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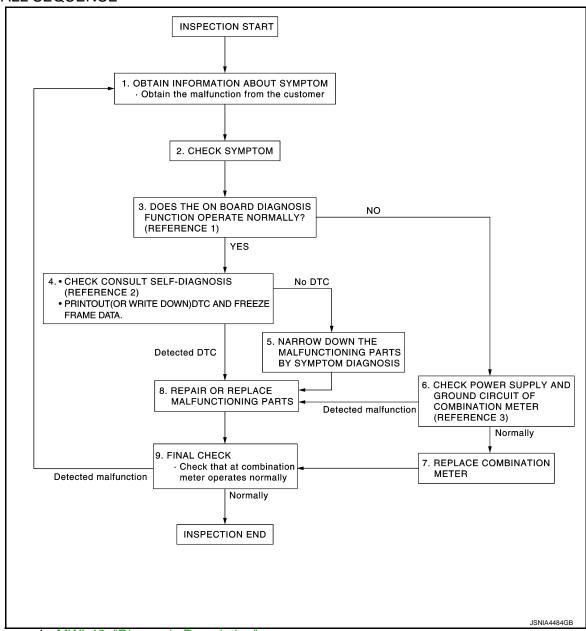
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# **BASIC INSPECTION**

# DIAGNOSIS AND REPAIR WORKFLOW

Work flow

#### **OVERALL SEQUENCE**



- Reference 1...MWI-40, "Diagnosis Description".
- Reference 2...MWI-107, "DTC Index".
- Reference 3...MWI-55, "COMBINATION METER: Diagnosis Procedure".

#### **DETAILED FLOW**

# ${f 1}$ .OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

>> GO TO 2.

# 2.check symptom

#### DIAGNOSIS AND REPAIR WORKFLOW < BASIC INSPECTION > • Check the symptom based on the information obtained from the customer. Check that any other malfunctions are present. Α >> GO TO 3. В 3.CHECK ON BOARD DIAGNOSIS OPERATION Check that the on board diagnosis function operates. Refer to MWI-40, "Diagnosis Description". Does the on board diagnosis function operate normally? YES >> GO TO 4. NO >> GO TO 6. 4. CHECK CONSULT SELF-DIAGNOSIS RESULTS D Connect CONSULT and perform self-diagnosis. Refer to MWI-107, "DTC Index". 2. When DTC is detected, follow the instructions below: Е Record DTC and Freeze Frame Data. Are self-diagnosis results normal? YES >> GO TO 5. F NO >> GO TO 8. ${f 5.}$ NARROW DOWN THE MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS Perform symptom diagnosis and narrow down the malfunctioning parts. >> GO TO 8. 6.CHECK COMBINATION METER POWER SUPPLY AND GROUND CIRCUITS Н Inspect combination meter power supply and ground circuits. Refer to MWI-55, "COMBINATION METER: Diagnosis Procedure". Is the inspection result normal? YES >> GO TO 7. NO >> GO TO 8. / .REPLACE COMBINATION METER Replace combination meter. >> GO TO 9. 8.REPAIR OR REPLACE MALFUNCTIONING PARTS Repair or replace the malfunctioning parts. NOTE: If DTC is displayed, erase DTC after repair or replace malfunctioning parts. M >> GO TO 9. 9. FINAL CHECK MWI Check that the combination meter operates normally.

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Do they operate normally?

>> GO TO 1.

>> INSPECTION END

YES

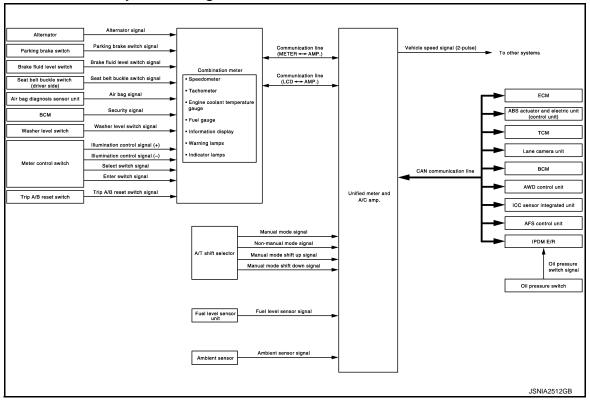
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# SYSTEM DESCRIPTION

# METER SYSTEM METER SYSTEM

### METER SYSTEM: System Diagram

INFOID:0000000007455610



# METER SYSTEM: System Description

INFOID:0000000007455611

#### **COMBINATION METER**

- The combination meter retrieves the information required for controlling the operations of the meters, indicator lamps/warning lamps and information display from the communication signals from the unified meter and A/C amp. and the signals from various switches and sensors.
- The combination meter incorporates a trip computer that displays warnings and messages on the information display according to the information received from various units.
- The combination meter incorporates a buzzer function that sounds an audible alarm with the integrated buzzer device. Refer to <a href="https://www.wcs-5">WCS-5</a>, "WARNING CHIME SYSTEM: System Description" for further details.
- The combination meter integrates the meter circuit check function and the segment check function that checks the information display operation.

#### UNIFIED METER AND A/C AMP.

- Receives information required by the combination meter from various units via CAN communication line and transmits it to the combination meter with communication line.
- The unified meter and A/C amp. incorporates a power saving control function that reduces the power consumption according to the vehicle status. Refer to <a href="https://example.com/BCS-15">BCS-15</a>, "System Description" for details.
- The unified meter and A/C amp. incorporates a diagnosis function that allows the technician to perform diagnoses with CONSULT.

#### < SYSTEM DESCRIPTION >

Unit	Communication line	Input from combination meter	Output to combination meter
Jnified meter and A/C amp.	Communication line (METER <-> AMP.)	Parking brake switch signal Washer level switch signal Meter day/night condition signal Illumination control switch signal Refuel status signal Low fuel warning lamp signal Odo data signal  Odo data	Vehicle speed signal Turn indicator signal High beam request signal Position light request signal Engine speed signal Fuel level sensor signal Engine coolant temperature signal A/T CHECK indicator signal Oil pressure switch signal Door switch signal Buzzer output signal AFS OFF indicator lamp signal TPMS malfunction warning lamp signal AWD warning lamp signal VDC OFF indicator lamp signal VDC warning lamp signal WDC warning lamp signal UDC warning lamp signal UCC warning lamp signal Brake warning lamp signal Malfunctioning indicator lamp signal Master warning signal ICC warning lamp signal ICD ON indicator lamp BSW warning lamp signal Front fog lights request signal
	Communication line (LCD <-> AMP.)	<ul> <li>Average fuel consumption reset signal</li> <li>Travel time reset signal</li> <li>Possible driving distance reset signal</li> <li>Average vehicle speed reset signal</li> <li>Select switch signal</li> <li>Enter switch signal</li> <li>Trip A/B reset switch signal</li> <li>Ambient air temperature display signal</li> </ul>	Shift position signal Manual mode indicator signal Manual mode shift refusal signal Meter display signal Door switch signal Fuel level sensor signal Parking brake switch signal Washer level switch signal Charge warning signal Instantaneous fuel consumption display signal Ambient air temperature display signal Average fuel consumption display signal Average vehicle speed display signal Possible driving distance display signal Engine speed signal Vehicle speed signal Low tire pressure warning lamp signal Fuel filler cap warning display signal

#### IPDM E/R

- IPDM E/R reads the ON/OFF signals of the oil pressure switch and transmits the oil pressure switch signal to the unified meter and A/C amp. via BCM with the CAN communication line.
- IPDM E/R is equipped with the diagnosis function. It can perform the operation check of oil pressure warning lamp with the auto active test and the diagnosis with CONSULT.

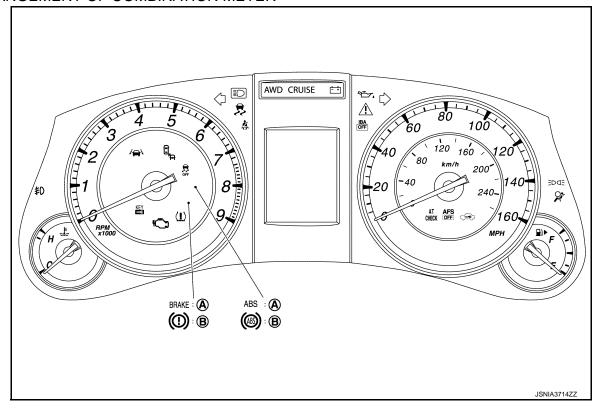
#### METER CONTROL FUNCTION LIST

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				X: Applicabl
	System	Description	Signal source	Via unified meter and A/C amp.
	Speedometer	Receives vehicle speed signal and indicates vehicle speed.	ABS actuator and electric unit (control unit)	Х
Motor/gougo	Tachometer	Receives engine speed signal and indicates engine speed.	ECM	Х
Meter/gauge	Fuel gauge	Fuel level sensor unit	Х	
	Engine coolant tem- perature gauge	Receives engine coolant temperature signal and indicates coolant temperature.	ECM	Х
Warning lamp/	Oil pressure warning lamp	Receives oil pressure warning lamp signal and illuminates warning lamp.	IPDM E/R	Х
indicator lamp	Master warning	Illuminates according to warning output on information display.	_	Х
	Door open warning	Receives door switch signals and displays warning.	ВСМ	Х
	Ballian Landan	Book and the last	Parking brake switch	
	Parking brake re- lease warning	Receives parking brake switch signal and vehicle speed signal and displays warnings.	ABS actuator and electric unit (control unit)	Х
	Low fuel warning	Receives fuel gauge signal and displays warning if fuel level decreases to 14 $\ell$ (3-3/4 US gal, 3-1/8 Imp gal) or less.	Fuel level sensor unit	X
	Low washer fluid warning	Receives washer level switch signal and displays warning.	Washer level switch	
	Low outside tempera- ture warning	Monitors ambient sensor signal and displays warning if ambient temperature decreases to 3°C (37°F) or less. (If enabled)	Ambient sensor	Х
	Low tire pressure warning	Receives low tire pressure warning lamp signal and displays warning.	ВСМ	Х
	Fuel filler cap warning	Receives fuel filler cap warning display signals and displays warning.	ECM	Х
	Instantaneous fuel	Calculates instantaneous fuel consumption based	ECM	Х
Information display	consumption	on received vehicle speed signals and fuel consumption monitor signal and displays it.	ABS actuator and electric unit (control unit)	Х
		Calculates average fuel consumption in a reset-	ECM	X
	Average fuel consumption	to-reset interval based on received vehicle speed signals and fuel consumption monitor signal and displays it.	ABS actuator and electric unit (control unit)	х
	Average vehicle speed	Calculates average vehicle speed in a reset-to-re- set interval based on received vehicle speed sig- nals and displays it.	ABS actuator and electric unit (control unit)	Х
	Travel time	Displays accumulated key switch ON time from reset to reset.	_	Х
	Travel distance	Calculates accumulated travel distance in a reset- to-reset interval based on received vehicle speed signals and displays it.	ABS actuator and electric unit (control unit)	Х
		Calculates possible driving distance based on re-	ECM	Х
	Possible driving distance	ceived fuel consumption monitor signal, vehicle speed signals and fuel level sensor signal and	ABS actuator and electric unit (control unit)	Х
		displays it.	Fuel level sensor unit	X
	Ambient air temperature	Corrects ambient air temperature value based on received ambient sensor signals and displays it.	Ambient sensor	х

## ARRANGEMENT OF COMBINATION METER



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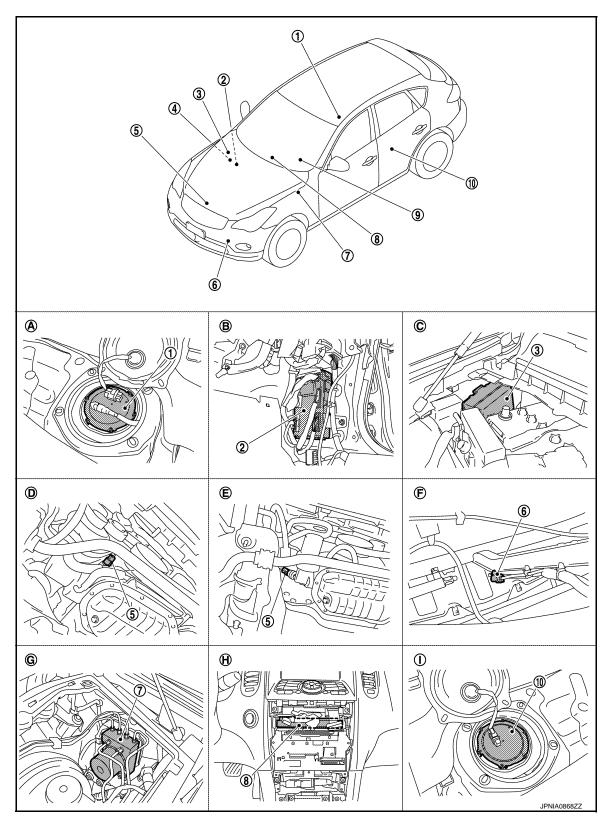
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# **METER SYSTEM: Component Parts Location**



- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM Refer to EC-38, "Component Parts Location".
- . BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

## < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter	А
10.	Fuel level sensor unit (sub)					
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)	
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)	В
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)	

# METER SYSTEM : Component Description

Unit		Description						
	Controls the following with the signals from	n the unified meter and A/C amp, switches and sensors.						
	Speedometer	Tachometer						
Combination meter	Engine coolant temperature gauge	Fuel gauge						
	Warning lamps	Indicator lamps						
	Information display	Warning chime						
Unified meter and A/C amp.	cation line and transmits them to the unif connects both of them.  Transmits the fuel gauge signal from the the unified meter and A/C amp. and the	ressary information from various units via CAN communi- fied meter and A/C amp. with the communication line that fuel gauge unit with the communication line that connects combination meter. ector transmits them to TCM with CAN communication						
IPDM E/R	IPDM E/R reads the ON/OFF signals of the signal to the unified meter and A/C amp. v	e oil pressure switch and transmits the oil pressure switch via BCM with CAN communication line.						
Fuel level sensor unit	Refer to MWI-58, "Description".							
Oil pressure switch	Refer to MWI-66, "Description".							
	Transmits the following signals to the unified meter and A/C amp. with CAN communication line.							
ECM	Engine speed signal	<ul> <li>Engine coolant temperature signal</li> </ul>						
	Fuel consumption monitor signal	<ul> <li>Fuel filler cap warning display signal</li> </ul>						
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the unified meter and A/C amp. with CAN communication line.							
ВСМ	<ul> <li>Transmits signals provided by various units to the unified meter and A/C amp. with CAN communication line.</li> <li>Transmits the security signal and low tire pressure warning lamp signal to the combination meter.</li> </ul>							
	Transmits the following signals to the unific	ed meter and A/C amp.						
A/T shift selector	Manual mode signal	<ul> <li>Non-manual mode signal</li> </ul>						
	Manual mode shift up signal	<ul> <li>Manual mode shift down signal</li> </ul>						
TCM	Transmits shift position signal, manual mode indicator signal and manual mode shift refusal signal to the unified meter and A/C amp.							
Meter control switch	Refer to MWI-62, "Description".							
Trip A/B reset switch	Refer to MWI-64, "Description".							
Washer level switch	Transmits the washer level signal to the co	ombination meter.						
Brake fluid level switch	Transmits the brake fluid level switch signal to the combination meter.							
Parking brake switch	Refer to MWI-67, "Description".	Refer to MWI-67, "Description".						

# **SPEEDOMETER**

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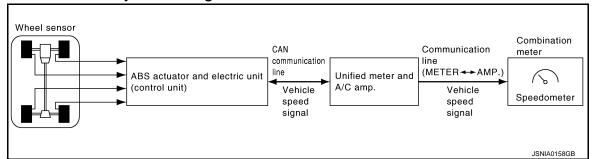
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#### < SYSTEM DESCRIPTION >

## SPEEDOMETER: System Diagram

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### SPEEDOMETER: System Description

- The ABS actuator and electric unit (control unit) converts the pulse signal provided by the wheel sensor to a vehicle speed signal and transmits it to the unified meter and A/C amp. with CAN communication line.
- The unified meter and A/C amp. receives the vehicle speed signal from the ABS actuator and electric unit (control unit) with CAN communication line and transmits it to the combination meter by means of communication line.
- The combination meter indicates the vehicle speed according to the vehicle speed signal received from the unified meter and A/C amp. by means of communication line.

# **SPEEDOMETER**: Component Parts Location

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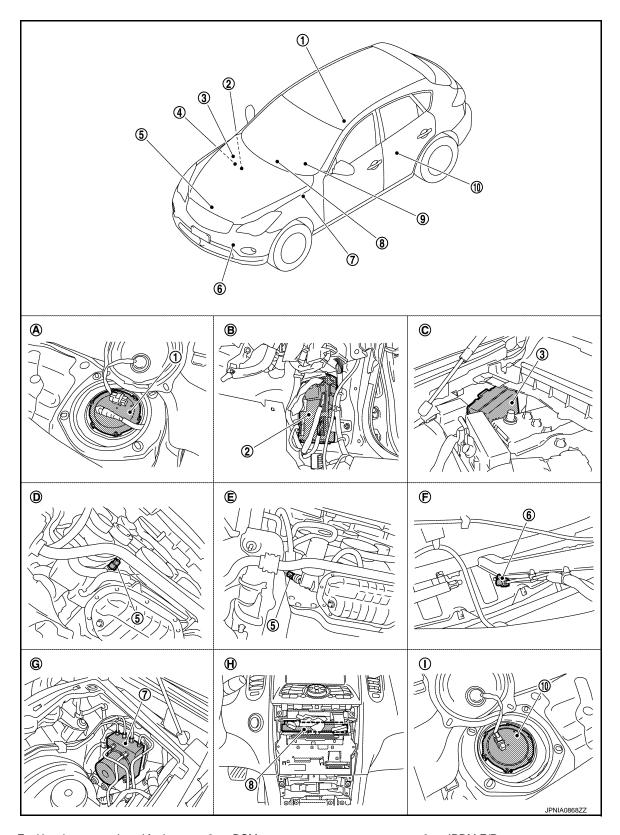
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- Fuel level sensor unit and fuel pump 2. (main)
- **ECM** 4. Refer to EC-38, "Component Parts Location".
- **BCM**
- Oil pressure switch
- 3.
- Ambient sensor 6.

IPDM E/R

#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

### SPEEDOMETER: Component Description

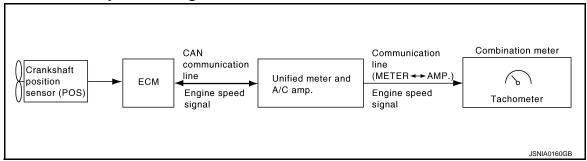
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Unit	Description
Combination meter	Indicates the vehicle speed according to the vehicle speed signal received from the unified meter and A/C amp. by means of communication line.
Unified meter and A/C amp.	Transmits the vehicle speed signal received from ABS actuator and electric unit (control unit) with CAN communication line to the combination meter by means of communication line.
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the unified meter and A/C amp. with CAN communication line.

#### **TACHOMETER**

# TACHOMETER: System Diagram

INFOID:0000000007455618



# TACHOMETER: System Description

- ECM converts the pulse signal provided by the crankshaft position sensor to an engine speed signal and transmits it to the unified meter and A/C amp. with CAN communication line.
- The unified meter and A/C amp. receives the engine speed signal from ECM with CAN communication line and transmits it to the combination meter by means of communication line.
- Combination meter converses engine speed signal to the angle signal, and commands to tachometer.

# TACHOMETER: Component Parts Location

INFOID:0000000007583213

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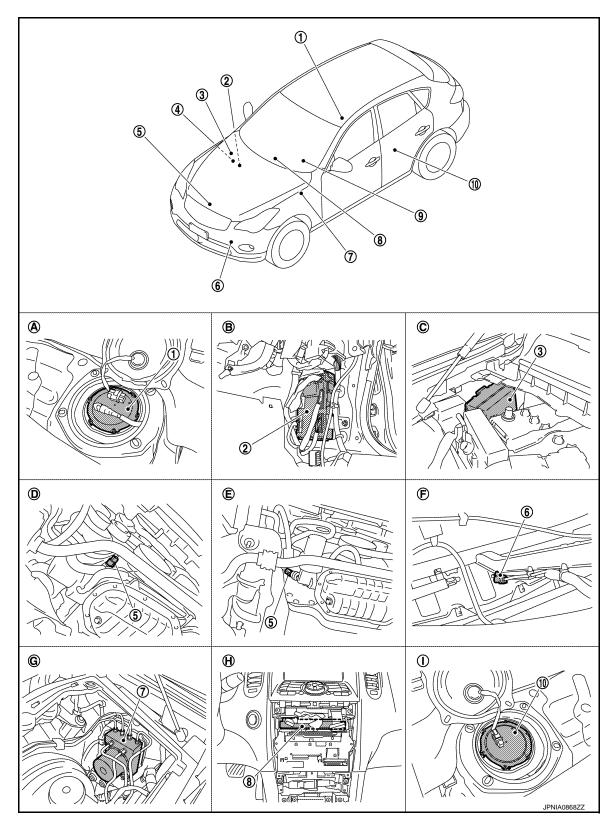
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- Fuel level sensor unit and fuel pump 2. (main)
- **ECM** 4. Refer to EC-38, "Component Parts Location".
- **BCM**
- Oil pressure switch
- 3.
- Ambient sensor 6.

IPDM E/R

#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

### TACHOMETER: Component Description

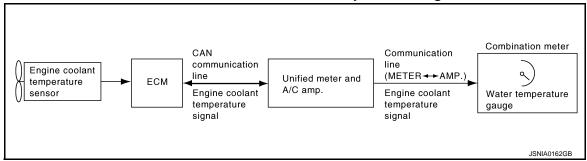
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Unit	Description
Combination meter	Indicates the engine speed according to the engine speed signal received from the unified meter and A/C amp. by means of communication line.
Unified meter and A/C amp.	Transmits the engine speed signal received from ECM with CAN communication line to the combination meter by means of communication line.
ECM	Transmits the engine speed signal to the unified meter and A/C amp. with CAN communication line.

## **ENGINE COOLANT TEMPERATURE GAUGE**

# ENGINE COOLANT TEMPERATURE GAUGE: System Diagram

INFOID:0000000007455622



# ENGINE COOLANT TEMPERATURE GAUGE: System Description

- ECM converses a signal from engine coolant temperature sensor to engine coolant temperature signal, and transmits to unified meter and A/C amp. with CAN communication line.
- Unified meter and A/C amp. transmits engine coolant temperature signal to combination meter with communication line.
- Combination meter converses engine coolant temperature signal to the angle signal, and commands to engine coolant temperature gauge.

# ENGINE COOLANT TEMPERATURE GAUGE : Component Parts Location

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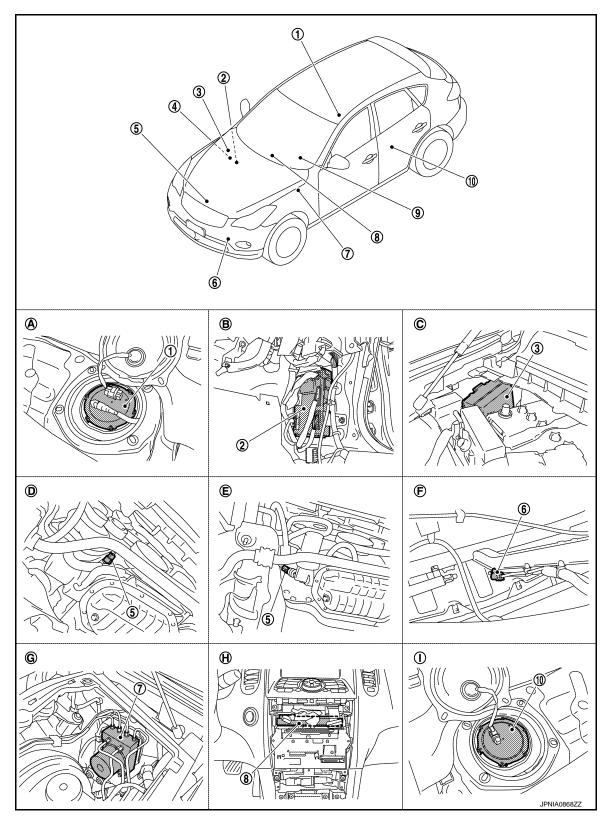
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- Fuel level sensor unit and fuel pump 2. (main)
- **ECM** Refer to EC-38, "Component Parts Location".
- BCM
- Oil pressure switch
- Ambient sensor

IPDM E/R

**MWI-17** Revision: 2014 October 2012 EX

#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

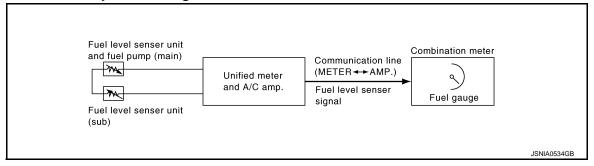
## ENGINE COOLANT TEMPERATURE GAUGE: Component Description NFC

Unit	Description
Combination meter	Indicates the water temperature gauge according to the engine coolant temperature signal received from the unified meter and A/C amp. by means of communication line.
Unified meter and A/C amp.	Transmits the engine coolant temperature signal received from ECM with CAN communication line to the combination meter by means of communication line.
ECM	Transmits the engine coolant temperature signal to the unified meter and A/C amp. with CAN communication line.

#### **FUEL GAUGE**

# FUEL GAUGE : System Diagram

INFOID:0000000007455626



# FUEL GAUGE: System Description

INFOID:0000000007455627

#### CONTROL OUTLINE

- The unified meter and A/C amp. reads the fuel level sensor signal from the fuel gauge unit and transmits it to the combination meter with the communication line.
- The combination meter indicates the fuel level on the fuel gauge according to the received fuel level sensor signal.

#### REFUEL CONTROL

The combination meter accelerates the fuel gauge segment if the all conditions listed below are met, or the ignition switch is ON from OFF.

- Ignition switch is ON position
- The vehicle is not moving
- The fuel level change by 15 ℓ (4 US gal, 3-3/10 Imp gal) or more

# FUEL GAUGE: Component Parts Location

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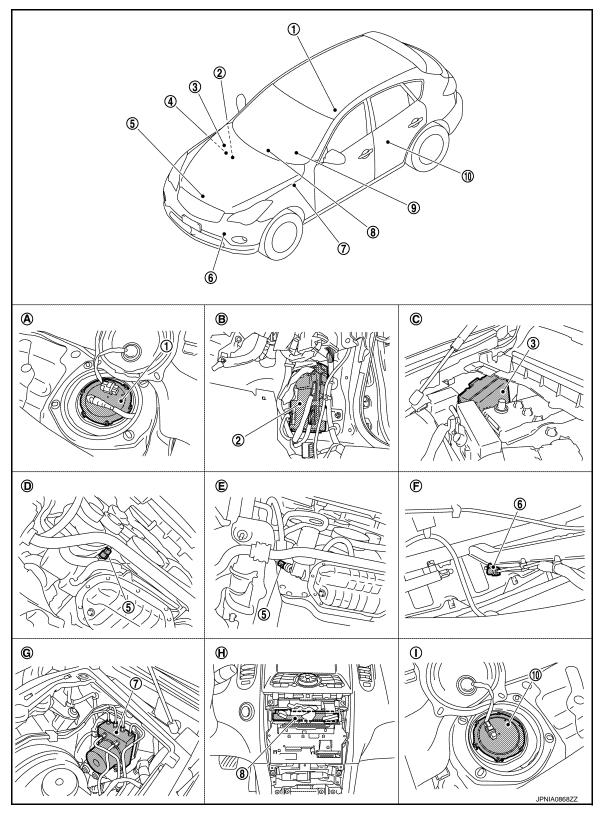
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- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM
  Refer to EC-38, "Component Parts
  Location".
- 2. BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

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#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	В.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

### FUEL GAUGE: Component Description

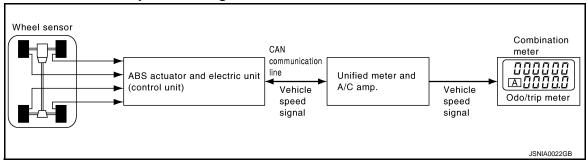
INFOID:0000000007455629

Unit	Description
Combination meter	Indicates the fuel gauge according to the fuel level sensor signal received from the unified meter and A/C amp. by means of communication line.
Unified meter and A/C amp.	Transmits the fuel level sensor signal from the fuel level sensor unit to the combination meter by means of communication line.
Fuel level sensor unit	Refer to MWI-58, "Description".

#### **ODO/TRIP METER**

# ODO/TRIP METER: System Diagram

INFOID:0000000007455630



# ODO/TRIP METER: System Description

- The unified meter and A/C amp. transmits the vehicle speed signal from ABS actuator and electric unit (control unit) to the combination meter.
- The combination meter calculates the vehicle distance according to the vehicle speed signal. The vehicle distance is displayed.

# ODO/TRIP METER : Component Parts Location

INFOID:0000000007583216

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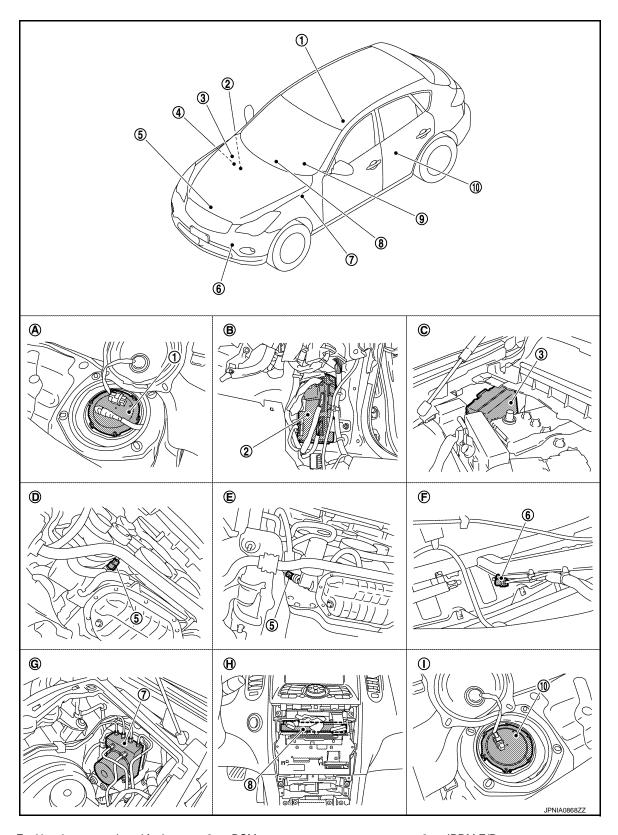
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- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM
  Refer to EC-38, "Component Parts
  Location".
- 2. BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

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#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

### **ODO/TRIP METER: Component Description**

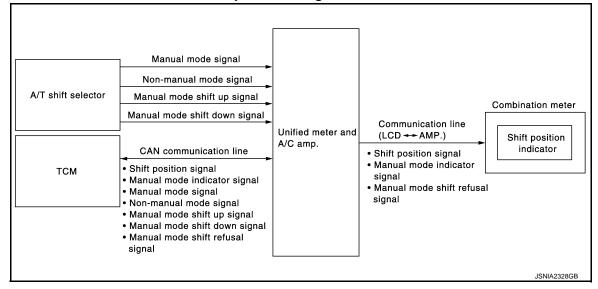
INFOID:0000000007455633

Unit	Description
Combination meter	The combination meter calculates the vehicle distance according to the vehicle speed signal. The vehicle distance is displayed.
Unified meter and A/C amp.	The unified meter and A/C amp. transmits the vehicle speed signal from ABS actuator and electric unit (control unit) to the combination meter.
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the unified meter and A/C amp. with CAN communication line.

#### SHIFT POSITION INDICATOR

### SHIFT POSITION INDICATOR: System Diagram

INFOID:0000000007455634



# SHIFT POSITION INDICATOR: System Description

INFOID:0000000007455635

Shift position is displayed in the information display LCD in the combination meter.

#### MANUAL MODE

- Unified meter and A/C amp. inputs manual mode signal and shift-up/down signal from A/T shift selector (manual mode switch), and transmits the signals to TCM with CAN communication line.
- TCM processes manual mode signal and shift-up/down signal, and transmits manual mode indicator signal and shift position signal to unified meter and A/C amp. with CAN communication line.
- Unified meter and A/C amp. transmits manual mode indicator signal and shift position signal to combination meter with the communication line.
- Combination meter indicates A/T gear position and manual mode indicator, when receiving manual mode indicator signal and shift position signal.
- TCM transmits a manual mode shift refusal signal to the unified meter and A/C amp. via CAN communication line when gear shifting cannot be performed in manual mode.
- The unified meter and A/C amp. transmits a manual mode shift refusal signal to the combination meter via communication line.
- The combination meter blinks the shift position indicator and sounds a buzzer when receiving a manual mode shift refusal signal.

#### < SYSTEM DESCRIPTION >

#### **NON-MANUAL MODE**

- Unified meter and A/C amp. inputs non-manual mode signal from A/T shift selector (manual mode switch), and transmits the signals to TCM with CAN communication line.
- TCM transmits shift position signal to unified meter and A/C amp. with CAN communication line.
- Unified meter and A/C amp. transmits shift position signal to combination meter with the communication line.
- Combination meter indicates A/T shift position when receiving shift position signal.

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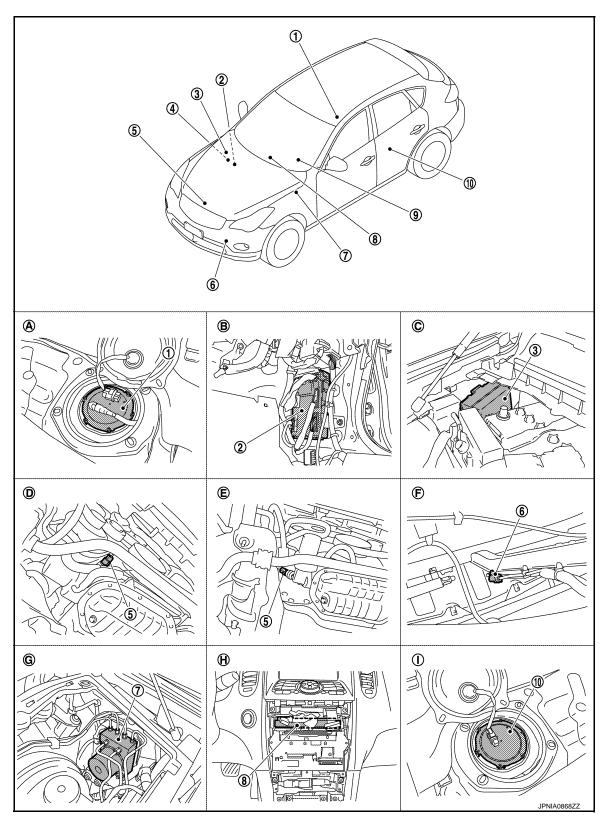
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# SHIFT POSITION INDICATOR: Component Parts Location



- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM Refer to EC-38, "Component Parts Location".
- BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

H. Behind cluster lid C

#### < SYSTEM DESCRIPTION >

Hoodledge cover (LH)

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter	А
10.	Fuel level sensor unit (sub)					
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)	
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)	В

Rear seat (inside left)

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INFOID:0000000007455639

## SHIFT POSITION INDICATOR: Component Description

Unit		Description	
Displays the shift position on the information display with shift position signal and dicator signal received from unified meter and A/C amp.			
Unified meter and A/C amp.	Transmits shift position signal and ma	ift selector to TCM with CAN communication line. Inual mode indicator signal received from TCM with CAN In meter by means of communication line.	
	Transmits the following signals to the ur	ified meter and A/C amp.	
A/T shift selector	Manual mode signal	<ul> <li>Non-manual mode signal</li> </ul>	
	Manual mode shift up signal	<ul> <li>Manual mode shift down signal</li> </ul>	
тсм	Transmits shift position signal, manual r to the unified meter and A/C amp.	node indicator signal and manual mode shift refusal signal	

### WARNING LAMPS/INDICATOR LAMPS

### WARNING LAMPS/INDICATOR LAMPS: System Diagram

INFOID:0000000007455638 **BCM** CAN Communication Combination meter communication (METER → AMP.) line Oil pressure Unified meter Oil pressure IPDM E/R switch and A/C amp. warning lamp Oil pressure Oil pressure Oil pressure switch signal switch signal switch signal

# WARNING LAMPS/INDICATOR LAMPS: System Description

#### OIL PRESSURE WARNING LAMP

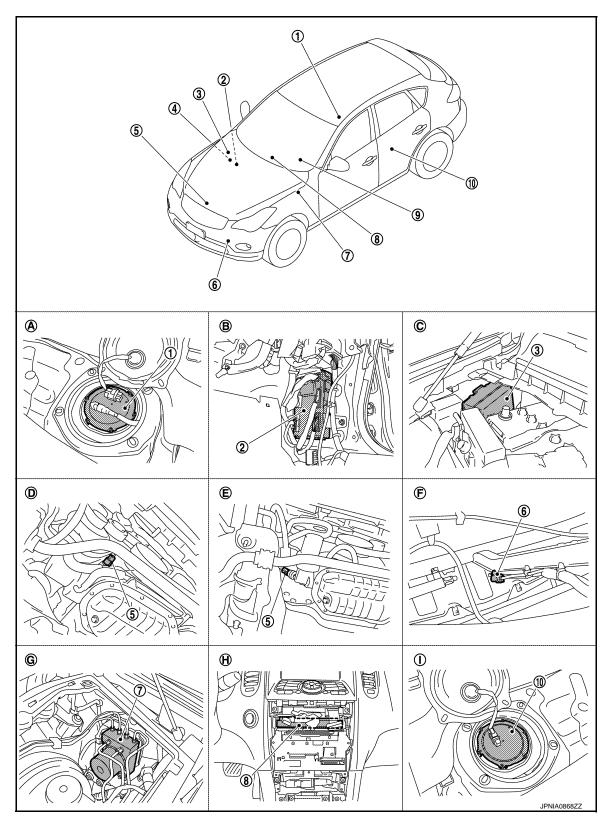
- IPDM E/R inputs oil pressure switch signal from oil pressure switch, and transmits the signal to unified meter and A/C amp. through BCM with CAN communication line.
- Unified meter and A/C amp. transmits oil pressure switch signal to combination meter with communication
- Let the combination meter turn oil pressure warning lamp ON with received oil pressure switch signal.

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**MWI-25** Revision: 2014 October 2012 EX

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# WARNING LAMPS/INDICATOR LAMPS : Component Parts Location



- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM Refer to EC-38, "Component Parts Location".
- BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (con-		Unified meter and A/C amp.
	trol unit)		

Combination meter

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- 10. Fuel level sensor unit (sub)
- A. Rear seat (inside right)
- B. Dash side finisher (passenger side)

AWD (oil filter bracket part)

C. Hoodledge cover (RH)F. Condenser (front)

- D. 2WD [oil pan (upper) RH side]G. Hoodledge cover (LH)
- H. Behind cluster lid C
- I. Rear seat (inside left)

# WARNING LAMPS/INDICATOR LAMPS: Component Description

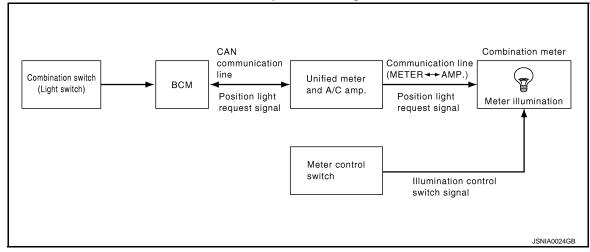
INFOID:0000000007455641	
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Unit	Description
Combination meter	Turns the oil pressure warning lamp ON/OFF according to the oil pressure switch signal received from the unified meter and A/C amp. by means of communication line.
Unified meter and A/C amp.	Transmits the oil pressure switch signal received from the IPDM E/R with BCM to the combination meter by means of communication line.
IPDM E/R	IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the unified meter and A/C amp. via BCM with the CAN communication line.
Oil pressure switch	Refer to MWI-66, "Description".
ВСМ	Transmits the oil pressure switch signal received from IPDM E/R via CAN communication to the unified meter and A/C amp. via CAN communication line.

#### METER ILLUMINATION CONTROL

# METER ILLUMINATION CONTROL: System Diagram

INFOID:0000000007455642



# METER ILLUMINATION CONTROL: System Description

INFOID:0000000007455643

#### SYSTEM DESCRIPTION

The combination meter controls the meter illumination by the illumination control switch signal from the meter control switch and the position light request signal transmitted by BCM with unified meter and A/C amp.

Daytime Mode

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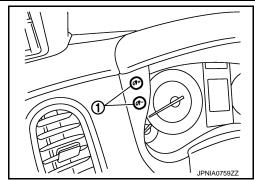
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#### < SYSTEM DESCRIPTION >

Meter illumination is adjusted to 5 steps by illumination control switch (1) in daytime mode.



#### Nighttime Mode

- Combination meter is transferred to nighttime mode with position light request signal from BCM with CAN communication line.
- Meter illumination is adjusted to 22 steps by illumination control switch in nighttime.

# METER ILLUMINATION CONTROL: Component Parts Location

INFOID:0000000007583219

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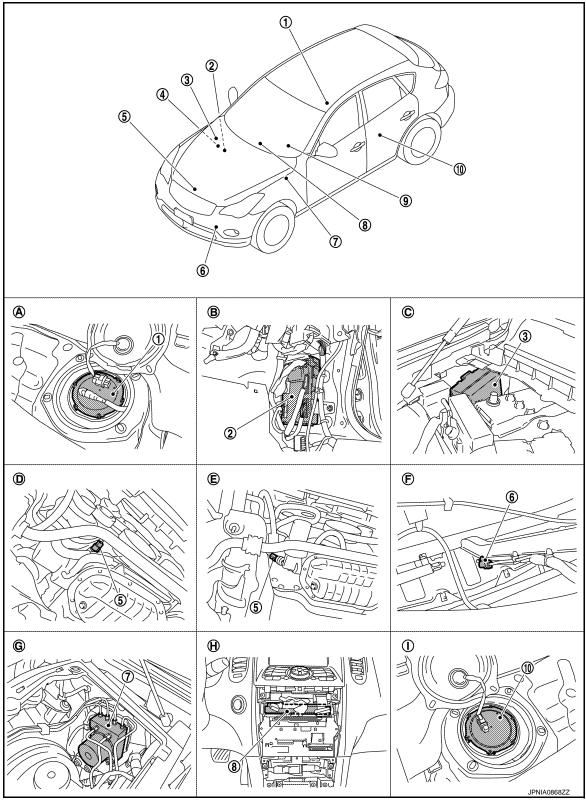
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- Fuel level sensor unit and fuel pump 2. (main)
- **ECM** 4. Refer to EC-38, "Component Parts Location".
- **BCM**
- Oil pressure switch
- 3. IPDM E/R
- Ambient sensor 6.

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#### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter
10.	Fuel level sensor unit (sub)				
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)

### METER ILLUMINATION CONTROL: Component Description

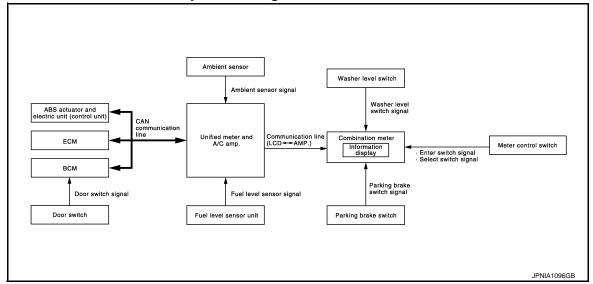
INFOID:0000000007455645

Unit	Description			
Combination meter	Controls the meter illumination with the illumination control switch signal from the meter control switch and the position light request signal from unified meter and A/C amp.			
Unified meter and A/C amp.	Transmits the position light request signal received from BCM via CAN communication to the combination meter by means of communication.			
Mater control quitals	Transmits the following signals to the combination meter.			
Meter control switch	Illumination control switch signal (+)     Illumination control switch signal (-)			

#### INFORMATION DISPLAY

### INFORMATION DISPLAY: System Diagram

INFOID:0000000007455646



# INFORMATION DISPLAY: System Description

INFOID:0000000007455647

#### **DESCRIPTION**

- The combination meter retrieves the information required for controlling the operations of the information display from the communication signals from the unified meter and A/C amp., etc.
- The combination meter incorporates a trip computer that displays the warning / information according to the information received from various units.

#### PARKING BRAKE RELEASE WARNING

The combination meter indicates parking brake release warning judged with the vehicle speed signal received from the unified meter and A/C amp. by means of communication line and the parking brake switch signal from the parking brake switch.

#### Warning Operation Condition

Parking brake release warning is judged if all of the following conditions are fulfilled

- Vehicle speed is 7 km/h (4.3 MPH) or higher
- · Parking brake switch ON

#### LOW FUEL WARNING

#### < SYSTEM DESCRIPTION >

The combination meter indicates low fuel warning judged with the fuel level sensor signal received from the unified meter and A/C amp.

Warning Operation Condition

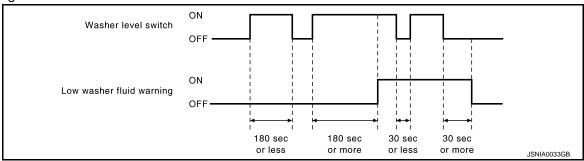
Fuel level: Approx. 14 ℓ (3-3/4 US gal, 3-1/8 Imp gal) or less

#### LOW WASHER FLUID WARNING

The combination meter indicates low washer fluid warning judged with the signal from the washer level switch.

Warning Operation Condition

• Indicates the warning when it is in washer level switch ON condition for 180 seconds or more. Release the warning when it is in washer level switch OFF condition for 30 seconds or more.



#### LOW TIRE PRESSURE WARNING

- The unified meter and A/C amp. receives remaining low tire pressure warning lamp signal from the BCM with CAN communication line.
- The unified meter and A/C amp. transmits remaining low tire pressure warning lamp signal to the combination meter with communication line.
- The combination meter indicates low tire pressure warning when receiving remaining low tire pressure warning lamp signal.
- The combination meter indicates low tire pressure warning judged with the low tire pressure warning lamp signal received from the unified meter and A/C amp.

For details, refer to WT-7, "TIRE PRESSURE MONITORING SYSTEM: System Description".

#### FUEL FILLER CAP WARNING

- The unified meter and A/C amp. receives remaining fuel filler cap warning display signal from the ECM with CAN communication line.
- The unified meter and A/C amp. transmits remaining fuel filler cap warning display signal to the combination meter with communication line.
- The combination meter indicates fuel filler cap warning when receiving remaining fuel filler cap warning display signal.
- The combination meter indicates fuel filler cap warning judged with the fuel filler cap warning display signal received from the unified meter and A/C amp.

For details, refer to EC-109, "System Description".

#### DOOR OPEN WARNING

The combination meter indicates door open warning judged with each door switch signal received from the unified meter and A/C amp. by means of communication line.

#### INSTANTANEOUS FUEL CONSUMPTION

- The unified meter and A/C amp. receives the fuel consumption monitor signal from ECM and the vehicle speed signal from the ABS actuator and electric unit (control unit) with CAN communication line.
- The unified meter and A/C amp. calculates the instantaneous fuel consumption according to the fuel consumption monitor signal and the vehicle speed signal received with CAN communication line, and transmits it to the combination meter.

#### AVERAGE FUEL CONSUMPTION

- The unified meter and A/C amp. receives the fuel consumption monitor signal from ECM and the vehicle speed signal from the ABS actuator and electric unit (control unit) with CAN communication line.
- The unified meter and A/C amp. calculates the average fuel consumption according to the fuel consumption monitor signal and the vehicle speed signal received with CAN communication line, and transmits it to the combination meter.
- The average fuel consumption displayed on the information display is uploaded at approximately 30-second intervals.

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#### < SYSTEM DESCRIPTION >

#### NOTE:

When turning ON the ignition switch after triggering a reset or removing/installing the battery, "——" is indicated until 30 seconds/500 m (0.31 miles) of driving.

#### AVERAGE VEHICLE SPEED

- The unified meter and A/C amp. receives the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication line.
- Measures the time during the ignition switch ON with the unified meter and A/C amp.
- The unified meter and A/C amp. calculates the average vehicle speed according to the above signals. These
  signals are transmitted to the combination meter with the communication line.
- The average vehicle speed displayed on the information display is uploaded at approximately 30-second intervals.

#### NOTE:

When turning ON the ignition switch after triggering a reset or removing/installing the battery, "——" is indicated until 30 seconds/500 m (0.31 miles) of driving.

#### TRAVEL TIME

Measures the time during the ignition switch ON with the unified meter and A/C amp, and transmits it to the combination meter by means of communication line.

#### TRAVEL DISTANCE

- The unified meter and A/C amp. transmits the vehicle speed signal from ABS actuator and electric unit (control unit) to the combination meter.
- The combination meter calculates the vehicle distance according to the vehicle speed signal. The vehicle distance is displayed.

#### POSSIBLE DRIVING DISTANCE

The unified meter and A/C amp. calculates possible driving distance according to the vehicle speed signal and fuel consumption monitor signal transmitted via CAN communication and the fuel level sensor signal transmitted from the fuel level sensor. These signals are transmitted to the combination meter with the communication line.

#### NOTE:

- When turning ON the ignition switch after removing/installing the battery, "——" is indicated until 30 seconds
- "----" is displayed for 30 seconds after the ignition switch is OFF → ON. It is displayed simultaneously until
  the vehicle drives approximately 500 m (0.31 mile).
- The indicated values may not match each other when filling the fuel with the ignition switch ON. Refer to <u>MWI-131, "INFORMATION DISPLAY: Description"</u>.

#### AMBIENT AIR TEMPERATURE

- The unified meter and A/C amp. receives the ambient sensor signal from the ambient sensor.
- The unified meter and A/C amp. calculates the ambient temperature according to the ambient sensor signal, and transmits it to the combination meter.
- The indicated temperature does not increase if the vehicle speed is less than 20 km/h (12 MPH).

#### NOTE:

- The ambient sensor input value that is displayed on "Data Monitor" of CONSULT is the value before the correction. It may not match the indicated temperature on the information display.
- Ambient temperature may be indicated higher than an actual temperature, depending on heat in the engine, a road surface temperature, and so on.

#### SETTING

Setting item list

Items		Setting range	Setting unit	Description
ALERT	TIME TO REST	No setting - 6 hours	30 minutes, [60 minutes]*	Time to rest is displayed on the information display if the vehicle reached the set travel distance.
ALERI	ICY	ON/OFF	_	Low outside temp is displayed on the information display if the ambient temperature is 3°C (37°F) or less.

# < SYSTEM DESCRIPTION >

Items		Setting range	Setting unit Description	
MAINTENANCE	ENGINE OIL	No setting - 18,500 miles, (No setting - 30,000 km)	250 miles (500 km), [500 miles (1000 km)]*	The engine oil replacement interval is displayed on the information display if the vehicle reached the set distance.
	OIL FILTER	No setting - 18,500 miles, (No setting - 30,000 km)	250 miles (500 km), [500 miles (1000 km)]*	The oil filter replacement interval is displayed on the information display if the vehicle reached the set distance.
	TIRE	No setting - 18,500 miles, (No setting - 30,000 km)	250 miles (500 km), [500 miles (1000 km)]*	The tire replacement interval is displayed on the information display if the vehicle reached the set distance.
	OTHER	No setting - 18,500 miles, (No setting - 30,000 km)	250 miles (500 km), [500 miles (1000 km)]*	The other replacement interval is displayed on the information display if the vehicle reached the set distance.
	LANGUAGE	ENGLISH/FRANCAIS	_	Changing the language setting can be performed.
	UNIT	US/METRIC	_	Changing the unit setting can be performed.

<sup>\*:</sup> Press and hold the switch (1 second or more).

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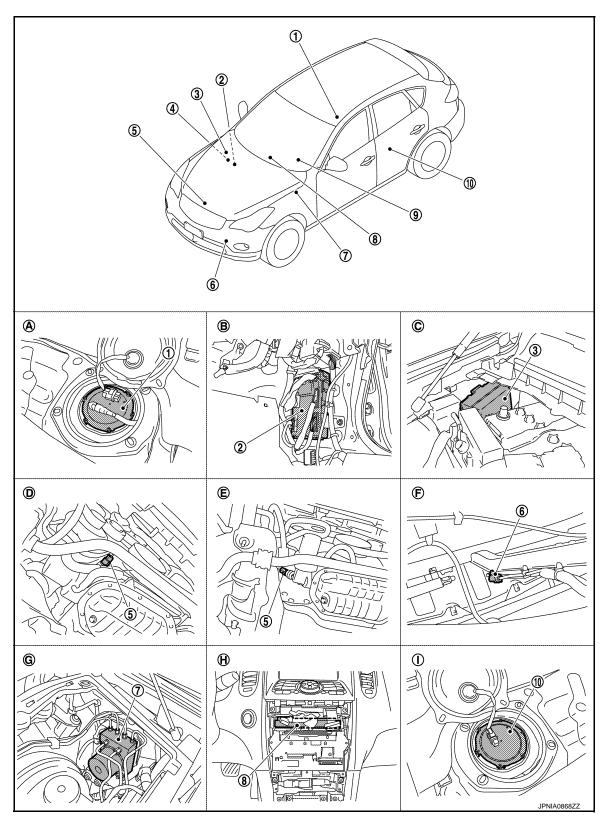
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# **INFORMATION DISPLAY: Component Parts Location**



- Fuel level sensor unit and fuel pump 2. (main)
- 4. ECM Refer to EC-38, "Component Parts Location".
- . BCM
- 5. Oil pressure switch
- 3. IPDM E/R
- 6. Ambient sensor

### < SYSTEM DESCRIPTION >

7.	ABS actuator and electric unit (control unit)	8.	Unified meter and A/C amp.	9.	Combination meter	Α
10.	Fuel level sensor unit (sub)					
A.	Rear seat (inside right)	B.	Dash side finisher (passenger side)	C.	Hoodledge cover (RH)	
D.	2WD [oil pan (upper) RH side]	E.	AWD (oil filter bracket part)	F.	Condenser (front)	В
G.	Hoodledge cover (LH)	Н.	Behind cluster lid C	I.	Rear seat (inside left)	

# INFORMATION DISPLAY: Component Description

Unit	Description			
Combination meter	Controls the information display with the signals received from the unified meter and A/C amp. by means of communication and the signals from various switches and sensors.			
Unified meter and A/C amp.	Transmits signals received from various units to the combination meter by means of communication.			
Fuel level sensor unit	Refer to MWI-58, "Description".			
	Transmits the following signals to the unified meter and A/C amp. via CAN communication.			
ECM	Engine speed signal     Fuel consumption monitor signal			
	Fuel filler cap warning display signal			
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the unified meter and A/C amp. via CAN communication.			
всм	Transmits signals provided by various units to the unified meter and A/C amp. via CAN communication.			
Market and a Section of the Section	Transmits the following signals to the combination meter.			
Meter control switch	Enter switch signal     Select switch signal			
Washer level switch	Transmits the washer level signal to the combination meter.			
Parking brake switch	Refer to MWI-67, "Description".			
Door switch	Transmits the door switch signals to BCM.			
Ambient sensor	Detects the ambient air temperature and transmits the ambient sensor signal to the unified meter and A/C amp.			

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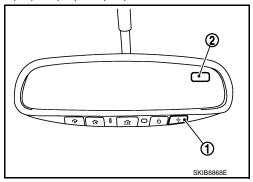
Revision: 2014 October MWI-35 2012 EX

### **COMPASS**

Description INFOID.000000007455650

#### DESCRIPTION

- This electronic compass is able to display 8 primary directions: N, NE, E, SE, S, SW, W, NW.
- The compass switch (1) is used to operate the compass.



#### Switch Operation

Press	Compass is turned ON/OFF
Press and hold (for 3- 9 sec.)	Compass display (2) turns to zone variation change mode
Press and hold (for more than 9 sec.)	Compass display turns to calibration mode

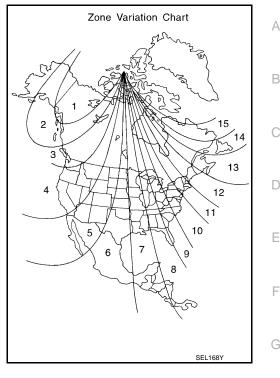
- All standard compasses determine direction relative to magnetic north; however, this electronic compass is designed to display direction relative to true north.
- The difference between magnetic north and true north varies from place to place across the surface of the
- This electronic compass must be "told" approximately where it is on the earth's surface so that the magnetic north reading can be properly converted into a true north display.
- To tell the electronic compass where it's at, the earth is separated into numbered "Zone Variances". The zone variance number in which the compass is to function must be entered into this electronic compass.
- Each zone is magnetically about 4.2° wide. Typically, anything under 22.5° total zone change is not noticed on the electronic compass display. However, over 22.5°, a reading may be off by one or more primary directions.
- On long trips, a vehicle may leave its original zone and enter one or more new zones. Generally, you do not
  need to reset the compass zone if you travel between 3 or 4 zones, such as business travel or vacation. The
  typical driver will not notice any difference on the display within 3 or 4 zones. However, if the vehicle is "permanently" moved to a new location, it is recommended that the compass zone be reset.

#### ZONE VARIATION SETTING PROCEDURE

### **COMPASS**

### < SYSTEM DESCRIPTION >

- 1. Press and hold the compass switch for 3 9 seconds.
- The current zone setting appears on the compass display.
- Find the current geographical location number in the zone variation chart.
- 4. Select the new zone number. (Press the compass switch until the new zone number appears on the compass display.)
- 5. After select the new zone number, the compass display will automatically shows a direction within a few seconds.
- 6. Perform the following calibration procedure for more accurate indications.



### CALIBRATION PROCEDURE

### NOTE:

The compass calibrates itself under normal driving conditions. However, occasional circumstances may cause the compass to operate inaccurately. Example: Driving from rural (wide open) areas to crowded city areas, or if an aftermarket (i.e., non original equipment) antenna with a magnetic base is attached to the vehicle. Calibrate the mirror compass if the display shows only one direction or a limited number of directions.

### NOTE:

- If "magnetic hats" are used in the dealership for vehicle identification, remove the hat from the vehicle before performing the following steps. Do not put the hat back on the vehicle after the procedure is completed.
- Drive the vehicle to an open level area; away from large metallic objects, structures, and overhead power lines.
- Turn off "non-essential" electrical accessories (rear window defrost, heater/air conditioning, wipers) and close the doors.
- 1. Verify the correct compass zone setting for the geographical location.
- 2. Press and hold the compass switch for more than 9 seconds.
- 3. "C" is displayed on the compass display, when calibration starts.
- 4. Drive slowly [less than 8 km/h (5 MPH)] in a circle until the "C / CAL" is replaced with primary headings (N, NE, E, SE, S, SW, W, or NW).

### NOTE:

This will require driving at least 2 complete 360 degree circles; 3 complete circles may be required.

The compass calibration procedure is now complete. The compass should operate normally.NOTE:

If at any time the compass continually displays the incorrect direction or the reading is erratic or locked, repeat the calibration procedure.

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Revision: 2014 October MWI-37 2012 EX

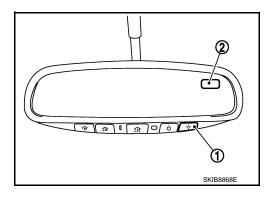
## **COMPASS**

## < SYSTEM DESCRIPTION >

## **Component Parts Location**

INFOID:0000000007455651

1 : Compass switch2 : Compass display



## Special Repair Requirement

INFOID:0000000007455652

# 1. PERFORM ZONE VARIATION SETTING

Perform the zone variation setting. Refer to MWI-36, "Description".

>> GO TO 2.

# 2.PERFORM CALIBRATION

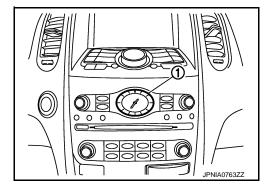
Perform the calibration. Refer to MWI-36, "Description".

>> Setting completion

# **CLOCK**

# Component Parts Location

1 : Clock



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## **DIAGNOSIS SYSTEM (METER)**

### < SYSTEM DESCRIPTION >

# **DIAGNOSIS SYSTEM (METER)**

## **Diagnosis Description**

### INFOID:0000000007455654

### **SELF-DIAGNOSIS MODE**

- Information display LCD segment operation can be checked in self-diagnosis mode.
- Meters/gauges can be checked in self-diagnosis mode.

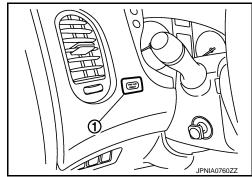
### **OPERATION PROCEDURE**

1. Turn ignition switch ON, and switch the trip meter to "trip A" or "trip B".

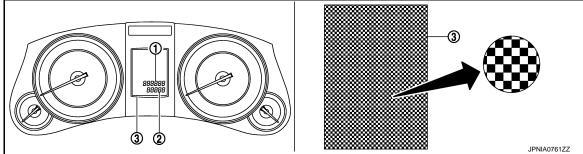
### NOTE:

If the diagnosis function is activated with "trip A" displayed, the mileage on "trip A" is reset to "0000.0". (The same way for "trip B".)

- 2. Turn ignition switch OFF.
- 3. While pressing the trip A/B reset switch (1), turn ignition switch ON again.
- 4. Make sure that the trip meter displays "0000.0".
- Press the trip A/B reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)



- 6. The unified meter control unit is turned to self-diagnosis mode.
  - Displays "888888" (1) and "8888.8" (2) in the information display LCD (3) for approximately 5 seconds and then blinks the segment dots of the information display LCD alternately.



Water temperature gauge and fuel gauge return to zero, and at the same time.

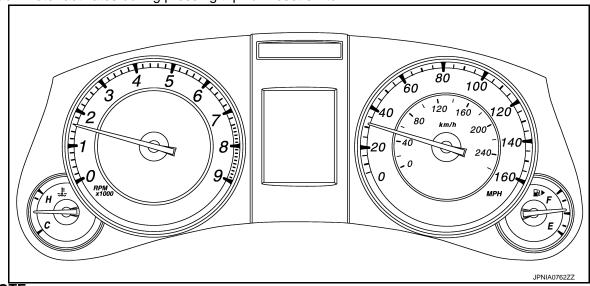
### NOTE:

- Check combination meter power supply and ground circuit when self-diagnosis mode of combination meter does not start. Replace combination meter if normal.
- If any of the segments is not displayed, replace combination meter.

## **DIAGNOSIS SYSTEM (METER)**

## < SYSTEM DESCRIPTION >

7. Each meter activates during pressing trip A/B reset switch.



## NOTE:

- If any of the meter and gages is not activated, replace combination meter.
- The figure is reference.

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## < SYSTEM DESCRIPTION >

# DIAGNOSIS SYSTEM (UNIFIED METER AND A/C AMP.)

## CONSULT Function (METER/M&A)

INFOID:0000000007455655

### **CONSULT APPLICATION ITEMS**

CONSULT can perform the following diagnosis modes with CAN communication with the unified meter and A/C amp.

System	Diagnosis mode	Description
	Self Diagnostic Result	Unified meter and A/C amp. checks the conditions and displays memorized error.
METER/M&A	Data Monitor Displays unified meter and A/C amp. input/output data in real time.	
	Ecu Identification	The unified meter and A/C amp. part number is displayed.

### SELF DIAG RESULT

Refer to MWI-107, "DTC Index".

### **DATA MONITOR**

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [km/h] or [mph]	х	Value of vehicle speed signal received from ABS actuator and electric unit (control unit) with CAN communication line.  NOTE: 655.35 is displayed when the malfunction signal is received.
SPEED OUTPUT [km/h] or [mph]	х	Vehicle speed signal value transmitted to other units with CAN communication line.  NOTE: 655.35 is displayed when the malfunction signal is received.
ODO OUTPUT [km/h] or [mph]		Odometer signal value transmitted to other units with CAN communication line.
TACHO METER [rpm]	х	Value of the engine speed signal received from ECM with CAN communication line.  NOTE: 8191.875 is displayed when the malfunction signal is received.
FUEL METER [L]	Х	Fuel level indicated on combination meter.
W TEMP METER [°C] or [°F]	X	Value of engine coolant temperature signal received from ECM with CAN communication line.  NOTE: 215 is displayed when the malfunction signal is input.
FUEL CAP W/L [On/Off]		Status of fuel filler cap warning display detected from fuel filler cap warning display signal received from ECM via CAN communication.
ABS W/L [On/Off]		Status of ABS warning lamp judged from ABS warning lamp signal received from ABS actuator and electric unit (control unit) with CAN communication line.
VDC/TCS IND [On/Off]		Status of VDC OFF indicator lamp judged from VDC OFF indicator lamp signal received from ABS actuator and electric unit (control unit) with CAN communication line.
SLIP IND [On/Off]		Status of VDC warning lamp judged from VDC warning lamp signal received from ABS actuator and electric unit (control unit) with CAN communication line.
BRAKE W/L [On/Off]		Status of brake warning lamp judged from brake warning lamp signal received from ABS actuator and electric unit (control unit) with CAN communication line.  NOTE:  Displays "Off" if the brake warning lamp is illuminated when the valve check starts, the parking brake switch is turned ON or the brake fluid level switch is turned ON
DOOR W/L [On/Off]		Status of door warning judged from door switch signal received from BCM with CAN communication line.

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## < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	I lection	
HI-BEAM IND [On/Off]		Status of high beam indicator lamp judged from high beam request signal received from BCM with CAN communication line.	
TURN IND [On/Off]		Status of turn indicator lamp judged from turn indicator signal received from BCM with CAN communication line.	
FR FOG IND [Off]		Status of front fog light indicator lamp detected from front fog light request signal is received from BCM via CAN communication.	
RR FOG IND [Off]		This item is displayed, but cannot be monitored.	
LIGHT IND [On/Off]		Status of tail lamp indicator lamp judged from position light request signal received from BCM with CAN communication line.	
OIL W/L [On/Off]		Status of oil pressure warning lamp judged from oil pressure switch signal received from IPDM E/R with CAN communication line.	
MIL [On/Off]		Status of malfunction indicator lamp judged from malfunctioning indicator lamp signal received from ECM with CAN communication line.	
GLOW IND [Off]		This item is displayed, but cannot be monitored.	
C-ENG2 W/L [Off]		This item is displayed, but cannot be monitored.	
CRUISE IND [On/Off]		Status of CRUISE indicator judged from ASCD status signal received from ECM with CAN communication line.	
SET IND [On/Off]		<ul> <li>Status of SET indicator judged from ASCD status signal received from ECM with CAN communication line.</li> <li>Status of SET indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.</li> </ul>	
CRUISE W/L [On/Off]		Status of CRUISE warning lamp judged from ICC warning lamp signal received from ICC sensor integrated unit with CAN communication line.	
BA W/L [Off]		Status of IBA OFF indicator lamp judged from IBA OFF indicator lamp signal received ICC sensor integrated unit with CAN communication line.	
ATC/T-AMT W/L [On/Off]		Status of A/T check warning lamp judged from A/T check indicator signal received from TCM with CAN communication line.	
4WD W/L [On/Off]		Status of AWD warning lamp judged from AWD warning lamp signal received from AWD control unit with CAN communication line.	
4WD LOCK IND [Off]		This item is displayed, but cannot be monitored.	
FUEL W/L [On/Off]		Low-fuel warning status judged by the identified fuel level.	
WASHER W/L [On/Off]		Status of washer warning judged from washer level switch input to combination meter.	
AIR PRES W/L [On/Off]		Status of low tire pressure warning lamp judged from TPMS malfunction warning lamp signal received from BCM with CAN communication line.	
KEY G/Y W/L [On/Off]		Status of key warning lamp (G/Y) judged from key warning signal received from BCM with CAN communication line.	
AFS OFF IND [On/Off]		Status of AFS OFF indicator lamp judged from AFS OFF indicator lamp signal received from AFS control unit with CAN communication line.	
4WAS/RAS W/L [Off]		This item is displayed, but cannot be monitored.	
DDS W/L [Off]		This item is displayed, but cannot be monitored.	
LANE W/L [On/Off]		Status of lane departure warning lamp judged from lane departure warning lamp signal received from lane camera unit with CAN communication line.	
LDP IND [On/Off]		Status of LDP ON indicator lamp judged from LDP ON indicator lamp signal received from lane camera unit with CAN communication line.	

## < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description	
DCA IND [On/Off]		Status of DCA switch indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
BSW W/L [On/Off]		Status of BSW warning lamp judged from BSW warning lamp signal received from BSW control module with CAN communication line.	
LCD [B&P N, B&P I, ID NG, ROTAT, SFT P, INSRT, BATT, NO KY, OUTKY, LK WN]		Displays status of Intelligent Key system warning judged from meter display signa received from BCM with CAN communication line.	
ACC TARGET [On/Off]		Status of vehicle ahead detection indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
ACC DISTANCE [Off, SHORT, MID, LONG]		Status of set distance indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
ACC OWN VHL [On/Off]		Status of own vehicle indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
ACC SET SPEED		Status of set vehicle speed indicator judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
ACC UNIT [On/Off]		Status of display unit judged from meter display signal received from ICC sensor integrated unit with CAN communication line.	
SHIFT IND [P, R, N, D, L, M1, M2, M3, M4, M5, M6, M7]		Status of shift position indicator judged from shift position signal and manual mode indicator signal received from TCM with CAN communication line.	
O/D OFF SW [Off]		This item is displayed, but cannot be monitored.	
AT S MODE SW [On/Off]		Status of snow mode switch.	
AT P MODE SW [Off]		This item is displayed, but cannot be monitored.	
M RANGE SW [On/Off]		Status of manual mode switch.	
NM RANGE SW [On/Off]		Status of non-manual mode switch.	
AT SFT UP SW [On/Off]		Status of manual mode shift up switch.	
AT SFT DWN SW [On/Off]		Status of manual mode shift down switch.	
ST SFT UP SW [Off]		This item is displayed, but cannot be monitored.	
ST SFT DWN SW [Off]		This item is displayed, but cannot be monitored.	
COMP F/B SIG [On/Off]		A/C compressor activation condition that ECM judges according to the water tem perature and the acceleration degree.	
4WD LOCK SW [Off]		This item is displayed, but cannot be monitored.	
PKB SW [On/Off]		Status of parking brake switch.	
BUCKLE SW [On/Off]		Status of seat belt buckle switch (driver side).	
BRAKE OIL SW [On/Off]		Status of brake fluid level switch.	
DISTANCE [km]		Value of possible driving distance calculated by unified meter and A/C amp.	

## < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description	
OUTSIDE TEMP [°C] or [°F]		Ambient air temperature value converted from ambient sensor signal received from ambient sensor.  NOTE:  This may not match with the temperature value indicated on the information display. (Because the information display value is a corrected value from the ambient sensor input value.)	
FUEL LOW SIG [On/Off]		Status of fuel level low warning signal to output to AV control unit with CAN communication line.	
BUZZER [On/Off]	Х	Buzzer status (in the combination meter) is judged with the buzzer output signal received from each unit with CAN communication line and the warning output condition of the combination meter.	

## NOTE:

Some items are not available according to vehicle specification.

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## **U1000 CAN COMM CIRCUIT**

# DTC/CIRCUIT DIAGNOSIS

## U1000 CAN COMM CIRCUIT

Description INFOID:000000007455656

CAN (Controller Area Network) is a serial communication line for real time application. It is an on-vehicle multiplex communication line with high data communication speed and excellent error detection ability. Many electronic control units are equipped onto a vehicle, and each control unit shares information and links with other control units during operation (not independent). In CAN communication, control units are connected with two communication lines (CAN-H line, CAN-L line) allowing a high rate of information transmission with less wiring. Each control unit transmits/receives data but selectively reads required data only.

CAN Communication Signal Chart. Refer to LAN-15, "How to Use CAN Communication Signal Chart".

DTC Logic

### DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when	Probable malfunction location
U1000	CAN COMM CIRCUIT	When unified meter and A/C amp. is not transmitting or receiving CAN communication signal for 2 seconds or more.	CAN communication system

## Diagnosis Procedure

INFOID:0000000007455658

## 1.PERFORM SELF DIAGNOSTIC

- 1. Turn ignition switch ON and wait for 2 seconds or more.
- Check "Self Diagnostic Result" of "METER/M&A".

### Is "CAN COMM CIRCUIT" displayed?

YES >> Refer to LAN-16, "Trouble Diagnosis Flow Chart".

NO >> Refer to GI-42, "Intermittent Incident".

## **U1010 CONTROL UNIT (CAN)**

## < DTC/CIRCUIT DIAGNOSIS >

# U1010 CONTROL UNIT (CAN)

Description INFOID:000000007455659

Initial diagnosis of unified meter and A/C amp.

DTC Logic

## DTC DETECTION LOGIC

DTC	Display contents of CON- SULT	Diagnostic item is detected when	Probable malfunction location
U1010	CONTROL UNIT (CAN)	If any malfunction is detected during initial diagnosis of unified meter and A/C amp. CAN controller	Unified meter and A/C amp.

# Diagnosis Procedure

INFOID:0000000007455661

1. REPLACE UNIFIED METER AND A/C AMP.

When DTC "U1010" is detected, replace unified meter and A/C amp.

>> INSPECTION END

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## **B2201 COMMUNICATION ERROR 1**

### < DTC/CIRCUIT DIAGNOSIS >

## **B2201 COMMUNICATION ERROR 1**

Description INFOID:000000007455662

The communication line (LCD <-> AMP.) is used to communicate signals between the combination meter and the unified meter and A/C amp. in order to control the information display.

DTC Logic

### DTC DETECTION LOGIC

DTC	Display contents of CONSULT Diagnostic item is detected when		Probable malfunction location
B2201	COMM ERROR 1	If a communication error is present in the communication line (LCD <-> AMP.) for 2 seconds or more	Communication line (LCD <-> AMP.) circuit

## Diagnosis Procedure

INFOID:0000000007455664

## 1. CHECK CONNECTOR

Check combination meter, unified meter and A/C amp. and terminals (combination meter side, unified meter and A/C amp. side, and harness side) for looseness or bent.

## Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair terminal or connector.

# 2.check continuity communication circuit

- 1. Turn ignition switch OFF.
- Disconnect combination meter connector and unified meter and A/C amp. connector.
- Check continuity between combination meter harness connector and unified meter and A/C amp. harness connector.

Combination meter		Unified meter and A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	24	M66	14	Existed
IVIOS	25	IVIOO	34	LAISIEU

4. Check continuity between combination meter harness connector and ground.

Combination meter			Continuity
Connector	Connector Terminal		Continuity
M53	24	Ground	Not existed
IVIOS	25		ivot existed

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.CHECK UNIFIED METER AND A/C AMP. OUTPUT VOLTAGE

- Connect unified meter and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between unified meter and A/C amp. harness connector and ground.

## **B2201 COMMUNICATION ERROR 1**

### < DTC/CIRCUIT DIAGNOSIS >

(	(+)			
Unified meter	and A/C amp.	(-)	Voltage (Approx.)	
Connector	Connector Terminal			
M66	M66 14		12 V	

### Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace unified meter and A/C amp.

# 4. CHECK COMBINATION METER OUTPUT VOLTAGE

- 1. Turn ignition switch OFF.
- 2. Disconnect unified meter and A/C amp. connector.
- 3. Connect combination meter connector.
- 4. Turn ignition switch ON.
- 5. Check voltage between combination meter harness connector and ground.

(	Voltage (Approx.)		
Combina	tion meter	(-)	(Approx.)
Connector	Connector Terminal		
M53	M53 25		5 V

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter.

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## **B2202 COMMUNICATION ERROR 2**

### < DTC/CIRCUIT DIAGNOSIS >

## **B2202 COMMUNICATION ERROR 2**

Description INFOID.000000007455665

The communication line (METER <-> AMP.) is used to communicate signals between the combination meter and the unified meter and A/C amp. in order to control the combination meter.

DTC Logic

### DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when	Probable malfunction location
B2202	COMM ERROR 2	If a communication error is present in the communication line (METER <-> AMP.) for 2 seconds or more	Communication line (METER <-> AMP.) circuit

## Diagnosis Procedure

INFOID:0000000007455667

## 1. CHECK CONNECTOR

Check combination meter, unified meter and A/C amp. and terminals (combination meter side, unified meter and A/C amp. side, and harness side) for looseness or bent.

## Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair terminal or connector.

# 2. CHECK CONTINUITY COMMUNICATION CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect combination meter connector and unified meter and A/C amp. connector.
- Check continuity between combination meter harness connector and unified meter and A/C amp. harness connector.

Combination meter		Unified meter and A/C amp.		Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	2	M66	27	Existed
IVIOS	3	IVIOO	7	LXISIGU

4. Check continuity between combination meter harness connector and ground.

Combina	tion meter		Continuity
Connector	Connector Terminal		Continuity
M53	2	- Ground	Not existed
IVIO3	3		

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

# 3.CHECK UNIFIED METER AND A/C AMP. OUTPUT VOLTAGE

- 1. Connect unified meter and A/C amp. connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between unified meter and A/C amp. harness connector and ground.

## **B2202 COMMUNICATION ERROR 2**

### < DTC/CIRCUIT DIAGNOSIS >

(	+)	(-)	Voltage (Approx.)
Unified meter	and A/C amp.	(-)	
Connector Terminal		Ground	
M66	27	Giodila	5 V

### Is the inspection result normal?

YES >> GO TO 4.

NO >> Replace unified meter and A/C amp.

# 4. CHECK COMBINATION METER OUTPUT VOLTAGE

- 1. Turn ignition switch OFF.
- 2. Disconnect unified meter and A/C amp. connector.
- 3. Connect combination meter connector.
- 4. Turn ignition switch ON.
- 5. Check voltage between combination meter harness connector and ground.

	Terminals				
(	+)	(-)	Voltage (Approx.)		
Combina	tion meter	(-)			
Connector	Terminal	Ground			
M53	3	Giouna	5 V		

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter.

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## **B2205 VEHICLE SPEED**

### < DTC/CIRCUIT DIAGNOSIS >

## **B2205 VEHICLE SPEED**

Description INFOID:0000000007455668

Vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) via CAN communication to unified meter and A/C amp.

DTC Logic

### DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when	Probable malfunction location
B2205	VEHICLE SPEED	If the abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more	Wheel sensor     ABS actuator and electric unit (control unit)

## Diagnosis Procedure

INFOID:0000000007455670

 $1.\mathsf{perform}$  self-diagnosis of abs actuator and electric unit (control unit)

Perform "Self Diagnostic Result" of ABS actuator and electric unit (control unit), and repair or replace malfunctioning parts.

>> Refer to BRC-31, "CONSULT Function".

## **B2267 ENGINE SPEED**

## < DTC/CIRCUIT DIAGNOSIS >

## **B2267 ENGINE SPEED**

Description INFOID:0000000007455671

The engine speed signal is transmitted from ECM to the unified meter and A/C amp. with CAN communication.

DTC Logic

## DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when	Probable malfunction location
B2267	ENGINE SPEED	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more	<ul><li>Crankshaft position sensor (POS)</li><li>ECM</li></ul>

## Diagnosis Procedure

INFOID:0000000007455673

1.PERFORM SELF-DIAGNOSIS OF ECM

Perform "Self Diagnostic Result" of ECM, and repair or replace malfunctioning parts.

>> Refer to EC-136, "CONSULT Function".

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## **B2268 WATER TEMP**

## < DTC/CIRCUIT DIAGNOSIS >

## **B2268 WATER TEMP**

Description INFOID:000000007455674

The engine coolant temperature signal is transmitted from ECM to the unified meter and A/C amp. via CAN communication.

DTC Logic

## DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when	Probable malfunction location
B2268	WATER TEMP	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more	Engine coolant temperature sensor     ECM

# Diagnosis Procedure

INFOID:0000000007455676

# 1. PERFORM SELF-DIAGNOSIS OF ECM

Perform "Self Diagnosis Result" of ECM, and repair or replace malfunctioning parts.

>> Refer to EC-136, "CONSULT Function".

## POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

# POWER SUPPLY AND GROUND CIRCUIT **COMBINATION METER**

# **COMBINATION METER: Diagnosis Procedure**

INFOID:0000000007455677

## 1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	11
Ignition switch ON or START	4

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### Is the inspection result normal?

YES >> GO TO 2.

>> Be sure to eliminate cause of malfunction before installing new fuse. NO

## 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector and ground.

	T		_		
(+)			(-)	Ignition switch position	Value (Approx.)
Combination meter	Terminal	Signal name	(-)		
M53	1	Battery power supply	Ground	OFF	Battery voltage
	21	Ignition signal	Glound	ON	Battery voltage

### Is the inspection result normal?

YES >> GO TO 3.

>> Check harness between combination meter and fuse. NO

# 3.CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect combination meter connector.
- Check continuity between combination meter harness connector and ground.

Combination meter		Continuity
Connector Terminal		Continuity
5	Ground	
M53 15		Existed
22		

### Is the inspection result normal?

>> INSPECTION END YES

>> Repair harness or connector.

### UNIFIED METER AND A/C AMP.

# UNIFIED METER AND A/C AMP. : Diagnosis Procedure

INFOID:0000000007455678

# 1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	11
Ignition switch ACC or ON	19
Ignition switch ON or START	3

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### POWER SUPPLY AND GROUND CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

### Is the inspection result normal?

YES >> GO TO 2.

NO >> Be sure to eliminate cause of malfunction before installing new fuse.

# 2.CHECK POWER SUPPLY CIRCUIT

Check voltage between unified meter and A/C amp. harness connector and ground.

Terminals						
	(+)		()	Ignition switch position	Value (Approx.)	
Unified meter and A/C amp.	Terminal	Signal name	(-)			
	54 Battery power supply			OFF		
M67	41	ACC power supply	Ground	ACC	Battery voltage	
	53	Ignition signal		ON		

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between unified meter and A/C amp. and fuse.

## 3. CHECK GROUND CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect unified meter and A/C amp. connector.
- 3. Check continuity between unified meter and A/C amp. harness connector and ground.

Unified meter and A/C amp.			Continuity
Connector	Terminal	Ground	Continuity
M67	55	Ground	Existed
IVIO7	71		LAISIEU

## Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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

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

# 1. CHECK FUSES AND FUSIBLE LINK

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

Signal name	Fuses and fusible link No.
	С
Battery power supply	50
	51

### 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

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

## **POWER SUPPLY AND GROUND CIRCUIT**

## < DTC/CIRCUIT DIAGNOSIS >

(+)		(-)	Voltage (Approx.)
IPDI	IPDM E/R		
Connector	Terminal	Ground	
E4	1	Giodila	Battery voltage

Is the measurement value normal?

YES >> GO TO 3.

NO >> Repair the harness or connector.

3. CHECK GROUND CIRCUIT

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

IPDM E/R			Continuity
Connector	Terminal	Ground	Continuity
E5	12	Ground	Existed
E6	41		Existed

Does continuity exist?

YES >> INSPECTION END

NO >> Repair the harness or connector.

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### **FUEL LEVEL SENSOR SIGNAL CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

## FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description INFOID.000000007455680

The fuel level sensor unit and fuel pump (main) and the fuel level sensor unit (sub) detect the fuel level in the fuel tank and transmit the fuel gauge signal to the unified meter and A/C amp.

## Component Function Check

INFOID:0000000007455681

## 1. PERFORM SELF-DIAGNOSIS OF UNIFIED METER AND A/C AMP.

Perform "Self Diagnosis" of unified meter and A/C amp. with CONSULT.

### Is any DTC detected?

YES >> Perform diagnosis on the detected DTC and repair or replace the malfunctioning parts. Refer to MWI-107, "DTC Index".

NO >> GO TO 2.

# 2.PERFORM COMPONENT FUNCTION CHECK (1)

- 1. Turn ignition switch OFF.
- Disconnect fuel level sensor unit and fuel pump (main) connector and fuel level sensor unit (sub) connector.
- 3. Connect variable resistor between harness connector terminals located on the vehicle side of the fuel level sensor unit and fuel pump (main) and fuel level sensor unit (sub).

Fuel level sensor un	Fuel level sensor unit and fuel pump (main)		nsor unit (sub)
Connector	Terminals	Connector	Terminals
B22	5	B21	1

Set variable resistor according to the resistance value shown in the following table and turn ignition switch ON.

Resistance $(\Omega)^*$ (Approx.)	Fuel gauge indication position (Approx.)
Less than 6.0	Full
25.5	3/4
45.5	2/4
66.0	1/4
More than 80.0	Empty

<sup>\*:</sup> Reference resistance values used when the combination meter judges the indication position of the fuel gauge.

### Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

# 3. PERFORM COMPONENT FUNCTION CHECK (2)

Check the fuel level sensor unit and fuel pump (main) and/or fuel level sensor unit (sub). Refer to MWI-60. "Component Inspection".

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace fuel level sensor unit and fuel pump (main) and/or fuel level sensor unit (sub). Refer to FL-6, "Removal and Installation".

## f 4.CHECK DATA MONITOR OF UNIFIED METER AND A/C AMP.

Select "FUEL METER" that is the data monitor item of "METER/M&A". Apply resistance according to the table below and check the monitor value.

## **FUEL LEVEL SENSOR SIGNAL CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

Resistance (Ω) (Approx.)	Reference value of data monitor [L]
Less than 6.0	Approx. 72
25.5	Approx. 60
45.5	Approx. 42
66.0	Approx. 23
More than 80.0	Approx. 11

### Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-134, "Removal and Installation".

NO >> Refer to MWI-59, "Diagnosis Procedure".

## Diagnosis Procedure

# 1. CHECK FUEL LEVEL SENSOR (SUB) CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect unified meter and A/C amp. connector and fuel level sensor unit (sub) connector.
- Check continuity between unified meter and A/C amp. harness connector and fuel level sensor unit (sub) harness connector.

Unified met	ter A/C amp.	Fuel level sensor unit (sub)		Continuity
Connector	Terminal	Connector	terminal	Continuity
M67	42	B21	1	Existed

4. Check continuity between unified meter and A/C amp. harness connector and ground.

Unified met	Unified meter A/C amp.		Continuity
Connector	Terminal	Ground	Continuity
M67	42		Not existed

### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

# 2.CHECK FUEL LEVEL SENSOR (MAIN-SUB) CIRCUIT

- 1. Disconnect fuel level sensor unit and fuel pump (main) connector.
- 2. Check continuity between fuel level sensor unit (sub) harness connector and fuel level sensor unit and fuel pump (main) harness connector.

Fuel level ser	Fuel level sensor unit (sub)		Fuel level sensor unit and fuel pump (main)	
Connector	Terminal	Connector	terminal	Continuity
B21	2	B22	2	Existed

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

Fuel level ser	nsor unit (sub)		Continuity
Connector	Terminal	Ground	Continuity
B21	2		Not existed

### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3. CHECK FUEL LEVEL SENSOR (MAIN) CIRCUIT

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### **FUEL LEVEL SENSOR SIGNAL CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

Check continuity between fuel level sensor unit and fuel pump (main) harness connector and unified meter and A/C amp. harness connector.

Fuel level sensor unit	and fuel pump (main)	Unified meter A/C amp.		Continuity
Connector	Terminal	Connector	terminal	Continuity
B22	5	M67	58	Existed

### Is the inspection result normal?

YES >> Replace unified meter and A/C amp. Refer to MWI-135, "Removal and Installation".

NO >> Repair harness or connector.

## Component Inspection

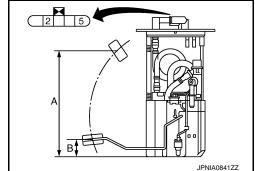
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# 1. CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP (MAIN)

- 1. Remove the fuel level sensor unit and fuel pump (main). Refer to FL-6, "Removal and Installation".
- 2. Check the resistance between fuel level sensor unit and fuel pump (main).

Fuel level sensor unit and fuel pump (main)  Terminal		Condition*	Resistance (Approx.)
2	5	Full (A)	2.5 Ω
	3	Empty (B)	81.5 Ω

<sup>\*:</sup> When float rod is contact with stopper.



### Standard float position

Float position [mm (in)]*					
Full (A) Approx. 192 (7.56)					
Empty (B) Approx. 32 (1.26)					

<sup>\*:</sup> When float rod is contact with stopper.

### Is the inspection result normal?

YES >> GO TO 2.

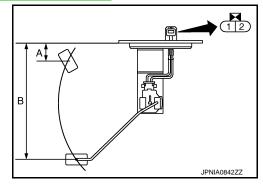
NO >> Replace fuel level sensor unit and fuel pump (main). Refer to FL-6, "Removal and Installation".

# 2.CHECK FUEL LEVEL SENSOR UNIT (SUB)

- Remove the fuel level sensor unit (sub). Refer to <u>FL-6, "Removal and Installation"</u>.
- 2. Inspect the resistance of fuel level sensor unit (sub).

	nsor unit (sub)	Condition*	Resistance (Approx.)
Terminal			(Арргох.)
1	2	Full (A)	2.5 Ω
		Empty (B)	42.5 Ω

<sup>\*:</sup> When float rod is contact with stopper.



### Standard float position

Float position [mm (in)]*					
Full (A) Approx. 35 (1.38)					
Empty (B) Approx. 203 (7.99)					

<sup>\*:</sup> When float rod is contact with stopper.

### Is the inspection result normal?

# <u><</u>

- DTC	FUEL LEVEL SENSOR SIGNAL CIRCUIT	
YES	/CIRCUIT DIAGNOSIS >  >> INSPECTION END  >> Parlace fuel level concernation (sub). Refer to El. 6. "Removel and Installation"	_
NO	>> Replace fuel level sensor unit (sub). Refer to FL-6, "Removal and Installation".	Α
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## METER CONTROL SWITCH SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## METER CONTROL SWITCH SIGNAL CIRCUIT

Description INFOID:000000007455684

Transmits the following signals to the combination meter.

- $\mathcal{C}^{5}$  (Illumination control) switch signal (+)  $\mathcal{C}^{5}$  (Illumination control) switch signal (–)
- **(select)** switch signal **(enter)** switch signal

## Diagnosis Procedure

INFOID:0000000007455685

# 1. CHECK METER CONTROL SWITCH INPUT SIGNAL

- 1. Turn ignition switch ON.
- 2. Measure voltage between the following terminals of the combination meter.

Combination meter		eter		V 16
Connector	Terminal		Condition	Voltage (Approx.)
Connector	(+)	(-)		()
	36	16	When (select) switch is pressed	0 V
	00		Other than the above	5 V
M53	37	16	When 🗖 (enter) switch is pressed	0 V
			Other than the above	5 V
	39	39 16	When 😚 (illumination control) switch is pressed	0 V
			Other than the above	5 V
	40	40 16	When 😚 (illumination control) switch is pressed	0 V
			Other than the above	5 V

### Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

## 2.CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the combination meter and meter control switch connectors.
- Check continuity between combination meter harness connector and meter control switch harness connector.

Combina	tion meter	Meter control switch		Continuity
Connector	Connector Terminal		Terminal	Continuity
	16		2	
	36		6	
M53	37	M54	7	Existed
	39		3	
	40		1	

4. Check continuity between combination meter harness connector and ground.

## METER CONTROL SWITCH SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

Combina	tion meter		Continuity	
Connector	Connector Terminal		Continuity	
	16		Not existed	
	36	Ground		
M53	37			
	39			
	40			

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

## Component Inspection

# 1. CHECK METER CONTROL SWITCH UNIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the meter control switch connector.
- 3. Check continuity between the following terminals of the meter control switch.

Combination meter		er	Operation and status	Continuity	
Connector	Terr	minal	Operation and status	Continuity	
	6	2	Press (select) switch	Existed	
		_	Other than the above	Not existed	
	7	2	Press (enter) switch	Existed	
M54		_	Other than the above	Not existed	
IVI34	3	2	Press 📆 (illumination control) switch	Existed	
			Other than the above	Not existed	
	1	2	Press 💏 (illumination control) switch	Existed	
			Other than the above	Not existed	

### Is inspection result normal?

YES >> INSPECTION END

NO >> Replace meter control switch.

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## TRIP A/B RESET SWITCH SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## TRIP A/B RESET SWITCH SIGNAL CIRCUIT

Description INFOID:000000007455687

Transmits the trip A/B reset switch signals to the combination meter.

## Diagnosis Procedure

INFOID:0000000007455688

# 1. CHECK TRIP A/B RESET SWITCH INPUT SIGNAL

- 1. Turn ignition switch ON.
- 2. Measure voltage between the combination meter harness connector terminals.

Combination meter		neter		Mallana	
Connec-	<sub>C</sub> - Terminal		Condition	Voltage (Approx.)	
tor	(+)	(-)		(11 - )	
M53	20	16	When trip A/B reset switch is pressed	0 V	
IVIJJ	38 16		Other than the above	5 V	

### Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

# 2.CHECK TRIP A/B RESET SWITCH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- Disconnect the combination meter and meter control switch connectors.
- Check continuity between combination meter harness connector and trip A/B reset switch harness connector.

Combina	tion meter	Trip A/B reset switch		Continuity
Connector	Terminal	Connector Terminal		
M53	38	M56	1	Existed
IVIOO	16	IVISO	2	LXISIGU

4. Check continuity between combination meter harness connector and ground.

Combina	Combination meter		Continuity
Connector	Terminal	Ground	Continuity
M53	38		Not existed
IVIOS	16		Not existed

## Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

# Component Inspection

INFOID:0000000007455689

# 1. CHECK TRIP A/B RESET SWITCH UNIT

- 1. Turn ignition switch OFF.
- 2. Disconnect the trip A/B reset switch connector.
- 3. Check continuity between the trip A/B reset switch connector terminals.

## TRIP A/B RESET SWITCH SIGNAL CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

Trip A/B reset switch Terminal		Operation and status	Continuity	
1	2	Press trip A/B reset switch	Existed	
	2	Other than the above	Not existed	

## Is inspection result normal?

YES >> INSPECTION END

NO >> Replace trip A/B reset switch.

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## **OIL PRESSURE SWITCH SIGNAL CIRCUIT**

### < DTC/CIRCUIT DIAGNOSIS >

## OIL PRESSURE SWITCH SIGNAL CIRCUIT

Description INFOID:000000007455690

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

## Component Function Check

INFOID:0000000007455691

# $1.\mathsf{CHECK}$ UNIFIED METER AND A/C AMP. INPUT SIGNAL

Select the "Data Monitor" for the "METER/M&A" and check the "OIL W/L" monitor value.

"OIL W/L"

Ignition switch ON : On Engine running : Off

>> INSPECTION END

## Diagnosis Procedure

INFOID:0000000007455692

# 1. CHECK OIL PRESSURE SWITCH CIRCUIT

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

IPDM E/R		Oil pressure switch		Continuity
Connector	Terminal	Connector	Terminal	Continuity
E7	75	F37	1	Existed

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

IPDM E/R			Continuity
Connector	Connector Terminal		Continuity
E7	75		Not existed

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

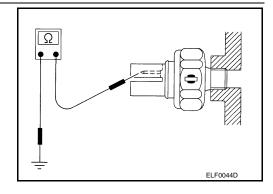
# Component Inspection

INFOID:0000000007455693

# 1. CHECK OIL PRESSURE SWITCH UNIT

Check continuity between oil pressure switch and ground.

Condition	Continuity
Engine stopped	Existed
Engine running	Not existed



## Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace oil pressure switch.

### PARKING BRAKE SWITCH SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## PARKING BRAKE SWITCH SIGNAL CIRCUIT

Description INFOID:0000000007455694

Transmits the parking brake switch signal to the combination meter.

## Diagnosis Procedure

### INFOID:0000000007455695

# 1. CHECK COMBINATION METER INPUT SIGNAL

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- Turn ignition switch ON.
- Check the voltage and waveform between combination meter harness connector and ground.

Terminals					
(+	(+) (-)		Condition	Voltage and wayoform	
Combination meter			Condition	Voltage and waveform	
Connector	Terminal				
			Parking brake applied	Approx. 0 V	
M53	27	Ground	Parking brake released	(V) 8 4 0 10 ms JSNIA0007GB	

### Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

# 2.check parking brake switch signal circuit

- Turn ignition switch OFF.
- 2. Disconnect combination meter connector and parking brake switch connector.
- Check continuity between combination meter harness connector and parking brake switch harness connector.

Combina	Combination meter		rake switch	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	27	E107	1	Existed

Check continuity between combination meter harness connector and ground.

Combination meter			Continuity
Connector Terminal		Ground	Continuity
M53	27		Not existed

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

## Component Inspection

INFOID:0000000007455696

# 1. CHECK PARKING BRAKE SWITCH

Check parking brake switch. Refer to BRC-90, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END

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## PARKING BRAKE SWITCH SIGNAL CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

NO >> Replace parking brake switch.

## WASHER LEVEL SWITCH SIGNAL CIRCUIT

### < DTC/CIRCUIT DIAGNOSIS >

## WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description INFOID:0000000007455697

Transmits the washer level switch signal to the combination meter.

## Diagnosis Procedure

### INFOID:0000000007455698

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# 1. CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Disconnect combination meter connector and washer level switch connector.
- Check continuity between combination meter harness connector and washer level switch harness connector.

Combination meter		Washer le	evel switch	Continuity
Connector	Terminal	Connector	Terminal	Continuity
M53	31	E32	1	Existed

4. Check continuity between combination meter harness connector and ground.

Combination meter			Continuity
Connector Terminal		Ground	Continuity
M53	31		Not existed

5. Check continuity between washer level switch harness connector and ground.

Washer level switch			Continuity
Connector Terminal		Ground	Continuity
E32	2		Existed

### Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

## Component Inspection

## INFOID:0000000007455699

# 1. CHECK WASHER LEVEL SWITCH

- 1. Turn ignition switch OFF.
- 2. Disconnect washer level switch connector.
- 3. Check washer level switch.

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Terminal		Condition	Continuity
1	2	Washer fluid level is low (washer level switch ON)	Existed
		Washer fluid level is normal (washer level switch OFF)	Not existed

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### Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace washer level switch. Refer to <a href="https://www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/www.nc.nc/ww.nc/ww.nc

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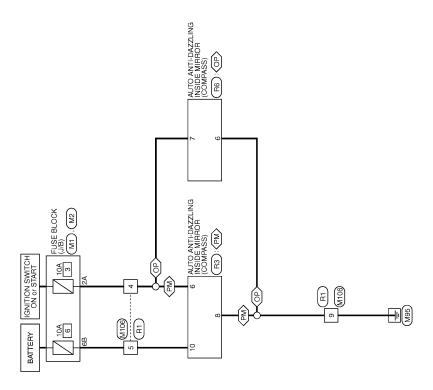
Revision: 2014 October MWI-69 2012 EX

# COMPASS

Wiring Diagram - COMPASS -

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COMPASS

Connector No. R6 Connector Name Auto Anti-BAZING INSDE WIRSOR Connector Type 1A40778  T 6 1	No.   Signal Name [Specification]   No.   Wife   No.   Wife   No.   No
Terminal   Color Of   Signal Name   Specification   No.   Wire   Signal Name   Specification	11   12   12   13   14   14   15   15   15   15   15   15
Connector No.  M106  Connector Name WHE TO WHE  Connector Type WH 10MW CS10  1 2 3 4 5 6  7 8 9 10 11 12 13 19 20	Connector No.   Connector No.
COMPASS  Connector Name PUSE BLOCK (J/B)  Connector Type RSSGHW N/2  RSSGHW A/2  RSSGHW A/	Terrinol   Coulo Of   Nove   Signal Name   Specification

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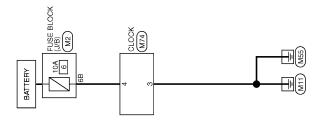
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# **CLOCK**

Wiring Diagram - CLOCK -





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Connector Name (1/18)

Connector Type (1/18)

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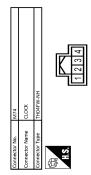
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Sinnal Name [Specification]	orginal value (openication)	ILLUMINATION (-)	ILLUMINATION (+)	GROUND	BAT	
Terminal Color Of	Wire	8	æ	8	λ	
Terminal	No.	1	2	3	4	

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< ECU DIAGNOSIS INFORMATION >

# **ECU DIAGNOSIS INFORMATION**

# **COMBINATION METER**

Reference Value

VALUES ON THE DIAGNOSIS TOOL Refer to MWI-89, "Reference Value".

**TERMINAL LAYOUT** 

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

#### PHYSICAL VALUES

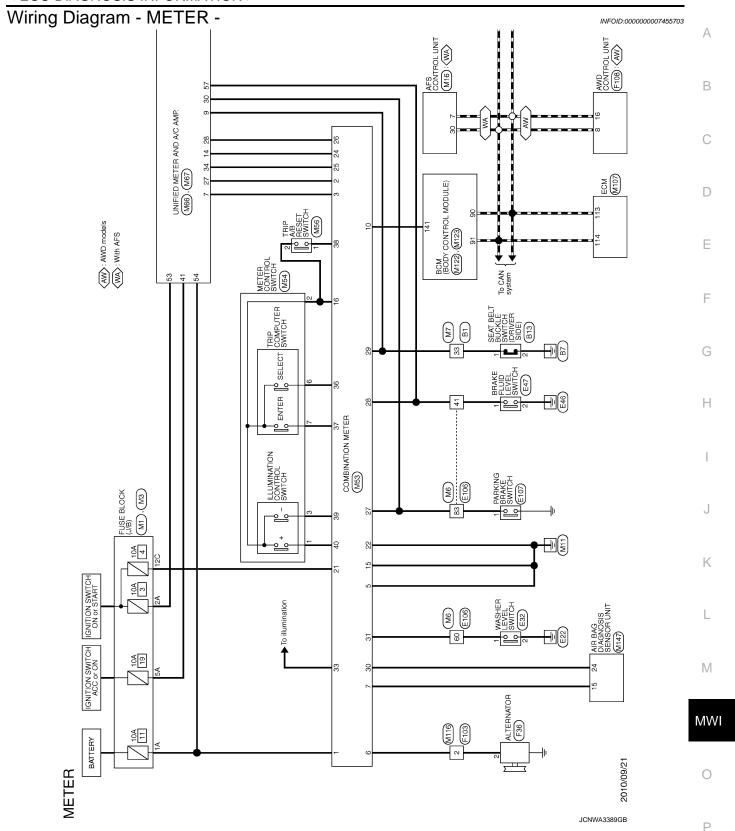
	nal No. color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
1 (GR)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage
2 (LG)	Ground	Communication signal (METER→ AMP.)	Output	Ignition switch ON	_	(V) 6 4 2 0 200 µs JSNIA0027GB
3 (GR)	Ground	Communication signal (AMP.→ METER)	Input	Ignition switch ON	_	(V) 6 4 2 0 200 µs JSNIA0027GB
5 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
6	Ground	Alternator signal	Input	Ignition switch	Charge warning lamp ON	0 V
(P)			'	ON	Charge warning lamp OFF	Battery voltage
7	Ground	Air bag signal	Input	Ignition switch	Air bag warning lamp ON	4 V
(BR)				ON	Air bag warning lamp OFF	0 V
10	Ground	Security signal	Input	Ignition switch	Security warning lamp ON	0 V
(G)	2.23.74			OFF	Security warning lamp OFF	12 V

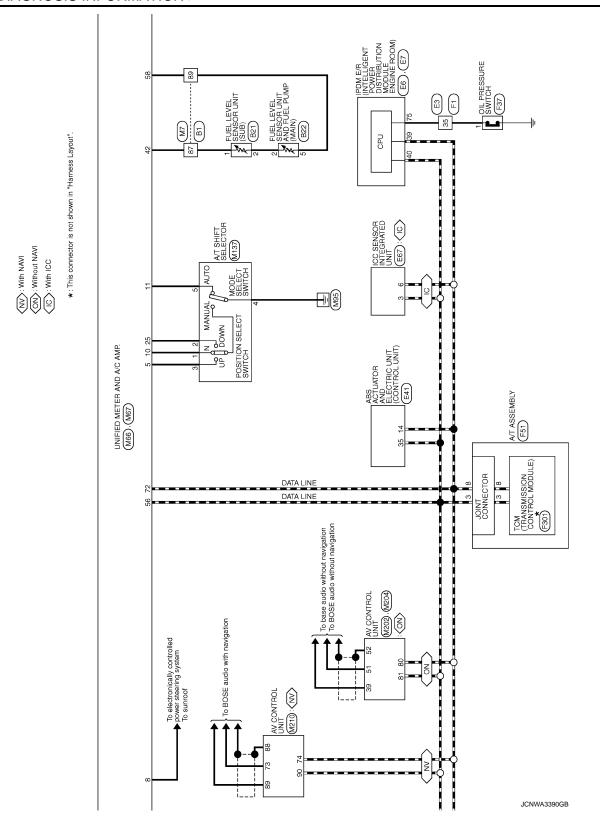
#### < ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
15 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
16 (B)	Ground	Meter control switch ground	_	Ignition switch ON	_	0 V
21 (BG)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage
22 (B)	Ground	Ground	_	Ignition switch ON	_	0 V
24 (BR)	Ground	Communication signal (LCD→ AMP.)	Output	Ignition switch ON	_	(V) 15 10 5 0  400 µs  JSNIA0028GB
25 (Y)	Ground	Communication signal (AMP.→ LCD)	Input	Ignition switch ON	_	(V) 6 4 2 0 200 µs JSNIA0027GB
26 (R)	Ground	Vehicle speed signal (8-pulse)	Input	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	NOTE: The maximum voltage varies depending on the specification (destination unit).
					Parking brake is applied	0 V
27 (V)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake is released	(V) 8 4 0 10 ms
28		Brake fluid level switch sig-		Ignition	Brake fluid level is normal.	5 V
(W)	Ground	nal	Input	switch ON	The brake fluid level is low- er than the low level	0 V

#### < ECU DIAGNOSIS INFORMATION >

	nal No. color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
29	Ground	Seat belt buckle switch sig-	Input	Ignition switch	When driver seat belt is fastened	12 V
(SB)	Ground	nal (driver side)	при	ON	When driver seat belt is un- fastened	0 V
30	Ground	Seat belt buckle switch sig-	Input	Ignition switch	When getting in the passenger seat     When passenger seat belt is fastened	12 V
(G)	Ciouna	nal (passenger side)	три	ON	When getting in the passenger seat     When passenger seat belt is unfastened	0 V
31	Cround	Macharlaval awitch signal	lanus	Ignition	Washer level switch ON	0 V
(L)	Ground	Washer level switch signal	Input	switch ON	Washer level switch OFF	5 V
33 (B)	Ground	Illumination control signal	Output	Ignition switch ON	Lighting switch ON, then operate the illumination control switch.	When brightness level is midway  (V)  10  0  2 ms  JSNIA0010GB
36	16	Select switch signal	Input	Ignition switch	When is pressed	0 V
(LG)	(B)	3	,	ON	Other than the above	5 V
37 (SB)	16 (B)	Enter switch signal	Input	Ignition switch	When  is pressed	0 V
(36)	(6)			ON	Other than the above	5 V
38 (L)	16 (B)	Trip A/B reset switch signal	Input	Ignition switch	When trip A/B reset switch is pressed	0 V
(L)	(6)			ON	Other than the above	5 V
39 (P)	16 (B)	Illumination control switch signal (–)	Input	Ignition switch	When 📆 switch is pressed	0 V
	(-/	- 3 ( )		ON	Other than the above	5 V
40 (BG)	16 (B)	Illumination control switch signal (+)	Input	Ignition switch	When 👸 + switch is pressed	0 V
()	(-)	- 3 (- /		ON	Other than the above	5 V





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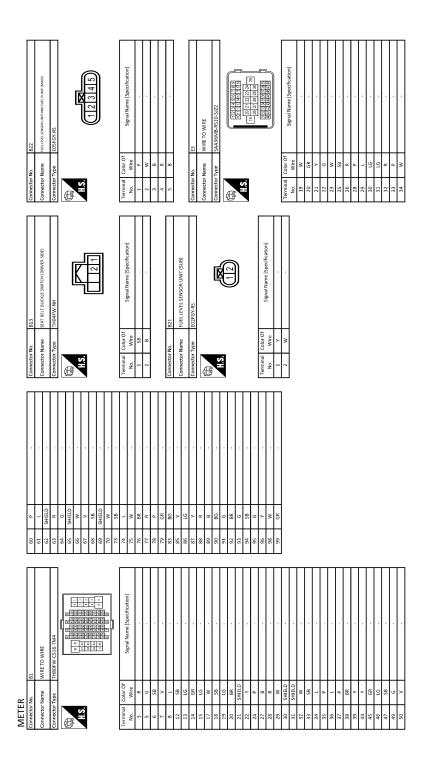
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Terminal Color Of Signal Name [Specification]	1 R IGNITION	=	3 L CAN-H	4 B GROUND	5 P ITS COMM-L	6 P CAN-L		Connection No.	Т	Connector Name AMBIENT SENSOR	Connector Type RS02FB	A E	HS.		Jal C	No. Wire	2 p		Connector No. E106	Connector Name WIRE TO WIRE	Connector Type TH80FW-CS16-TM4			Ferninal Color Of No. Wire Specification)	2 W -	4 GR .	$^{\rm H}$	9 BR
BG         DP RL         Ter           BR         DP RR         I			P CAN-L		19 dG 91	GR DS RL		DS RR	CON	CAN-H	B BUS-H Con		ne BRAKE FLUID LEVEL SWITCH	or Type   W02FGY	≪	<u>-</u>		•	Color Of Sional Name (Snartfication)				E67	Type RSOGFB-PR				
65 SB 66 7		╀	9 BR 14	0 86 - 25	14 P 26	75 S8		7 R - 29		35	Connector No. E32 45	WASHER LEVEL SWITCH	ector type 2021-BK	H.S. Connector Type	<u></u>		$\stackrel{\circ}{\vdash}$	Wire		No.	Connector No. E41 2	Connector Name ABS ACTUATOR AND ELECTRIC UNIT (CONTINOL UNIT)	Connector Type BAA42FB-AH24-LH Connector No.	(S. (1911)   1. (1	Color Of Signal Na Wire	1 B GROUND	» «	sa ≻
SS				98	74		76 E6	177 TOW E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)	TU08DA.NU	1		41 40 39	44 43	Signal Name [Specification]			Te Te	BR No.	R		E7	POM E/R (INTELLIGENT POWER DISTREBUTION MODULE ENGINE ROOM)	TH20FW-CS12-M4		Color Of Signal Name (Specification) Terminal Wire No.			W q
35	H	42	┞	H			Connector No.	Connector Name	Connector Tyme		修	ES.		Terminal Color Of	H	+	H	44	46		Connector No.	Connector Name	Connector Type	H.S.	le C	48	₩	54

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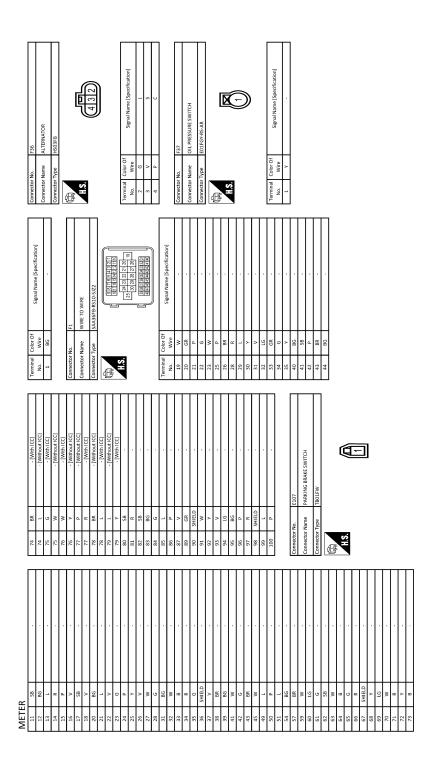
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Connector No. M3	9 0	H.S. 122 173 173 173 173 173 173 173 173 173 173	Terminal Color Of Signal Name (Specification) 10C 1.1 11C R	7C         8         .           9C         BG         .           Connector No.         M6           Connector Name         WRETO WREE	Connector Type  1180NAW CSIG-TWA  1180NAW CSIG-T	Terminal Color Of   Signal Name [Specification]   No.   Wife   Signal Name [Specification]     W	돐	10 R	+	14 R
Connector No. F301	e ue	HS. (1 2 3 4 5)	Terminal   Color Of   Signal Name   Specification	CROUND   C	Connector No. M1  Connector Name FLUSE BLOCK (I/B)  Connector Type NSOFFW M2  (3A 12A   A	8A 7A 6A 5A 4A	Terminal Color Of   Signal Name [Specification]   No.   Wire   Signal Name [Specification]   No.   GR   Signal Name [Specification]   No.   GR   Signal Name [Specification]   No.   No.	2A C	$\vdash$	
	H	36 P · · · · · · · · · · · · · · · · · ·	Connector No. F108 Connector Name AWO CONTROL UNIT Connector Type THISFW-HH	H.S. 12 3 7 8 9 1011 13 1516	Terminal   Color Of   Signal Name [Specification]   No. Wire   AND SOL (+)   2	n 8 5) > a				
METER Connector No.   F5.1	e e	HS. (5 4 3 2 1 1) (10 9 8 7 1 5)	Terminal   Color Of   Signal Name [Specification]   Vire   Vire     Vire     Vire     Vire     Vire     Vire     Vire     Vire     Vire   Vi				nal Co	w 4 v 6	H	20 Y

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							,							3		AFS CONTROL UNIT	TH40FW-NH				7	24 25 27 38 30 30 31 32 32 33 34 35 34	W   W			Signal Name [Specification]		NISI	PSG-R PSV-R	HSV-R	CAN-L	HSG-R	PS-R	SMR-1 (-)	SMR-2 (-)	SML-1 (+)	SML-2 (+)	AMDS-R	PSV-L	GROUND	PSG-L	HS-R	PS-L	CAN-H	SMR-2 (+)	(c) 2 mm2	SMR-1 (+)	SML-2 (-)	SIMIL-1 (-)	AMDS-L
90	á	98	9	,	^	BR	۸		>	- 3	: 00	4		2144	Τ		Γ	7			Ŀ	<u>-L</u>	1			Color Of	Wire	A .	2 >	*	۵	80	GR	В	8	9	W	SB	^	В	BR	96	98	ŗ	U	, ;	> a	× 0	n .	-
g	60	06	91	;	92	93	76	u	8 8	e e	8	ŝ		Connector No	Colliector	Connector Name	Connector Type		1		Ź					Ja.	No.	٠,	7 4	9	7	00	6	11	13	15	17	19	24	25	27	28	59	30	32		36	30	χ :	40
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e	,	3	SB		LG	BR	SHIFID	>	- ^	. «	× ×		CHIEID	-	, ,	- 8	-	۽ د	-	۵	BR	٧	٦	GR	ΓG	SB	> 4	، د	-	SHIELD	œ	9	SHIELD	8S	۸	16	SHIELD	W	9	R	W	W	8	۵	GR.	50	9 c	2] -	2 :	>
Ţ	3	17	18		19	20	21	33	27	2 72	28	000	5 02	3 2	33	3 8	3.4	ŧ ĸ	36	37	38	39	44	45	46	47	49	3 8	9 5	62	69	64	99	99	29	89	69	70	73	74	75	9/	77	78	6/		£ 8	60	8 5	87
Daries 1993	[willied]	- [with ICC]	- [Without ICC]	(annual call	- [Without ICC]	- [With ICC]															,		•		-	-				WIRE TO WIRE	TH80MW-CS16-TM4		10 00 00 00 00 00 00 00 00 00 00 00 00 0	8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2 8 2 6 3 8 3 8 3 8 3 8	2 名 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				Signal Name (Specification)	own remains laborational	- [With automatic drive positioner]	- [Without automatic drive positioner]							
DOI HEND		L - [With ICC]	R - [Without ICC]		W - [Without ICC]	y - [With ICC]	99												- 88					SHIELD -		SB .			T		Π		10 00 00 00 00 00 00 00 00 00 00 00 00 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	2		(2) (2) (2) (2) (2) (2) (2) (2) (2) (2)			Color Of	Wire Spranger									. 57
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		. 78 L	. 78 R		W	*		03 10	25	70 00 00		2 - 3	- 0		M (9	W Co	W 15	W 16	V 93 88	94 P6	BR - 95 GR	M 96 . M	B6 . 97 L	SHIELD	. w	100	+	, and the second of the second	COILIECTO NO.		L Connector Type	9	88		8	- M	R	SHIELD .	λ	Terminal Color Of	LG . Wire	. 3 88	. M E	98 · · · · 88	BB 6 BG	i high-wind) a w	-[withouticc] / w	0 5	GK 12 SB	W - [With ICC] 13 [G

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MEIEK								
109 G	PN	44	1		Connector No.	M123	Connector No.	M137
Н	ENGINE SPEED	45	Н		Connector Name	BCM (BODY CONTROL MODILLE)	Connector Name	A/T SHIET SELECTOR
111 BG	SENSOR POWER SUPPL	46	98		CONTRECTOR MAINE	BCIM (BOD) CONTROL MODOLE)	COILLECTOI IVAILLE	A) SHIFT SELECTOR
112 V	SENSOR GROUND (EVAP				Connector Type	TH40FG-NH	Connector Type	TH12FW-NH
113 P	CAN COMM				þ		þ	
$\dashv$	$\forall$	Conne	Connector No.	M122	彦		B	
116 W	SENSOR GROUND (RI	Conne	Connector Name	BCM (BODY CONTROL MODILIE)	ž.		ě	/ \
117 V	DATA LINK CONNECTOR	5		Common and a second	21	611 61911	2	10315
121 LG	5 EVAP CANISTER VENT CONTROL VALVE	Conne	Connector Type	TH40FB-NH		25 ECO   CO   CO   CO   CO   CO   CO   CO		
122 P	STOP LAMP SWITCH	] [				150 EST 150 ES		7 8 9 10 11
123 B		1	•					
╀		1						
125 R	MOd	7	į.		Terminal Color Of		Terminal Color Of	L
126 BR				91 90 68 87 6 1 8 7 6 7 7 6 7 9 7 7 7	No. Wire	Signal Name [Specification]	No. Wire	Signal Name [Specification]
Ł				THE	113 P	OPLICAL SENSOR	, M	
128 B	ECM GROUND				116 SB	STOP LAMP SW 1	2 ^	
1					╀	STOP LAMP SW 2		
		Terminal	inal Color Of		119 SB	DR DOOR UNLOCK SENSOR	4 B	
Connector No.	M116	No.		Signal Name [Specification]	┞	KEY SLOT SW	2	
	Γ	72	8	ROOM ANT2-	123 W	IGN F/B	7 R	
Connector Name	WIRE 10 WIRE	73	H	ROOM ANT2+	┞	PASSENGER DOOR SW	8 SB	
Connector Type	TK36MW-NS10	74	88	PASSENGER DOOR ANT-	132 BR	POWER WINDOW SW COMM	8	
		75	┢	PASSENGER DOOR ANT+	╀	PUSH-BUTTON IGNITION SWILL POWER	10 GR	
Œ		76	>	DRIVER DOOR ANT-	134 GR	LOCK IND	11 R	
=		77	97	DRIVER DOOR ANT+	╀	RECEIVER/SENSOR GND	-	
2	1 2 3 4 5 [112]3[4]5[6]7[8]2[2]3[2]3[2]3[2]3[2]3[2]3[2]3[2]3[2]3[2	78	>	ROOM ANT1-	138 Y	RECEIVER/SENSOR POWER SUPPLY		
	6 7 8 9 10 21222224352133 394044549	79	88	ROOM ANT1+	139 L	TIRE PRESSURE RECEIVER COMM	Connector No.	M147
		80	GR	NATS ANT AMP.	140 GR	SHIFT N/P		
	]	81	H	NATS ANT AMP.	╀	SECURITY IND LAMP CONT	Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
		82	æ	IGN RELAY (F/B) CONT	142 BG	COMBI SW OUTPUT 5	Connector Type	TK28FY-EX-SC
Terminal Color Of		83	>	KEYLESS ENTRY RECEIVER COMM	143 P	COMBI SW OUTPUT 1		
No. Wire	Signal Name	87	- BB	COMBI SW INPUT 5	144 G	COMBI SW OUTPUT 2		\   
2 P		88	>	COMBI SW INPUT 3	145 L	COMBI SW OUTPUT 3		21
3 [		06	d (	CAN-L	146 SB	COMBI SW OUTPUT 4	Ĉ.	11 16 10 17 16 5 1 6 E
4 R		16	_	CAN-H	150 LG	DRIVER DOOR SW		0 + 0 + 1+0+
5 B		95	97	KEY SLOT ILL CONT	151 G	REAR WINDOW DEFOGGER RELAY CONT		16 12 15 18 2
9 R		93	^	ON IND				
Н		94	>	PUDDLE LAMP CONT				
19 BG		95		ACC RELAY CONT			Terminal Color Of	Signal Name (Specification)
20 Y		96	GR GR	A/T SHIFT SELECTOR POWER SUPPLY			No. Wire	and a second sec
28 B		66	8 8	SHIFT P			1 B	IGN
29 1.6		100	9 0	PASSENGER DOOR REQUEST SW			2 B	GROUND
31 W		101	1 SB	DRIVER DOOR REQUEST SW			3 ×	DR1 (+)
33 B		102	2 BG	BLOWER FAN MOTOR RELAY CONT			4 4	DR1 (-) DR2 (-)
34 B		103	97 F	KEYLESS ENTRY RECEIVER POWER SUPPLY			>	AS1 (+)
35 L		107	2 re	COMBI SW INPUT 1			۰ ۲	AS1 (-)
36 P		108	8	COMBI SW INPUT 4			11 SB	ECZS (+)
37 Y		109	<b>≻</b>	COMBI SW INPUT 2			$\dashv$	ECZS (-)
38 6		110	0	HAZARD SW			$\neg$	٩
43 P							16 SHIELD	GROUND

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		1 T T T T T T T T T T T T T T T T T T T	Connector	٥	MZD4	/3	×	COMM (CONT->DISP)
9	¥	201011111111		١			I	
21	_	CAN-H	Connector Name	Name	AV CONTROL UNIT	74	۵	CAN-L
24	9	SEAT BELT				75	PI	AV COMM (L)
45	>	DR2 (+)	Connector Type	Type	TH32FW-NH	2/2	91	AV COMM (L)
46	Ь	CAN-L				79	æ	ILLUMINATION
47	>	AS2 (+)	1			80	9	IGNITION SIGNAL
48	>	AS2 (-)			<u> </u>	81	BG	REVERSE SIGNAL
49	٦	ODS INPUT	Ź		00 50 00 00 00 00 00 00 00 00 00 00 00 0	82	œ	VEHICLE SPEED SIGNAL (8-PULSE)
1					/9 00 97 19	83	SHIELD	SHIELD
					92/93/94/93/96	87	o	MICROPHONE SIGNAL
Connector No.	No.	M202				88	SHIELD	SHIELD
a store	Connection Name	TIMITION				89	9	COMM (DISP->CONT)
000	allipa	AV CONTROL OWN	Terminal	Color Of	[moitrailions] own (I carrie	06	7	CAN-H
Connector Type	Type	TH24FW-NH	No.	Wire	ognering opening	91	SB	AV COMM (H)
			76	91	AV COMM (L)	92	SB	AV COMM (H)
1		[	77	SB	AV COMM (H)			
Ø			8 6	9 8	AV COMM (L)			
ı		30 37 38 38 40 41 42 43 44 45 46 47	6	e e	CAN I			
		48 49 50 51 52	8 5	ـ -	CAN-L			
			200	ď	GW GND			
			8 98	SHIFID	GISHS			
Terminal	Color Of		87	-	TEL VOICE SIGNAL (+)			
	Wire	Signal Name [Specification]	88	۵	TEL VOICE SIGNAL (-)			
36	98	SIGNALVCC	92	œ	VEHICLE SPEED SIGNAL (8-PULSE)			
37	9	SIGNAL GND	93	>	PARKING BRAKE SIGNAL			
1	æ	dН	94	. g	REVERSE SIGNAL			
39	BR	COMM (DISP->CONT)	96	G	IGNITION SIGNAL			
40		RGB AREA (YS) SIGNAL	96	>	DISKEJECT SIGNAL			
41	SHIFID	SHIFID						
42	>	RGB SYNC						
43	9	RGB (R:RED) SIGNAL	Connector No.	No.	M210			
44	_	RGB (G:GREEN) SIGNAL	omela sedence	Momo	Time Cotings Av			
45	Ь	RGB (B:BLUE) SIGNAL		2	AV CONTROL ON I			
46	>	COMPOSITE IMAGE SIGNAL GND	Connector Type	Type	TH32FW-NH			
47	88	COMPOSITE IMAGE SIGNAL						
48	>	INVERTER VCC						
49	BR.	INVERTER GND	Į		<u> </u>			
20	9	dΛ	Ź		25 35 15 05 05 15 10 10 10 10 10 10 10 10 10 10 10 10 10			
51	>-	COMM (CONT->DISP)			00			
52	SHIELD	SHIELD			1/9/80/81/82/83   8//88/88/90/91/92			
t	SHIELD	SHIELD						
T	SHIELD	SHIELD						
1			Terminal No.	Color Of Wire	Signal Name [Specification]			
			59	>	PARKING BRAKE SIGNAL			
			29	g	COMPOSITE I MAGE SIGNAL GND			
			89	œ	COMPOSITE IMAGE SIGNAL			
			71	CILITO	G ISING SINCHOODORY			
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JRNWE1252GB

Fail-Safe

#### FAIL-SAFE

Combination meter performs fail-safe operation when unified meter and A/C amp. communication is malfunction.

Solution for communication error between the unified meter and A/C amp. and combination meter.

### < ECU DIAGNOSIS INFORMATION >

	Function	Specifications
Speedometer		
Tachometer		Danata bu suran dia a samunia dia
Fuel gauge		Reset to zero by suspending communication.
Water temperature gauge		
Illumination control		When suspending communication, change to nighttime mode.
Information display		The display turns off by suspending communication.
Buzzer		The buzzer turns off by suspending communication.
	ABS warning lamp	
	VDC warning lamp	
	Brake warning lamp	The least towns on his consequence of the consequen
	CRUISE warning lamp	The lamp turns on by suspending communication.
	IBA OFF indicator lamp	
	Malfunction indicator lamp	
	High beam indicator	
	Turn signal indicator lamp	
	Tail lamp indicator lamp	
Warning lamp/indicator	Oil pressure warning lamp	
lamp	A/T CHECK warning lamp	
	AWD warning lamp	
	Low tire pressure warning lamp	The least turns off hy avenue ding communication
	Key warning lamp	The lamp turns off by suspending communication.
	VDC OFF indicator lamp	
	BSW warning lamp	
	AFS OFF indicator lamp	
	Lane departure warning lamp	
	LDP ON indicator lamp	
	Master warning lamp	

DTC Index

Refer to MWI-107, "DTC Index".

#### < ECU DIAGNOSIS INFORMATION >

# UNIFIED METER AND A/C AMP.

Α Reference Value INFOID:0000000007455706

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#### VALUES ON THE DIAGNOSIS TOOL

CONSULT	MONITOR IT	EΜ
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Monitor Item		Condition	Value/Status	
SPEED METER [km/h] or [mph]	Ignition switch ON	While driving	Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received	- C
SPEED OUTPUT [km/h] or [mph]	Ignition switch ON	While driving	Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received	E
ODO OUTPUT [km/h] or [mph]	Ignition switch ON	_	Equivalent to odometer reading in combination meter	_
TACHO METER [rpm]	Ignition switch ON	While driving	Equivalent to tachometer reading NOTE: 8191.875 is displayed when the malfunction signal is received	- F
FUEL METER [L]	Ignition switch ON	_	Values according to fuel level	_
W TEMP METER [°C] or [°F]	Ignition switch ON	_	Values according to engine coolant temperature NOTE: 215 is displayed when the malfunction signal is input	- - -
ELIEL CAR MAIN	Ignition switch	Fuel filler cap warning display ON	On	=
FUEL CAP W/L	ON	Fuel filler cap warning display OFF	Off	_
A D.C. \A\/	Ignition switch	ABS warning lamp ON	On	_
ABS W/L	ON	ABS warning lamp OFF	Off	_
VDC/TCC IND	Ignition switch	VDC OFF indicator lamp ON	On	ŀ
VDC/TCS IND	ON	VDC OFF indicator lamp OFF	Off	_
SLIP IND	Ignition switch	VDC warning lamp ON	On	-
SLIF IND	ON	VDC warning lamp OFF	Off	-
BRAKE W/L	Ignition switch	Brake warning lamp ON	On	_
DIVARL W/L	ON	Brake warning lamp OFF	Off	ľ
DOOR W/L	Ignition switch	Door warning displayed	On	_
DOOK W/L	ON	Door warning not displayed	Off	
HI-BEAM IND	Ignition switch	Hi-beam indicator lamp ON	On	M
	ON	Hi-beam indicator lamp OFF	Off	
TURN IND	Ignition switch	Turn indicator lamp ON	On	(
I OININ IIND	ON	Turn indicator lamp OFF	Off	_
FR FOG IND	Ignition switch	Front fog light indicator lamp ON	On	
I IX I OO IIND	ON	Front fog light indicator lamp OFF	Off	F
RR FOG IND	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off	_
LIGHT IND	Ignition switch	Tail lamp indicator lamp ON	On	_
LIGITI IIND	ON	Tail lamp indicator lamp OFF	Off	

#### < ECU DIAGNOSIS INFORMATION >

Monitor Item		Condition	Value/Status
OIL W/L	Ignition switch	Oil pressure warning lamp ON	On
OIL W/L	ON	Oil pressure warning lamp OFF	Off
MIL	Ignition switch	Malfunction warning lamp ON	On
IVIIL	ON	Malfunction warning lamp OFF	Off
GLOW IND	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
C-ENG2 W/L	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
CRUISE IND	Ignition switch	CRUISE indicator displayed	On
CITOISE IND	ON	CRUISE indicator not displayed	Off
CET IND	Ignition switch	SET indicator lamp ON	On
SET IND	ON	SET indicator lamp OFF	Off
ODLHOE W/I	Ignition switch	CRUISE warning lamp ON	On
CRUISE W/L	ŎN	CRUISE warning lamp OFF	Off
D A 14//	Ignition switch	IBA OFF indicator lamp ON	On
BA W/L	ŎN	IBA OFF indicator lamp ON	Off
ATO/T ABAT 14/#	Ignition switch	A/T check warning lamp ON	On
ATC/T-AMT W/L	ON	A/T check warning lamp OFF	Off
	Ignition switch	AWD warning lamp ON	On
4WD W/L	ON	AWD warning lamp OFF	Off
4WD LOCK IND	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
	Ignition switch	Low-fuel warning lamp displayed	On
FUEL W/L	ON	Low-fuel warning lamp not displayed	Off
	Ignition switch	Washer warning displayed	On
WASHER W/L	ON	Washer warning not displayed	Off
	Ignition switch	Low tire pressure warning lamp ON	On
AIR PRES W/L	ON	Low tire pressure warning lamp OFF	Off
	Ignition switch	Key warning lamp ON	On
KEY G/Y W/L	ON	Key warning lamp OFF	Off
	Ignition switch	AFS OFF indicator lamp ON	On
AFS OFF IND	ON	AFS OFF indicator lamp OFF	Off
4WAS/RAS W/L	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
DDS W/L	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
LANE W/	Ignition switch	Lane departure warning lamp ON	On
LANE W/L	ŎN	Lane departure warning lamp OFF	Off
I DD IND	Ignition switch	LDP ON indicator lamp ON	On
LDP IND	ON	LDP ON indicator lamp OFF	Off
	Ignition switch	DCA switch indicator displayed	On
DCA IND	ON	DCA switch indicator not displayed	Off

### < ECU DIAGNOSIS INFORMATION >

Monitor Item		Condition	Value/Status
BSW W/L	Ignition switch	BSW warning lamp ON	On
B244 AA/F	ON	BSW warning lamp OFF	Off
	Ignition switch ON	Engine start information display	B&P I
	Ignition switch ACC	Engine start information display	B&P N
	Ignition switch LOCK	Key ID warning display	ID NG
	Ignition switch LOCK	Steering lock information display	ROTAT
1.00	Ignition switch LOCK	P position warning display	SFT P
LCD	Ignition switch LOCK	Intelligent Key insert information display	INSRT
	Ignition switch LOCK	Intelligent Key low battery warning display	BATT
	Ignition switch ON	Take away warning display	NO KY
	Ignition switch LOCK	Key warning display	OUTKY
	Ignition switch ON	ACC warning display	LK WN
		Vehicle ahead detection indicator displayed	On
ACC TARGET	Ignition switch ON	Vehicle ahead detection indicator not displayed	Off
		When following distance set to "LONG"	LONG
400 BIOTANIOE	Ignition switch	When following distance set to "MIDDLE"	MID
ACC DISTANCE	ON	When following distance set to "SHORT"	SHORT
		Set distance indicator not displayed	Off
4.000 (0)4/41.1/4/11	Ignition switch	Own vehicle indicator displayed	On
ACC OWN VHL	ŎN	Own vehicle indicator not displayed	Off
400 OFT OPER	Ignition switch	Set vehicle speed indicator not displayed	Off
ACC SET SPEED	ŎN	Set vehicle speed indicator displayed	Indicates the set vehicle speed
ACCUMIT	Ignition switch	Set vehicle speed indicator unit display ON	On
ACC UNIT	ON	Set vehicle speed indicator unit display OFF	Off
		Shift position indicator P display	Р
		Shift position indicator R display	R
		Shift position indicator N display	N
		Shift position indicator D display	D
		Shift position indicator DS display	L
OLUET IND	Ignition switch	Shift position indicator M1 display	M1
SHIFT IND	ON	Shift position indicator M2 display	M2
		Shift position indicator M3 display	M3
		Shift position indicator M4 display	M4
		Shift position indicator M5 display	M5
		Shift position indicator M6 display	M6
		Shift position indicator M7 display	M7

#### < ECU DIAGNOSIS INFORMATION >

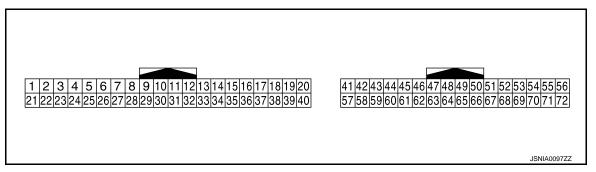
Monitor Item		Condition	Value/Status
O/D OFF SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
AT S MODE SW	Ignition switch	Snow mode switch ON	On
AT S WODE SW	ON	Snow mode switch OFF	Off
AT P MODE SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
M RANGE SW	Ignition switch	Selector lever manual mode position	On
W RANGE SW	ON	Other than the above	Off
NIM DANCE CW	Ignition switch	Selector lever manual mode position	Off
NM RANGE SW	ON	Other than the above	On
AT CET LID CV/	Ignition switch	Selector lever + position	On
AT SFT UP SW	ON	Other than the above	Off
AT OFT DWALCW	Ignition switch	Selector lever – position	On
AT SFT DWN SW	ON	Other than the above	Off
ST SFT UP SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
ST SFT DWN SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
00117 7/7 010	Ignition switch	A/C compressor activation condition	On
COMP F/B SIG	ON	A/C compressor deactivation condition	Off
4WD LOCK SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off
DICE OW	Ignition switch	Parking brake switch ON	On
PKB SW	ŎN	Parking brake switch OFF	Off
BUOM F OW	Ignition switch	Driver seat belt not fastened	On
BUCKLE SW	ŎN	Driver seat belt fastened	Off
DDAKE OIL OW	Ignition switch	Brake fluid level switch ON	On
BRAKE OIL SW	ŎN	Brake fluid level switch OFF	Off
DISTANCE [km]	Ignition switch ON	_	Possible driving distance calculated by unified meter and A/C amp.
OUTSIDE TEMP [°C] or [°F]	Ignition switch ON	_	Equivalent to ambient temperature NOTE: This may not match the indicated value on the information display.
FUEL LOW SIG	Ignition switch	Low-fuel warning signal output	On
I DEL LOW SIG	ON	Low-fuel warning signal not output	Off
DI 177ED	Ignition switch	Buzzer ON	On
BUZZER	ON	Buzzer OFF	Off

#### NOTE:

Some items are not available according to vehicle specification.

### **TERMINAL LAYOUT**

#### < ECU DIAGNOSIS INFORMATION >



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#### PHYSICAL VALUES

	nal No. e color)	Description			0 111	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
5		Manual mode shift up sig-		Ignition	Selector lever UP operation	0 V
(L)	Ground	nal	Input	switch ON	Other than the above	12 V
7 (GR)	Ground	Communication signal (AMP. → METER)	Output	Ignition switch ON	_	(V) 6 4 2 0 1 ms SKIA3362E
8 (L)	Ground	Vehicle speed signal (2-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is ap- prox. 40 km/h (25 MPH)]	NOTE: The maximum voltage varies depending on the specification (destination unit).
9		Seat belt buckle switch sig-		Ignition	When seat belt is fastened	12 V
(SB)	Ground	nal (driver side)	Input	switch ON	When seat belt is not fastened	0 V
10				Ignition	Selector lever DS position	0 V
(W)	Ground	Manual mode signal	Input	switch ON	Other than the above	12 V
11				Ignition	Selector lever DS position	12 V
(G)	Ground	Non-manual mode signal	Input	switch ON	Other than the above	0 V
14 (BR)	Ground	Communication signal (LCD → AMP.)	Input	Ignition switch ON	_	(V) 15 10 5 0 → 400 µs

#### < ECU DIAGNOSIS INFORMATION >

	inal No. e color)	Description			Condition	Value
+	_	Signal name	Input/ Output		Condition	(Approx.)
25 (V)	Ground	Manual mode shift down signal	Input	Ignition switch	Selector lever down operation	0 V
(V)		Sigilal		ON	Other than the above	12 V
27 (LG)	Ground	Communication signal (METER → AMP.)	Input	Ignition switch ON	_	(V) 6 4 2 0 1ms SKIA3361E
28 (R)	Ground	Vehicle speed signal (8-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is ap- prox. 40 km/h (25 MPH)]	NOTE: The maximum voltage varies depending on the specification (destination unit).
					Parking brake is applied	0 V
30 (V)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake is released	(V) 8 4 0 10 ms JSNIA0007GB
34 (Y)	Ground	Communication signal (AMP. → LCD)	Output	Ignition switch ON	_	(V) 6 4 2 0 200 µs JSNIA0027GB
41 (V)	Ground	ACC power supply	Input	Ignition switch ACC	_	Battery voltage
42 (Y)	Ground	Fuel level sensor signal	Input	Ignition switch ON	_	(V) 4 3 2 1 0 E 1/4 1/2 3/4 F JSNIA0013GB

### < ECU DIAGNOSIS INFORMATION >

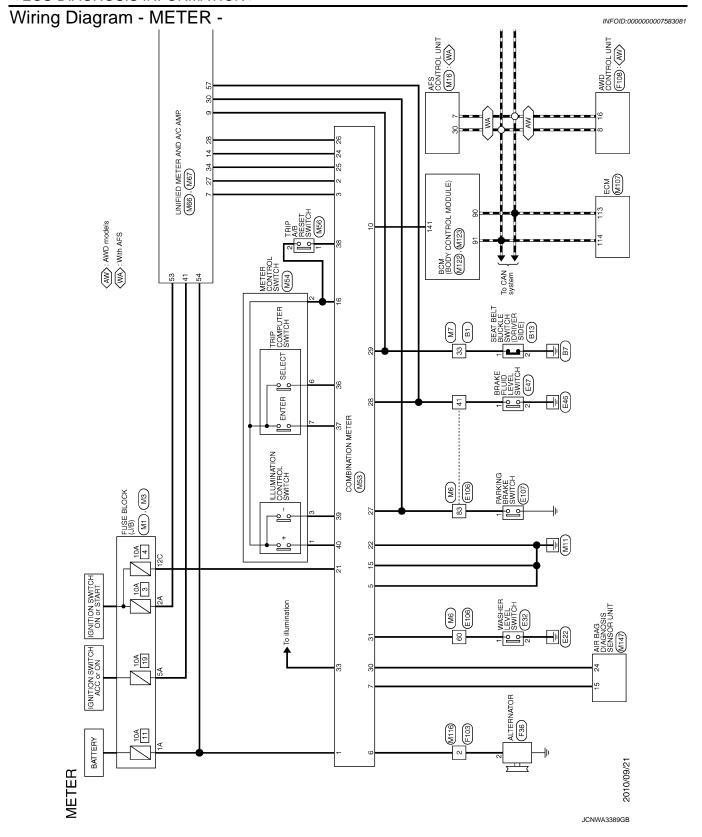
	nal No. e color)	Description			Condition	Value	Δ
+	_	Signal name	Input/ Output		Condition	(Approx.)	
45 (P)	Ground	Ambient sensor signal	Input	_	_	(V) 4 3 2 1 0 -10 0 10 20 30 40 (°C) (14) (32) (50) (68) (86) (104) (°F) JSNIA0014GB	
53 (G)	Ground	Ignition signal	Input	Ignition switch ON	_	Battery voltage	Е
54 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	_	Battery voltage	F
55 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	C
56 (L)	Ground	CAN-H	_	_	_	_	(
57		Brake fluid level switch sig-		Ignition	Brake fluid level is normal.	5 V	H
(W)	Ground	nal	Input	switch ON	The brake fluid level is low- er than the low level	0 V	
58 (BR)	Ground	Fuel level sensor ground	_	Ignition switch ON	_	0 V	l
61 (BR)	Ground	Ambient sensor signal ground	_	Ignition switch ON	_	0 V	J
71 (B)	Ground	Ground	_	Ignition switch ON	_	0 V	k
72 (P)	Ground	CAN-L	_	_	_	_	L

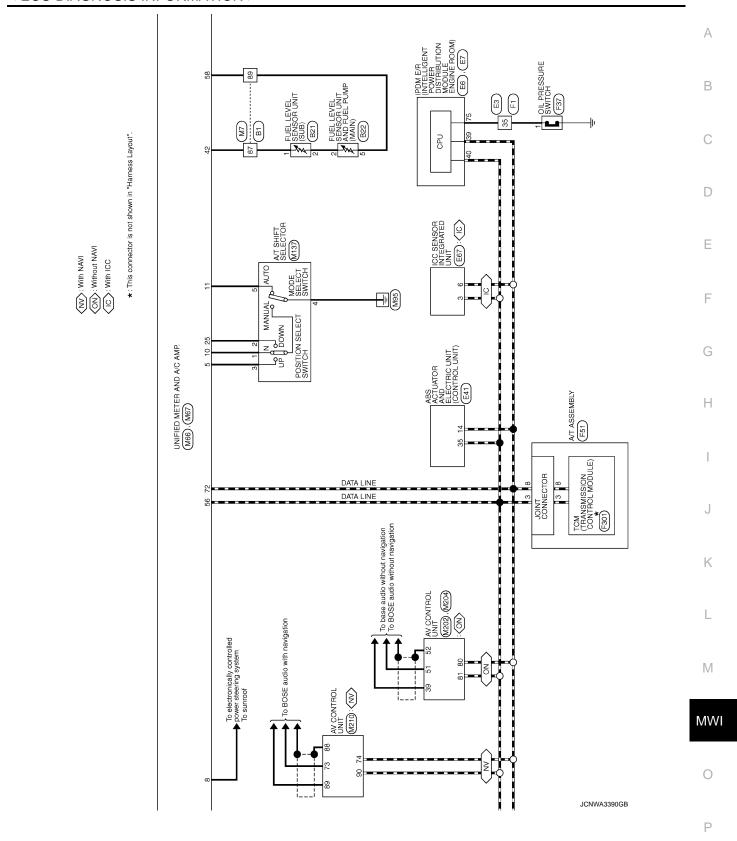
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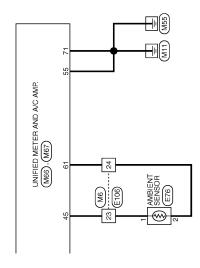
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METER   Connector Name   State   Connector Name	
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Revision: 2014 October MWI-99 2012 EX

Terminal Color Of Signal Name (Specification)	t	2 L ITS COMM-H	3 L CAN-H	4 B GROUND	5 P ITS COMM-L	6 P CAN-L			Connector No. E76	Connector Name AMBIENT SENSOR	Connector Type RS02FB						Terminal Color Of		1 6	2 P		Connector No. F106			Connector Type TH80FW-CS16-TM4		·		9 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	Terminal Color Of	No. Wire Signal Name (Specification)	1 K	3 8	Н	S GR	+	10 BG
6 8G DP RL 7 BR		10 W DSFR	14 P CAN-L	25 Y BUS-L	26 LG DP FL	27 GR DS RL	28 G UZ	29 LG DS.RR	SB	31 R VDC OFF SW 35 I CAN-H	. B		Connector No. E47	Connector Name BRAKE FLUID LEVEL SWITCH	Connector Type YV02FGY	4	White I	(±)	-1	(2)	•	Terminal Color Of		Н	2 B .		Connector No. E67	Connector Name ICC SENSOR INTEGRATED UNIT	Connector Type RS06FB-PR	E E	103						
. 85 S8	-	- · · · · · · · · · · · · · · · · · · ·		70 BG -	74 P	75 SB -		$\dashv$	. w 08		Connector No. E32	Connector Name WASHER LEVEL SWITCH	Connector Type Z02FBR							la C	<b>6</b> 1	1 [6 :	+		Connector No. E41	Connector Name A85 ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT).	Connector Type BAA42FB-AHZ4-LH	Œ	H.S.	1 2 0 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5		Terminal Color Of			2 G UBMR	= 00	Н
METER 35 SB	41 6	╀	43 BR .	H			Connector No. E6	Connector Name IPOM 6/8 INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM!	Т	Connector Type TH08FW-NH		JL S:		46 45 44 43		le le	39 p	+	Н	43 SB .	44 BR	45 G	┨		Connector No. E7	Connector Name IPDIA E/R (INTELLIGENT POWER DISTREBUTION MODULE ENGINE ROOM)	Connector Type TH20FW-CS12-M4		Ŋ.	48 49 51			No. Wire Signal Name [Specification]	Н	49 BG .	W 53	54 P

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ATTERNATOR HISTOR  Signal Name [Specification]  L C C C C C Signal Name [Specification]  Signal Name [Specification]  Test Corks-AR  Test Cor	В
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Signal Name [Specification]  WINE TO WINE  SANSOF B. RSJO. S.R.Z.    RSJ. RSJO. S. R.Z.   RSJ. RSJO. R.Z. R.Z.   RSJ. RSJ. R.Z. R.Z.   RSJ. RSJ. R.Z. R.Z.   RSJ. RSJ. RSJ. RSJ. RSJ. RSJ. RSJ. RSJ.	F
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**MWI-101** 2012 EX Revision: 2014 October

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Connector No.	4o. F51	31	œ		Connector No.	F301	Connector No.	or No.	M3	
Connector Name	Jame A/T ASSEMBLY	33	8		Connector Name	TCM (TRANSMISSION CONTROL MODULE)	Connecte	Connector Name	FUSE BLOCK (J/B)	
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No.	Wire	Connector No.		F108	No. Wire		No.	Wire		
		Connector Name		AWD CONTROL UNIT		VIGN	100			
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8	P .			0	8	CAN-L				
6	GR -			9 10 11   13   15 16	6	START RLY	Connector No.	or No.	M6	
10					10	GROUND	Connect	Connector Name	WIRE TO WIRE	
			1							
		Terminal	Color Of	Signal Name [Specification]			Connector Type	or Type	TH80MW-CS16-TM4	
Connector No.	4o. F103	ÿ,	Wire		Connector No.	M1	Q.			
Connector Name	vame WIRE TO WIRE		AB >	AWD SOL (+)	Connector Name	FUSE BLOCK (J/B)	车		8 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
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46 BG SUNLOAD SENSOR SIGNAL	G EXHAUST GA	9	54 Y BATTERY POWER SUPPLY	8	-	W BR	BB	59 GR INTAKE SENSOR GROUND	60 L IN-VEHICLE SENSOR GROUND	61 BR AMBIENT SENSOR GROUND	62 SB SUNLOAD SENSOR GROUND	63 R -	BG		R EACH DOOR I	71 B GROUND	72 P CAN-L			Connector No. M107	Connector Name FCM		Connector Type RH24FGY-R28-R-LH-Z			[01 01 01 12 18 11    12    821	1.52.   111   112   113   114	86 201 201 101 101 101 103 88	125 127 117 113 108 108 97		- 1-	Terminal Color Of Signal Name [Specification]	$^{+}$	ŀ	>	99 G SENSOR POWER SUPPLY (APP SEN 1) [With ICC]	99 L SENSOR POWER SUPPLY (APP SEN 1) [Without ICC]	100 W SENSOR GROUND (APP SEN 1)	101 SB ASCD STEERING SWITCH	102 LG EVAP CONTROL SYSTEM PRESS SEN	ŋ	IS 1	BR	GR SENSOR(		>	107 BR SENSOR POWER SUPPLY (EVAP CONTROL SYSTEM PRESS SEN)	*
Connector No. M66	Connector Name UNIFIED METER AND A/C AMP.		Connector Type TH40FW-NH				(K)   1   1   1   1   1   1   1   1   1	23 25 27 28 30 38				Tal Color Of Signal Name (Specification)		MANUAL MODE SHIFT UP SIGNAL	(TER)		9 SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)	10 W MANUAL MODE SIGNAL	NON-MANUAL MODE SIGNAL	BR COMMUNICATION SIGNAL (LCD->AMP.)				27 LG COMMUNICATION SIGNAL (METER->AMP.)	28 R VEHICLE SPEED SIGNAL (8-PULSE)	30 V PARKING BRAKE SWITCH SIGNAL	(0:	38 P BLOWER MOTOR CONTROL SIGNAL			Connector No. M67	Connector Name UNIFIED METER AND A/C AMP.	Connector Type TH32FW-NH				1.3.	20 00 00 00 00 00 00 00 00 00 00 00 00 0	02 10 10 10 10 10 10 10 10 10 10 10 10 10			Tal Color Of Signal Name (Specification)		V ACC POWER SUPPLY	Y FUEL LEVEL SENSOR SIGNAL	R INTAKE SENSOR SIGNAL	44 LG IN-VEHICLE SENSOR SIGNAL	P AMBIENT SENSOR SIGNAL
Connector No. M54	Connector Name METER CONTROL SWITCH	T	Connector Type TH12MW-NH	á			1 2 3 4 5 8	)  -  -				) ler		1 BG .	2 B -	3 Р	4 R	5 8	9 P	7 SB .			Connector No. M56	Connector Name TRIP A/8 BESET SMITCH		Connector Type TK02MW	¢				1 2			Terminal Color Of			2 8 -											
M53	COMBINATION METER		TH40FW-NH				1123 567 10	21 22 24 25 26 27 28 29 30 31 33 38 38 38 40				Signal Name (Specification)	The state of the s		COMMUNICATION SIGNAL (METER->AMP.)	COMMUNICATION SIGNAL (AMP.:>METER)	GROUND	ALTERNATOR SIGNAL	AIR BAG SIGNAL	SECURITY SIGNAL	GROUND	METER CONTROL SWITCH GROUND	ILL GND	III	IGNITION SIGNAL	GROUND	COMMUNICATION SIGNAL (LCD->AMP.)	COMMUNICATION SIGNAL (AMP>LCD)	VEHICLE SPEED SIGNAL (8-PULSE)	PARKING BRAKE SWITCH SIGNAL	BRAKE FLUID LEVEL SWITCH SIGNAL	SEAT BELT BUCKLE SWITCH SIGNAL (DRIVER SIDE)	WASHER LEVEL SWITCH SIGNAL	ILLUMINATION CONTROL SIGNAL	SELECT SWITCH SIGNAL	ENTER SWITCH SIGNAL	TRIP A/B RESET SWITCH SIGNAL	ILLUMINATION CONTROL SWITCH SIGNAL (-)	ILLUMINATION CONTROL SWITCH SIGNAL (+)									
METER Connector No.	Connector Name		Connector Type	á	厚	١						let	No. Wire	1 GR	2 LG	3 GR	5 8	9 9	7 BR	10 G	15 8	16 B	19 B	20 R	21 BG	22 B	24 BR	25 Y	26 R	+	+	29 SB	+	33 B	H	37 SB	38	39 P	40 BG									

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1 2	7 8 9 1011	Color Of Signal Name Spear Wire Wire V	Color Of Wire W V V V V S B B G G G G G	Color Of Wree W V V V V C C C C C C C C C C C C C C C	Closer Of Virginia (Closer Of Virginia Res Co. Of Closer Of Co. Of Closer Of	(C)	Vive e Vive e Vive e G G G G G G R R R R R R R R R R R R	M147	M W W W W W W W W W W W W W W W W W W W	M147 AR BAG DI TRZSFY-EX-	M147 M18 & G O O O O O O O O O O O O O O O O O O	Signal Name [Specification]  Signal Name [Specification]  At Rado Dischoosis SENSOR UNIT  TYZBYF EX.SC    11   46   47   45   3 4   6	M14.7  M14.7  M14.7  AIR BAG DI AGNOSIS SENSON UNIT  T7.28FY EX.SC  21	1 2 3 4 5	Signal Name [Specification]  Signal Name [Specification]  M147  ARE BAG DIAGNOSIS SENSOR UNIT  TY28FY EX-SC  [21]  [11]  [46]  [47]  [47]  [51]  [61]  [61]  [61]  [61]  [61]  [61]	Signal Name [Specification]  Signal Name [Specification]  Muta7  ARE BAG DIGMONS SENSOR UNIT  TYZBYY EX-SC  21   4   49   41   45   49   49    16   12   15   4   49    16   12   15   15   15    Signal Name [Specification]	M147  M147  An Rake Di Aconosis Serson unit  TZSBY-EX-SC  11 46 48 47 45	M147  M147  M147  M147  Are Bude Diddenosis Serson UNIT  TYZBEY EX.5G  Are 11 46 49 47 45 3 4 4 16 11 16 49 47 45 1 16 1 16 1 16 1 16 1 16 1 16 1 16 1	1 2 3 4 5	M14.7  AIR BAG DIACHCRISTON  AIR BAG DIACHCRIST SERSON UNIT  TYZBEY EX.SC  11 46 48 47 45 3 4 6 16 12 15 18 18  Signal Name [Specification]  IGN  CROUND  ONIT (1)  AIR SIGNAL Name [Specification]  IGN  CROUND  ONIT (1)  AIR SIGNAL Name [Specification]  IGN  CROUND  ONIT (1)  AIR SIGNAL Name [Specification]	M147  M147  At R BAC D AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AT R BAC D AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AT BAC D AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AGNOSIS SENSOR UNIT  TO BAC D AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AGNOSIS SENSOR UNIT  AGNOSIS SENSOR UNIT  TYZBEY CK.SC  AGNOSIS SENSOR UNIT  AGNOSIS	MA27  MA27  AR BAC D AGNOSIS SENSOR UNIT  TY28FY-EX-SC  AGNOSIS SENSOR UNIT  TO SERIAL HOLE (1)  TO SERIAL HOLE (1)  AGS (2)  AGS (2)  AGS (2)  AGS (2)  AGS (2)
	第一日   第二日   第三日   第三日	1   1   1   1   1   1   1   1   1   1		1	Signal Name   Specification     Signal Name   Specification	Signal Name (Specification)  Signal Name (Spe	Signal Name (Specification)  Signal Name (Spe	Signal Name (Specification)  Signal Name (Spe	Signal Name (Specification)  Signal Name (Spe	Signal Name (Specification)  Signal Name (Spe	Signal Name (Specification)  STOP LAMES SWI  TOP LAMES SWI  STOP LAMES SWI  STOP LAMES SWI  TOP STOP LAMES SWI  STOP LAMES SWI  TOP SWIP SWIP SWIP  STOP LAMES SWIP  TOP SWIP SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWIP SWIP  SWI	Signal Name   Specification    STOP LAMP SW 1  STO	Signal Name [Specification]  Det Coll Sensor  STOP LAMS SW 1  STOP LAMS SW 2  END LAM	Signal Name (Specification)  For DOOR NAME SWI 2  TOP LAMPS SWI 2  FOR STATE SWINDOW SWI 2  FOR STATE SWINDOW SWI 2  FOR STATE SWINDOW SWI 2  SECURITY NAME SWI 2  SECURITY NAME SWI 2  SECURITY NAME SWI 2  COMES SWI COUTPUT 3  SECURITY NAME SWI 2  SWI 2  SWI 3	Signal Name (Specification)  OPPLOAL SENSOR  TOP LAMAS SWI 2  DATE DOUGH SWI 2  TOP LAMAS SWI 2  TOP RECEIVER/SWISHOOD SWI 2  SHITTARP  SECURITY TOP SWI 2  SHITTARP  COMBIS SWI OUTPUT 3  COMBIS SWI SWI SWI SWI SWI SWI SWI SWI SWI S	Signal Name (Specification)  Signal Name (Specification)  Signal Name (Specification)  Signal Name (Specification)  STOP LAMES SVI  STOP LAMES SVI  STOP LAMES SVI  STOP LAMES SVI  THE PRESCRIPTION LAWER SVI  STOP LAMES SVI  THE PRESCRIPTION LAWER SVI  STOP LAMES SVI  TOCK NAME  SHETT NAME STOP SVI  STOP LAMES SVI  TOCK NAME  SHETT NAME SVI  STOP LAMES SVI  TOCK NAME  SHETT NAME SVI  STOP LAMES SVI  TOCK NAME  SHETT NAME SVI  STOP LAMES SVI  STOP LAMES SVI  TOCK NAME  SHETT NAMES SVI  STOP LAMES SVI  TOCK NAME  SHETT NAMES SVI  STOP LAMES SVI  TOCK NAME  SHETT NAMES SVI  STOP LAMES SVI  STOP LAMES SVI  TOCK NAME  SHETT NAMES SVI  STOP LAMES SVI  S	Signal Name (Specification) Si	Signal Name (Specification)  Signal Name Swiz  District Name Swiz  District Name Swiz  ECHEVIPACE NAME  SECURITY SWICH SWIP  RECEIVER/SENGER ROOM  RECEIVER/SENGER ROOM  RECEIVER/SENGER ROOM  SECURITY NO LITER 1  COMBI SWI OUTPUT 3  COMBI SWI SWI SWI SWI SWI SWI SWI SWI SWI SW	Signal Name (Specification)  STOP LAME SWI  STOP LAME SWI  STOP LAME SWI  TOCK HON  SHELLING NAME COMM  SHELLI	Signal Name (Specification)  Signal Name (Specification)  Signal Name (Specification)  Signal Name (Specification)  STOP LAMBE SW1  STOP LAMBE	Signal Name (Specification)  FOR DOOR HAND SWI 2  FOR SWI 3  FOR SWI	Signal Name (Specification)  Signal Name Name Name  RECENTRY/RESIDENCE NAME  RECENTRY/RESIDENCE NAME  SIGNAL NAME OWNT  SIGNAL
2		Cole N																				
BCM (BODY CONTROL MODULE)	BCM (BODY CONTROL MODULE) TH40FB-NH	20	ation)			ation] atin.  atin.  atin.  atin.  atin.	ation)  ation  ation  The state of the state		ation] ation] Tr.	ation]  ation   AMT - AMT - TT - TT - TT - TT - TT - TT	### ### #############################		aton)  aton   AMT - AMT	ation)  ation	ation]  ation		ation	ation)  ation		# 1	aton]	
. [	ector Type	ector Type	S. S	S. S. Mire R. Wire R. S.	S. S	Color Of Wire State Stat	Simple   Color Of	S	S	March   Marc	Color Of Name Co	Color Of R	Color Of Mree Con Type Color Of Color O	Minal Color Of Nine Color Of N	Minal Color Of Name (Color Of Name (		1400   1400	Color Of Page   Color Of Pag			1990   1990	100   100
T	ROL VALVE			INSTRUCTONTROL VALVE FOR AGROUND FOR GROUND	INTER VENT CONTROL VALVE TON GROUND TON GROUND TON GROUND ECH GROUND	INTER VENT CONTROL VALUE  TOM GROUND  EUM	INSTITUTE VENT CONTROL VALVE TEM GROUND ECM	INSTITUTE VANC CONTROL VALVE TON GROUND ECH	INTERVENT CONTROL VALVE TON GROUND ECM GROUN	INSTITUTION CONTROL VALVE TON GROUND TON GROUND ECH GRO	INSTITUTION CONTROL VALVE TON GROUND TON GROUND ECH GRO	STEP AND CONTROL VALVE  TOO LAND SAITCH  TEM GROUND  ECM GROUND  E	STEP VENT CONTROL VALVE  TO LAND SATICAT  TEM AGROUND  ECM GROUND	INSTER VENT CONTROL VALVE  TO A GROUND  ECM GROUND  EC	INSTITUTION CONTROL VALVE TOWN GROUND EVALUATION EVALUA	STEP AND CONTROL VALVE  TO LAMP SANTCH  TEM GROUND  TE	STEP VENT CONTROL VALVE  TEM AGOUND  ECM GROUND  ECM G	INTER VENT CONTROL VALVE  TO A GROUND  ECM	STEP AND CONTROL VALVE  TOO LAND SAITCH  TEM GROUND  T	STEP VENT CONTROL VALVE TEM AGOUND TEM AGOUN	INTER VENT CONTROL VANUE  TON GANDAND  ECU GANDAND  ECU GANDAND  ECU GROUND  E	INTER VENT CONTROL VALVE  TON GROUND  ECM
VENT CONTROL VAL	STOP LA ECM	STOP LA ECM ECM POWERSI ASCD 81 ECM ECM ECM	STOP LA ECM ECM POWER SI ASCD BB ECM ECM ECM				M O W N-N 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	W O W V V V V V V V V V V V V V V V V V	M O N-WI   10   10   10   10   10   10   10   1	M116 WIRETO W TK36MW-h TK36MW-h	M116 WIRETO W TK36MW-A  TK36MW-A	M116 WIRETO W TK 36/MW-h	M116 WIRETO W TK36MW-h TK36MW-h	M116 WIRETO W TK36MW-h	M116 WIRETO W ITSEMIY-A ITSEMIY-A ITSEMIY-A	M116 WIRETO W TRSEMW-A TRSEMW-A	M116 WIRETO W TKSEMM-N, TKSEMM-N, TRSEMM-N, TS   1   1   1   1   1   1   1   1   1	M116 WIRETO W TK35MVL  10 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 0 1 0 0 0 1 0	M116 WIRETO W TRSEMVLY.  TRSEMVLY.  [	M116 WIRETO W TKSEMW-N TKSEMW-N TS 3   4   1   1   1   1   1   1   1   1   1	M116 W RETO W TR 36/MW-h  TR 36/MW-h	

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18	£	COLOIT ILLIAND		I	NZ04			Committee (Committee)
21	_	CAN-H	Connector Name	Name	AV CONTROL LINIT	74	а	CAN-L
24	9	SEAT BELT				75	91	AV COMM (L)
45	>	DR2 (+)	Connector Type	Type	TH32FW-NH	9/	97	AV COMM (L)
46	Ь	CAN-L	Ü			79	¥	ILLUMINATION
47	>	AS2 (+)				80	9	IGNITION SIGNAL
48	٨	AS2 (-)	ŧ		<u> </u>	81	98	REVERSE SIGNAL
49	٦	ODS INPUT	Ĉ.		78 77 78 70 80 81 82 82 82 82 82 82 82 82 82 82 82 82 82	82	ч	VEHICLE SPEED SIGNAL (8-PULSE)
					70 00 00 00	83	SHIELD	SHIELD
					37 30 34 30 30 37 37 37 38 30 30	87	9	MICROPHONE SIGNAL
Connector No.	No.	M202				88	SHIELD	SHIELD
Connector Name	Name	AV CONTROL LINIT				88	9	COMM (DISP->CONT)
			Terminal	Color Of	Signal Name (Specification)	90	٦	CAN-H
Connector Type	Type	TH24FW-NH	No.	Wire	incompanie Colorente de la col	91	SB	AV COMM (H)
			76	91	AV COMM (L)	92	SB	AV COMM (H)
医		[	77	SB	AV COMM (H)			
ď			78	97	AV COMM (L)			
1		36 37 38 39 40 41 42 43 44 45 46 47	79	SB	AV COMM (H)			
			80	۵	CAN-L			
		96 76   26   26   38	81	_	CAN-H			
			82	8	SW GND			
			98	SHIELD	SHIELD			
Terminal	Color Of	3	87	_	TEL VOICE SIGNAL (+)			
	Wire	Signal Name [Specification]	88	۵	TEL VOICE SIGNAL (-)			
36	BG	SIGNAL VCC	95	œ	VEHICLE SPEED SIGNAL (8-PULSE)			
37	9	SIGNALGND	93	>	PARKING BRAKE SIGNAL			
38	×	dH	94	BG	REVERSE SIGNAL			
39	BR	COMM (DISP->CONT)	95	o	IGNITION SIGNAL			
40	00	RGB AREA (YS) SIGNAL	96	>	DISK EJECT SIGNAL			
41	SHIFID	CHIELD						
42	>	RGB SYNC						
43	٥	DCD (B:DED) SIGNAL	Connector No	No	94310			
	٠	DOB (C-CDEEN) SIGNAL						
A.S.	۰	RGB (B:BILIE) SIGNAL	Connector Name	Name	AV CONTROL UNIT			
7 9	.   >	COMPOSITE IMAGE SIGNAL GND	Connector Type	Tvno	HN-5W3CEHT			
;	. 8	COMMON STREET OF STREET			100			
	g >	CONFICATION IN THE STRINGS	₫.					
ç	-	INVERIENTO	手					
49	BR	INVERTER GND	Ę		7			
20	g	VP			65 67 68 77 73 74 75 76			
51	>-	COMM (CONT->DISP)			2 00			
52	SHIELD	SHIELD			76   6   6   6   6   6   6   6   6   6			
57	SHIELD	SHIELD						
82	CHIELD							
			Terminal	Color Of	Signal Name [Specification]			
			No.	Wire				
			9	>	PARKING BRAKE SIGNAL			
			29	9	COMPOSITE I MAGE SIGNAL GND			
			89	œ	COMPOSITE IMAGE SIGNAL			
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			7	SHIELD	MICROPHONE SHIELD			

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Fail-Safe

#### FAIL-SAFE

The unified meter and A/C amp. activates the fail-safe control if CAN communication with each unit is malfunctioning.

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### < ECU DIAGNOSIS INFORMATION >

	Function	Specifications					
Speedometer							
Tachometer		Peact to zero by augranding communication					
Fuel gauge		Reset to zero by suspending communication.					
Water temperature gauge							
Illumination control		When suspending communication, change to nighttime mode.					
Information display		The display turns off by suspending communication.					
Buzzer		The buzzer turns off by suspending communication.					
	ABS warning lamp						
	VDC warning lamp						
	Brake warning lamp						
	CRUISE warning lamp	The lamp turns on by suspending communication.					
	IBA OFF indicator lamp						
	AWD warning lamp						
	Low tire pressure warning lamp						
	Master warning lamp						
	AFS OFF indicator lamp	The lamp blinking caused by communication malfunction					
Warning lamp/indicator	High beam indicator						
lamp	Turn signal indicator lamp						
	Tail lamp indicator lamp						
	Oil pressure warning lamp						
	VDC OFF indicator lamp						
	BSW warning lamp	The lamp turns off by suspending communication.					
	Malfunction indicator lamp						
	A/T CHECK warning lamp						
	Key warning lamp						
	Lane departure warning lamp						
	LDP ON indicator lamp						

DTC Index

Display contents of CON- SULT	Time	Diagnostic item is detected when	Refer to
CAN COMM CIRCUIT [U1000]	CRNT, 1 - 39	When unified meter and A/C amp. is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-46
CONTROL UNIT (CAN) [U1010]	CRNT, 1 - 39	When detecting error during the initial diagnosis of CAN controller of unified meter and A/C amp.	MWI-47
COMM ERROR 1 [B2201]	CRNT, 1 - 39	If a communication error is present in the communication line between unified meter and A/C amp. and combination meter for 2 seconds or more.	MWI-48
COMM ERROR 2 [B2202]	CRNT, 1 - 39	If a communication error is present in the communication line between unified meter and A/C amp. and combination meter for 2 seconds or more.	MWI-50
VEHICLE SPEED [B2205]	CRNT, 1 - 39	The abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more.	MWI-52

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#### < ECU DIAGNOSIS INFORMATION >

Display contents of CON- SULT	Time	Diagnostic item is detected when	Refer to
ENGINE SPEED [B2267]	CRNT, 1 - 39	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	<u>MWI-53</u>
WATER TEMP [B2268]	CRNT, 1 - 39	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	<u>MWI-54</u>

< ECU DIAGNOSIS INFORMATION >

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

Reference Value

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	(	Condition	Value/Status
RAD FAN REQ	Engine idle speed	Changes depending on engine coolant temperature, air conditioner operation status, vehicle speed, etc.	0 – 100 %
		A/C switch OFF	Off
AC COMP REQ	Engine running	A/C switch ON (Compressor is operating)	On
TAIL GOLD DEO	Lighting switch OFF		Off
TAIL&CLR REQ	Lighting switch 1ST, 2ND, HI or A	AUTO (Light is illuminated)	On
111 10 050	Lighting switch OFF		Off
HL LO REQ	Lighting switch 2ND HI or AUTO	(Light is illuminated)	On
	Lighting switch OFF		Off
HL HI REQ	Lighting switch HI		On
		Front fog lamp switch OFF	Off
FR FOG REQ	Lighting switch 2ND or AUTO (Light is illuminated)	<ul> <li>Front fog lamp switch ON</li> <li>Daytime running light activated (Only for Canada)</li> </ul>	On
FR WIP REQ	Ignition switch ON	Front wiper switch OFF	Stop
		Front wiper switch INT	1LOW
		Front wiper switch LO	Low
		Front wiper switch HI	
		Front wiper stop position	STOP P
WIP AUTO STOP	Ignition switch ON	Any position other than front wiper stop position	ACT P
		Front wiper operates normally	Off
WIP PROT	Ignition switch ON	Front wiper stops at fail-safe operation	BLOCK
IGN RLY1 -REQ	Ignition switch OFF or ACC		Off
IGN KLT I -KEQ	Ignition switch ON		On
ION DLV	Ignition switch OFF or ACC		Off
IGN RLY	Ignition switch ON		On
DUCH C/W	Release the push-button ignition	switch	Off
PUSH SW	Press the push-button ignition sv	vitch	On
INTER/NP SW	Ignition switch ON	Selector lever in any position other than P or N	Off
		Selector lever in P or N position	On
ST DLV CONT	Ignition switch ON		Off
ST RLY CONT	At engine cranking		On
IUDT DLV DEO	Ignition switch ON		Off
IHBT RLY -REQ	At engine cranking		On

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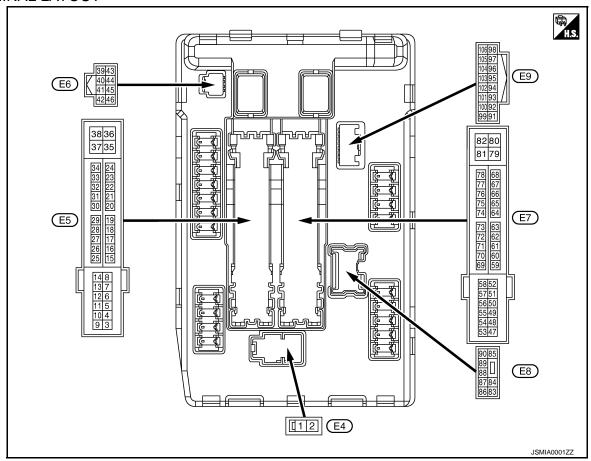
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< ECU DIAGNOSIS INFORMATION >

Monitor Item		Condition			
	Ignition switch ON	Ignition switch ON			
	At engine cranking		INHI ON $\rightarrow$ ST ON		
ST/INHI RLY		ratus of starter relay or starter control relay cannot be recognized by attery voltage malfunction, etc. when the starter relay is ON and the r control relay is OFF  • Press the selector button with se-			
DETENT SW	Ignition switch ON	Press the selector button with selector lever in P position Selector lever in any position other than P	Off		
	Release the selector button wit	th selector lever in P position	On		
S/L RLY -REQ	NOTE: The item is indicated, but not m	nonitored.	Off		
S/L STATE	NOTE: The item is indicated, but not monitored.		UNLOCK		
DTRL REQ	NOTE: The item is indicated, but not monitored.		Off		
OIL P SW	Ignition switch OFF, ACC or engine running		Open		
OIL P 3W	Ignition switch ON		Close		
HOOD SW	Close the hood	Close the hood			
HOOD 3W	Open the hood		On		
HL WASHER REQ	NOTE: The item is indicated, but not m	NOTE: The item is indicated, but not monitored.			
	Not operation		Off		
THFT HRN REQ	Panic alarm is activated     Horn is activated with VEHICLE SECURITY (THEFT WARNING) SYSTEM		On		
Not operating		Off			
HORN CHIRP	Door locking with Intelligent Ke	y (horn chirp mode)	On		
CRNRNG LMP REQ	NOTE: The item is indicated, but not m	nonitored.	Off		

< ECU DIAGNOSIS INFORMATION >

### TERMINAL LAYOUT



#### PHYSICAL VALUES

	nal No.	Description				Value
+ (VVire	e color) –	Signal name	Input/ Output		Condition	(Approx.)
1 (W)	Ground	Battery power supply	Input	Ignition swi	tch OFF	Battery voltage
2 (L)	Ground	Battery power supply	Input	Ignition swi	tch OFF	Battery voltage
4	Cround	Front winer LO	Output	Ignition	Front wiper switch OFF	0 V
(V)	Ground	Front wiper LO	Output	switch ON	Front wiper switch LO	Battery voltage
5	Ground	Front wiper HI	Quitnut	Ignition	Front wiper switch OFF	0 V
(L)	Giouria	Front wiper mi	Output swite	switch ON	Front wiper switch HI	Battery voltage
7	Cround	Tail, license plate lamps &	Quitnut	Ignition	Lighting switch OFF	0 V
(R)	Ground	interior lamps	Output	switch ON	Lighting switch 1ST	Battery voltage
12 (B/W)	Ground	Ground	_	Ignition swi	tch ON	0 V
40					ely 1 second or more after ignition switch ON	0 V
13 (Y)	Ground	Fuel pump power supply	Output	<ul> <li>Approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul>		Battery voltage
16				Ignition	Front wiper stop position	0 V
(LG)	Ground	Front wiper auto stop	Input	switch ON	Any position other than front wiper stop position	Battery voltage

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< ECU DIAGNOSIS INFORMATION >

	inal No.	Description			-	Value		
+	e color)	Signal name	Input/ Output		Condition	(Approx.)		
19	Ground	Ignition relay power supply	Output	Ignition swi		0 V		
(W)		3 71 117		Ignition swi	itch ON	Battery voltage		
25	Ground	Ignition relay power supply	Output	Ignition swi		0 V		
(G)		3 71 113		Ignition swi		Battery voltage		
26*	Ground	Ignition relay power supply	Output	Ignition swi		0 V		
(R)				Ignition swi		Battery voltage		
27 (BC)	Ground	Ignition relay monitor	Input	-	itch OFF or ACC	Battery voltage		
(BG)		-		Ignition swi		0 V		
28 (L)	Ground	Push-button ignition switch	Input		bush-button ignition switch	0 V		
(L)		SWILCIT		Release the	e push-button ignition switch	Battery voltage		
30 (GR)	Ground	Starter relay control	Input	Ignition switch ON	Selector lever in any position other than P or N	0 V		
					Selector lever P or N	Battery voltage		
36 (G)	Ground	Battery power supply	Input	Ignition switch OFF		Battery voltage		
39 (P)	_	CAN-L	Input/ Output	_		_		
40 (L)	_	CAN-H	Input/ Output	_		_		
41 (B/W)	Ground	Ground	_	Ignition switch ON		0 V		
42	Ground	Cooling fan relay control	Input	Ignition switch OFF or ACC		0 V		
(Y)	Cround	Cooming fair rolay control	mpat	Ignition switch ON		0.7 V		
43 (SB)	Ground	A/T shift selector (Detention switch)	Input	Ignition switch ON	Press the selector button (Selector lever P)     Selector lever in any position other than P	Battery voltage		
							Release the selector but- ton (selector lever P)	0 V
44	Ground	Horn relay control	Input	The horn is	deactivated	Battery voltage		
(BR)	Giodila	Tioni relay control	IIIput	The horn is	activated	0 V		
45	Ground	Anti theft horn relay control	Input	The horn is	deactivated	Battery voltage		
(G)	Giodila	And their norm letay control	при	The horn is	activated	0 V		
46 (R)	Ground	Starter relay control	Input	Ignition switch ON	Selector lever in any position other than P or N	0 V		
(11)				SWILCH ON	Selector lever P or N	Battery voltage		
					A/C switch OFF	0 V		
48 (L)	Ground	A/C relay power supply	Output	Engine running	A/C switch ON (A/C compressor is operating)	Battery voltage		
49				Ignition swi (More than ignition swi	a few seconds after turning	0 V		
(BG)	Ground	ECM relay power supply	Output	<ul><li>Ignition s</li><li>Ignition s</li><li>(For a fetion switch</li></ul>	switch OFF w seconds after turning igni-	Battery voltage		

< ECU DIAGNOSIS INFORMATION >

	inal No.	Description				Value
+	e color)	Signal name	Input/ Output		Condition	(Approx.)
51	Cround	lanition relevance comple	Outnut	Ignition swi	tch OFF	0 V
(Y)	Ground	Ignition relay power supply	Output	Ignition switch ON		Battery voltage
53	50		Ignition swi (More than ignition swi	a few seconds after turning	0 V	
(W)	Ground	ECM relay power supply	Output	Ignition s     Ignition s     (For a few tion switch)	witch OFF w seconds after turning igni-	Battery voltage
54		Throttle control motor re-		Ignition swi (More than ignition swi	a few seconds after turning	0 V
(P)	Ground	lay power supply	Output	<ul> <li>Ignition s</li> <li>Ignition s</li> <li>(For a few tion switch</li> </ul>	witch OFF w seconds after turning igni-	Battery voltage
55 (SB)	Ground	ECM power supply	Output	Ignition swi	tch OFF	Battery voltage
56	(Fround   Ignition relay nower supply	Output	Ignition swi	tch OFF	0 V	
(LG)			Ignition swi	tch ON	Battery voltage	
57			0.45.4	Ignition switch OFF		0 V
(G)	Ground	Ignition relay power supply	Output	Ignition swi	tch ON	Battery voltage
58	Ground	Ignition relay power supply	Output	Ignition swi	tch OFF	0 V
(V)	Ground	igililion relay power supply	Output	Ignition swi	tch ON	Battery voltage
60				Ignition swi (More than ignition swi	a few seconds after turning	Battery voltage
69 (BR)	Ground	ECM relay control	Output	Ignition s     Ignition s     (For a few tion switch)	witch OFF w seconds after turning igni-	0 – 1.5 V
70 (BG)	Ground	Throttle control motor re- lay control	Output	Ignition swi	tch ON → OFF	0 − 1.0 V ↓ Battery voltage ↓ 0 V
				Ignition swi	tch ON	0 – 1.0 V
74	Ground	lanition rolay navor augus	Outout	Ignition swi	tch OFF	0 V
(P)	Ground	Ignition relay power supply	Output	Ignition swi	tch ON	Battery voltage
75	Ground	Oil prossure switch	Innut	Ignition	Engine stopped	0 V
(SB)	Ground	Oil pressure switch	Input	switch ON	Engine running	Battery voltage

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< ECU DIAGNOSIS INFORMATION >

	inal No.	Description				Value	
+	e color)	Signal name	Input/ Output		Condition	(Approx.)	
				Ignition swi	itch ON	(V) 6 4 2 0 2ms JPMIA0001GB	
76 (Y)	Ground	Power generation command signal	Output			on "ACTIVE TEST", "AL- R DUTY" of "ENGINE"	(V) 6 4 2 0 2 2ms JPMIA0002GB 3.8 V
					on "ACTIVE TEST", "AL- R DUTY" of "ENGINE"	(V) 6 4 2 0 2ms JPMIA0003GB 1.4 V	
77 (R)	Ground	Fuel pump relay control	Output	<ul> <li>Approximately 1 second after turning the ignition switch ON</li> <li>Engine running</li> </ul>		0 – 1.0 V	
					tely 1 second or more after ignition switch ON	Battery voltage	
80 (W)	Ground	Starter motor	Output	At engine of	cranking	Battery voltage	
83 (BG)	Ground	Headlamp LO (RH)	Output	Ignition switch ON	Lighting switch OFF	0 V	
-					Lighting switch 2ND	Battery voltage  0 V	
84 (V)	Ground	Headlamp LO (LH)	Output	Ignition switch ON	Lighting switch OFF Lighting switch 2ND	Battery voltage	
					Front fog lamp switch OFF	0 V	
86 (W)	Ground	Front fog lamp (RH)	Output	Lighting switch 2ND	Front fog lamp switch     ON     Daytime running light     activated (Only for Canada)	Battery voltage	
					Front fog lamp switch OFF	0 V	
87 (L)	Ground	Front fog lamp (LH)	Output	Lighting switch 2ND	Front fog lamp switch     ON     Daytime running light     activated (Only for Canada)	Battery voltage	
88 (GR)	Ground	Washer pump power supply	Output	Ignition swi	itch ON	Battery voltage	

< ECU DIAGNOSIS INFORMATION >

	inal No.	Description				Value	
+ (Wire	e color)	Signal name	Input/ Output		Condition	(Approx.)	
89				Ignition	Lighting switch OFF	0 V	
(BR)	Ground	Headlamp HI (RH)	Output	Ignition switch ON	Lighting switch HI     Lighting switch PASS	Battery voltage	
			Laurisia a		Lighting switch OFF	0 V	
90 (P)	Ground	Headlamp HI (LH)	Output Ignition switch ON	Lighting switch HI     Lighting switch PASS	Battery voltage		
91	Cround	Darking Jamp (DU)	Output	Ignition	Lighting switch OFF	0 V	
(P)	Ground	Parking lamp (RH)	Output	switch ON	Lighting switch 1ST	Battery voltage	
92	Cround	Darking Jamp (LU)	Output	Ignition	Lighting switch OFF	0 V	
(BG)	Ground	Parking lamp (LH)	Output	switch ON	Lighting switch 1ST	Battery voltage	
97 (V)	Ground	Cooling fan control	Output	Engine idling		0 – 5 V	
104	Ground	Hood switch	Input	Close the h	ood	Battery voltage	
(LG)	Giouila	TIOOG SWILGIT	iriput	Open the h	ood	0 V	

<sup>\*:</sup> Only for the models with ICC system

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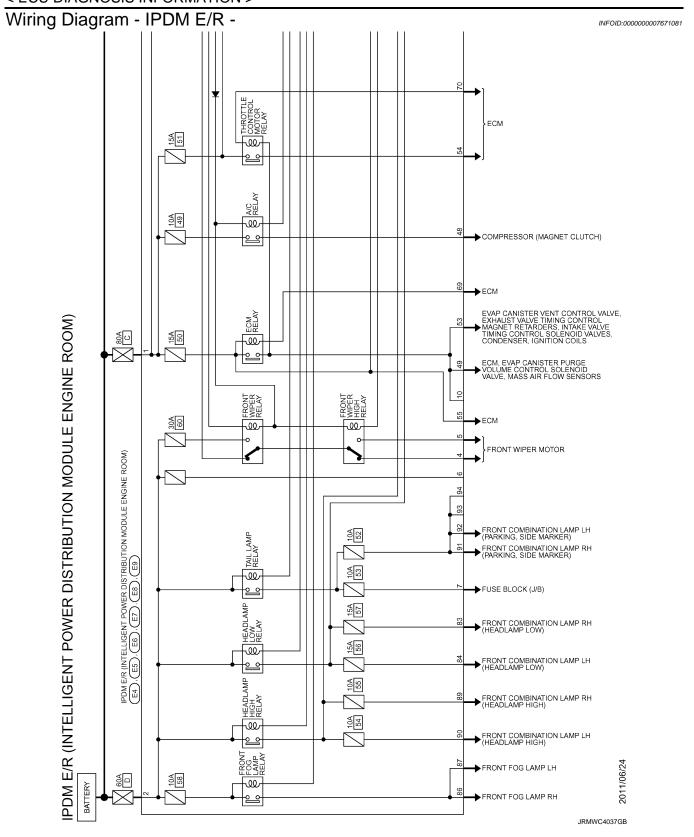
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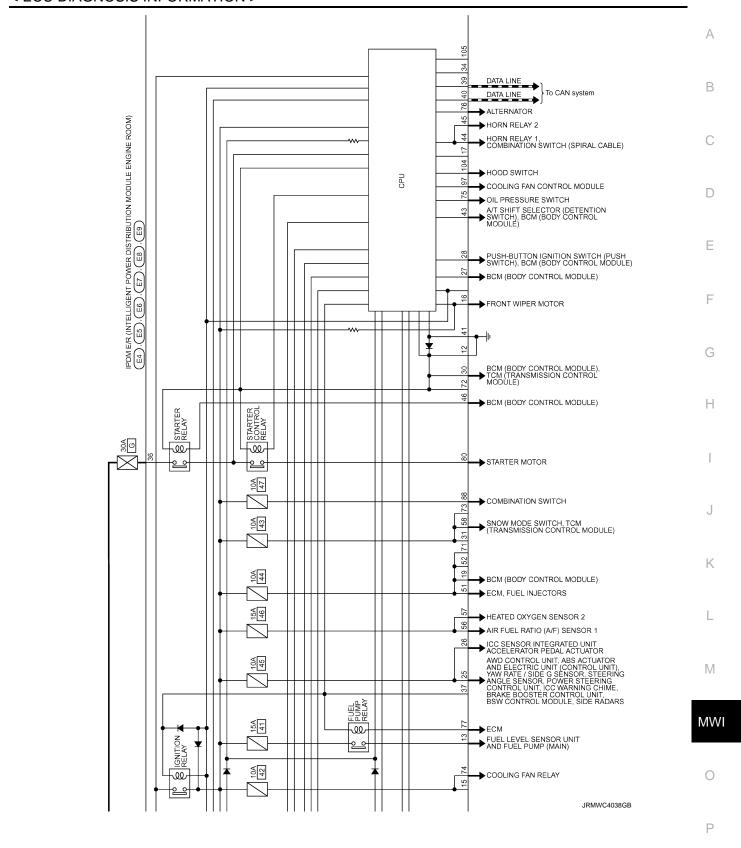
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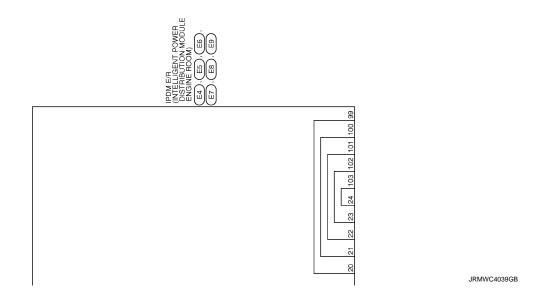
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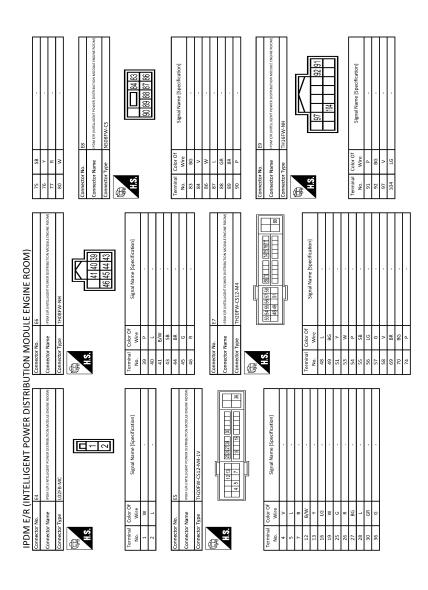
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Fail-safe

#### 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

#### < ECU DIAGNOSIS INFORMATION >

Control part	Fail-safe operation
Cooling fan	<ul> <li>Outputs the pulse duty signal (PWM signal) 100% when the ignition switch is turned ON</li> <li>Outputs the pulse duty signal (PWM signal) 0% when the ignition switch is turned OFF</li> </ul>
A/C compressor	A/C relay OFF
Alternator	Outputs the power generation command signal (PWM signal) 0%

#### If No CAN Communication Is Available With BCM

Control part	Fail-safe operation
Headlamp	<ul> <li>Turns ON the headlamp low relay when the ignition switch is turned ON</li> <li>Turns OFF the headlamp low relay when the ignition switch is turned OFF</li> <li>Headlamp high relay OFF</li> </ul>
<ul> <li>Parking lamps</li> <li>License plate lamps</li> <li>Side maker lamps</li> <li>Illuminations</li> <li>Tail lamps</li> </ul>	Turns ON the tail lamp relay when the ignition switch is turned ON Turns OFF the tail lamp relay when the ignition switch is turned OFF
Front wiper	<ul> <li>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.</li> <li>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.</li> </ul>
Front fog lamps	Front fog lamp relay OFF
Horn	Horn relay OFF
Ignition relay	The status just before activation of fail-safe is maintained.
Starter motor	Starter control 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.

Voltage	judgment			
Ignition relay contact side	Ignition relay excitation coil side	IPDM E/R judgment	Operation	
ON	ON	Ignition relay ON normal	_	
OFF	OFF	Ignition relay OFF normal	_	
ON	OFF	Ignition relay ON stuck	Detects DTC "B2098: IGN RELAY ON"     Turns ON the tail lamp relay for 10 minutes	
OFF	ON	Ignition relay OFF stuck	Detects DTC "B2099: IGN RELAY OFF"	

#### FRONT WIPER CONTROL

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

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

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

#### < ECU DIAGNOSIS INFORMATION >

#### NOTE:

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

#### STARTER MOTOR PROTECTION FUNCTION

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

DTC Index

#### NOTE:

- The details of time display are as follows.
- CRNT: A malfunction is detected now.
- PAST: A malfunction was detected in the past.
- IGN counter is displayed on FFD (Freeze Frame data).
- The number is 0 when is detected now.
- The number increases like 1  $\rightarrow$  2  $\cdots$  38  $\rightarrow$  39 after returning to the normal condition whenever IGN OFF  $\rightarrow$  ON.
- The number is fixed to 39 until the self-diagnosis results are erased if it is over 39.

CONSULT display	Fail-safe	Reference
No DTC is detected. further testing may be required.	_	_
U1000: CAN COMM CIRCUIT	×	PCS-14
B2098: IGN RELAY ON	×	PCS-15
B2099: IGN RELAY OFF	_	PCS-16
B210B: START CONT RLY ON	_	<u>SEC-77</u>
B210C: START CONT RLY OFF	_	SEC-78
B210D: STARTER RELAY ON	_	<u>SEC-79</u>
B210E: STARTER RELAY OFF	_	<u>SEC-80</u>
B210F: INTRLCK/PNP SW ON	_	SEC-82
B2110: INTRLCK/PNP SW OFF	<del>-</del>	SEC-84

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#### THE FUEL GAUGE POINTER DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

# SYMPTOM DIAGNOSIS

# THE FUEL GAUGE POINTER DOES NOT MOVE

Description INFOID.000000007455714

Fuel gauge needle will not move from a certain position.

#### **Diagnosis Procedure**

INFOID:0000000007455715

# 1. CONDUCTING THE COMBINATION METER SELF-DIAGNOSIS MODE

Perform the self-diagnosis mode of combination meter, and then check that the fuel gauge operates normally. Refer to MWI-40, "Diagnosis Description".

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to MWI-134, "Removal and Installation".

# 2. CHECK FLOAT INTERFERENCE

Check that the float arm interferes with or binds to other components in the fuel tank.

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

# 3.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-58, "Component Function Check".

#### Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-42, "Intermittent Incident".

NO >> Repair or replace malfunctioning parts.

#### THE METER CONTROL SWITCH IS INOPERATIVE

# < SYMPTOM DIAGNOSIS > THE METER CONTROL SWITCH IS INOPERATIVE Α Description INFOID:0000000007455716 If any of the following malfunctions is found for the meter control switch operation. В All switches are inoperative. The specified switch cannot be operated. Diagnosis Procedure INFOID:0000000007455717 1. CHECK METER CONTROL SWITCH SIGNAL CIRCUIT Check the meter control switch signal circuit. Refer to MWI-62, "Diagnosis Procedure". D Is the inspection result normal? YFS >> GO TO 2. Е NO >> Repair harness or connector. 2.CHECK METER CONTROL SWITCH UNIT Perform a unit check for the meter control switch. Refer to MWI-63, "Component Inspection". F Is the inspection result normal? YES >> Replace combination meter. NG >> Replace meter control switch. Н K M

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#### THE TRIP A/B RESET SWITCH IS INOPERATIVE

#### < SYMPTOM DIAGNOSIS >

# THE TRIP A/B RESET SWITCH IS INOPERATIVE

Description INFOID:0000000007455718

The trip A/B reset switch is inoperative.

Diagnosis Procedure

INFOID:0000000007455719

# 1. CHECK TRIP A/B RESET SWITCH SIGNAL CIRCUIT

Check the trip A/B reset switch signal circuit. Refer to MWI-62, "Diagnosis Procedure".

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK TRIP A/B RESET SWITCH UNIT

Perform a unit check for the trip A/B reset switch. Refer to MWI-63, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter.

NG >> Replace trip A/B reset switch.

### THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >	
THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON	А
Description INFOID:000000007455720	7.
The oil pressure warning lamp stays off when the ignition switch is turned ON.	В
Diagnosis Procedure	
1. CHECK OIL PRESSURE WARNING LAMP	С
Perform auto active test. Refer to PCS-9, "Diagnosis Description".	
Does oil pressure warning lamp blink? YES >> GO TO 2.	D
NO >> Replace combination meter.	
2. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT	Е
Check the oil pressure switch signal circuit. Refer to MWI-66, "Diagnosis Procedure".  Is the inspection result normal?	
YES >> GO TO 3.	F
NO >> Repair harness or connector.  3. CHECK OIL PRESSURE SWITCH UNIT	
Perform a unit check for the oil pressure switch. Refer to MWI-66, "Component Inspection".	G
Is the inspection result normal?	
YES >> Replace IPDM E/R.  NO >> Replace oil pressure switch.	Н
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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.000000007455722

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

#### **Diagnosis Procedure**

INFOID:0000000007455723

# 1. CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-9, "Diagnosis Description".

#### Does oil pressure warning lamp blink?

YES >> GO TO 2.

NO >> Replace combination meter.

# 2. CHECK IPDM E/R OUTPUT VOLTAGE

- 1. Disconnect the oil pressure switch connector.
- 2. Turn ignition switch ON.
- 3. Check voltage between the oil pressure switch harness connector and ground.

Terminals			
(+)		(-)	Voltage
Oil pressure switch			voltage
Connector	Terminal	Ground	
F37	1		Approx. 12 V

#### Is the inspection result normal?

YES >> GO TO 3.

NO >> GO TO 4.

# 3.CHECK OIL PRESSURE SWITCH UNIT

Perform a unit check for the oil pressure switch. Refer to MWI-66, "Component Inspection".

#### Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-32, "Removal and Installation".

NO >> Replace oil pressure switch.

# 4. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-66, "Diagnosis Procedure".

#### Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-32, "Removal and Installation".

NO >> Repair harness or connector.

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

#### < SYMPTOM DIAGNOSIS >

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

Description INFOID:0000000007455724

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

#### Diagnosis Procedure

# 1. CHECK PARKING BRAKE WARNING LAMP OPERATION

- Start engine.
- 2. Check the operation of the parking brake warning lamp when operating the parking brake.

Condition	Warning lamp status
Parking brake is applied	ON
Parking brake is released	OFF

#### Is the inspection result normal?

YES >> Replace combination meter.

NO >> GO TO 2.

# 2.CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

- 1. Turn ignition switch OFF.
- 2. Check the parking brake switch signal circuit. Refer to MWI-67, "Diagnosis Procedure".

#### Is the inspection result normal?

YES >> GO TO 3.

NG >> Repair harness or connector.

# 3.CHECK PARKING BRAKE SWITCH UNIT

Perform a unit check for the parking brake switch. Refer to BRC-90, "Component Inspection".

#### Is the inspection result normal?

YES >> Replace combination meter.

NO >> Replace parking brake switch.

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

#### < SYMPTOM DIAGNOSIS >

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

Description INFOID:000000007455726

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

### Diagnosis Procedure

INFOID:0000000007455727

# 1. CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check the washer level switch signal circuit. Refer to MWI-69, "Diagnosis Procedure".

#### Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK WASHER LEVEL SWITCH UNIT

Perform a unit check for the washer level switch. Refer to MWI-69, "Component Inspection".

#### Is the inspection result normal?

YES >> Replace combination meter.

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

#### < SYMPTOM DIAGNOSIS >

#### THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY Description INFOID:0000000007455728 В The door ajar warning is displayed even though all of the doors are closed. The door ajar warning is not displayed even though a door is ajar. Diagnosis Procedure INFOID:0000000007455729 1. CHECK BCM INPUT/OUTPUT SIGNAL D Connect CONSULT and check the BCM input signals. Refer to DLK-67, "Component Function Check". Is the inspection result normal? YES >> GO TO 2. Е NO >> GO TO 3. 2.CHECK UNIFIED METER AND A/C AMP. INPUT SIGNAL Select the "Data Monitor" for the "METER/M&A" and check the "DOOR W/L" monitor value. "DOOR W/L" Door open : On Door closed : Off Is the inspection result normal? Н YES >> Replace combination meter. NO >> Replace BCM. Refer to BCS-92, "Removal and Installation". 3.check door switch signal circuit Check the door switch signal circuit. Refer to <a href="DLK-67">DLK-67</a>, "Diagnosis Procedure". Is the inspection result normal? YES >> GO TO 4. NO >> Repair harness or connector. 4. CHECK DOOR SWITCH UNIT Perform a unit check for the door switch. Refer to <u>DLK-69</u>, "Component Inspection". Is the inspection result normal? YES >> Replace combination meter. NO >> Replace applicable door switch. Refer to DLK-274, "Removal and Installation". M

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#### THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

#### < SYMPTOM DIAGNOSIS >

#### THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description INFOID.000000007455730

- 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:0000000007455731

#### NOTE:

Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to MWI-131, "INFORMATION DISPLAY: Description".

# 1. CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to HAC-67, "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-68, "Component Inspection".

#### Is the inspection result normal?

YES >> Replace unified meter and A/C amp.

NO >> Replace ambient sensor. Refer to HAC-124, "Removal and Installation".

#### NORMAL OPERATING CONDITION

#### < SYMPTOM DIAGNOSIS >

# NORMAL OPERATING CONDITION COMPASS

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COMPASS: Description

#### **COMPASS**

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

Symptom Chart

Symptom	Cause Solution / Reference		
The compass display reads "C".			
Compass shows the wrong direction.	incorrect zone variance setting.		
Compass does not change direction appears "Locked".		Perform calibration. Refer to MWI-36, "De-	
Compass does not show all the directions, one or more is missing.		scription".	
The compass was calibrated but it "loses" calibration.			
On long trips the compass shows the wrong direction.		Perform zone variation setting if correct reading is desired in that location. Refer to MWI-36, "Description".	

#### INFORMATION DISPLAY

#### **INFORMATION DISPLAY: Description**

INFOID:0000000007455733

#### AMBIENT AIR TEMPERATURE

The displayed ambient 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 unified meter and A/C amp. Refer to <a href="MWI-30">MWI-30</a>, "INFORMATION DISPLAY: System Description" for details on the correction process.

#### POSSIBLE DRIVING DISTANCE

The calculated possible driving distance may differ from the actual distance to empty if the refueling amount is approximately 15  $\ell$  (4 US gal, 3-3/10 Imp gal) or less. This is because the refuel control (moves the fuel gauge needle quicker than normal judging that the driver is refueling the vehicle) is not performed in such a case.

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#### **PRECAUTIONS**

#### < PRECAUTION >

# **PRECAUTION**

#### **PRECAUTIONS**

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

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

#### WARNING:

Always observe the following items for preventing accidental activation.

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

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

#### **WARNING:**

Always observe the following items for preventing accidental activation.

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

#### **PREPARATION**

# < PREPARATION >

# **PREPARATION**

# **PREPARATION**

# **Commercial Service Tools**

Tool name		Description
Power tool	PBIC0191E	Loosening screws

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# REMOVAL AND INSTALLATION

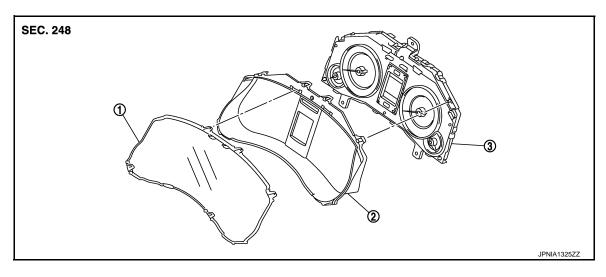
### **COMBINATION METER**

Exploded View

**REMOVAL** 

Refer to IP-12, "Exploded View".

**DISASSEMBLY** 



1. Front cover

Upper housing

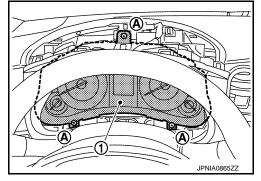
3. Unified meter control unit

#### Removal and Installation

INFOID:0000000007455737

#### Removal

- Remove the cluster lid A. Refer to <u>IP-13, "Removal and Installation"</u>.
- 2. Remove screws (A) and connector, and then remove combination meter (1).



#### Installation

Install in the reverse order of removal.

### Disassembly and Assembly

INFOID:0000000007455738

#### **DISASSEMBLY**

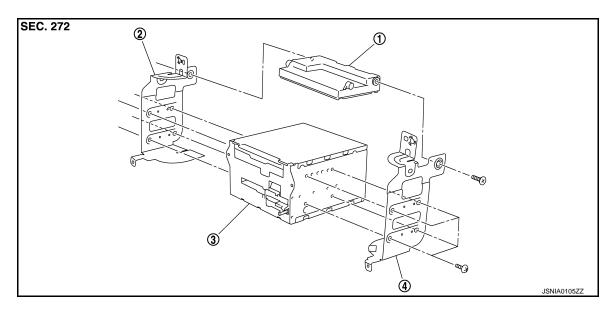
- Disengage the tabs to separate the upper housing with the front cover from unified meter control unit.
- 2. Disengage the tabs to separate the front cover from upper housing.

#### **ASSEMBLY**

Assemble in the reverse order of disassembly.

### UNIFIED METER AND A/C AMP.

**Exploded View** INFOID:0000000007455739



- 1. Unified meter and A/C amp.
- 2. Bracket (LH)

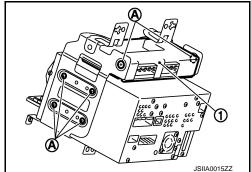
3. AV control unit

4. Bracket (RH)

#### Removal and Installation

**REMOVAL** 

- 1. Remove AV control unit. Refer to AV-128, "Exploded View" (BASE AUDIO WITHOUT NAVIGATION), AV-316, "Exploded View" (BOSE AUDIO WITHOUT NAVIGATION) or AV-519, "Exploded View" (BOSE AUDIO WITH NAVIGATION).
- 2. Remove mounting screws (A), and then remove unified meter and A/C amp. (1).



#### **INSTALLATION**

Installation is basically the reverse order of removal.

#### **CAUTION:**

Since unified meter and A/C amp. connector and AV control unit connector have the same form, be careful not to insert them wrongly.

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**MWI-135** Revision: 2014 October 2012 EX

#### **METER CONTROL SWITCH**

#### < REMOVAL AND INSTALLATION >

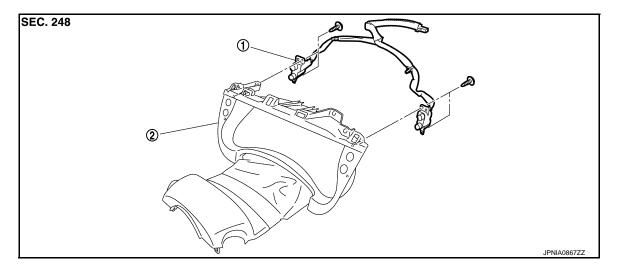
# METER CONTROL SWITCH

Exploded View

**REMOVAL** 

IP-12, "Exploded View"

**DISASSEMBLY** 



1. Meter control switch

2. Cluster lid A

#### Removal and Installation

INFOID:0000000007455742

#### **REMOVAL**

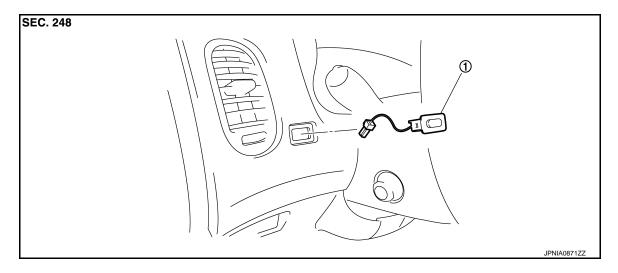
- 1. Remove cluster lid A. Refer to IP-13, "Removal and Installation".
- 2. Remove screws and remove meter control switch.

#### **INSTALLATION**

Install in the reverse order of removal.

# TRIP A/B RESET SWITCH

Exploded View



1. Trip A/B reset switch

### Removal and Installation

**REMOVAL** 

- 1. Remove combination meter. Refer to MWI-134, "Removal and Installation".
- 2. Press pawls and remove trip A/B reset switch.

#### **INSTALLATION**

Install in the reverse order of removal.

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#### **COMPASS**

#### < REMOVAL AND INSTALLATION >

# **COMPASS**

Exploded View

Refer to MIR-118, "Exploded View" (with ADP) or MIR-138, "Exploded View" (without ADP).

Removal and Installation

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Refer to MIR-118, "Removal and Installation" (with ADP) or MIR-138, "Removal and Installation" (without ADP).

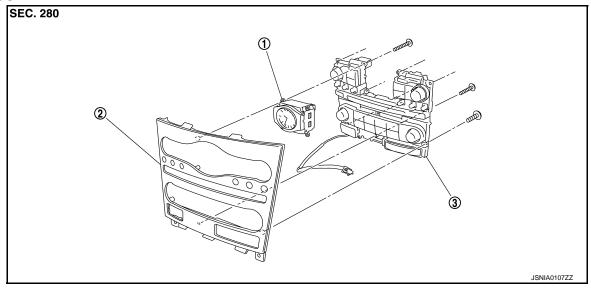
### **CLOCK**

**Exploded View** INFOID:0000000007455747

#### **REMOVAL**

Refer to IP-12, "Exploded View".

#### DISASSEMBLY



1. Clock 2. Cluster lid C 3. Preset switch

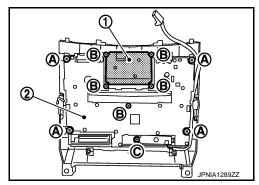
#### Removal and Installation

**REMOVAL** 

Remove cluster lid C assembly. Refer to IP-13, "Removal and Installation".

Remove screws (A), (B), (C) and remove clock (1) in conjunction with preset switch (2) from cluster lid C.

Disengage the tabs to separate clock. 3.



#### **INSTALLATION**

Install in the reverse order of removal.

NOTE:

Never confuse screws when installing.

MWI

**MWI-139** Revision: 2014 October 2012 EX

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