

MWI

SECTION

METER, WARNING LAMP & INDICATOR

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PRECAUTIONS

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PRECAUTION

PRECAUTIONS

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

INFOID:000000007565057

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.

Precaution for Battery Service

INFOID:000000007565058

Before disconnecting the battery, lower both the driver and passenger windows. This will prevent any interference between the window edge and the vehicle when the door is opened/closed. During normal operation, the window slightly raises and lowers automatically to prevent any window to vehicle interference. The automatic window function will not work with the battery disconnected.

Service Procedure Precautions for Models with a Pop-up Roll Bar

INFOID:000000007565059

WARNING:

Always observe the following items for preventing accidental activation.

- Risk of passenger injury or death may increase if the pop-up roll bar does not deploy during a roll over collision. In order to reduce the chance of an incident where the pop-up roll bar is inoperative, all maintenance must be performed by a NISSAN or INFINITI dealer.
- Before removing and installing the pop-up roll bar component parts and harness, always turn the ignition switch OFF, disconnect the battery negative terminal, and wait for 3 minutes or more. (The purpose of this operation is to discharge electricity that is accumulated in the auxiliary power supply circuit in the air bag diagnosis sensor unit.)
- When repairing, removing, and installing a pop-up roll bar, always refer to SRS AIR BAG and SRS AIR BAG CONTROL warnings in the Service Manual.

PREPARATION

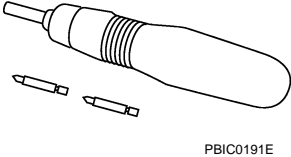
< PREPARATION >

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:000000007565060

Tool name	Description
<p>Power tool</p>  <p>PBIC0191E</p>	<p>Loosening screws</p>

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COMPONENT PARTS

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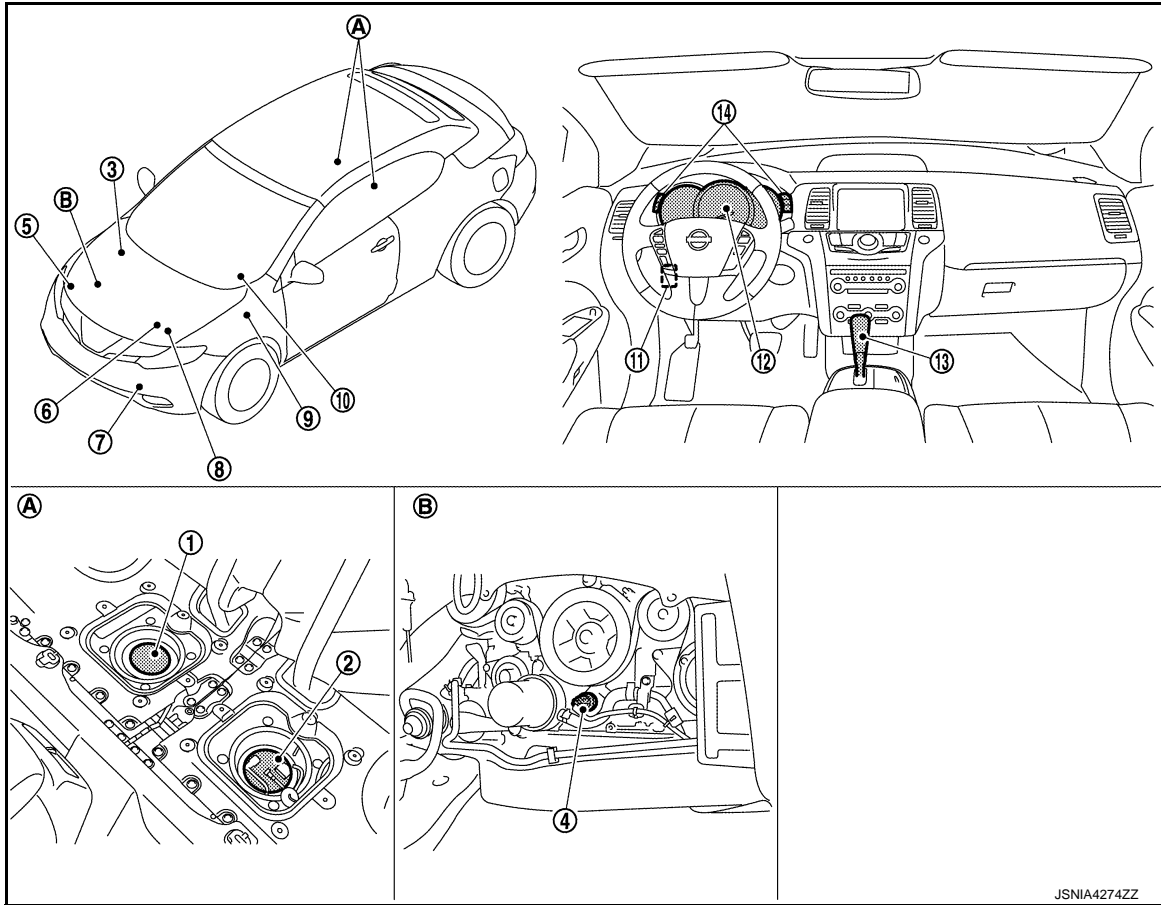
SYSTEM DESCRIPTION

COMPONENT PARTS

METER SYSTEM

METER SYSTEM : Component Parts Location

INFOID:000000007565061



- | | | |
|---|--|--|
| 1. Fuel level sensor unit (sub) | 2. Fuel level sensor unit and fuel pump (main) | 3. ABS actuator and electric unit (control unit)
Refer to BRC-8, "Component Parts Location" |
| 4. Oil pressure switch | 5. Washer level switch | 6. TCM
Refer to TM-10, "CVT CONTROL SYSTEM : Component Parts Location" |
| 7. Ambient sensor
Refer to HAC-5, "Component Parts Location" | 8. ECM
Refer to EC-15, "ENGINE CONTROL SYSTEM : Component Parts Location" | 9. IPDM E/R
Refer to PCS-4, "Component Parts Location" |
| 10. BCM
Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location" | 11. Parking brake switch | 12. Combination meter |
| 13. CVT shift selector | 14. Meter control switch | |
| A. Lower side of rear seat | B. Engine front side | |

METER SYSTEM : Component Description

INFOID:000000007565062

COMPONENT PARTS

< SYSTEM DESCRIPTION >

Unit	Description
Combination meter	<p>Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors.</p> <ul style="list-style-type: none"> • Speedometer • Engine coolant temperature gauge • Warning lamps • Meter illumination control • Tachometer • Fuel gauge • Indicator lamps • Information display
IPDM E/R	IPDM E/R reads the ON/OFF signals of the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with CAN communication line.
Fuel level sensor unit	Transmits the fuel level sensor signal to the combination meter.
Oil pressure switch	Transmits the oil pressure switch signal to the IPDM E/R.
ECM	<p>Transmits the following signals to the combination meter with CAN communication line.</p> <ul style="list-style-type: none"> • Engine speed signal • Fuel consumption monitor signal • Engine coolant temperature signal • Fuel filler cap warning display signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter with CAN communication line.
BCM	Transmits signals provided by various units to the combination meter with CAN communication line.
CVT shift selector	Transmits the O/D OFF switch signal to the combination meter.
TCM	Transmits the shift position signal to the combination meter with CAN communication line.
Meter control switch	<p>Transmits the following signals to the combination meter.</p> <ul style="list-style-type: none"> • Enter switch signal • Select switch signal • Trip reset switch signal • Illumination control switch signal (+) • Illumination control switch signal (-)
Washer level switch	Transmits the washer level signal to the combination meter.
Parking brake switch	Transmits the parking brake switch signal to the combination meter.

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METER SYSTEM

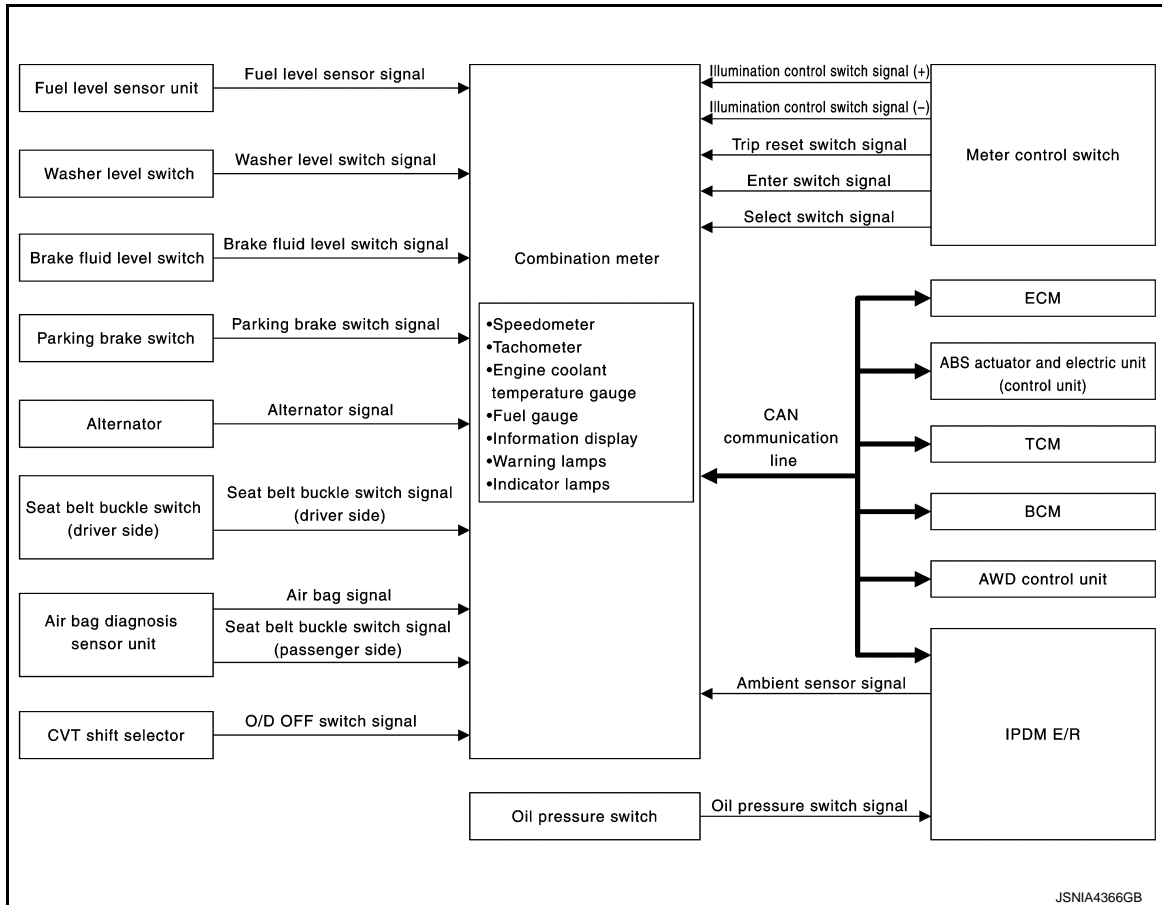
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METER SYSTEM

METER SYSTEM

METER SYSTEM : System Diagram

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METER SYSTEM : System Description

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COMBINATION METER

- The combination meter receives the information required to control the operation of each gauge, indicator/warning lamp, and information display via CAN communication from each unit, each switch, and sensor.
- 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 [WCS-6, "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.

IPDM E/R

- IPDM E/R reads the ON/OFF signals of the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with 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

METER SYSTEM

< SYSTEM DESCRIPTION >

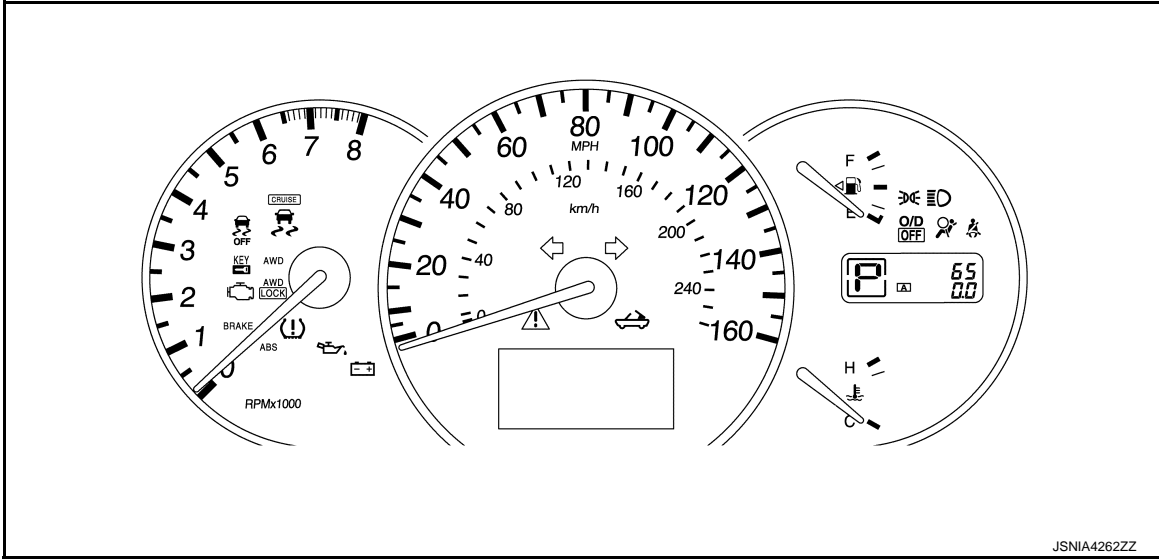
System		Description	Signal source	
Meter/gauge	Speedometer	Receives vehicle speed signal and indicates vehicle speed.	ABS actuator and electric unit (control unit)	A
	Tachometer	Receives engine speed signal and indicates engine speed.	ECM	B
	Fuel gauge	Receives fuel level sensor signal and indicates fuel level.	Fuel level sensor unit	
	Engine coolant temperature gauge	Receives engine coolant temperature signal and indicates coolant temperature.	ECM	C
Warning lamp/indicator lamp	Oil pressure warning lamp	Receives oil pressure warning lamp signal and illuminates warning lamp.	IPDM E/R	
	Master warning	Illuminates according to warning output on information display.	—	D
Information display	Door open warning	Receives door switch signals and displays warning.	BCM	
	Trunk open warning	Receives trunk switch signal and displays warning.	BCM	E
	Parking brake release warning	Receives parking brake switch signal and vehicle speed signal and displays warnings.	Parking brake switch ABS actuator and electric unit (control unit)	F
	Low fuel warning	Receives fuel gauge signal and displays warning if fuel level decreases to 9.8 ℓ (2-5/8 US gal, 2-1/8 Imp gal) or less.	Fuel level sensor unit	
	Low washer fluid warning	Receives washer level switch signal and displays warning.	Washer level switch	G
	Low outside temperature warning	Monitors ambient sensor signal and displays warning if ambient temperature decreases to 3°C (37°F) or less. (If enabled)	Ambient sensor	H
	Low tire pressure warning	Receives low tire pressure warning lamp signal and displays warning.	BCM	
	Fuel filler cap warning	Receives fuel filler cap warning display signals and displays warning.	ECM	I
	Instantaneous fuel consumption	Calculates instantaneous fuel consumption based on received vehicle speed signals and fuel consumption monitor signal and displays it.	ECM	J
			ABS actuator and electric unit (control unit)	
	Average fuel consumption	Calculates average fuel consumption in a reset-to-reset interval based on received vehicle speed signals and fuel consumption monitor signal and displays it.	ECM	K
			ABS actuator and electric unit (control unit)	
	Average vehicle speed	Calculates average vehicle speed in a reset-to-reset interval based on received vehicle speed signals and displays it.	ABS actuator and electric unit (control unit)	L
	Travel time	Displays accumulated key switch ON time from reset to reset.	—	
	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)	M
Possible driving distance	Calculates possible driving distance based on received fuel consumption monitor signal, vehicle speed signals and fuel level sensor signal and displays it.	ABS actuator and electric unit (control unit)	MWI	
		ECM		
		Fuel level sensor unit		
Ambient air temperature	Corrects ambient air temperature value based on received ambient sensor signals and displays it.	Ambient sensor	O	

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METER SYSTEM

< SYSTEM DESCRIPTION >

ARRANGEMENT OF COMBINATION METER



METER SYSTEM : Fail-Safe

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FAIL-SAFE

The combination meter activates the fail-safe control if CAN communication with each unit is malfunctioning.

Function		Specifications	
Speedometer		Reset to zero by suspending communication.	
Tachometer			
Engine coolant temperature gauge			
illumination control		When suspending communication, changes to nighttime mode.	
Information display	Door open warning	The display turns off by suspending communication.	
	Trunk open warning		
	Parking brake release warning		
	Low tire pressure warning		
	Fuel filler cap warning		
	Instantaneous fuel warning		<ul style="list-style-type: none"> • When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption		
	Average vehicle speed		
Travel distance			
Buzzer		The buzzer turns off by suspending communication.	

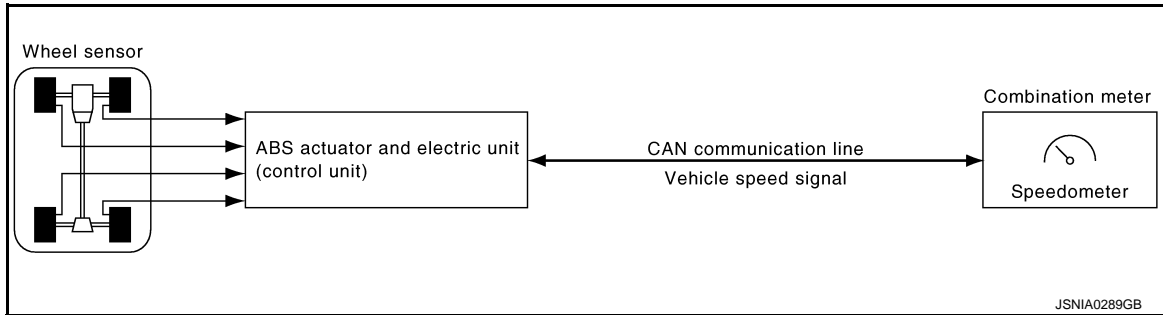
METER SYSTEM

< SYSTEM DESCRIPTION >

	Function	Specifications
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns on by suspending communication.
	VDC warning lamp	
	Brake warning lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	Low tire pressure warning lamp	The lamp turns ON after flashing for 1 minute.
	High beam indicator lamp	The lamp turns off by suspending communication.
	Turn signal indicator lamp	
	Light indicator lamp	
	Oil pressure warning lamp	
	CRUISE indicator lamp	
	O/D OFF indicator lamp	
	VDC OFF indicator lamp	
	AWD LOCK indicator lamp	
	Key warning lamp	

SPEEDOMETER

SPEEDOMETER : System Diagram



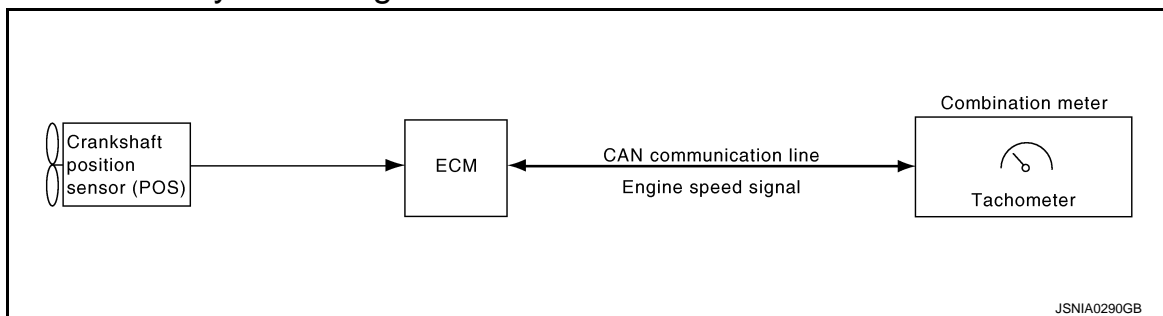
SPEEDOMETER : System Description

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- The ABS actuator and electric unit (control unit) converts the rectangular wave signal provided by the wheel sensor to a vehicle speed signal and transmits it to the combination meter via CAN communication.
- The combination meter indicates the vehicle speed to the speedometer according to the vehicle speed signal received via CAN communication.

TACHOMETER

TACHOMETER : System Diagram



METER SYSTEM

< SYSTEM DESCRIPTION >

TACHOMETER : System Description

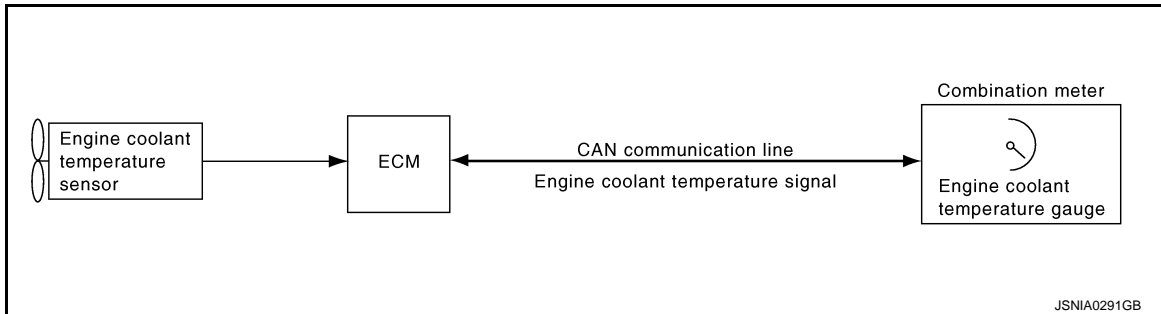
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- ECM converts the pulse signal provided by the crankshaft position sensor to an engine speed signal and transmits it to the combination meter via CAN communication.
- The combination meter indicates the engine speed to the tachometer according to the engine speed signal received via CAN communication.

ENGINE COOLANT TEMPERATURE GAUGE

ENGINE COOLANT TEMPERATURE GAUGE : System Diagram

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ENGINE COOLANT TEMPERATURE GAUGE : System Description

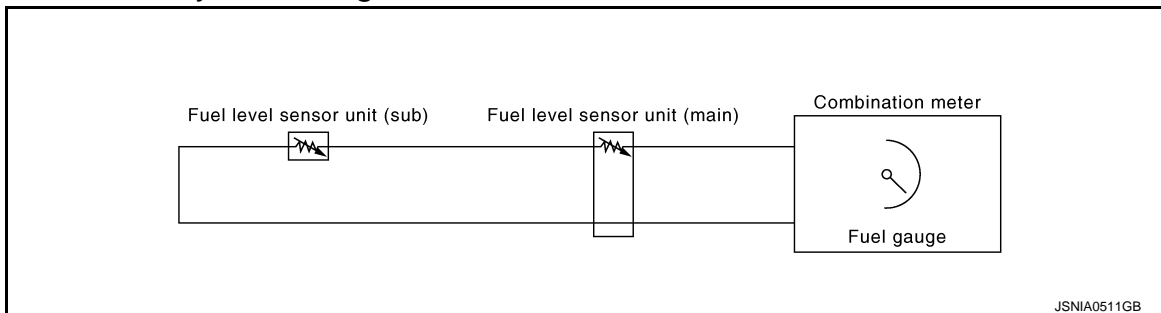
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- ECM reads the engine coolant temperature signal from the engine coolant temperature sensor and transmits the signal to the combination meter via CAN communication.
- The combination meter indicates the engine coolant temperature to the engine coolant temperature gauge according to the engine coolant temperature signal received via CAN communication.

FUEL GAUGE

FUEL GAUGE : System Diagram

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FUEL GAUGE : System Description

INFOID:000000007565073

CONTROL OUTLINE

The combination meter reads the fuel level sensor signal from the fuel level sensor unit and indicates the fuel level to the fuel gauge.

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, 3-1/4 Imp gal) or more.

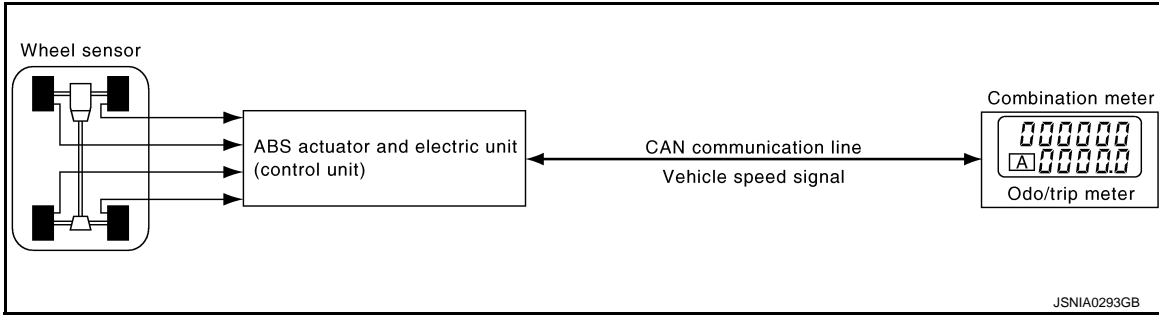
ODO/TRIP METER

METER SYSTEM

< SYSTEM DESCRIPTION >

ODO/TRIP METER : System Diagram

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ODO/TRIP METER : System Description

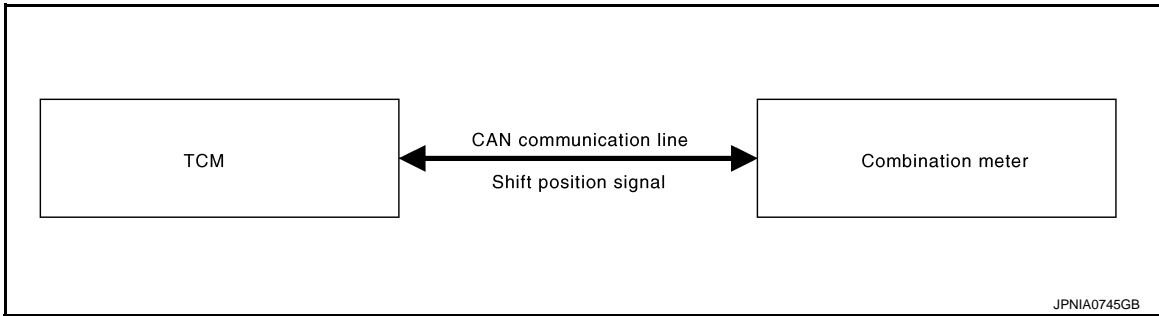
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- The ABS actuator and electric unit (control unit) reads the rectangular wave signal provided by the wheel sensor and transmits the vehicle speed signal to the combination meter via CAN communication.
- The combination meter converts the vehicle speed signal received via CAN communication to mileage, and it displays the accumulated mileage to the odo/trip meter.

SHIFT POSITION INDICATOR

SHIFT POSITION INDICATOR : System Diagram

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SHIFT POSITION INDICATOR : System Description

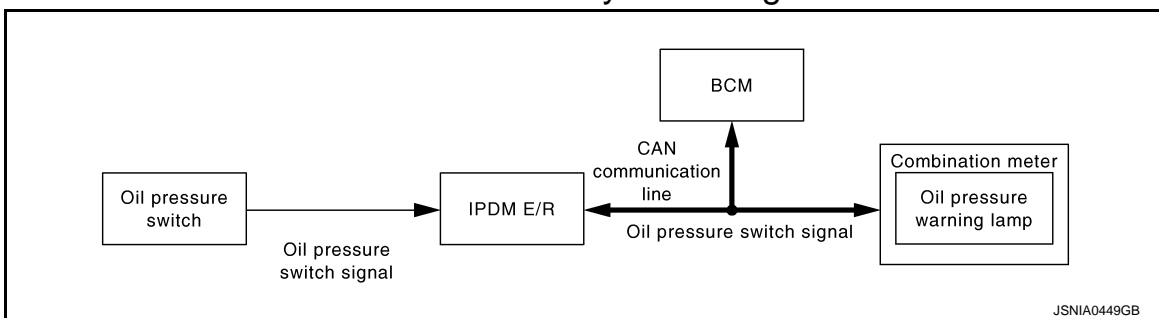
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- Shift position is displayed in the shift position indicator in the combination meter.
- TCM transmits the shift position signal to the combination meter via CAN communication.
- The combination meter indicates shift position according to the shift position signal received via CAN communication.

WARNING LAMPS/INDICATOR LAMPS

WARNING LAMPS/INDICATOR LAMPS : System Diagram

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WARNING LAMPS/INDICATOR LAMPS : System Description

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OIL PRESSURE WARNING LAMP

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

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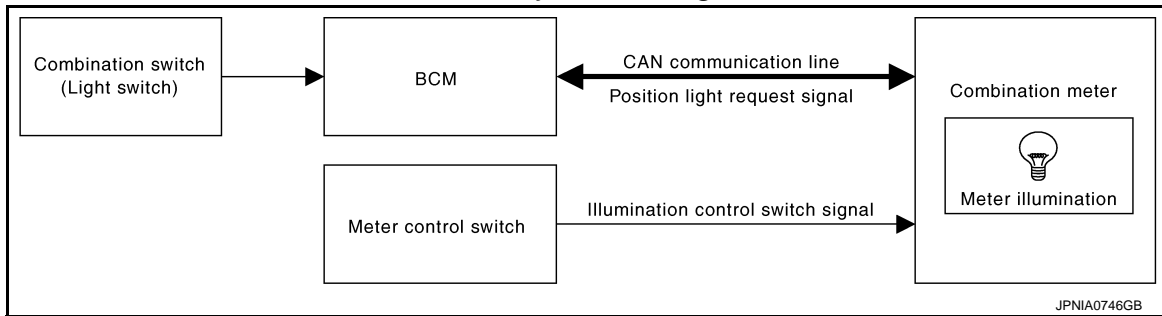
METER SYSTEM

< SYSTEM DESCRIPTION >

- The combination meter turns the oil pressure warning lamp ON/OFF according to the oil pressure switch signal received via CAN communication.

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Diagram



METER ILLUMINATION CONTROL : System Description

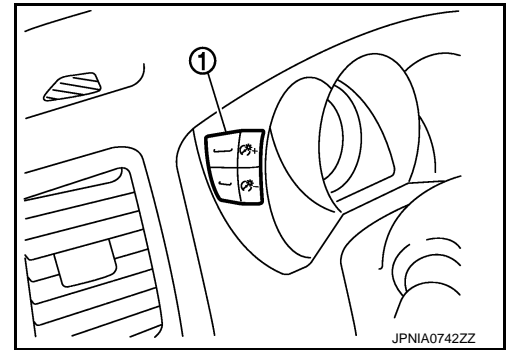
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SYSTEM DESCRIPTION

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 the BCM via CAN communication.

Daytime Mode

Meter illumination level can be adjusted in 22 steps using the illumination control switch (1) in daytime mode.



Nighttime Mode

- Combination meter changes the meter illumination to the nighttime mode by the position light request signal from BCM via CAN communication.
- Meter illumination can be adjusted in 22 steps using the illumination control switch in nighttime mode.

Driver Welcome Function

Ring illumination gradually turns ON when a driver gets in the vehicle with intelligent key and closes the driver side door.

NOTE:

Ring illumination gradually turns OFF when not turning the ignition switch ON at a certain period of time.

Dial Effects Function

Combination meter detects the engine start when input engine speed signal at first. Pointers of speed meter and tachometer sweep and ring illumination gradually turns ON when combination meter detects the engine start. Then, combination meter starts the normal control.

NOTE:

- Engine coolant temperature gauge and fuel gauge do not function.
- Dial Effects Function can be turned ON/OFF from "SETTING" on the information display.

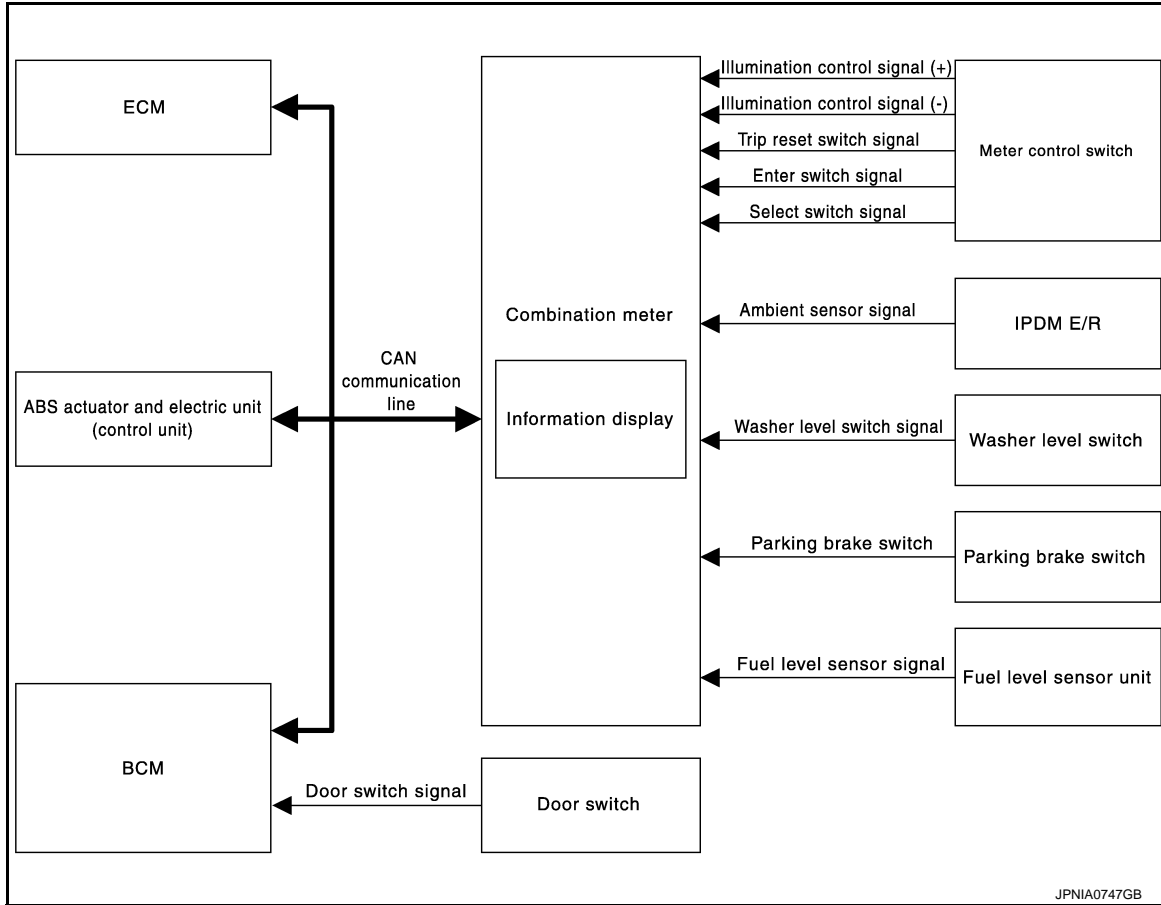
INFORMATION DISPLAY

METER SYSTEM

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INFORMATION DISPLAY : System Diagram

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INFORMATION DISPLAY : System Description

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DESCRIPTION

- The combination meter receives the information required for controlling the operations of the information display from the BCM via CAN communication.
- 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 the parking brake release warning judged by the vehicle speed signal received from the ABS actuator and electric unit (control unit) via CAN communication 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

The combination meter indicates the low fuel warning judged by the fuel level sensor signal received from the fuel level sensor unit.

Warning Operation Condition

- Fuel level: Approx. 9.8 ℓ (2-5/8 US gal, 2-1/8 Imp gal) or less

LOW WASHER FLUID WARNING

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

Warning Operation Condition

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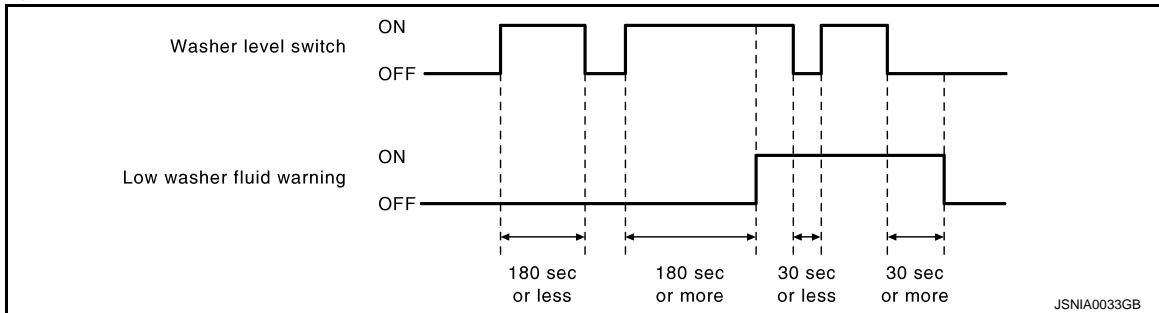
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METER SYSTEM

< SYSTEM DESCRIPTION >

- Indicates the warning when the washer level switch is ON for 180 seconds or more. Stops indicating the warning when the washer level switch is OFF for 30 seconds or more.



LOW TIRE PRESSURE WARNING

- The combination meter receives remaining low tire pressure warning lamp signal from the BCM with CAN 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 BCM.

For details, refer to [WT-8, "System Description"](#).

FUEL FILLER CAP WARNING

- The combination meter receives remaining fuel filler cap warning display signal from the ECM with CAN 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 ECM.

For details, refer to [EC-46, "FUEL FILLER CAP WARNING SYSTEM : System Description"](#).

DOOR OPEN WARNING

- The combination meter indicates the door open warning judged by each door switch signal received from the BCM via CAN communication line.

TRUNK OPEN WARNING

- The combination meter indicates the trunk open warning judged by trunk switch signal received from the BCM via CAN communication line.

INSTANTANEOUS FUEL CONSUMPTION

- The combination meter receives the fuel consumption monitor signal from the ECM and the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication.
- The combination meter calculates instantaneous fuel consumption according to the fuel consumption monitor signal and the vehicle speed signal received via CAN communication.

AVERAGE FUEL CONSUMPTION

- The combination meter receives the fuel consumption monitor signal from the ECM and the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication.
- The combination meter calculates the average fuel consumption according to the fuel consumption monitor signal and the vehicle speed signal received via CAN communication.
- The average fuel consumption displayed on the information display is uploaded in 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.

AVERAGE VEHICLE SPEED

- The combination meter receives the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication.
- Measures the time while the ignition switch is ON through the combination meter.
- The combination meter the average vehicle speed according to the above signals.
- The average vehicle speed displayed on the information display is uploaded in approximately 30-second intervals.

METER SYSTEM

< SYSTEM DESCRIPTION >

NOTE:

When turning ON the ignition switch after triggering a reset or removing/installing the battery, “—” is indicated until 30 seconds.

TRAVEL TIME

Measures the time while the ignition switch is ON through the combination meter.

TRAVEL DISTANCE

- The combination meter receives the vehicle speed signal from the ABS actuator and electric unit (control unit) via CAN communication.
- The combination meter calculates the vehicle distance according to the vehicle speed signal. The vehicle distance is displayed.

POSSIBLE DRIVING DISTANCE

The combination meter 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.

NOTE:

- When turning ON the ignition switch after removing/installing the battery, “—” is indicated until 30 seconds.
- The indicated values may not match each other when refueling with the ignition switch ON. Refer to [MWI-69, "INFORMATION DISPLAY : Description"](#).

AMBIENT AIR TEMPERATURE

- The combination meter receives the ambient sensor signal from the ambient sensor.
- The combination meter calculates the ambient temperature according to the ambient sensor signal.
- 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.
- The ambient temperature may be indicated higher than the actual temperature, depending on heat in the engine, the 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.
	ICY	ON/OFF	—	Low outside temp is displayed on the information display if the ambient temperature is 3°C (37°F) or less.
MAINTENANCE	ENGINE OIL	No setting - 18,500 miles, (No setting - 30,000 km)	250 miles (500 km), [500 miles (1,000 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 (1,000 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 (1,000 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 (1,000 km)]*	The other replacement interval is displayed on the information display if the vehicle reached the set distance.
DISPLAY	LANGUAGE	ENGLISH/FRANCAIS/ESPANOL	—	The language setting can be changed.
	UNIT	US/METRIC	—	The unit setting can be changed.
	DIAL EFFECTS	ON/OFF	—	The dial effects setting can be changed.

*: Press and hold the switch (1 second or more).

COMPASS

< SYSTEM DESCRIPTION >

COMPASS

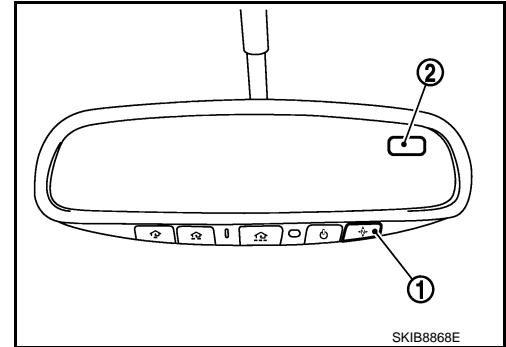
System Description

INFOID:000000007565084

DESCRIPTION

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

- 1 : Compass switch
- 2 : Compass display



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 earth.
- 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 Variance”. 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 a 22.5° total zone change is not noticed on the electronic compass display. However, if a change over 22.5° occurs, a reading may be off by one or more primary directions.
- On long trips, the 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.

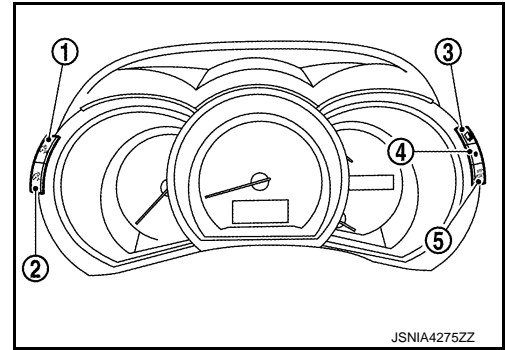
OPERATION

< SYSTEM DESCRIPTION >

OPERATION

Switch Name and Function

INFOID:000000007565085



Switch name		Operation	Description
Meter control switch	Illumination control switch (+) (1)	Press	An illuminance level of the back light of the combination meter can be adjusted.
	Illumination control switch (-) (2)		
	Enter switch (3)		<ul style="list-style-type: none"> The information display screen can be switched. The item indicated on the information display can be confirmed.
	Select switch (4)		When plural items are shown on the information display, a selected item can be changed to the other item.
	Trip reset switch (5)		<ul style="list-style-type: none"> The trip meter can be switched between A and B. Trip meter A/B can be reset by pressing and holding the trip reset switch.

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DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

DIAGNOSIS SYSTEM (COMBINATION METER)

On Board Diagnosis Function

INFOID:000000007565086

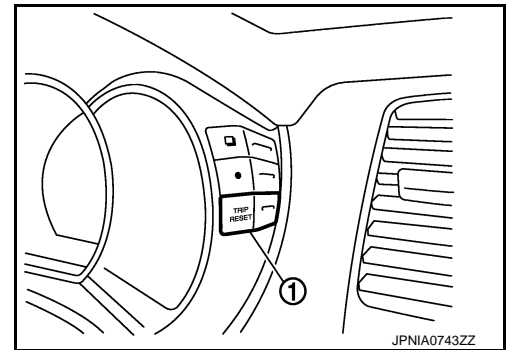
ON BOARD DIAGNOSIS ITEM

The combination meter allows the following diagnosis items with the on-board diagnosis function.

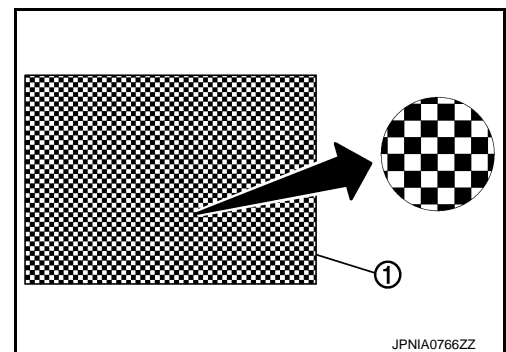
Diagnosis item	
Drive circuit check	<ul style="list-style-type: none">• Speedometer• Tachometer• Engine coolant temperature gauge• Fuel gauge
LCD (liquid crystal display) check	Information display (dot matrix information display and segment information display)

METHOD OF STARTING

1. Turn ignition switch OFF.
2. While pressing the trip reset switch (1), turn ignition switch ON.
3. 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".)



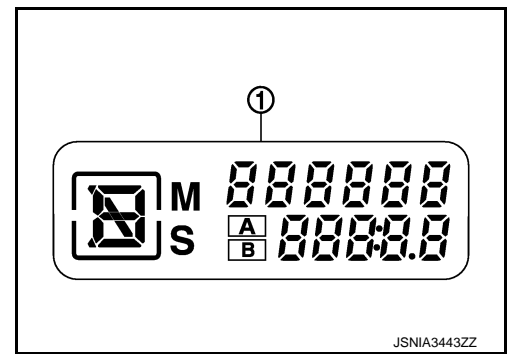
4. Make sure that the trip meter displays "0000.0".
5. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
6. The combination meter is turned to self-diagnosis mode.
 - Speedometer, tachometer, engine coolant temperature gauge, fuel gauge, and return to zero, simultaneously.
 - The dot matrix dots on the information display (dot matrix information display) (1) blink alternately.



DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

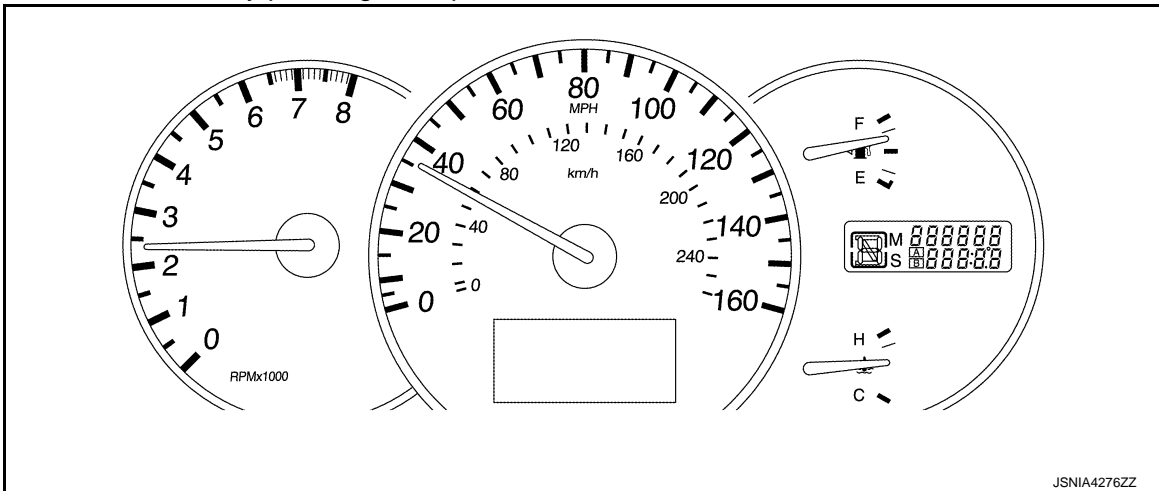
- All segments of the information display (segment information display) (1) are displayed.



NOTE:

- Check the following items when the self-diagnosis mode of the combination meter does not start. Replace combination meter if the following items are normal.
 - Combination meter power supply and ground circuit.
 - Meter control switch signal circuit (trip reset switch signal circuit) and meter control switch.
 - If any of the dots are not displayed, replace combination meter.

7. Each meter activates by pressing the trip reset switch.



NOTE:

- If any of the meters or gauges are not activated, replace combination meter.
- The figure is reference.

CONSULT Function

INFOID:000000007565087

CONSULT APPLICATION ITEMS

CONSULT can perform the following diagnosis modes via CAN communication and the combination meter.

System	Diagnosis mode	Description
METER/M&A	Self Diagnostic Result	The combination meter checks the conditions and displays memorized errors.
	Data Monitor	Displays the combination meter input/output data in real time.
	Warning History	Lighting history of the warning lamp and indicator lamp can be checked.

SELF DIAG RESULT

Refer to [MWI-31, "DTC Index"](#).

DATA MONITOR

Display Item List

DIAGNOSIS SYSTEM (COMBINATION METER)



< SYSTEM DESCRIPTION >

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [km/h]	X	Value of vehicle speed signal received from ABS actuator and electric unit (control unit) via CAN communication. NOTE: 655.35 is displayed when the malfunction signal is received.
SPEED OUTPUT [km/h]	X	Vehicle speed signal value transmitted to other units via CAN communication. NOTE: 655.35 is displayed when the malfunction signal is received.
ODO OUTPUT [km/h or mph]		Odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Value of the engine speed signal received from ECM via CAN communication. NOTE: 8191.875 is displayed when the malfunction signal is received.
FUEL METER [L]	X	Fuel level indicated on combination meter.
W TEMP METER [°C]	X	Value of engine coolant temperature signal is received from ECM via CAN communication. NOTE: 215 is displayed when the malfunction signal is input.
ABS W/L [On/Off]		Status of ABS warning lamp detected from ABS warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
VDC/TCS IND [On/Off]		Status of VDC OFF indicator lamp detected from VDC OFF indicator lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
SLIP IND [On/Off]		Status of VDC warning lamp detected from VDC warning lamp signal received from ABS actuator and electric unit (control unit) via CAN communication.
BRAKE W/L [On/Off]		Status of brake warning lamp detected from brake warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication. 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 detected from door switch signal received from BCM via CAN communication.
TRUNK/GLAS-H [On/Off]		Status of trunk warning detected from trunk switch signal received from BCM via CAN communication.
HI-BEAM IND [On/Off]		Status of high beam indicator lamp detected from high beam request signal is received from BCM via CAN communication.
TURN IND [On/Off]		Status of turn indicator lamp detected from turn indicator signal is received from BCM via CAN communication.
LIGHT IND [On/Off]		Status of light indicator lamp detected from position light request signal is received from BCM via CAN communication.
OIL W/L [On/Off]		Status of oil pressure warning lamp detected from oil pressure switch signal is received from BCM via CAN communication.
MIL [On/Off]		Status of malfunction indicator lamp detected from malfunctioning indicator lamp signal is received from ECM via CAN communication.
CRUISE IND [On/Off]		Status of CRUISE indicator detected from ASCD status signal is received from ECM via CAN communication.
O/D OFF IND [On/Off]		Status of O/D OFF indicator detected from O/D OFF indicator signal is received from CVT shift selector.
4WD W/L [On/Off]		Status of AWD warning lamp detected from AWD warning lamp signal is received from AWD control unit via CAN communication.
4WD LOCK IND [On/Off]		Status of AWD LOCK warning lamp detected from AWD LOCK warning lamp signal is received from AWD control unit via CAN communication.

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description	A
FUEL W/L [On/Off]		Low-fuel warning lamp status detected by the identified fuel level.	A
WASHER W/L [On/Off]		Status of washer warning lamp judged from washer level switch input to combination meter.	B
AIR PRES W/L [On/Off]		Status of low tire pressure warning lamp detected from TPMS malfunction warning lamp signal is received from BCM via CAN communication.	C
KEY G/W W/L [On/Off]		Status of key warning lamp (G/Y) detected from key warning signal is received from BCM via CAN communication.	D
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 detected from meter display signal is received from BCM via CAN communication.	E
SHIFT IND [P, R, N, D, L]		Status of shift position indicator detected from shift position signal is received from TCM via CAN communication.	F
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.	G
O/D OFF SW [On/Off]		Status of O/D OFF switch.	H
M RANGE SW [Off]		This item is displayed, but cannot be monitored.	I
NM RANGE SW [Off]		This item is displayed, but cannot be monitored.	J
AT SFT UP SW [Off]		This item is displayed, but cannot be monitored.	K
AT SFT DWN SW [Off]		This item is displayed, but cannot be monitored.	L
PKB SW [On/Off]		Status of parking brake switch.	M
BUCKLE SW [On/Off]		Status of seat belt buckle switch (driver side).	MWI
BRAKE OIL SW [On/Off]		Status of brake fluid level switch.	O
A/C AMP CONN [On/Off]		Status of A/C auto amp. connection recognition signal.	P
ENTER SW [On/Off]		Status of  (ENTER) switch.	
SELECT SW [On/Off]		Status of  (SELECT) switch.	
DISTANCE [km]		Value of possible driving distance calculated by combination meter.	
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 via CAN communication.	
BUZZER [On/Off]	X	Buzzer status (in the combination meter) is detected from the buzzer output signal received from each unit via CAN communication and the warning output condition of the combination meter.	
TPMS PRESS L [On/Off]		Status of check low tire pressure warning detected from low tire pressure warning lamp signal received from BCM via CAN communication.	

DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

NOTE:

Some items are not available according to vehicle specification.

WARNING HISTORY

- Stores histories when warning/indicator lamp is turned on.
- “WARNING HISTORY” indicates the “TIME” when the warning/indicator lamp is turned on.
- The “TIME” above is:
 - 0: The condition that the warning/indicator lamp has been turned on 1 or more times after starting the engine and waiting for 30 seconds.
 - 1 - 39: The number of times the engine was restarted after the 0 condition.
 - NO WARNING HISTORY: Stores NO (0) turning on history of warning/indicator lamp.

NOTE:

- WARNING HISTORY is not stored for approximately 30 seconds after the engine starts.
- Brake warning lamp does not store any history when the parking brake is applied or the brake fluid level gets low.

Display Item

Display item	Description
ABS W/L	Lighting history of ABS warning lamp.
VDC/TCS IND	Lighting history of VDC OFF indicator lamp.
SLIP IND	Lighting history of VDC warning lamp.
BRAKE W/L	Lighting history of brake warning lamp.
DOOR W/L	Lighting history of door warning.
TRUNK/GLAS-H	Lighting history of trunk warning.
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp.
CRUISE IND	Lighting history of CRUISE indicator lamp.
SET IND	Lighting history of SET indicator.
O/D OFF IND	Lighting history of O/D OFF indicator lamp.
4WD W/L	Lighting history of AWD warning lamp.
FUEL W/L	Lighting history of low fuel level warning.
WASHER W/L	Lighting history of low washer fluid warning.
AIR PRES W/L	Lighting history of low tire pressure warning lamp.
KEY G/Y W/L	Lighting history of key warning lamp (green/yellow).
KEY R W/L	Lighting history of key warning lamp (red).
CHAGE W/L	Lighting history of charge warning lamp.

NOTE:

In items displayed on the CONSULT screen, only those listed in the above table are used.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:000000007565088

VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Condition		Value/Status
SPEED METER [km/h]	Ignition switch ON	While driving	Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received
SPEED OUTPUT [km/h]	Ignition switch ON	While driving	Equivalent to speedometer reading NOTE: 655.35 is displayed when the malfunction signal is received
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
FUEL METER [L]	Ignition switch ON	—	Values according to fuel level
W TEMP METER [°C]	Ignition switch ON	—	Values according to engine coolant temperature NOTE: 215 is displayed when the malfunction signal is input
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	VDC OFF indicator lamp ON	On
		VDC OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	VDC warning lamp ON	On
		VDC warning lamp OFF	Off
BRAKE W/L	Ignition switch ON	Brake warning lamp ON	On
		Brake warning lamp OFF	Off
DOOR W/L	Ignition switch ON	Door warning ON	On
		Door warning OFF	Off
TRUNK/GLAS-H	Ignition switch ON	Trunk warning ON	On
		Trunk warning OFF	Off
HI-BEAM IND	Ignition switch ON	High-beam indicator lamp ON	On
		High-beam indicator lamp OFF	Off
TURN IND	Ignition switch ON	Turn signal indicator lamp ON	On
		Turn signal indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Light indicator lamp ON	On
		Light indicator lamp OFF	Off
OIL W/L	Ignition switch ON	Oil pressure warning lamp ON	On
		Oil pressure warning lamp OFF	Off
MIL	Ignition switch ON	Malfunction indicator lamp ON	On
		Malfunction indicator lamp OFF	Off



COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
CRUISE IND	Ignition switch ON	CRUISE indicator lamp ON	On
		CRUISE indicator lamp OFF	Off
O/D OFF IND	Ignition switch ON	O/D OFF indicator lamp ON	On
		O/D OFF indicator lamp OFF	Off
4WD W/L	Ignition switch ON	AWD warning lamp ON	On
		AWD warning lamp OFF	Off
4WD LOCK IND	Ignition switch ON	AWD LOCK indicator lamp ON	On
		AWD LOCK indicator lamp OFF	Off
FUEL W/L	Ignition switch ON	Low-fuel warning lamp ON	On
		Low-fuel warning lamp OFF	Off
WASHER W/L	Ignition switch ON	Washer warning displayed	On
		Washer warning not displayed	Off
AIR PRES W/L	Ignition switch ON	Low tire pressure warning lamp ON	On
		Low tire pressure warning lamp OFF	Off
KEY G/Y W/L	Ignition switch ON	Key warning lamp (green/yellow) ON	On
		Key warning lamp (green/yellow) OFF	Off
LCD	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
	Ignition switch LOCK	P position warning display	SFT P
	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
SHIFT IND	Ignition switch ON	Shift position indicator P display	P
		Shift position indicator R display	R
		Shift position indicator N display	N
		Shift position indicator D display	D
		Shift position indicator L display	L
FUEL CAP W/L	Ignition switch ON	Fuel filler cap warning display ON	On
		Fuel filler cap warning display OFF	Off
O/D OFF SW	Ignition switch ON	Overdrive control switch ON	On
		Overdrive control switch OFF	Off
M RANGE SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off

COMBINATION METER

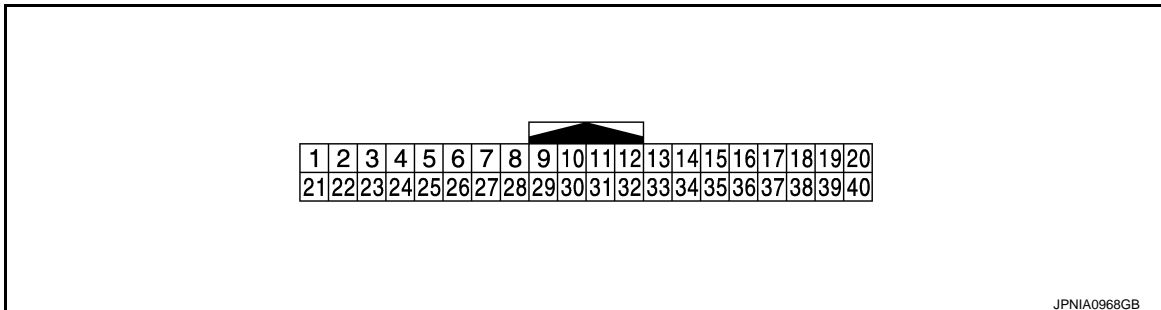
< ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status	
NM RANGE SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off	A
AT SFT UP SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off	B
AT SFT DWN SW	Ignition switch ON	NOTE: This item is displayed, but cannot be monitored.	Off	C
PKB SW	Ignition switch ON	Parking brake switch ON	On	D
		Parking brake switch OFF	Off	
BUCKLE SW	Ignition switch ON	Seat belt (driver side) not fastened	On	E
		Seat belt (driver side) fastened	Off	
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On	F
		Brake fluid level switch OFF	Off	
A/C AMP CONN	Ignition switch ON	Other than the following	On	G
		Receives ambient sensor power signal	Off	
ENTER SW	Ignition switch ON	When  is pressed	On	G
		Other than the above	Off	
SELECT SW	Ignition switch ON	When  is pressed	On	H
		Other than the above	Off	
DISTANCE [km]	Ignition switch ON	—	Distance to empty calculated by combination meter	I
OUTSIDE TEMP [°C] or [°F]	Ignition switch ON	—	Equivalent to ambient temperature NOTE: This may not match the indicated value on the information display.	J
FUEL LOW SIG	Ignition switch ON	Low fuel warning displayed	On	K
		Low fuel warning not displayed	Off	
BUZZER	Ignition switch ON	Buzzer ON	On	L
		Buzzer OFF	Off	
TPMS PRESS L	Power switch ON	During check tire pressure warning indication	On	M
		Other than the above	Off	

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT



PHYSICAL VALUES

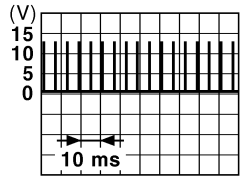
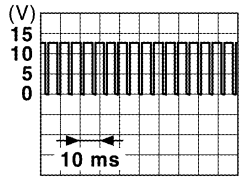
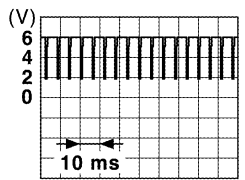
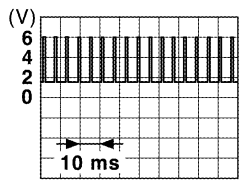
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COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
1 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (O)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
3 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
4 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
5 (SB)	Ground	Illumination control signal	Output	Ignition switch ON	<ul style="list-style-type: none"> Lighting switch 1ST When meter illumination is maximum 	 <p style="text-align: right; font-size: small;">JPNIA0828GB</p>
					<ul style="list-style-type: none"> Lighting switch 1ST When meter illumination is minimum 	 <p style="text-align: right; font-size: small;">JSNIA4277GB</p>
8 (SB)	10 (O)	Trip reset signal	Input	Ignition switch ON	When trip reset switch is pressed.	0 V
					Other than the above	5 V
9 (W)	Ground	Illumination control signal (illumination control switch)	Output	Ignition switch ON	<ul style="list-style-type: none"> Lighting switch 1ST When meter illumination is maximum 	 <p style="text-align: right; font-size: small;">JSNIA4278GB</p>
					<ul style="list-style-type: none"> Lighting switch 1ST When meter illumination is minimum 	 <p style="text-align: right; font-size: small;">JSNIA4279GB</p>
10 (O)	Ground	Meter control switch ground	—	Ignition switch ON	—	0 V
11 (L)	10 (O)	Enter switch signal	Input	Ignition switch ON	When <input type="checkbox"/> is pressed.	0 V
					Other than the above	5 V

COMBINATION METER

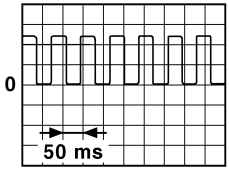
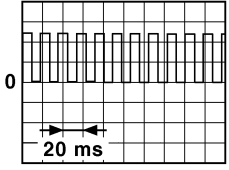
< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/ Output			
12 (R)	10 (O)	Select switch signal	Input	Ignition switch ON	When ● is pressed.	0 V
					Other than the above	5 V
13 (V)	10 (O)	Illumination control switch signal (+)	Input	Ignition switch ON	When ☼+ is pressed.	0 V
					Other than the above	5 V
14 (GR)	10 (O)	Illumination control switch signal (-)	Input	Ignition switch ON	When ☼- is pressed.	0 V
					Other than the above	5 V
15 (BR)	—	Air bag signal	Input	—	—	—
18 (L)	Ground	Ambient sensor signal	Input	Ignition switch ON	Changes depending to amb- ient temperature.	<p style="text-align: center;">(V)</p> <p style="text-align: center;">(°C) (°F)</p> <p style="text-align: center;">JSNIA0014GB</p>
19 (P)	Ground	A/C auto amp. connection recognition signal	Input	Ignition switch ON	—	5 V
20 (Y)	Ground	Ambient sensor ground	Input	Ignition switch ON	—	0 V
21 (L)	—	CAN-H	—	—	—	—
22 (P)	—	CAN-L	—	—	—	—
23 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
24 (W)	Ground	Fuel level sensor ground	—	Ignition switch ON	—	0 V
25 (BR)	Ground	Alternator signal	Input	Ignition switch ON	Charge warning lamp ON	2 V
					Charge warning lamp OFF	12 V
26 (G)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake ON	0 V
					Parking brake OFF	5 V
27 (V)	Ground	Brake fluid level switch sig- nal	Input	Ignition switch ON	Brake fluid level is normal	12 V
					Brake fluid level is less than LOW level	0 V
28 (R)	Ground	Roof status signal	Input	Ignition switch ON	Soft top indicator lamp ON	0 V
					Soft top indicator lamp OFF	12 V
29 (R)	Ground	Washer level switch signal	Input	Ignition switch ON	Washer level switch ON	0 V
					Washer level switch OFF	5 V

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COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
30 (P)	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 de- pending on the specification (destination unit).  <small>JSNIA0015GB</small>
31 (V)	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 de- pending on the specification (destination unit).  <small>JSNIA0012GB</small>
32 (LG)	Ground	Overdrive control switch signal	Input	Ignition switch ON	Overdrive control switch pressed. 0 V
				Ignition switch OFF	Overdrive control switch not pressed. 5 V
34 (G)	Ground	Fuel level sensor signal	Input	Ignition switch ON	— MWI-49, "Component Inspec- tion"
35 (SB)	Ground	Seat belt buckle switch sig- nal (driver side)	Input	Ignition switch ON	When driver seat belt is fas- tened. 12 V
				Ignition switch OFF	When driver seat belt is un- fastened. 0 V
36 (R)	—	Seat belt buckle switch sig- nal (passenger side)	Input	—	—

Fail-Safe

INFOID:000000007565089

FAIL-SAFE

The combination meter activates the fail-safe control if CAN communication with each unit is malfunctioning.

Function	Specifications
Speedometer	Reset to zero by suspending communication.
Tachometer	
Engine coolant temperature gauge	
Illumination control	When suspending communication, changes to nighttime mode.

COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

Function		Specifications	
Information display	Door open warning	The display turns off by suspending communication.	
	Trunk open warning		
	Parking brake release warning		
	Low tire pressure warning		
	Fuel filler cap warning		
	Instantaneous fuel warning		<ul style="list-style-type: none"> When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption		
	Average vehicle speed		
Travel distance			
Buzzer		The buzzer turns off by suspending communication.	
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns on by suspending communication.	
	VDC warning lamp		
	Brake warning lamp		
	AWD warning lamp		
	Malfunction indicator lamp		
	Low tire pressure warning lamp	The lamp turns ON after flashing for 1 minute.	
	High beam indicator lamp	The lamp turns off by suspending communication.	
	Turn signal indicator lamp		
	Light indicator lamp		
	Oil pressure warning lamp		
	CRUISE indicator lamp		
	O/D OFF indicator lamp		
	VDC OFF indicator lamp		
	AWD LOCK indicator lamp		
Key warning lamp			

DTC Index

INFOID:000000007565090

Display contents of CONSULT	Diagnostic item is detected when ...	Refer to
CAN COMM CIRCUIT [U1000]	When combination meter is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-42. "Diagnosis Procedure"
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-43. "Diagnosis Procedure"
VEHICLE SPEED [B2205]	The abnormal vehicle speed signal is input from the ABS actuator and electric unit (control unit) for 2 seconds or more.	MWI-44. "Diagnosis Procedure"
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-45. "Diagnosis Procedure"
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-46. "Diagnosis Procedure"

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

< ECU DIAGNOSIS INFORMATION >

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

List of ECU Reference

INFOID:000000007565091

ECU	Reference
IPDM E/R	PCS-15, "Reference Value"
	PCS-21, "Fail-safe"
	PCS-23, "DTC Index"

METER SYSTEM


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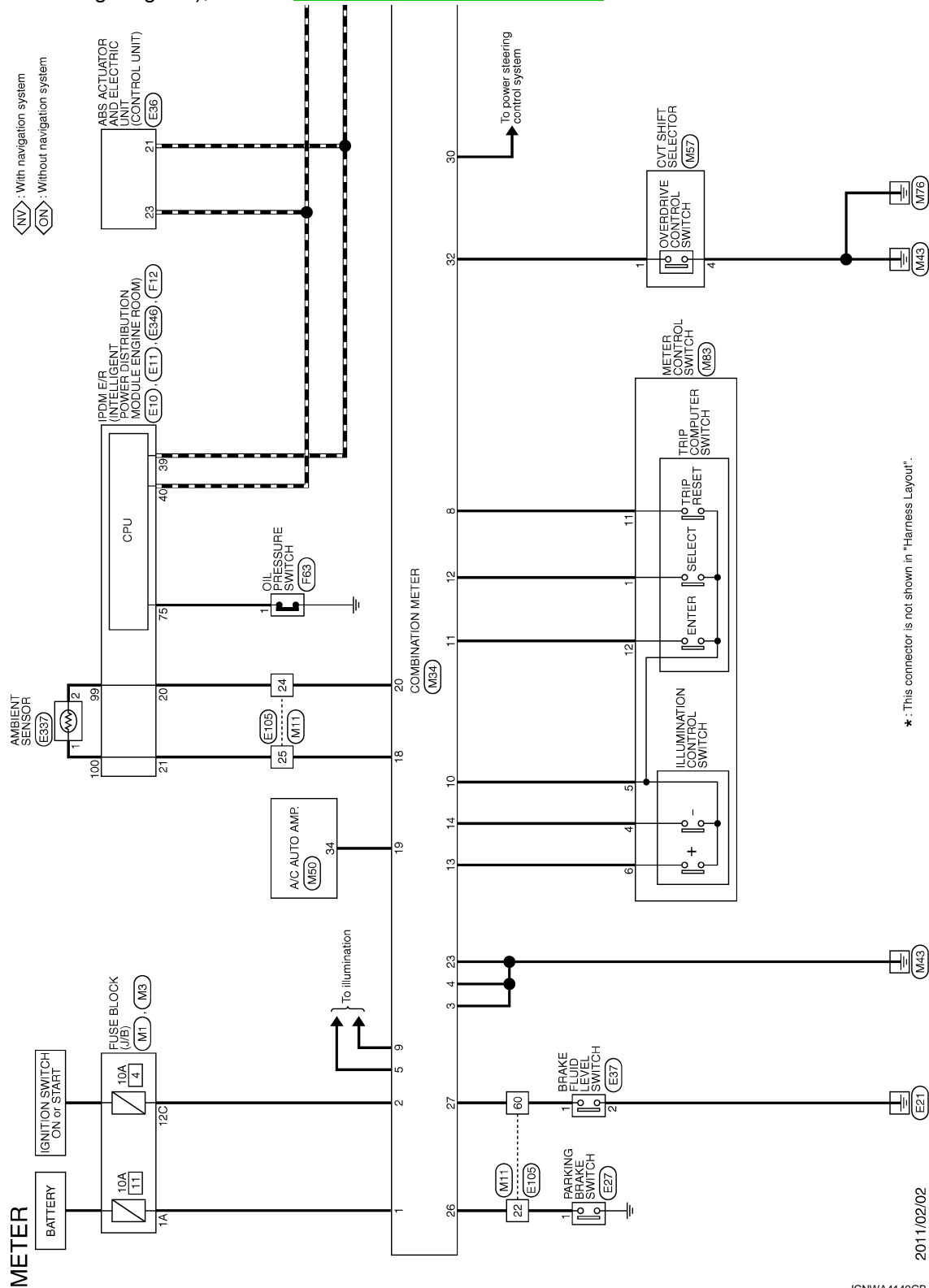
WIRING DIAGRAM

METER SYSTEM

Wiring Diagram

INFOID:000000007565092

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).



2011/02/02

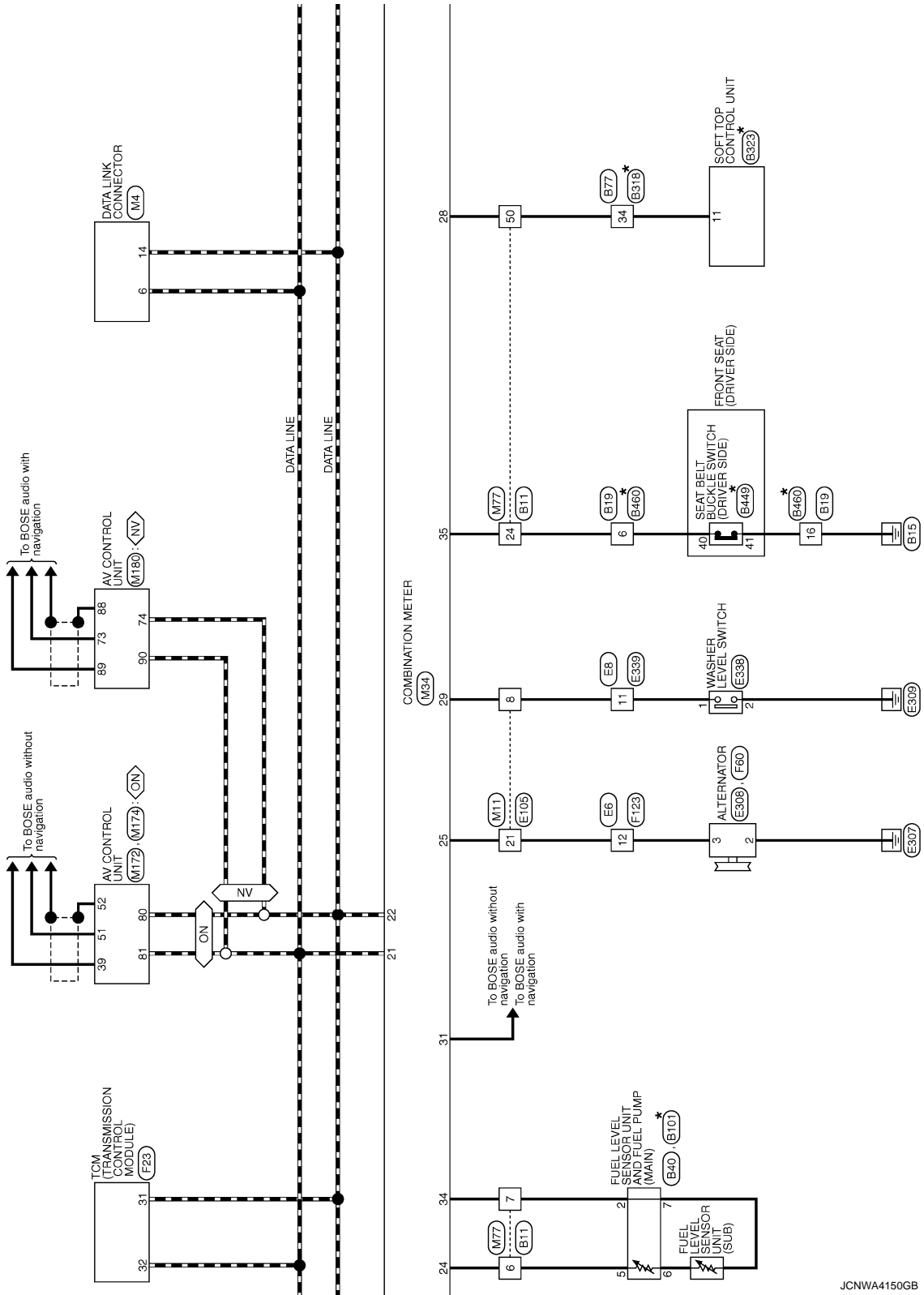
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METER SYSTEM

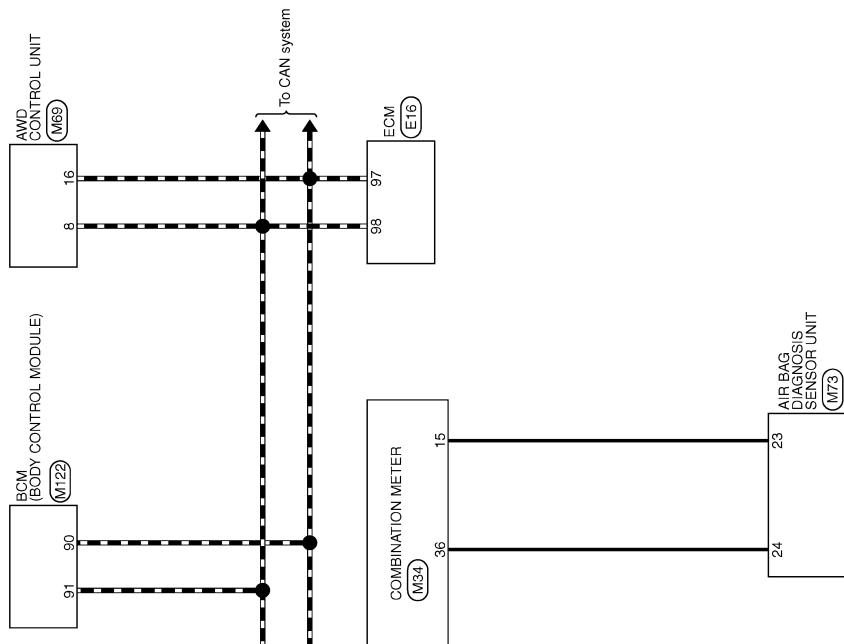
< WIRING DIAGRAM >



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METER SYSTEM

< WIRING DIAGRAM >



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
COMPASS

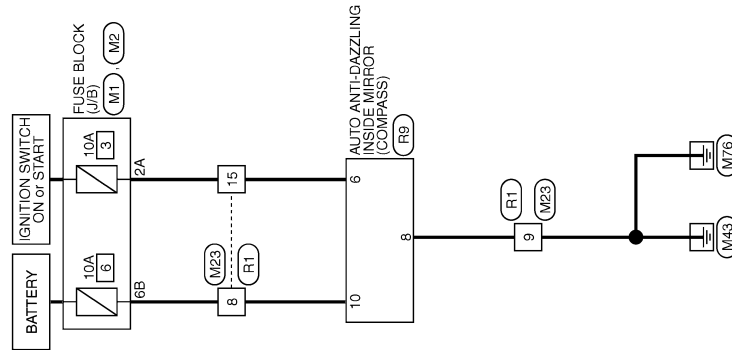
< WIRING DIAGRAM >

COMPASS

Wiring Diagram - COMPASS -

INFOID:000000007565093

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-12, "Connector Information"](#).



COMPASS

2011/02/02

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

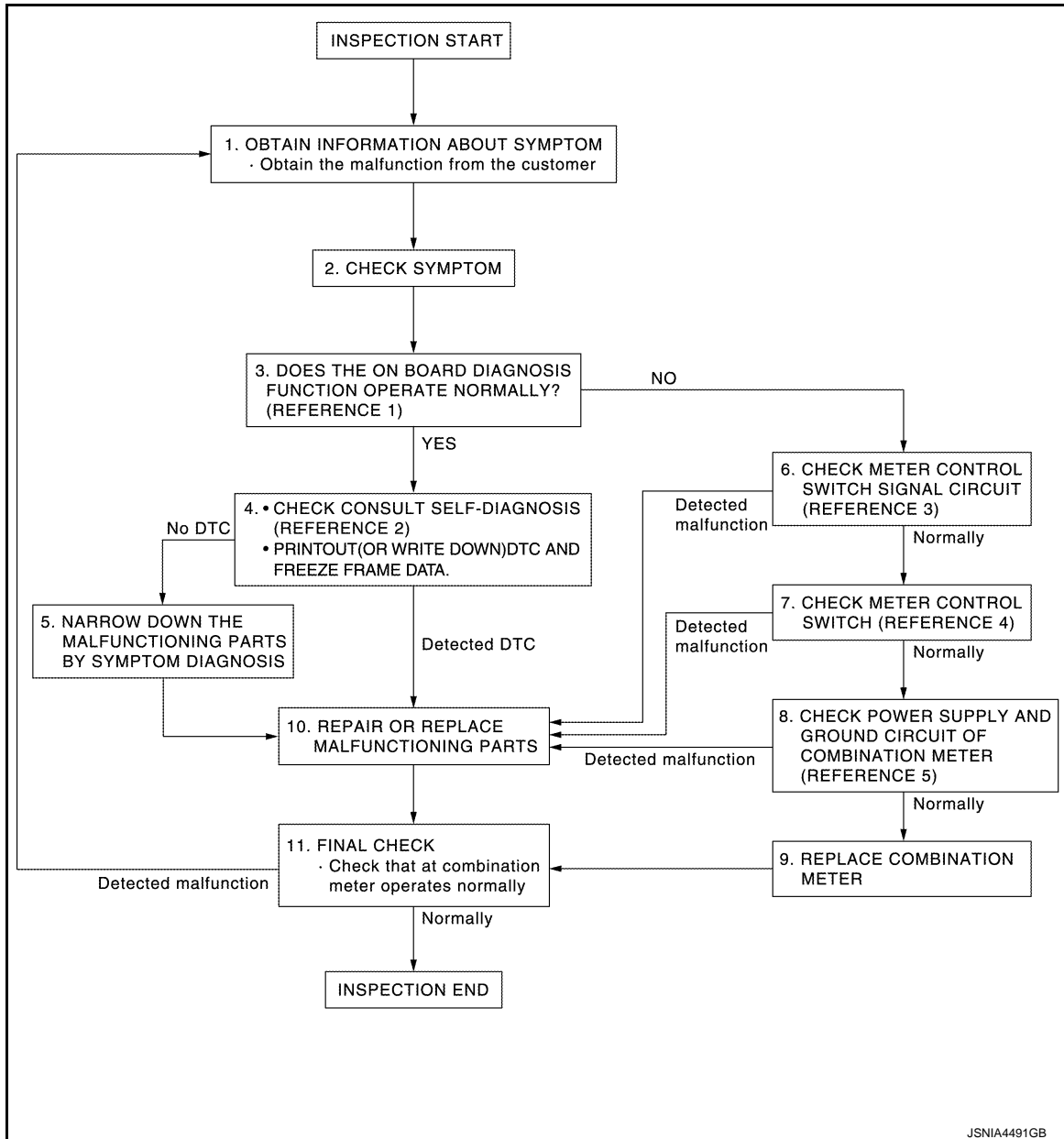
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work flow

INFOID:000000007565094

OVERALL SEQUENCE



- Reference 1...[MWI-20, "On Board Diagnosis Function"](#).
- Reference 2...[MWI-31, "DTC Index"](#).
- Reference 3...[MWI-51, "Diagnosis Procedure"](#).
- Reference 4...[MWI-52, "Component Inspection"](#).
- Reference 5...[MWI-47, "COMBINATION METER : Diagnosis Procedure"](#).

DETAILED FLOW

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.

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DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

2. CHECK SYMPTOM

- Check the symptom based on the information obtained from the customer.
- Check that any other malfunctions are present.

>> GO TO 3.

3. CHECK ON BOARD DIAGNOSIS OPERATION

Check that the on board diagnosis function operates. Refer to [MWI-20, "On Board Diagnosis Function"](#).

Does the on board diagnosis function operate normally?

YES >> GO TO 4.

NO >> GO TO 6.

4. CHECK CONSULT SELF-DIAGNOSIS RESULTS

1. Connect CONSULT and perform self-diagnosis. Refer to [MWI-31, "DTC Index"](#).
2. When DTC is detected, follow the instructions below:
 - Record DTC and Freeze Frame Data.

Are self-diagnosis results normal?

YES >> GO TO 5.

NO >> GO TO 10.

5. NARROW DOWN THE MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS

Perform symptom diagnosis and narrow down the malfunctioning parts.

>> GO TO 10.

6. CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

Check meter control switch signal circuit. Refer to [MWI-51, "Diagnosis Procedure"](#).

Is inspection result OK?

YES >> GO TO 7.

NO >> GO TO 10.

7. CHECK METER CONTROL SWITCH

Check meter control switch. Refer to [MWI-52, "Component Inspection"](#).

Is inspection result OK?

YES >> GO TO 8.

NO >> GO TO 10.

8. CHECK COMBINATION METER POWER SUPPLY AND GROUND CIRCUITS

Check combination meter power supply and ground circuits. Refer to [MWI-47, "COMBINATION METER : Diagnosis Procedure"](#).

Is inspection result OK?

YES >> GO TO 9.

NO >> GO TO 10.

9. REPLACE COMBINATION METER

Replace combination meter.

>> GO TO 11.

10. REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

NOTE:

If DTC is displayed, erase DTC after repair or replace malfunctioning parts.

>> GO TO 11.

DIAGNOSIS AND REPAIR WORKFLOW

< BASIC INSPECTION >

11.FINAL CHECK

Check that the combination meter operates normally.

Do they operate normally?

YES >> INSPECTION END
NO >> GO TO 1.

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ZONE VARIATION SETTING (COMPASS)

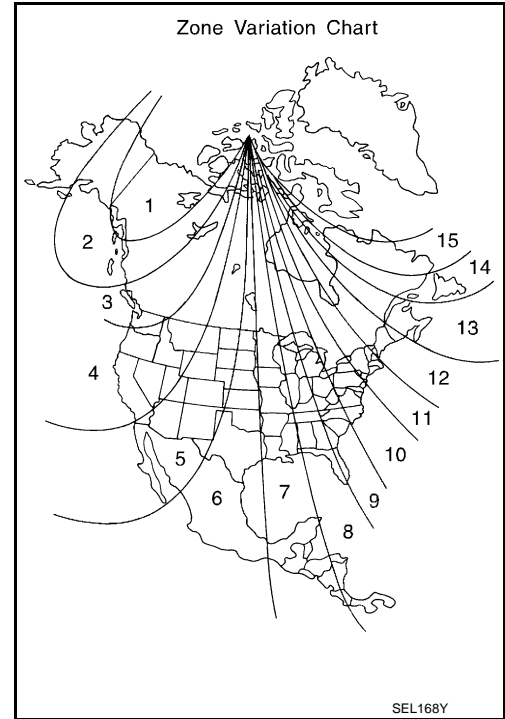
< BASIC INSPECTION >

ZONE VARIATION SETTING (COMPASS)

Work Procedure

INFOID:000000007565095

1. Press and hold the compass switch for 3 – 9 seconds.
2. The current zone setting appears on the compass display.
3. 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 (COMPASS)

< BASIC INSPECTION >

CALIBRATION (COMPASS)

Work Procedure

INFOID:000000007565096

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. Refer to [MWI-40, "Work Procedure"](#).
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.

5. 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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U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:000000007565097

CAN (Controller Area Network) is a serial communication system for real time application. It is an on-vehicle multiplex communication system with high data communication speed and excellent error detectability. Many electronic control units are equipped onto vehicles, 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-28, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

DTC Logic

INFOID:000000007565098

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:000000007565099

1. PERFORM SELF DIAGNOSTIC

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

Is "CAN COMM CIRCUIT" displayed?

- YES >> Refer to [LAN-15, "Trouble Diagnosis Flow Chart"](#).
NO >> Refer to [GI-40, "Intermittent Incident"](#).

U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

U1010 CONTROL UNIT (CAN)

Description

INFOID:000000007565100

Initial diagnosis of combination meter.

DTC Logic

INFOID:000000007565101

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when ...	Probable malfunction location
U1010	CONTROL UNIT (CAN)	If any malfunction is detected during initial diagnosis of combination meter CAN controller	Combination meter

Diagnosis Procedure

INFOID:000000007565102

1. REPLACE COMBINATION METER

When DTC "U1010" is detected, replace combination meter.

>> INSPECTION END

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B2205 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

B2205 VEHICLE SPEED

Description

INFOID:000000007565103

Vehicle speed signal is transmitted from ABS actuator and electric unit (control unit) via CAN communication to combination meter.

DTC Logic

INFOID:000000007565104

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when ...	Probable malfunction location
B2205	VEHICLE SPEED	An abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more	<ul style="list-style-type: none">• Wheel sensor• ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:000000007565105

1. 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-14, "CONSULT Function"](#).

B2267 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

B2267 ENGINE SPEED

Description

INFOID:000000007565106

The engine speed signal is transmitted from ECM to the combination meter via CAN communication.

DTC Logic

INFOID:000000007565107

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when ...	Probable malfunction location
B2267	ENGINE SPEED	ECM continuously transmits abnormal engine speed signals for 2 seconds or more	<ul style="list-style-type: none">• Crankshaft position sensor (POS)• ECM

Diagnosis Procedure

INFOID:000000007565108

1. PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to [EC-63. "CONSULT Function"](#).

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B2268 WATER TEMP

< DTC/CIRCUIT DIAGNOSIS >

B2268 WATER TEMP

Description

INFOID:000000007565109

The engine coolant temperature signal is transmitted from ECM to the combination meter via CAN communication.

DTC Logic

INFOID:000000007565110

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when ...	Probable malfunction location
B2268	WATER TEMP	ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more	<ul style="list-style-type: none">• Engine coolant temperature sensor• ECM

Diagnosis Procedure

INFOID:000000007565111

1. PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to [EC-63. "CONSULT Function"](#).

POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:000000007565112

1. CHECK FUSE

Check for blown fuses.

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

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 combination meter harness connector terminals and ground.

Terminals		Ignition switch position	Voltage (Approx.)
(+)	(-)		
Combination meter		OFF	Battery voltage
Connector	Terminal		
M34	1		
	2		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Check harness between combination meter and fuse.

3. CHECK GROUND CIRCUIT

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

Terminals		Continuity
(+)	(-)	
Combination meter		Existed
Connector	Terminal	
M34	3	
	4	
	23	

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

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FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:000000007565113

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 combination meter.

Component Function Check

INFOID:000000007565114

1.PERFORM COMPONENT FUNCTION CHECK (1)

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

Fuel level sensor unit and fuel pump (main)		
Connector	Terminals	
B40	2	5

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

Resistance (Ω)* (Approx.)	Fuel gauge indication position (Approx.)
Less than 6.0	Full
22.8	3/4
44.6	2/4
65.6	1/4
More than 80.0	Empty

*: Reference resistance values used when the combination meter judges the indication position of the fuel gauge.

Is the inspection result normal?

- YES >> GO TO 2.
NO >> Refer to [MWI-48, "Diagnosis Procedure"](#).

2.PERFORM COMPONENT FUNCTION CHECK (2)

Check the fuel level sensor unit and fuel pump (main) and/or fuel level sensor (sub). Refer to [MWI-49, "Component Inspection"](#).

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Replace the fuel level sensor unit and fuel pump (main) and/or fuel level sensor unit (sub). Refer to [FL-6, "Removal and Installation"](#).

Diagnosis Procedure

INFOID:000000007565115

1.CHECK FUEL LEVEL SENSOR CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and fuel level sensor unit and fuel pump (main) connector.
3. Check continuity between combination meter harness connector terminal and fuel level sensor unit and fuel pump (main) harness connector terminal.

FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminals				Continuity
(+)		(-)		
Combination meter		Fuel level sensor unit and fuel pump (main)		
Connector	Terminal	Connector	Terminal	Existed
M34	34	B40	2	

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

Terminals				Continuity
(+)		(-)		
Combination meter		Ground		
Connector	Terminal			Not existed
M34	34			

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

Check continuity between fuel level sensor unit and fuel pump (main) harness connector terminal and combination meter harness connector terminal.

Terminals				Continuity
(+)		(-)		
Fuel level sensor unit and fuel pump (main)		Combination meter		
Connector	Terminal	Connector	Terminal	Existed
B40	5	M34	24	

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).

NO >> Repair harness or connector.

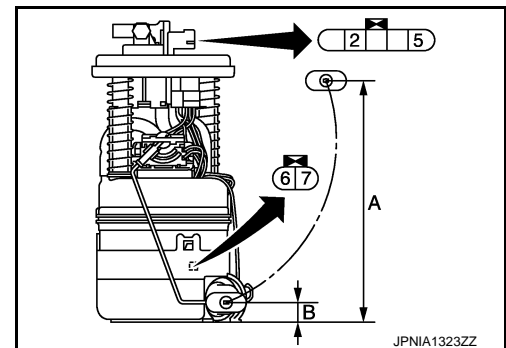
Component Inspection

INFOID:000000007565116

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).

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)] (Approx.)
Fuel level sensor unit and fuel pump (main)				
5	6	Full (A)	2.4	189.7 (7.47)
		Empty (B)	79	16.8 (0.661)
2	7	—	0	—



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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"](#).

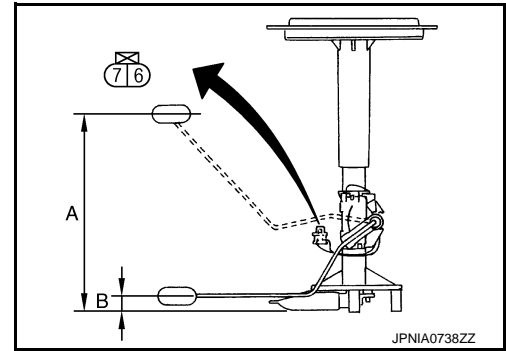
FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

2. CHECK FUEL LEVEL SENSOR UNIT (SUB)

1. Remove the fuel level sensor unit (sub). Refer to [FL-6. "Removal and Installation"](#).
2. Inspect the resistance of fuel level sensor unit (sub).

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)] (Approx.)
Fuel level sensor unit (sub)				
(+)	(-)			
6	7	Full (A)	2.4	200.3 (7.89)
		Empty (B)	45.2	22.6 (0.890)



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace fuel level sensor unit (sub). Refer to [FL-6. "Removal and Installation"](#).

METER CONTROL SWITCH SIGNAL CIRCUIT





< DTC/CIRCUIT DIAGNOSIS >

METER CONTROL SWITCH SIGNAL CIRCUIT

Description

INFOID:000000007565117

Transmits the following signals to the combination meter.





-  (illumination control) switch signal (+)
-  (illumination control) switch signal (-)
- Trip reset switch signal
-  (select) switch signal
-  (enter) switch is pressed

Diagnosis Procedure

INFOID:000000007565118

1. CHECK METER CONTROL SWITCH INPUT SIGNAL

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

Terminals				Condition	Voltage (Approx.)
Combination meter					
(+)		(-)			
Connector	Terminal	Connector	Terminal		
M34	12	M34	10	When  (select) switch is pressed	0 V
				Other than the above	5 V
	11			When  (enter) switch is pressed	0 V
				Other than the above	5 V
	8			When trip reset switch is pressed	0 V
				Other than the above	5 V
	14			When  (illumination control) switch is pressed	0 V
				Other than the above	5 V
13	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 the ignition switch OFF.
2. Disconnect the combination meter and meter control switch connectors.
3. Check continuity between combination meter harness connector terminals and meter control switch harness connector terminals.

MWI

METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminals				Continuity
Combination meter		Meter control switch		
(+)		(-)		
Connector	Terminal	Connector	Terminal	Existed
M34	8	M83	11	
	10		5	
	11		12	
	12		1	
	13		6	
	14		4	

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

Terminals			Continuity
(+)		(-)	
Combination meter		Ground	Not existed
Connector	Terminal		
M34	8		
	10		
	11		
	12		
	13		
	14		

Is the inspection result normal?

YES >> INSPECTION END



NO >> Repair harness or connector.

Component Inspection

INFOID:000000007565119

1. CHECK METER CONTROL SWITCH

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

Terminal No.	Operation and status	Continuity
1	5 Press the ● (select) switch	Existed
	Other than the above	Not existed
12	5 Press the □ (enter) switch	Existed
	Other than the above	Not existed
11	5 Press the trip reset switch.	Existed
	Other than the above	Not existed
4	5 Press the  (illumination control) switch	Existed
	Other than the above	Not existed
6	5 Press the  (illumination control) switch	Existed
	Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

NO >> Replace the meter control switch. Refer to [MWI-72. "Removal and Installation"](#).

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OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Description

INFOID:000000007565120

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

Component Function Check

INFOID:000000007565121

1.CHECK COMBINATION METER 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:000000007565122

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 terminal and oil pressure switch harness connector terminal.

Terminals				Continuity
(+)		(-)		
IPDM E/R		Oil pressure switch		
Connector	Terminal	Connector	Terminal	
F12	75	F63	1	Existed

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

Terminals				Continuity
(+)		(-)		
IPDM E/R		Ground		
Connector	Terminal			
F12	75			Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

Component Inspection

INFOID:000000007565123

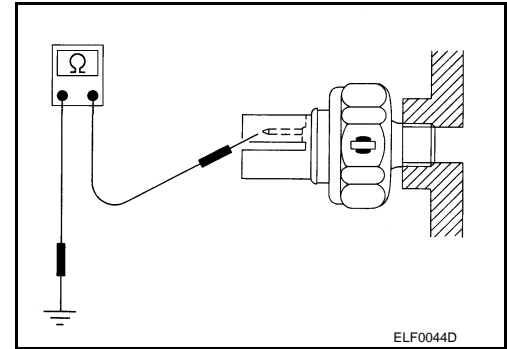
1.CHECK OIL PRESSURE SWITCH

OIL PRESSURE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

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. Refer to [EM-38, "Removal and Installation"](#).

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PARKING BRAKE SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

PARKING BRAKE SWITCH SIGNAL CIRCUIT

Description

INFOID:000000007565124

Transmits the parking brake switch signal to the combination meter.

Diagnosis Procedure

INFOID:000000007565125

1. CHECK COMBINATION METER INPUT SIGNAL

1. Turn ignition switch ON.
2. Check the voltage between combination meter harness connector terminal and ground.

Terminals		Ground	Condition	Voltage (Approx.)
(+)	(-)			
Combination meter				
Connector	Terminal			
M34	26		When parking brake is applied	0 V
			When parking brake is released	5 V

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

2. CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

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

Terminals				Continuity
(+) Combination meter		(-) Parking brake switch		
Connector	Terminal	Connector	Terminal	
M34	26	E27	1	Existed

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

Terminals		Ground	Continuity
(+)	(-)		
Combination meter			
Connector	Terminal		
M34	26		Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

Component Inspection

INFOID:000000007565126

1. CHECK PARKING BRAKE SWITCH

Check parking brake switch. Refer to [BRC-83. "Component Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace parking brake switch. Refer to [PB-6. "Exploded View"](#).

WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description

INFOID:000000007565127

Transmits the washer level switch signal to the combination meter.

Diagnosis Procedure

INFOID:000000007565128

1. CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

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

Terminals				Continuity
Combination meter (+)		Washer level switch (-)		
Connector	Terminal	Connector	Terminal	
M34	29	E338	1	Existed

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

Terminals				Continuity
(+)		(-)		
Combination meter		Ground		
Connector	Terminal			
M34	29			Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK WASHER LEVEL SWITCH GROUND CIRCUIT

Check continuity between washer level switch connector and ground.

Terminals				Continuity
Washer level switch		Ground		
Connector	Terminal			
E338	2			Existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

Component Inspection

INFOID:000000007565129

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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WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Terminals		Condition	Continuity
Washer level switch			
1	2	Washer level switch ON	Existed
		Washer level switch OFF	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace washer level switch. Refer to [WW-35. "Removal and Installation"](#).

A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

Description

INFOID:000000007565130

A/C auto amp. transmit the A/C auto amp. connection recognition signal to the combination meter.

Diagnosis Procedure

INFOID:000000007565131

1. CHECK A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL

1. Turn ignition switch ON.
2. Check voltage between combination meter harness connector terminal and ground.

Terminals		Voltage (Approx.)
(+)	(-)	
Combination meter		Ground
Connector	Terminal	
M34	19	
		5 V

Is the inspection result normal?

- YES >> INSPECTION END
NO >> GO TO 2.

2. CHECK A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

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

Combination meter		A/C auto amp.		Continuity
Connector	Terminal	Connector	terminal	
M34	19	M50	34	Existed

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	19		Not existed

Is the inspection result normal?

- YES >> INSPECTION END
NO >> Repair harness or connector.

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THE FUEL GAUGE POINTER DOES NOT MOVE

< SYMPTOM DIAGNOSIS >

SYMPTOM DIAGNOSIS

THE FUEL GAUGE POINTER DOES NOT MOVE

Description

INFOID:000000007565132

Fuel gauge needle will not move from a certain position.

Diagnosis Procedure

INFOID:000000007565133

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-20, "On Board Diagnosis Function"](#).

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> Replace the combination meter.

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-48, "Component Function Check"](#).

Is the inspection result normal?

- YES >> Check intermittent incident. Refer to [GI-40, "Intermittent Incident"](#).
- NO >> Repair or replace malfunctioning parts.

THE METER CONTROL SWITCH IS INOPERATIVE

< SYMPTOM DIAGNOSIS >

THE METER CONTROL SWITCH IS INOPERATIVE

Description

INFOID:000000007565134

If any of the following malfunctions is found for the meter control switch operation.

- All switches are inoperative.
- The specified switch cannot be operated.

Diagnosis Procedure

INFOID:000000007565135

1. CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

Check the meter control switch signal circuit. Refer to [MWI-51, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK METER CONTROL SWITCH

Perform a unit check for the meter control switch. Refer to [MWI-52, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).

NG >> Replace meter control switch. Refer to [MWI-72, "Removal and Installation"](#).

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MWI

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:000000007565136

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

Diagnosis Procedure

INFOID:000000007565137

1.CHECK OIL PRESSURE WARNING LAMP

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

Is oil pressure warning lamp blinking?

- YES >> GO TO 2.
- NO >> GO TO 4.

2.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-54, "Diagnosis Procedure"](#).

Is the inspection result normal?

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

3.CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to [MWI-54, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
- NO >> Replace oil pressure switch. Refer to [EM-38, "Removal and Installation"](#).

4.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to [MWI-54, "Component Function Check"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
- NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:000000007565138

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

Diagnosis Procedure

INFOID:000000007565139

1. CHECK OIL PRESSURE WARNING LAMP

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

Is oil pressure warning lamp blinking?

- YES >> GO TO 2.
- NO >> GO TO 5.

2. CHECK IPDM E/R OUTPUT VOLTAGE

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

Terminals		Voltage (Approx.)
(+)	(-)	
Oil pressure switch		Ground
Connector	Terminal	
F63	1	

Is the inspection result normal?

- YES >> GO TO 3.
- NO >> GO TO 4.

3. CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to [MWI-54, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).
- NO >> Replace oil pressure switch. Refer to [EM-38, "Removal and Installation"](#).

4. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to [MWI-54, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 5.
- NO >> Repair harness or connector.

5. CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to [MWI-54, "Component Function Check"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
- NO >> Replace IPDM E/R. Refer to [PCS-31, "Removal and Installation"](#).

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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:000000007565140

- 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

INFOID:000000007565141

1.CHECK PARKING BRAKE WARNING LAMP OPERATION

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

Condition	Warning lamp status
When parking brake is applied	ON
When parking brake is released	OFF

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Check the parking brake switch signal circuit. Refer to [MWI-56, "Diagnosis Procedure"](#).

Is the inspection result normal?

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

3.CHECK PARKING BRAKE SWITCH

Perform a unit check for the parking brake switch. Refer to [MWI-56, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
NO >> Replace parking brake switch. Refer to [PB-6, "Exploded View"](#).

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:000000007565142

- 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:000000007565143

1. CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check the washer level switch signal circuit. Refer to [MWI-57. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2. CHECK WASHER LEVEL SWITCH

Perform a unit check for the washer level switch. Refer to [MWI-57. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-70. "Removal and Installation"](#).

NO >> Replace washer level switch. Refer to [WW-35. "Removal and Installation"](#).

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MWI

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:000000007565144

- 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:000000007565145

1. CHECK BCM INPUT/OUTPUT SIGNAL

Connect CONSULT and check the BCM input signals. Refer to [DLK-55. "Component Function Check"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> GO TO 3.

2. CHECK COMBINATION METER 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?

YES >> Replace combination meter. Refer to [MWI-70. "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-76. "Removal and Installation"](#).

3. CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to [DLK-55. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 4.

NO >> Repair harness or connector.

4. CHECK DOOR SWITCH

Perform a unit check for the door switch. Refer to [DLK-56. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-70. "Removal and Installation"](#).

NO >> Replace applicable door switch. Refer to [DLK-171. "Removal and Installation"](#).

THE TRUNK OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

< SYMPTOM DIAGNOSIS >

THE TRUNK OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:000000007565146

- The trunk ajar warning is displayed continuously even though the trunk lid is closed.
- The trunk ajar warning is not displayed even though the trunk lid is open.

Diagnosis Procedure

INFOID:000000007565147

1. CHECK BCM INPUT SIGNAL

1. Connect the CONSULT.
2. Check the BCM input signals. Refer to [DLK-69, "Component Function Check"](#).

Is the inspection result normal?

- YES >> GO TO 2.
- NO >> GO TO 3.

2. CHECK COMBINATION METER INPUT SIGNAL

Select the "Data Monitor" for the "METER/M&A" and check the "TRUNK/GLAS-H" monitor value.

"TRUNK/GLAS-H"

Trunk lid open : On
Trunk lid closed : Off

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
- NO >> Replace BCM. Refer to [BCS-76, "Removal and Installation"](#).

3. CHECK TRUNK ROOM LAMP SWITCH SIGNAL CIRCUIT

Check the trunk room lamp switch signal circuit. Refer to [DLK-69, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 4.
- NO >> Repair harness or connector.

4. CHECK TRUNK ROOM LAMP SWITCH

Check the room lamp switch. Refer to [DLK-70, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-70, "Removal and Installation"](#).
- NO >> Replace trunk lid lock assembly. Refer to [DLK-165, "Removal and Installation"](#).

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MWI

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

< SYMPTOM DIAGNOSIS >

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:000000007565148

- 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:000000007565149

NOTE:

Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to [MWI-69. "INFORMATION DISPLAY : Description"](#).

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to [HAC-40. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

2.CHECK A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

Check the A/C auto amp. connection recognition signal circuit. Refer to [MWI-59. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

3.CHECK AMBIENT SENSOR

Perform a unit check for the ambient sensor. Refer to [HAC-41. "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-70. "Removal and Installation"](#).

NO >> Replace ambient sensor. Refer to [HAC-79. "Removal and Installation"](#).

NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

NORMAL OPERATING CONDITION COMPASS

COMPASS : Description

INFOID:000000007565150

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 an incorrect direction or the reading is erratic or locked, verify the correct zone variance.

Symptom Chart

Symptom	Cause	Solution / Reference
The compass display reads "C".	<ul style="list-style-type: none">• Compass is not calibrated.• Incorrect zone variance setting.• Large change in magnetic field (Steel bridges, subways, concentrations of metal, carwashes, etc.)• Compass was calibrated incorrectly or in the presence of a strong magnetic field.	Perform Calibration. Refer to MWI-41, "Work Procedure" .
Compass shows the wrong direction.		
Compass does not change direction appears "Locked".		
Compass does not show all the directions, one or more is missing.		
The compass was calibrated but it "loses" calibration.		
On long trips the compass shows the wrong direction.	Perform zone variation setting if correct reading is desired in that location. Refer to MWI-40, "Work Procedure" .	

INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:000000007565151

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 combination meter. Refer to [MWI-15, "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 ℓ (4 US gal, 3-1/4 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 performing.

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MWI

COMBINATION METER

< REMOVAL AND INSTALLATION >

REMOVAL AND INSTALLATION

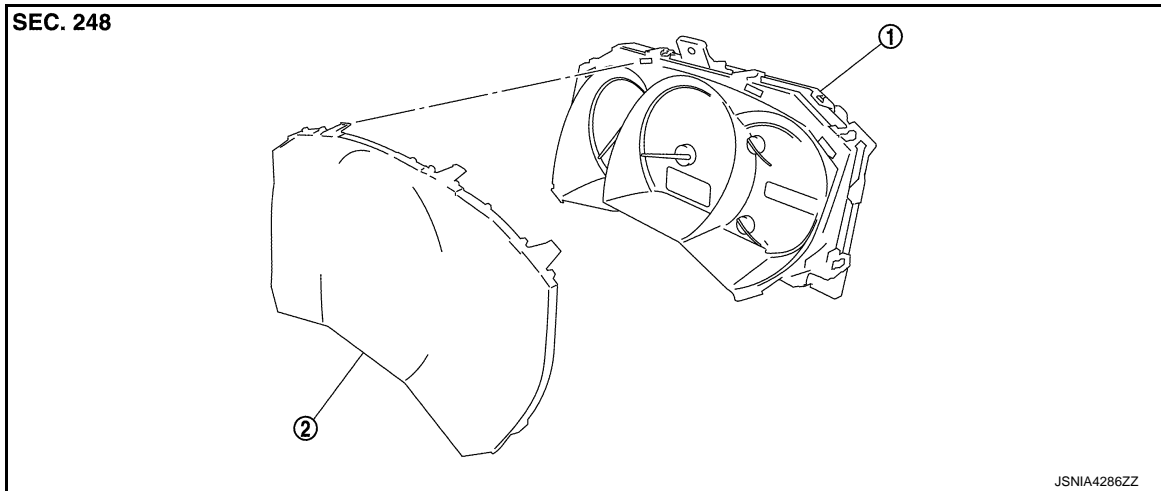
COMBINATION METER

Exploded View

INFOID:000000007565152

Refer to [IP-12, "Exploded View"](#).

DISASSEMBLY



1. Unified meter control unit
2. Front cover

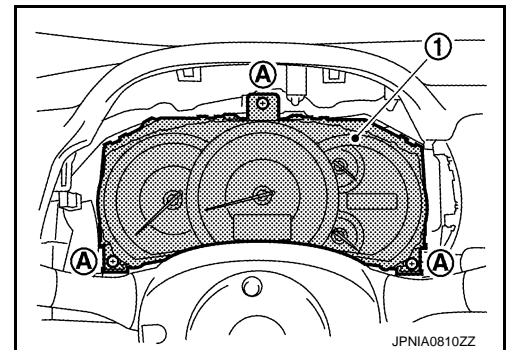
Removal and Installation

INFOID:000000007565153

REMOVAL

Removal

1. Remove the cluster lid A. Refer to [IP-13, "Removal and Installation"](#).
2. Remove screws (A) and connector, and remove combination meter (1).



INSTALLATION

Install in the reverse order of removal.

Disassembly and Assembly

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DISASSEMBLY

Disengage the pawls and pull the front cover straight to remove it from the unified meter control unit.

CAUTION:

- Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.
- Keep away from magnetic sources.
- Never damage the front cover.

ASSEMBLY

Install the front cover straight to the unified meter control unit and engage all the pawl.

CAUTION:

COMBINATION METER

< REMOVAL AND INSTALLATION >

- **Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.**
- **Keep away from magnetic sources.**
- **Never damage the front cover.**

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METER CONTROL SWITCH

< REMOVAL AND INSTALLATION >

METER CONTROL SWITCH

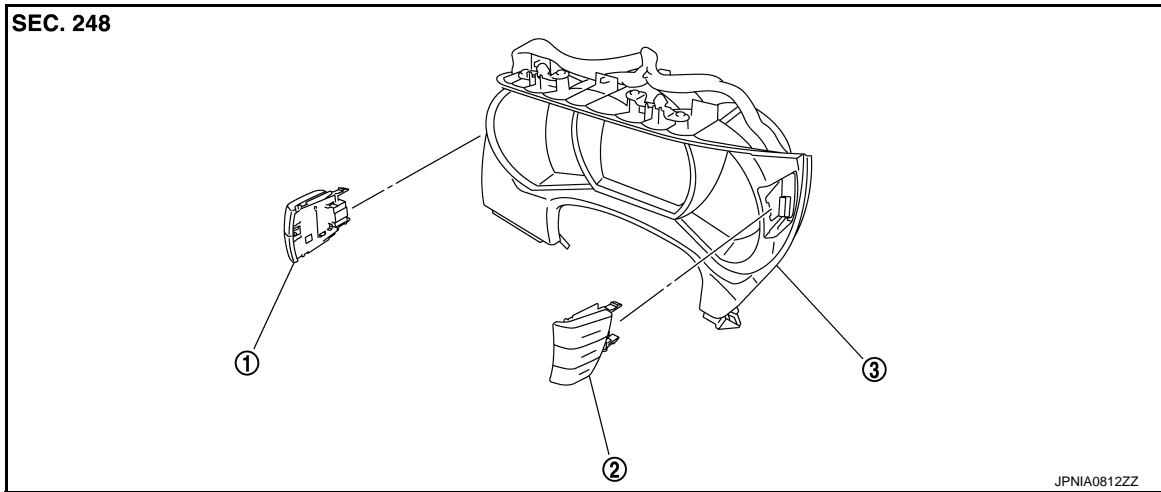
Exploded View

INFOID:000000007565155

REMOVAL

Refer to [IP-12. "Exploded View"](#).

DISASSEMBLY



1. Meter control switch (LH)

2. Meter control switch (RH)

3. Cluster lid A

Removal and Installation

INFOID:000000007565156

REMOVAL

1. Remove cluster lid A. Refer to [IP-12. "Exploded View"](#).
2. Remove meter control switch connectors and remove meter control switches.

INSTALLATION

Install in the reverse order of removal.

COMPASS

< REMOVAL AND INSTALLATION >

COMPASS

Exploded View

INFOID:000000007565157

Refer to [MIR-18. "Exploded View"](#).

Removal and Installation

INFOID:000000007565158

Refer to [MIR-18. "Removal and Installation"](#).

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