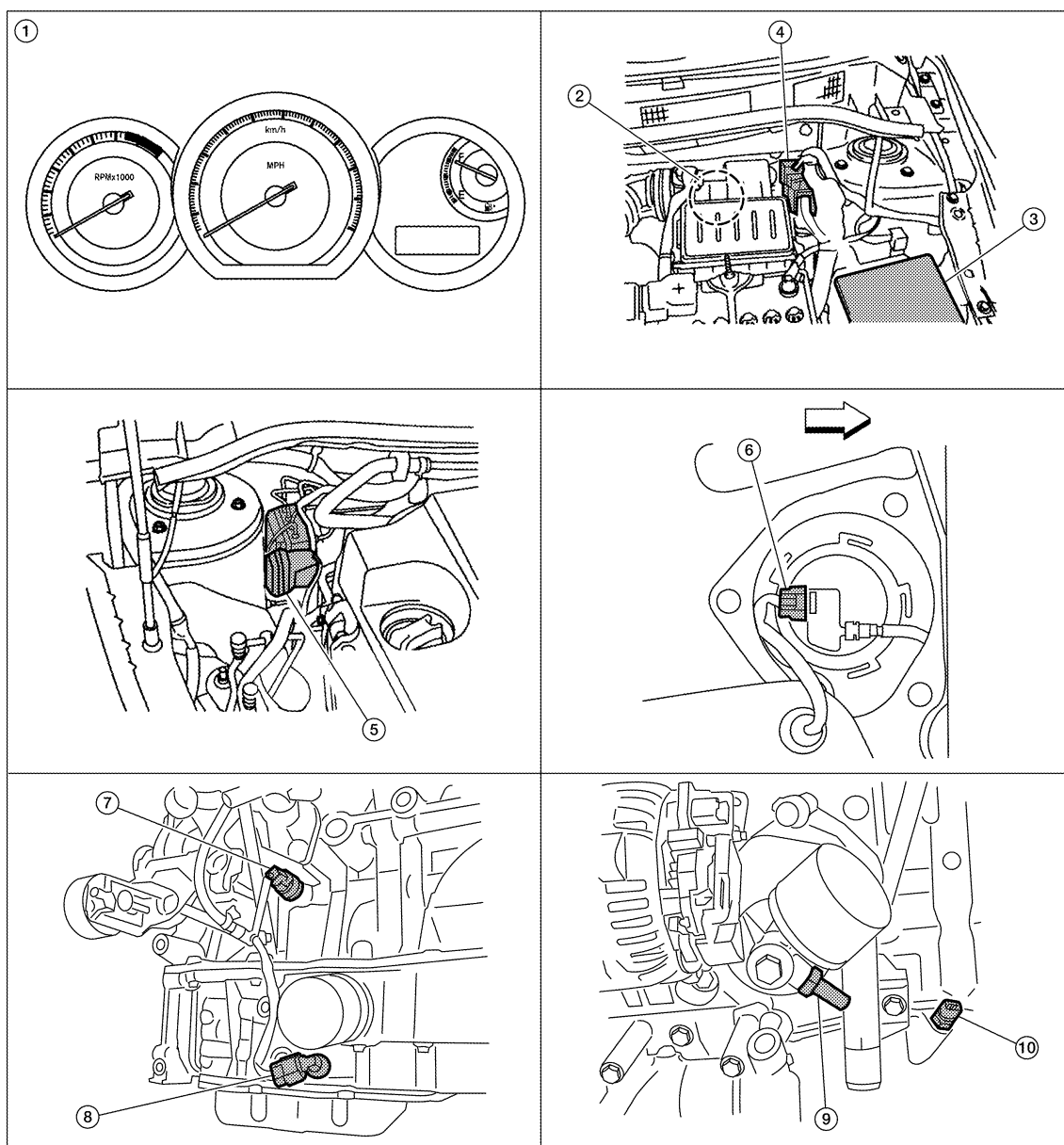
MWI

METER SYSTEM

< FUNCTION DIAGNOSIS >

SPEEDOMETER : Component Parts Location

INFOID:000000001537307



ALNIA0624Z2

- | | | |
|--|--|---|
| 1. Combination meter M24 | 2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar) | 3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar) |
| 4. ECM E16 (MR18DE shown, HR16DE and K9K similar) | 5. ABS actuator and electric unit (control unit) E33 (LHD models) | 6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front |
| 7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed) | 8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed) | 9. Oil pressure switch F32 (K9K models) (view with engine removed) |
| 10. Oil level sensor F60 (K9K models) (view with engine removed) | | |

METER SYSTEM

< FUNCTION DIAGNOSIS >

SPEEDOMETER : Component Description

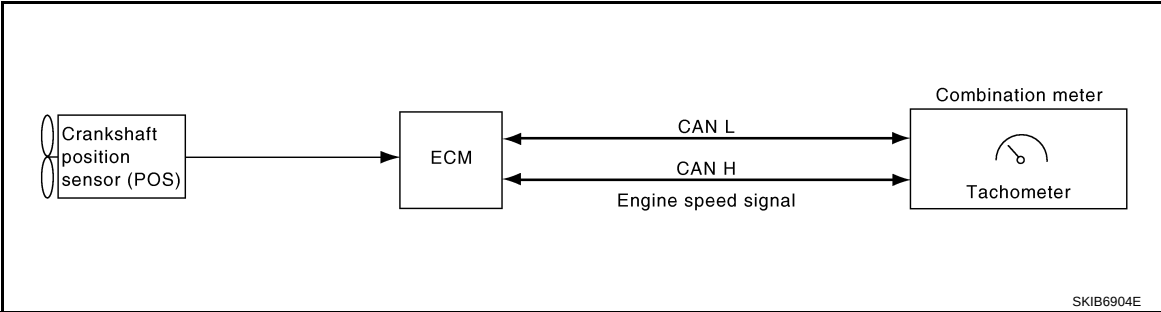
INFOID:000000001537305

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:000000001374653



TACHOMETER : System Description

INFOID:000000001374654

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.

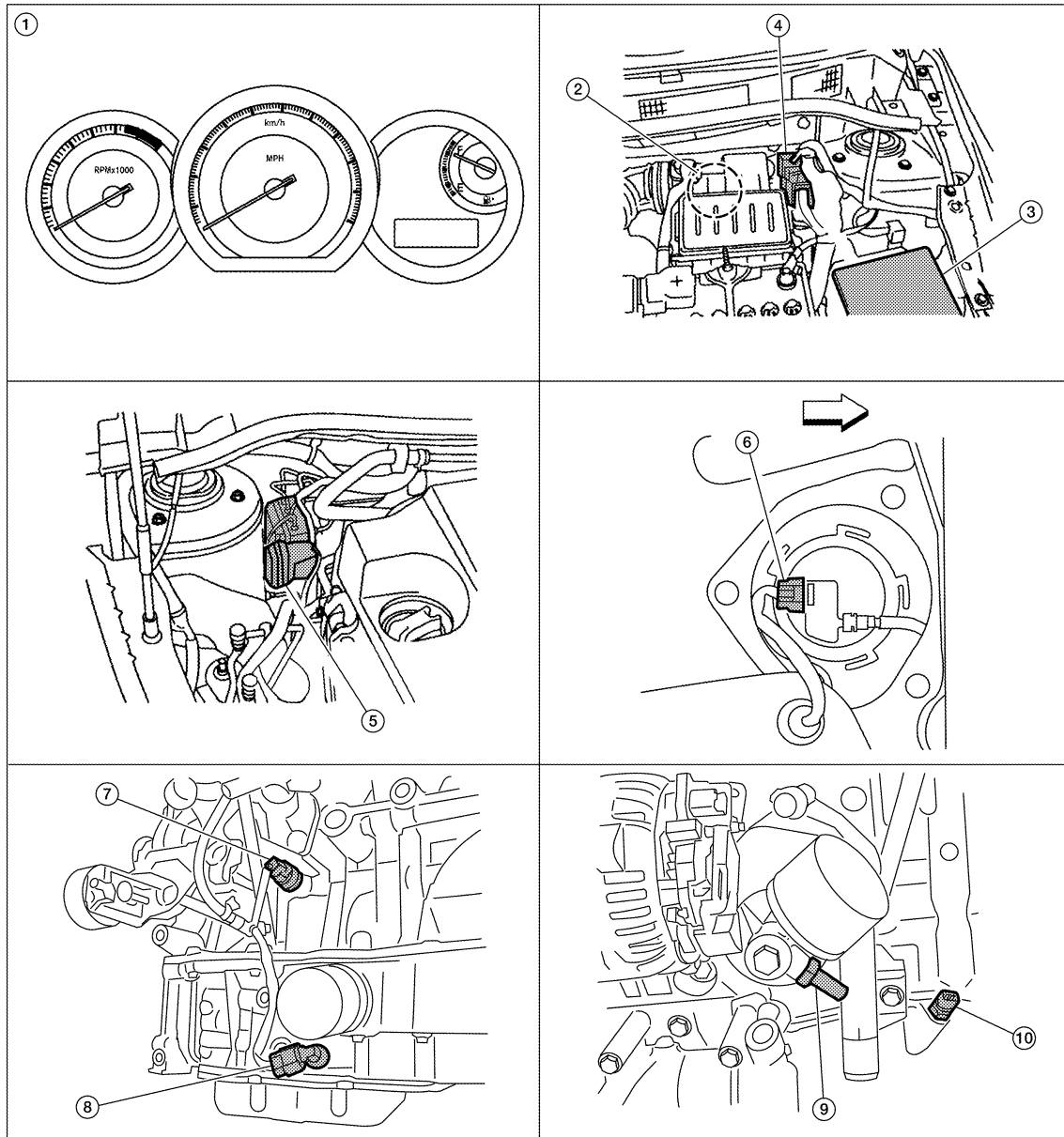
MWI

METER SYSTEM

< FUNCTION DIAGNOSIS >

TACHOMETER : Component Parts Location

INFOID:000000001537308



ALNIA0624Z2

- | | | |
|--|--|---|
| 1. Combination meter M24 | 2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar) | 3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar) |
| 4. ECM E16 (MR18DE shown, HR16DE and K9K similar) | 5. ABS actuator and electric unit (control unit) E33 (LHD models) | 6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front |
| 7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed) | 8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed) | 9. Oil pressure switch F32 (K9K models) (view with engine removed) |
| 10. Oil level sensor F60 (K9K models) (view with engine removed) | | |

METER SYSTEM

< FUNCTION DIAGNOSIS >

TACHOMETER : Component Description

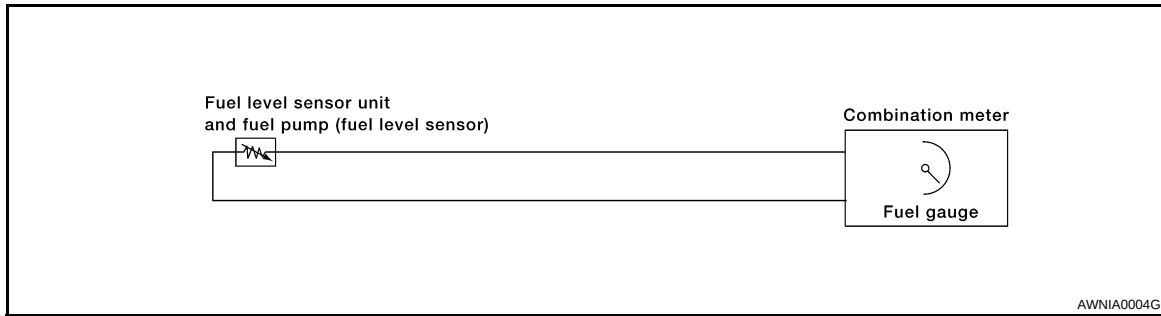
INFOID:0000000001537304

Unit	Description
Combination meter	Indicates the engine speed 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.

FUEL GAUGE

FUEL GAUGE : System Diagram

INFOID:0000000001374659



FUEL GAUGE : System Description

INFOID:0000000001374660

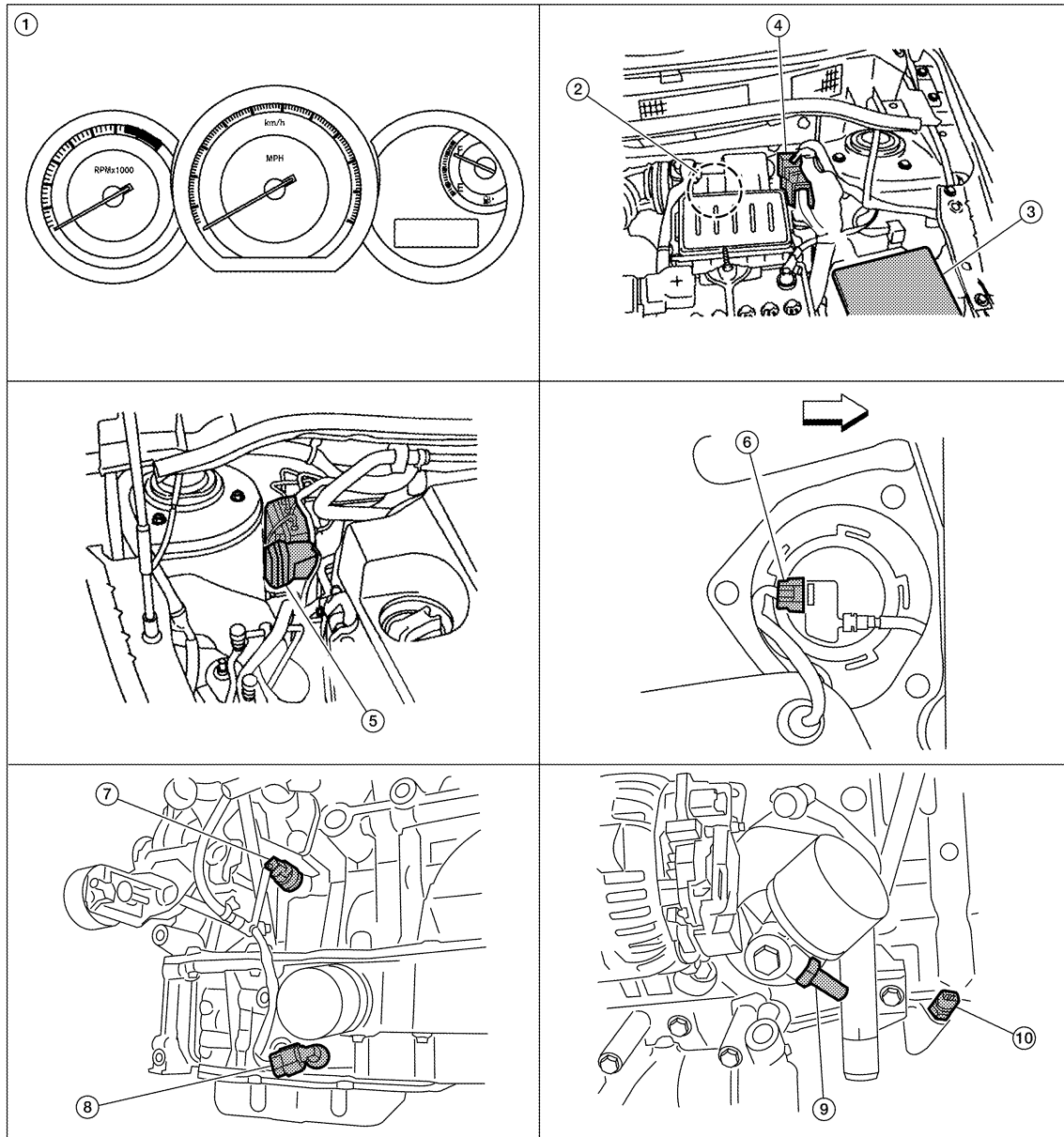
The fuel gauge indicates the approximate fuel level in the fuel tank.
The fuel gauge is regulated by the unified meter control unit and a variable resistor signal supplied by the fuel level sensor unit.

METER SYSTEM

< FUNCTION DIAGNOSIS >

FUEL GAUGE : Component Parts Location

INFOID:000000001537309



ALNIA0624Z2

- | | | |
|--|--|---|
| 1. Combination meter M24 | 2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar) | 3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar) |
| 4. ECM E16 (MR18DE shown, HR16DE and K9K similar) | 5. ABS actuator and electric unit (control unit) E33 (LHD models) | 6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front |
| 7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed) | 8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed) | 9. Oil pressure switch F32 (K9K models) (view with engine removed) |
| 10. Oil level sensor F60 (K9K models) (view with engine removed) | | |

METER SYSTEM

< FUNCTION DIAGNOSIS >

FUEL GAUGE : Component Description

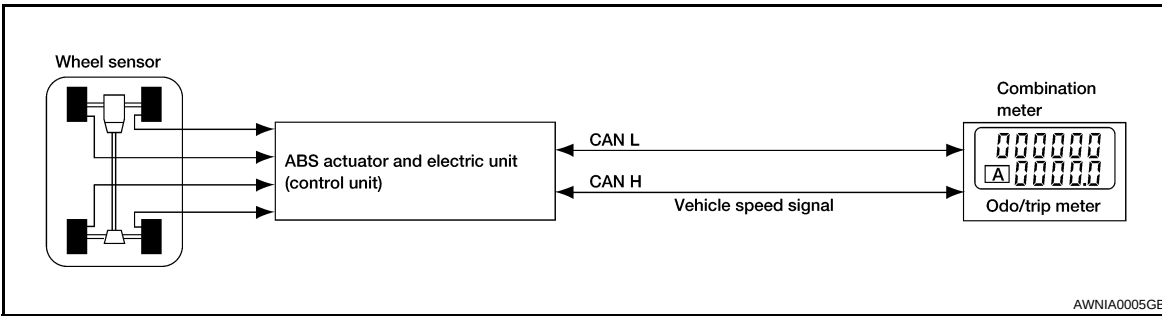
INFOID:000000001537303

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-29, "Description" .

ODO/TRIP METER

ODO/TRIP METER : System Diagram

INFOID:000000001374671



ODO/TRIP METER : System Description

INFOID:000000001374672

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

HOW TO CHANGE THE DISPLAY FOR ODO/TRIP METER

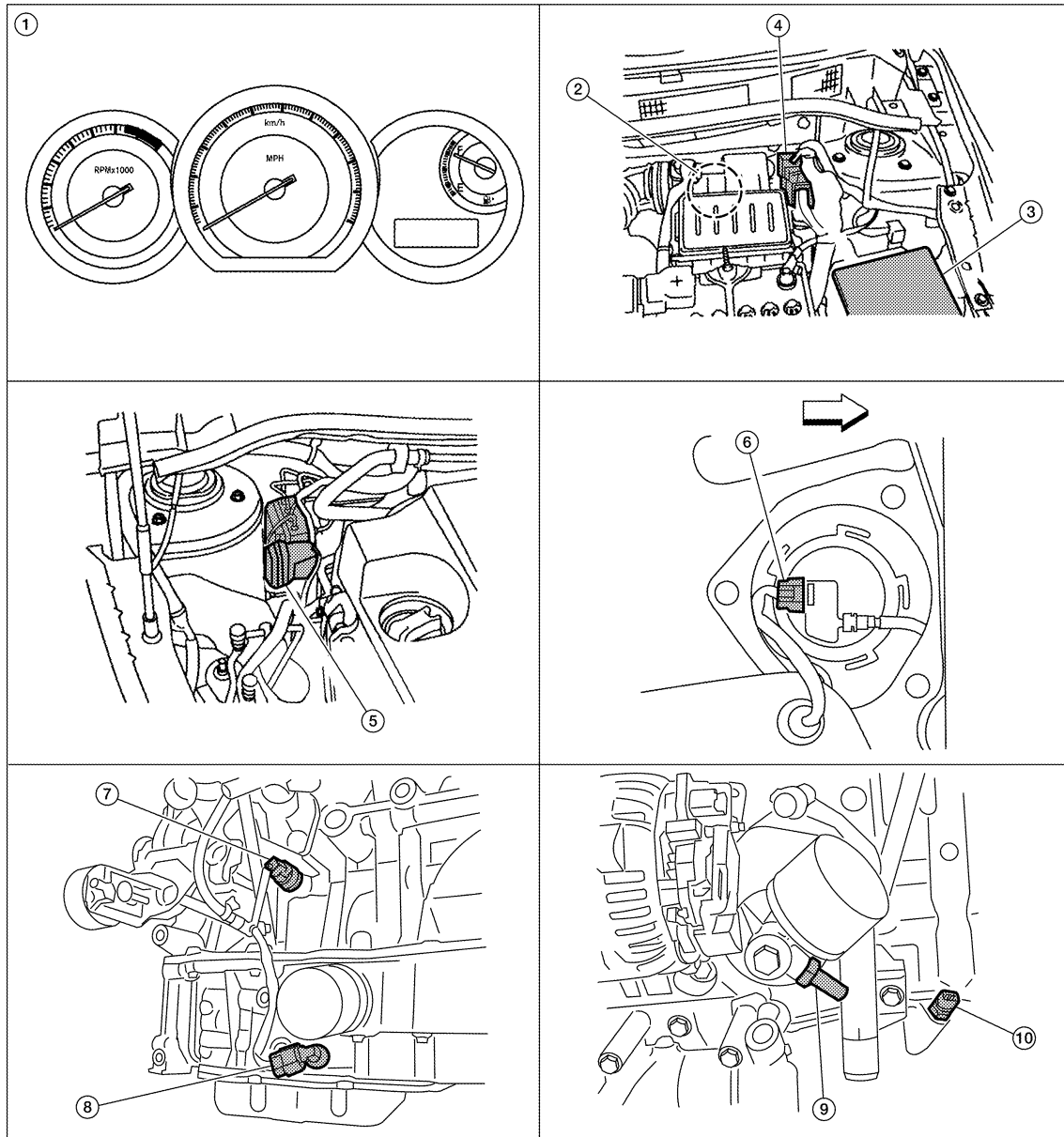
Refer to Owner's Manual for odo/trip meter operating instructions.

METER SYSTEM

< FUNCTION DIAGNOSIS >

ODO/TRIP METER : Component Parts Location

INFOID:000000001537310



ALNIA0624Z2

1. Combination meter M24
2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar)
3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar)
4. ECM E16 (MR18DE shown, HR16DE and K9K similar)
5. ABS actuator and electric unit (control unit) E33 (LHD models)
6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front
7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed)
8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed)
9. Oil pressure switch F32 (K9K models) (view with engine removed)
10. Oil level sensor F60 (K9K models) (view with engine removed)

METER SYSTEM

< FUNCTION DIAGNOSIS >

ODO/TRIP METER : Component Description

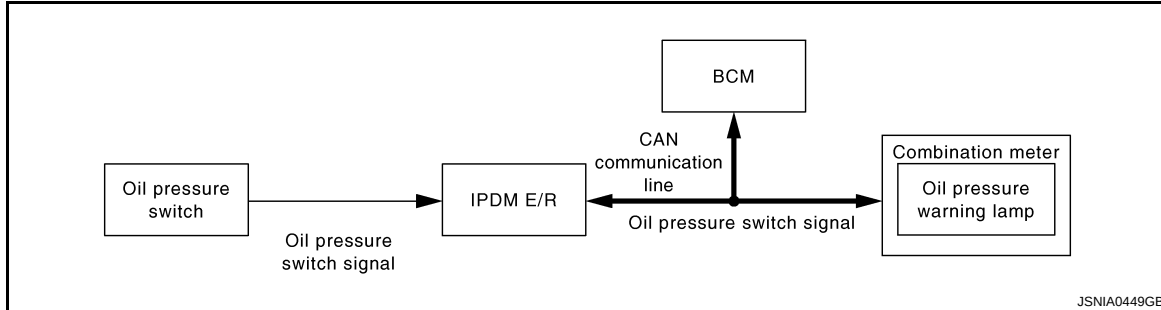
INFOID:000000001537302

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

WARNING LAMPS/INDICATOR LAMPS

WARNING LAMPS/INDICATOR LAMPS : System Diagram

INFOID:000000001537297



WARNING LAMPS/INDICATOR LAMPS : System Description

INFOID:000000001537298

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.

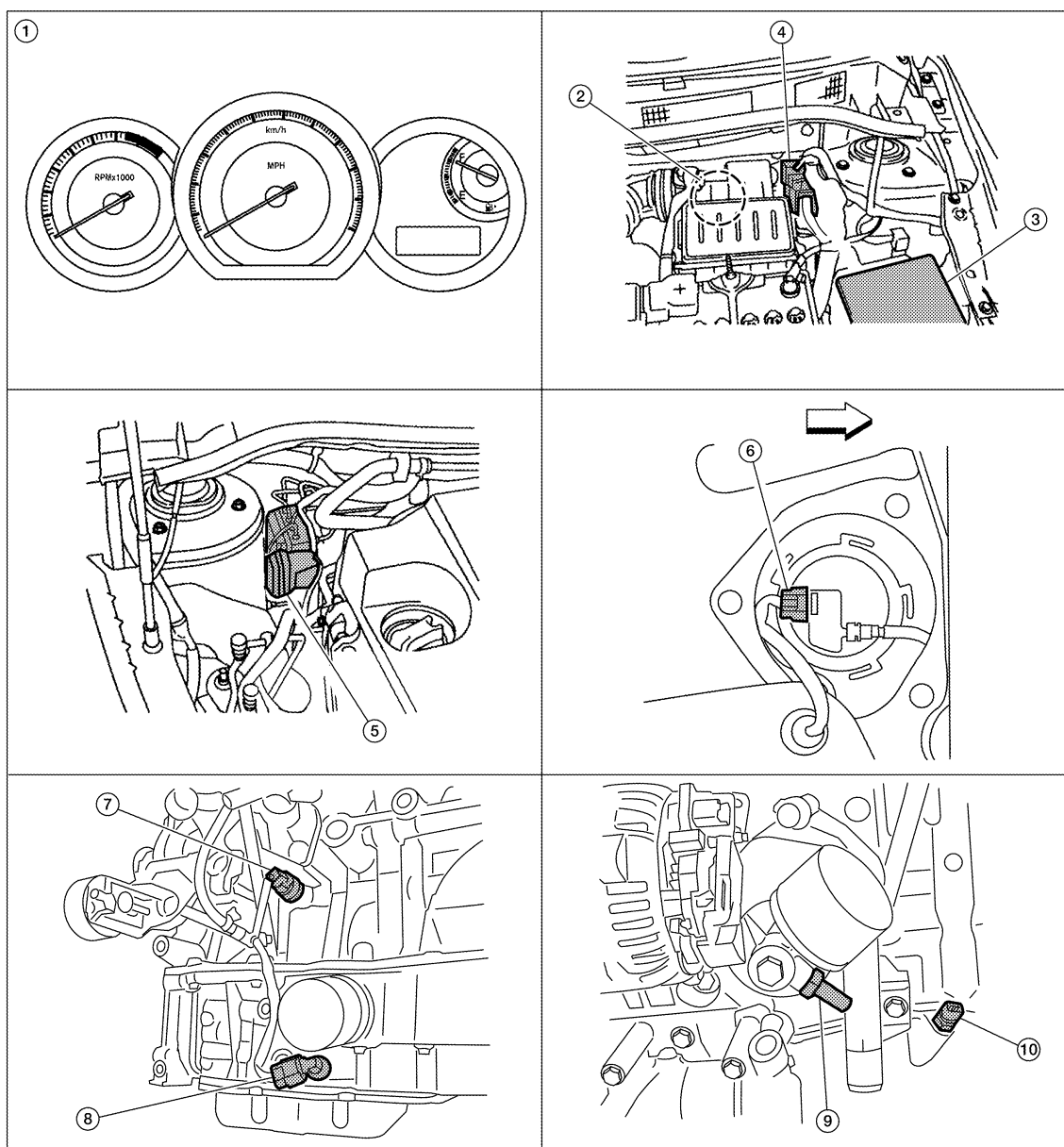
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METER SYSTEM

< FUNCTION DIAGNOSIS >

WARNING LAMPS/INDICATOR LAMPS : Component Parts Location

INFOID:000000001537311



ALNIA0624Z2

1. Combination meter M24
2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar)
3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar)
4. ECM E16 (MR18DE shown, HR16DE and K9K similar)
5. ABS actuator and electric unit (control unit) E33 (LHD models)
6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front
7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed)
8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed)
9. Oil pressure switch F32 (K9K models) (view with engine removed)
10. Oil level sensor F60 (K9K models) (view with engine removed)

METER SYSTEM

< FUNCTION DIAGNOSIS >

WARNING LAMPS/INDICATOR LAMPS : Component Description

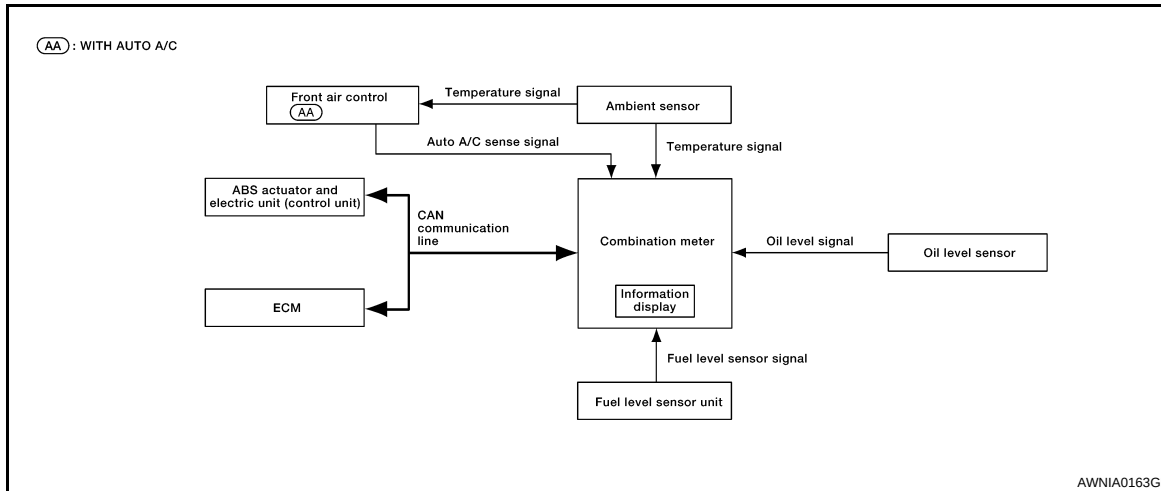
INFOID:000000001537300

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-31, "Description" .
BCM	Transmits the oil pressure switch signal received from IPDM E/R to the combination meter via CAN communication.

INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

INFOID:000000001374677



INFORMATION DISPLAY : System Description

INFOID:0000000001374678

FUNCTION

The information display can indicate the following items.

- Engine oil change schedule
- Engine oil level
- Distance to empty
- Journey time
- Average fuel consumption
- Average speed
- Outside air temperature

ENGINE OIL CHANGE SCHEDULE

The remaining distance from the set engine oil change schedule is displayed.

Items	Setting range	Setting unit	Description
Engine oil change schedule	0 – 30000 km (0 – 18000 miles)	1000 km (500 miles)	The remaining distance from the set distance is displayed for 5 seconds after the ignition switch is turned ON.

OIL LEVEL

The combination meter judges the engine oil level based on the oil level sensor signal received from the oil level sensor. If the oil level is sufficient, “Oil Good” is displayed for approximately 10 seconds. If the oil level is low, “Oil Lo” blinks for approximately 30 seconds.

DISTANCE TO EMPTY

METER SYSTEM

< FUNCTION DIAGNOSIS >

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

JOURNEY TIME

The travel time since last reset is displayed.

AVERAGE FUEL CONSUMPTION

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

AVERAGE SPEED

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

OUTSIDE AIR TEMPERATURE

The combination meter indicates the outside air temperature calculated by the temperature signal received from the ambient sensor.

The indicated temperature is not readily affected by engine heat. It changes only when one of the following conditions is present.

- The temperature detected by the ambient sensor is lower than the indicated temperature
 - The vehicle speed is greater than 20 km/h (13 MPH)
(This is to prevent the indicated temperature from being affected by engine heat during low-speed driving.)
 - The ignition switch has been turned to the OFF position for more than 3.5 hours. (The engine is cold.)
- When the ambient air temperature falls below 3°C (37°F), the display starts flashing. Approximately 20 seconds later, only "°C" flashes.

NOTE:

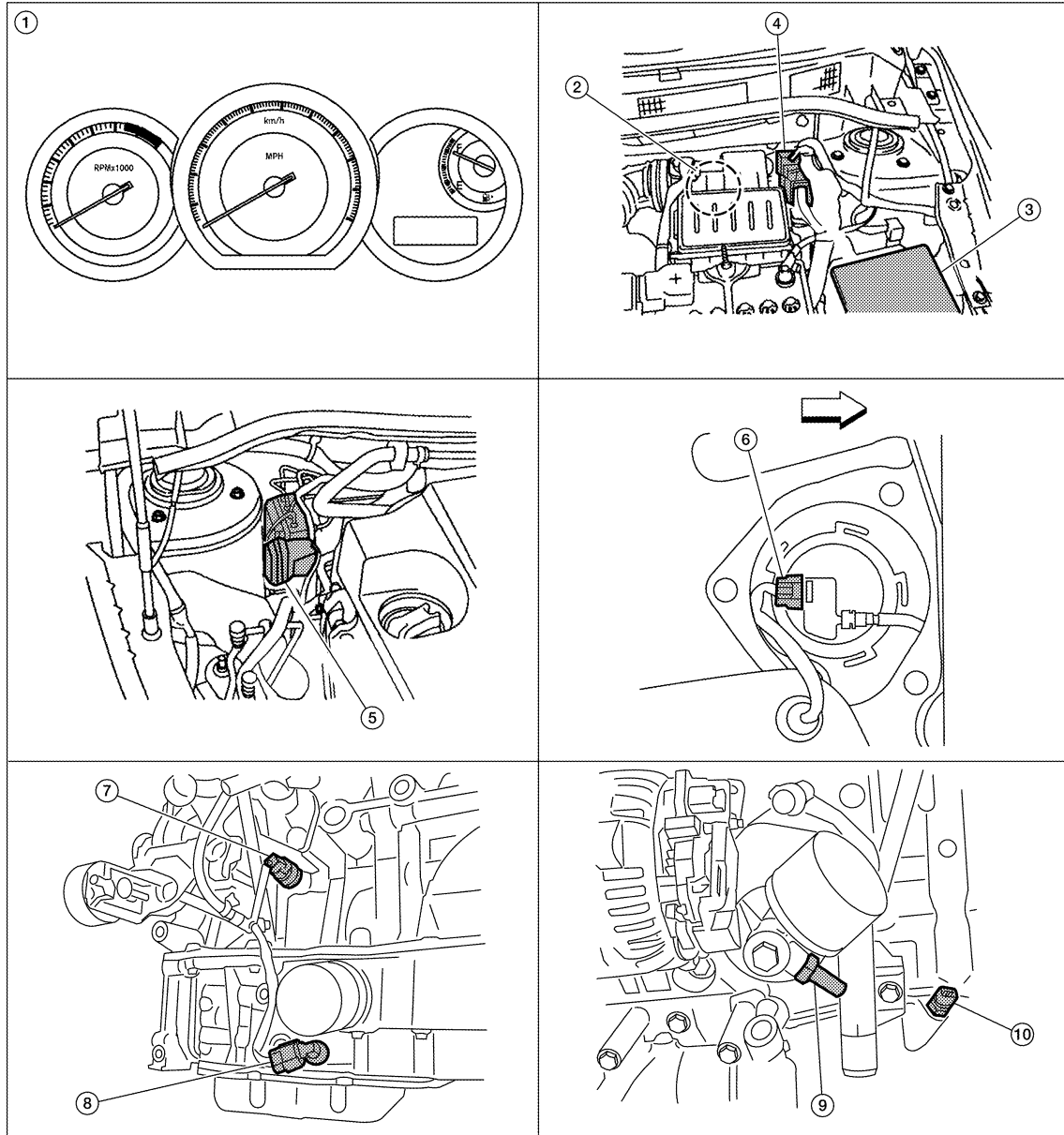
On vehicles equipped with auto A/C, the ambient sensor signal is shared with the front air control. The combination meter is notified of the signal sharing via the auto A/C sense circuit.

METER SYSTEM

< FUNCTION DIAGNOSIS >

INFORMATION DISPLAY : Component Parts Location

INFOID:000000001537312



ALNIA0624Z2

- | | | |
|--|--|---|
| 1. Combination meter M24 | 2. ABS actuator and electric unit (control unit) E33 (RHD models) (MR18DE shown, HR16DE and K9K similar) | 3. IPDM E/R E43, E46, E48 (MR18DE shown, HR16DE and K9K similar) |
| 4. ECM E16 (MR18DE shown, HR16DE and K9K similar) | 5. ABS actuator and electric unit (control unit) E33 (LHD models) | 6. Fuel level sensor unit and fuel pump B40 (view with rear seat and inspection hole cover removed)
←: Front |
| 7. Oil pressure switch F32 (HR16DE and MR18DE models) (view with engine removed) | 8. Oil level sensor F60 (HR16DE and MR18DE models) (view with engine removed) | 9. Oil pressure switch F32 (K9K models) (view with engine removed) |
| 10. Oil level sensor F60 (K9K models) (view with engine removed) | | |

INFORMATION DISPLAY : Component Description

INFOID:000000001537301

METER SYSTEM

< FUNCTION DIAGNOSIS >

Unit	Description
Combination meter	Controls the information display according to the signal received from each unit.
Fuel level sensor unit	Refer to MWI-29, "Description" .
ECM	Transmits the following signals to the combination meter via CAN communication line. • 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.
Ambient sensor	Refer to MWI-34, "Description" .
Oil level sensor	Refer to MWI-32, "Description" .

DIAGNOSIS SYSTEM (METER)

< FUNCTION DIAGNOSIS >

DIAGNOSIS SYSTEM (METER)

Diagnosis Description

INFOID:000000001374681

SELF-DIAGNOSIS MODE

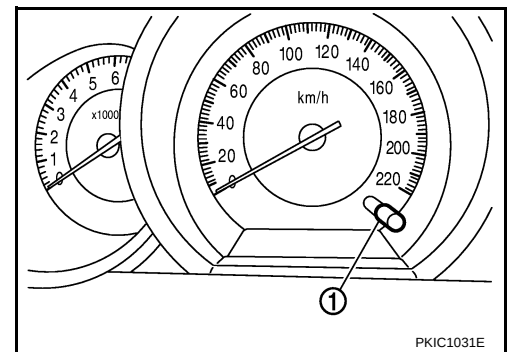
- Self-diagnosis can check for continuity between meter control circuit and each meter (speedometer, tachometer and fuel gauge).
- Self-diagnosis can check for odometer/trip meter and information display segment, low-fuel level warning lamp, low water temperature indicator lamp, and high water temperature warning lamp.

NOTE:

This combination meter has no capability to perform on-board data checking and CONSULT type active tests as seen in other Nissan combination meters. For additional combination meter diagnostic functions refer to [MWI-22, "CONSULT-III Function \(METER/M&A\)"](#).

OPERATION PROCEDURE

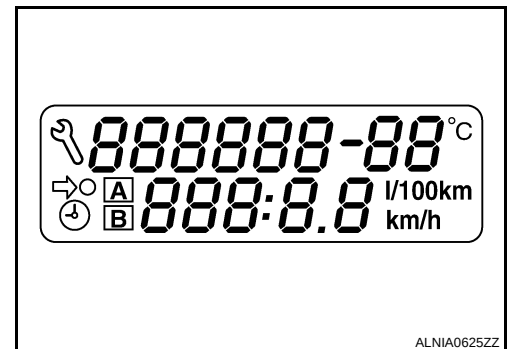
1. Turn ignition switch OFF.
2. While pressing the odometer/trip meter switch (1), turn the ignition switch ON.
3. Press and release the odometer/trip meter switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)



4. All the segments on the odometer/trip meter, and simultaneously the low-fuel warning lamp indicator illuminates. At this time, the unified meter control unit is turned to self-diagnosis mode.

NOTE:

- Check combination meter power supply and ground circuit when self-diagnosis mode of combination meter does not start. Replace combination meter if normal. Refer to [MWI-94, "Removal and Installation"](#).
- If any of the segments is not displayed, replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

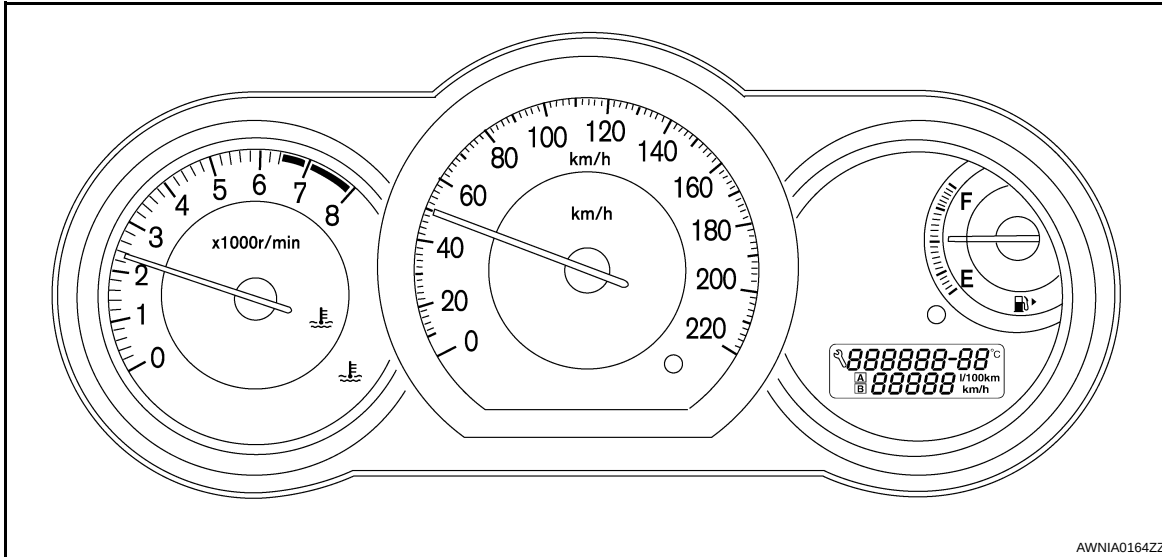


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DIAGNOSIS SYSTEM (METER)

< FUNCTION DIAGNOSIS >

5. Each meter activates while pressing odo/trip meter switch. (At this time, the low-fuel warning lamp turns off, low water temperature indicator lamp and high water temperature warning lamp turn on.)



NOTE:

If any of the meter and gages are not activated, replace combination meter. Refer to [MWI-94. "Removal and Installation"](#).

CONSULT-III Function (METER/M&A)

INFOID:0000000001374682

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

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

SELF-DIAG RESULTS

Display Item List

Refer to [MWI-54. "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.
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.

DIAGNOSIS SYSTEM (METER)

< FUNCTION DIAGNOSIS >

Display item [Unit]	MAIN SIGNALS	SELECTION FROM MENU	Description	
DOOR W/L [ON/OFF]		X	Displays [ON/OFF] condition of door warning lamp.	A
HI-BEAM IND [ON/OFF]		X	Displays [ON/OFF] condition of high beam indicator.	B
TURN IND [ON/OFF]		X	Displays [ON/OFF] condition of turn indicator.	
FR FOG IND		X	Displays [ON/OFF] condition of front fog lamp indicator.	
RR FOG IND		X	Displays [ON/OFF] condition of rear fog lamp indicator.	C
OIL W/L [ON/OFF]		X	Displays [ON/OFF] condition of oil pressure warning lamp.	
LIGHT IND		X	Displays [ON/OFF] condition of exterior lamp indicator.	D
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.	E
BRAKE W/L [ON/OFF]		X	Displays [ON/OFF] condition of brake warning lamp.*	
OIL LEVEL IND		X	Displays [ON/OFF] condition of oil level indicator.	F
KEY G W/L [ON/OFF]		X	Displays [ON/OFF] condition of key green warning lamp.	
KEY R W/L [ON/OFF]		X	Displays [ON/OFF] condition of key red warning lamp.	
KEY KNOB W/L [ON/OFF]		X	Displays [ON/OFF] condition of key knob warning lamp.	G
PNP P SW	X	X	Displays [ON/OFF] condition of inhibitor P switch.	
PNP N SW	X	X	Displays [ON/OFF] condition of inhibitor N switch.	
O/D OFF SW		X	Displays [ON/OFF] condition of O/D OFF switch.	H
BRAKE SW [ON/OFF]		X	Displays [ON/OFF] condition of parking brake switch.	
P RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift P range indicator.	I
R RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift R range indicator.	
N RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift N range indicator.	
D RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift D range indicator.	J
2 RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift 2 range indicator.	
1 RANGE IND [ON/OFF]	X	X	Displays [ON/OFF] condition of A/T shift 1range indicator.	K
O/D OFF W/L		X	Displays [ON/OFF] condition of O/D OFF indicator lamp.	
CRUISE IND [ON/OFF]		X	Displays [ON/OFF] condition of CRUISE indicator.	
EPS W/L		X	Displays [ON/OFF] condition of EPS warning lamp.	L

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

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DTC U1000 CAN COMMUNICATION

< COMPONENT DIAGNOSIS >

COMPONENT DIAGNOSIS

DTC U1000 CAN COMMUNICATION

DTC Logic

INFOID:000000001374683

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000001374684

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

1.CHECK CAN COMMUNICATION

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

>> Go to "LAN system". Refer to [LAN-22, "Trouble Diagnosis Flow Chart"](#).

DTC B2205 VEHICLE SPEED CIRCUIT

< COMPONENT DIAGNOSIS >

DTC B2205 VEHICLE SPEED CIRCUIT

Description

INFOID:000000001374685

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

DTC Logic

INFOID:000000001374686

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

Diagnosis Procedure

INFOID:000000001374687

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

1.CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

- YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to [BRC-25, "CONSULT-III Function \(ABS\)"](#) (with ABS) or [BRC-105, "CONSULT-III Function \(ABS\)"](#) (with ESP/TCS/ABS).
- NO >> Replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:000000001374688

1.CHECK FUSES

Check for blown combination meter fuses.

Unit	Power source	Fuse No.
Combination meter	Battery	13
	Ignition switch ON or START	3

Is the inspection result normal?

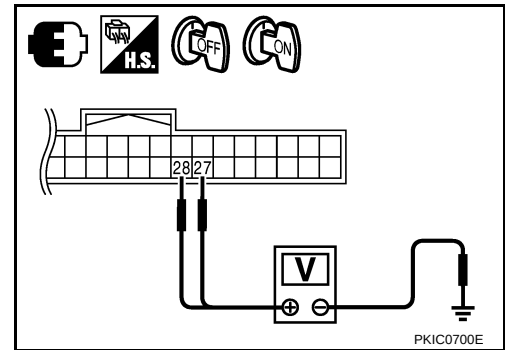
YES >> GO TO 2

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 27, 28 and ground.

Terminals			Ignition switch position		
(+) (−)		(−)	OFF	ON	START
Connector	Terminal				
M24	27	Ground	Battery voltage	Battery voltage	Battery voltage
	28		0V	Battery voltage	Battery voltage



Is the inspection result normal?

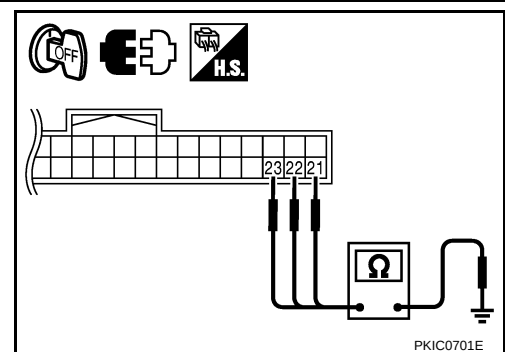
YES >> GO TO 3

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

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Check continuity between combination meter harness connector M24 terminals 21, 22, 23 and ground.

Terminals			Continuity
(+)		(−)	
Connector	Terminal		
M24	21	Ground	Yes
	22		
	23		



Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:000000001713117

1. CHECK FUSES AND FUSIBLE LINK

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

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

Terminal No.	Signal name	Fuses and fusible link No.
22	Battery power supply	9 (10A)
72		8 (10A)
74		G (40A)
79		
24	Ignition power supply	55 (10A)

Is the fuse fusing?

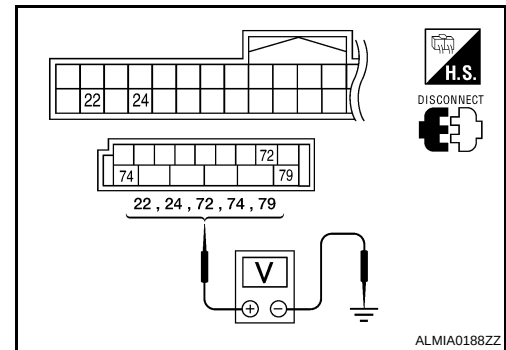
YES >> Replace the blown fuse or fusible link after repairing the affected circuit if a fuse or fusible link is blown.

NO >> GO TO 2.

2. CHECK POWER SUPPLY CIRCUIT

- Turn ignition switch OFF.
- Disconnect BCM.
- Check voltage between BCM harness connector and ground.

Terminals		Ignition switch position		
(+)		(-)		
BCM				
Connector	Terminal	OFF	ACC	ON
M18	22	Battery voltage	Battery voltage	Battery voltage
	24	Approx. 0 V	Approx. 0 V	Battery voltage
M20	72	Ground	Ground	Ground
	74			
	79			



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

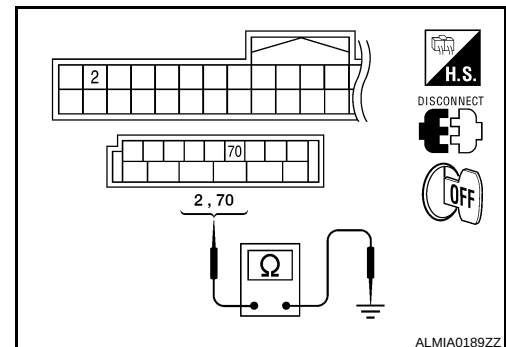
Check continuity between BCM harness connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M18	2	Ground	Yes
M20	70		

Does continuity exist?

YES >> INSPECTION END

NO >> Repair or replace harness.



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

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

INFOID:000000001713118

1. CHECK FUSES AND FUSIBLE LINK

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

POWER SUPPLY AND GROUND CIRCUIT

< COMPONENT DIAGNOSIS >

Terminal No.	Signal name	Fusible link No.
1	Battery	A, D
2	Battery	C
12	Ignition switch ON or START	H

Is the fuse blown?

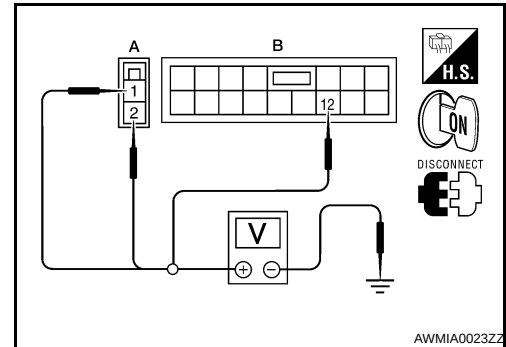
YES >> Replace the blown fuse or fusible link after repairing the affected circuit.

NO >> GO TO 2

2. CHECK BATTERY POWER SUPPLY CIRCUIT

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

Terminals		Ignition switch position	OFF	ON	START
(+)	(-)				
Connector	Terminal				
E42 (A)	1	Ground	Battery voltage	Battery voltage	Battery voltage
	2		Battery voltage	Battery voltage	Battery voltage
E43 (B)	12		0V	Battery voltage	Battery voltage



Is the measurement value normal?

YES >> GO TO 3

NO >> Repair or replace harness.

3. CHECK GROUND CIRCUIT

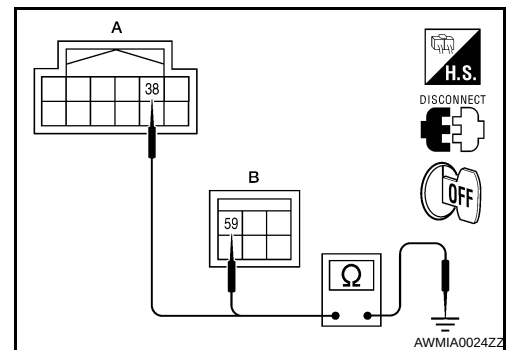
1. Turn ignition switch OFF.
2. Check continuity between IPDM E/R harness connectors and ground.

IPDM E/R		Ground	Continuity
Connector	Terminal		
E46 (A)	38		Yes
E48 (B)	59		

Does continuity exist?

YES >> Inspection End.

NO >> Repair or replace harness.



FUEL LEVEL SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:000000001374693

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:000000001374694

1.COMBINATION METER INPUT SIGNAL

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

Fuel gauge pointer	Reference value of data monitor [lit.]
Full	Approx. 49
3/4	Approx. 34
1/2	Approx. 22
1/4	Approx. 10
Empty	Approx. 4

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

- YES >> Inspection End.
NO >> Replace combination meter. Refer to [MWI-94. "Removal and Installation"](#).

Diagnosis Procedure

INFOID:000000001374695

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 (A) and fuel level sensor unit and fuel pump harness connector (B).

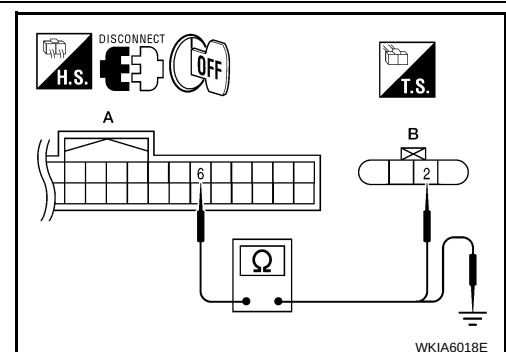
A		B		Continuity
Connector	Terminal	Connector	Terminal	
M24	6	B40	2	Yes

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

A		Ground	Continuity
Connector	Terminal		
M24	6		No

Is the inspection result normal?

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



FUEL LEVEL SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

3.CHECK FUEL LEVEL SENSOR UNIT GROUND CIRCUIT

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

A		B		Continuity
Connector	Terminal	Connector	Terminal	
M24	24	B40	4	Yes

2. Check continuity between combination meter harness connector (A) and ground.

A		Ground	Continuity
Connector	Terminal		
M24	24		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:000000001374696

1.REMOVE FUEL LEVEL SENSOR UNIT

Remove the fuel level sensor unit. Refer to [FL-8, "Removal and Installation"](#).

>> GO TO 2

2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP

Check the resistance between terminals 2 and 4.

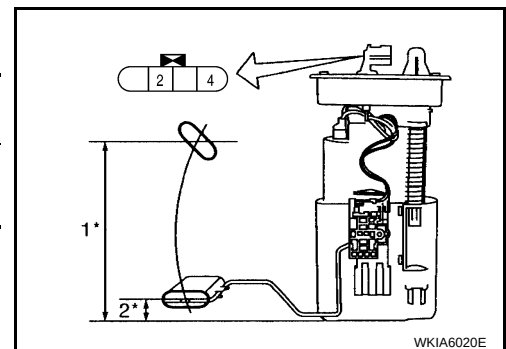
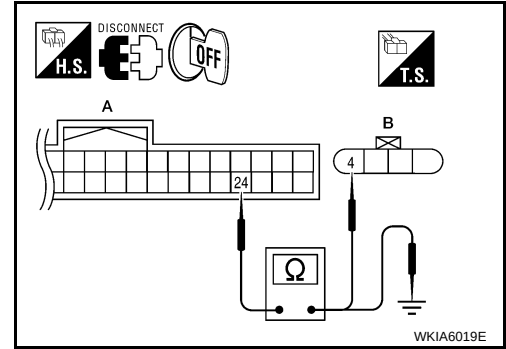
Terminal		Float position mm (in)			Resistance value (Approx.)
2	4	*1	Full	160 (8.07)	6Ω
		*2	Empty	20 (1.02)	80Ω

*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-8, "Removal and Installation"](#).



OIL PRESSURE SWITCH SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Description

INFOID:000000001374697

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

Component Function Check

INFOID:000000001374698

1.COMBINATION METER INPUT SIGNAL

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

OIL W/L

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

When engine is running : OFF

>> Inspection End.

Diagnosis Procedure

INFOID:000000001374699

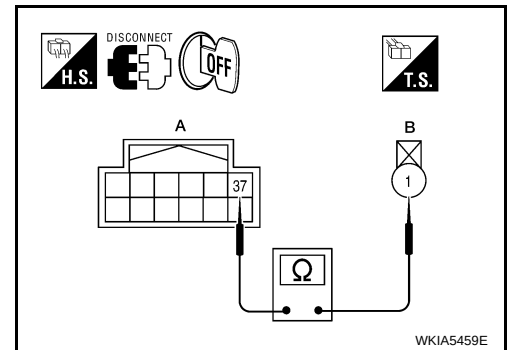
1.CHECK OIL PRESSURE SWITCH CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect IPDM E/R connector E46 and oil pressure switch connector F32.
3. Check continuity between IPDM E/R harness connector E46 (A) terminal 37 and oil pressure switch harness connector F32 (B) terminal 1.

Continuity should exist.

Is the inspection result normal?

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



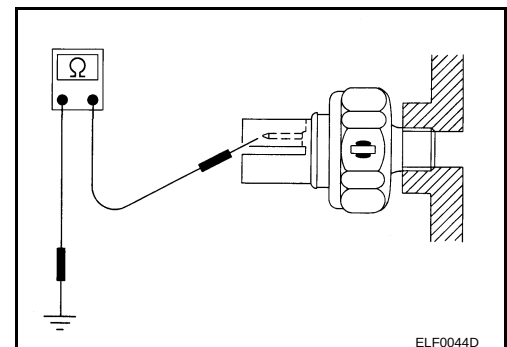
Component Inspection

INFOID:000000001374700

1.CHECK OIL PRESSURE SWITCH

Check continuity between oil pressure switch and ground.

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



Is the inspection result normal?

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

OIL LEVEL SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

OIL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:000000001537460

Transmits the oil level sensor signal to the combination meter.

Diagnosis Procedure (With Diesel)

INFOID:000000001537463

1.CHECK OIL LEVEL SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and oil level sensor connector.
3. Check continuity between combination meter harness connector M24 (A) terminals 36, 37 and oil level sensor harness connector F60 (B) terminals 1, 2.

36 – 1 : Continuity should exist.

37 – 2 : Continuity should exist.

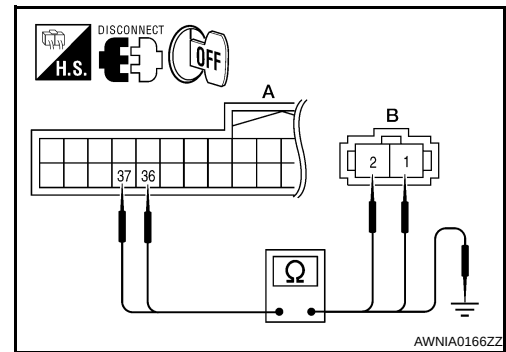
4. Check continuity between combination meter harness connector M24 (A) terminals 36, 37 and ground.

36, 37 – Ground : Continuity should not exist.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.



Diagnosis Procedure (Without Diesel)

INFOID:000000001537462

1.CHECK OIL LEVEL SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and oil level sensor connector.
3. Check continuity between combination meter harness connector M24 (A) terminals 36, 37 and oil level sensor harness connector F60 (B) terminals 1, 3.

36 – 3 : Continuity should exist.

37 – 1 : Continuity should exist.

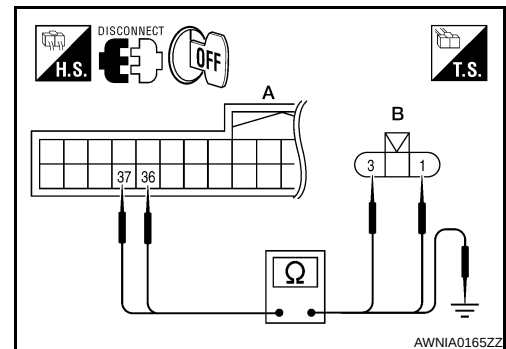
4. Check continuity between combination meter harness connector M24 (A) terminals 36, 37 and ground.

36, 37 – Ground : Continuity should not exist.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.



Component Inspection (With Diesel)

INFOID:000000001537465

1.CHECK OIL LEVEL SENSOR UNIT

OIL LEVEL SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

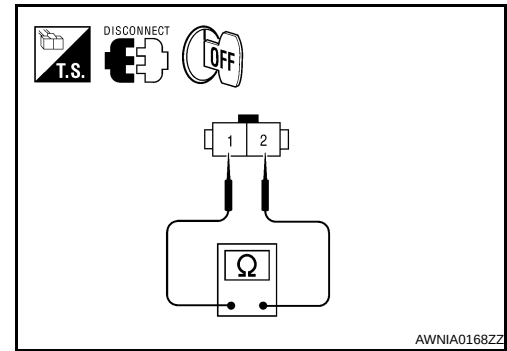
1. Turn ignition switch OFF.
2. Disconnect oil level sensor connector.
3. Check resistance between oil level sensor terminals 1 and 2.

1 - 2

: 3 - 20 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace oil level sensor.



INFOID:000000001537464

Component Inspection (Without Diesel)

1.CHECK OIL LEVEL SENSOR UNIT

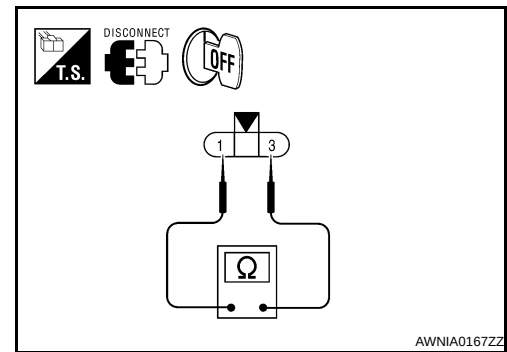
1. Turn ignition switch OFF.
2. Disconnect oil level sensor connector.
3. Check resistance between oil level sensor terminals 1 and 3.

1 - 3

: 3 - 20 Ω

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace oil level sensor.



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AMBIENT SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

AMBIENT SENSOR SIGNAL CIRCUIT

Description

INFOID:000000001537467

The ambient sensor detects ambient temperature and converts it into a resistance value which is then input into the combination meter.

NOTE:

On vehicles equipped with auto A/C, the ambient sensor signal is shared with the front air control. The combination meter is notified of the signal sharing via the auto A/C sense circuit.

Diagnosis Procedure

INFOID:000000001537468

1.CHECK AMBIENT SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and ambient sensor connector.
3. Check continuity between combination meter harness connector M24 (A) terminal 19 and ambient sensor harness connector E60 (B) terminal 2.

19 – 2 : Continuity should exist.

4. Check continuity between combination meter harness connector M24 (A) terminal 19 and ground.

19 – Ground : Continuity should not exist.

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair harness or connector.

2.CHECK AMBIENT SENSOR GROUND CIRCUIT

1. Check continuity between combination meter harness connector M24 (A) terminal 20 and ambient sensor harness connector E60 (B) terminal 1.

20 – 1 : Continuity should exist.

2. Check continuity between combination meter harness connector M24 (A) terminal 20 and ground.

20 – Ground : Continuity should not exist.

Is the inspection result normal?

YES >> • With auto A/C: GO TO 3

• Without auto A/C: INSPECTION END

NO >> Repair harness or connector.

3.CHECK AUTO A/C SENSE SIGNAL

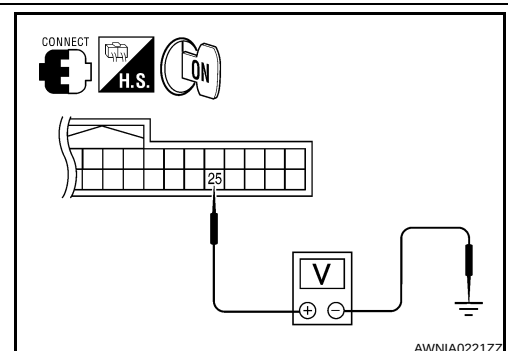
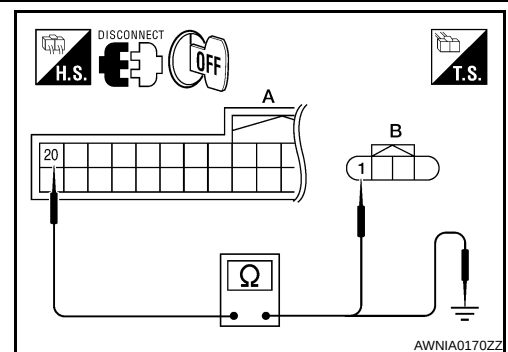
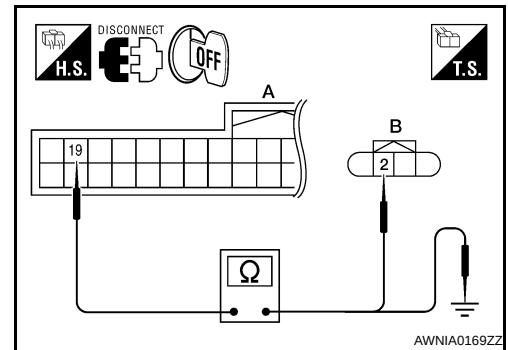
1. Connect combination meter and ambient sensor connectors.
2. Turn ignition switch ON.
3. Check voltage between combination meter harness connector M24 terminal 25 and ground.

25 – Ground : 5V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 4



AMBIENT SENSOR SIGNAL CIRCUIT

< COMPONENT DIAGNOSIS >

4.CHECK AUTO A/C SENSE CIRCUIT

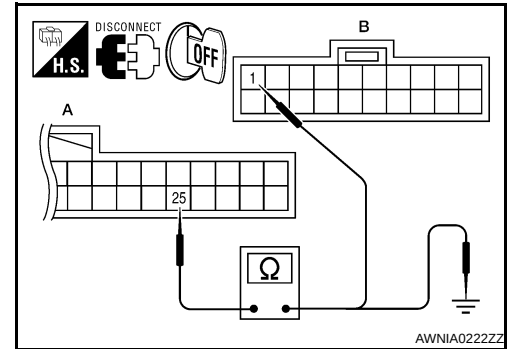
With NAVI

1. Turn ignition switch OFF.
2. Disconnect combination meter connector M24 and front air control connector M86.
3. Check continuity between combination meter harness connector M24 (A) terminal 25 and front air control harness connector M86 (B) terminal 1.

25 – 1 : Continuity should exist.

4. Check continuity between combination meter harness connector M24 (A) terminal 25 and ground.

25 – Ground : Continuity should not exist.



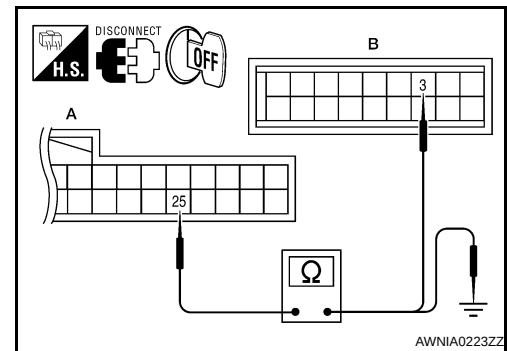
Without NAVI

1. Turn ignition switch OFF.
2. Disconnect combination meter connector M24 and front air control connector M50.
3. Check continuity between combination meter harness connector M24 (A) terminal 25 and front air control harness connector M50 (B) terminal 3.

25 – 3 : Continuity should exist.

4. Check continuity between combination meter harness connector M24 (A) terminal 25 and ground.

25 – Ground : Continuity should not exist.



Is the inspection result normal?

- YES >> Replace front air control. Refer to [VTL-7, "Removal and Installation"](#).
NO >> Repair harness or connector.

Component Inspection

INFOID:000000001537469

Refer to [HAC-131, "Ambient Sensor Component Inspection"](#) (without NAVI) or [HAC-245, "Ambient Sensor Component Inspection"](#) (with NAVI).

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COMBINATION METER

< ECU DIAGNOSIS >

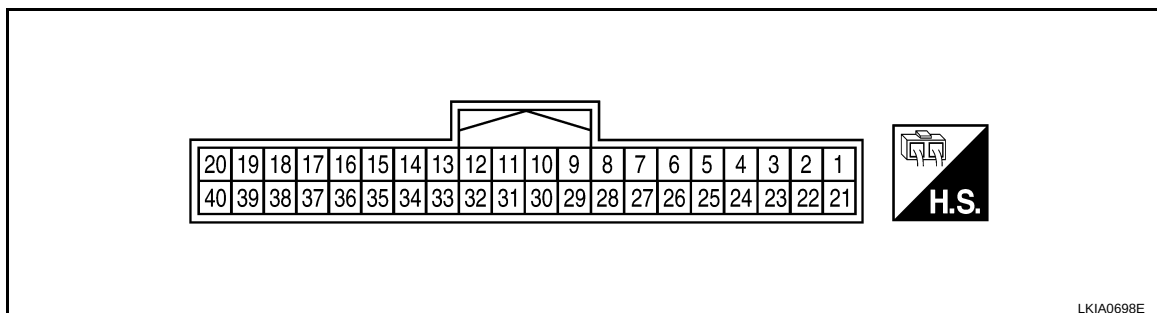
ECU DIAGNOSIS

COMBINATION METER

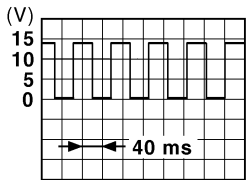
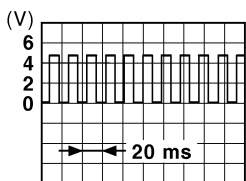
Reference Value

INFOID:000000001374706

TERMINAL LAYOUT

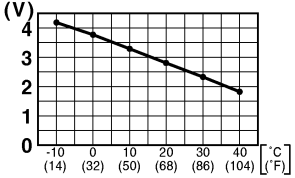
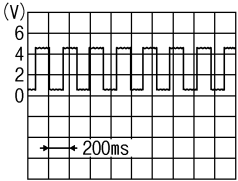


PHYSICAL VALUES

Ter- mi- nal No.	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
1	L	CAN-H	—	—	—
2	P	CAN-L	—	—	—
3	V	Vehicle speed signal output (2-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	NOTE: Maximum voltage may be 5V due to specifications (connected units).  PKIC0642E
4	O	Vehicle speed signal output (8-pulse)	ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	NOTE: Maximum voltage may be 12V due to specifications (connected units).  PKIC0643E
6	BR	Fuel level sensor signal (+)	—	—	Refer to MWI-29, "Description" .
7	BR	Air bag signal	ON	Air bag warning lamp ON	4
				Air bag warning lamp OFF	0
8	P	O/D OFF switch	ON	O/D OFF switch pressed	0
				O/D OFF switch released	Battery voltage
9	O	Seat belt buckle switch (driv- er side)	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage
10	SB	Parking Brake switch	ON	Parking brake applied	0
				Parking brake released	Battery voltage

COMBINATION METER

< ECU DIAGNOSIS >

Ter- mi- nal No.	Wire color	Item	Condition		Reference value (V) (Approx.)	
			Ignition switch	Operation or condition		
11	LG	Brake fluid level switch	ON	Brake fluid level low	0	A
				Brake fluid level normal	Battery voltage	B
16	V	Steering switch (trip comput- er) signal	ON	Press the steering switch (trip computer)	0	C
				Other than the above	5	
19	V	Ambient sensor signal	ON	—	 JSNIA0014GB	D
20	BR	Ambient sensor ground	ON	—	0	E
21	B	Ground	—	—	0	F
22						G
23						
24	V	Fuel level sensor ground (-)	ON	—	0	H
25	R	Auto A/C sense signal (with auto A/C)	ON	—	5V	I
27	G	Battery power supply	OFF	—	Battery voltage	J
28	SB	Ignition switch ON or START	ON	—	Battery voltage	K
30	G	Stop lamp switch	ON	Brake pedal depressed	Battery voltage	L
				Brake pedal released	0	M
31	V	A/T N-range input (with A/T)	ON	Transmission gear selector lever in N position	Battery voltage	
				Transmission gear selector lever other than N position	0	
32	W	A/T P-range input (with A/T)	ON	Transmission gear selector lever in P position	Battery voltage	
				Transmission gear selector lever other than P position	0	
33	Y	A/T PN output (with A/T)	ON	Transmission gear selector lever in P or N position	0	
				Transmission gear selector lever other than P or N position	Battery voltage	MWI
35	BR	Engine coolant temperature signal output	ON	At idle [after warming up, approx. 80°C (176°F)] NOTE: The waveforms vary depending on engine coolant temperature.	 SKI3651J	O
						P

COMBINATION METER

< ECU DIAGNOSIS >

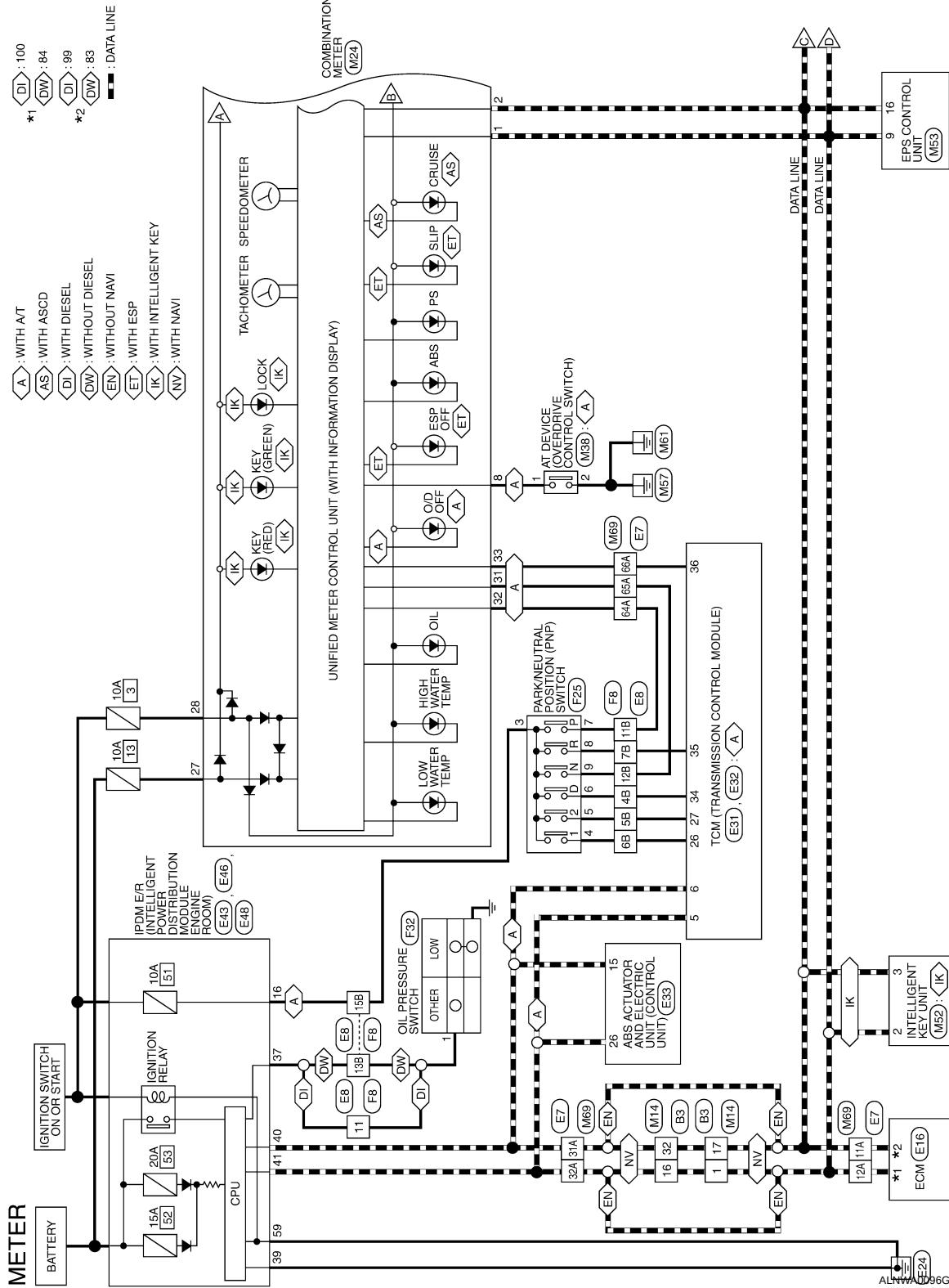
Ter- mi- nal No.	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
36	L	Oil level sensor signal	ON	—	Refer to MWI-32. "Component Inspection (With Diesel)" or MWI-33. "Component Inspection (Without Diesel)" . NOTE: The measurement cannot be performed because the signal is only input for a moment when the ignition switch is turned ON.
37	O	Oil level sensor signal ground	ON	—	0
38	L	Generator	ON	Generator voltage low	0
				Generator voltage normal	Battery voltage

COMBINATION METER

< ECU DIAGNOSIS >

Wiring Diagram

INFOID:000000001374707

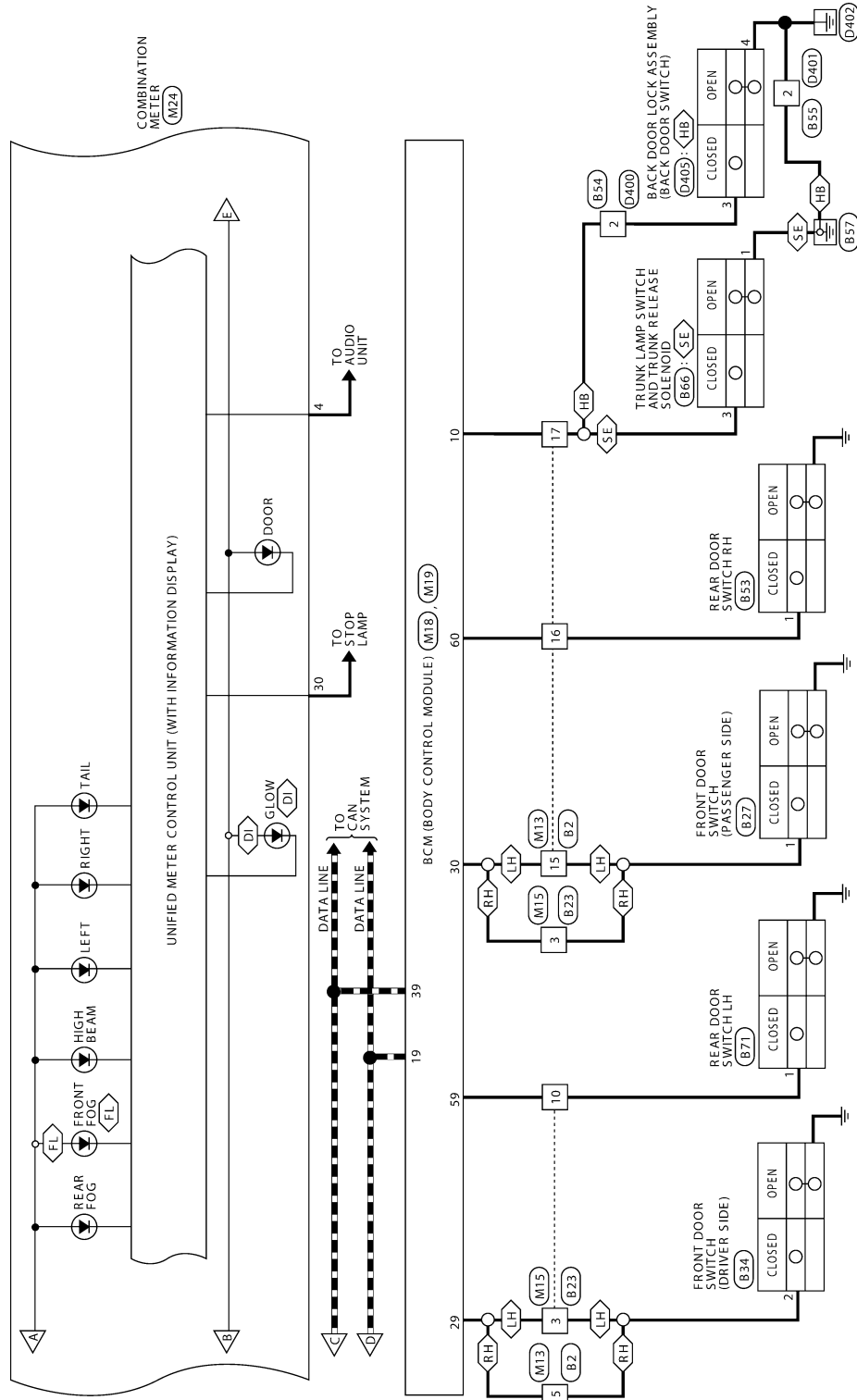


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COMBINATION METER

< ECU DIAGNOSIS >

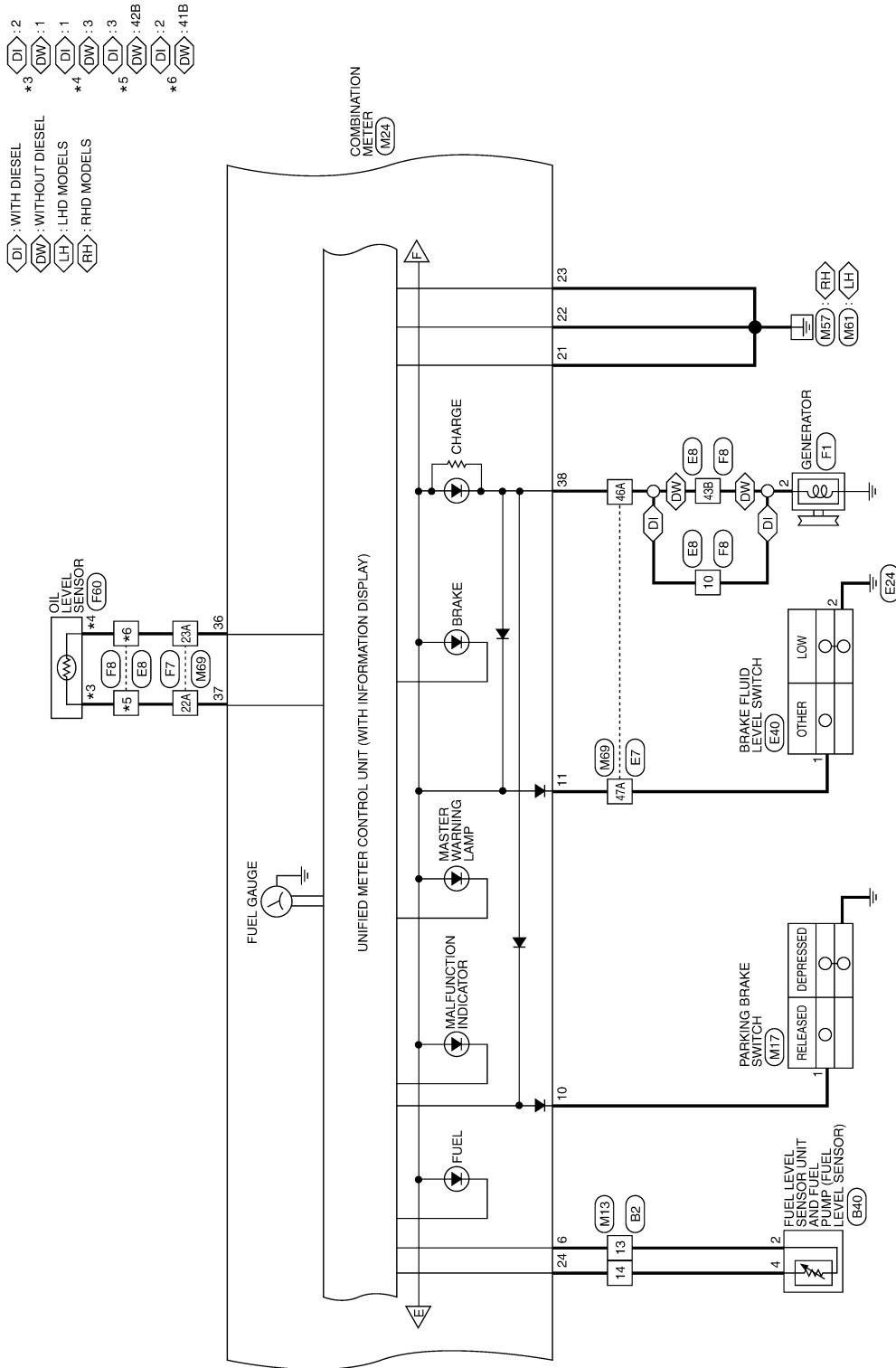
- ◊ : WITH DIESEL
- ◊ : WITH FRONT FOG LAMPS
- ◊ : WITH HATCHBACK
- ◊ : LHD MODELS
- ◊ : RHD MODELS
- ◊ : WITH SEDAN
- ▬ : DATA LINE



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COMBINATION METER

< ECU DIAGNOSIS >

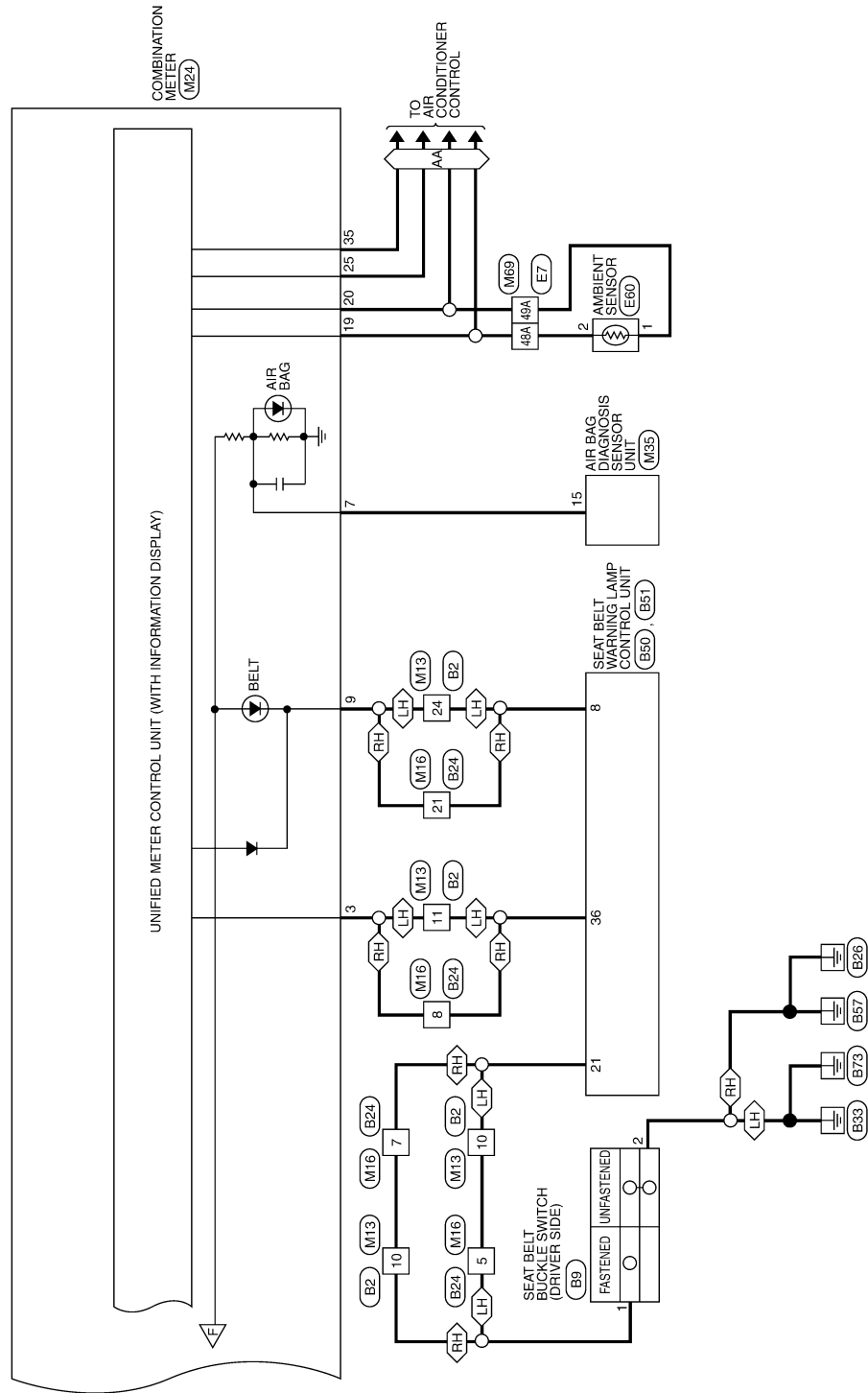


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COMBINATION METER

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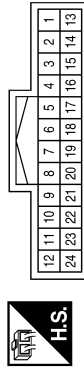
AA : WITH AUTO A/C
LH : LHD MODELS
RH : RHD MODELS



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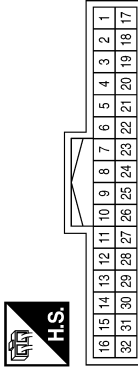
METER CONNECTORS

Connector No.	M13
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	O	—
11	V	—
13	BR	—
14	V	—
15	SB	—
16	GR	—
17	Y	—
24	O	—

Connector No.	M14
Connector Name	WIRE TO WIRE
Connector Color	WHITE



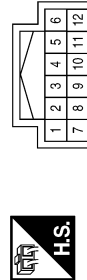
Terminal No.	Color of Wire	Signal Name
1	L	—
16	L	—
17	P	—
32	P	—

Connector No.	M15
Connector Name	WIRE TO WIRE
Connector Color	WHITE



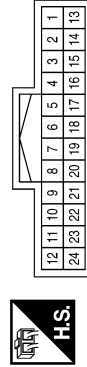
Terminal No.	Color of Wire	Signal Name
3	BR	—
10	O	—

Connector No.	M16
Connector Name	WIRE TO WIRE (LHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
5	O	—

Connector No.	M16
Connector Name	WIRE TO WIRE (RHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	O	—
8	V	—
21	O	—

Connector No.	M17
Connector Name	PARKING BRAKE SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
1	SB	—

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COMBINATION METER

< ECU DIAGNOSIS >

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



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

Terminal No.	Color of Wire	Signal Name
10	Y	DOOR SW BACK
19	L	CAN-H
29	BR	DOOR SW DR
30	SB	DOOR SW AS
39	P	CAN-L

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



52	51	50	49	48	47	46	45	44	43	42	41
64	63	62	61	60	59	58	57	56	55	54	53

Terminal No.	Color of Wire	Signal Name
59	O	DOOR SW RL
60	GR	DOOR SW DR

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



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

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
3	V	2P/R
4	B	GND

Terminal No.	Color of Wire	Signal Name
6	BR	F .M SIG
7	BR	A/BAG WARN
8	P	O/D OFF
9	O	BELT DR
10	SB	PKB
11	LG	BRAKE OIL
19	V	SIG
20	BR	GND
21	B	GND 1 (ILL)
22	B	GND2 (POWER)
23	B	GND3

Terminal No.	Color of Wire	Signal Name
24	V	F .M GND
25	R	AUTO A/C SENS
27	G	BAT
28	SB	IGN
30	G	BRAKE SW
31	V	AT-N RANGE
32	W	AT-P RANGE
33	Y	AT-PN
35	BR	W/TEMP
36	L	SIG
37	O	GND
38	L	ALT-L

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COMBINATION METER

< ECU DIAGNOSIS >

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



18	23	24
5	6	11
2	16	1
	15	22

Terminal No.	Color of Wire	Signal Name
15	BR	W/L

Connector No.	M38
Connector Name	A/T DEVICE
Connector Color	WHITE



6	1
5	4
3	2

Terminal No.	Color of Wire	Signal Name
1	P	—
2	B	—

Connector No.	M52
Connector Name	INTELLIGENT KEY UNIT
Connector Color	WHITE



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

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

Connector No.	M53
Connector Name	EPS CONTROL UNIT
Connector Color	WHITE



16	15	14	13
9	8	7	6
	5	4	3
	2	1	10

Terminal No.	Color of Wire	Signal Name
9	L	CAN-H
16	P	CAN-L

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



114	124	134	144	154	164	174	184	194	204	214
224	234	244	254	264	274	284	294	304		
314	429	334	344	354	364	374	384	394	404	414
429	439	444	459	464	474	484	494	504		
514	524	534	544	554	564	574	584	594	604	614
624	634	644	654	664	674	684	694	704		
714	724	734	744	754	764	774	784	794	804	814
824	834	844	854	864	874	884	894	904		
914	924	934	944	954						
964	974	984	994	1004						

Terminal No.	Color of Wire	Signal Name
11A	P	—
12A	L	—
22A	O	—
23A	L	—
31A	P	—
32A	L	—
46A	L	—
47A	LG	—
48A	V	—
49A	BR	—
64A	W	—
65A	V	—
66A	Y	—

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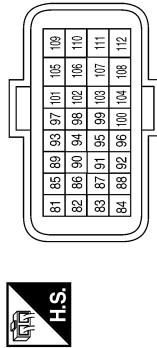
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Terminal No.	Color of Wire	Signal Name
2	SB	—
3	O	—
10	L	—
11	G	—

COMBINATION METER

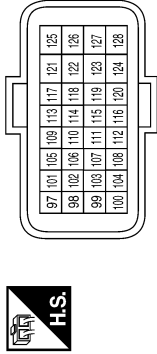
< ECU DIAGNOSIS >

Connector No.	E16
Connector Name	ECM (NON-DIESEL)
Connector Color	BLACK



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

Connector No.	E16
Connector Name	ECM (DIESEL)
Connector Color	BLACK



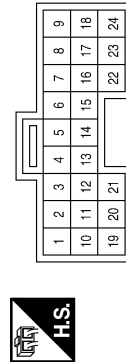
Terminal No.	Color of Wire	Signal Name
99	P	CAN-L
100	L	CAN-P

Connector No.	E31
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	WHITE



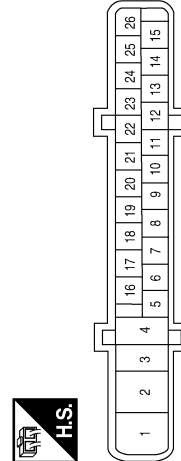
Terminal No.	Color of Wire	Signal Name
5	L	CAN-H
6	P	CAN-L

Connector No.	E32
Connector Name	TCM (TRANSMISSION CONTROL MODULE)
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
26	Y	1
27	G	2
34	LG	D
35	SB	R
36	R	N/P

Connector No.	E33
Connector Name	ABS ACTUATOR AND ELECTRONIC UNIT (CONTROL UNIT)
Connector Color	BLACK



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

Connector No.	E40
Connector Name	BRAKE FLUID LEVEL SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	LG	—
2	B	—

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COMBINATION METER

< ECU DIAGNOSIS >

Connector No.	E43
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE)
Connector Color	WHITE

9	8	7	6		5	4	3	
18	17	16	15	14	13	12	11	10



Terminal No.	Color of Wire	Signal Name
16	SB	REV LAMP

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE)
Connector Color	WHITE

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



Terminal No.	Color of Wire	Signal Name
37	G	OPS
39	B	SIGNAL GND
40	P	CAN-L
41	L	CAN-H

Connector No.	E48
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE)
Connector Color	BLACK

59	58	57
62	61	60



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

Connector No.	E60
Connector Name	AMBIENT SENSOR
Connector Color	BLACK

1	2	3	4
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Terminal No.	Color of Wire	Signal Name
1	BR	SENS GND A
2	V	SENS SIG A

Connector No.	F1
Connector Name	GENERATOR (DIESEL)
Connector Color	BLACK

3	2
---	---



Terminal No.	Color of Wire	Signal Name
2	LG	—

Connector No.	F1
Connector Name	GENERATOR (NON-DIESEL)
Connector Color	BLACK

4	3	2
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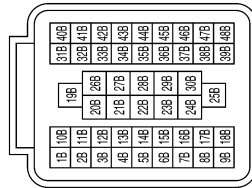
Terminal No.	Color of Wire	Signal Name
2	LG	—

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COMBINATION METER

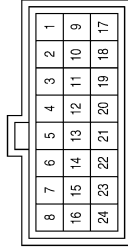
< ECU DIAGNOSIS >

Connector No.	F8
Connector Name	WIRE TO WIRE (NON-DIESEL)
Connector Color	BLACK



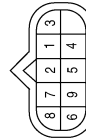
Terminal No.	Color of Wire	Signal Name
4B	LG	—
5B	O	—
6B	V	—
7B	O	—
11B	W	—
12B	G	—
13B	BR	—
15B	R	—
43B	LG	—

Connector No.	F8
Connector Name	WIRE TO WIRE (DIESEL)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	L	—
3	O	—
10	LG	—
11	BR	—

Connector No.	F25
Connector Name	PARK/NEUTRAL POSITION (PNP) SWITCH
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
4	V	1
5	O	2
6	LG	D
7	W	P
8	O	R
9	G	N

Connector No.	F32
Connector Name	OIL PRESSURE SWITCH
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
1	BR	—

Connector No.	F60
Connector Name	OIL LEVEL SENSOR (NON-DIESEL)
Connector Color	SKY BLUE



Terminal No.	Color of Wire	Signal Name
1	O	—
3	L	—

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COMBINATION METER

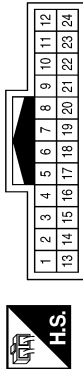
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Connector No.	F60
Connector Name	OIL LEVEL SENSOR (DIESEL)
Connector Color	BLACK



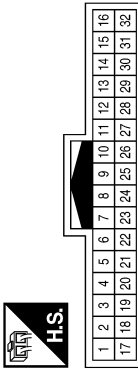
Terminal No.	Color of Wire	Signal Name
1	L	—
2	O	—

Connector No.	B2
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
10	O	—
11	V	—
13	BR	—
14	L	—
15	SB	—
16	GR	—
17	P	—
24	V	—

Connector No.	B3
Connector Name	WIRE TO WIRE
Connector Color	WHITE



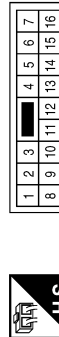
Terminal No.	Color of Wire	Signal Name
1	L	—
16	L	—
17	P	—
32	P	—

Connector No.	B9
Connector Name	SEAT BELT BUCKLE SWITCH (DRIVER SIDE)
Connector Color	WHITE



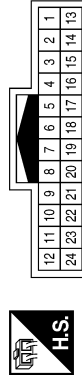
Terminal No.	Color of Wire	Signal Name
1	O	—
2	B	—

Connector No.	B23
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	LG	—
10	W	—

Connector No.	B24
Connector Name	WIRE TO WIRE (LHD)
Connector Color	WHITE



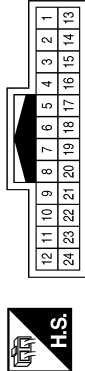
Terminal No.	Color of Wire	Signal Name
5	O	—

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COMBINATION METER

< ECU DIAGNOSIS >

Connector No.	B24
Connector Name	WIRE TO WIRE (RHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
7	O	—
8	V	—
21	O	—

Connector No.	B27
Connector Name	DOOR SWITCH (PASSENGER SIDE) (LHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	SB	—

Connector No.	B27
Connector Name	DOOR SWITCH (PASSENGER SIDE) (RHD)
Connector Color	WHITE



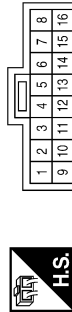
Terminal No.	Color of Wire	Signal Name
2	LG	—

Connector No.	B40
Connector Name	LEVEL SENSOR AND FUEL PUMP
Connector Color	GRAY



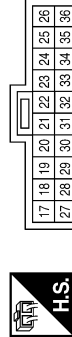
Terminal No.	Color of Wire	Signal Name
2	BR	—
4	L	—

Connector No.	B50
Connector Name	SEAT BELT WARNING LAMP CONTROL UNIT
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
8	O	DR BELT IND

Connector No.	B51
Connector Name	SEAT BELT WARNING LAMP CONTROL UNIT
Connector Color	GRAY



Terminal No.	Color of Wire	Signal Name
21	O	BUCKLE SWITCH DR
36	V	2P/R

ALNIA0860GB

COMBINATION METER

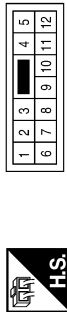
< ECU DIAGNOSIS >

Connector No.	B53
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



Terminal No.	1	Color of Wire	GR	Signal Name	—
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Connector No.	B54
Connector Name	WIRE TO WIRE
Connector Color	WHITE



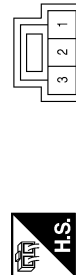
Terminal No.	2	Color of Wire	P	Signal Name	—
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Connector No.	B55
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	2	Color of Wire	B	Signal Name	—
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Connector No.	B66
Connector Name	TRUNK LAMP SWITCH AND TRUNK RELEASE SOLENOID
Connector Color	WHITE



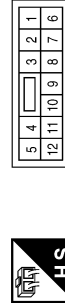
Terminal No.	1	Color of Wire	B	Signal Name	—
3	P				—

Connector No.	B71
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	1	Color of Wire	W	Signal Name	—
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Connector No.	D400
Connector Name	WIRE TO WIRE (LHD)
Connector Color	WHITE



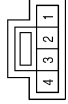
Terminal No.	2	Color of Wire	P	Signal Name	—
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ALNIA0861GB

COMBINATION METER

< ECU DIAGNOSIS >

Connector No.	D405
Connector Name	BACK DOOR LOCK ASSEMBLY (LHD)
Connector Color	WHITE



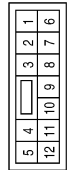
Terminal No.	Color of Wire	Signal Name
3	O	BACK DOOR SWITCH
4	B	BACK DOOR SWITCH

Connector No.	D401
Connector Name	WIRE TO WIRE
Connector Color	WHITE



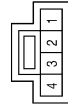
Terminal No.	Color of Wire	Signal Name
2	B	—

Connector No.	D400
Connector Name	WIRE TO WIRE (RHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
2	W	—

Connector No.	D405
Connector Name	BACK DOOR LOCK ASSEMBLY (RHD)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	W	BACK DOOR SWITCH
4	B	BACK DOOR SWITCH

ALNIA0862GB

INFOID:0000000001374708

Fail Safe

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

COMBINATION METER

< ECU DIAGNOSIS >

Function		Specifications
Speedometer		Zero indication.
Tachometer		
Fuel gauge		
Illumination control	Meter illumination	Change to nighttime mode when communication is lost.
Segment LCD	Odometer	Freeze current indication.
Buzzer		Buzzer turns off.
Warning lamp/indicator lamp	ABS warning lamp	Lamp turns on when communication is lost.
	Brake warning lamp	
	ESP OFF indicator lamp	
	SLIP indicator lamp	
	Side and headlight indicator	Lamp turns off when communication is lost.
	Low water temperature indicator lamp	
	High water temperature warning lamp	
	Malfunction indicator	
	Power steering warning lamp	
	Air bag warning lamp	
	High beam indicator	
	Turn signal indicator lamp	
	Intelligent Key system warning lamp	
	CRUISE indicator lamp	
	Oil pressure warning lamp	
	Door warning lamp	
	Front fog lamp indicator	
	Rear fog lamp indicator	
	O/D OFF indicator lamp	Lamp turns off when disconnected.
	Charge warning lamp	
	Driver and passenger seat belt warning lamp	

DTC Index

INFOID:0000000001374709

CONSULT-III 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-24
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-25

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 >

BCM (BODY CONTROL MODULE)

Reference Value

INFOID:000000001713119

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
AIR COND SW	A/C switch OFF		OFF
	A/C switch ON		ON
AUT LIGHT SYS	Outside of the room is dark		OFF
	Outside of the room is bright		ON
AUTO LIGHT SW	Lighting switch OFF		OFF
	Lighting switch AUTO		ON
BACK DOOR SW	Back door closed		OFF
	Back door opened		ON
BATTERY VOLT NOTE: Diesel engine models only	Ignition switch ON		Approximately the same as power supply voltage
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	Passenger door closed		OFF
	Passenger door opened		ON
DOOR SW-DR	Driver door closed		OFF
	Driver door opened		ON
DOOR SW-RL	Rear LH door closed		OFF
	Rear LH door opened		ON
DOOR SW-RR	Rear RH door closed		OFF
	Rear RH door opened		ON
ELEC PWR CUT NOTE: Diesel engine models only	Engine running	Fan switch ON (when engine coolant is cool) NOTE: Depending on the ambient temperature, battery voltage, etc.	OFF
		The current status maintained with the signal from ECM received.	FREEZ
		- Fan switch OFF - Fan switch ON after engine warming UP NOTE: Depending on the engine coolant temperature, ambient temperature, battery voltage, etc.	INHBT
ENG COOLNT T NOTE: Diesel engine models only	Engine running		Approximately the same as engine water temperature
ENGINE RPM NOTE: Diesel engine models only	Engine running		Approximately the same as tachometer reading

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
ENGINE RUN	Engine stopped	OFF
	Engine running	ON
ENGINE STATUS NOTE: Diesel engine models only	Engine stopped	STOP
	While the engine stalls	STALL
	Engine running	RUN
	At engine cranking	CRA
FAN ON SIG	Fan switch OFF	OFF
	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
LIGHT SW 1ST	Lighting switch OFF	OFF
	Lighting switch 1st	ON
H/L SW POS	Headlamp switch OFF	OFF
	Headlamp switch 1st	ON
HI BEAM SW	High beam switch OFF	OFF
	High beam switch HI	ON
HOOD SW	Close the hood NOTE: Vehicles without theft warning system are OFF-fixed	OFF
	Open the hood	ON
H/L WASH SW	NOTE: The item is indicated, but not monitored	OFF
IGN ON SW	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
IGN SW CAN	Ignition switch OFF or ACC	OFF
	Ignition switch ON	ON
INT VOLUME	Wiper intermittent dial is in a dial position 1 - 7	1 - 7
I-KEY LOCK ¹	LOCK button of Intelligent Key is not pressed	OFF
	LOCK button of Intelligent Key is pressed	ON
I-KEY UNLOCK ¹	UNLOCK button of Intelligent Key is not pressed	OFF
	UNLOCK button of Intelligent Key is pressed	ON
KEY SW ²	Mechanical key is removed from key cylinder	OFF
	Mechanical key is inserted to key cylinder	ON

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status	
KEYLESS LOCK ²	LOCK button of key fob is not pressed	OFF	A
	LOCK button of key fob is pressed	ON	
KEYLESS UNLOCK ²	UNLOCK button of key fob is not pressed	OFF	B
	UNLOCK button of key fob is pressed	ON	
LIT-SEN FAIL	Light & rain sensor is in normal condition	OK	C
	Light & rain sensor is with internal error	NOTOK	
OIL PRESS SW	- Ignition switch OFF or ACC - Engine running	OFF	D
	Ignition switch ON	ON	
OUT SIDE TEMP NOTE: Diesel engine models	Ignition switch ON	Approximately the same as outside air temperature	E
PASSING SW	Other than lighting switch PASS	OFF	F
	Lighting switch PASS	ON	
PUSH SW ¹	Return to ignition switch to LOCK position	OFF	G
	Press ignition switch	ON	
REAR DEF SW	Rear window defogger switch OFF	OFF	H
	Rear window defogger switch ON	ON	
RKE LOCK AND UNLOCK ²	NOTE: The item is indicated, but not monitored	OFF	I
		ON	
RR FOG SW	Rear fog lamp switch OFF	OFF	J
	Rear fog lamp switch ON	ON	
RR WASHER SW ³	Rear washer switch OFF	OFF	K
	Rear washer switch ON	ON	
RR WIPER INT ³	Rear wiper switch OFF	OFF	L
	Rear wiper switch INT	ON	
RR WIPER ON ³	Rear wiper switch OFF	OFF	M
	Rear wiper switch ON	ON	
RR WIPER STOP ³	Rear wiper stop position	OFF	MWI
	Other than rear wiper stop position	ON	
TAIL LAMP SW	Lighting switch OFF	OFF	O
	Lighting switch 1ST	ON	
TRNK OPNR SW	When back door opener switch is not pressed	OFF	P
	When back door opener switch is pressed	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	
UNLOCK WITH DR	NOTE: The item is indicated, but not monitored	OFF	
		ON	
VEHICLE SPEED	While driving	Equivalent to speedometer reading	

1: With Intelligent Key

2: With remote keyless entry system

3: Hatchback

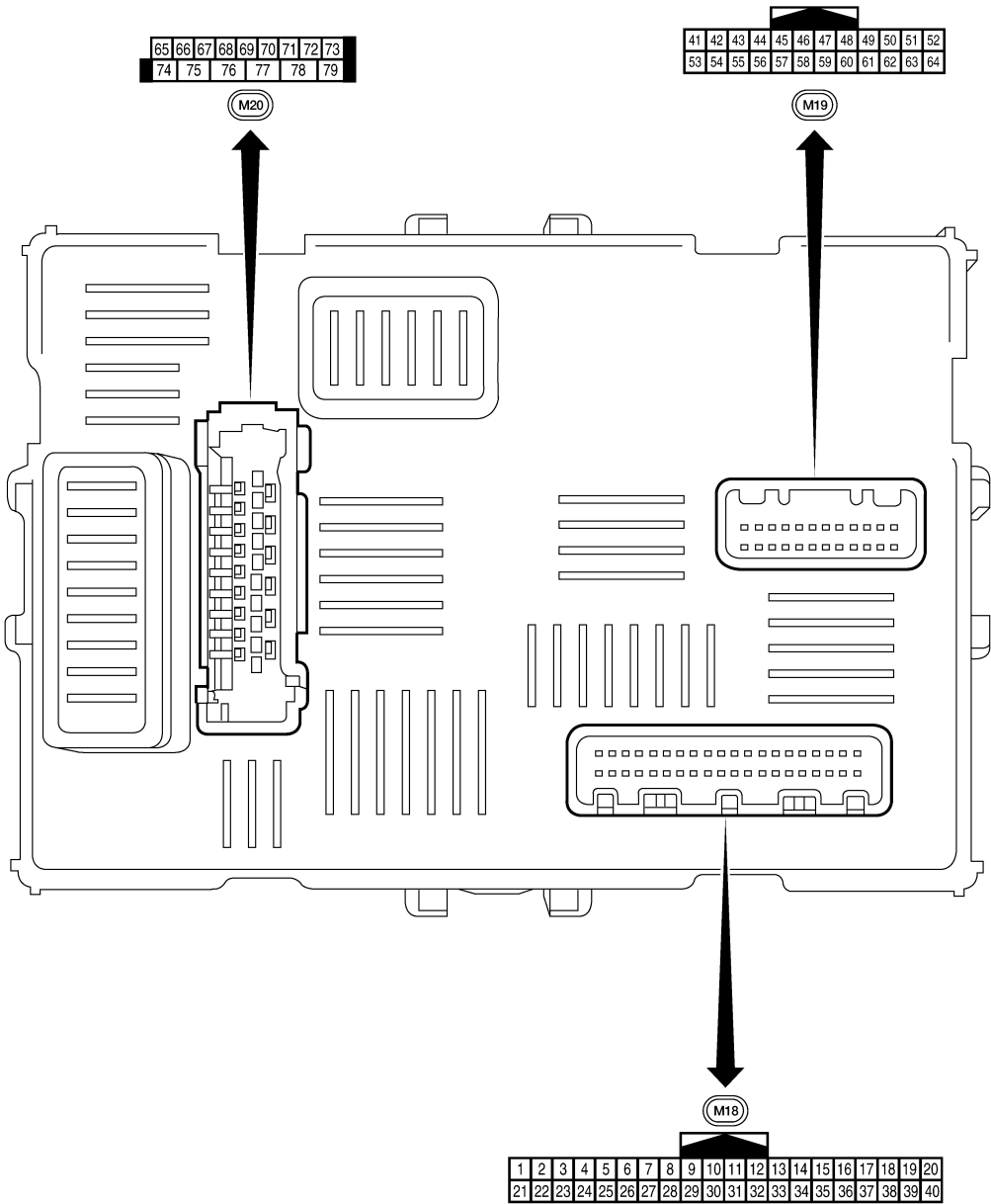
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal Layout

INFOID:000000001713120

TERMINAL LAYOUT



Physical Values

PHYSICAL VALUES

CAUTION:

ALMIA0185ZZ

INFOID:000000001713121

BCM (BODY CONTROL MODULE)

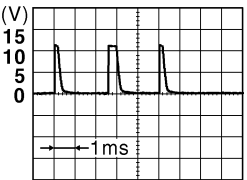
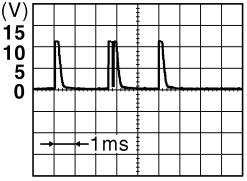
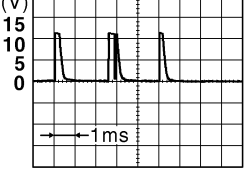
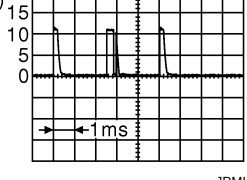
< ECU DIAGNOSIS >

- Check combination switch system terminal waveform under the loaded condition with lighting switch, turn signal switch and wiper switch OFF is not to be fluctuated by being overloaded.
- Turn wiper intermittent dial position to 4 except when checking waveform or voltage of wiper intermittent dial position. Wiper intermittent dial position can be confirmed on CONSULT -III. Refer to [BCS-24, "COMB SW : CONSULT-III Function \(BCM - COMB SW\)"](#).
- BCM reads the status of the combination switch at 10 ms interval normally. Refer to [BCS-7, "System Description"](#).

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
2 (B)	Ground	Ground	—	—		0V
3 (G)	Ground	Key switch	Output	Insert mechanical key into ignition key cylinder		Battery voltage
				Remove mechanical key from ignition key cylinder		0V
4 (W)	Ground	Rear window defogger switch	Output	Rear window defogger switch	Not pressed	5V
					While pressing	0V
5 ¹ (V)	Ground	Back door opener switch	Output	Back door opener switch	Not pressed	Battery voltage
					Pressed	0V
5 ² (V)	Ground	Trunk opener switch	Output	Trunk opener switch	Not pressed	Battery voltage
					Pressed	0V
6 (GR)	Ground	Door lock/unlock switch (Lock)	Output	Door lock/unlock switch	Not pressed	5V
					Pressed to the lock side	0V

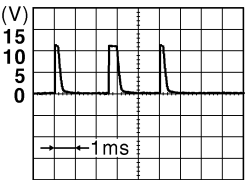
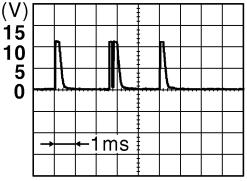
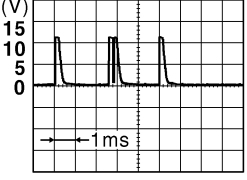
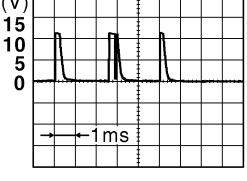
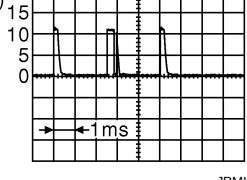
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition	Reference Value (Approx.)
+	-	Signal name	Input/ Output		
7 (LG)	Ground	Combination switch INPUT 5	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  JPMIA0165GB 1.3V
					Front fog lamp switch ON (Wiper intermittent dial 4)  JPMIA0167GB 1.3V
					Rear fog lamp switch ON (Wiper intermittent dial 4)  JPMIA0168GB 1.3V
					Rear wiper switch ON (Wiper intermittent dial 4)  JPMIA0169GB 1.3V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 6 • Wiper intermittent dial 7  JPMIA0196GB 1.3V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

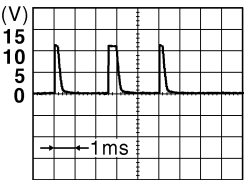
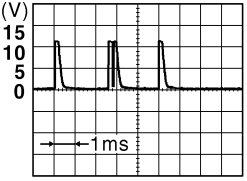
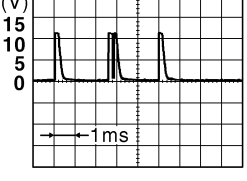
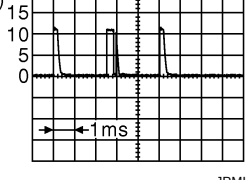
Terminal No. (Wire color)		Description		Condition	Reference Value (Approx.)
+	-	Signal name	Input/ Output		
8 (V)	Ground	Combination switch INPUT 3	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  JPMIA0165GB 1.4V
					Lighting switch HI (Wiper intermittent dial 4)  JPMIA0166GB 1.3V
					Lighting switch 2ND (Wiper intermittent dial 4)  JPMIA0167GB 1.3V
					Rear wiper switch ON  JPMIA0169GB 1.3V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3  JPMIA0196GB 1.3V

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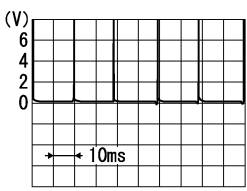
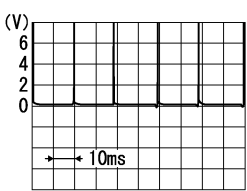
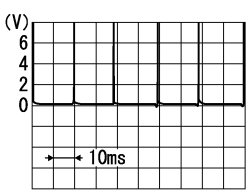
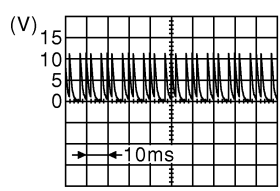
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
9 (P)	Ground	Combination switch INPUT 1	Input	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	 JPMIA0165GB 1.4V
					Turn signal switch LH	 JPMIA0167GB 1.3V
					Turn signal switch RH	 JPMIA0166GB 1.3V
					Front wiper switch LO	 JPMIA0168GB 1.3V
					Front washer switch ON	 JPMIA0196GB 1.3V
10 ¹ (Y)	Ground	Back door switch	Input	Back door switch	OFF (When back door closed)	Battery voltage
					ON (When back door opened)	0V
10 ² (Y)	Ground	Trunk switch	Input	Trunk switch	OFF (When trunk closed)	Battery voltage
					ON (When trunk opened)	0V

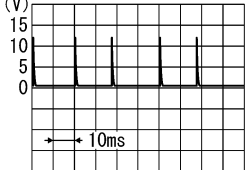
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)	
+	-	Signal name	Input/ Output				
13 (V)	Ground	Combination switch OUTPUT 1	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0V	A
					Front wiper switch HI (Wiper intermittent dial 4)	 SKIA2167J	B
					Rear wiper switch INT (Wiper intermittent dial 4)		C
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 2 • Wiper intermittent dial 3 • Wiper intermittent dial 6 • Wiper intermittent dial 7		D
							E
14 (L)	Ground	Combination switch OUTPUT 3	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0V	F
					Lighting switch AUTO	 SKIA2167J	G
					Rear fog lamp switch OFF		H
					Front wiper switch MIST		I
					Front wiper switch INT		J
					Front wiper switch LO		K
15 (BR)	Ground	Combination switch OUTPUT 5	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0V	L
					Lighting switch 1ST	 SKIA2167J	M
					Lighting switch 2ND		N
					Lighting switch HI		O
					Turn signal switch RH		P
16 (R)	Ground	Stop lamp switch	Input		Depress the brake pedal	Battery voltage	
					Release the brake pedal	0V	
17 (Y)	Ground	Back up lamp signal	Input		Shift lever in reverse	Battery voltage	
					Other than above	0V	
19 (L)	—	CAN-H	Input/ Output	—	—	—	
21 (BR)	Ground	Room lamp timer control	Output	Interior room lamp	OFF	Battery voltage	
					ON	0V	MWI
22 (P)	Ground	Battery power sup- ply	Input	—	—	Battery voltage	
23 ¹ (LG)	Ground	Rear wiper auto stop	Output	Ignition switch ON	Rear wiper stop position	0V	
					Any position other than rear wiper stop position	 JPMIA0197GB	

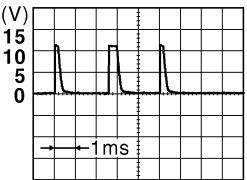
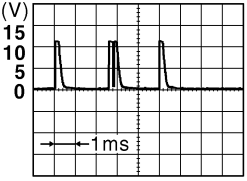
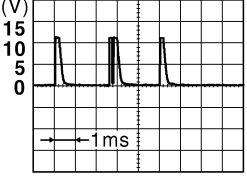
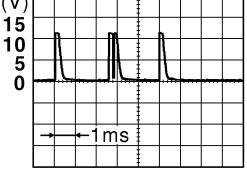
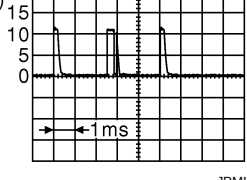
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
24 (O)	Ground	Ignition power supply	Input	Ignition switch OFF or ACC		0V
				Ignition switch ON or START		Battery voltage
25 (L)	Ground	Door lock/unlock switch (Unlock)	Output	Door lock/unlock switch	Not pressed	5V
					Pressed to the unlock side	0V
26 (L)	Ground	Hazard switch	Output	Hazard switch	Not pressed	
					Pressed	

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

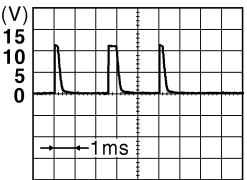
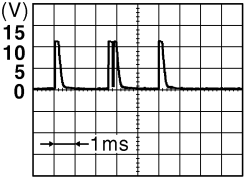
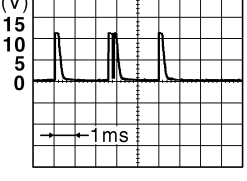
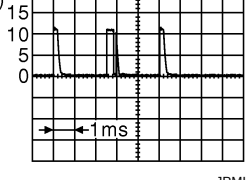
Terminal No. (Wire color)		Description		Condition	Reference Value (Approx.)
+	-	Signal name	Input/ Output		
27 (Y)	Ground	Combination switch INPUT 4	Input	Combination switch	All switch OFF (Wiper intermittent dial 4)  JPMIA0165GB 1.4V
					Lighting switch AUTO (Wiper intermittent dial 4)  JPMIA0167GB 1.3V
					Lighting switch 1ST (Wiper intermittent dial 4)  JPMIA0166GB 1.3V
					Rear wiper INT (Wiper intermittent dial 4)  JPMIA0167GB 1.3V
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 6  JPMIA0196GB 1.3V

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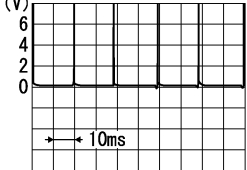
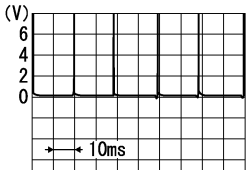
BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
28 (R)	Ground	Combination switch INPUT 2	Input	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	 JPMIA0165GB 1.4V
					Lighting switch PASS	 JPMIA0167GB 1.3V
					Lighting switch 2ND	 JPMIA0166GB 1.3V
					Front wiper switch INT	 JPMIA0168GB 1.3V
					Front wiper switch HI	 JPMIA0196GB 1.3V
29 (BR)	Ground	Driver door switch	Input	Driver door switch	OFF (When driver door closed)	Battery voltage
					ON (When driver door opened)	0V
30 (SB)	Ground	Passenger door switch	Input	Passenger door switch	OFF (When passenger door closed)	Battery voltage
					ON (When passenger door opened)	0V
31 ³ (SB)	Ground	A/C indicator	Output	A/C switch	OFF	Battery voltage
					ON	0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
32 ⁴ (LG)	Ground	Door lock status indicator	Output	Door lock status indicator	ON	Battery voltage
					OFF	0V
33 (G)	Ground	Combination switch OUTPUT 2	Output	Combination switch	All switch OFF (Wiper intermittent dial 4)	0V
					Front washer switch ON (Wiper intermittent dial 4)	 SKIA2167J
					Rear wiper switch ON (Wiper intermittent dial 4)	
					Rear washer switch ON (Wiper intermittent dial 4)	
					Any of the condition below with all switch OFF • Wiper intermittent dial 1 • Wiper intermittent dial 5 • Wiper intermittent dial 6	
34 (GR)	Ground	Combination switch OUTPUT 4	Output	Combination switch (Wiper intermit- tent dial 4)	All switch OFF	0V
					Lighting switch 2ND	 SKIA2167J
					Lighting switch PASS	
					Front fog lamp switch ON	
					Turn signal switch LH	
35 ^{3, 7} (BR)	Ground	Sensor ground	Output	Ignition switch	ON	0V → 5V
					OFF	0V
36 ⁷ (V)	Ground	Ambient sensor sig- nal	Input	Ignition switch	ON	0V → 5V
					OFF	0V
38 ⁵ (V)	Ground	NATS antenna amp.	Input/ Output	Insert mechanical key into ignition key cylin- der		Just after Insert mechanical key into ignition key cylinder. Pointer of tester should move
39 (P)	—	CAN-L	Input/ Output	—		—
45 ³ (GR)	Ground	Intake sensor	Input	Ignition switch	ON	0V
					OFF	Battery voltage
47 ⁵ (GR)	Ground	Security indicator	Output	Security indica- tor	ON	0V
					Blinking (every 2.4 seconds)	Battery voltage → 0V
					OFF	Battery voltage
48 (W)	Ground	Start power supply	Input	Ignition switch START		Battery voltage
				Other than above		0V
49 (R)	Ground	Front demist vent switch	Input	Front demist vent switch	ON	0V → 5V
					OFF	0V
50 (P)	Ground	Fan switch	Output	Fan switch	Not pressed	Battery voltage
					Pressed	0
51 ⁷ (L)	Ground	PTC relay 3 control	Output	Ignition ON	PTC heater 3 ON	0V
					PTC heater 3 OFF	Battery voltage

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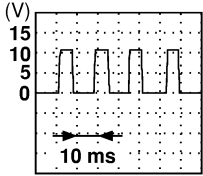
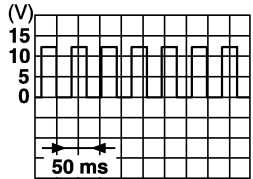
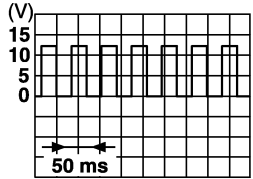
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)
+	-	Signal name	Input/ Output			
52 ⁷ (GR)	Ground	PTC relay 2 control	Output	Ignition ON	PTC heater 2 ON	0V
					PTC heater 2 OFF	Battery voltage
58 (Y)	Ground	Door unlock sensor	Input	Driver door	Lock	Battery voltage
					Unlock	0V
59 (O)	Ground	Rear door switch LH	Input	Rear door switch LH	OFF (When rear door LH closed)	Battery voltage
					ON (When rear door LH opened)	0V
60 (GR)	Ground	Rear door switch RH	Input	Rear door switch RH	OFF (When rear door RH closed)	Battery voltage
					ON (When rear door RH opened)	0V
61 ³ (O)	Ground	A/C switch	Output	A/C switch	Not pressed	Battery voltage
					Pressed	0V
63 (R)	Ground	Light & rain sensor serial link	Output	Ignition switch OFF		Battery voltage
				Ignition switch ON		 MKIB0173E
64 ⁷ (O)	Ground	PTC relay 1 control	Output	Ignition ON	PTC heater 1 ON	0V
					PTC heater 1 OFF	Battery voltage
65 (V)	Ground	Turn signal LH	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch LH	 SKIA1120J
66 (W)	Ground	Turn signal RH	Output	Ignition switch ON	Turn signal switch OFF	0V
					Turn signal switch RH	 SKIA1120J
67 (G)	Ground	Door unlock (passenger and rear doors)	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage
					Pressed to the lock side	0V
68 ¹ (R)	Ground	Back door lock actuator	Output	Back door opener switch	Pressed	Battery voltage
					Not pressed	0V
68 ² (R)	Ground	Trunk release solenoid	Output	Trunk lid opener switch	Pressed	Battery voltage
					Not pressed	0V

BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Terminal No. (Wire color)		Description		Condition		Reference Value (Approx.)	
+	-	Signal name	Input/ Output				
69 (G)	Ground	Rear fog lamp	Output	Lighting switch 1ST and front fog lamp switch ON	Rear fog lamp switch OFF	0V	A
					Rear fog lamp switch ON	Battery voltage	B
70 (B)	Ground	Ground	—	—		0V	C
71 ¹ (V)	Ground	Rear wiper motor	Output	Rear wiper switch OFF		0V	D
				Rear wiper switch ON		Battery voltage	
72 (LG)	Ground	Battery power supply	Input	—		Battery voltage	E
73 (R)	Ground	Interior room lamp power supply	Output	After passing the interior room lamp battery saver operation time		0V	F
				Any other time after passing the interior room lamp battery saver operation time		Battery voltage	
74 (Y)	Ground	Battery power supply	Input	—		Battery voltage	G
75 ⁴ (V)	Ground	Super lock	Output	When lock button of keyfob or Intelligent Key is not pressed		0V	H
				When lock button of keyfob or Intelligent Key is pressed		Battery voltage	
76 (G)	Ground	Driver door unlock	Output	Door lock/unlock switch	Pressed to the unlock side	Battery voltage	I
					Pressed to the lock side	0V	
77 (SB)	Ground	Door lock (All)	Output	Door lock/unlock switch	Pressed to the unlock side	0V	J
					Pressed to the lock side	Battery voltage	
78 (L)	Ground	Power window power supply	Output	Ignition switch	OFF or ACC	0V	K
					ON	Battery voltage	
79 (Y)	Ground	Battery power supply	Input	—		Battery voltage	L

1: Hatchback

2: Sedan

3: Manual A/C

4: Superlock

5: Remote keyless entry

6: Intelligent Key

7: LHD diesel

MWI

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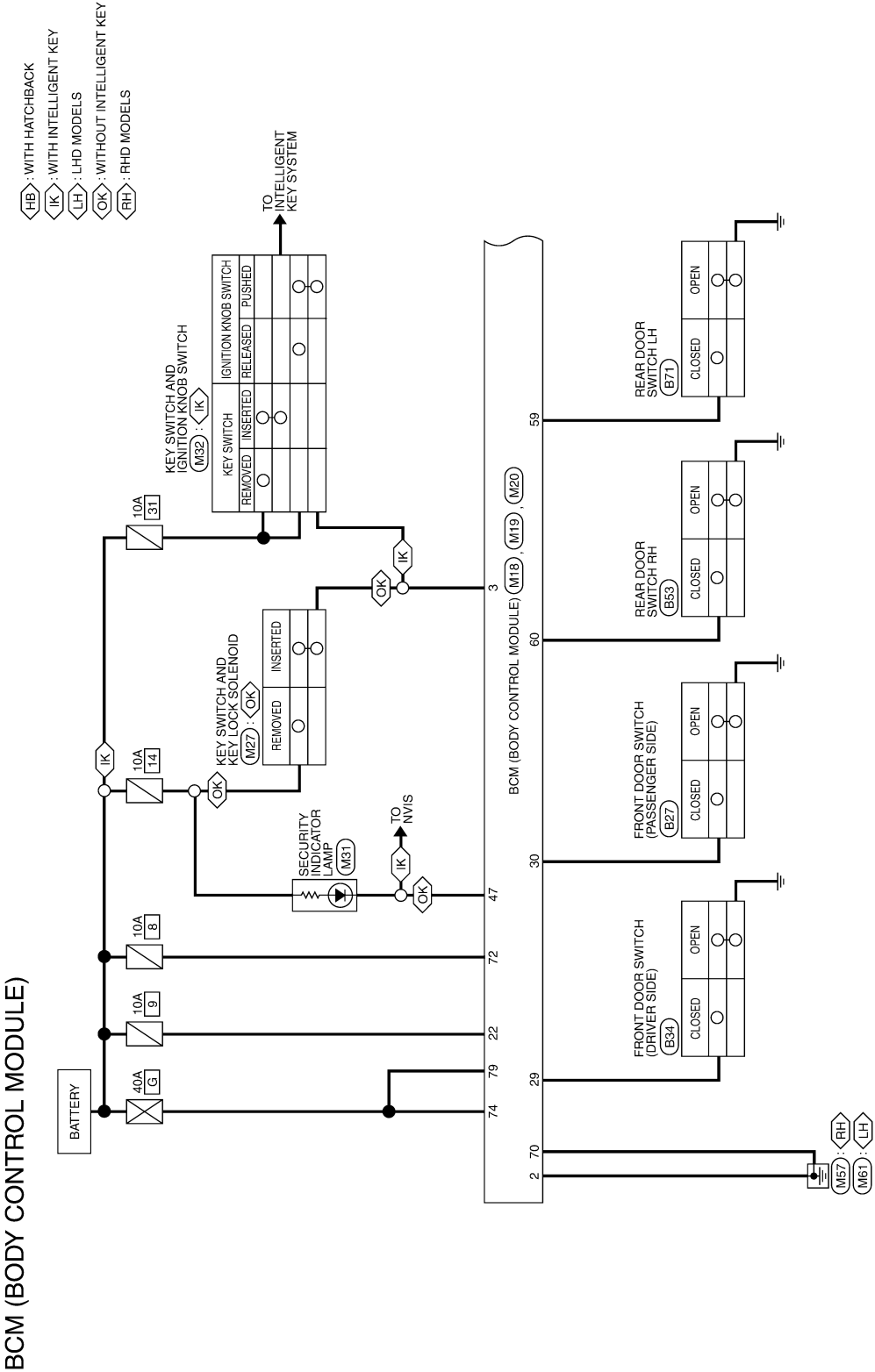
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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

Wiring Diagram

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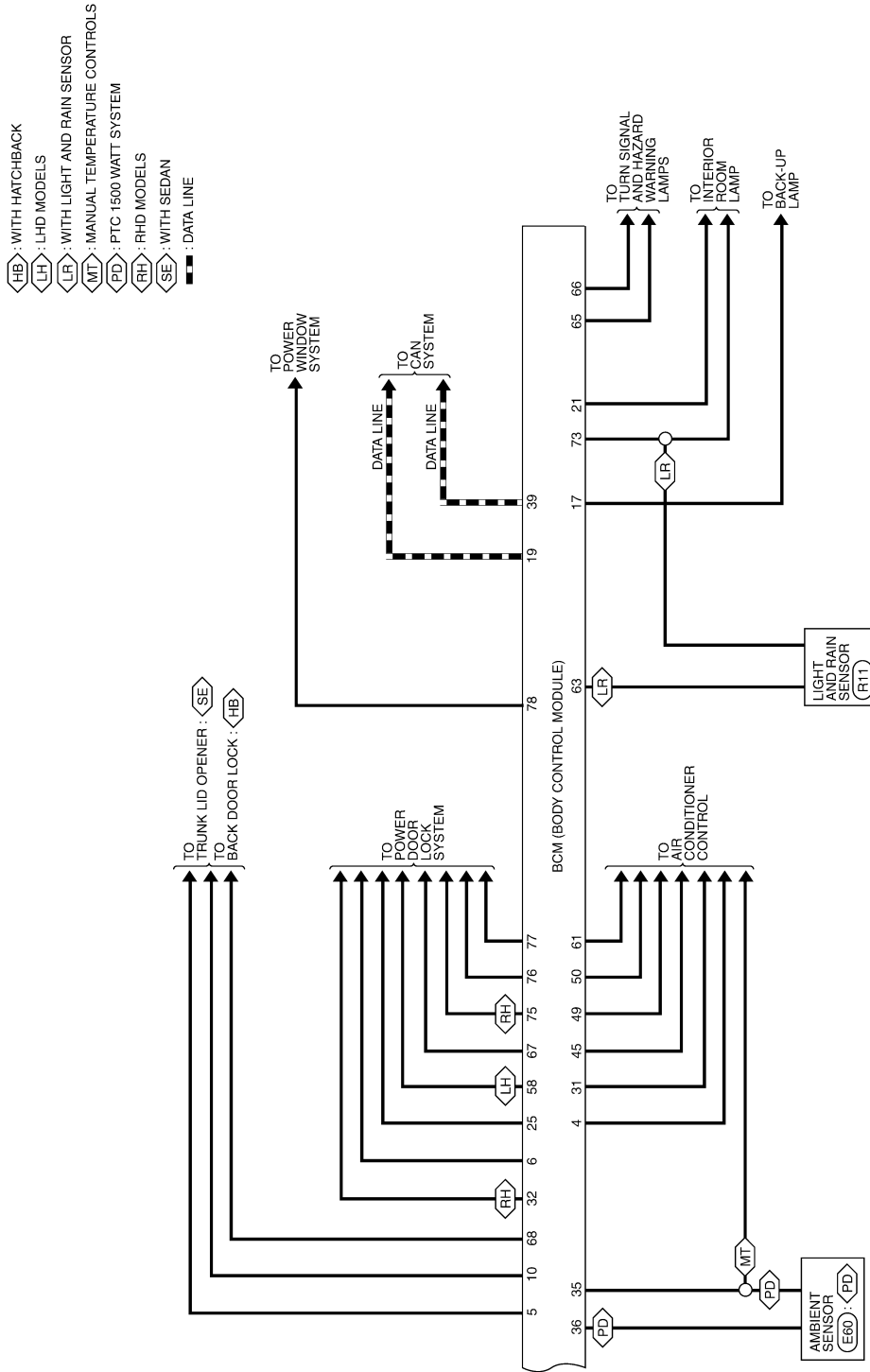
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BCM (BODY CONTROL MODULE)

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ALMWA0069Gf

BCM (BODY CONTROL MODULE)

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BCM (BODY CONTROL MODULE)

Connector No.	M27
Connector Name	COMBINATION SWITCH
Connector Type	TK16FW



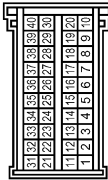
Terminal No.	Color of Wire	Signal Name [Specification]
1	V	INPUT1
2	G	INPUT2
3	L	INPUT3
4	GR	INPUT4
5	BR	INPUT5
6	P	OUTPUT1
7	R	OUTPUT2
8	W	OUTPUT3
9	Y	OUTPUT4
10	LG	OUTPUT3

Connector No.	M67
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC06S0017



Terminal No.	Color of Wire	Signal Name [Specification]
53	L	POWER WDW PWR SUPPLY (LINKED TO IGN)
54	O	DOOR UNLOCK OUTPUT (OTHER)
55	B	GRD/POWER
56	Y	DOOR LOCK OUTPUT (ALL) (With Intelligent Key)
56	SB	DOOR LOCK OUTPUT (ALL) (Without Intelligent Key)
57	Y	BAT(F/L)
58	P	POWER WDW PWR SUPPLY (BAT)
59	BR	SUPER LOCK SET OUTPUT
60	GR	UNLOCK (DR)

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



Terminal No.	Color of Wire	Signal Name [Specification]
1	P	COMBI SW OUTPUT 1
2	Y	COMBI SW OUTPUT 4
3	LG	COMBI SW OUTPUT 3
4	R	COMBI SW OUTPUT 2
5	W	COMBI SW OUTPUT 5
7	P	LOCK/UNLOCK SW (LOCK)
8	LG	HAZARD SW
9	BR	LOCK/UNLOCK SW (UNLOCK)
12	P	TRUNK/BACK DOOR OPEN SW
13	R	SHOCK DETECT SIG
14	L/R	A/C SW

15	LG/B	BLOWER FAN SW
16	GR	ALARM LINK
17	BR	LIGHT & RAIN SENS
18	SB	SECURITY INDICATOR
19	L	CAN-H
20	P	CAN-L
21	SB	REAR DEFOGGER SW
24	GR	DOOR LOCK STATUS IND
25	GR	DOOR SW (RL)
26	R	DOOR SW (DR)
27	BR	DOOR SW (LS)
28	G	DOOR SW (BACK)
28	LG	DOOR SW (RR)
30	SB	AUDIO LINK
31	BR	COMBI SW INPUT 5
32	G	COMBI SW INPUT 2
33	V	COMBI SW INPUT 1
34	GR	COMBI SW INPUT 4
35	L	COMBI SW INPUT 3
36	V	KEY SW
37	R	ACC SW
38	W/L	IGN SW
39	P	NATS ANTENNA AMP.
40	LG	NATS ANTENNA AMP.

Connector No.	M66
Connector Name	BCM (BODY CONTROL MODULE)
Connector Type	FCI 211PC122S017



Terminal No.	Color of Wire	Signal Name [Specification]
41	V	BAT(F/USE)
42	V	ROOM LAMP POWER SUPPLY
43	L	REAR WIPER MOTOR OUTPUT
44	L/W	REAR WIPER AUTO STOP
45	GR	BACK DOOR OPENER
47	G/Y	FLASHER OUTPUT (LEFT)
48	G/B	FLASHER OUTPUT (RIGHT)
49	Y	REAR FOG LAMP
51	R/W	STOP LAMP SW (With Intelligent Key)
51	R	STOP LAMP SW (Without Intelligent Key)
52	R	ROOM LAMP OUTPUT

DTC Inspection Priority Chart

Priority	DTC
1	- U1000: CAN COMM CIRCUIT - U1010: CONTROL UNIT (CAN)

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BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS >

DTC Index

INFOID:000000001713124

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.
- PAST: Displays when there is a malfunction that is detected in the past and stored.
- 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	TIME		Fail-safe	Refer to
No DTC is detected. further testing may be required.	—	—	—	—
U1000: CAN COMM CIRCUIT	0	1 - 39	—	BCS-28
U1010: CONTROL UNIT (CAN)	0	1 - 39	—	BCS-29

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

< ECU DIAGNOSIS >

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

Reference Value

INFOID:000000001713125

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
MOTOR FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 - 100 %
A/C COMP REQ	A/C switch OFF		OFF
	A/C switch ON		ON
TAIL&CLR REQ	Lighting switch OFF		OFF
	Lighting switch 1ST, 2ND, HI or AUTO (Light is illuminated)		ON
HL LO REQ	Lighting switch OFF		OFF
	Lighting switch 2ND HI or AUTO (Light is illuminated)		ON
HL HI REQ	Lighting switch OFF		OFF
	Lighting switch HI		ON
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	Front fog lamp switch OFF	OFF
		- Front fog lamp switch ON - Daytime light activated	ON
HL WASHER REQ	NOTE: This item is displayed, but cannot be monitored.		OFF
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	STOP
		Front wiper switch INT	1LOW
		Front wiper switch LO	LOW
		Front wiper switch HI	HI
WIP AUTO STOP	Ignition switch ON	Front wiper stop position	STOP P
		Any position other than front wiper stop position	ACT P
WIP PROT	Ignition switch ON	Front wiper operates normally	OFF
		Front wiper stops at fail-safe operation	BLOCK
ST RLY REQ	Ignition switch OFF or ACC		OFF
	Ignition switch START		ON
IGN RLY	Ignition switch OFF or ACC		OFF
	Ignition switch ON		ON
RR DEF REQ	Rear defogger switch OFF		OFF
	Rear defogger switch ON		ON
OIL P SW	Ignition switch OFF, ACC or engine running		OPEN
	Ignition switch ON		CLOSE
DTRL REQ	NOTE: This item is displayed, but cannot be monitored.		OFF
HOOD SW	NOTE: This item is displayed, but cannot be monitored.		OFF

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

< ECU DIAGNOSIS >

Monitor Item	Condition	Value/Status
THFT HRN REQ	Not operated	OFF
	• Panic alarm is activated • Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM	ON
HORN CHIRP	Not operated	OFF
	Door locking with keyfob or Intelligent Key (if equipped) (horn chirp mode)	ON

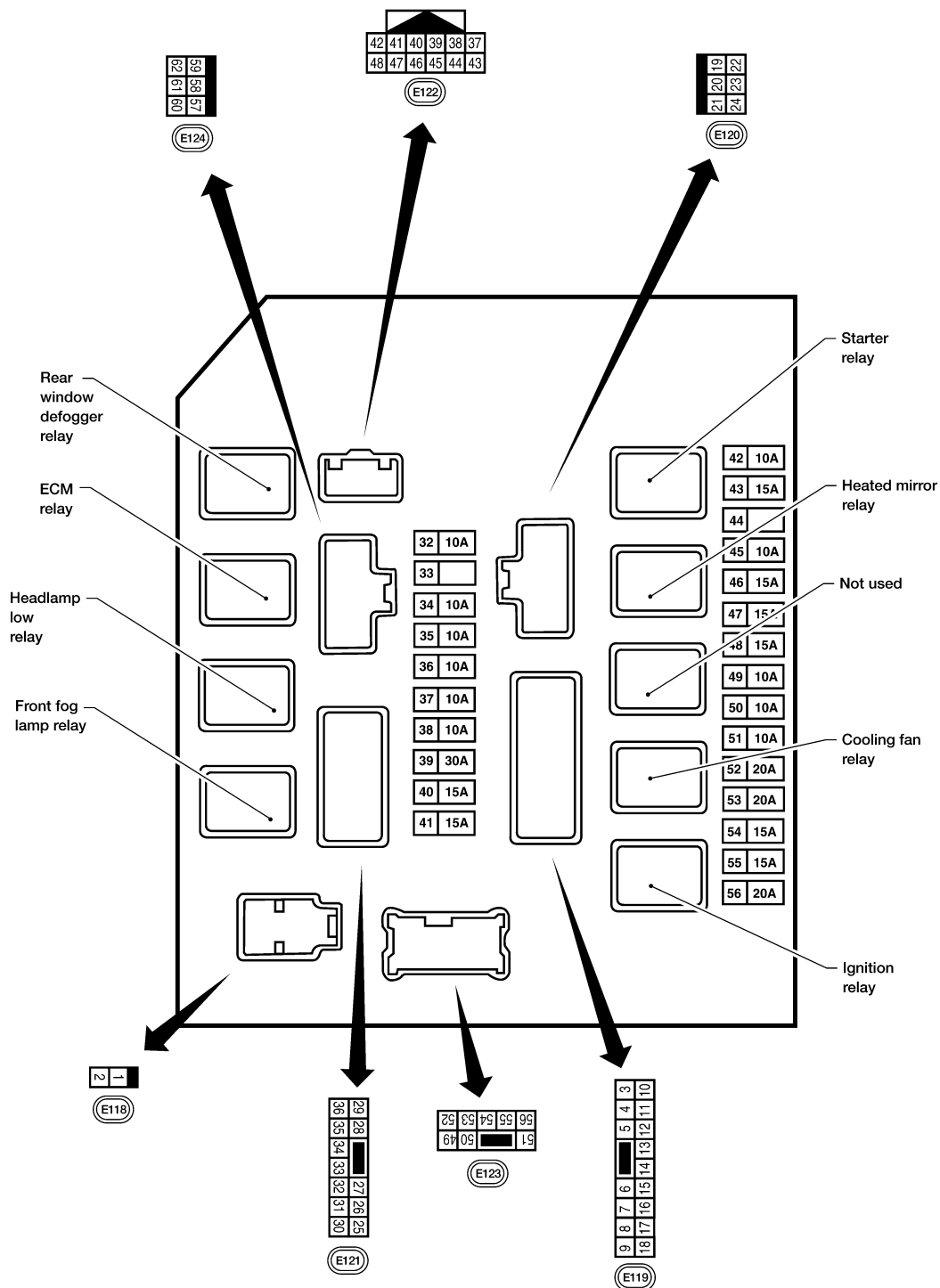
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

Terminal Layout

INFOID:000000001713126

TERMINAL LAYOUT



Physical Values

PHYSICAL VALUES

WKIA5852E

INFOID:000000001713127

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

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
1	R	Battery power supply	Input	OFF	—	Battery voltage
2	G	Battery power supply	Input	OFF	—	Battery voltage
3	Y	ECM Relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
4	G	ECM relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
6	GR	Daytime light relay control	Input	ON	Daytime light system active.	Less than battery voltage
					Daytime light system inactive.	Battery voltage
7	G	ECM relay control	Input	—	Ignition switch ON or START	0V
					Ignition switch OFF or ACC	Battery voltage
8	G	Throttle control motor relay	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
11	W	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	O	Ignition switch supplied power	Input	—	OFF or ACC	0V
					ON or START	Battery voltage
14	BR (M/T) R (A/T)	Fuse 49	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
15	V	Fuse 50	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
16	SB	Fuse 51	Output	—	Ignition switch ON or START	Battery voltage
					Ignition switch OFF or ACC	0V
19	R	Starter motor	Output	START	—	Battery voltage
20	L (with A/C)	Cooling fan relay-1	Output	—	Conditions correct for cooling fan low operation.	Battery voltage
	LG (with-out A/C)				Conditions not correct for cooling fan low operation.	0V
21	W	Ignition switch START signal	Input	START	—	Battery voltage
22	G	Battery power supply	Input	—	—	Battery voltage
23	L	Cooling fan relay-2	Input	—	Conditions correct for cooling fan high operation	Battery voltage
					Conditions not correct for cooling fan high operation	0V
24	Y	Cooling fan relay-3	Output	—	Conditions correct for cooling fan high operation	Battery voltage
					Conditions not correct for cooling fan high operation	0V
27	BR	Tail lamp relay (parking lamps)	Output	—	Lighting switch in 2nd position	Battery voltage

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

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)	
				Ignition switch	Operation or condition		
29	P	Tail lamp relay (parking lamps)	Output	—	Lighting switch in 2nd position	Battery voltage	
30	R	Fuse 54	Output	—	Ignition switch ON or START	Battery voltage	
					Ignition switch OFF or ACC	0V	
31	O	Fuse 55	Output	—	Ignition switch ON or START	Battery voltage	
					Ignition switch OFF or ACC	0V	
32	L	Wiper high speed signal	Output	ON or START	Wiper switch	OFF, LO, INT	0V
						HI	Battery voltage
33	Y	Wiper low speed signal	Output	ON or START	Wiper switch	OFF	0V
						LO or INT	Battery voltage
35	BR	Starter relay (inhibit switch)	Input	ON or START	Selector lever in "P" or "N" (CVT or A/T) or clutch pedal depressed (M/T)		Battery voltage
					Selector lever any other position (CVT or A/T) or clutch pedal released (M/T)		0V
36	BR	Fuel pump relay	Output	—	Ignition switch ON or START		Battery voltage
					Ignition switch OFF or ACC		0V
37	G	Oil pressure switch	Input	ON or START	Engine running and oil pressure within specification		Battery voltage
					Engine not running or oil pressure below specification		0V
38	R	Wiper auto stop signal	Input	ON or START	Wipers not in park position		Battery voltage
					Wipers in park position		0V
39	B	Ground	Input	—	—		0V
40	P	CAN-L	—	ON	—		—
41	L	CAN-H	—	ON	—		—
46	Y	Throttle control motor relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
47	GR	Fuel pump relay control	Input	—	Ignition switch ON or START		0V
					Ignition switch OFF or ACC		Battery voltage
50	V	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	W	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	L	LH Low beam headlamp	Output	—	Lighting switch in 2nd position		Battery voltage

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

< ECU DIAGNOSIS >

Terminal	Wire color	Signal name	Signal input/output	Measuring condition		Reference value (Approx.)
				Ignition switch	Operation or condition	
54	P	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	Y	RH High beam head-lamp	Output	—	Lighting switch in 2nd position and placed in HIGH or PASS position	Battery voltage
59	B	Ground	Input	—	—	0V
60	R	Rear window defogger relay	Output	ON or START	Rear defogger Switch ON	Battery voltage
					Rear defogger Switch OFF	0V

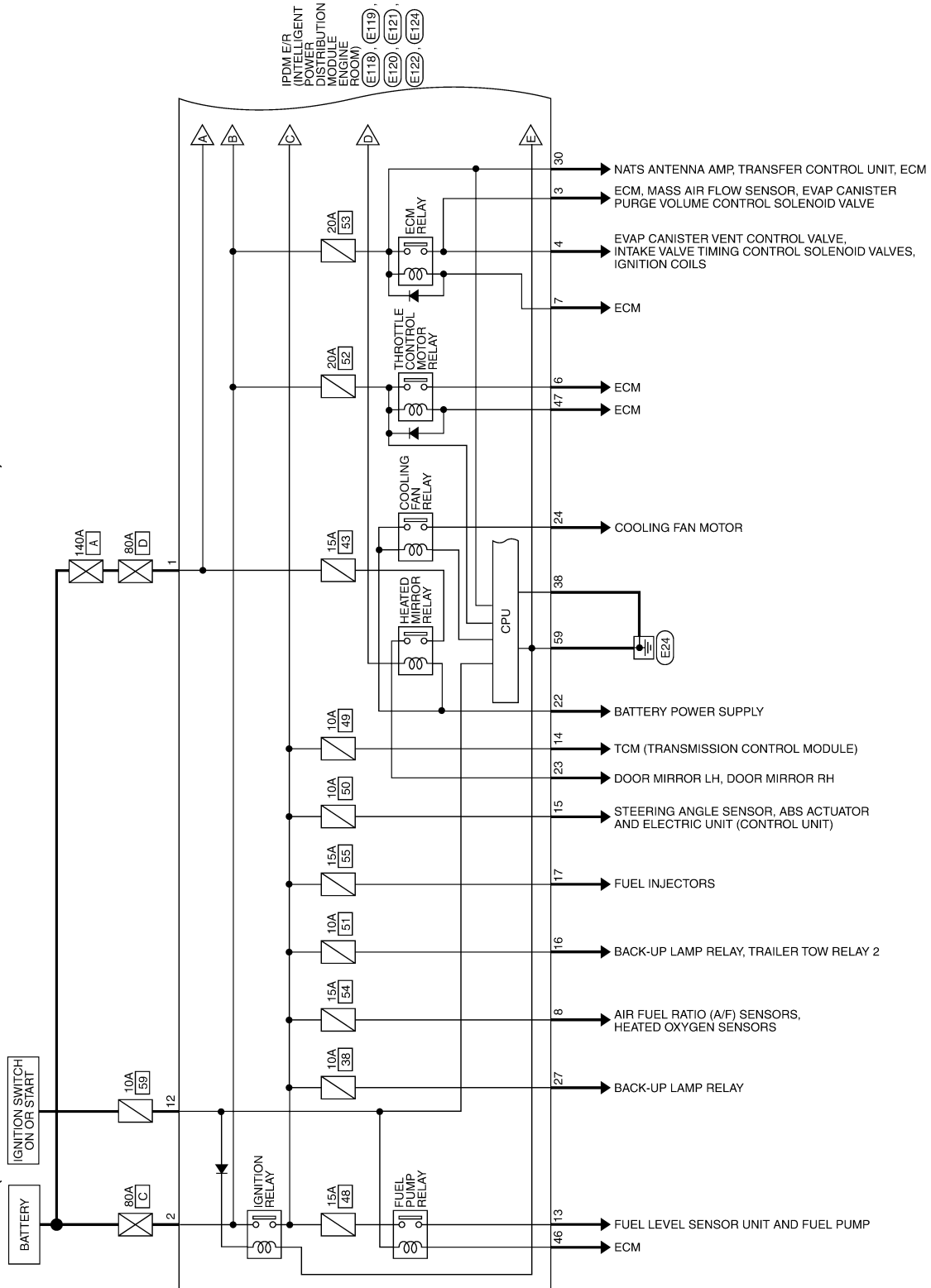
IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

Wiring Diagram

INFOID:000000001713128

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



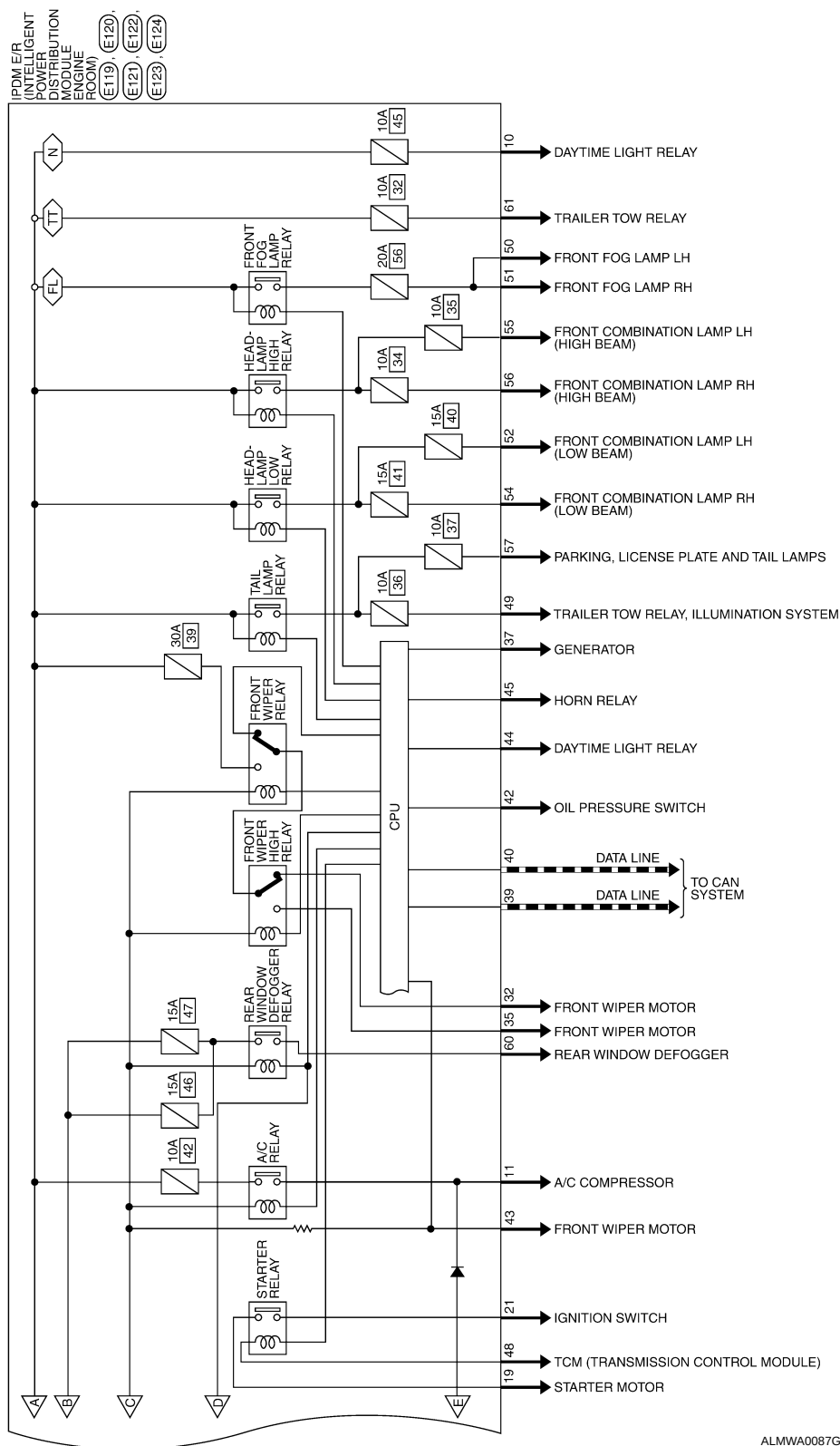
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IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)

< ECU DIAGNOSIS >

TT : TRAILER TOW 7PIN
 FL : WITH FRONT FOG LAMP
 N : FOR CANADA
 ■ : DATA LINE



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

< ECU DIAGNOSIS >

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

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



1	2
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9	8	7	6	5	4	3		
18	17	16	15	14	13	12	11	10

Terminal No.	Color of Wire	Signal Name
1	B/Y	FL USM
2	R	FL MAIN

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

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

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



21	20	19
24	23	22



29	28				27	26	25
36	35	34	33		32	31	30

Connector No.	E121
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN

Terminal No.	Color of Wire	Signal Name
19	W/R	STARTER MTR
21	BR	IGN SW(ST)
22	G	F/L MOTOR FAN
23	GR/W	HEATED MIRROR
24	L/B	MOTOR FAN 2

Terminal No.	Color of Wire	Signal Name
27	W/B	TTOW REV LAMP
30	W	ECM BAT
32	L	FR WIPER LO
35	L/B	FR WIPER HI

ALMIA0251GB

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

< ECU DIAGNOSIS >

Connector No.	E123
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	BROWN



51	50	49
56	55	54
53	52	

Terminal No.	Color of Wire	Signal Name
49	R/L	ILLUMINATION
50	W/R	FR FOG LAMP LH
51	W/R	FR FOG LAMP RH
52	L	H/LAMP LO RH
54	R/Y	H/LAMP LO RH
55	G	H/LAMP HI LH
56	Y	H/LAMP HI RH

Terminal No.	Color of Wire	Signal Name
37	Y	ALT-C CONT
38	B	SIGNAL GRD
39	L	CAN-H
40	P	CAN-L
42	GR	OIL PRESSURE SW
43	L/Y	AUTO STOP SW
44	BR	DTRL RLY CONT
45	G/W	ANTI THEFT HORN
46	GR	FUEL PUMP RLY CONT
47	O	ETC RLY CONT
48	B/R	INHIBIT SW

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

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
57	R/L	TAIL LAMP
59	B	POWER GND
60	B/W	RR DEF
61	BR	TRAIL RLY SUPPLY

ALMIA0252GB

INFOID:000000001713129

Fail Safe

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

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

< ECU DIAGNOSIS >

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

IGNITION RELAY MALFUNCTION DETECTION FUNCTION

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

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

NOTE:

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

FRONT WIPER CONTROL

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

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

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

NOTE:

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

STARTER MOTOR PROTECTION FUNCTION

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

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

< ECU DIAGNOSIS >

DTC Index

INFOID:000000001713130

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

NOTE:

The details of TIME display are as follows.

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

THE FUEL GAUGE POINTER DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

THE FUEL GAUGE POINTER DOES NOT MOVE

Description

INFOID:000000001374712

Fuel gauge needle will not move from a certain position.

Diagnosis Procedure

INFOID:000000001374713

1.CHECK COMBINATION METER INPUT SIGNAL

1. Select "METER/M&A" on CONSULT-III.
2. Using "FUEL METER" of "DATA MONITOR", compare the monitor value with the fuel gauge reading on the combination meter. Refer to [MWI-29, "Component Function Check"](#).

Does monitor value match fuel gauge reading?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to [MWI-29, "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-30, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4

NO >> Replace fuel level sensor unit and fuel pump. Refer to [FL-8, "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-94, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.

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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:0000000001374714

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

Diagnosis Procedure

INFOID:0000000001374715

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-30. "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:000000001538677

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

Diagnosis Procedure

INFOID:000000001538678

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to [PCS-10, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

2.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-31, "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-31, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation of IPDM E/R"](#).

NO >> Replace oil pressure switch.

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THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:000000001538679

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

Diagnosis Procedure

INFOID:000000001538680

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to [PCS-10, "Diagnosis Description"](#).

Is oil pressure warning lamp illuminated?

YES >> GO TO 2

NO >> Replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

2.CHECK IPDM E/R OUTPUT VOLTAGE

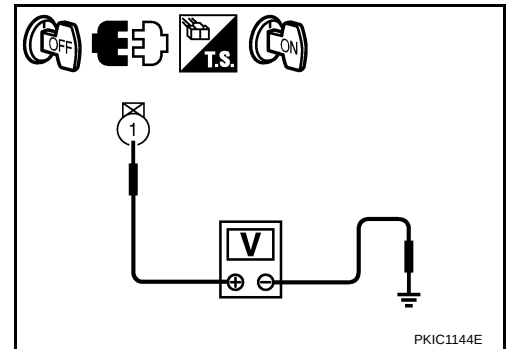
1. Turn ignition switch OFF.
2. Disconnect the oil pressure switch connector.
3. Turn ignition switch ON.
4. Check voltage between the oil pressure switch harness connector F32 terminal 1 and ground.

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-31, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation of IPDM E/R"](#).

NO >> Replace oil pressure switch.

4.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

check the oil pressure switch signal circuit. Refer to [MWI-31, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to [PCS-30, "Removal and Installation of IPDM E/R"](#).

NO >> Repair harness or connector.

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

< SYMPTOM DIAGNOSIS >

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:0000000001538673

- The displayed ambient air temperature is higher than the actual temperature.
- The displayed ambient air temperature is lower than the actual temperature.

Diagnosis Procedure

INFOID:0000000001538674

NOTE:

Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to [MWI-17, "INFORMATION DISPLAY : System Description"](#).

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to [MWI-34, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2

NO >> Repair harness or connector.

2.CHECK AMBIENT SENSOR UNIT

Perform a unit check for the ambient sensor. Refer to [HAC-131, "Ambient Sensor Component Inspection"](#) (without NAVI) or [HAC-245, "Ambient Sensor Component Inspection"](#) (with NAVI).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-94, "Removal and Installation"](#).

NO >> Replace ambient sensor.

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NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:000000001538681

OUTSIDE AIR TEMPERATURE

The displayed outside air temperature on the information display may differ from the actual temperature because it is a corrected value calculated from the ambient sensor signal by the combination meter. Refer to [MWI-17, "INFORMATION DISPLAY : System Description"](#) for details on the correction process.

PRECAUTIONS

< PRECAUTION >

PRECAUTION

PRECAUTIONS

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

INFOID:000000001374731

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. 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.

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MWI

COMBINATION METER

< ON-VEHICLE REPAIR >

ON-VEHICLE REPAIR

COMBINATION METER

Removal and Installation

INFOID:000000001569484

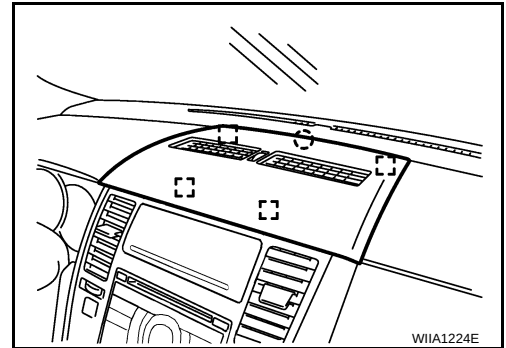
COMBINATION METER

Removal

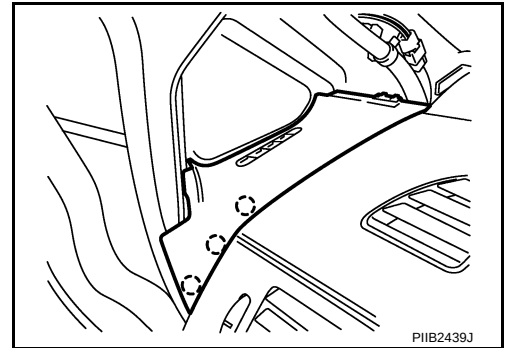
NOTE:

LH drive shown RH drive similar.

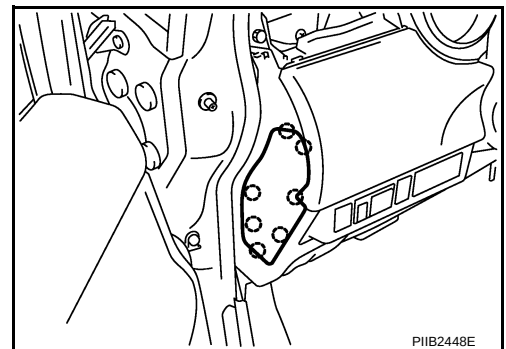
1. Pull instrument finisher E backward by approximately 30 degrees while disengaging the metal clips and pawl.



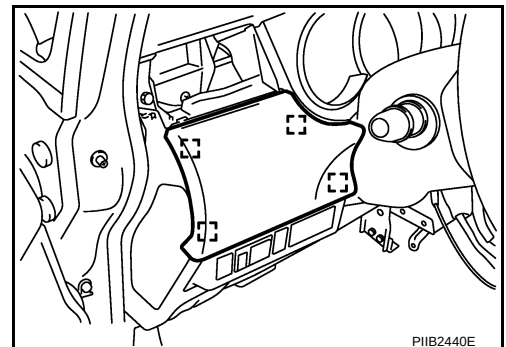
2. Remove front pillar garnish. Refer to [INT-20, "Removal and Installation"](#).
3. Pull up instrument side panel and disengage pawls.
4. Remove instrument side panel.



5. Insert a remover into upper space of instrument mask.
6. Disengage pawls, and then remove instrument side mask.



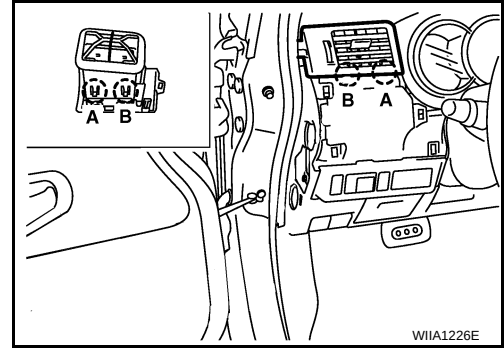
7. Insert a remover into space of instrument side finisher.
8. Disengage metal clips, and then remove instrument side finisher.



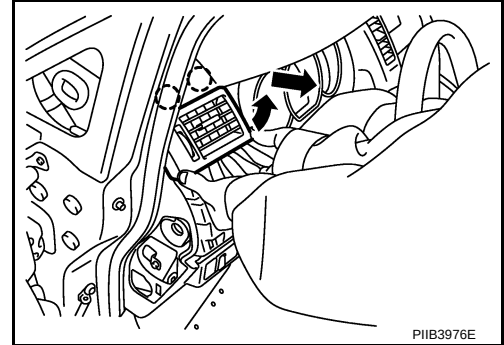
COMBINATION METER

< ON-VEHICLE REPAIR >

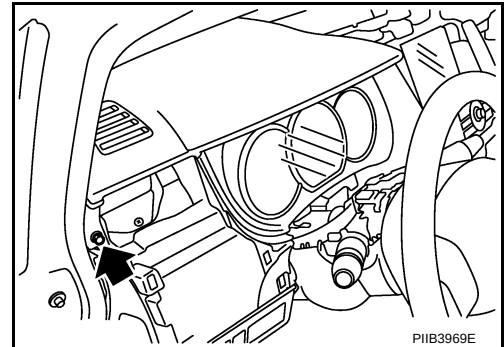
9. Insert suitable tool into the bottom gap of side ventilator assembly after removing the instrument side mask, push against A and B as shown to disengage the pawls.



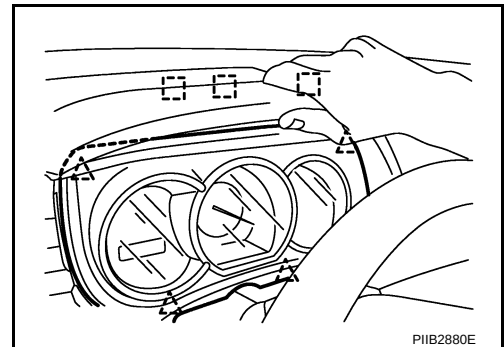
10. Lift the side ventilator up from the bottom, pull backward while disengaging the side ventilator assembly's upper pawls, and then remove the side ventilator.



11. Remove screws, and disengage pawls.
12. Remove steering column cover upper.
13. Remove screws from instrument upper panel right side.



14. Lift the instrument upper panel up, disengage metal clips.
15. Pull backward and disengage clips.
16. Remove cluster lid A.

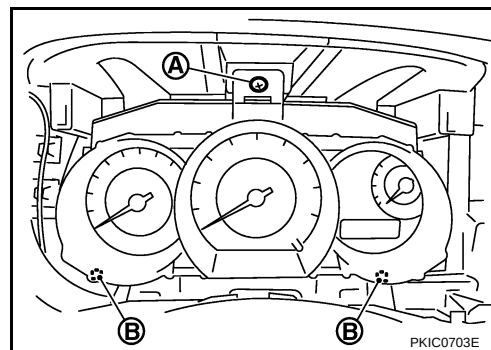


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COMBINATION METER

< ON-VEHICLE REPAIR >

17. Remove screws (A) and metal clip (B), and remove combination meter.



Installation

Installation is in the reverse order of removal.

COMBINATION METER

< DISASSEMBLY AND ASSEMBLY >

DISASSEMBLY AND ASSEMBLY

COMBINATION METER

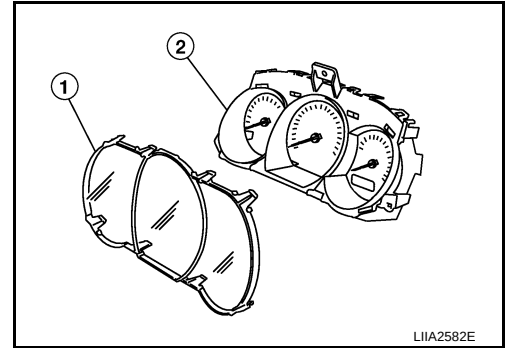
Disassembly and Assembly

INFOID:000000001716785

COMBINATION METER

Disassembly

1. Remove the combination meter. Refer to [MWI-94. "Removal and Installation"](#).
2. Disengage the eight tabs to separate front cover (1) from the unified meter control unit assembly (2).



Assembly

Assembly is in the reverse order of disassembly.

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