

# MWI

## SECTION

### METER, WARNING LAMP & INDICATOR

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# PRECAUTIONS

< PRECAUTION >

## PRECAUTION

### PRECAUTIONS

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

INFOID:000000009472995

The Supplemental Restraint System such as "AIR BAG" and "SEAT BELT PRE-TENSIONER", used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. Information necessary to service the system safely is included in the SR and SB section of this Service Manual.

#### **WARNING:**

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

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

#### **WARNING:**

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

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# PREPARATION


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## PREPARATION

### PREPARATION

#### Commercial Service Tools

INFOID:000000009477923

Tool name	Description
<p data-bbox="175 415 289 441">Power Tool</p>  <p data-bbox="828 630 893 651">PIIB1407E</p>	<p data-bbox="1003 415 1339 441">Loosening nuts, screws and bolts</p>

# COMPONENT PARTS

< SYSTEM DESCRIPTION >

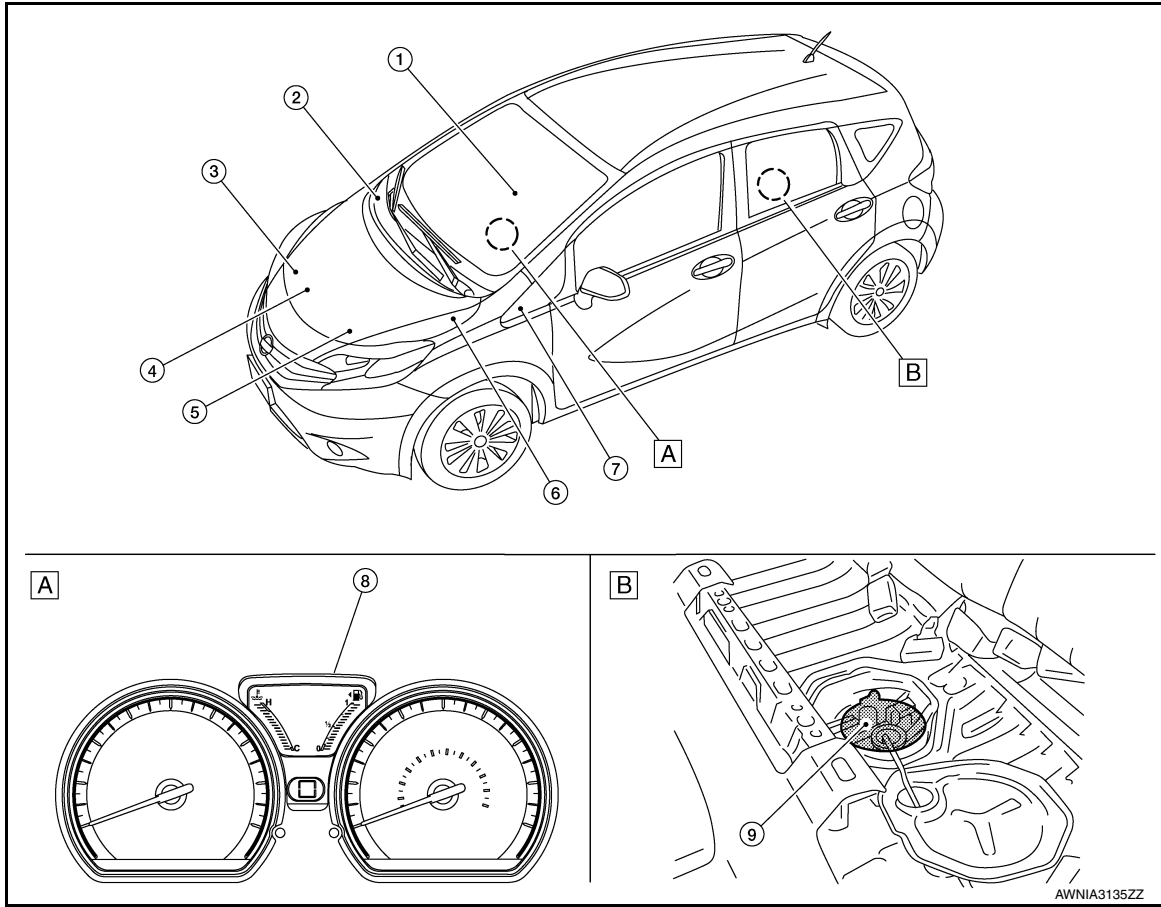
## SYSTEM DESCRIPTION

### COMPONENT PARTS

#### METER SYSTEM

#### METER SYSTEM : Component Parts Location

INFOID:000000009654090



A. Combination meter

B. View with inspection hole cover removed.

No.	Component	Function
1.	Parking brake switch	Transmits the parking brake switch signal to the combination meter.
2.	ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication. Refer to <a href="#">BRC-7. "Component Parts Location"</a> for detailed installation location.
3.	Washer fluid level switch	Transmits the washer fluid level switch signal to the combination meter. Refer to <a href="#">VWV-6. "Component Parts Location"</a> for detailed installation location.
4.	Engine oil pressure sensor	Transmits the engine oil pressure sensor signal to the ECM. Refer to <a href="#">EM-92. "Exploded View"</a> for detailed installation location.
5.	TCM	Transmits the shift position signal to the combination meter via CAN communication. Refer to <a href="#">TM-60. "CVT CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.
6.	ECM	Transmits the following signals to the combination meter via CAN communication. <ul style="list-style-type: none"> <li>• Engine speed signal</li> <li>• Engine coolant temperature signal</li> <li>• Fuel consumption monitor signal</li> <li>• Engine oil pressure sensor signal</li> </ul> Refer to <a href="#">EC-14. "ENGINE CONTROL SYSTEM : Component Parts Location"</a> for detailed installation location.

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# COMPONENT PARTS

## < SYSTEM DESCRIPTION >

No.	Component	Function
7.	BCM	Transmits the following signals to the combination meter via CAN communication. <ul style="list-style-type: none"> <li>• Door switch signal</li> <li>• Buzzer signal</li> </ul> Refer to <a href="#">BCS-6. "BODY CONTROL SYSTEM : Component Parts Location"</a> (with Intelligent Key) or <a href="#">BCS-73. "BODY CONTROL SYSTEM : Component Parts Location"</a> (without Intelligent Key) for detailed installation location.
8.	Combination meter	Refer to <a href="#">MWI-6. "METER SYSTEM : Combination Meter"</a> .
9.	Fuel level sensor unit and fuel pump (fuel level sensor)	Transmits the fuel level sensor signal to the combination meter.

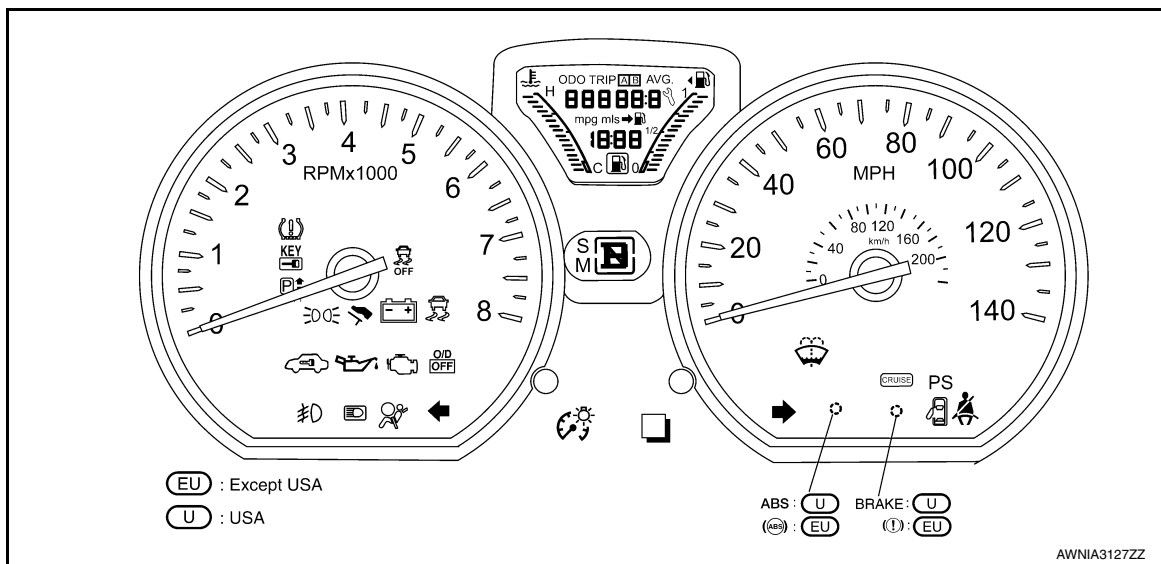
## METER SYSTEM : Combination Meter

INFOID:000000009654091

The combination meter controls the following items according to the signals received from each unit via CAN communication and the signals from switches and sensors.

- Measuring instruments
- Indicator lamps
- Warning lamps
- Meter illumination control
- Information display

## ARRANGEMENT OF COMBINATION METER



# SYSTEM

< SYSTEM DESCRIPTION >

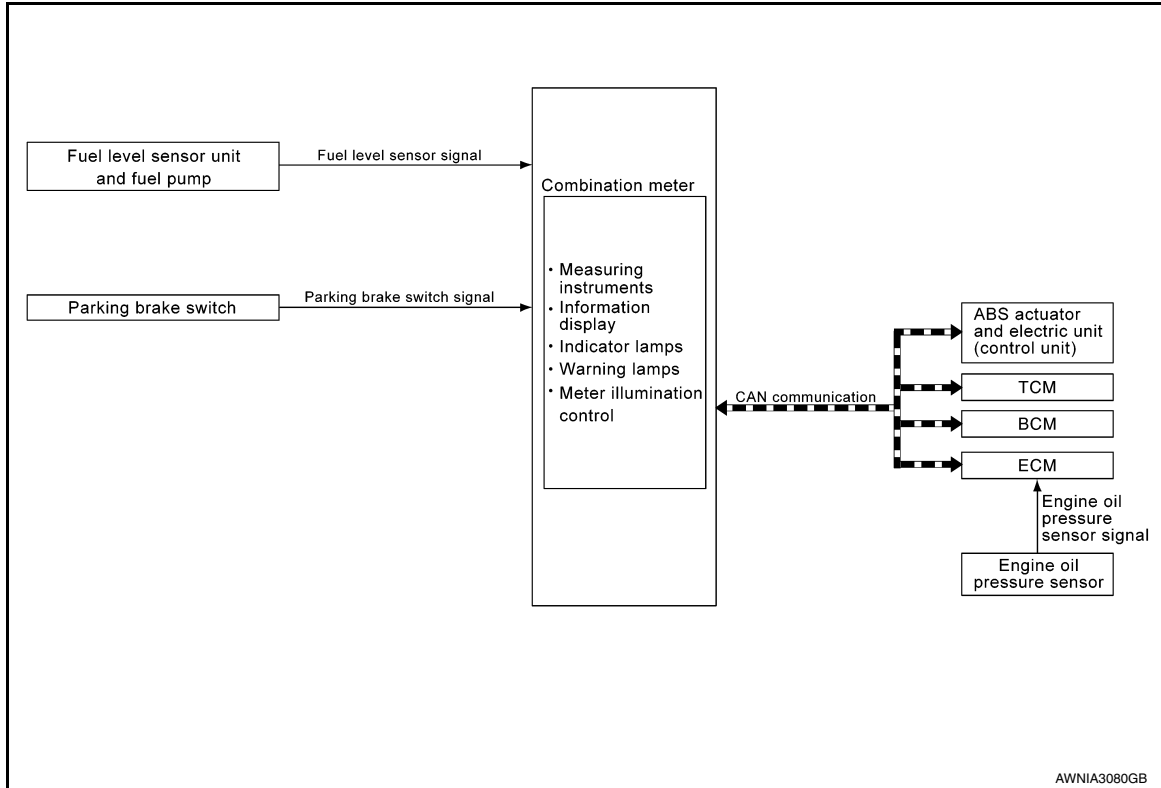
## SYSTEM

### METER SYSTEM

#### METER SYSTEM : System Description

INFOID:000000009654092

#### SYSTEM DIAGRAM



#### COMBINATION METER INPUT SIGNAL (CAN COMMUNICATION SIGNAL)

Transmit unit	Signal name
ABS actuator and electric unit (control unit)	Vehicle speed signal
BCM	Door switch signal
	Buzzer signal
TCM	Shift position signal
ECM	Engine speed signal
	Engine coolant temperature signal
	Engine oil pressure signal
	Fuel consumption signal
	Loose fuel cap signal

#### DESCRIPTION

##### 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
  - Information display
- The combination meter incorporates a buzzer function that sounds an audible alarm with the integrated buzzer device. Refer to [WCS-6. "WARNING CHIME SYSTEM : System Description"](#) for further details.

# SYSTEM

## < SYSTEM DESCRIPTION >

- The combination meter includes an on board diagnosis function.
- The combination meter can be diagnosed with CONSULT.

### METER CONTROL FUNCTION LIST

System		Description	Reference	
Measuring instruments	Speedometer	Indicates vehicle speed.	<a href="#">MWI-9. "SPEED-OMETER : System Description"</a>	
	Tachometer	Indicates engine speed.	<a href="#">MWI-9. "TACHOMETER : System Description"</a>	
Shift position indicator		Indicates shift position.	<a href="#">MWI-10. "SHIFT POSITION INDICATOR : System Description"</a>	
Warning lamp/indicator lamp	Engine oil pressure warning lamp	The warning lamp turns ON or turns OFF, according to engine hydraulic pressure.	<a href="#">MWI-10. "OIL PRESSURE WARNING LAMP : System Description"</a>	
Meter illumination control	Meter illumination control function	Controls the back light of combination meter.	<a href="#">MWI-10. "METER ILLUMINATION CONTROL : System Description"</a>	
Information display	Odo/trip meter	Indicates mileage.	<a href="#">MWI-11. "INFORMATION DISPLAY : System Description"</a>	
	Engine coolant temperature gauge	Indicates engine coolant temperature.		
	Fuel gauge	Indicates fuel level.		
	Loose fuel cap warning	Indicates loose fuel cap.		
	Low fuel warning	Indicates fuel level.		
	Trip computer	Instant fuel consumption		Displays current fuel consumption.
		Average fuel consumption		Displays average fuel consumption.
		Distance to empty		Displays distance to empty.
Travel distance		Displays mileage.		

### METER SYSTEM : Fail-safe

INFOID:000000009654093

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				
Illumination control			When suspending communication, changes to nighttime mode.	
Shift position indicator			When suspending communication, not indicate.	
Information display	Trip computer	Current fuel consumption	<ul style="list-style-type: none"> <li>• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result.</li> <li>• When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.</li> </ul>	
		Average fuel consumption		
		Distance to empty		
	Engine coolant temperature gauge			Reset to zero by suspending communication.
	Odo/trip meter			An indicated value is maintained at communications blackout.
Buzzer			The buzzer turns OFF by suspending communication.	



# SYSTEM

## < SYSTEM DESCRIPTION >

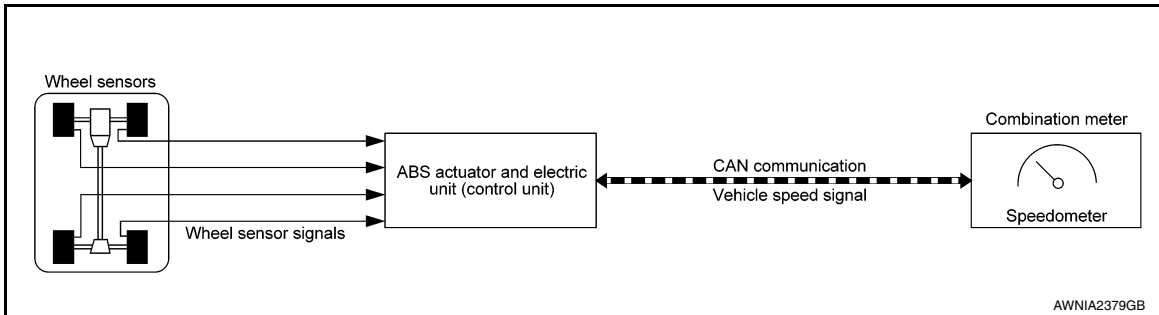
Function	Specifications
ABS warning lamp	The lamp turns ON by suspending communication.
Malfunction indicator lamp (MIL)	
EPS warning lamp	
Brake warning lamp	
High beam indicator lamp	The lamp turns OFF by suspending communication.
Turn signal indicator lamp	
Door warning lamp	
Light indicator lamp	
Engine oil pressure warning lamp	
Key warning lamp	
O/D OFF indicator lamp	
Shift P warning lamp	
Engine start operation indicator lamp	

## SPEEDOMETER

### SPEEDOMETER : System Description

INFOID:000000009654094

### SYSTEM DIAGRAM



### DESCRIPTION

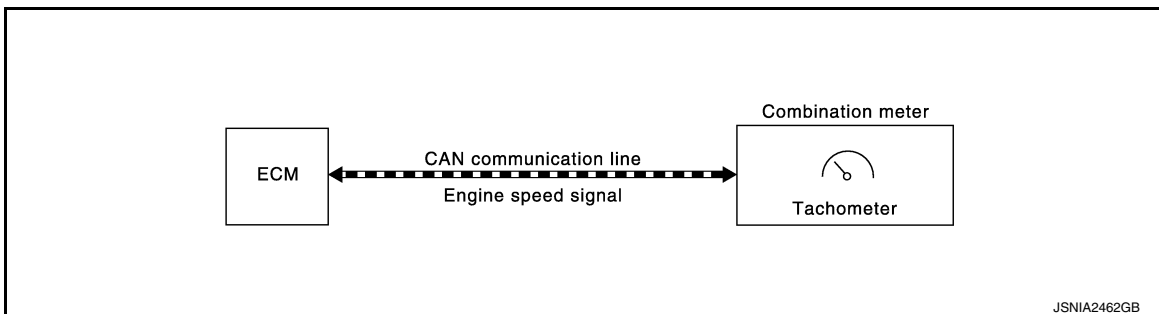
The ABS actuator and electric unit (control unit) receives each wheel speed sensor signal and provides a vehicle speed signal to the combination meter via CAN communication.

## TACHOMETER

### TACHOMETER : System Description

INFOID:000000009654095

### SYSTEM DIAGRAM



### DESCRIPTION

The crank position sensor sends a crankshaft position signal to the ECM. The ECM provides an engine speed signal to the combination meter via CAN communication lines. The tachometer indicates engine speed in revolutions per minute (rpm).

## SHIFT POSITION INDICATOR

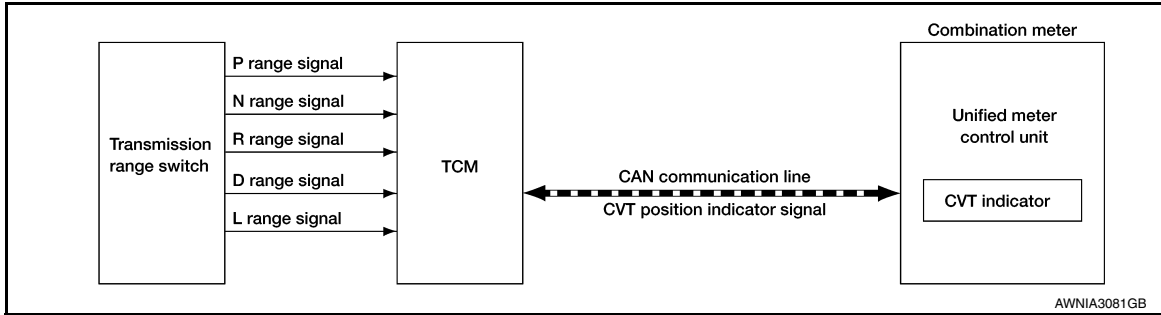
# SYSTEM

< SYSTEM DESCRIPTION >

## SHIFT POSITION INDICATOR : System Description

INFOID:000000009654096

### SYSTEM DIAGRAM



### DESCRIPTION

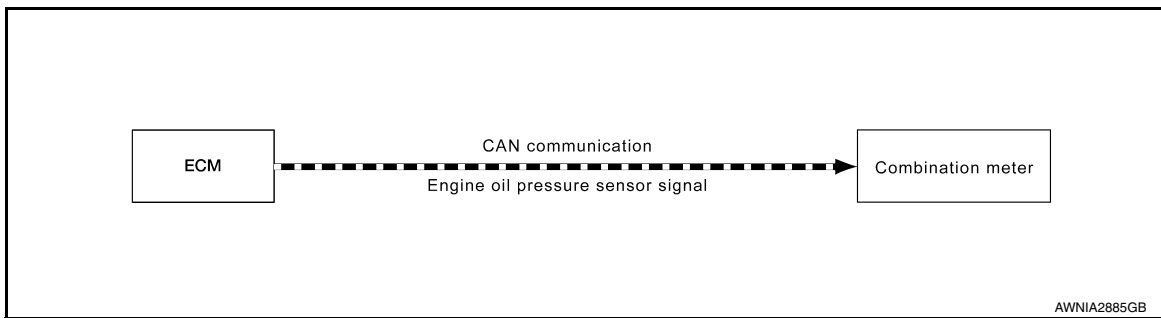
The combination meter receives the shift position signal from TCM via CAN communication, and displays the position of the shift indicator.

## OIL PRESSURE WARNING LAMP

### OIL PRESSURE WARNING LAMP : System Description

INFOID:000000009654097

### SYSTEM DIAGRAM



### DESCRIPTION

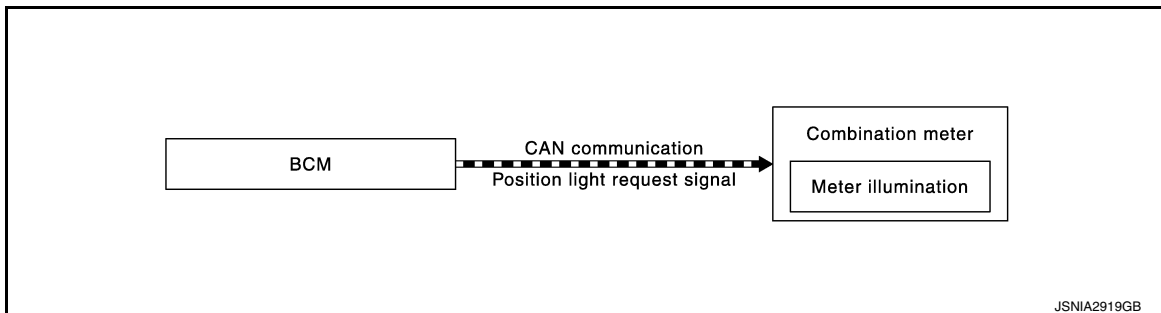
The combination meter turns the engine oil pressure warning lamp ON when receiving a signal from the ECM via CAN communication.

## METER ILLUMINATION CONTROL

### METER ILLUMINATION CONTROL : System Description

INFOID:000000009654098

### SYSTEM DIAGRAM



### DESCRIPTION

- Combination meter controls meter illumination, based on the following signal.
  - Position light request signal
- The combination meter turns ON meter illumination when the following conditions are satisfied.

Condition	
Combination switch (Lighting switch)	1st or 2nd position

# SYSTEM

## < SYSTEM DESCRIPTION >

- The combination meter turns OFF meter illumination when the following conditions are satisfied.

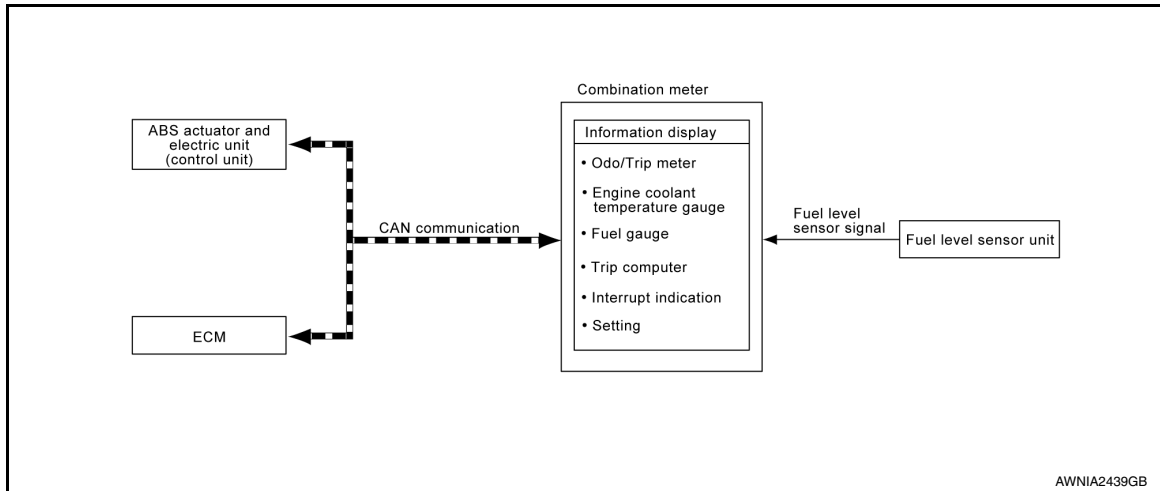
Condition	
Combination switch (Lighting switch)	OFF

## INFORMATION DISPLAY

### INFORMATION DISPLAY : System Description

INFOID:000000009654099

### SYSTEM DIAGRAM



### DESCRIPTION

- The combination meter receives signals from switches, sensors and modules for operating the following functions on the information display.
  - Odo/trip meter
  - Engine coolant temperature gauge
  - Fuel gauge
  - Trip computer
  - Interrupt indication
  - Meter illumination level
  - Low fuel warning
  - Loose fuel cap warning

### ODO/TRIP METER

The combination meter calculates mileage using the vehicle speed signal from the ABS actuator and electric unit (control unit) and displays the mileage on the information display.

### ENGINE COOLANT TEMPERATURE GAUGE

The engine coolant temperature gauge indicates the engine coolant temperature. The ECM provides an engine coolant temperature signal to the combination meter via CAN communication.

### FUEL GAUGE

#### Control Outline

The fuel level sensor unit sends a variable resistor signal to the combination meter. The fuel gauge indicates the approximate fuel level in the fuel tank.

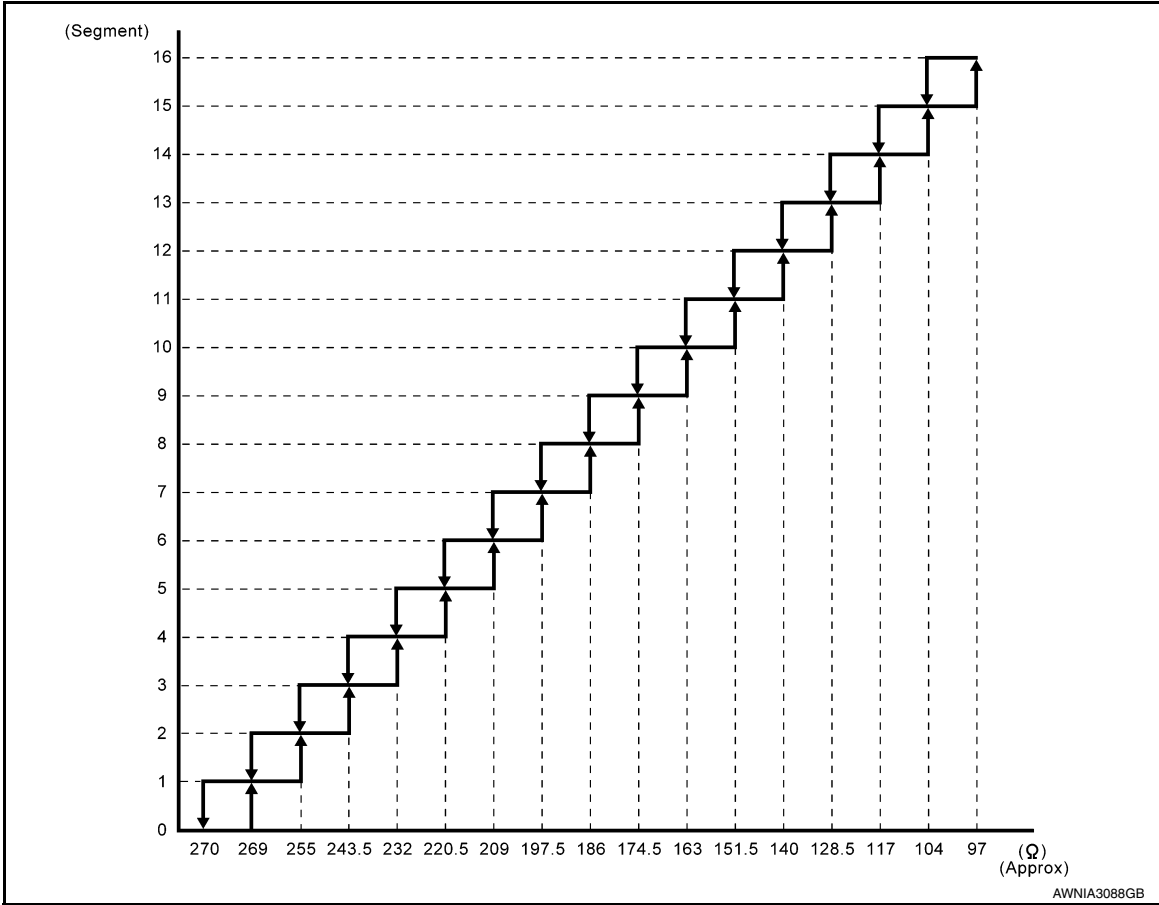
#### Refuel Control

The unit detects the driver is refueling the vehicle and accelerates the fuel gauge segment movement if the fuel level changes by 9 ℓ (2-3/8 US, 2 Imp gal) or more.

# SYSTEM

## < SYSTEM DESCRIPTION >

### Lighting segment-resistance relationship



### INTERRUPT INDICATION

#### Low Fuel Warning

The low fuel warning turns ON when the fuel level in the fuel tank reaches approximately 7.8 ℓ (2-1/8 US gal, 1-3/4 Imp gal).

#### LOOSE FUEL CAP WARNING

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

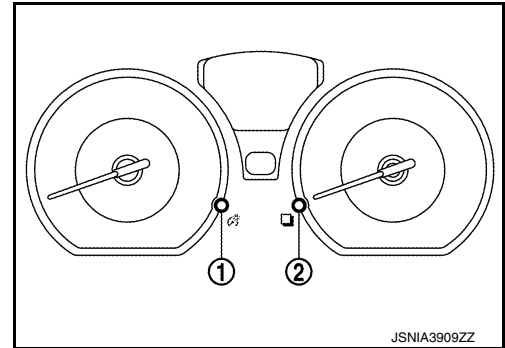
# OPERATION

< SYSTEM DESCRIPTION >

## OPERATION

### Switch Name and Function

INFOID:000000009654100



Switch name	Operation	Description
Illumination control switch (1)	Press	An illuminance level of the back light of the combination meter can be adjusted.
Meter control switch (2)		<ul style="list-style-type: none"> <li>The information display screen can be switched.</li> <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 meter control switch.</li> <li>Time can be adjusted.</li> </ul>

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# DIAGNOSIS SYSTEM (COMBINATION METER)

< SYSTEM DESCRIPTION >

## DIAGNOSIS SYSTEM (COMBINATION METER)

### On Board Diagnosis Function

INFOID:000000009654101

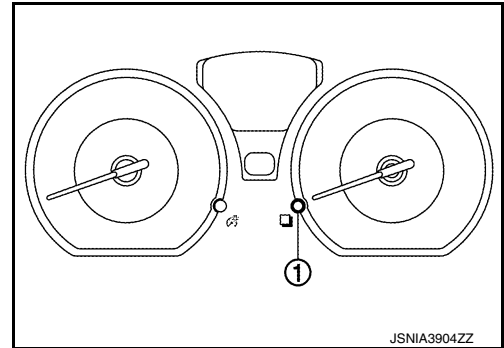
#### ON BOARD DIAGNOSIS ITEM

Information display, speedometer and tachometer can be checked in self-diagnosis mode.

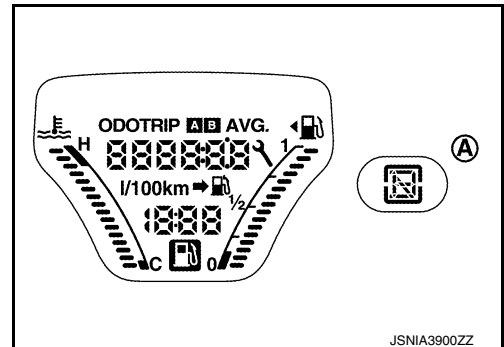
#### STARTING COMBINATION METER SELF-DIAGNOSIS MODE

##### METHOD OF STARTING

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



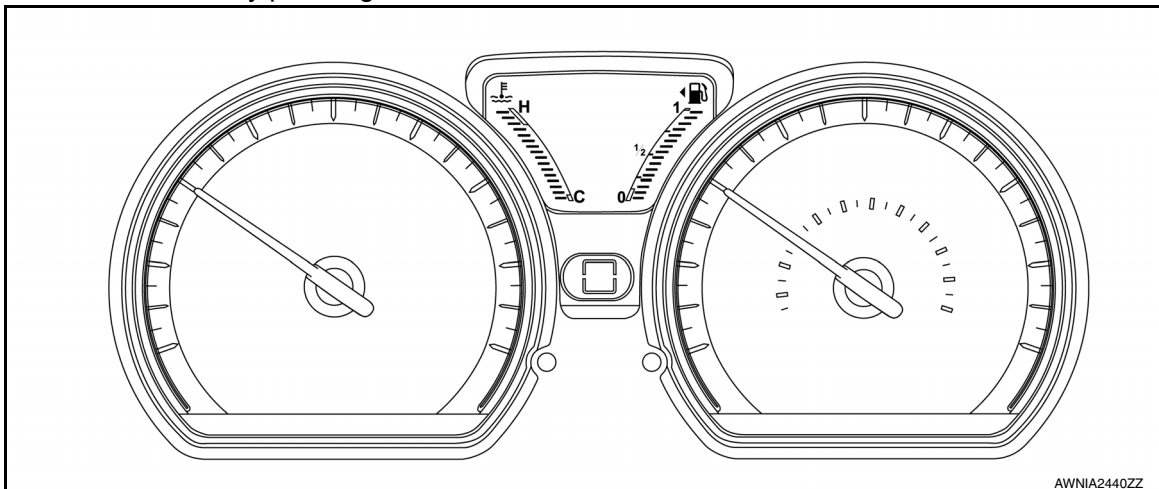
6. The combination meter is turned to self-diagnosis mode.
  - All segments of the information display and shift position indicator (A) for CVT models are displayed.



#### 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 segments are not displayed, replace combination meter.

7. Each meter activates by pressing the meter control switch.



# DIAGNOSIS SYSTEM (COMBINATION METER)

## < SYSTEM DESCRIPTION >

### NOTE:

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

## CONSULT Function

INFOID:000000009654102

## APPLICATION ITEMS

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

METER/M&A Diagnosis mode	Description
Self Diagnostic Result	The combination meter self-diagnosis results.
Data Monitor	Displays combination meter input/output data in real time.
Work support	Supports combination meter diagnosis.
Warning History	Lighting history of the warning lamp and indicator lamp can be checked.

## SELF DIAG RESULT

Refer to [MWI-21, "DTC Index"](#).

## DATA MONITOR

### Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [mph] or [km/h]	X	Displays the value of vehicle speed signal.
SPEED OUTPUT [mph] or [km/h]	X	Displays the value of vehicle speed signal, which is transmitted to each unit with CAN communication.
ODO OUTPUT [Mi] or [km]		Displays odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Displays the value of engine speed signal, which is input from ECM.
FUEL METER [L]	X	Displays the fuel level.
W TEMP METER [°F] or [°C]	X	Displays the value of engine coolant temperature signal, which is input from ECM.
ABS W/L [ON/OFF]		Displays [ON/OFF] condition of ABS warning indicator
VDC/TCS IND [ON/OFF]		Displays [ON/OFF] condition of VDC OFF indicator lamp.
SLIP IND [ON/OFF]		Displays [ON/OFF] condition of SLIP indicator lamp.
BRAKE W/L [ON/OFF]		Displays [ON/OFF] condition of brake warning indicator.
DOOR W/L [ON/OFF]		Displays [ON/OFF] condition of door warning indicator.
HI-BEAM IND [ON/OFF]		Displays [ON/OFF] condition of high beam indicator.
TURN IND [ON/OFF]		Displays [ON/OFF] condition of turn indicator.
FR FOG IND [ON/OFF]		Displays [ON/OFF] condition of front fog lamp indicator.
LIGHT IND [ON/OFF]		Displays [ON/OFF] condition of light indicator.
OIL W/L [ON/OFF]		Displays [ON/OFF] condition of engine oil pressure warning indicator.

# DIAGNOSIS SYSTEM (COMBINATION METER)

## < SYSTEM DESCRIPTION >

Display item [Unit]	MAIN SIGNALS	Description
MIL [ON/OFF]		Displays [ON/OFF] condition of malfunction indicator.
CRUISE IND [Off]		Displays [ON/OFF] condition of CRUISE indicator.
O/D OFF IND [ON/OFF]		Displays [ON/OFF] condition of O/D OFF indicator.
FUEL W/L [ON/OFF]		Displays [ON/OFF] condition of low-fuel warning indicator.
AIR PRES W/L [ON/OFF]		Displays [ON/OFF] condition of tire pressure warning lamp.
KEY G/Y W/L [ON/OFF]		Displays [ON/OFF] condition of Intelligent Key warning lamp.
EPS W/L [ON/OFF]		Displays [ON/OFF] condition of EPS indicator.
CHAGE W/L [Off]		Displays [ON/OFF] condition of charge warning indicator.
SHIFT IND [P, R, N, D, L]		Displays shift selector position.
FUEL CAP W/L [Off]		Displays [ON/OFF] condition of loose fuel cap warning message.
O/D OFF SW [ON/OFF]		Displays [ON/OFF] condition of O/D OFF switch.
REAR DEF SW [ON/OFF]		Displays [ON/OFF] condition of rear window defogger switch.
PKB SW [ON/OFF]		Status of parking brake switch.
BUCKLE SW [ON/OFF]		Status of seat belt buckle switch LH.
BRAKE OIL SW [ON/OFF]		Status of brake fluid level switch.
DISTANCE [M] or [Mi]		Displays distance to empty.
FUEL LOW SIG [ON/OFF]		Displays [ON/OFF] condition of low-fuel warning signal.
BUZZER [ON/OFF]	X	Displays [ON/OFF] condition of buzzer.
TPMS PRESS L [ON/OFF]		Displays [ON/OFF] condition of check tire pressure warning message.

### NOTE:

Some items are not available according to vehicle specification.

## WARNING HISTORY

Display item	Description
W/L ON HISTORY	Lighting history of warning lamp and indicator lamp can be checked.

### W/L ON HISTORY

- Stores histories when warning/indicator lamp is turned on.
- “W/L ON 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 W/L ON HISTORY: Stores NO (0) turning on history of warning/indicator lamp.



# DIAGNOSIS SYSTEM (COMBINATION METER)

## < SYSTEM DESCRIPTION >

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**NOTE:**

- W/L ON 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.

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# COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

## ECU DIAGNOSIS INFORMATION

### COMBINATION METER

Reference Value

INFOID:000000009654103

#### VALUES ON THE DIAGNOSIS TOOL

Monitor Item	Display content	Data monitor	
		Condition	Reference value in normal operation
SPEED METER [mph or km/h]	Speed meter operation	While driving	Vehicle speed matches speed meter
SPEED OUTPUT [mph or km/h]	Vehicle speed	While driving	The speed output signal value via CAN communication is approx. value of vehicle speed.
ODO OUTPUT [mi or km]	ODO meter operation	Driving	Distance driven
TACHO METER [rpm]	Tacho meter operation	Engine running	The tacho meter is approx. value of engine speed via CAN communication.
FUEL METER [L]	Fuel level	Ignition ON	Fuel level is approx. value of fuel gauge.
W TEMP METER [°F] or [°C]	Engine coolant temperature	Engine running	Input value of engine coolant temperature signal via CAN communication.
ABS W/L	ABS warning lamp	When ABS warning lamp is ON	On
		When ABS warning lamp is OFF	Off
VDC/TCS IND	VDC indicator lamp	When VDC indicator lamp is ON	On
		When VDC indicator lamp is OFF	OFF
SLIP IND	Slip indicator lamp	When SLIP indicator lamp is ON	On
		When SLIP indicator lamp is OFF	Off
BRAKE W/L	Brake warning lamp	When Brake warning lamp is ON	On*
		When Brake warning lamp is OFF	Off
DOOR W/L	Door open warning lamp	When Door warning lamp is ON	On
		When Door warning lamp is OFF	Off
HI-BEAM IND	HI-Beam indicator lamp	When High-beam indicator lamp is ON	On
		When High-beam indicator lamp is OFF	Off
TURN IND	Turn signal indicator	When Turn signal indicator lamp is ON	On
		When Turn signal indicator lamp is OFF	Off
FR FOG IND	Front fog lamp indicator	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off
LIGHT IND	Light indicator	When Tail lamp indicator lamp is ON	On
		When Tail lamp indicator lamp is OFF	Off
OIL W/L	Engine oil pressure warning light	When engine oil pressure warning lamp is ON	On
		When engine oil pressure warning lamp is OFF	Off
MIL	MIL warning lamp	When Malfunction indicator lamp (MIL) is ON	On
		When Malfunction indicator lamp (MIL) is OFF	Off

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

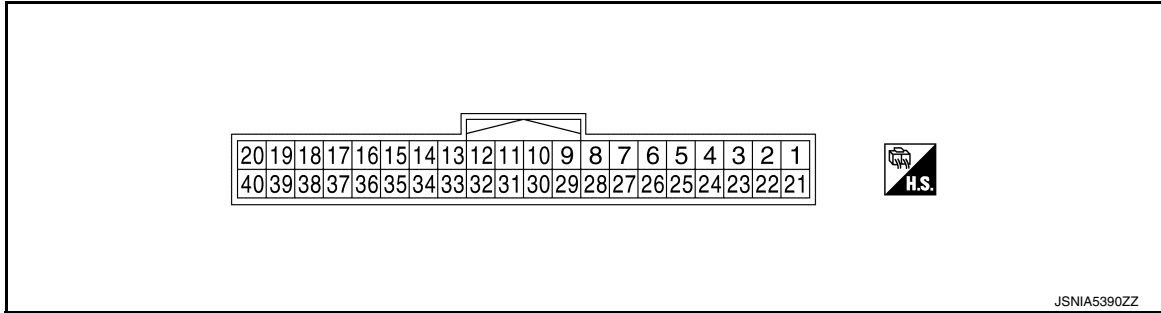
Monitor Item	Display content	Data monitor	
		Condition	Reference value in normal operation
CRUISE IND	Cruise indicator lamp	When cruise indicator lamp is ON	On
		When cruise indicator lamp is OFF	Off
O/D OFF IND	O/D OFF indicator	When O/D OFF indicator lamp is OFF	Off
		When O/D OFF indicator lamp is ON	On
FUEL W/L	Low fuel warning	When low fuel warning is ON	On
		When low fuel warning is Off	Off
AIR PRES W/L	Tire pressure warning lamp operation	When tire pressure warning lamp is ON	ON
		When tire pressure warning lamp is OFF	Off
KEY G/Y W/L	Intelligent Key warning lamp operation	When Intelligent Key warning lamp is ON	ON
		When Intelligent Key warning lamp is OFF	Off
EPS W/L	EPS warning lamp	EPS warning lamp ON	On
		EPS warning lamp OFF	Off
CHAGE W/L	Charge warning lamp	Engine running	Off
SHIFT IND	Shift position indicator	The position of the shift position selector	[P, R, N, D, L]
FUEL CAP W/L	Loose fuel cap warning	Loose fuel filler cap warning is On	On
		Loose fuel filler cap warning is OFF	Off
O/D OFF SW	O/D OFF switch	When O/D OFF switch is pressed to OFF	Off
		When O/D OFF switch is pressed to ON	On
REAR DEF SW	Rear defogger switch	When rear defogger switch is pressed to ON	On
		When rear defogger is pressed to OFF	Off
PKB SW	Parking brake switch	When parking brake is active	On
		When parking brake is inactive	Off
BUCKLE SW	Seat belt buckle switch LH	When seat belt buckle LH is unfastened	On
		When seat belt buckle LH is fastened	Off
BRAKE OIL SW	Brake fluid level switch	When brake fluid level switch ON	On
		When brake fluid level switch OFF	Off
DISTANCE	Distance to empty	While driving	[mi or km]
FUEL LOW SIG	Low fuel warning	When low fuel warning is On	On
		When low fuel warning is Off	Off
BUZZER	Buzzer operation	When Buzzer is ON	On
		When Buzzer is OFF	Off
TPMS PRESS L	Low tire pressure warning	When check tire pressure warning message is On	On
		When check tire pressure warning message is OFF	Off

\*: 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.

# COMBINATION METER

< ECU DIAGNOSIS INFORMATION >

## TERMINAL LAYOUT



## PHYSICAL VALUES

Terminal No.	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
1	L	CAN-H	—	—	—
2	P	CAN-L	—	—	—
3	SB	2P/R	—	—	—
4	LG	8P/R	—	—	—
6	W	Fuel level sensor signal (+)	—	—	Refer to <a href="#">MWI-46, "Component Inspection"</a> .
7	V	Air bag	—	—	
8	P	O/D OFF switch	ON	O/D OFF switch pressed	0
				O/D OFF switch released	Battery voltage
9	V	Seat belt buckle switch LH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage
10	SB	Parking Brake switch	ON	Parking brake is inactive	0
				Parking brake is active	Battery voltage
11	BR	Brake fluid level switch	ON	Brake fluid level low	0
				Brake fluid level normal	Battery voltage
13	B	Illumination control	—	—	—
15	R	Ignition switch ON or ACC	—	—	Battery voltage
17	V	Washer fluid level switch (Canada models)	ON	Washer fluid level low	0
				Washer fluid level normal	Battery voltage
18	R/Y	Security	—	—	—
21	B	Ground	—	—	0
22	B				
23	B				
24	GR	Fuel level sensor ground (-)	ON	—	0
27	R/W	Battery power supply	OFF	—	Battery voltage
28	GR	Ignition switch ON or START	ON	—	Battery voltage
29	G	Seat belt buckle switch RH	ON	Unfastened (ON)	0
				Fastened (OFF)	Battery voltage
38	Y	Generator	ON	Generator voltage low	0
				Generator voltage normal	Battery voltage

## Fail-safe

INFOID:000000009654104

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

# COMBINATION METER

## < ECU DIAGNOSIS INFORMATION >

Function		Specifications	
Speedometer		Reset to zero by suspending communication.	
Tachometer			
Illumination control		When suspending communication, changes to nighttime mode.	
Shift position indicator		When suspending communication, not indicate.	
Information display	Trip computer	Current fuel consumption	<ul style="list-style-type: none"> <li>When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result.</li> <li>When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.</li> </ul>
		Average fuel consumption	
		Distance to empty	
	Engine coolant temperature gauge	Reset to zero by suspending communication.	
	Odo/trip meter	An indicated value is maintained at communications blackout.	
Buzzer		The buzzer turns OFF by suspending communication.	
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.	
	Malfunction indicator lamp (MIL)		
	EPS warning lamp		
	Brake warning lamp		
	High beam indicator lamp	The lamp turns OFF by suspending communication.	
	Turn signal indicator lamp		
	Door warning lamp		
	Light indicator lamp		
	Engine oil pressure warning lamp		
	Key warning lamp		
	O/D OFF indicator lamp		
	Shift P warning lamp		
	Engine start operation indicator lamp		

## DTC Index

INFOID:000000009654105

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-37</a>
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	<a href="#">MWI-38</a>
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-39</a>
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	<a href="#">MWI-40</a>
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	<a href="#">MWI-41</a>

# BCM (BODY CONTROL MODULE)

< ECU DIAGNOSIS INFORMATION >

## BCM (BODY CONTROL MODULE)

### List of ECU Reference

INFOID:000000009654106

ECU	Reference
BCM (with Intelligent Key)	<a href="#">BCS-28, "Reference Value"</a>
	<a href="#">BCS-46, "Fail-safe"</a>
	<a href="#">BCS-47, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-48, "DTC Index"</a>
BCM (without Intelligent Key)	<a href="#">BCS-95, "Reference Value"</a>
	<a href="#">BCS-108, "Fail-safe"</a>
	<a href="#">BCS-109, "DTC Inspection Priority Chart"</a>
	<a href="#">BCS-109, "DTC Index"</a>

# METER SYSTEM

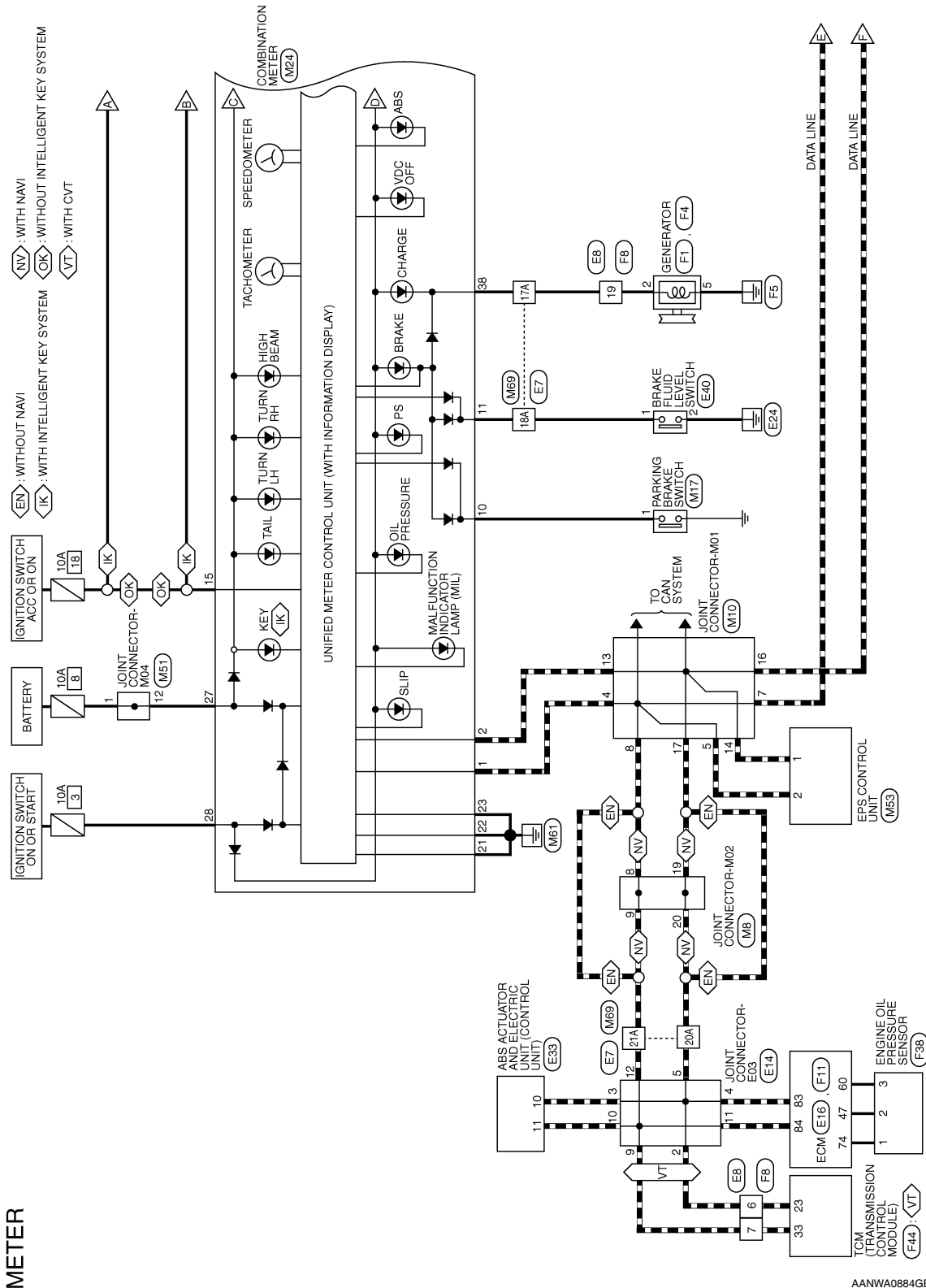
< WIRING DIAGRAM >

## WIRING DIAGRAM

### METER SYSTEM

#### Wiring Diagram

INFOID:000000009654107



METER

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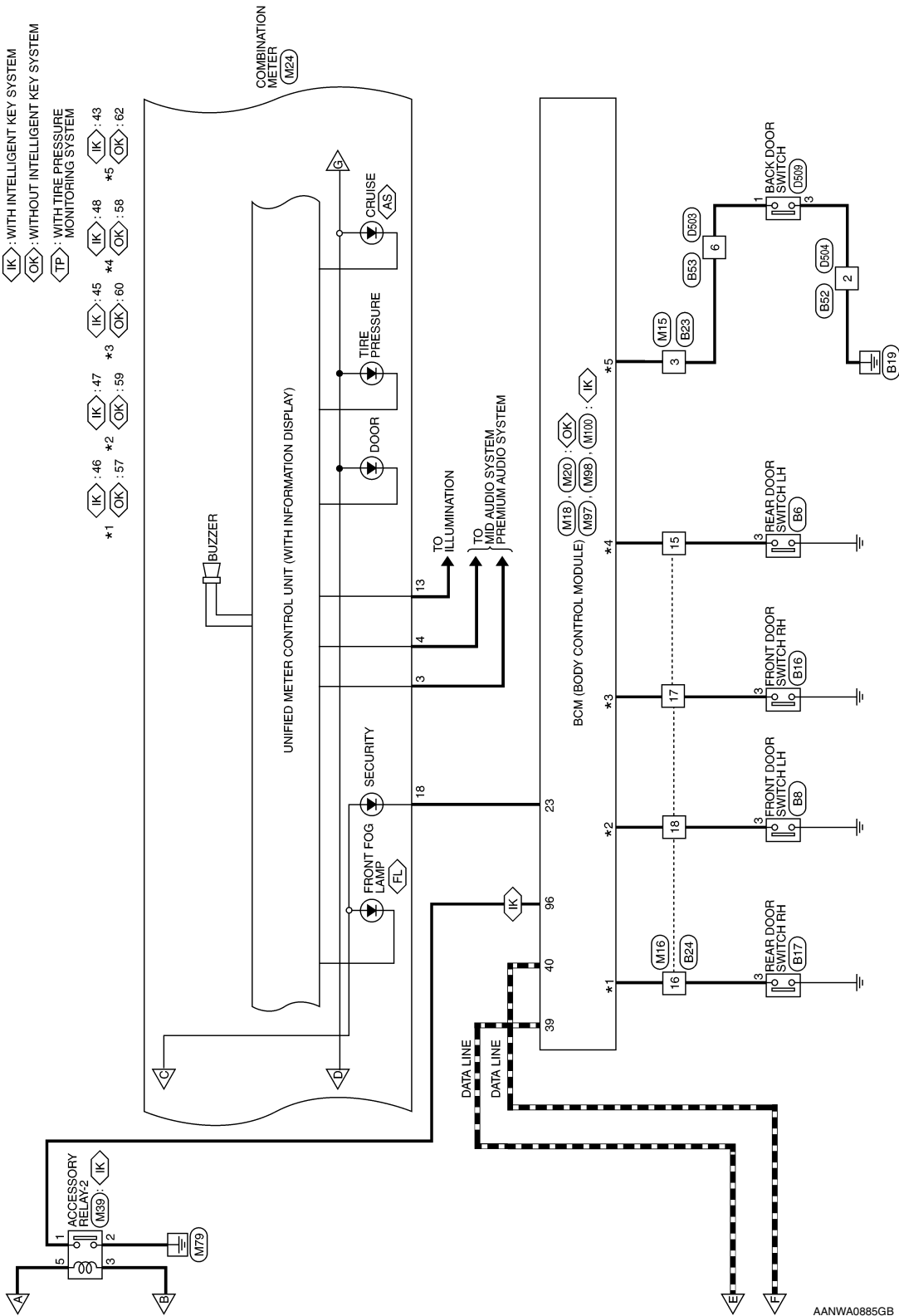
MWI

# METER SYSTEM

< WIRING DIAGRAM >

- <AS> : WITH ASCD
- <FL> : WITH FRONT FOG LAMPS
- <IK> : WITH INTELLIGENT KEY SYSTEM
- <OK> : WITHOUT INTELLIGENT KEY SYSTEM
- <TP> : WITH TIRE PRESSURE MONITORING SYSTEM

- \*1 <IK> : 46 \*2 <IK> : 47 \*3 <IK> : 45 \*4 <IK> : 48 \*5 <IK> : 43
- <OK> : 57 \*5 <OK> : 59 \*6 <OK> : 60 \*7 <OK> : 58 \*8 <OK> : 62



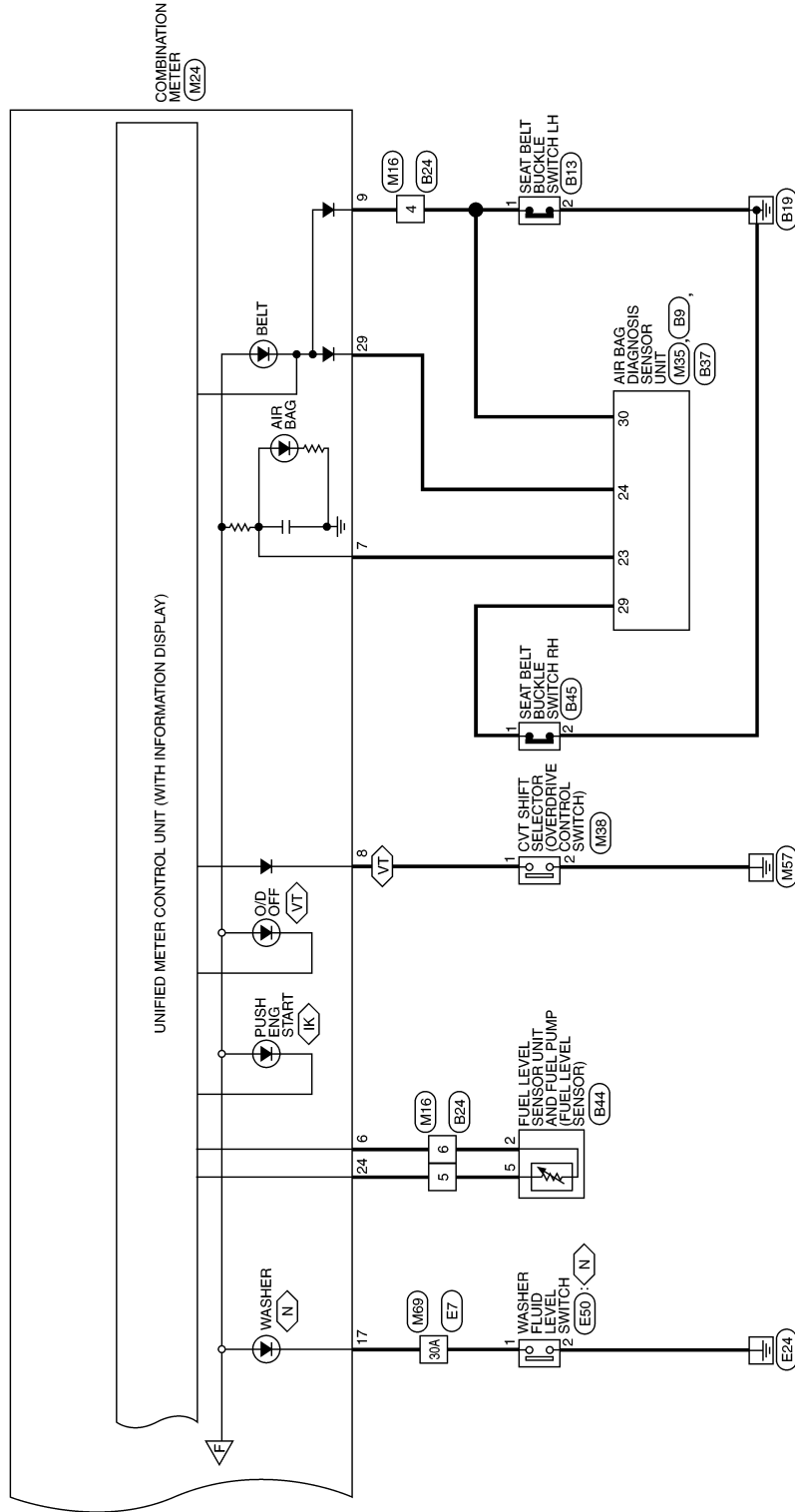
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# METER SYSTEM

< WIRING DIAGRAM >

(IK) : WITH INTELLIGENT KEY SYSTEM  
 (N) : FOR CANADA  
 (VT) : WITH CVT



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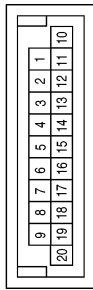
MWI

# METER SYSTEM

< WIRING DIAGRAM >

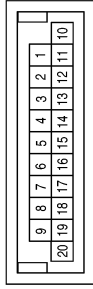
## METER CONNECTORS

Connector No.	M8
Connector Nam	JOINT CONNECTOR-M02
Connector Colo	GREEN



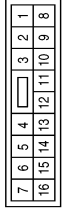
Terminal No	Color of Wire	Signal Name
8	L	-
9	L	-
19	P	-
20	P	-

Connector No.	M10
Connector Nam	JOINT CONNECTOR-M01
Connector Colo	BLUE



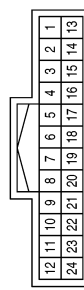
Terminal No	Color of Wire	Signal Name
4	L	-
5	L	-
7	L	-
8	L	-
13	P	-
14	P	-
16	P	-
17	P	-

Connector No.	M15
Connector Nam	WIRE TO WIRE
Connector Colo	WHITE



Terminal No.	Color of Wire	Signal Name
3	P	-

Connector No.	M16
Connector Nam	WIRE TO WIRE
Connector Color	WHITE



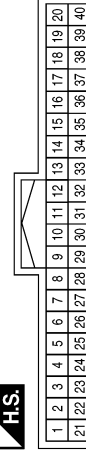
Terminal No	Color of Wire	Signal Name
4	V	-
5	GR	-
6	W	-
15	W	-
16	BR	-
17	O	-
18	SB	-

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



Terminal No.	Color of Wire	Signal Name
1	SB	-

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
23	R/Y	SECURITY INDICATOR OUTPUT
39	L	CAN-H
40	P	CAN-L

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# METER SYSTEM

< WIRING DIAGRAM >

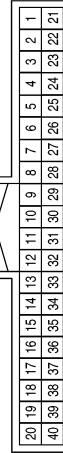
Terminal No.	Color of Wire	Signal Name
59	SB	DOOR SW (DR)
60	O	DOOR SW (AS)
62	P	DOOR SW (BACK)

Connector No.	M20
Connector Name	BCM (BODY CONTROL MODULE) (WITHOUT INTELLIGENT KEY SYSTEM)
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
57	P	DOOR SW (RR)
58	SB	DOOR SW (RL)

Connector No.	M24
Connector Name	COMBINATION METER
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
3	SB	2P/R
4	LG	8P/R
5	-	-
6	W	FM SIG
7	V	AIR BAG
8	P	O/D OFF

Terminal No.	Color of Wire	Signal Name
9	V	BELT
10	SB	PKB SW
11	BR	BRAKE OIL SW
12	-	-
13	B	OUTSIDE ILL OUTPUT IDLE STOP IND SW
14	-	-
15	R	ACC SW
16	-	-
17	V	WASHER/STRG SW
18	R/Y	SECURITY
19	-	-
20	-	-
21	B	GND (ILL)
22	B	GND (POWER)
23	B	GND (CIRCUIT)
24	GR	FM GND

Terminal No.	Color of Wire	Signal Name
25	-	-
26	-	-
27	R/W	BAT
28	GR	IGN
29	G	AS BELT
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	Y	CHG
39	-	-
40	-	-

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# METER SYSTEM

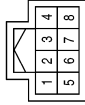
< WIRING DIAGRAM >

Connector No.	M39
Connector Name	ACCESSORY RELAY-2
Connector Color	BLUE



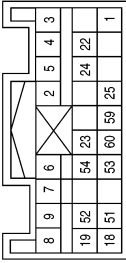
Terminal No.	Color of Wire	Signal Name
1	SB	-
2	B	-
3	L	-
5	O	-

Connector No.	M38
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE



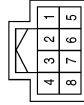
Terminal No.	Color of Wire	Signal Name
1	P	-
2	B/W	-

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



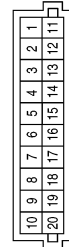
Terminal No.	Color of Wire	Signal Name
23	V	AIRBAG W/L
24	G	SEATBELT REMINDER

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



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

Connector No.	M51
Connector Name	JOINT CONNECTOR-M04
Connector Color	GRAY

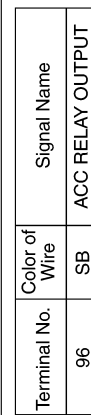
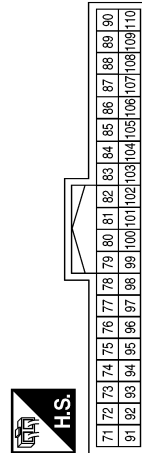
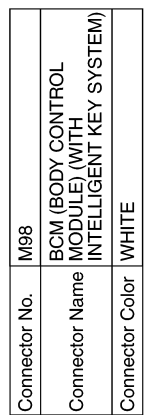
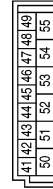
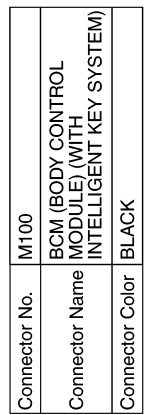
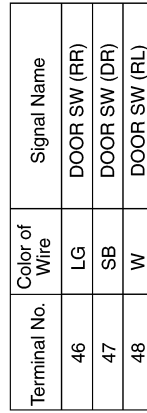
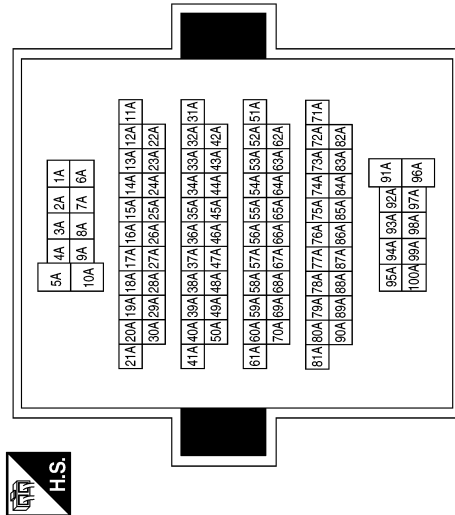
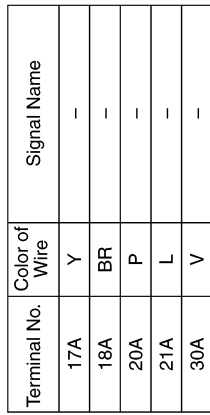
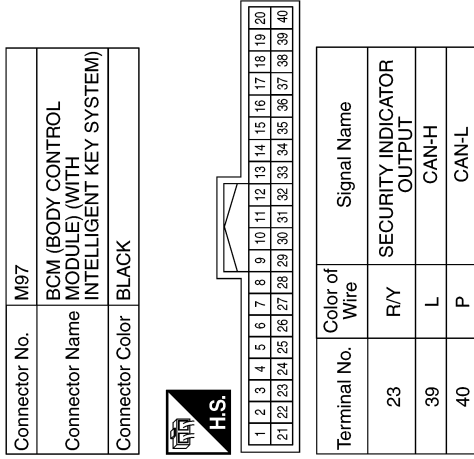


Terminal No.	Color of Wire	Signal Name
1	LG	-
12	R/W	-

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# METER SYSTEM

< WIRING DIAGRAM >



AANIA1752GB

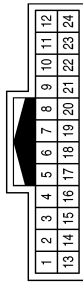
A B C D E F G H I J K L M N O P



# METER SYSTEM

< WIRING DIAGRAM >

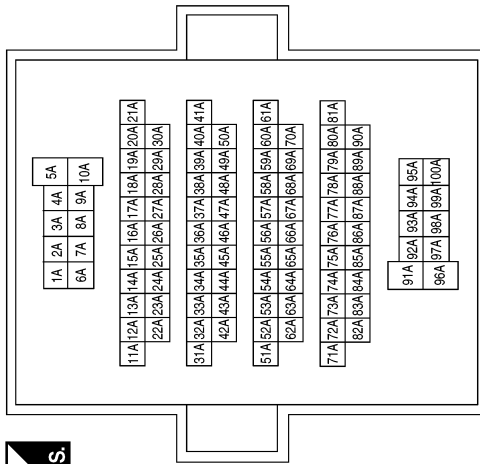
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Color	WHITE



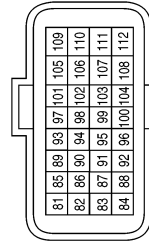
Terminal No.	Color of Wire	Signal Name
6	P	-
7	L	-
19	V	-

Terminal No.	Color of Wire	Signal Name
17A	V	-
18A	LG	-
20A	P	-
21A	L	-
30A	R	-

Connector No.	E7
Connector Name	WIRE TO WIRE
Connector Color	WHITE



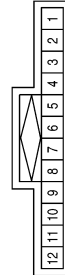
Connector No.	E16
Connector Name	ECM
Connector Color	BLACK



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

Terminal No.	Color of Wire	Signal Name
5	P	-
9	L	-
10	L	-
11	L	-
12	L	-

Connector No.	E14
Connector Name	JOINT CONNECTOR-E03
Connector Color	BLUE



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

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# METER SYSTEM

< WIRING DIAGRAM >

Connector No.	E50
Connector Name	WASHER FLUID LEVEL SWITCH
Connector Color	BROWN



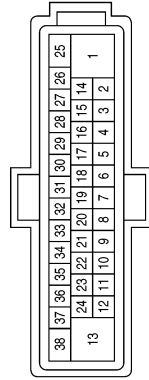
Terminal No.	Color of Wire	Signal Name
1	R	-
2	B	-

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



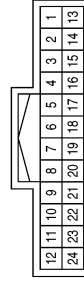
Terminal No.	Color of Wire	Signal Name
1	LG	-
2	B	-

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



Terminal No.	Color of Wire	Signal Name
10	P	CAN-L
11	L	CAN-H

Connector No.	F8
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	P/L	-
7	L/G	-
19	L/W	-

Connector No.	F4
Connector Name	GENERATOR
Connector Color	-



Terminal No.	Color of Wire	Signal Name
5	B/Y	-

Connector No.	F1
Connector Name	GENERATOR
Connector Color	BLACK



Terminal No.	Color of Wire	Signal Name
2	L/W	-

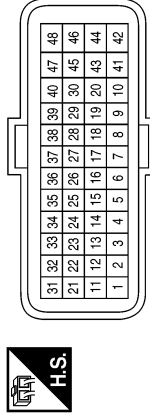
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# METER SYSTEM

< WIRING DIAGRAM >

Connector No.	F44
Connector Name	TCM (TRANSMISSION CONTROL MODULE) (WITH CVT)
Connector Color	BLACK



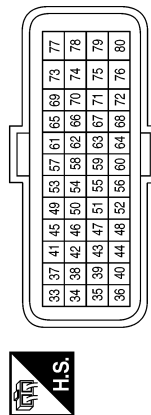
Terminal No.	Color of Wire	Signal Name
23	P	CAN-L
33	L	CAN-H

Connector No.	F38
Connector Name	ENGINE OIL PRESSURE SENSOR
Connector Color	BLACK



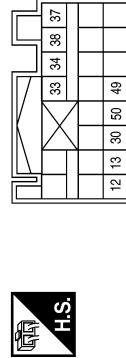
Terminal No.	Color of Wire	Signal Name
1	O	-
2	Y	-
3	L	-

Connector No.	F11
Connector Name	ECM
Connector Color	BROWN



Terminal No.	Color of Wire	Signal Name
47	Y	OILPRES
60	L	GND - OILPRES
74	O	AVCC1 - OILPRES

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



Terminal No.	Color of Wire	Signal Name
30	O	LH SEAT BELT BUCKLE SWITCH (+)

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



Terminal No.	Color of Wire	Signal Name
3	LG	-

Connector No.	B6
Connector Name	REAR DOOR SWITCH LH
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
3	V	-

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# METER SYSTEM

< WIRING DIAGRAM >

Connector No.	B13
Connector Name	SEAT BELT BUCKLE SWITCH LH
Connector Color	WHITE



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

Connector No.	B16
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE



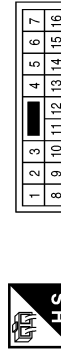
Terminal No.	Color of Wire	Signal Name
3	L	-

Connector No.	B17
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE



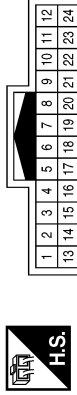
Terminal No.	Color of Wire	Signal Name
3	R	-

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



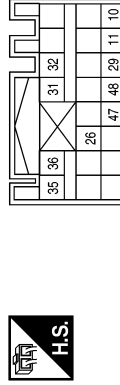
Terminal No.	Color of Wire	Signal Name
3	P	-

Connector No.	B24
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No	Color of Wire	Signal Name
4	O	-
5	P	-
6	R	-
15	V	-
16	R	-
17	L	-
18	LG	-

Connector No.	B37
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Color	YELLOW



Terminal No.	Color of Wire	Signal Name
29	O	RH SEAT BELT BUCKLE SWITCH (+)

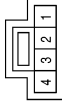
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# METER SYSTEM

< WIRING DIAGRAM >

Connector No.	B52
Connector Name	WIRE TO WIRE
Connector Color	WHITE



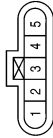
Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	B45
Connector Name	SEAT BELT BUCKLE SWITCH RH
Connector Color	WHITE



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

Connector No.	B44
Connector Name	FUEL LEVEL SENSOR UNIT AND FUEL PUMP
Connector Color	GRAY



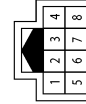
Terminal No.	Color of Wire	Signal Name
2	R	-
5	P	-

Connector No.	D504
Connector Name	WIRE TO WIRE
Connector Color	WHITE



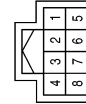
Terminal No.	Color of Wire	Signal Name
2	B	-

Connector No.	D503
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	P	-

Connector No.	B53
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
6	P	-

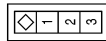
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# METER SYSTEM

< WIRING DIAGRAM >

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Connector No.	D509
Connector Name	BACK DOOR SWITCH
Connector Color	WHITE



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

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# DIAGNOSIS AND REPAIR WORK FLOW

< BASIC INSPECTION >

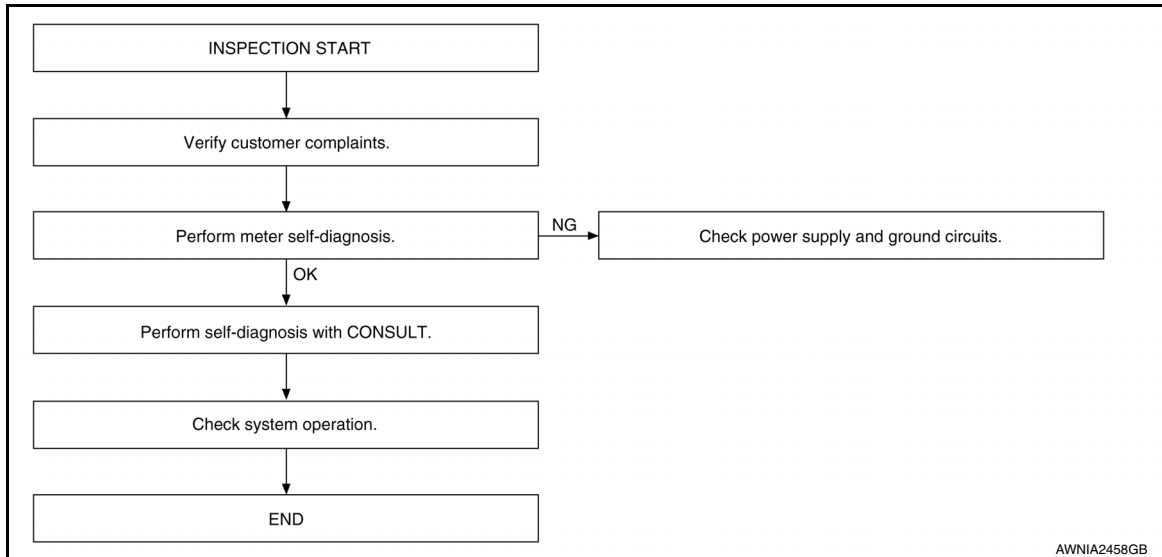
## BASIC INSPECTION

### DIAGNOSIS AND REPAIR WORK FLOW

Work Flow

INFOID:000000009654108

#### OVERALL SEQUENCE



#### DETAILED FLOW

##### 1.CONFIRM SYMPTOM

Confirm symptom or customer complaint.

>> GO TO 2.

##### 2.SELF-DIAGNOSIS OF COMBINATION METER

Perform self-diagnosis of combination meter. Refer to [MWI-14, "On Board Diagnosis Function"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> If self-diagnosis will not start, check power supply and ground circuit of combination meter. Refer to [MWI-42, "COMBINATION METER : Diagnosis Procedure"](#). If power supply and ground circuits are OK, replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

##### 3.CHECK COMBINATION METER WITH CONSULT

Select METER/M&A on CONSULT and perform self-diagnosis of combination meter. Refer to [MWI-15, "CONSULT Function"](#).

Is the inspection result normal?

YES >> Check symptom. GO TO 4.

NO >> Refer to [MWI-21, "DTC Index"](#).

##### 4.CHECK SYSTEM OPERATION

Check the combination meter to verify that the repair has been completed successfully.

Is the inspection result normal?

YES >> Inspection End.

NO >> GO TO 1.

# U1000 CAN COMM CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## DTC/CIRCUIT DIAGNOSIS

### U1000 CAN COMM CIRCUIT

#### DTC Logic

INFOID:000000009654109

#### DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible malfunction
U1000	CAN COMM CIRC [U1000]	When combination meter is not receiving CAN communication signals for 2 seconds or more.	Combination meter

#### Diagnosis Procedure

INFOID:000000009654110

#### 1. CHECK CAN COMMUNICATION

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

>> GO TO LAN system. Refer to [LAN-15. "Trouble Diagnosis Flow Chart"](#).

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## U1010 CONTROL UNIT (CAN)

< DTC/CIRCUIT DIAGNOSIS >

### U1010 CONTROL UNIT (CAN)

#### Description

INFOID:000000009654111

Initial diagnosis of combination meter.

#### DTC Logic

INFOID:000000009654112

#### DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible malfunction
U1010	CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	Combination meter

#### Diagnosis Procedure

INFOID:000000009654113

#### 1. REPLACE COMBINATION METER

When DTC U1010 is detected, replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

>> Inspection End.

# B2205 VEHICLE SPEED

< DTC/CIRCUIT DIAGNOSIS >

## B2205 VEHICLE SPEED

### Description

INFOID:000000009654114

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

### DTC Logic

INFOID:000000009654115

### DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible malfunction
B2205	VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is received for 2 seconds or more.	<ul style="list-style-type: none"><li>Combination meter</li><li>ABS actuator and electric unit (control unit)</li></ul>

### Diagnosis Procedure

INFOID:000000009654116

#### 1. CHECK COMBINATION METER INPUT SIGNAL

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

#### Is the inspection result normal?

- YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to [BRC-30, "CONSULT Function \(ABS\)"](#).
- NO >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

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## B2267 ENGINE SPEED

< DTC/CIRCUIT DIAGNOSIS >

### B2267 ENGINE SPEED

#### Description

INFOID:000000009654117

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

#### DTC Logic

INFOID:000000009654118

#### DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible malfunction
B2267	TACHO METER [B2267]	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:000000009654119

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

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

>> Refer to [EC-60, "CONSULT Function"](#).



# B2268 WATER TEMP

< DTC/CIRCUIT DIAGNOSIS >

## B2268 WATER TEMP

### Description

INFOID:000000009654120

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

### DTC Logic

INFOID:000000009654121

### DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible malfunction
B2268	WATER TEMP METER [B2268]	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:000000009654122

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

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

>> Refer to [EC-60. "CONSULT Function"](#).

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# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## POWER SUPPLY AND GROUND CIRCUIT COMBINATION METER

### COMBINATION METER : Diagnosis Procedure

INFOID:000000009654123

Regarding Wiring Diagram information, refer to [MWI-23. "Wiring Diagram"](#).

#### 1. CHECK FUSE

Check that the following fuses are not blown.

Power source	Fuse No.
Battery	8
Ignition switch ON or START	3
Ignition switch ACC or ON	18

Is the fuse blown?

YES >> GO TO 2.

NO >> Replace the blown fuse after repairing the affected circuit.

#### 2. POWER SUPPLY CIRCUIT CHECK

1. Disconnect combination meter connector.
2. Check voltage between combination meter harness connector M24, terminals 27, 28, 15 and ground.

Terminals			Ignition switch position			
(+) Connector		(-) Terminal	OFF	ACC	ON	START
M24	27	Ground	Battery voltage	Battery voltage	Battery voltage	Battery voltage
	28		0V	0V	Battery voltage	Battery voltage
	15		0V	Battery voltage	Battery voltage	0V

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair or replace harness or connector.

#### 3. GROUND CIRCUIT CHECK

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

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

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

## BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM)

### BCM (BODY CONTROL SYSTEM) (WITH INTELLIGENT KEY SYSTEM) : Diagnosis

# POWER SUPPLY AND GROUND CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## Procedure

INFOID:000000009693741

Regarding Wiring Diagram information, refer to [BCS-51, "Wiring Diagram"](#).

### 1.CHECK FUSES AND FUSIBLE LINK

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

Terminal No.	Signal name	Fuses and fusible link No.
57	Battery power supply	12 (10A)
70		G (40A)

Is the fuse blown?

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

NO >> GO TO 2.

### 2.CHECK POWER SUPPLY CIRCUIT

1. Disconnect BCM connector M99.
2. Check voltage between BCM connector M99 and ground.

BCM		Ground	Voltage
Connector	Terminal		
M99	57	—	Battery voltage
	70		

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

### 3.CHECK GROUND CIRCUIT

Check continuity between BCM connector M99 and ground.

BCM		Ground	Continuity
Connector	Terminal		
M99	67	—	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair harness or connector.

## BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM)

## BCM (BODY CONTROL SYSTEM) (WITHOUT INTELLIGENT KEY SYSTEM) : Diagnosis Procedure

INFOID:000000009693742

Regarding Wiring Diagram information, refer to [BCS-111, "Wiring Diagram"](#).

### 1.CHECK FUSES AND FUSIBLE LINK

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

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# POWER SUPPLY AND GROUND CIRCUIT

## < DTC/CIRCUIT DIAGNOSIS >

Terminal No.	Signal name	Fuses and fusible link No.
37	Battery power supply	8 (10A)
42		12 (10A)
50		G (40A)
11	Ignition switch ACC or ON	18 (10A)
38	Ignition switch ON or START	2 (10A)

### Is the fuse blown?

- YES >> Replace the blown fuse or fusible link after repairing the affected circuit.  
 NO >> GO TO 2.

## 2.CHECK POWER SUPPLY CIRCUIT

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

BCM		Ground	Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M18	11	—	0 V	Battery voltage	Battery voltage
	37		Battery voltage		
	38		0 V	0 V	
M19	42		Battery voltage	Battery voltage	
	50				

### Is the inspection result normal?

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

## 3.CHECK GROUND CIRCUIT

Check continuity between BCM connector and ground.

BCM		Ground	Continuity
Connector	Terminal		
M19	55	—	Yes

### Is the inspection result normal?

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

# FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## FUEL LEVEL SENSOR SIGNAL CIRCUIT

### Description

INFOID:000000009654125

The fuel level sensor unit and fuel pump detects the approximate fuel level in the fuel tank and transmits the fuel level signal to the combination meter.

### Component Function Check

INFOID:000000009654126

#### 1.COMBINATION METER INPUT SIGNAL

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

Fuel gauge indication position	Reference value of data monitor [L]
1	Approx. 39.8
3/4	Approx. 31.2
1/2	Approx. 20.8
1/4	Approx. 10.8
0	Approx. 2.9

#### Does monitor value match fuel gauge reading?

- YES >> Inspection End.  
 NO >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

### Diagnosis Procedure

INFOID:000000009654127

Regarding Wiring Diagram information, refer to [MWI-23, "Wiring Diagram"](#).

#### 1.CHECK HARNESS CONNECTOR

1. Turn ignition switch OFF.
2. Check combination meter and fuel level sensor unit terminals (meter-side and harness-side) for poor connection.

#### Is the inspection result normal?

- YES >> GO TO 2.  
 NO >> Repair or replace terminals or connectors.

#### 2.CHECK FUEL LEVEL SENSOR UNIT CIRCUIT

1. Disconnect combination meter harness connector M24 and fuel level sensor unit and fuel pump harness connector B44.
2. Check continuity between combination meter harness connector M24 terminal 6 and fuel level sensor unit and fuel pump harness connector B44 terminal 2.

Connector	Terminal	Connector	Terminal	Continuity
M24	6	B44	2	Yes

3. Check continuity between fuel level sensor unit and fuel pump harness connector B44 terminal 2 and ground.

Connector	Terminal	Ground	Continuity
B44	2		No

#### Is the inspection result normal?

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

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# FUEL LEVEL SENSOR SIGNAL CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## 3. CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

1. Disconnect ECM connector F11.
2. Check continuity between combination meter harness connector M24 terminal 24 and fuel level sensor unit and fuel pump harness connector B44 terminal 5.

Connector	Terminal	Connector	Terminal	Continuity
M24	24	B44	5	Yes

3. Check continuity between fuel level sensor unit and fuel pump harness connector B44 terminal 5 and ground.

Connector	Terminal	Ground	Continuity
B44	5		No

Is the inspection result normal?

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

## 4. CHECK INSTALLATION CONDITION

Check fuel level sensor unit installation, and verify the float arm does not interfere or bind with the internal components in the fuel tank.

Is the inspection result normal?

- YES >> Inspection End.  
 NO >> Install the fuel level sensor unit properly.

## Component Inspection

INFOID:000000009654128

### 1. REMOVE FUEL LEVEL SENSOR UNIT

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

>> GO TO 2.

### 2. CHECK FUEL LEVEL SENSOR UNIT

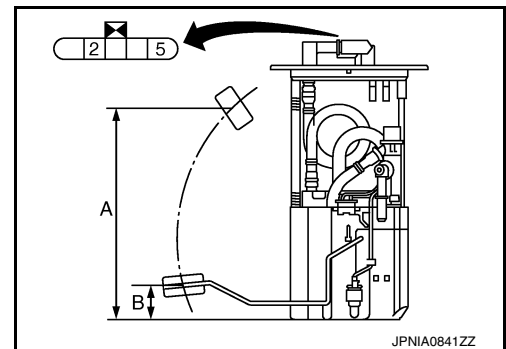
Check the resistance between fuel level sensor unit and fuel pump.

Terminals		Condition	Resistance ( $\Omega$ ) (Approx.)	Height [mm (in)]
Fuel level sensor unit				
2	5	Full* (A)	51	171.4 (6.75)
		Empty* (B)	283	18.5 (0.73)

\*: When float rod is in contact with stopper.

Is inspection result OK?

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



# WASHER FLUID LEVEL SWITCH CIRCUIT

< DTC/CIRCUIT DIAGNOSIS >

## WASHER FLUID LEVEL SWITCH CIRCUIT

### Description

INFOID:000000009682041

Transmits the washer fluid level switch signal to the combination meter.

### Diagnosis Procedure

INFOID:000000009682042

Regarding Wiring Diagram information, refer to [MWI-23, "Wiring Diagram"](#).

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

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and washer fluid level switch connector.
3. Check continuity between combination meter harness connector M24 terminal 17 and washer fluid level switch harness connector E50 terminal 1.

Connector	Terminal	Connector	Terminal	Continuity
M24	17	E50	1	Yes

4. Check continuity between combination meter harness connector M24 terminal 17 and ground.

Connector	Terminal	Ground	Continuity
M24	17	Ground	No

Is the inspection result normal?

YES >> GO TO 2.

NO >> Repair or replace harness or connector.

### 2. CHECK WASHER FLUID LEVEL SWITCH GROUND CIRCUIT

Check continuity between washer fluid level switch harness connector E50 terminal 2 and ground.

Connector	Terminal	Ground	Continuity
E50	2	Ground	Yes

Is the inspection result normal?

YES >> Inspection End.

NO >> Repair or replace harness or connector.

### Component Inspection

INFOID:000000009682043

### 1. CHECK WASHER FLUID LEVEL SWITCH

Check continuity between washer fluid level switch terminals 1 and 2.

Terminal	Washer fluid level	Continuity
1 - 2	Low	Yes
	High	No

Is the inspection result normal?

YES >> Inspection End.

NO >> Replace washer fluid level switch. Refer to [WW-64, "Removal and Installation"](#).

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# THE FUEL GAUGE INDICATOR DOES NOT OPERATE

< SYMPTOM DIAGNOSIS >

## SYMPTOM DIAGNOSIS

### THE FUEL GAUGE INDICATOR DOES NOT OPERATE

#### Description

INFOID:000000009654129

Fuel gauge will not indicate from a certain position.

#### Diagnosis Procedure

INFOID:000000009654130

#### 1. CHECK COMBINATION METER INPUT SIGNAL

1. Select METER/M&A on CONSULT.
2. Using DATA MONITOR, compare the monitor value with the fuel gauge reading on the combination meter.  
Refer to [MWI-45, "Component Function Check"](#).

Does monitor value match fuel gauge reading?

YES >> GO TO 2.

NO >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

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

Check the fuel level sensor signal circuit. Refer to [MWI-45, "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> GO TO 3.

NO >> Repair harness or connector.

#### 3. COMPONENT INSPECTION

Perform a component inspection on the fuel level sensor unit. Refer to [MWI-46, "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 4.

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

#### 4. CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).

NO >> Repair or replace malfunctioning parts.



# THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

< SYMPTOM DIAGNOSIS >

## THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

### Description

INFOID:000000009654131

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

### Diagnosis Procedure

INFOID:000000009654132

#### 1. CHECK COMBINATION METER ENGINE OIL PRESSURE WARNING LIGHT

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

Component	Condition	CONSULT
Engine oil pressure warning light	Ignition ON	ON
	Ignition OFF	OFF

#### Is the inspection result normal?

- YES >> Inspection End.  
NO >> Replace combination meter. Refer to [MWI-54. "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:000000009654133

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

### Diagnosis Procedure

INFOID:000000009654134

#### 1. CHECK COMBINATION METER INPUT SIGNAL

1. Start the engine and select METER/M&A on CONSULT.
2. Observe OIL W/L DATA MONITOR and the operation of the engine oil pressure warning lamp on the combination meter.

Component	Condition	CONSULT
Engine oil pressure warning light	Engine running	OFF

#### Is the inspection result normal?

- YES >> Perform ECM self-diagnosis. Refer to [EC-60, "CONSULT Function"](#).
- NO >> Replace combination meter. Refer to [MWI-54, "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:000000009654135

- 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:000000009654136

#### 1. CHECK BCM INPUT SIGNAL

Check the BCM input signal. Refer to [DLK-95, "Component Function Check"](#) (with Intelligent Key) or [DLK-225, "Component Function Check"](#) (without Intelligent Key).

Is the inspection result normal?

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

#### 2. CHECK COMBINATION METER INPUT SIGNAL

Select the METER/M&A Data Monitor and check the DOOR W/L monitor value while opening and closing doors.

Monitor item	Condition	Status
DOOR W/L	Door open	ON
	Door closed	OFF

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).
- NO >> Replace BCM. Refer to [BCS-70, "Removal and Installation"](#) (with Intelligent Key) or [BCS-127, "Removal and Installation"](#) (without Intelligent Key).

#### 3. CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to [DLK-95, "Diagnosis Procedure"](#) (with Intelligent Key) or [DLK-225, "Diagnosis Procedure"](#) (without Intelligent Key).

Is the inspection result normal?

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

#### 4. CHECK DOOR SWITCH

Check the door switch. Refer to [DLK-96, "Component Inspection"](#) (with Intelligent Key) or [DLK-227, "Component Inspection"](#) (without Intelligent Key).

Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-54, "Removal and Installation"](#).
- NO >> Replace applicable door switch. Refer to [DLK-175, "Removal and Installation"](#) (with Intelligent Key) or [DLK-301, "Removal and Installation"](#) (without Intelligent Key).

# 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:000000009654137

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

### Diagnosis Procedure

INFOID:000000009654138

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

1. Start engine.
2. Check the operation of the brake warning lamp while 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-54. "Removal and Installation"](#).  
NO >> GO TO 2.

#### 2. CHECK PARKING BRAKE SWITCH

Check the parking brake switch. Refer to [WCS-39. "Component Inspection"](#).

#### Is the inspection result normal?

- YES >> GO TO 3.  
NO >> Replace parking brake switch. Refer to [PB-9. "Removal and Installation"](#).

#### 3. CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Check the parking brake switch signal circuit. Refer to [WCS-38. "Diagnosis Procedure"](#).

#### Is the inspection result normal?

- YES >> Replace combination meter. Refer to [MWI-54. "Removal and Installation"](#).  
NO >> Repair or replace harness or connector.

# 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:000000009682044

- 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:000000009682045

#### 1.CHECK WASHER FLUID LEVEL SWITCH

Check the washer fluid level switch. Refer to [MWI-47. "Component Inspection"](#).

Is the inspection result normal?

YES >> GO TO 2.

NO >> Replace washer fluid level switch. Refer to [WW-64. "Removal and Installation"](#).

#### 2.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to [MWI-47. "Diagnosis Procedure"](#).

Is the inspection result normal?

YES >> Replace combination meter. Refer to [MWI-54. "Removal and Installation"](#).

NO >> Repair or replace harness or connector.

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# COMBINATION METER

< UNIT REMOVAL AND INSTALLATION >

## UNIT REMOVAL AND INSTALLATION

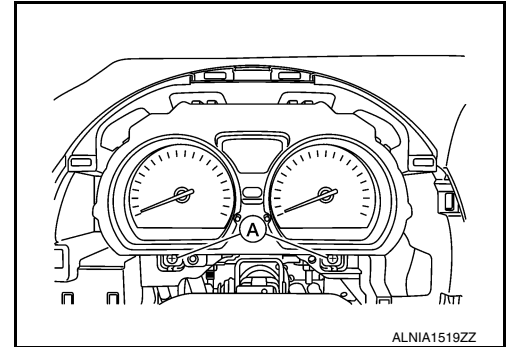
### COMBINATION METER

#### Removal and Installation

INFOID:000000009477606

#### REMOVAL

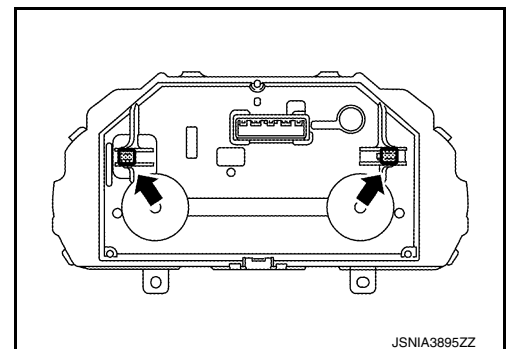
1. Disconnect negative battery terminal. Refer to [PG-67. "Removal and Installation \(Battery\)"](#).
2. Remove cluster lid A. Refer to [IP-21. "Removal and Installation"](#).
3. Remove combination meter screws (A).



4. Pull the combination meter straight out to release clips.

**NOTE:**

Back side of the combination meter shown for clip position (←) clarity.



5. Disconnect the harness connector from the combination meter.

#### INSTALLATION

Installation is in the reverse order of removal.

# COMBINATION METER

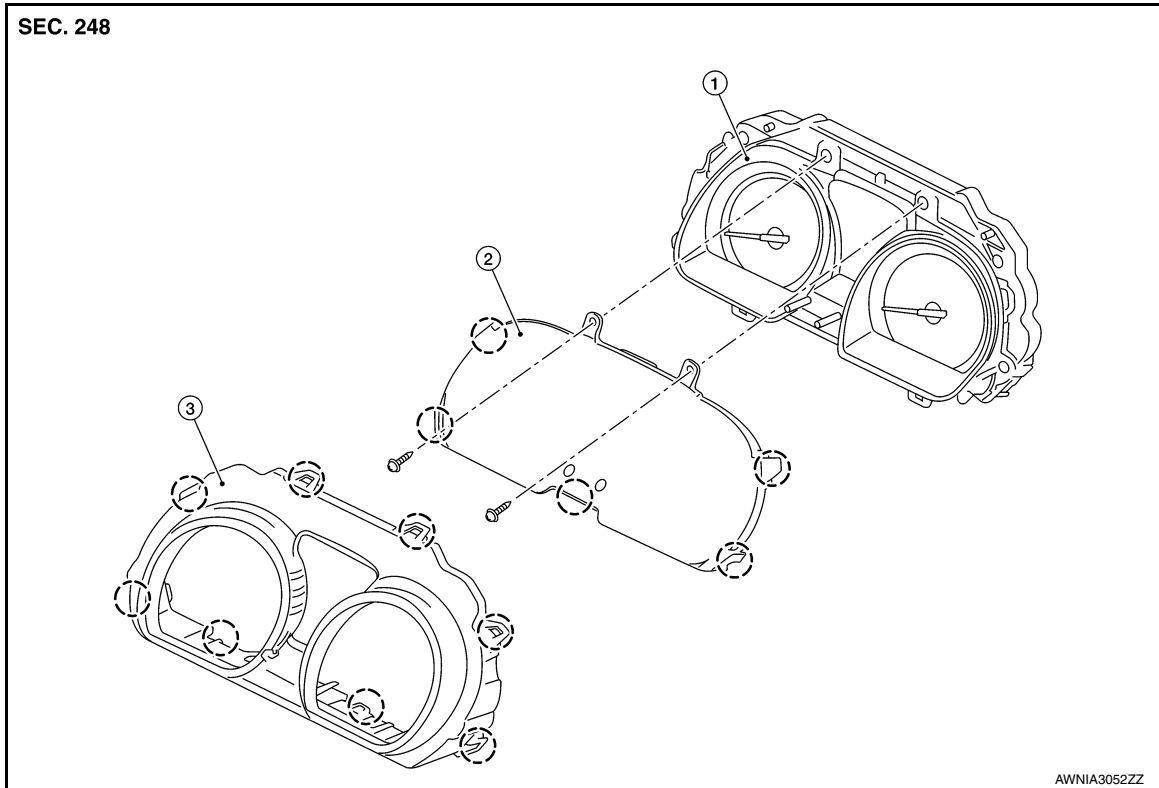
< UNIT DISASSEMBLY AND ASSEMBLY >

## UNIT DISASSEMBLY AND ASSEMBLY

### COMBINATION METER

Exploded View

INFOID:000000009477924



1. Combination meter      2. Combination meter lens      3. Combination meter finisher
- Pawl

### Disassembly and Assembly

INFOID:000000009479172

#### CAUTION:

- Do not touch the display, pointer, the inside of combination meter and the printed area of the dial during the work.
- Keep away from magnetic sources.
- Do not damage the combination meter finisher.

#### DISASSEMBLY

1. Remove the combination meter. Refer to [MWI-54, "Removal and Installation"](#).
2. Release the pawls and remove combination meter finisher.
3. Remove screws, then release pawls and remove combination meter lens.

#### ASSEMBLY

Assembly is in the reverse order of disassembly.

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