

# 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:000000008144634

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 12V battery, and wait at least 3 minutes before performing any service.

# PREPARATION

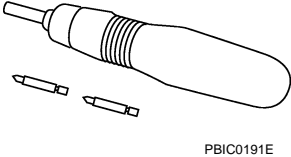
< PREPARATION >

## PREPARATION

### PREPARATION

#### Commercial Service Tools

INFOID:000000008144635

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

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# COMPONENT PARTS

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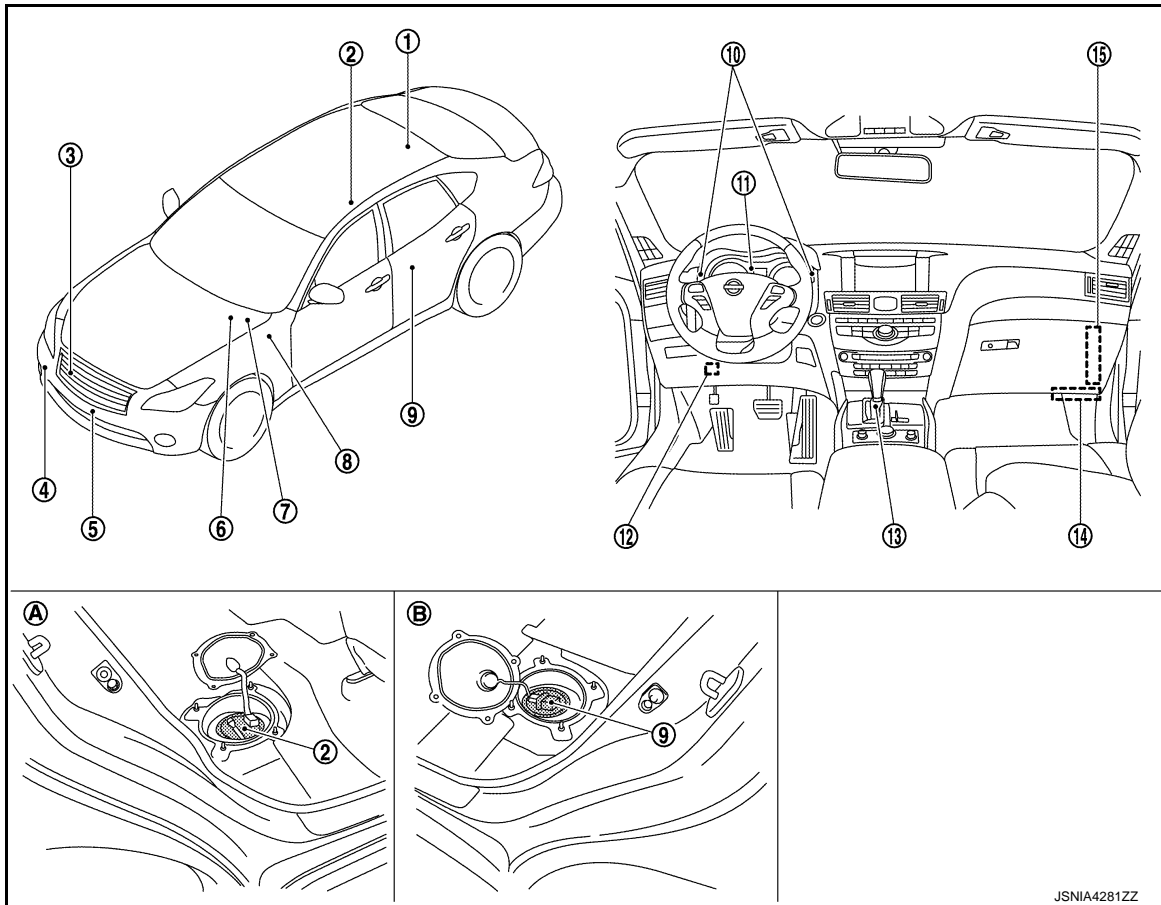
## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### METER SYSTEM

#### METER SYSTEM : Component Parts Location

INFOID:000000008144636



- |   |   |   |
|---|---|---|
| 1. HPCM<br>Refer to <a href="#">HBC-13, "HYBRID CONTROL SYSTEM : Component Parts Location"</a>                  | 2. Fuel level sensor unit (main)  | 3. Engine oil pressure sensor<br>Refer to <a href="#">EC-15, "ENGINE CONTROL SYSTEM : Component Parts Location"</a> |
| 4. Washer level switch  | 5. Ambient sensor   | 6. TCM<br>Refer to <a href="#">TM-13, "A/T CONTROL SYSTEM : Component Parts Location"</a>                           |
| 7. ABS actuator and electric unit (control unit)<br>Refer to <a href="#">BRC-11, "Component Parts Location"</a> | 8. BCM<br>Refer to <a href="#">BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"</a>    | 9. Fuel level sensor unit (sub)   |
| 10. Meter control switch  | 11. Combination meter   | 12. Parking brake switch  |
| 13. A/T shift selector  | 14. ECM<br>Refer to <a href="#">EC-15, "ENGINE CONTROL SYSTEM : Component Parts Location"</a> | 15. A/C auto amp.<br>Refer to <a href="#">HAC-8, "AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location"</a> |
| A. Rear seat (bottom right)   | B. Rear seat (bottom left)  |   |

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# COMPONENT PARTS

< SYSTEM DESCRIPTION >

## METER SYSTEM : Component Description

INFOID:000000008144637

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"> <li>• Speedometer</li> <li>• Tachometer</li> <li>• Assist charge gauge</li> <li>• Fuel gauge</li> <li>• Warning lamps</li> <li>• Indicator lamps</li> <li>• Meter illumination control</li> <li>• Meter effect function</li> <li>• Information display</li> </ul>
Meter control switch	<p>Transmits the following signals to the combination meter.</p> <ul style="list-style-type: none"> <li>• Enter switch signal</li> <li>• Select switch signal</li> <li>• Trip reset switch signal</li> <li>• Illumination control switch signal (+)</li> <li>• Illumination control switch signal (-)</li> </ul>
HPCM	<p>Transmits the following signals to the combination meter via CAN communication.</p> <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Oil pressure warning lamp signal</li> <li>• Engine coolant temperature signal</li> <li>• Fuel consumption monitor signal</li> <li>• Assist charge signal</li> <li>• READY to drive indicator lamp signal</li> <li>• Energy monitor signal</li> <li>• Li-ion battery state of charge signal</li> <li>• Acceleration guide signal</li> <li>• EV indicator lamp signal</li> <li>• Fuel filler cap warning display signal</li> <li>• Hybrid system over heat warning signal</li> <li>• Shift P warning signal</li> </ul>
ECM	<p>Transmits the following signals to the HPCM via CAN communication.</p> <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Oil pressure warning lamp signal</li> <li>• Engine coolant temperature signal</li> <li>• Fuel filler cap warning display signal</li> </ul>
ABS actuator and electric unit (control unit)	<p>Transmits the vehicle speed signal to the combination meter via CAN communication.</p>
BCM	<p>Transmits the following signals to the combination meter via CAN communication.</p> <ul style="list-style-type: none"> <li>• Dimmer signal</li> <li>• Door switch signal</li> <li>• Trunk switch signal</li> <li>• Meter ring illumination request signal</li> <li>• Meter display signal</li> <li>• Intelligent Key system warning display signal</li> <li>• Low tire pressure warning lamp signal</li> </ul>
TCM	<p>Transmits the following signals to the combination meter.</p> <ul style="list-style-type: none"> <li>• Shift position signal</li> <li>• Manual mode shift refusal signal</li> </ul>
A/T shift selector	<p>Transmits the following signals to the combination meter.</p> <ul style="list-style-type: none"> <li>• Manual mode signal</li> <li>• Non-manual mode signal</li> <li>• Manual mode shift up signal</li> <li>• Manual mode shift down signal</li> </ul>
Fuel level sensor unit	<p>Transmits the fuel level sensor signal to the combination meter.</p>
Engine oil pressure sensor	<p>Transmits the engine oil pressure sensor signal to the ECM.</p>
Ambient sensor	<p>Transmits the ambient sensor signal to the A/C auto amp.</p>

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# COMPONENT PARTS

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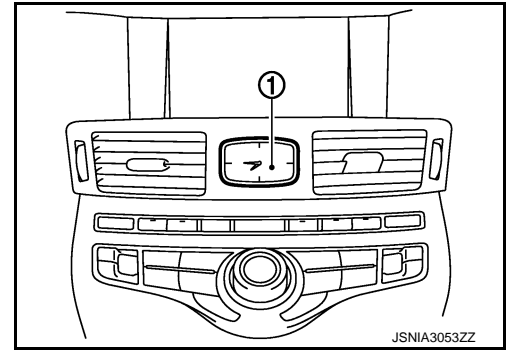
Unit	Description
A/C auto amp.	Transmits the ambient sensor signal to the combination meter via CAN communication.
Parking brake switch	Transmits the parking brake switch signal to the combination meter.
Washer level switch	Transmits the washer level switch signal to the combination meter.

## CLOCK

### CLOCK : Component Parts Location

INFOID:000000008144638

1 : Clock





# SYSTEM

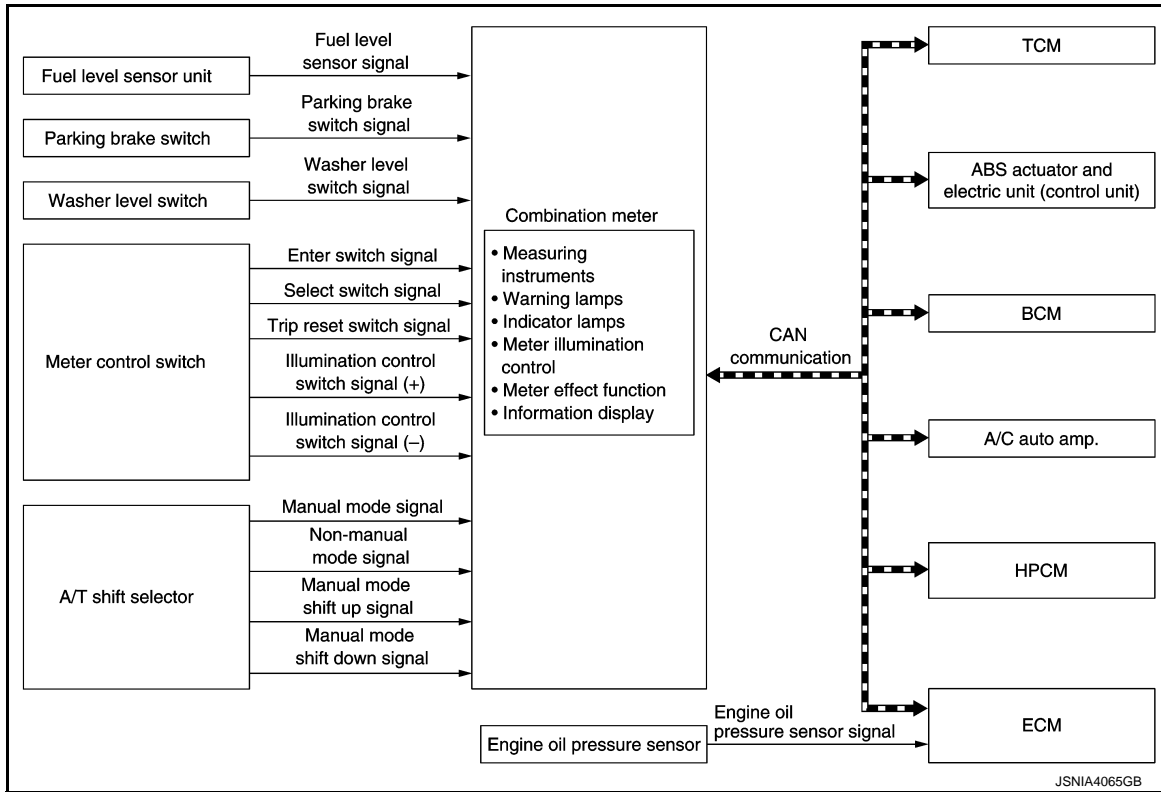
< SYSTEM DESCRIPTION >

## SYSTEM

### METER SYSTEM

#### METER SYSTEM : System Diagram

INFOID:000000008144639



#### METER SYSTEM : System Description

INFOID:000000008144640

##### COMBINATION METER

- The combination meter receives necessary signals from each unit, switch, and sensor to control the following functions.
  - Measuring instruments
  - Warning lamps
  - Indicator lamps
  - Meter illumination control
  - Meter effect function
  - Information display
- The combination meter incorporates a buzzer function that sounds an audible alarm with the integrated buzzer device. Refer to [WCS-5, "Combination Meter"](#) for further details.
- The combination meter includes an on board diagnosis function.
- The combination meter can be diagnosed with CONSULT.

##### METER CONTROL FUNCTION LIST

# SYSTEM

## < SYSTEM DESCRIPTION >

	System	Description	Reference
Measuring instruments	Speedometer	Indicates vehicle speed.	<a href="#">MWI-15. "SPEEDOMETER : System Description"</a>
	Tachometer	Indicates engine speed.	<a href="#">MWI-16. "TACHOMETER : System Description"</a>
	Assist charge gauge	Indicates the output status (driving force/ power generation) of traction motor on the assist charge gauge.	<a href="#">MWI-16. "ASSIST CHARGE GAUGE : System Description"</a>
	Fuel gauge	Indicates fuel level.	<a href="#">MWI-17. "FUEL GAUGE : System Description"</a>
Warning lamp/ indicator lamp	Oil pressure warning lamp	The warning lamp turns ON or turns OFF, according to engine hydraulic pressure.	<a href="#">MWI-17. "OIL PRESSURE WARNING LAMP : System Description"</a>
	High water temperature warning lamp	Turns ON when engine coolant reaches a high temperature.	<a href="#">MWI-18. "HIGH WATER TEMPERATURE WARNING LAMP : System Description"</a>
	Master warning lamp	Turns ON/OFF in synchronization with a warning indicated on the information display.	<a href="#">MWI-19. "MASTER WARNING LAMP : System Description"</a>
Meter illumination control	Meter illumination control function	Switches back and forth between daytime mode and nighttime mode, according to a light switch position.	<a href="#">MWI-19. "METER ILLUMINATION CONTROL : System Description"</a>
Meter effect function	Hybrid system start effect function	Controls the pointers of combination meter and back light illumination at startup of the hybrid system to produce illumination effects.	<a href="#">MWI-20. "METER EFFECT FUNCTION : System Description"</a>
	Driver welcome function	Controls meter illumination to produce illumination effects when getting in the vehicle.	
Information display	Odo/trip meter	Displays mileage.	<a href="#">MWI-22. "INFORMATION DISPLAY : System Description"</a>
	Shift position indicator	Displays shift position.	

# SYSTEM

## < SYSTEM DESCRIPTION >

System		Description	Reference		
Information display	Trip computer	Energy monitor	Displays simplified energy flow.	A	
		Li-ion battery state of charge	Displays battery power of the Li-ion battery.		
		Acceleration guide	Displays guidelines for accelerator angle and eco-drive.	B	
		EV mode odometer and twin trip odometer	Accumulates mileage during EV driving.	C	
		Current fuel consumption	Displays current fuel consumption.		
		Average fuel consumption	Displays average fuel consumption.		
		Average vehicle speed	Displays average vehicle speed.	D	
		Travel time	Displays travel time.		
		Travel distance	Displays mileage.		
		Distance to empty	Displays distance to empty.	E	
		Engine coolant temperature gauge	Displays engine coolant temperature.		
		Ambient temperature	Displays ambient temperature.	F	
	Interrupt indication	Warning	Door open warning	Warns when a door is open.	G
			Trunk open warning	Warns when a trunk is open.	
			Parking brake release warning	Warns if traveling when the parking brake is under operating condition.	H
			Low fuel warning	Warns when being low on fuel.	
			Low washer fluid warning	Displayed/Hidden, depending on washer fluid level.	
			Fuel filler cap warning	Warns, according to the tightening condition of fuel filler cap.	J
			Low tire pressure warning	Warns, according to tire inflation pressure.	
			Hybrid system over heat warning	Warns, according to the temperature of hybrid system.	K
			Shift P warning	Warns at the occurrence of malfunctions requiring the shifting of select lever in P range or operational errors.	L
		Alert	Travel time	Causes an interrupt when exceeding randomly set time.	M
			Low ambient temperature	Causes an interrupt when ambient temperature reaches below 3°C (37°F).	
Maintenance	Tire	Causes an interrupt when exceeding randomly set distance.			
	Oil filter	Causes an interrupt when exceeding randomly set distance.	O		
	Engine oil	Causes an interrupt when exceeding randomly set distance.			
	Other	Causes an interrupt when exceeding randomly set distance.	P		
Meter illumination level		Indicates the brightness of the meter illumination in stages.			

MWI-22. "INFORMATION DISPLAY : System Description"

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# SYSTEM

## < SYSTEM DESCRIPTION >

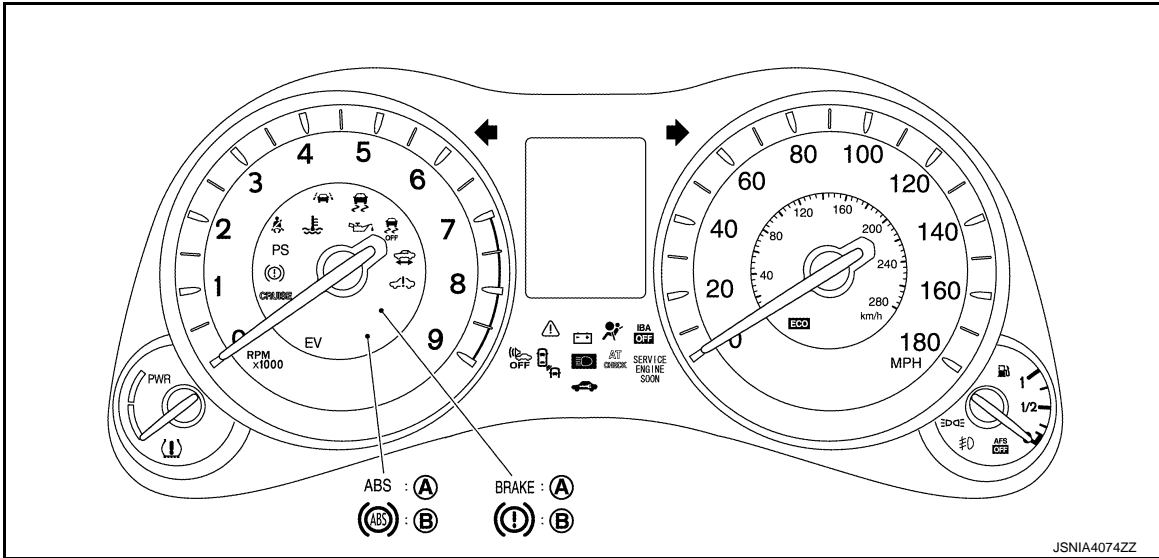
System		Description	Reference	
Information display	Warning check indication	Door open warning	Allows the user to check a door open warning on the warning check screen when the display conditions are satisfied.	
		Trunk open warning	Allows the user to check a trunk open warning on the warning check screen when the display conditions are satisfied.	
		Parking brake release warning	Allows the user to check a parking brake release warning on the warning check screen when the display conditions are satisfied.	
		Low fuel warning	Allows the user to check a low fuel warning on the warning check screen when the display conditions are satisfied.	
		Low washer fluid warning	Allows the user to check a low washer fluid warning on the warning check screen when the display conditions are satisfied.	
		Fuel filler cap warning	Allows the user to check a fuel filler cap warning on the warning check screen when the display conditions are satisfied.	
		Low tire pressure warning	Allows the user to check a low tire pressure warning on the warning check screen when the display conditions are satisfied.	
		Hybrid system over heat warning	Allows the user to check a hybrid system over heat warning on the warning check screen when the display conditions are satisfied.	
		Shift P warning	Allows the user to check a shift P warning on the warning check screen when the display conditions are satisfied.	
	Setting	Alert	Timer	Allows the user to set a display time for "Travel time".
			ICY	Allows the ON/OFF setting of the low ambient temperature (alert) function.
		Maintenance	Tire	Alerts when reaching mileage set in "SETTING".
			Filter	Alerts when reaching mileage set in "SETTING".
			Oil	Alerts when reaching mileage set in "SETTING".
			Other	Alerts when reaching mileage set in "SETTING".
Options	Language	Allows the user to set language for information display.		
	Unit	Allows unit settings.		
	Effects	Allows the ON/OFF setting of the hybrid system start effect function.		

[MWI-22, "INFORMATION DISPLAY : System Description"](#)

## ARRANGEMENT OF COMBINATION METER

# SYSTEM

## < SYSTEM DESCRIPTION >



A. For U.S.A.

B. For Canada

### METER SYSTEM : Fail-Safe

INFOID:000000008144641

#### 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	
Assist charge gauge	
Illumination control	When suspending communication, changes to nighttime mode.

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# SYSTEM

## < SYSTEM DESCRIPTION >

	Function	Specifications
Information display	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The display turns OFF by suspending communication.
	Door open warning	The display turns OFF by suspending communication.
	Trunk open warning	
	Fuel filler cap warning	
	Low tire pressure warning	
	Hybrid system over heat warning	
	Shift P warning	
	Energy monitor	The flow (arrow) of energy is not displayed.
	Li-ion battery state of charge	During communications blackout, the battery power indicates "0".
	Acceleration guide	During communications blackout, the accelerator guide indication is not displayed.
	EV mode odometer and twin trip odometer	During communications blackout, the indication is maintained.
	Current fuel consumption	During communications blackout, the last calculation is displayed.
	Average fuel consumption	During communications blackout, the last calculation is displayed.
	Average vehicle speed	During communications blackout, the last calculation is displayed.
Travel distance	During communications blackout, the indication is maintained.	
Distance to empty	During communications blackout, "----" is displayed.	
Engine coolant temperature gauge	Sixty seconds after communications blackout, engine coolant temperature position is not displayed.	
Ambient temperature	During communications blackout, "----" is displayed.	
Buzzer	The buzzer turns OFF by suspending communication.	

# SYSTEM

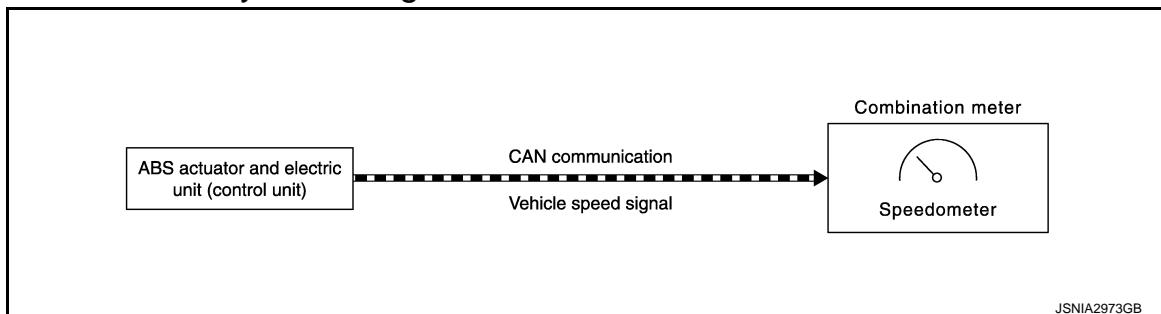
## < SYSTEM DESCRIPTION >

Function	Specifications	
ABS warning lamp	The lamp turns ON by suspending communication.	A
VDC warning lamp		B
VDC OFF indicator lamp		C
Brake warning lamp		D
Brake system warning lamp		E
IBA OFF indicator lamp		F
Malfunction indicator lamp		G
CRUISE warning lamp		H
Hybrid EPS (Electrical Power Steering) warning lamp		I
Approaching Vehicle Sound for Pedestrians temporally OFF indicator		J
Low tire pressure warning lamp	The lamp blinking caused by suspending communication.	K
AFS OFF indicator lamp		L
High beam indicator lamp	The lamp turns OFF by suspending communication.	M
Turn signal indicator lamp		N
Front fog lamp indicator lamp		O
Tail lamp indicator lamp		P
A/T CHECK indicator lamp		
Lane departure warning lamp		
LDP ON indicator lamp		
Oil pressure warning lamp		
ECO drive indicator		
12-volt battery charge warning lamp		
BSI ON indicator		
BSW/BSI warning lamp		
High water temperature warning lamp		
READY to drive indicator lamp		
Hybrid system warning lamp		
EV indicator lamp		

## SPEEDOMETER

### SPEEDOMETER : System Diagram

INFOID:000000008144642



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### SPEEDOMETER : System Description

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The combination meter shows vehicle speed on the speed meter, according to the following signals.

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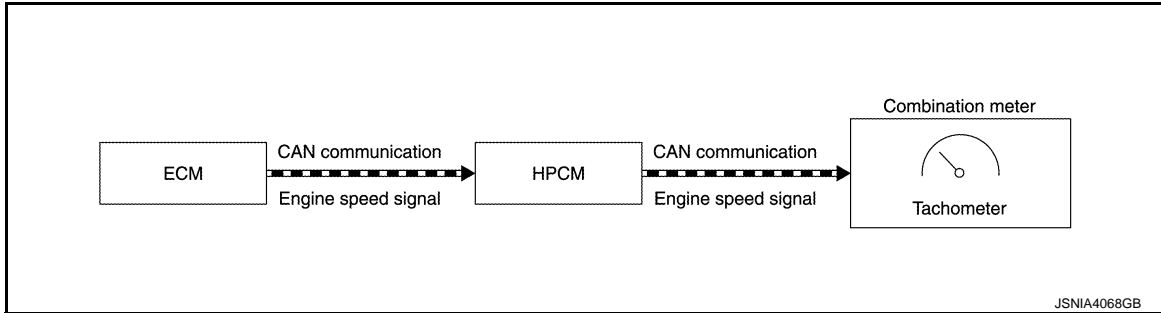
## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter

## TACHOMETER

### TACHOMETER : System Diagram

INFOID:000000008144644



### TACHOMETER : System Description

INFOID:000000008144645

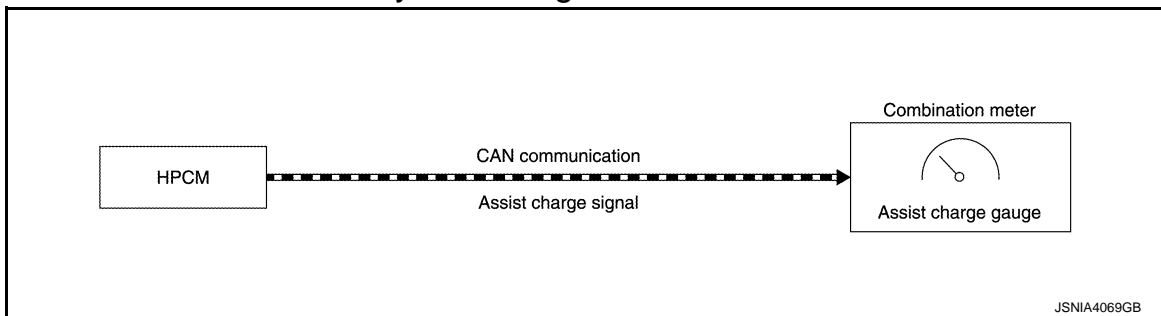
The combination meter shows engine speed on the tachometer, according to the following signals.

Signal name	Signal path
Ignition signal	—
Engine speed signal	ECM  HPCM  Combination meter

## ASSIST CHARGE GAUGE

### ASSIST CHARGE GAUGE : System Diagram


INFOID:000000008144646



### ASSIST CHARGE GAUGE : System Description

INFOID:000000008144647

- The combination meter shows assist/charge (output status of the traction motor) on the assist charge gauge, according to the following signals.

Signal name	Signal path
Ignition signal	—
Assist charge signal	HPCM  Combination meter

## FUEL GAUGE

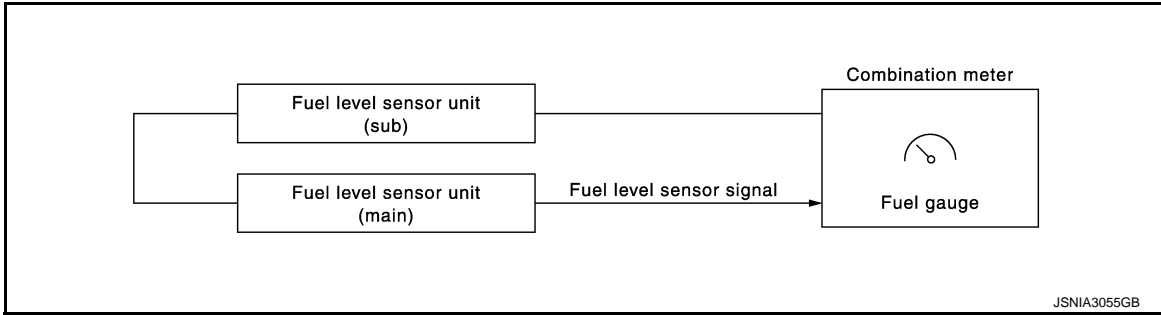


# SYSTEM

< SYSTEM DESCRIPTION >

## FUEL GAUGE : System Diagram

INFOID:000000008144648



JSNIA3055GB

## FUEL GAUGE : System Description

INFOID:000000008144649

### CONTROL OUTLINE

The combination meter reads the fuel level sensor signal from the fuel level sensor unit and shows the fuel level on the fuel gauge.

### REFUEL CONTROL

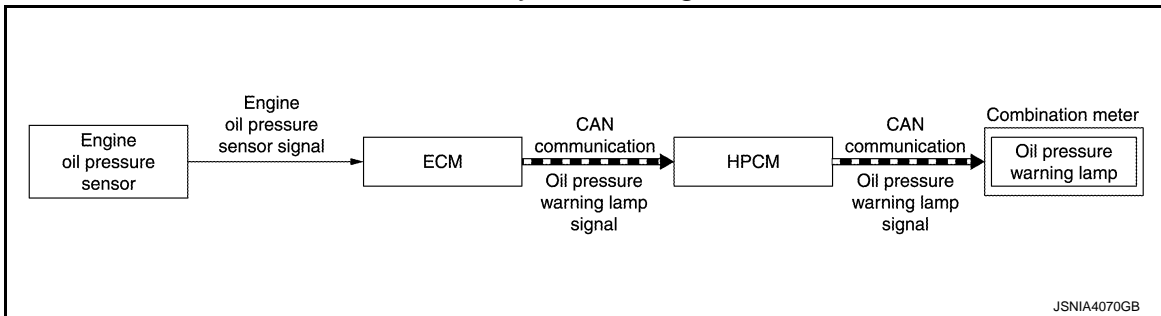
The combination meter accelerates the fuel gauge needle movement if the all conditions listed below are met, or the ignition switch is ON from OFF.

- 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.

## OIL PRESSURE WARNING LAMP

### OIL PRESSURE WARNING LAMP : System Diagram

INFOID:000000008144650



JSNIA4070GB

### OIL PRESSURE WARNING LAMP : System Description

INFOID:000000008144651

The combination meter turns ON/OFF the oil pressure warning lamp, according to the following signals.

Signal name	Signal path
Ignition signal	—
Oil pressure warning lamp signal	Engine oil pressure sensor → ECM → CAN → HPCM → CAN → Combination meter

## HIGH WATER TEMPERATURE WARNING LAMP

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

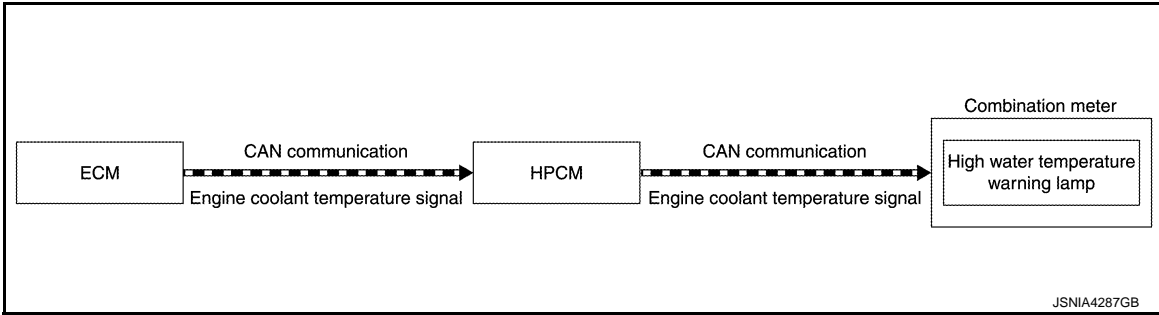
MWI

# SYSTEM

< SYSTEM DESCRIPTION >

## HIGH WATER TEMPERATURE WARNING LAMP : System Diagram

INFOID:000000008144652



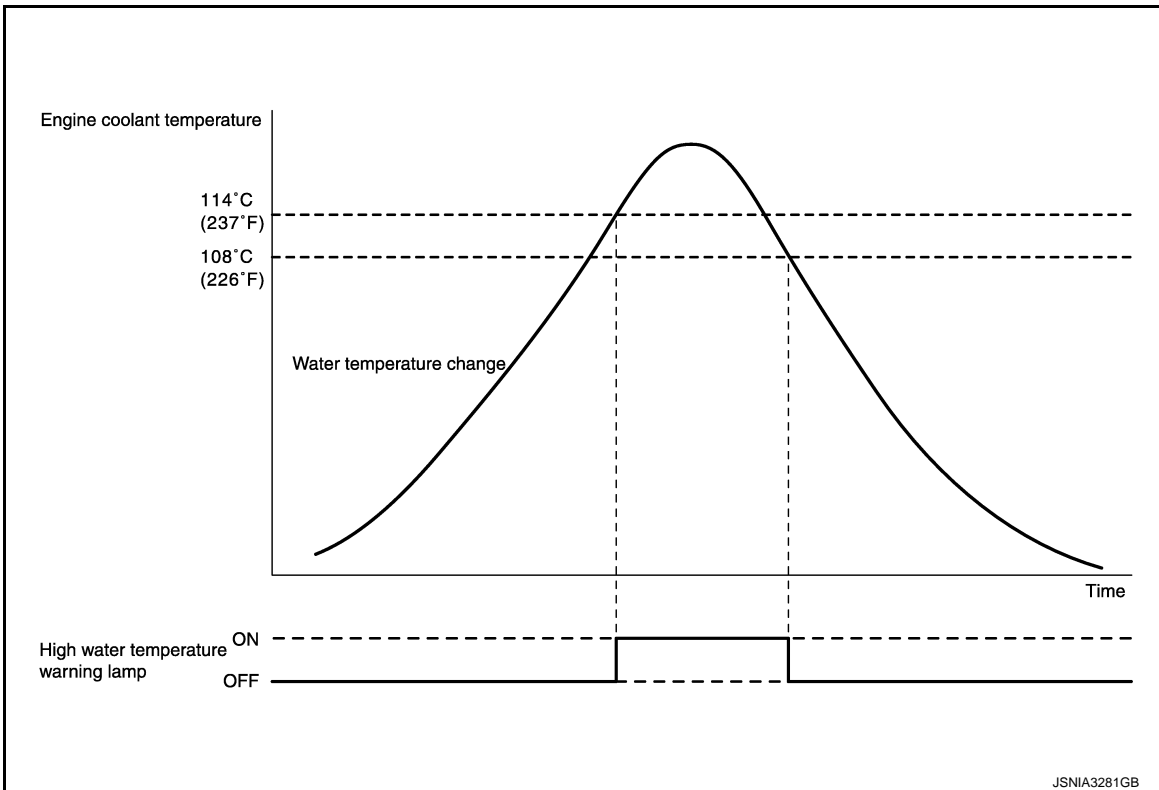
## HIGH WATER TEMPERATURE WARNING LAMP : System Description

INFOID:000000008144653

The combination meter turns ON/OFF the high water temperature warning lamp, according to the following signals.

Signal name	Signal path
Ignition signal	—
Engine coolant temperature signal	ECM  HPCM  Combination meter

## TIMING CHART



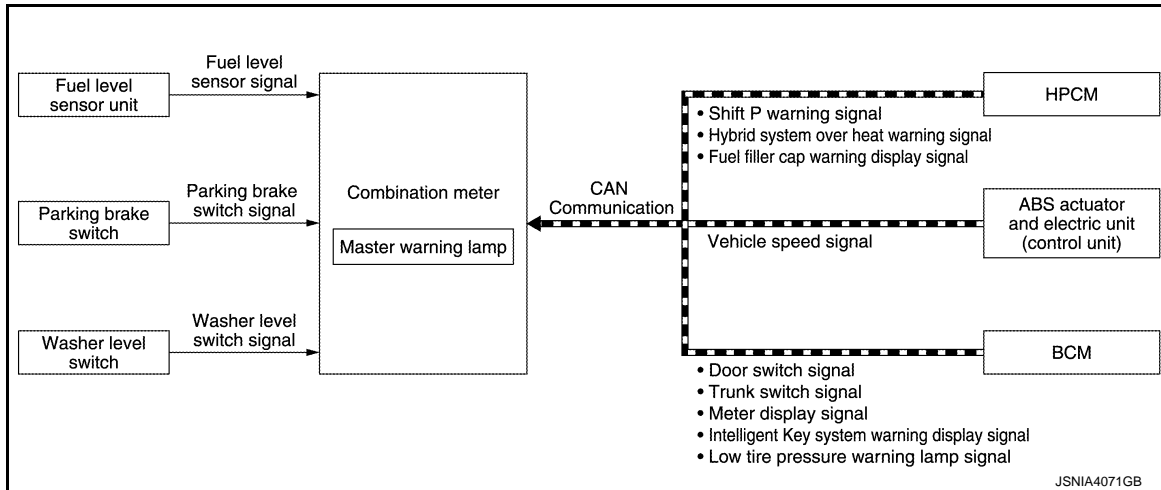
## MASTER WARNING LAMP

# SYSTEM

## < SYSTEM DESCRIPTION >

### MASTER WARNING LAMP : System Diagram

INFOID:000000008144654



### MASTER WARNING LAMP : System Description

INFOID:000000008144655

When receiving a signal from each unit, switch, or sensor, the combination meter turns ON/OFF the master warning lamp in synchronization with the following warnings on the information display.

- Door open warning
- Trunk open warning
- Parking brake release warning
- Low fuel warning
- Low washer fluid warning
- Intelligent Key system malfunction
- NO KEY warning
- Fuel filler cap warning
- Low tire pressure warning
- Hybrid system over heat warning
- Shift P warning

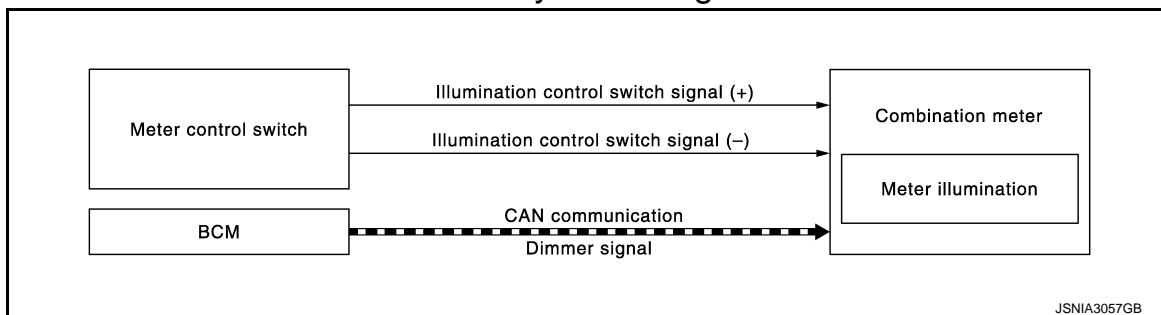
#### NOTE:

- For detailed warnings other than those of the intelligent key system, refer to [MWI-22. "INFORMATION DISPLAY : System Description"](#).
- For detailed warnings of the intelligent key system, refer to [DLK-23. "WARNING FUNCTION : System Description"](#).

### METER ILLUMINATION CONTROL

### METER ILLUMINATION CONTROL : System Diagram

INFOID:000000008144656



### METER ILLUMINATION CONTROL : System Description

INFOID:000000008144657

#### METER ILLUMINATION CONTROL FUNCTION

- Combination meter controls meter illumination, based on the following signal.
- Dimmer signal
- The combination meter switches mode between Daytime mode and Nighttime mode, according to the following conditions.

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

MWI

# SYSTEM

## < SYSTEM DESCRIPTION >

Condition		Meter illumination	
Combination switch (lighting switch)	1ST or 2ND position	Outdoor: Bright*	Daytime mode
		Outdoor: Dark*	Nighttime mode
	AUTO POSITION	Outdoor: Bright*	Daytime mode
		Outdoor: Dark*	Nighttime mode
Off		Daytime mode	

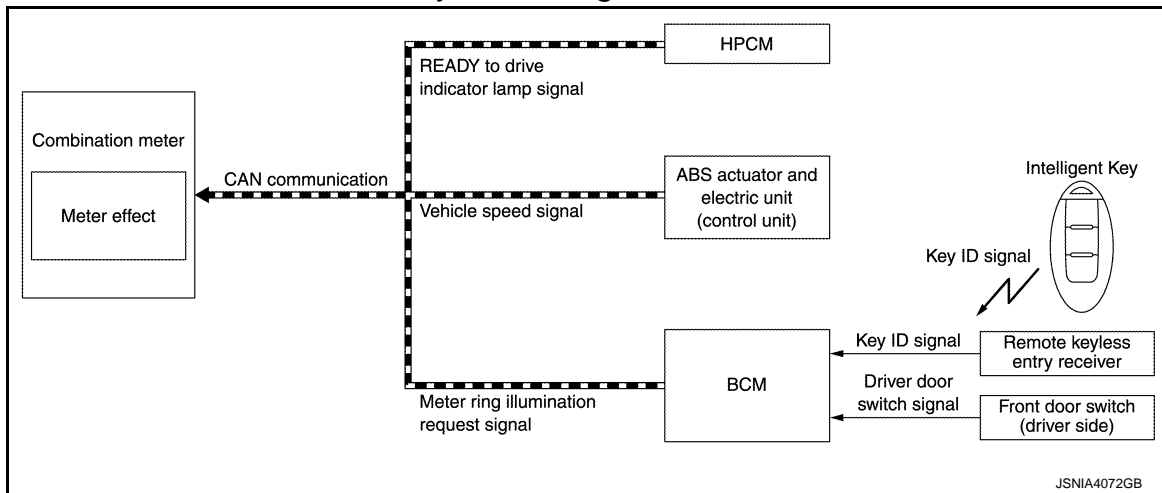
\*: For further information, refer to [INL-11, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description"](#).

- The operation of the illumination control switch allows the brightness adjustment of meter illumination.

Meter illumination	The number of adjustable steps
Daytime	22 step
Nighttime	22 step

## METER EFFECT FUNCTION

### METER EFFECT FUNCTION : System Diagram



### METER EFFECT FUNCTION : System Description

INFOID:000000008144659

### HYBRID SYSTEM START EFFECT FUNCTION

When recognizing a hybrid system start, the combination meter controls the following items for producing the effect.

- Speedometer
- Tachometer
- Assist charge gauge
- Fuel gauge
- Meter illumination

#### Meter and Illumination Operations During Hybrid System Start Effect

The combination meter controls the following items during the hybrid system start effect.

Control item	Operation
Speedometer	Sweeps the pointer.
Tachometer	Sweeps the pointer.
Assist charge gauge	Stops the pointer.
Fuel gauge	Stops the pointer.

# SYSTEM

## < SYSTEM DESCRIPTION >

Control item		Operation
Meter illumination	Pointers	Turns on the illumination at the effect level.
	Information display	Turns on the illumination at the normal brightness level.
	Other than those above	Increases the brightness to the effect level in stages.

### Hybrid System Start Judgment

The combination meter judges “hybrid system start” and activates the hybrid system start effect only once when the following operational conditions are all satisfied.

Operational condition	
Ignition switch	ON position
Vehicle speed	Less than 1 km/h (0.6 MPH)
Vehicle state	READY
Information display (SETTING)	The setting of “EFFECT” is “ON”

### NOTE:

The hybrid system start effect function ends if any one of the above conditions is lost during the activation of this function.

### Signal Path

The combination meter judges “hybrid system start”, according to the following signals and activates the hybrid system start effect function.

Signal name	Signal source
Ignition signal	—
READY to drive indicator lamp signal	HPCM  → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

## DRIVER WELCOME FUNCTION

BCM transmits a meter ring illumination request signal to the illumination meter when all the following operational conditions are satisfied. When receiving the meter ring illumination request signal from BCM via CAM communication, the combination meter increases illumination brightness of the combination meter to the set brightness level in stages. After a certain period of time, the meter illumination gradually dims to be turned OFF.

Operational condition	
Ignition switch	LOCK position
Driver side door	Open → Close*

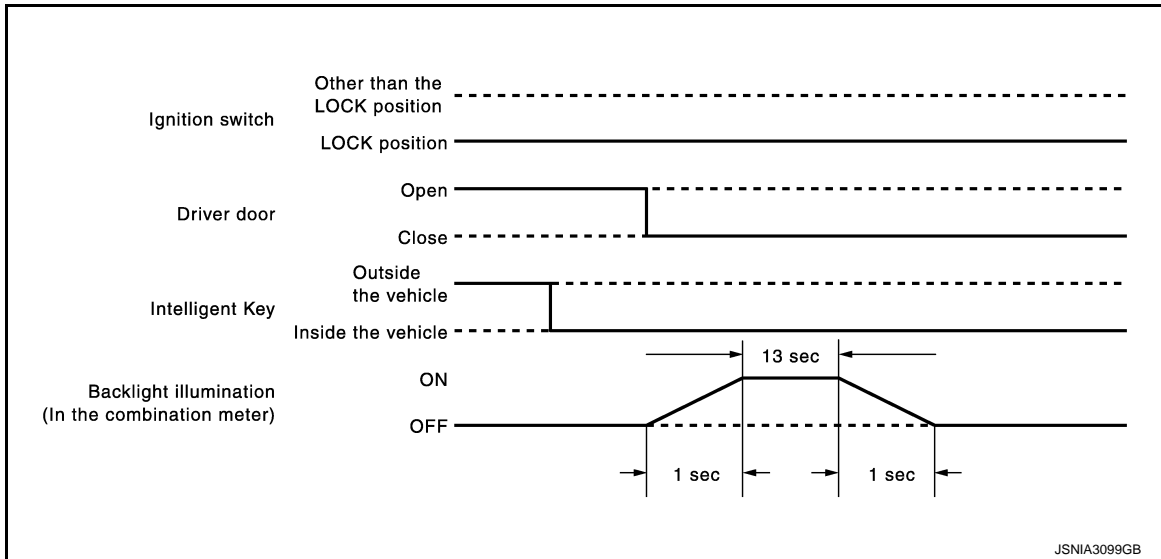
\*: Close the driver side door with the intelligent key left inside the vehicle.

MWI

# SYSTEM

## < SYSTEM DESCRIPTION >

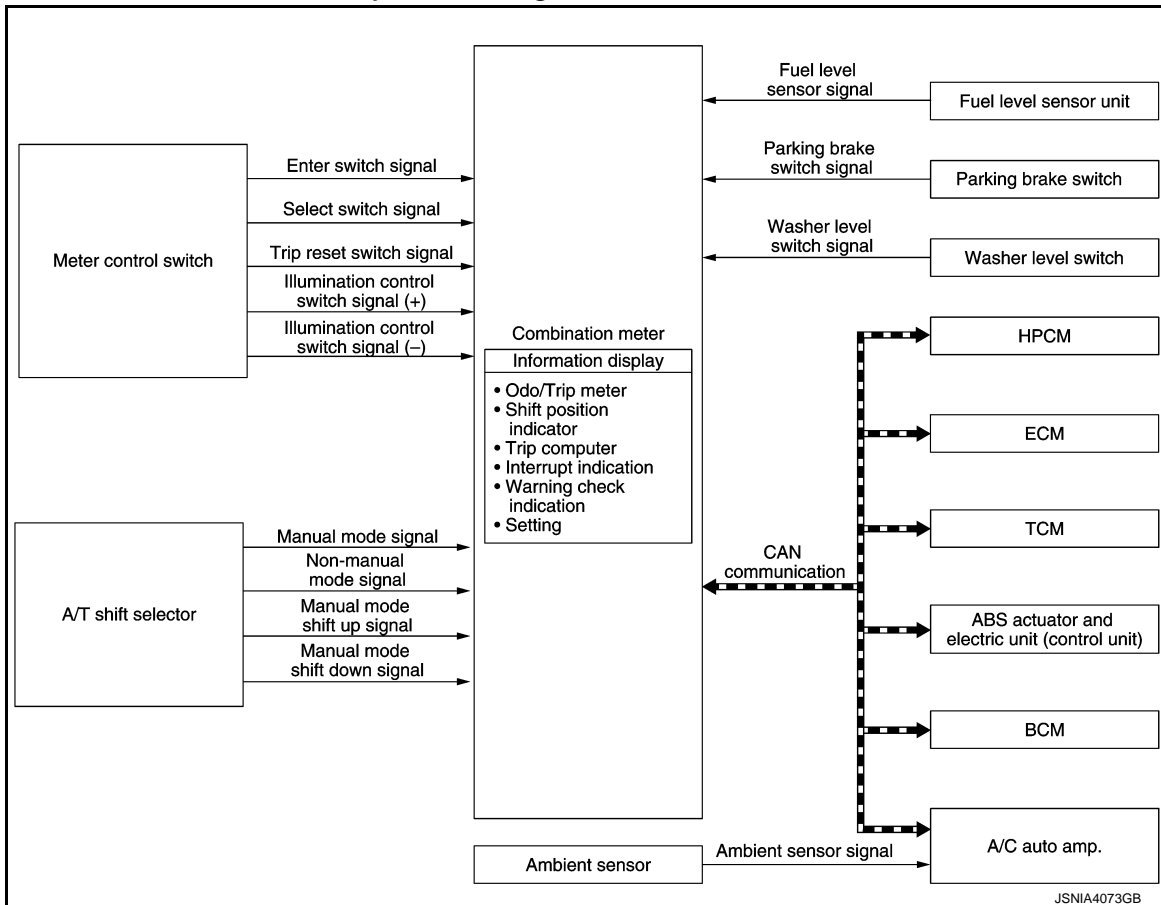
### Timing Chart



## INFORMATION DISPLAY

### INFORMATION DISPLAY : System Diagram

INFOID:000000008144660



## INFORMATION DISPLAY : System Description

INFOID:000000008144661

### DESCRIPTION

- The combination meter receives signals necessary for controlling the operation of the information display from each unit, sensor and switch.
- The combination meter incorporates a trip computer that displays the warning/information according to the information received from each unit, sensor and switch.


# SYSTEM

## < SYSTEM DESCRIPTION >

- The combination meter shows the following functions on the information display.
  - Odo/trip meter
  - Shift position indicator
  - Trip computer
  - Interrupt indication
  - Warning check indication
  - Setting

### ODO/TRIP METER



The combination meter calculates mileage, based on the following signals and displays the mileage on the information display.

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter


### SHIFT POSITION INDICATOR

#### Manual Mode

1. The combination meter receives the following signal and transmits the signal to TCM via CAN communication.

Signal name	Signal path
Manual mode signal	A/T shift selector  Combination meter  TCM
Non-manual mode signal	
Manual mode shift up signal	
Manual mode shift down signal	

2. TCM judges a shift position and manual mode information, based on a signal received from the combination meter via CAN communication and transmits the following signals to the combination meter via CAN communication.

Signal name	Signal path
Shift position signal	TCM  Combination meter
Manual mode shift refusal signal	

3. The combination meter activates the shift position indicator, and manual mode information, based on signals received from TCM via CAN communication.

**NOTE:**

When receiving a manual mode shift refusal signal from TCM via CAN communication, the combination meter blinks the shift position indicator and allows the integrated buzzer to ring a beep tone. For further information, refer to [TM-57, "SHIFT PATTERN CONTROL : System Description"](#).

#### Non-manual Mode

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

### TRIP COMPUTER

#### Energy Monitor


The combination meter displays “energy monitor” on the vehicle information display, according to the following signal. The “energy monitor” displayed on the vehicle information display is the simplified version of the information shown on the audio, visual & navigation system display.

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

MWI


# SYSTEM

## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Energy monitor signal	HPCM  Combination meter


### Li-ion Battery State of Charge

The combination meter displays “li-ion battery state of charge” on the vehicle information display, according to the following signals.

Signal name	Signal path
Ignition signal	—
Li-ion battery state of charge signal	HPCM  Combination meter



### Acceleration Guide

The combination meter displays “acceleration guide” on the vehicle information display, according to the following signals. For further information, refer to [HBC-36, "INFINITI DRIVE MODE SELECTOR : System Description"](#).

Signal name	Signal path
Ignition signal	—
Acceleration guide signal	HPCM  Combination meter



### EV Mode Odometer and Twin Trip Odometer

The combination meter calculates distance traveled, according to the following signals and displays “EV mode odometer and twin trip odometer” on the vehicle information display.

Signal name	Signal path
Ignition signal	—
EV indicator lamp signal	HPCM  Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter

### Current Fuel Consumption

The combination meter calculates current fuel consumption based on the following signals, and the calculated value is displayed on the information display.

Signal name	Signal path
Ignition signal	—
Fuel consumption monitor signal	HPCM  Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter

### NOTE:

- Current fuel consumption on the information display is updated approximately every 0.1 seconds.
- Current fuel consumption on the information display shows 0 l/100km (0 mpg) when vehicle speed is 0 km/h (0 MPH).



### Average Fuel Consumption

The combination meter calculates average fuel consumption based on the following signals, and the calculated value is displayed on the information display.



# SYSTEM

## < SYSTEM DESCRIPTION >


Signal name	Signal path
Ignition signal	—
Fuel consumption monitor signal	HPCM  → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

**NOTE:**

- Average fuel consumption on the information display is updated approximately every 30 seconds.
- Soon after a reset or when the ignition switch is turned ON right after battery removal and installation, “—” is displayed until after a travel of 30 seconds and approximately 500 m (0.31 mile).

### Average Vehicle Speed

The combination meter calculates average vehicle speed based on the following signals, and the calculated value is displayed on the information display.

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

**NOTE:**


- Average vehicle speed on the information display is updated approximately every 30 seconds.
- Soon after a reset or when the ignition switch is turned ON right after battery removal and installation, “—” is displayed until after a 30 seconds.

### Travel Time

The combination meter measures and displays travel time (ignition switch ON time).




### Travel Distance

The combination meter calculates mileage, based on the following signals and displays the mileage on the information display.

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

### Distance to Empty

The combination meter calculates distance to empty based on the following signals, and the calculated value is displayed on the information display.

Signal name	Signal path
Ignition signal	—
Fuel level sensor signal	Fuel level sensor unit  → Combination meter
Fuel consumption monitor signal	HPCM  → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

**NOTE:**



- Distance to empty on the information display is updated approximately every 30 seconds.
- When the ignition switch is turned from OFF to ON, “—” is displayed until after a travel of approximately 500 m (0.31 mile).
- The indicated values may not match each other when refueling with the ignition switch ON.

### Engine Coolant Temperature Gauge

# SYSTEM

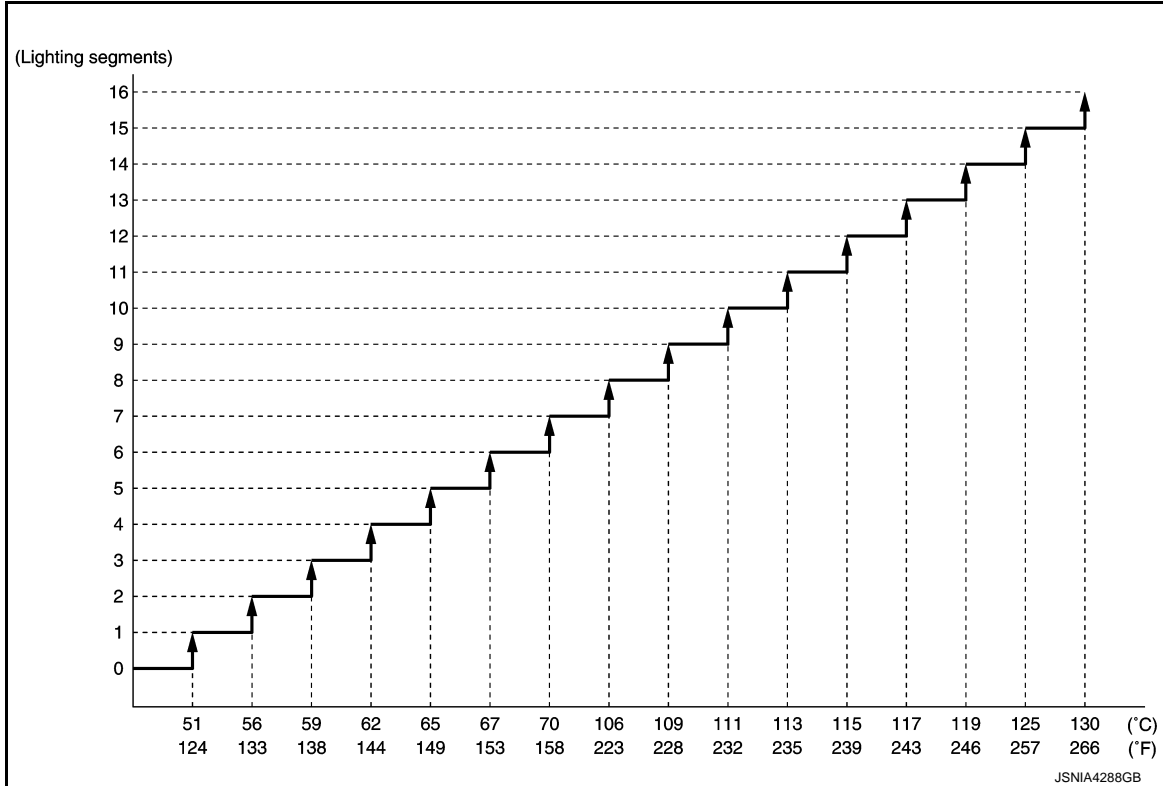
## < SYSTEM DESCRIPTION >

- The combination meter displays “engine coolant temperature gauge” on the vehicle information display, according to the following signals.

Signal name	Signal path
Ignition signal	—
Engine coolant temperature signal	ECM  HPCM  Combination meter

- The number of segments displayed by the engine coolant temperature gauge differs depending on whether engine coolant temperature is on the increase or decrease. For the relationship between the number of lighting segments and engine coolant temperature, refer to the following charts.

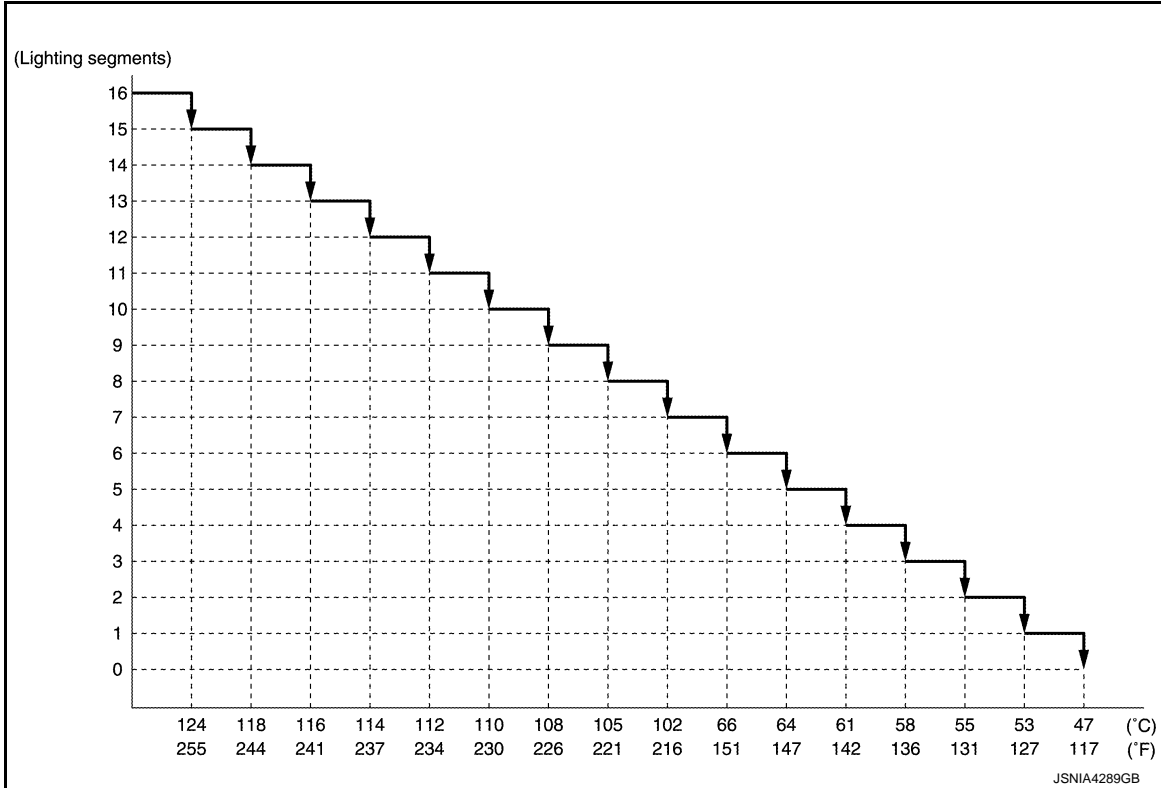
### SEGMENT LIGHTING UNDER INCREASING ENGINE COOLANT TEMPERATURE



# SYSTEM

## < SYSTEM DESCRIPTION >

### SEGMENT LIGHTING UNDER DECREASING ENGINE COOLANT TEMPERATURE



#### Ambient Temperature

The combination meter calculates ambient temperature based on the following signals, and the calculated value is displayed on the information display.

Signal name	Signal path
Ignition signal	—
Ambient sensor signal	Ambient sensor → A/C auto amp. → CAN → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) → CAN → Combination meter

#### NOTE:

- The indicated temperature is corrected based on an ignition signal, ambient temperature detected by the ambient sensor, and vehicle speed signal. The indicated temperature is not raised under vehicle speed less than 20 km/h (12 MPH).
- 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.
- Depending on engine heat or heat on the road surfaces, an ambient temperature may be indicated higher than actual one.

#### INTERRUPT INDICATION

- The combination meter displays an interrupt regarding a warning, alert, and maintenance on the information display, based on signals received from each unit and switch.
- When conditions are satisfied, the normal screen switches to a warning screen to display an interrupt.

#### Door Open Warning



- When all the following operating conditions are satisfied, the combination meter displays a door open warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Door	Any door is open

# SYSTEM

## < SYSTEM DESCRIPTION >

- The combination meter judges showing/hiding of “door open warning”, according to the signals below:



Signal name	Signal path
Ignition signal	—
Door switch signal	Door switch  BCM  Combination meter

### Trunk Open Warning

- When all the following operating conditions are satisfied, the combination meter displays a trunk open warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Trunk	Open

- The combination meter judges showing/hiding of “trunk open warning”, according to the signals below:



Signal name	Signal path
Ignition signal	—
Trunk switch signal	Trunk room lamp switch  BCM  Combination meter

### Parking Brake Release Warning

- When all the following operating conditions are satisfied, the combination meter displays a parking brake release warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Parking brake	Applied
Vehicle speed	7 km/h (4.3 MPH) or more

- The combination meter judges showing/hiding of “parking brake release warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Parking brake switch signal	Parking brake switch  Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter

### Low Fuel Warning

- When all the following operating conditions are satisfied, the combination meter displays a low fuel warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Fuel remaining quantity*	Approximately 15 ℓ (4 US gal, 3-1/4 Imp gal) or less (including fuel remained)

\*: With the vehicle in a horizontal position

- The combination meter judges showing/hiding of “low fuel warning”, according to the signals below:

# SYSTEM

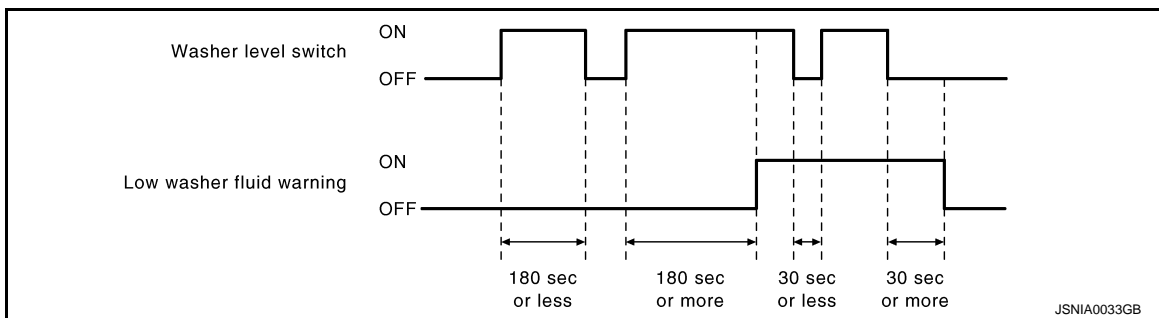
## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Fuel level sensor signal	Fuel level sensor → Combination meter

### Low washer fluid warning

- When all the following operating conditions are satisfied, the combination meter displays a low washer fluid warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Washer level switch	Decrease in fluid level (washer level switch ON for 180 seconds or more)



- The combination meter judges showing/hiding of “low washer fluid warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Washer level switch signal	Washer level switch → Combination meter

### Fuel Filler Cap Warning

- The combination meter judges showing/hiding of “fuel filler cap warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Fuel filler cap warning display signal	ECM $\xrightarrow{\text{CAN}}$ HPCM $\xrightarrow{\text{CAN}}$ Combination meter

- For further information, refer to [EC-42. "FUEL FILLER CAP WARNING SYSTEM : System Description"](#).

### Low Tire Pressure Warning

- The combination meter judges showing/hiding of “low tire pressure warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Low tire pressure warning lamp signal	BCM $\xrightarrow{\text{CAN}}$ Combination meter

- For further information, refer to [WT-9. "System Description"](#).

### Hybrid System Over Heat Warning

- The combination meter judges showing/hiding of “hybrid system over heat warning”, according to the signals below:


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

MWI

O  
P

# SYSTEM


## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Hybrid system over heat warning signal	HPCM  → Combination meter

- For further information, refer to [HBC-20. "HYBRID CONTROL SYSTEM : System Description"](#).

### Shift P warning

- The combination meter judges showing/hiding of “shift P warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Shift P warning signal	HPCM  → Combination meter

- For further information, refer to [HBC-20. "HYBRID CONTROL SYSTEM : System Description"](#).

### Travel Time (Alert)

- When all the following operating conditions are satisfied, the combination meter displays a travel time on the information display by an interrupt.

Operating condition	
Ignition switch	Switch-ON time

- The combination meter judges showing/hiding of “travel time”, according to the signal below:



Signal name	Signal path
Ignition signal	—

### Low Ambient Temperature (Alert)

- When all the following operating conditions are satisfied, the combination meter displays a low ambient temperature on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Ambient temperature	3 °C (37 °F) or less
information display	“ON” is selected in “SETTING”

- The combination meter judges showing/hiding of “low ambient temperature”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Ambient sensor signal	Ambient sensor  A/C auto amp.  → Combination meter

### Tire (Maintenance)


- When all the following operating conditions are satisfied, the combination meter displays a tire warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Mileage	More than value set in “SETTING”

- The combination meter judges showing/hiding of “tire warning”, according to the signals below:

# SYSTEM

## < SYSTEM DESCRIPTION >


Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

### Oil Filter (Maintenance)

- When all the following operating conditions are satisfied, the combination meter displays an oil filter warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Mileage	More than value set in “SETTING”

- The combination meter judges showing/hiding of “oil filter warning”, according to the signals below:


Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

### Engine Oil (Maintenance)

- When all the following operating conditions are satisfied, the combination meter displays an engine oil warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Mileage	More than value set in “SETTING”

- The combination meter judges showing/hiding of “engine oil warning”, according to the signals below:


Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

### Other (Maintenance)

- When all the following operating conditions are satisfied, the combination meter displays an other warning on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Mileage	More than value set in “SETTING”

- The combination meter judges showing/hiding of “other warning”, according to the signals below:

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  → Combination meter

### Meter Illumination Level Indication


When receiving the following signals, the combination meter causes an interrupt on the information display to indicate an illumination level.

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

MWI

# SYSTEM

## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Illumination control switch signal (+)	Meter control switch  Combination meter
Illumination control switch signal (-)	

### WARNING CHECK INDICATION

- The combination meter can cause an interrupt on the information display to indicate a warning, based on signals received from each unit and switch.
- The indicated warning can be checked with “WARNING” during the satisfaction of an interrupt indication condition for each warning.

### SETTING

Warning indication timing and time can be set.

#### Alert

Setting values for travel time, and low ambient temperature can be adjusted to meet the user's needs.

Setting item		Setting range	Setting unit
Alert	Timer	No setting, 0.5 h - 6 h	0.5 h
	ICY	ON/OFF	—

#### Maintenance

Setting values for engine oil, oil filter, tire, and other maintenance items can be adjusted to meet the user's needs.

Setting item		Setting range
Maintenance	Engine oil	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)
	Oil filter	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)
	Tire	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)
	Other	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)

#### Options

Setting values for language, unit, and effect items can be adjusted to meet the user's needs.

Setting item		
Options	Language	ENGLISH
		FRANCAISE
	Unit	miles, MPG, °F
		km, l/100 km, °C
Effect	ON/OFF	

#### Settings-reject Indication

- Regarding settings-reject indications, “SETTING CAN BE OPERATED WHEN STOPPED” is shown on the information display when indication conditions are satisfied.
- When reaching 5 km/h (3.1 MPH) after accelerating from a stopping condition, a settings-reject indication is displayed.
- When reaching less than 1 km/h (0.6 MPH) after decelerating from 5 km/h (3.1 MPH), a settings-reject indication is cancelled to allow settings.
- The combination meter judges a vehicle condition based on the following signals and displays a settings-reject indication on the information display.

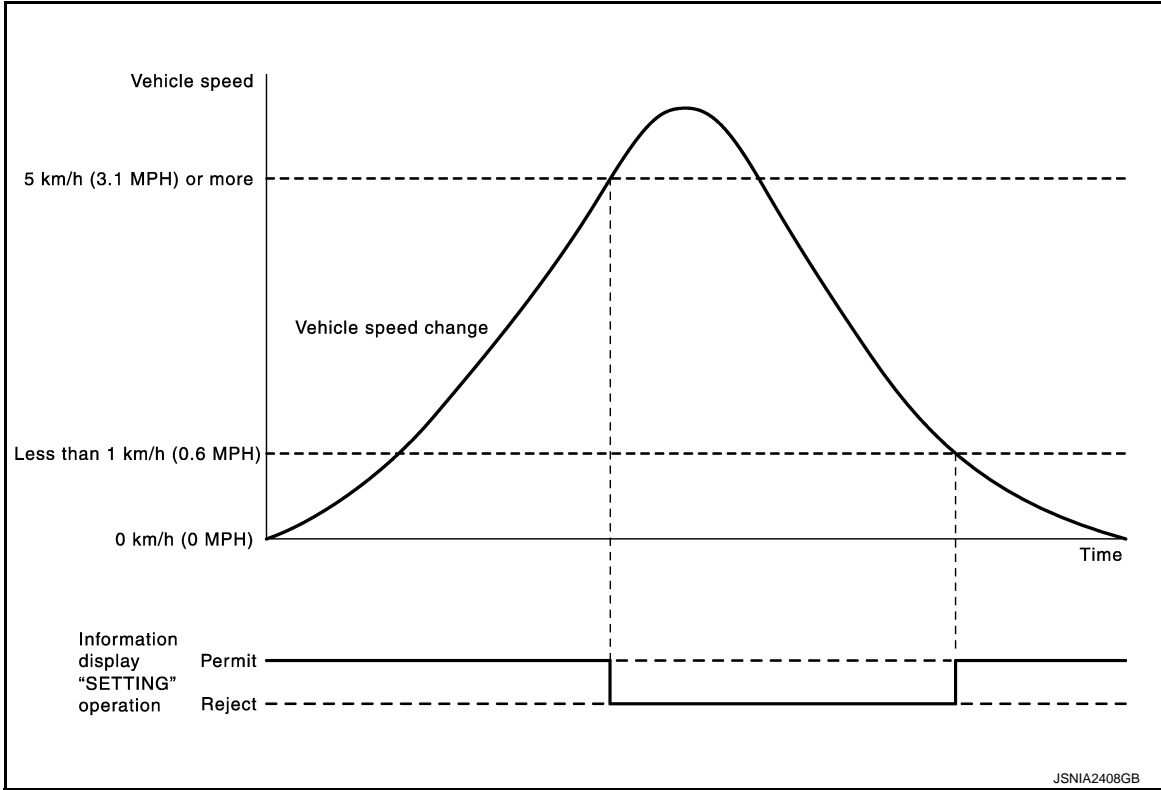


# SYSTEM

## < SYSTEM DESCRIPTION >

Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit)  Combination meter

### TIMING CHART



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

MWI

O  
P

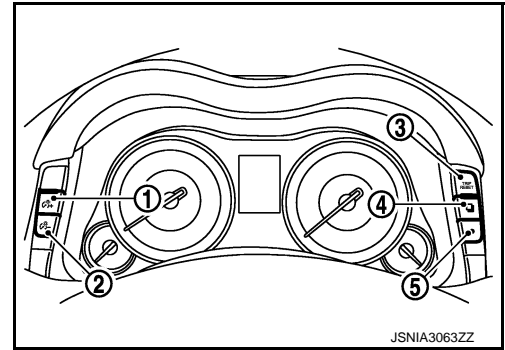
# OPERATION

< SYSTEM DESCRIPTION >

## OPERATION

### Switch Name and Function

INFOID:000000008144662



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

# DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (COMBINATION METER)

### On Board Diagnosis Function

INFOID:000000008144663

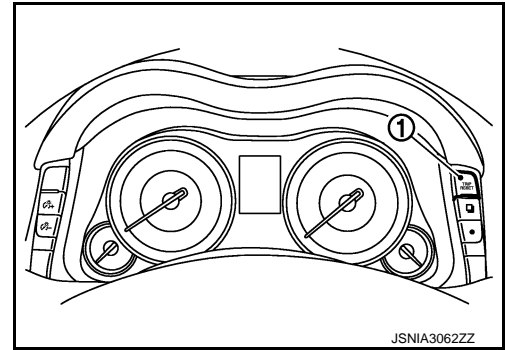
#### ON BOARD DIAGNOSIS ITEM

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

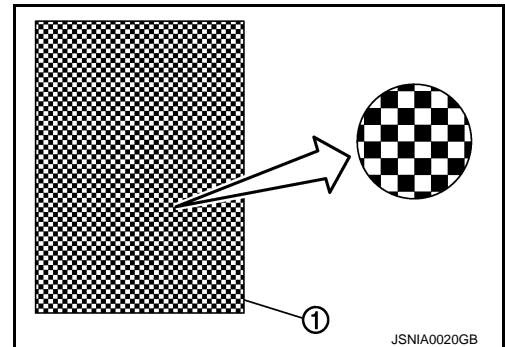
Diagnosis item	
Drive circuit check	<ul style="list-style-type: none"><li>• Speedometer</li><li>• Tachometer</li><li>• Assist charge gauge</li><li>• Fuel gauge</li></ul>
LCD (liquid crystal display) check	Information display

#### 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, assist charge gauge, fuel gauge, and return to zero, simultaneously.
  - The dot matrix dots on the information display (1) blink alternately.



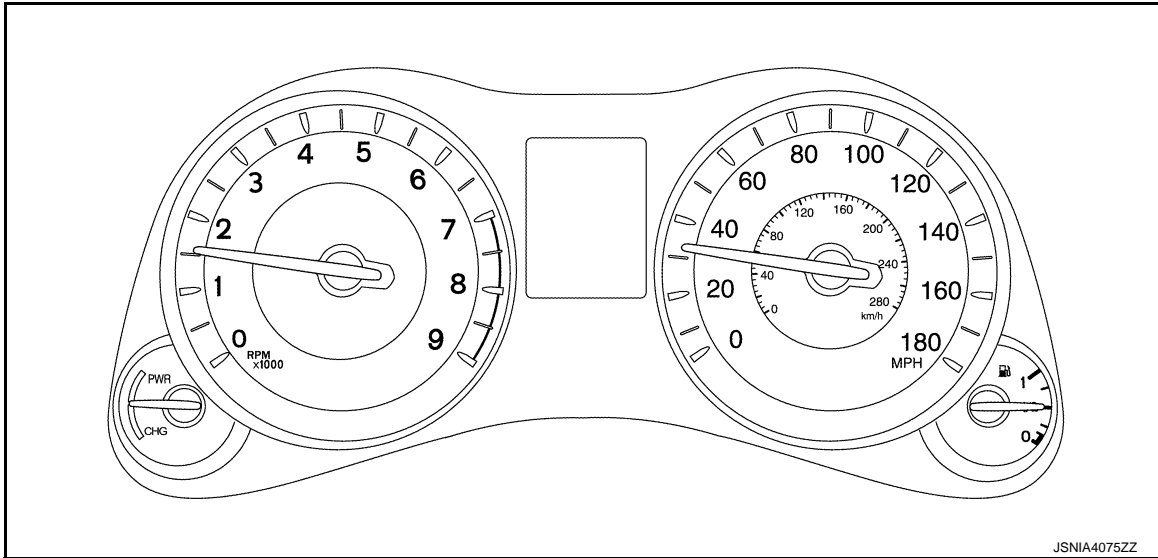
#### NOTE:

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

# DIAGNOSIS SYSTEM (COMBINATION METER)

## < SYSTEM DESCRIPTION >

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



### NOTE:

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

## CONSULT Function

INFOID:000000008144664

### 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-51, "DTC Index"](#).

### DATA MONITOR

#### NOTE:

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

#### Display Item List

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. <b>NOTE:</b> 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. <b>NOTE:</b> 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 HPCM via CAN communication. <b>NOTE:</b> 8191.875 is displayed when the malfunction signal is received.
FUEL METER [L]	X	Fuel level indicated on combination meter.

## DIAGNOSIS SYSTEM (COMBINATION METER)

### < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description
W TEMP METER [°C]	X	Value of engine coolant temperature signal is received from HPCM via CAN communication. <b>NOTE:</b> 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. <b>NOTE:</b> 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 open warning detected from door switch signal received from BCM via CAN communication.
TRUNK/GLAS-H [On/Off]		Status of trunk open 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.
FR FOG IND [On/Off]		Status of front fog light indicator lamp detected from front fog light request 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 warning lamp signal is received from HPCM via CAN communication.
MIL [On/Off]		Status of malfunction indicator lamp detected from malfunctioning indicator lamp signal is received from HPCM via CAN communication.
CRUISE IND [On/Off]		<ul style="list-style-type: none"> <li>• Status of CRUISE indicator detected from ASCD status signal is received from HPCM via CAN communication. (ASCD models)</li> <li>• Status of CRUISE indicator detected from meter display signal is received from ADAS control unit via CAN communication. (ICC models)</li> </ul>
SET IND [On/Off]		<ul style="list-style-type: none"> <li>• Status of SET indicator detected from ASCD status signal is received from HPCM via CAN communication. (ASCD models)</li> <li>• Status of SET indicator detected from meter display signal is received from ADAS control unit via CAN communication. (ICC models)</li> </ul>
CRUISE W/L [On/Off]		Status of ICC warning lamp detected from ICC warning lamp signal is received from ADAS control unit via CAN communication.
BA W/L [On/Off]		Status of IBA OFF indicator lamp judged from IBA OFF indicator lamp signal received from ADAS control unit with CAN communication line.
ATC/T-AMT W/L [On/Off]		Status of A/T CHECK warning lamp judged from A/T CHECK indicator lamp signal received from TCM with CAN communication line.
4WD W/L [Off]		This item is displayed, but cannot be monitored.
FUEL W/L [On/Off]		Low fuel warning status detected by the identified fuel level.
WASHER W/L [On/Off]		Status of low washer fluid warning judged from washer level switch input to combination meter.
AIR PRES W/L [On/Off]		Status of low tire pressure warning lamp judged from low tire pressure warning lamp signal received from BCM with CAN communication line.

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## DIAGNOSIS SYSTEM (COMBINATION METER)

### < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description
KEY G/Y W/L [On/Off]		Status of Intelligent Key system malfunction detected from Intelligent Key warning display signal is received from BCM via CAN communication.
EPS W/L [On/Off]		Status of hybrid EPS (Electrical Power Steering) warning lamp detected from power steering warning lamp signal is received from power steering control module via CAN communication.
AFS OFF IND [On/Off]		Status of AFS OFF indicator lamp judged from AFS OFF indicator lamp signal received from AFS control unit with CAN communication line.
4WAS/RAS W/L [Off]		This item is displayed, but cannot be monitored.
LANE W/L [On/Off]		Status of lane departure warning lamp judged from lane departure warning lamp signal received from ADAS control unit with CAN communication line.
LDP IND [On/Off]		Status of LDP ON indicator lamp judged from LDP ON indicator lamp signal received from ADAS control unit with CAN communication line.
READY IND [On/Off]		Status of READY to drive indicator lamp judged from READY to drive indicator lamp signal received from HPCM with CAN communication line.
SYS FAIL W/L [On/Off]		Status of hybrid system warning lamp judged from hybrid system warning lamp signal received from HPCM with CAN communication line.
SFT POSI W/L [On/Off]		Status of shift P warning judged from shift P warning signal received from HPCM with CAN communication line.
HEV BRAKE W/L [On/Off]		Status of brake system warning lamp judged from brake warning lamp signal received from ABS actuator and electric unit (control unit) with CAN communication line.
CHAGE W/L [On/Off]		Status of 12-volt battery charge warning lamp judged from 12-volt battery charge warning lamp signal received from HPCM with CAN communication line.
DCA IND [On/Off]		Status of DCA system switch indicator judged from meter display signal received from ADAS control unit with CAN communication line.
LCD [B&P N, B&P I, ID NG, ROTAT, SFT P, INSRT, BATT, NO KY, OUTKY, LK WN]		Displays status of Intelligent Key system warning judged from meter display signal received from BCM with CAN communication line.
ACC TARGET [On/Off]		Status of vehicle ahead detection indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC DISTANCE [Off, Short, Middle, Long]		Status of set distance indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC OWN VHL [On/Off]		Status of own vehicle indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC SET SPEED [On/Off]		Status of set vehicle speed indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC UNIT [km/h/Off]		Status of display unit judged from meter display signal received from ADAS control unit with CAN communication line.
SHIFT IND [P, R, N, D, M1, M2, M3, M4, M5, M6, M7]		Status of shift position indicator judged from shift position signal received from TCM with CAN communication line.
ECO DRIVE IND G [On/Off]		Status of ECO drive indicator (green) judged from ECO drive indicator control signal received from HPCM with CAN communication line.
ECO DRIVE IND O [On/Off]		Status of ECO drive indicator (orange) judged from ECO drive indicator control signal received from HPCM with CAN communication line.
BSW IND [On/Off]		Status of BSI ON indicator (green) judged from BSI ON indicator signal received from ADAS control unit with CAN communication line.
BSW W/L [On/Off]		Status of BSW/BSI warning lamp (yellow) judged from BSW/BSI warning lamp signal received from ADAS control unit with CAN communication line.

# DIAGNOSIS SYSTEM (COMBINATION METER)

## < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description	A
DRIVE MODE STATS [SNOW, SN-EC, ECO, EC-ST, STD, ST-SP, SPORT, ERROR]		Status of drive mode select switch.	B
M RANGE SW [On/Off]		Status of manual mode switch.	C
NM RANGE SW [On/Off]		Status of non-manual mode switch.	D
AT SFT UP SW [On/Off]		Status of manual mode shift up switch.	E
AT SFT DWN SW [On/Off]		Status of manual mode shift down switch.	F
ST SFT UP SW [Off]		This item is displayed, but cannot be monitored.	G
ST SFT DWN SW [Off]		This item is displayed, but cannot be monitored.	H
PKB SW [On/Off]		Status of parking brake switch.	I
BUCKLE SW [On/Off]		Status of seat belt buckle switch (driver side).	J
BRAKE OIL SW [On/Off]		Status of brake fluid level switch.	K
ENTER SW [On/Off]		Status of  (ENTER) switch.	L
SELECT SW [On/Off]		Status of  (SELECT) switch.	M
DISTANCE [km]		Value of distance to empty calculated by combination meter.	MWI
OUTSIDE TEMP [°C or °F]		Ambient temperature value converted from ambient sensor signal received from ambient sensor. <b>NOTE:</b> 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.)	O
FUEL LOW SIG [On/Off]		Status of fuel level low warning signal to output to AV control unit via CAN communication.	P
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.	
HILL HOLD WARNING [On/Off]		The status of hybrid system over heat warning judged from a hybrid system over heat warning signal received from HPCM via CAN communication.	
ASSIST/CHARGE GAUGE [%]		The status of assist charge gauge judged from an assist charge signal received from HPCM via CAN communication.	
EV IND [On/Off]		The status of EV indicator lamp judged from an EV indicator lamp signal received from HPCM via CAN communication.	
REMAINING ENERGY GAUGE [%]		The status of li-ion battery state of charge judged from a li-ion battery state of charge signal received from HPCM via CAN communication.	
ACCEL GAUGE [%]		The status of acceleration guide (accelerator angle) judged from an acceleration guide signal received from HPCM via CAN communication.	
ECO ACCEL POSITION [%]		The status of acceleration guide (ECO driving guideline) judged from an acceleration guide signal received from HPCM via CAN communication.	
ENERGY FLOW [MODE1, MODE2, MODE3, MODE4, MODE5, MODE6, MODE7, MODE8]		The status of energy monitor judged from an energy monitor signal received from HPCM 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 open warning.
TRUNK/GLAS-H	Lighting history of trunk open 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.
SET IND	Lighting history of SET indicator.
CRUISE W/L	Lighting history of ICC warning lamp.
BA W/L	Lighting history of IBA OFF indicator lamp.
ATC/T-AMT W/L	Lighting history of A/T CHECK 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 Intelligent Key system malfunction.
EPS W/L	Lighting history of hybrid EPS (Electrical Power Steering) warning lamp.
AFS OFF IND	Lighting history of AFS OFF indicator lamp.
SYS FAIL W/L	Lighting history of hybrid system warning lamp.
SFT POSI W/L	Lighting history of shift P warning.
HEV BRAKE W/L	Lighting history of brake system warning lamp.
LANE W/L	Lighting history of lane departure warning lamp.
CHAGE W/L	Lighting history of 12-volt battery charge warning lamp.
BSW W/L	Lighting history of BSW/BSI warning lamp (yellow).

**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:000000008144665

#### VALUES ON THE DIAGNOSIS TOOL

**NOTE:**

The following table includes information (items) inapplicable to this vehicle. For information (items) applicable to this vehicle, refer to CONSULT display items.

Monitor Item	Condition		Value/Status
SPEED METER [km/h]	Ignition switch ON	While driving	Input value of vehicle speed signal (CAN communication signal) <b>NOTE:</b> 655.35 is displayed when the mal- function signal is received
SPEED OUTPUT [km/h]	Ignition switch ON	While driving	Output value of vehicle speed signal (CAN communication signal) <b>NOTE:</b> 655.35 is displayed when the mal- function signal is received
ODO OUTPUT [km/h or mph]	Ignition switch ON	—	Output value of odometer signal (CAN communication signal)
TACHO METER [rpm]	Ignition switch ON	Engine running	Input value of engine speed signal (CAN communication signal) <b>NOTE:</b> 8191.875 is displayed when the mal- function signal is received
FUEL METER [L]	Ignition switch ON	—	Input value of fuel level sensor signal
W TEMP METER [°C]	Ignition switch ON	—	Input value of engine coolant tem- perature signal (CAN communica- tion signal) <b>NOTE:</b> 215 is displayed when the malfunc- tion 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 open warning ON	On
		Door open warning OFF	Off
TRUNK/GLAS-H	Ignition switch ON	Trunk open warning ON	On
		Trunk open 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

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Monitor Item	Condition		Value/Status
FR FOG IND	Ignition switch ON	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Light indicator lamp ON	On
		Tail lamp 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
CRUISE IND	Ignition switch ON	CRUISE indicator ON	On
		CRUISE indicator OFF	Off
SET IND	Ignition switch ON	SET indicator ON	On
		SET indicator OFF	Off
CRUISE W/L	Ignition switch ON	CRUISE warning lamp ON	On
		CRUISE warning lamp OFF	Off
BA W/L	Ignition switch ON	IBA OFF indicator lamp ON	On
		IBA OFF indicator lamp OFF	Off
ATC/T-AMT W/L	Ignition switch ON	A/T check warning lamp ON	On
		A/T check warning lamp OFF	Off
4WD W/L	Ignition switch ON	<b>NOTE:</b> This item is displayed, but cannot be monitored.	Off
FUEL W/L	Ignition switch ON	During low fuel warning indication	On
		Other than the above	Off
WASHER W/L	Ignition switch ON	During low washer fluid warning indication	On
		Other than the above	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	During Intelligent Key system malfunction indication	On
		Other than the above	Off
EPS W/L	Ignition switch ON	Hybrid EPS (Electrical Power Steering) warning lamp ON	On
		Hybrid EPS (Electrical Power Steering) warning lamp OFF	Off
AFS OFF IND	Ignition switch ON	AFS OFF indicator lamp ON	On
		AFS OFF indicator lamp OFF	Off
4WAS/RAS W/L	Ignition switch ON	<b>NOTE:</b> This item is displayed, but cannot be monitored.	Off
LANE W/L	Ignition switch ON	Lane departure warning lamp ON	On
		Lane departure warning lamp OFF	Off
LDP IND	Ignition switch ON	LDP ON indicator lamp ON	On
		LDP ON indicator lamp OFF	Off
READY IND	Ignition switch ON	READY to drive indicator lamp ON	On
		READY to drive indicator lamp OFF	Off
SYS FAIL W/L	Ignition switch ON	Hybrid system warning lamp ON	On
		Hybrid system warning lamp OFF	Off

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
SFT POSI W/L	Ignition switch ON	During shift P warning indication	On
		Other than the above	Off
HEV BRAKE W/L	Ignition switch ON	Brake system warning lamp ON	On
		Brake system warning lamp OFF	Off
CHAGE W/L	Ignition switch ON	12-volt battery charge warning lamp ON	On
		12-volt battery charge warning lamp OFF	Off
DCA IND	Ignition switch ON	During DCA system switch indicator indication	On
		Other than the above	Off
LCD	Ignition switch ON	During engine start information indication	B&P I
	Ignition switch ACC	During engine start information indication	B&P N
	Ignition switch LOCK	During key ID warning indication	ID NG
	Ignition switch LOCK	During steering lock information indication	ROTAT
	Ignition switch LOCK	During P position warning indication	SFT P
	Ignition switch LOCK	During Intelligent Key insert information indication	INSRT
	Ignition switch LOCK	During Intelligent Key low battery warning indication	BATT
	Ignition switch ON	During take away warning indication	NO KY
	Ignition switch LOCK	During key warning indication	OUTKY
	Ignition switch ON	During ACC warning indication	LK WN
ACC TARGET	Ignition switch ON	During vehicle ahead detection indicator indication	On
		Other than the above	Off
ACC DISTANCE	Ignition switch ON	When following distance set to "LONG"	LONG
		When following distance set to "MIDDLE"	MID
		When following distance set to "SHORT"	SHORT
		Set distance indicator not displayed	Off
ACC OWN VHL	Ignition switch ON	During own vehicle indicator indication	On
		Other than the above	Off
ACC SET SPEED	Ignition switch ON	During set vehicle speed indicator not displayed	Off
		During set vehicle speed indicator displayed	Indicates the set vehicle speed
ACC UNIT	Ignition switch ON	Set vehicle speed indicator unit display ON	On
		Set vehicle speed indicator unit display OFF	Off

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## < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
SHIFT IND	Ignition switch ON	During the indication of "P" by shift position indicator	P
		During the indication of "R" by shift position indicator	R
		During the indication of "N" by shift position indicator	N
		During the indication of "D" by shift position indicator	D
		During the indication of "M1" by shift position indicator	M1
		During the indication of "M2" by shift position indicator	M2
		During the indication of "M3" by shift position indicator	M3
		During the indication of "M4" by shift position indicator	M4
		During the indication of "M5" by shift position indicator	M5
		During the indication of "M6" by shift position indicator	M6
		During the indication of "M7" by shift position indicator	M7
ECO DRIVE IND G	Ignition switch ON	ECO drive indicator (green) ON	On
		ECO drive indicator (green) OFF	Off
ECO DRIVE IND O	Ignition switch ON	ECO drive indicator (orange) ON	On
		ECO drive indicator (orange) OFF	Off
BSW IND	Ignition switch ON	BSI ON indicator (green) ON	On
		BSI ON indicator (green) OFF	Off
BSW W/L	Ignition switch ON	BSW/BSI warning lamp (yellow) ON	On
		BSW/BSI warning lamp (yellow) OFF	Off
DRIVE MODE STATS	Ignition switch ON	Drive mode select switch in SNOW position	SNOW
		Drive mode select switch in between SNOW and ECO position	SN-EC
		Drive mode select switch in ECO position	ECO
		Drive mode select switch in between ECO and ● (STANDARD mode)	EC-ST
		Drive mode select switch ● (STANDARD mode) position	STD
		Drive mode select switch in between ● (STANDARD mode) and SPORT	ST-SP
		Drive mode select switch in SPORT position	SPORT
		Reception of an abnormal signal other than those above	ERROR
M RANGE SW	Ignition switch ON	Selector lever in manual mode position	On
		Other than the above	Off
NM RANGE SW	Ignition switch ON	Selector lever in manual mode position	Off
		Other than the above	On
AT SFT UP SW	Ignition switch ON	Selector lever in + position	On
		Other than the above	Off

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
AT SFT DWN SW	Ignition switch ON	Selector lever in – position	On
		Other than the above	Off
ST SFT UP SW	Ignition switch ON	<b>NOTE:</b> This item is displayed, but cannot be monitored.	Off
ST SFT DWN SW	Ignition switch ON	<b>NOTE:</b> This item is displayed, but cannot be monitored.	Off
PKB SW	Ignition switch ON	Parking brake switch ON	On
		Parking brake switch OFF	Off
BUCKLE SW	Ignition switch ON	Driver seat belt not fastened	On
		Driver seat belt fastened	Off
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On
		Brake fluid level switch OFF	Off
ENTER SW	Ignition switch ON	When  switch (enter switch) is pressed	On
		Other than above	Off
SELECT SW	Ignition switch ON	When  switch (select switch) is pressed	On
		Other than above	Off
DISTANCE [km]	Ignition switch ON	—	Distance to empty calculated by combination meter
OUTSIDE TEMP [°C or °F]	Ignition switch ON	—	Input value of ambient sensor signal (CAN communication signal) <b>NOTE:</b> This may not match the indicated value on the information display.
FUEL LOW SIG	Ignition switch ON	During low fuel warning indication	On
		Other than above	Off
BUZZER	Ignition switch ON	Buzzer ON	On
		Buzzer OFF	Off
HILL HOLD WARNING	Ignition switch ON	During hybrid system over heat warning indication	On
		Other than above	Off
ASSIST/CHARGE GAUGE	Ignition switch ON	Driving force (power generation) rate of traction motor	1 % - 100 %
		When traction motor is not responsible for power generation and traveling	0 %
		Driving force (traveling) rate of traction motor	(-1 %) - (-100 %)
EV IND	Ignition switch ON	EV indicator lamp ON	On
		EV indicator lamp OFF	Off
REMAINING ENERGY GAUGE	Ignition switch ON	—	Charging rate of Li-ion battery 0 % - 255 %
ACCEL GAUGE	Ignition switch ON	—	Accelerator angle 0 % - 127 %
ECO ACCEL POSITION	Ignition switch ON	—	ECO driving reference position of accelerator angle 0 % - 127 %

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# COMBINATION METER

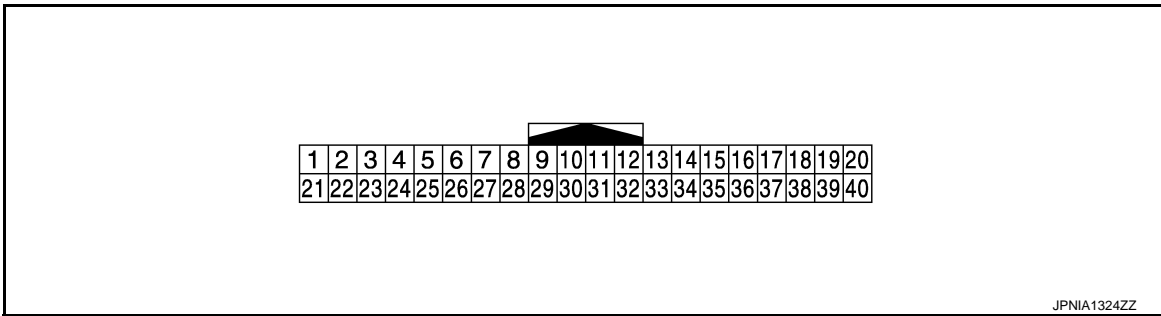
## < ECU DIAGNOSIS INFORMATION >

Monitor Item	Condition		Value/Status
ENERGY FLOW	Ignition switch ON	When driving only by the engine	MODE1
		When driving by the engine while charging the Li-ion battery	MODE2
		When driving by the engine and the traction motor	MODE3
		When charging only by the engine	MODE4
		When driving by the traction motor	MODE5
		When charging by the cooperative regenerative brake	MODE6
		When charging by the engine and the cooperative regenerative brake	MODE7
		Other than above	MODE8

**NOTE:**

Some items are not available according to vehicle specification.

### TERMINAL LAYOUT



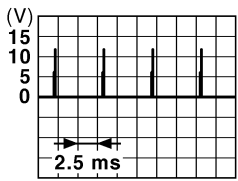
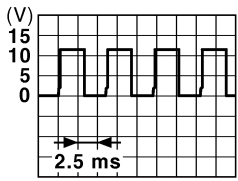




### PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	-	Signal name	Input/Output			
1 (W)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (BG)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
4 (R)	Ground	Vehicle speed signal (8-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	<p><b>NOTE:</b> The maximum voltage varies depending on the specification (destination unit).</p>

JSNIA0012GB

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

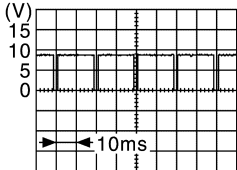
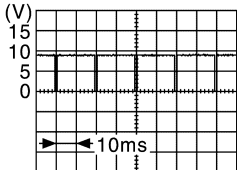
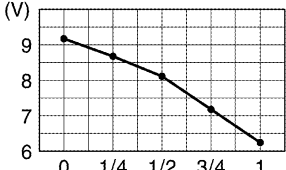
Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
5 (B)	Ground	Illumination control signal	Output	Ignition switch ON	<ul style="list-style-type: none"> <li>Lighting switch 1ST position</li> <li>When meter illumination is maximum</li> </ul> 
					<ul style="list-style-type: none"> <li>Lighting switch 1ST position</li> <li>When meter illumination is step 11</li> </ul> 
					<ul style="list-style-type: none"> <li>Lighting switch 1ST position</li> <li>When meter illumination is minimum</li> </ul> <p style="text-align: center;">12 V</p>
7 (SB)	6 (B)	Enter switch signal	Input	Ignition switch ON	When  switch (enter switch) is pressed
					Other than the above
8 (LG)	6 (B)	Select switch signal	Input	Ignition switch ON	When  switch (select switch) is pressed
					Other than the above
9 (G)	6 (B)	Illumination control switch signal (+)	Input	Ignition switch ON	When  switch [illumination control switch (+)] is pressed
					Other than the above
10 (GR)	6 (B)	Illumination control switch signal (-)	Input	Ignition switch ON	When  switch [illumination control switch (-)] is pressed
					Other than the above
11 (L)	6 (B)	Trip reset switch signal	Input	Ignition switch ON	When trip reset switch is pressed
					Other than the above
12 (B)	Ground	Ground	—	Ignition switch ON	—
14 (L)	—	CAN-H	—	—	—
15 (P)	—	CAN-L	—	—	—
16 (R)	Ground	Air bag signal	Input	Ignition switch ON	Air bag warning lamp ON
					Air bag warning lamp OFF

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MWI

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)	
+	-	Signal name	Input/ Output			
19 (GR)	Ground	Communication signal (VSP → METER)	Input	Ignition switch ON	<p>NOTE: Waveform shows reference values.</p>  <p style="text-align: right; font-size: small;">JSMIA0536GB</p> <p style="text-align: center;">0 - 12 V</p>	
20 (BG)	Ground	Communication signal (METER → VSP)	Output	Ignition switch ON	<p>NOTE: Waveform shows reference values.</p>  <p style="text-align: right; font-size: small;">JSMIA0537GB</p> <p style="text-align: center;">0 - 12 V</p>	
23 (B)	Ground	Ground	—	Ignition switch ON	0 V	
26 (V)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied	0 V
				Parking brake released	12 V	
27 (V)	Ground	Brake fluid level switch signal	Input	Ignition switch ON	Brake fluid level is normal	12 V
					The brake fluid level is lower than the low level	0 V
28 (G)	Ground	Security signal	Input	Ignition switch ON	Security indicator lamp ON	0 V
					Security indicator lamp OFF	12 V
29 (L)	Ground	Washer level switch signal	Input	Ignition switch ON	Washer level switch ON	0 V
					Washer level switch OFF	5 V
34 (G)	24 (B)	Fuel level sensor signal	Input	Ignition switch ON	 <p style="text-align: right; font-size: small;">JSNIA4076ZZ</p>	
35 (W)	Ground	Seat belt buckle switch signal (driver side)	Input	Ignition switch ON	When driver seat belt is fastened	12 V
					When driver seat belt is unfastened	0 V



# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Terminal No. (Wire color)		Description		Condition	Value (Approx.)
+	-	Signal name	Input/ Output		
36 (G)	Ground	Passenger seat belt warning signal	Input	Ignition switch ON	12 V
				Ignition switch OFF	0 V
37 (G)	Ground	Non-manual mode signal	Input	Ignition switch ON	12 V
				Ignition switch OFF	0 V
38 (V)	Ground	Manual mode shift down signal	Input	Ignition switch ON	0 V
				Ignition switch OFF	12 V
39 (L)	Ground	Manual mode shift up signal	Input	Ignition switch ON	0 V
				Ignition switch OFF	12 V
40 (W)	Ground	Manual mode signal	Input	Ignition switch ON	0 V
				Ignition switch OFF	12 V

### Fail-Safe

INFOID:000000008144666

### 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	
Assist charge gauge	
Illumination control	When suspending communication, changes to nighttime mode.

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# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

	Function	Specifications
Information display	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The display turns OFF by suspending communication.
	Door open warning	The display turns OFF by suspending communication.
	Trunk open warning	
	Fuel filler cap warning	
	Low tire pressure warning	
	Hybrid system over heat warning	
	Shift P warning	
	Energy monitor	The flow (arrow) of energy is not displayed.
	Li-ion battery state of charge	During communications blackout, the battery power indicates "0".
	Acceleration guide	During communications blackout, the accelerator guide indication is not displayed.
	EV mode odometer and twin trip odometer	During communications blackout, the indication is maintained.
	Current fuel consumption	During communications blackout, the last calculation is displayed.
	Average fuel consumption	During communications blackout, the last calculation is displayed.
	Average vehicle speed	During communications blackout, the last calculation is displayed.
Travel distance	During communications blackout, the indication is maintained.	
Distance to empty	During communications blackout, "----" is displayed.	
Engine coolant temperature gauge	Sixty seconds after communications blackout, engine coolant temperature position is not displayed.	
Ambient temperature	During communications blackout, "----" is displayed.	
Buzzer		The buzzer turns OFF by suspending communication.

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Function	Specifications	
ABS warning lamp	The lamp turns ON by suspending communication.	A
VDC warning lamp		
VDC OFF indicator lamp		B
Brake warning lamp		
Brake system warning lamp		
IBA OFF indicator lamp		C
Malfunction indicator lamp		
CRUISE warning lamp		
Hybrid EPS (Electrical Power Steering) warning lamp		D
Approaching Vehicle Sound for Pedestrians temporally OFF indicator		E
Low tire pressure warning lamp	The lamp blinking caused by suspending communication.	
AFS OFF indicator lamp		F
High beam indicator lamp	The lamp turns OFF by suspending communication.	
Turn signal indicator lamp		G
Front fog lamp indicator lamp		
Tail lamp indicator lamp		
A/T CHECK indicator lamp		H
Lane departure warning lamp		
LDP ON indicator lamp		
Oil pressure warning lamp		I
ECO drive indicator		
12-volt battery charge warning lamp		J
BSI ON indicator	The lamp turns OFF by suspending communication.	
BSW/BSI warning lamp		K
High water temperature warning lamp		
READY to drive indicator lamp		
Hybrid system warning lamp		L
EV indicator lamp		

## DTC Index

INFOID:000000008144667

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.	<a href="#">MWI-59.</a> <a href="#">"Diagnosis Procedure"</a>	MWI
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	<a href="#">MWI-60.</a> <a href="#">"Diagnosis Procedure"</a>	O
VEHICLE SPEED [B2205]	The abnormal vehicle speed signal is input from the ABS actuator and electric unit (control unit) for 2 seconds or more.	<a href="#">MWI-61.</a> <a href="#">"Diagnosis Procedure"</a>	P
ENGINE SPEED [B2267]	If HPCM continuously transmits abnormal engine speed signals for 2 seconds or more.	<a href="#">MWI-62.</a> <a href="#">"Diagnosis Procedure"</a>	
WATER TEMP [B2268]	If HPCM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	<a href="#">MWI-63.</a> <a href="#">"Diagnosis Procedure"</a>	

# METER SYSTEM


< WIRING DIAGRAM >

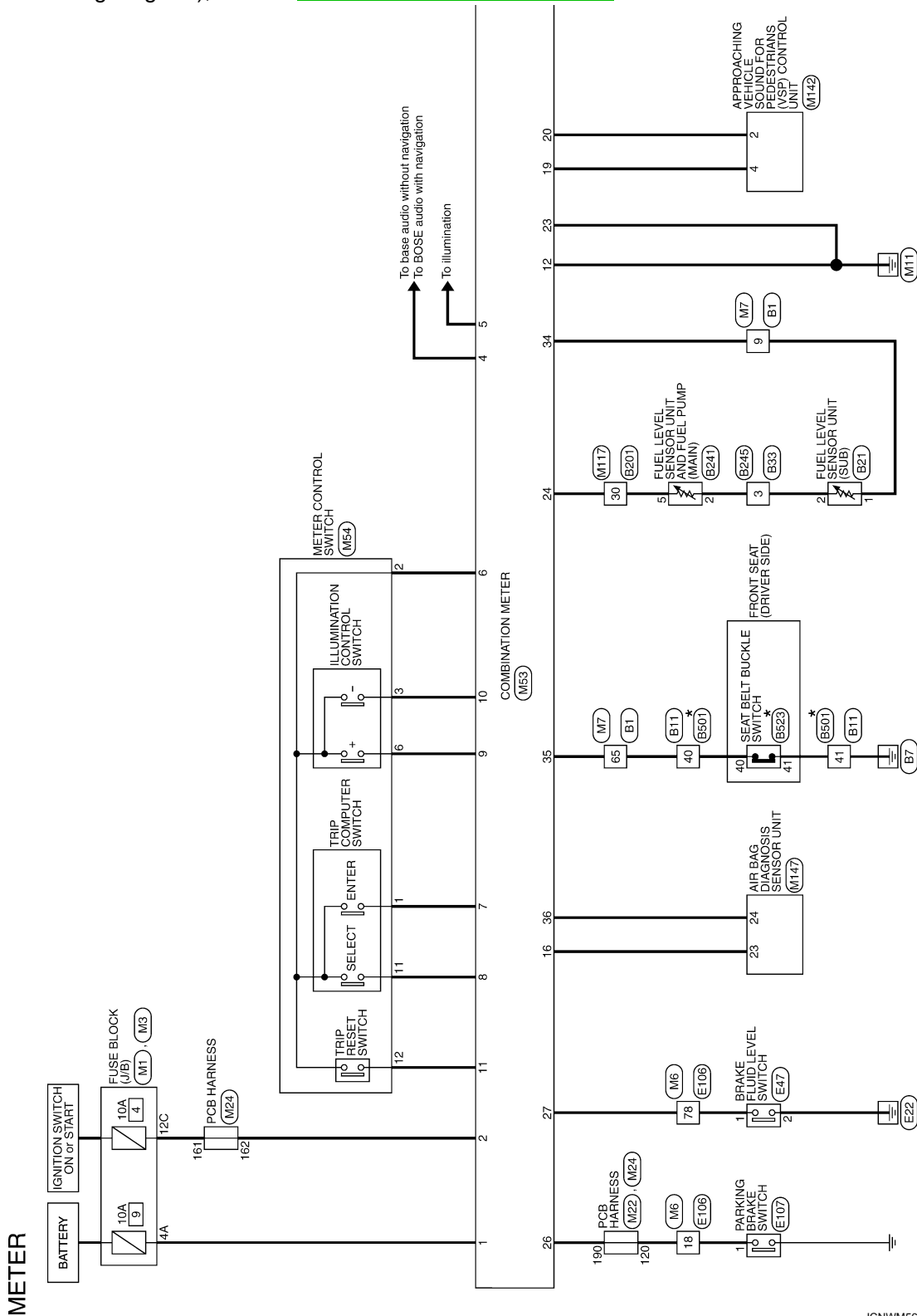
## WIRING DIAGRAM

### METER SYSTEM

#### Wiring Diagram

INFOID:000000008144668

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-13. "Connector Information"](#).



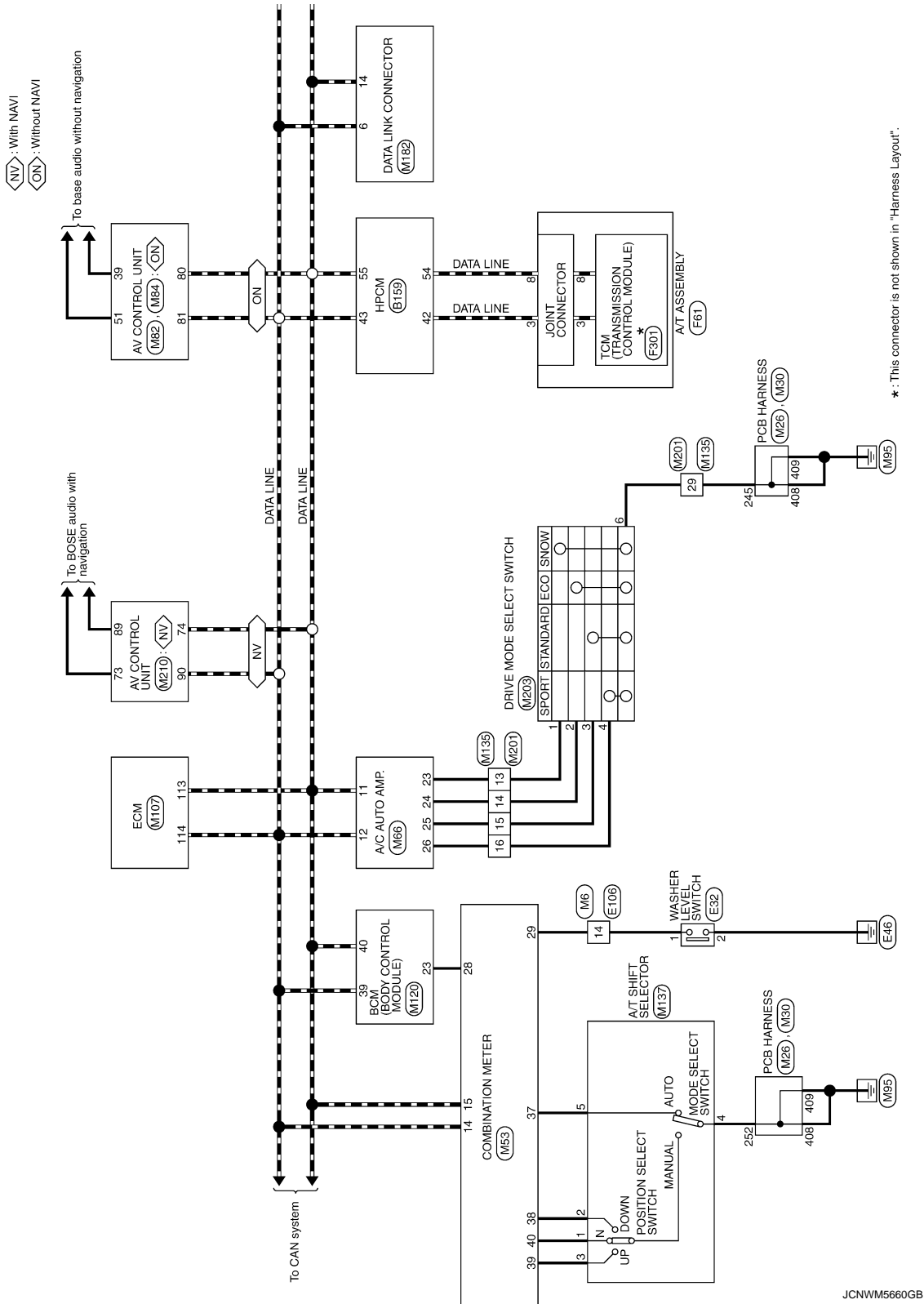
\* : This connector is not shown in "Harness Layout".

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JCNWM5659GB

# METER SYSTEM

< WIRING DIAGRAM >



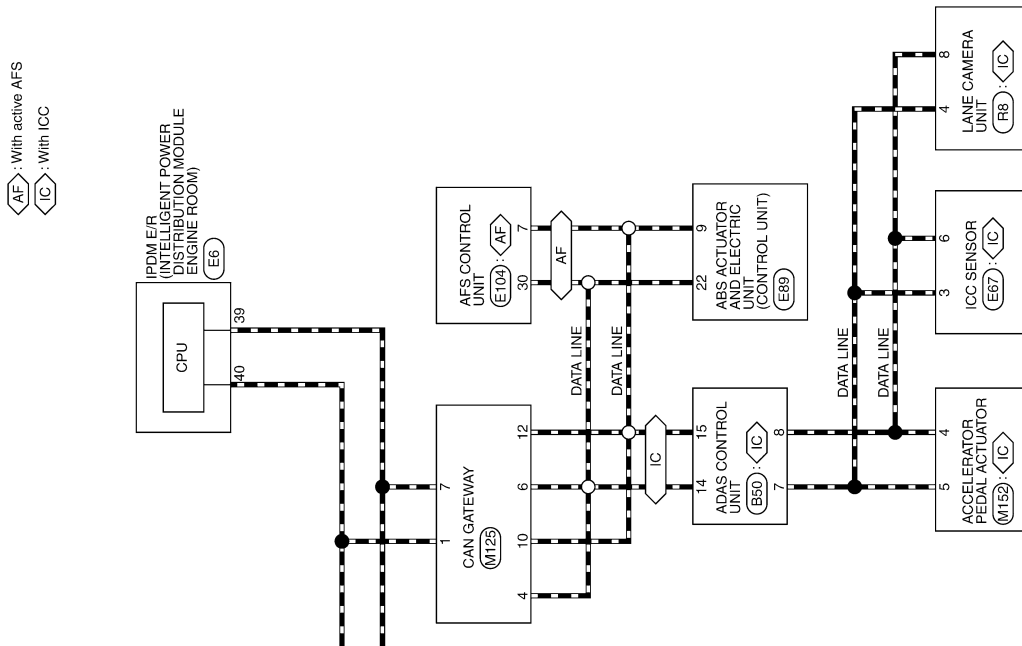
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# METER SYSTEM

< WIRING DIAGRAM >



JCNWM5661GB


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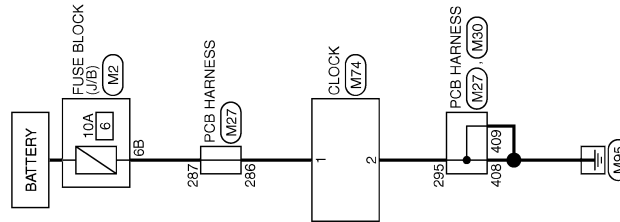
< WIRING DIAGRAM >

## CLOCK

### Wiring Diagram

INFOID:000000008144669

For connector terminal arrangements, harness layouts, and alphabets in a  (option abbreviation; if not described in wiring diagram), refer to [GI-13, "Connector Information"](#).



CLOCK

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# DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

< BASIC INSPECTION >

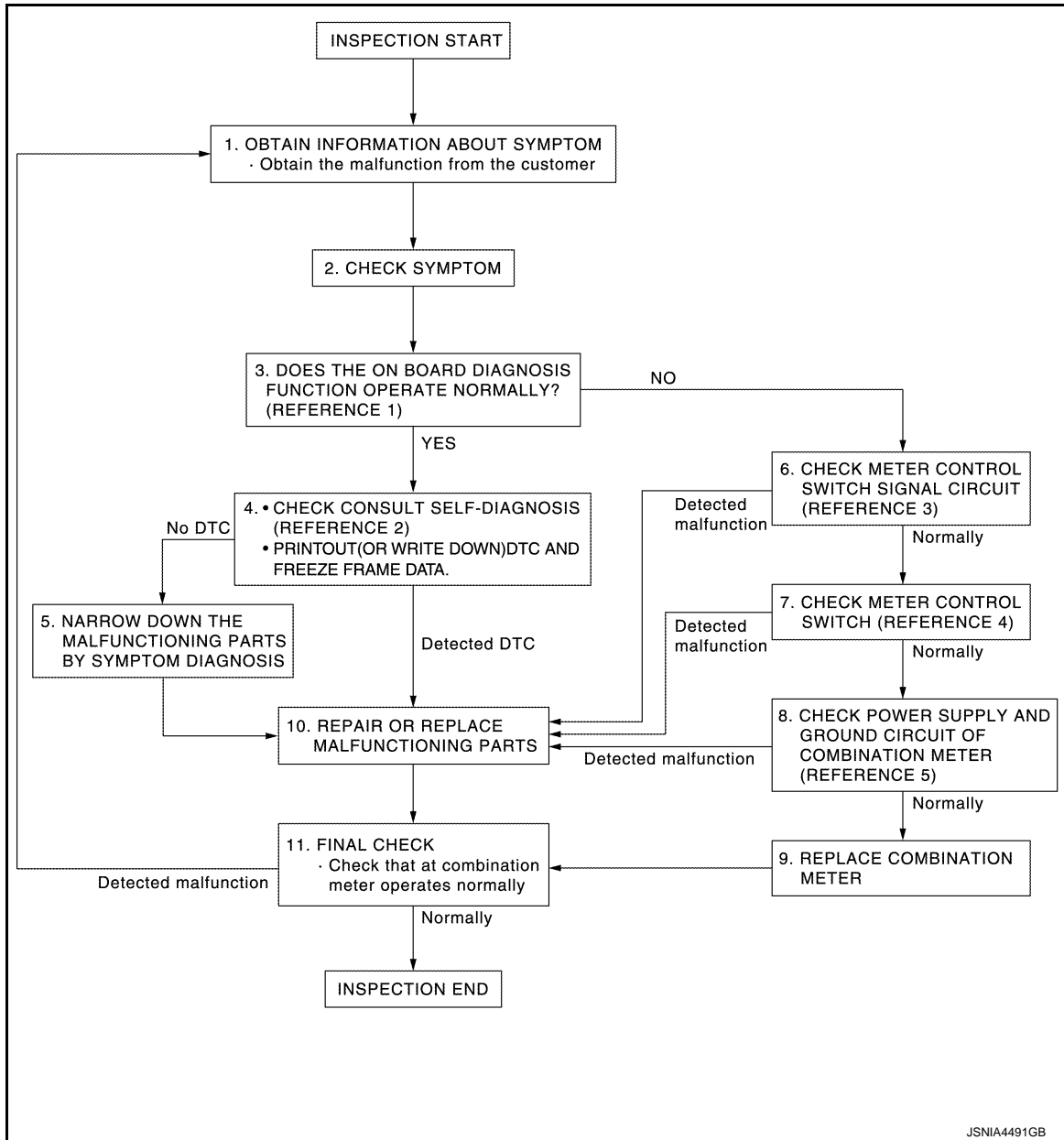
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

Work flow

INFOID:000000008144670

#### OVERALL SEQUENCE



- Reference 1...[MWI-35, "On Board Diagnosis Function"](#).
- Reference 2...[MWI-51, "DTC Index"](#).
- Reference 3...[MWI-65, "Diagnosis Procedure"](#).
- Reference 4...[MWI-66, "Component Inspection"](#).
- Reference 5...[MWI-64, "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.



# DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

< 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-35, "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-51, "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-65, "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-66, "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-64, "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.

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## DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

< BASIC INSPECTION >

---

### 11.FINAL CHECK

---

Check that the combination meter operates normally.

Do they operate normally?

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

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### Description

INFOID:000000008144671

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-36, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart"](#).

#### DTC Logic

INFOID:000000008144672

#### 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:000000008144673

#### 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-19, "Trouble Diagnosis Flow Chart"](#).  
NO >> Refer to [GI-49, "Intermittent Incident"](#).

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# U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

## U1010 CONTROL UNIT (CAN)

### Description

INFOID:000000008144674

Initial diagnosis of combination meter.

### DTC Logic

INFOID:000000008144675

### DTC DETECTION LOGIC

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

### Diagnosis Procedure

INFOID:000000008144676

#### 1. REPLACE COMBINATION METER

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

>> INSPECTION END

# B2205 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

## B2205 VEHICLE SPEED

### Description

INFOID:000000008144677

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

### DTC Logic

INFOID:000000008144678

### 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"><li>• Wheel sensor</li><li>• ABS actuator and electric unit (control unit)</li></ul>

### Diagnosis Procedure

INFOID:000000008144679

#### 1. PERFORM SELF-DIAGNOSIS OF ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)

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

>> Refer to [BRC-45, "CONSULT Function"](#).

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# B2267 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

## B2267 ENGINE SPEED

### Description

INFOID:000000008144680

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

### DTC Logic

INFOID:000000008144681

### 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"><li>• Crankshaft position sensor (POS)</li><li>• ECM</li></ul>

### Diagnosis Procedure

INFOID:000000008144682

#### 1. PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to [EC-81, "DTC Index"](#).

# B2268 WATER TEMP

< DTC/CIRCUIT DIAGNOSIS >

## B2268 WATER TEMP

### Description

INFOID:000000008144683

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

### DTC Logic

INFOID:000000008144684

### 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"><li>• Engine coolant temperature sensor</li><li>• ECM</li></ul>

### Diagnosis Procedure

INFOID:000000008144685

#### 1. PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to [EC-81, "DTC Index"](#).

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# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

### COMBINATION METER : Diagnosis Procedure

INFOID:000000008144686

#### 1. CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	9
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 and ground.

Terminals		Ignition switch position	Voltage (Approx.)
(+)	(-)		
Combination meter		OFF	Battery voltage
Connector	Terminal		
M53	1		
	2		
Ground		ON	

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 and ground.

Combination meter		Ground	Continuity
Connector	Terminal		
M53	12		Existed
	23		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.



# METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## METER CONTROL SWITCH SIGNAL CIRCUIT

### Diagnosis Procedure

INFOID:000000008144687

#### 1. CHECK COMBINATION METER INPUT SIGNAL

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

Combination meter		Condition	Voltage (Approx.)	
Connector	Terminals			
	(+)	(-)		
M53	7	6	When enter switch is pressed	0 V
			Other than the above	5 V
	8		When select switch is pressed	0 V
			Other than the above	5 V
	9		When illumination control switch (+) is pressed	0 V
			Other than the above	5 V
	10		When illumination control switch (-) is pressed	0 V
			Other than the above	5 V
11	When trip reset switch is pressed	0 V		
	Other than the above	5 V		

Is the inspection result normal?

YES >> INSPECTION END

NO >> GO TO 2.

#### 2. CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

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

Terminals				Continuity
Combination meter		Meter control switch		
Connector	Terminal	Connector	Terminal	
M53	6	M54	2	Existed
	7		1	
	8		11	
	9		6	
	10		3	
	11		12	

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

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# METER CONTROL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

Combination meter			Continuity
Connector	Terminal		
M53	6	Ground	Not existed
	7		
	8		
	9		
	10		
	11		

Is the inspection result normal?

YES >> INSPECTION END

NO >> Repair harness or connector.

## Component Inspection

INFOID:000000008144688

### 1. CHECK METER CONTROL SWITCH

1. Turn ignition switch OFF.
2. Disconnect meter control switch connector.
3. Check meter control switch.

Terminals		Condition	Continuity
Meter control switch			
1	2	When enter switch is pressed	Existed
		Other than the above	Not existed
11		When select switch is pressed	Existed
		Other than the above	Not existed
6		When illumination control switch (+) is pressed	Existed
		Other than the above	Not existed
3		When illumination control switch (-) is pressed	Existed
		Other than the above	Not existed
12		When trip reset switch is pressed	Existed
		Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace meter control switch. Refer to [MWI-82. "Removal and Installation"](#).

# FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## FUEL LEVEL SENSOR SIGNAL CIRCUIT

### Component Function Check

INFOID:000000008144689

#### 1. PERFORM COMPONENT FUNCTION CHECK (1)

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

Fuel level sensor unit and fuel pump (main)		Fuel level sensor unit (sub)	
Connector	Terminal	Connector	Terminal
B241	5	B21	1

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

Resistance ( $\Omega$ )* (Approx.)	Fuel gauge indication position (Approx.)
Less than 94	Full
140	3/4
186	2/4
232	1/4
More than 278	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-67, "Diagnosis Procedure"](#).

#### 2. PERFORM COMPONENT FUNCTION CHECK (2)

Check the fuel level sensor unit and fuel pump (main) and/or the fuel level sensor unit (sub). Refer to [MWI-68, "Component Inspection"](#).

Is the inspection result normal?

YES >> INSPECTION END

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

### Diagnosis Procedure

INFOID:000000008144690

#### 1. CHECK FUEL LEVEL SENSOR CIRCUIT

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

Combination meter		Fuel level sensor unit (sub)		Continuity
Connector	Terminal	Connector	Terminal	
M53	34	B21	1	Existed

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

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MWI

# FUEL LEVEL SENSOR SIGNAL CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

Combination meter		Ground	Continuity
Connector	Terminal		
M53	34		Not existed

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

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

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

Fuel level sensor unit (sub)		Fuel level sensor unit (main)		Continuity
Connector	Terminal	Connector	Terminal	
B21	2	B241	2	Existed

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

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

## 3.CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

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

Fuel level sensor unit and fuel pump (main)		Combination meter.		Continuity
Connector	Terminal	Connector	Terminal	
B241	5	M53	24	Existed

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

Fuel level sensor unit and fuel pump (main)		Ground	Continuity
Connector	Terminal		
B241	5		Not existed

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).

NO >> Repair harness or connector.

## Component Inspection

INFOID:000000008144691

### 1.REMOVE FUEL LEVEL SENSOR UNIT (MAIN)

Remove the fuel level sensor unit (main). Refer to [FL-6, "Removal and Installation"](#).

>> GO TO 2.

### 2.CHECK FUEL LEVEL SENSOR UNIT (MAIN)

# FUEL LEVEL SENSOR SIGNAL CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

Check the resistance between fuel level sensor unit and fuel pump.

Terminals		Condition	Resistance ( $\Omega$ ) (Approx.)	Height [mm (in)]
Fuel level sensor unit (main)				
2	5	Full* (A)	44	202.3 (7.96)
		Empty* (B)	142	36.8 (1.449)

\*: When float rod is contact with stopper.

**Is inspection result OK?**

YES >> GO TO 3.

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

### 3. REMOVE FUEL LEVEL SENSOR UNIT (SUB)

Remove the fuel level sensor unit (sub). Refer to [FL-6, "Removal and Installation"](#).

>> GO TO 4.

### 4. CHECK FUEL LEVEL SENSOR UNIT (SUB)

Check the resistance between fuel level sensor unit (sub).

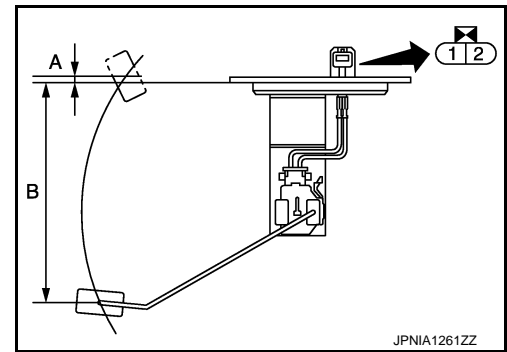
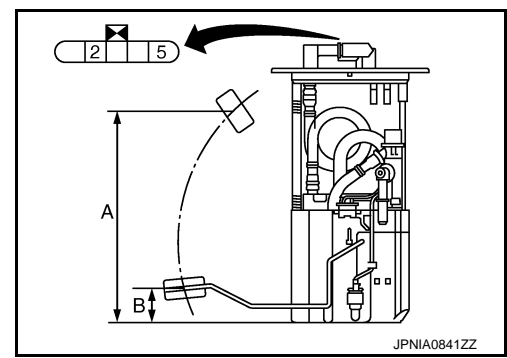
Terminals		Condition	Resistance ( $\Omega$ ) (Approx.)	Height [mm (in)]
Fuel level sensor unit (main)				
1	2	Full* (A)	7	5.4 (0.213)
		Empty* (B)	142	163.1 (6.42)

\*: When float rod is contact with stopper.

**Is inspection result OK?**

YES >> INSPECTION END

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



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# WASHER LEVEL SWITCH SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## WASHER LEVEL SWITCH SIGNAL CIRCUIT

### Diagnosis Procedure

INFOID:000000008144692

#### 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 and washer level switch harness connector.

Terminals				Continuity
Combination meter		Washer level switch		
Connector	Terminal	Connector	Terminal	
M53	29	E32	1	Existed

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

Terminals			Continuity
Combination meter		Ground	
Connector	Terminal		
M53	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		
E32	2		Existed

Is the inspection result normal?

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

### Component Inspection

INFOID:000000008144693

#### 1. CHECK WASHER LEVEL SWITCH

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

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-42. "Removal and Installation"](#).

# THE FUEL GAUGE INDICATOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### THE FUEL GAUGE INDICATOR DOES NOT OPERATE

#### Description

INFOID:000000008144694

Fuel gauge will not indicate from a certain position.

#### Diagnosis Procedure

INFOID:000000008144695

#### 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-35, "On Board Diagnosis Function"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).

#### 2. CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace malfunctioning part.

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

Check the fuel level sensor signal circuit. Refer to [MWI-67, "Component Function Check"](#).

Is the inspection result normal?

YES >> Check intermittent incident. Refer to [GI-49, "Intermittent Incident"](#).

NO >> Repair or replace malfunctioning parts.

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# THE METER CONTROL SWITCH IS INOPERATIVE

< SYMPTOM DIAGNOSIS >

---

## THE METER CONTROL SWITCH IS INOPERATIVE

### Description

INFOID:000000008144696

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:000000008144697

#### 1. CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

---

Check the meter control switch signal circuit. Refer to [MWI-65, "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-66, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).

NG >> Replace meter control switch. Refer to [MWI-82, "Removal and Installation"](#).



# THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

## THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

### Description

INFOID:000000008144698

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

### Diagnosis Procedure

INFOID:000000008144699

#### 1. CHECK COMBINATION METER INPUT SIGNAL

1. Start the engine.
2. Select "Data Monitor" in "METER/M&A" to check that the oil pressure warning lamp state is consistent with the "OIL W/L" monitor value.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter. Refer to [MWI-81. "Removal and Installation"](#).

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# THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

< SYMPTOM DIAGNOSIS >

---

## THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

### Description

INFOID:000000008144700

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

### Diagnosis Procedure

INFOID:000000008144701

#### **1**.CHECK COMBINATION METER INPUT SIGNAL

---

1. Start the engine.
2. Select "Data Monitor" in "METER/M&A" to check that the oil pressure warning lamp state is consistent with the "OIL W/L" monitor value.

Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace combination meter. Refer to [MWI-81. "Removal and Installation"](#).

# 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:000000008144702

- 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:000000008144703

#### 1. CHECK PARKING BRAKE WARNING LAMP OPERATION

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

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

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-81, "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 [WCS-41, "Diagnosis Procedure"](#).

Is the inspection result normal?

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

#### 3. CHECK PARKING BRAKE SWITCH UNIT

Perform a unit check for the parking brake switch. Refer to [BRC-142, "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).  
NO >> Replace parking brake switch. Refer to [PB-7, "Exploded View"](#).

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

< SYMPTOM DIAGNOSIS >

---

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

### Description

INFOID:000000008144704

- 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:000000008144705

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

---

Check the washer level switch signal circuit. Refer to [MWI-70. "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> GO TO 2.  
NO >> Repair harness or connector.

#### 2. CHECK WASHER LEVEL SWITCH UNIT

---

Perform a unit check for the washer level switch. Refer to [MWI-70. "Component Inspection"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-81. "Removal and Installation"](#).  
NO >> Replace washer level switch. Refer to [WW-42. "Removal and Installation"](#).

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

< SYMPTOM DIAGNOSIS >

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

### Description

INFOID:000000008144706

- 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:000000008144707

#### 1. CHECK BCM INPUT/OUTPUT SIGNAL

Connect CONSULT and check the BCM input signals. Refer to [DLK-61, "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-81, "Removal and Installation"](#).

NO >> Replace BCM. Refer to [BCS-80, "Removal and Installation"](#).

#### 3. CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to [DLK-61, "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-63, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).

NO >> Replace applicable door switch. Refer to [DLK-180, "Removal and Installation"](#).

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

< SYMPTOM DIAGNOSIS >

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

### Description

INFOID:000000008144708

- 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:000000008144709

#### 1. CHECK BCM INPUT SIGNAL

1. Connect the CONSULT.
2. Check the BCM input signals. Refer to [DLK-79, "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-81, "Removal and Installation"](#).
- NO >> Replace BCM. Refer to [BCS-80, "Removal and Installation"](#).

#### 3. CHECK TRUNK LID OPEN SIGNAL CIRCUIT

Check trunk lid open signal circuit. Refer to [DLK-74, "Diagnosis Procedure"](#).

Is the inspection result normal?

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

#### 4. CHECK TRUNK CLOSURE ASSEMBLY

Check trunk closure assembly. Refer to [DLK-83, "Diagnosis Procedure"](#).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).
- NO >> Replace trunk closure assembly. Refer to [DLK-173, "Removal and Installation"](#).

# THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

< SYMPTOM DIAGNOSIS >

---

## THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

### Description

INFOID:000000008144710

- 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:000000008144711

#### NOTE:

Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to [MWI-80, "INFORMATION DISPLAY : Description"](#).

#### 1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

---

Check the ambient sensor signal circuit. Refer to [HAC-77, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair harness or connector.

#### 2.CHECK AMBIENT SENSOR

---

Perform the part check for the ambient sensor. Refer to [HAC-78, "Component Inspection"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-81, "Removal and Installation"](#).

NO >> Replace ambient sensor. Refer to [HAC-184, "Removal and Installation"](#).

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## NORMAL OPERATING CONDITION

< SYMPTOM DIAGNOSIS >

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### NORMAL OPERATING CONDITION INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:000000008144712

#### AMBIENT TEMPERATURE

The displayed ambient 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-22, "INFORMATION DISPLAY : System Description"](#) for details on the correction process.

#### DISTANCE TO EMPTY

The calculated distance to empty 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.



# COMBINATION METER

< REMOVAL AND INSTALLATION >

## REMOVAL AND INSTALLATION

### COMBINATION METER

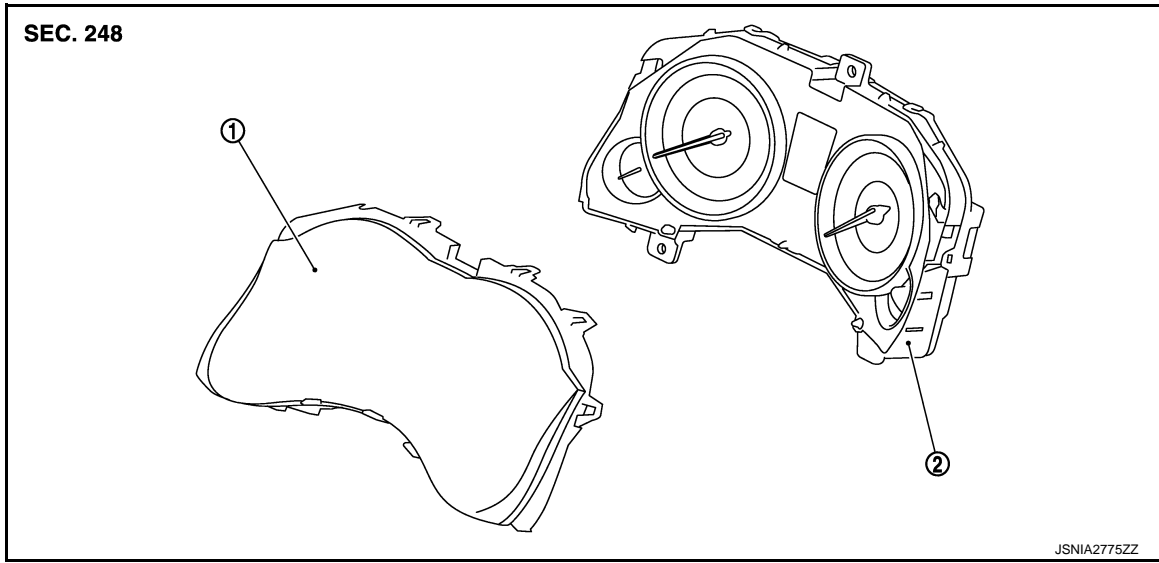
#### Exploded View

INFOID:000000008144713

#### REMOVAL

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

#### DISASSEMBLY



1. Front cover and meter housing assembly
2. Unified meter control unit

#### Removal and Installation

INFOID:000000008144714

#### REMOVAL

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

#### INSTALLATION

Install in the reverse order of removal.

#### Disassembly and Assembly

INFOID:000000008144715

#### DISASSEMBLY

Disengage the tabs to separate front cover and meter housing assembly.

#### ASSEMBLY

Assemble in the reverse order of disassembly.

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# METER CONTROL SWITCH

< REMOVAL AND INSTALLATION >

## METER CONTROL SWITCH

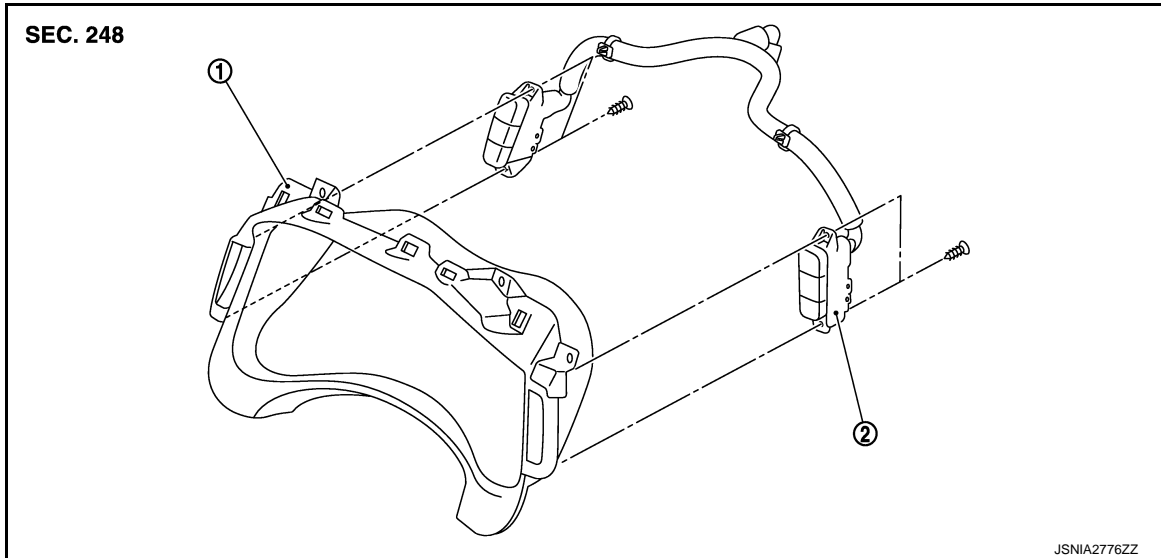
### Exploded View

INFOID:000000008144716

#### REMOVAL

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

#### DISASSEMBLY



1. Cluster lid A

2. Meter control switch

### Removal and Installation

INFOID:000000008144717

#### REMOVAL

1. Remove cluster lid A. Refer to [IP-13. "Removal and Installation"](#).
2. Remove clip.
3. Remove screws and remove meter control switch.

#### INSTALLATION

Install in the reverse order of removal.

# CLOCK

< REMOVAL AND INSTALLATION >

---

## CLOCK

### Exploded View

INFOID:000000008144718

### REMOVAL

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

### Removal and Installation

INFOID:000000008144719

### REMOVAL

1. Remove center ventilator assembly. Refer to [IP-13. "Removal and Installation"](#).
2. Remove screws and remove clock.

### INSTALLATION

Install in the reverse order of removal.

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