SECTION MWI
METER, WARNING LAMP & INDICATOR

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000009011893

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 “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

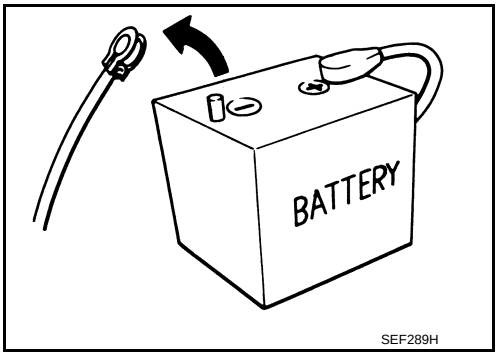
Always observe the following items for preventing accidental activation.

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

Precautions for Removing of Battery Terminal

INFOID:0000000009898190

- When removing the 12V battery terminal, turn OFF the ignition switch and wait at least 30 seconds.
  NOTE:
  ECU may be active for several tens of seconds after the ignition switch is turned OFF. If the battery terminal is removed before ECU stops, then a DTC detection error or ECU data corruption may occur.
- For vehicles with the 2-batteries, be sure to connect the main battery and the sub battery before turning ON the ignition switch.
  NOTE:
  If the ignition switch is turned ON with any one of the terminals of main battery and sub battery disconnected, then DTC may be detected.



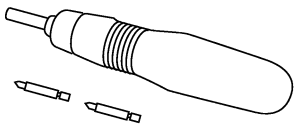
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000009011894

Tool name	Description
Power tool  PBIC0191E	Loosening screws

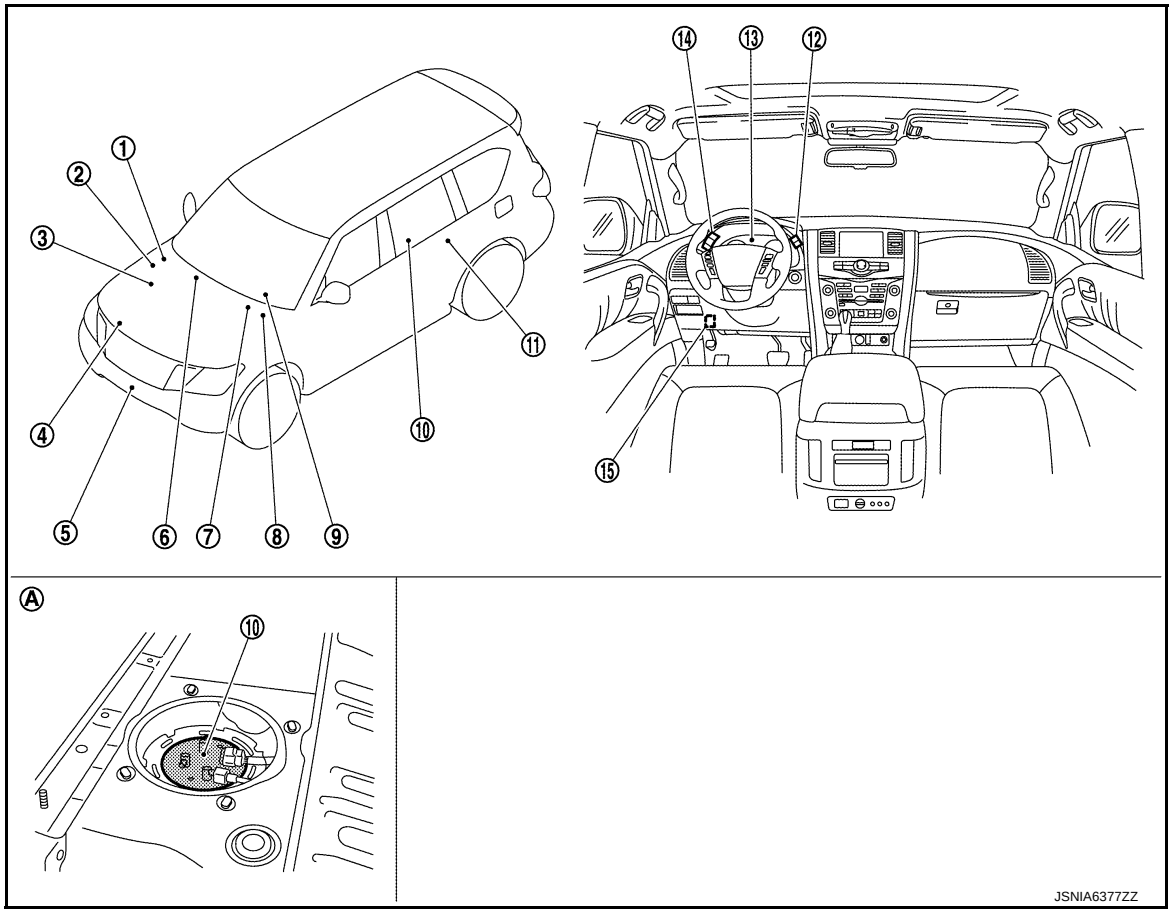
SYSTEM DESCRIPTION

COMPONENT PARTS

METER SYSTEM

METER SYSTEM : Component Parts Location

INFOID:0000000009011895



1.	IPDM E/R Refer to PCS-4, "Component Parts Location".	2.	ECM Refer to EC-23, "Component Parts Location" (VK56VD FOR USA AND CANADA). Refer to EC-593, "Component Parts Location" (VK56VD FOR MEXICO).	3.	Washer level switch
4.	Oil pressure switch Refer to EM-59, "Exploded View".	5.	Ambient sensor	6.	A/C auto amp. Refer to HAC-6, "FRONT AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location".
7.	TCM Refer to TM-11, "A/T CONTROL SYSTEM : Component Parts Location".	8.	ABS actuator and electric unit (control unit) Refer to BRC-9, "Component Parts Location".	9.	BCM Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location".
10.	Fuel level sensor unit	11.	ADAS control unit Refer to DAS-17, "Component Parts Location".	12.	Trip computer switch
13.	Combination meter	14.	Trip reset and illumination control switch	15.	Parking brake switch
A.	Under of left side second seat				

METER SYSTEM : Component Description

INFOID:0000000009011896

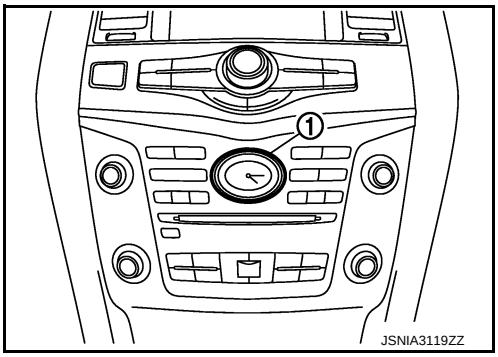
Unit	Description
Combination meter	Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors. • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge • Engine oil pressure gauge • Voltmeter • Warning lamps • Indicator lamps • Meter illumination control • Meter effect function • Information display
Trip computer switch	Transmits the following signals to the combination meter. • Enter switch signal • Select switch signal
Trip reset and illumination control switch	Transmits the following signals to the combination meter. • Trip reset switch signal • Illumination control switch signal (+) • Illumination control switch signal (–)
ECM	Transmits the following signals to the combination meter via CAN communication. • Engine speed signal • Engine coolant temperature signal • Engine status signal • Fuel consumption monitor signal • Fuel filler cap warning display signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication.
IPDM E/R	Transmits the oil pressure switch signal to the BCM via CAN communication.
BCM	Transmits the following signals to the combination meter via CAN communication. • Oil pressure switch signal • Position light request signal • Dimmer signal • Door switch signal • Meter ring illumination request signal • Starter relay status signal • Meter display signal • Low tire pressure warning lamp signal
ADAS control unit	Transmits the meter display signal to the combination meter via CAN communication.
TCM	Transmits the shift position signal to the combination meter via CAN communication.
A/T shift selector	Transmits the following signals to the combination meter. • Manual mode signal • Non-manual mode signal • Manual mode shift up signal • Manual mode shift down signal
Fuel level sensor unit	Transmits the fuel level sensor signal to the combination meter.
Oil pressure switch	Transmits the oil pressure switch signal to the IPDM E/R.
Ambient sensor	Transmits the ambient sensor signal to the combination meter.
A/C auto amp.	Transmits the A/C auto amp. connection recognition signal to the combination meter.
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:0000000009011897

1 : Clock



SYSTEM
METER SYSTEM

METER SYSTEM : System Diagram

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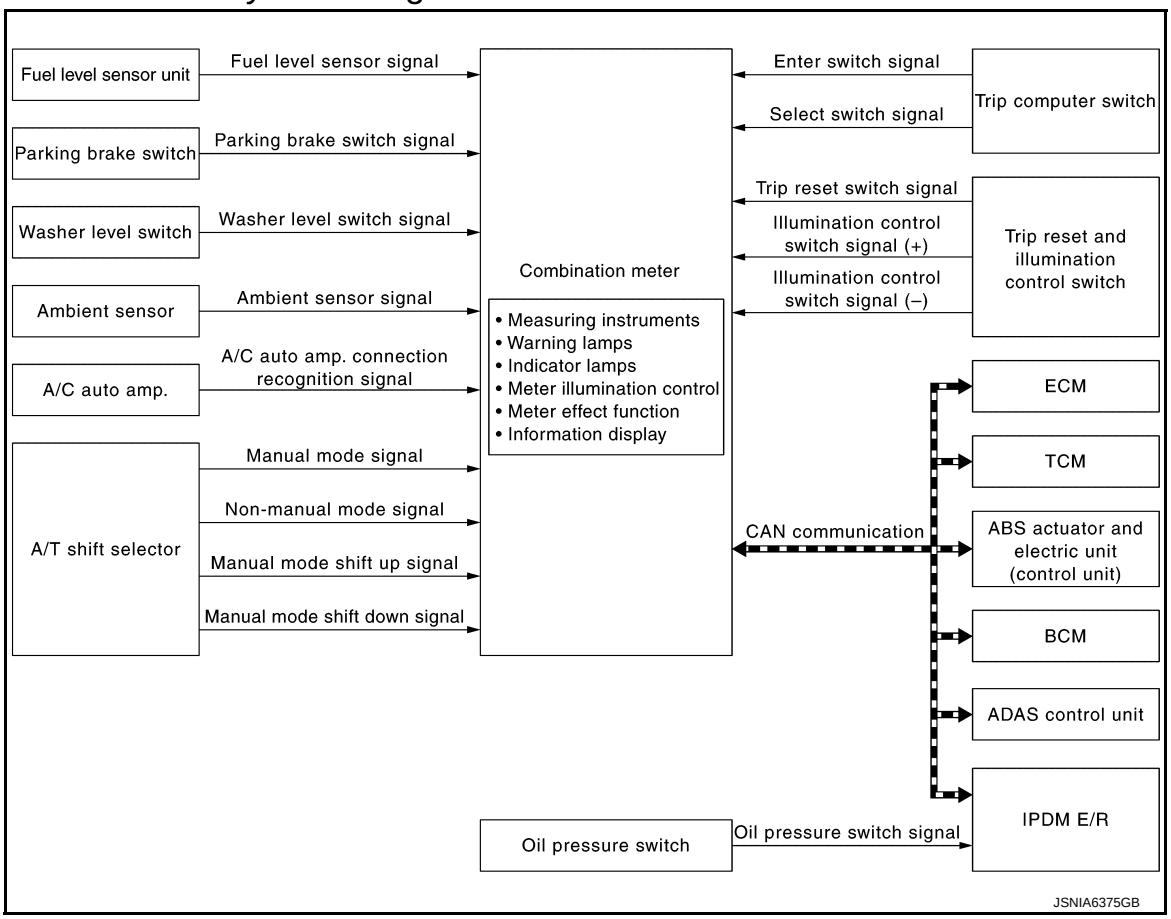


METER SYSTEM : System Description

INFOID:0000000009011899

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.

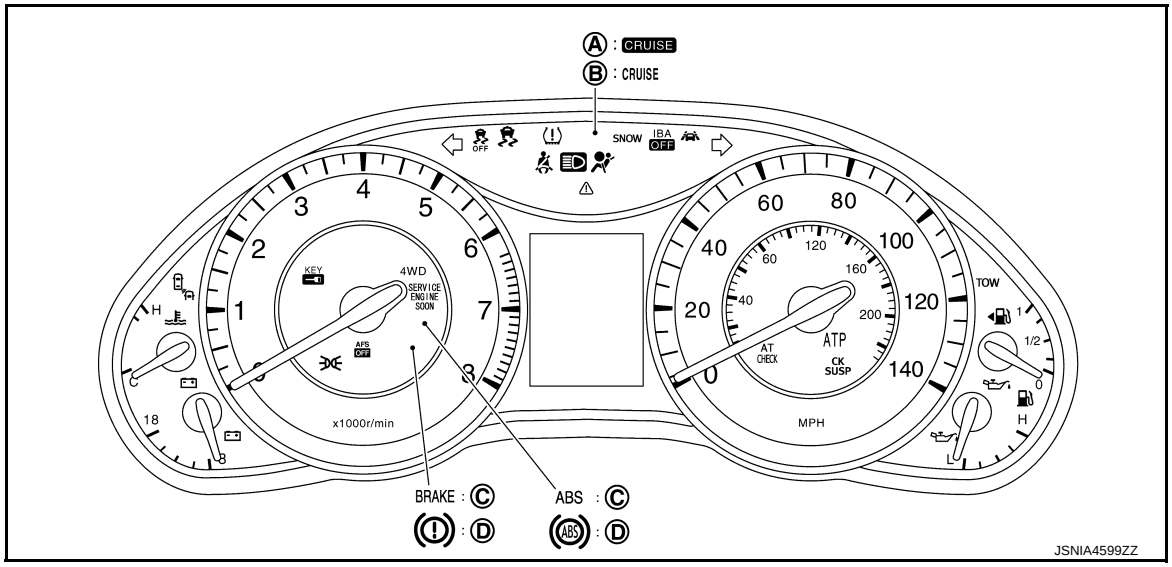
METER CONTROL FUNCTION LIST

System		Description	Reference
Measuring instruments	Speedometer	Indicates vehicle speed.	MWI-14, "SPEEDOMETER : System Description"
	Tachometer	Indicates engine speed.	MWI-14, "TACHOMETER : System Description"
	Engine coolant temperature gauge	Indicates engine coolant temperature.	MWI-14, "ENGINE COOLANT TEMPERATURE GAUGE : System Description"
	Fuel gauge	Indicates fuel level.	MWI-15, "FUEL GAUGE : System Description"
	Engine oil pressure gauge	Indicates engine oil pressure.	MWI-15, "ENGINE OIL PRESSURE GAUGE : System Description"
	Voltmeter	Indicates voltage of ignition signal.	MWI-15, "VOLTMETER : System Description"
Warning lamp/ indicator lamp	Oil pressure warning lamp	The warning lamp turns ON or turns OFF, according to engine hydraulic pressure.	MWI-16, "OIL PRESSURE WARNING LAMP : System Description"
	Master warning lamp	Turns ON/OFF in synchronization with a warning indicated on the information display.	MWI-16, "MASTER WARNING LAMP : System Description"
Meter illumination control	Meter illumination on/off control function	The meter illumination turns ON/OFF, according to the status of ignition switch and a cranking condition.	MWI-17, "METER ILLUMINATION CONTROL : System Description"
	Meter illumination control function	Switch mode between daytime mode and night time mode, according to a light switch position or ambient brightness.	
Meter effect function	Engine-start effect function	Controls pointers of combination meter and meter illumination at engine start to produce illumination effects.	MWI-18, "METER EFFECT FUNCTION : System Description"
	Driver welcome function	Controls meter illumination to produce illumination effects when getting in the vehicle.	

System				Description	Reference
Information display	Odo/trip meter			Displays mileage.	MWI-20, "INFORMATION DISPLAY : System Description"
	Shift position indicator			Displays shift position.	
	Trip computer	Current fuel consumption		Displays current fuel consumption.	
		Average fuel consumption		Displays average fuel consumption.	
		Distance to empty		Displays distance to empty.	
		Average vehicle speed		Displays average vehicle speed.	
		Travel time		Displays travel time.	
		Travel distance		Displays mileage.	
		Ambient temperature		Displays ambient temperature.	
	Interrupt indication	Warning	Door open warning	Warns when a door is open.	
			Parking brake release warning	Warns if traveling when the parking brake is under operating condition.	
			Low tire pressure warning	Warns, according to tire inflation pressure.	
			Fuel filler cap warning	Warns, according to the tightening condition of fuel filler cap.	
			Low fuel warning	Warns when being low on fuel.	
			Low washer fluid warning	Displayed/Hidden, depending on washer fluid level.	
		Alert	Travel time	Causes an interrupt when exceeding randomly set time.	
			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.	
			Engine oil	Causes an interrupt when exceeding randomly set distance.	
			Other	Causes an interrupt when exceeding randomly set distance.	
		Meter illumination level		Indicates the brightness of the meter illumination in stages.	

System				Description	Reference
Information display	Setting	Alert	Timer	Allows the user to set a display time for “Travel time”.	MWI-20, "INFORMATION DISPLAY : System Description"
			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 engine-start effect function.	

ARRANGEMENT OF COMBINATION METER



A. With ASCD models B. With ICC models C. For U.S.A.

D. Except for U.S.A.

METER SYSTEM : Fail-Safe

INFOID:0000000009011900

FAIL-SAFE

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

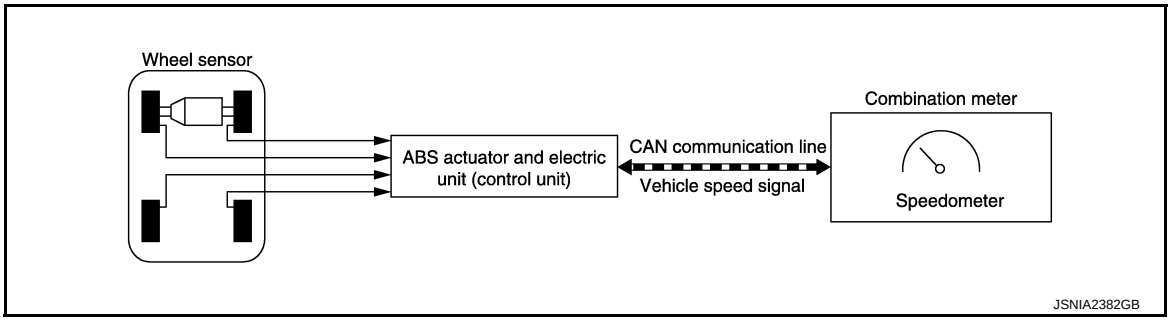
Function	Specifications
Speedometer	Reset to zero by suspending communication.
Tachometer	
Engine coolant temperature gauge	
Engine oil pressure gauge	
Illumination control	When suspending communication, changes to nighttime mode.

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.
	Fuel filler cap warning	
	Low tire pressure warning	
Buzzer		The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	VDC warning lamp	
	Brake warning lamp	
	IBA OFF indicator lamp	
	4WD warning lamp	
	Malfunction indicator lamp	
	VDC OFF indicator lamp	
	CRUISE warning lamp	
	Low tire pressure warning lamp	The lamp blinking caused by suspending communication.
	High beam indicator lamp	The lamp turns OFF by suspending communication.
	Turn signal indicator lamp	
	Position lamp indicator lamp	
	A/T CHECK indicator lamp	
	Key warning lamp	
	ATP warning lamp	
	Lane departure warning lamp	
	LDP ON indicator lamp	
	CRUISE indicator lamp	
	Oil pressure warning lamp	
	SNOW mode indicator lamp	
	TOW mode indicator lamp	
	CK SUSP indicator lamp	
	Blind Spot Intervention ON indicator	
	Blind Spot Warning/Blind Spot Intervention warning lamp	

SPEEDOMETER

SPEEDOMETER : System Diagram

INFOID:0000000009011901



SPEEDOMETER : System Description

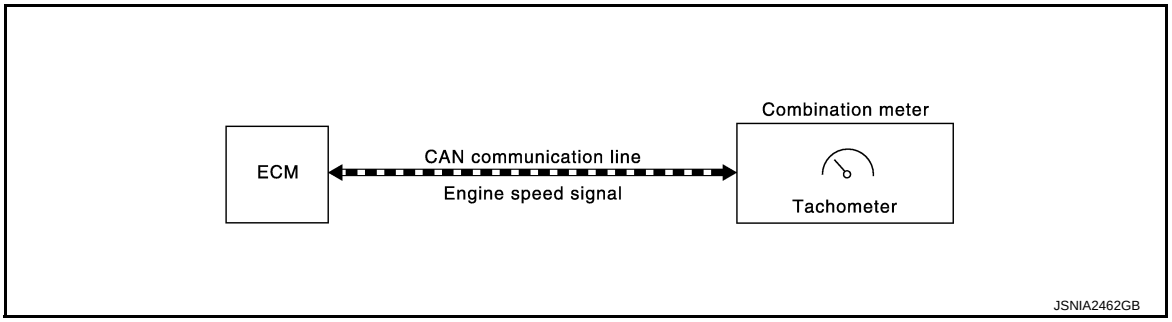
INFOID:0000000009011902

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

TACHOMETER

TACHOMETER : System Diagram

INFOID:0000000009011903



TACHOMETER : System Description

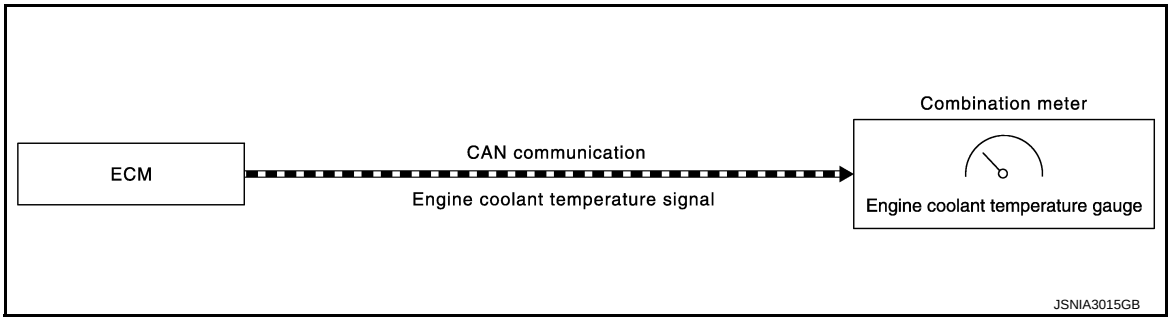
INFOID:0000000009011904

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

ENGINE COOLANT TEMPERATURE GAUGE

ENGINE COOLANT TEMPERATURE GAUGE : System Diagram

INFOID:0000000009011905



ENGINE COOLANT TEMPERATURE GAUGE : System Description

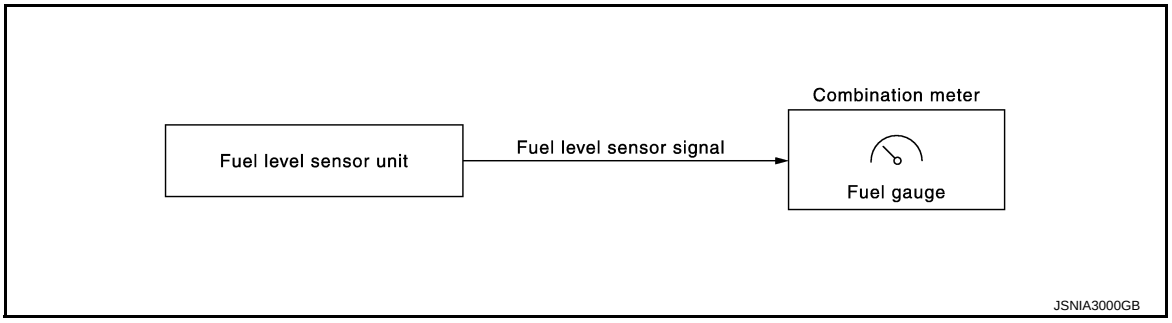
INFOID:0000000009011906

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

FUEL GAUGE

FUEL GAUGE : System Diagram

INFOID:0000000009011907



FUEL GAUGE : System Description

INFOID:0000000009011908

CONTROL OUTLINE

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

REFUEL CONTROL

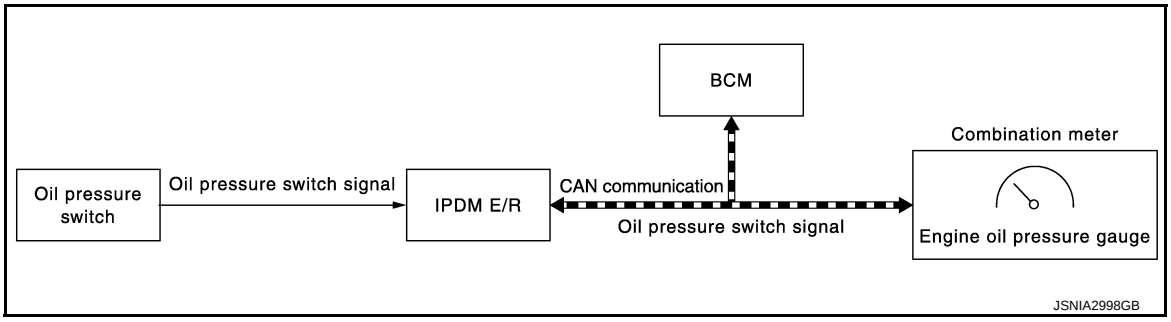
The combination meter accelerates the fuel gauge if the all conditions listed below are met, or the ignition switch is ON from OFF.

- 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.

ENGINE OIL PRESSURE GAUGE

ENGINE OIL PRESSURE GAUGE : System Diagram

INFOID:0000000009011909



ENGINE OIL PRESSURE GAUGE : System Description

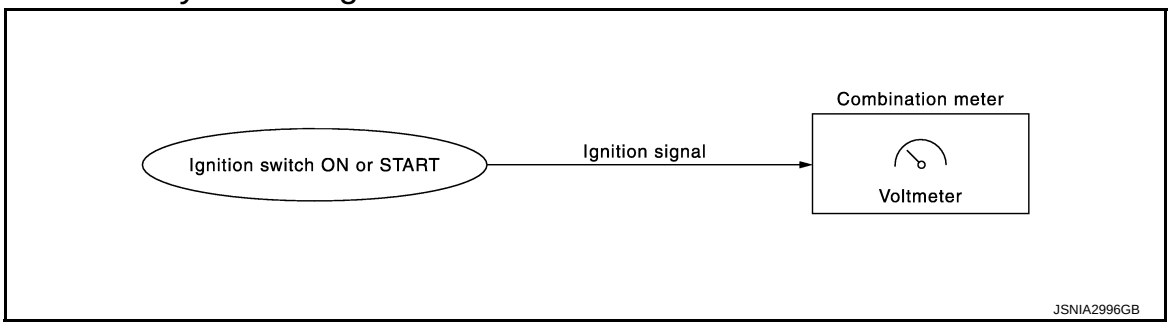
INFOID:0000000009011910

- IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication.
- The combination meter indicates engine oil pressure (Normal/Low) on the engine oil pressure gauge, based on an oil pressure switch signal received via CAN communication.

VOLTMETER

VOLTMETER : System Diagram

INFOID:0000000009011911



VOLTMETER : System Description

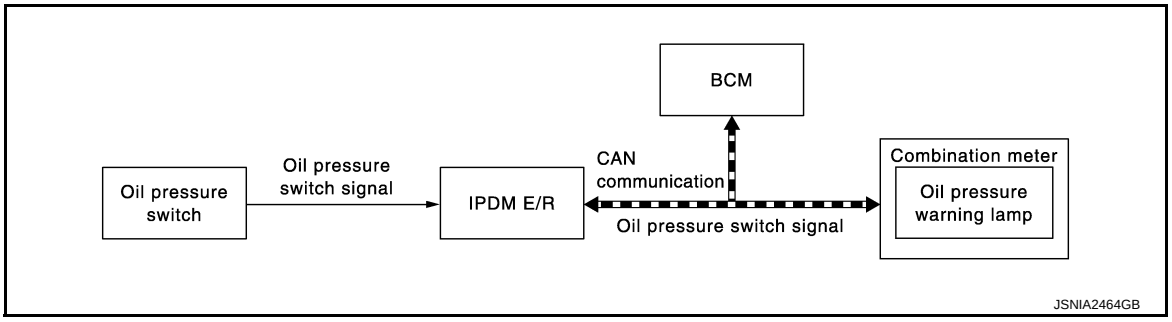
INFOID:0000000009011912

The combination meter reads the voltage of an ignition signal and indicates the voltage on the voltmeter when the ignition switch is in ON or START position.

OIL PRESSURE WARNING LAMP

OIL PRESSURE WARNING LAMP : System Diagram

INFOID:0000000009011913



OIL PRESSURE WARNING LAMP : System Description

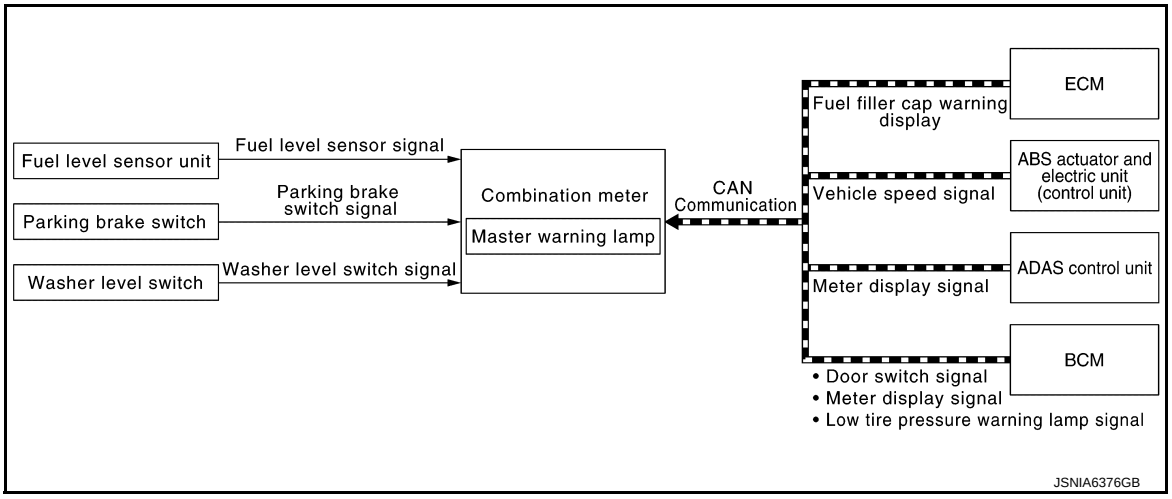
INFOID:0000000009011914

- IPDM E/R reads the ON/OFF signals from the oil pressure switch and transmits the oil pressure switch signal to the combination meter via BCM with the CAN communication.
- The combination meter turns the oil pressure warning lamp ON (at the time of a reduction in hydraulic pressure)/OFF (except at the time of a reduction in hydraulic pressure) according to the oil pressure switch signal received via CAN communication.

MASTER WARNING LAMP

MASTER WARNING LAMP : System Diagram

INFOID:0000000009011915



MASTER WARNING LAMP : System Description

INFOID:0000000009011916

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
- Parking brake release warning
- Low fuel warning
- Low washer fluid warning
- NO KEY warning
- Low tire pressure warning
- Fuel filler cap warning
- BCI not available indicator
- BCI malfunction indicator

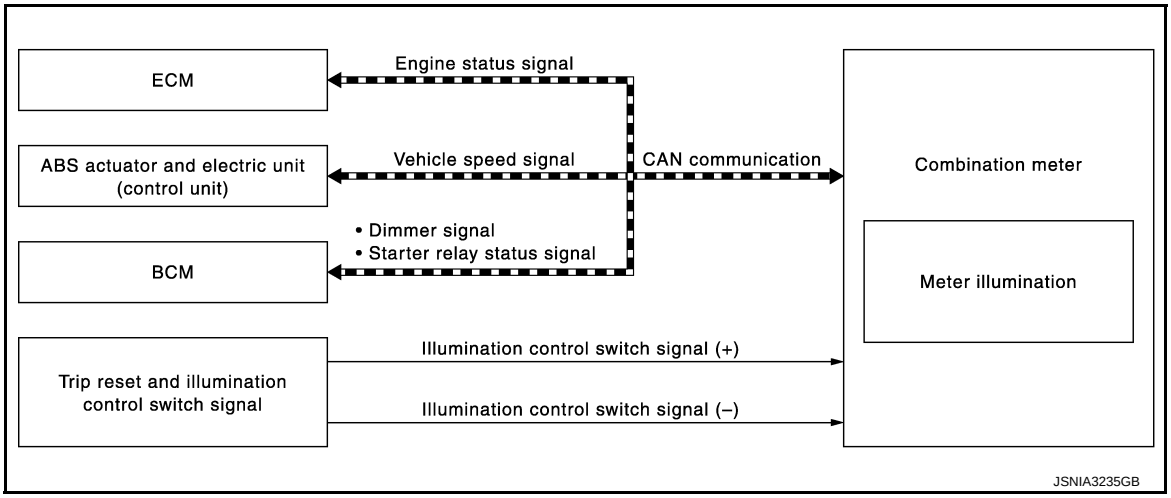
NOTE:

For details on warnings displayed on the vehicle information display, refer to MWI-20, "INFORMATION DISPLAY : System Description".

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Diagram

INFOID:0000000009011917



METER ILLUMINATION CONTROL : System Description

INFOID:0000000009011918

METER ILLUMINATION ON/OFF CONTROL FUNCTION

- Combination meter turns ON meter illumination when the following condition is satisfied:
- Ignition switch ON
- Combination meter turns OFF meter illumination when any of the following condition is satisfied:
- During a crank with vehicle speed less than 1 km/h (0.6 MPH)
- Ignition switch OFF or ACC
- The combination meter receives the following signals to control meter illumination.

Signal name	Signal path
Ignition signal	—
Engine status signal	ECM —CAN→ Combination meter
Vehicle speed signal	ABS actuator and control unit (control unit) —CAN→ Combination meter
Starter relay status signal	BCM —CAN→ Combination meter

METER ILLUMINATION CONTROL FUNCTION

- The 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.

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".

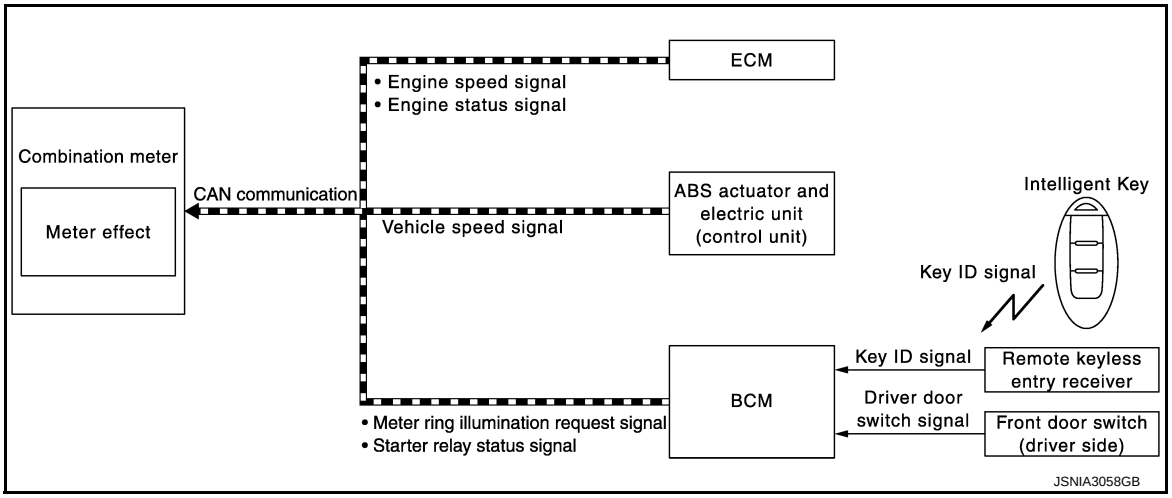
- The operation of the illumination control switch allows the brightness adjustment of meter illumination.

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

METER EFFECT FUNCTION

METER EFFECT FUNCTION : System Diagram

INFOID:0000000009011919



METER EFFECT FUNCTION : System Description

INFOID:0000000009011920

ENGINE-START EFFECT FUNCTION

When recognizing an engine start, the combination meter controls the following items for producing the effect.

- Speedometer
- Tachometer
- Engine coolant temperature gauge
- Fuel gauge
- Engine oil pressure gauge
- Voltmeter
- Meter illumination

Meter and Illumination Operations During Engine-start Effect

The combination meter controls the following items during the engine-start effect.

Control item		Operation
Speedometer		Sweeps the pointer.
Tachometer		Sweeps the pointer.
Engine coolant temperature gauge		Stops the pointer.
Fuel gauge		Stops the pointer.
Engine oil pressure gauge		Stops the pointer.
Voltmeter		Stops the pointer.
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.

NOTE:

The pointers are stopped and illumination is turned off while cranking the engine.

Engine Start Judgement

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

Condition	
Ignition switch	ON position
Vehicle speed	Less than 1 km/h (0.6 MPH)
Engine state	Other than the time of cranking the engine
	500 rpm or more
Information display (SETTING)	The setting of “EFFECT” is “ON.”

NOTE:
Engine-start effect exits when any of the above operational conditions is cancelled during the engine-start effect.

Signal path
The combination meter judges “engine-start,” according to the following signals and activates the engine-start effect function.

Signal name	Signal path
Ignition signal	—
Starter relay status signal	BCM →CAN→ Combination meter
Engine speed signal	ECM →CAN→ Combination meter
Engine status signal	
Vehicle speed signal	ABS actuator and electric unit (control unit) →CAN→ Combination meter

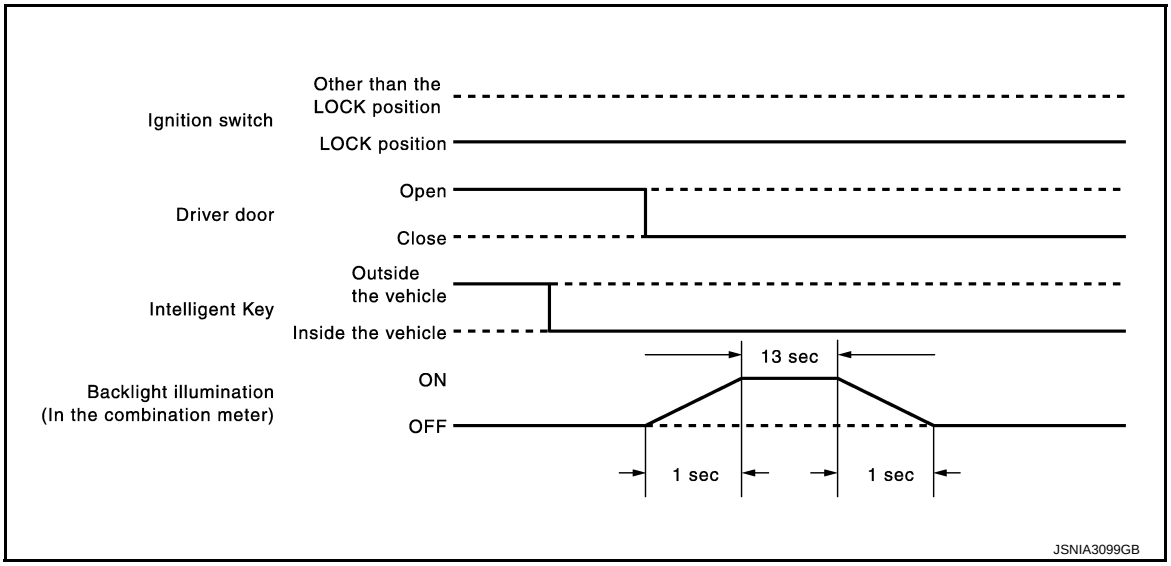
DRIVER WELCOME FUNCTION

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 door	Open→Close*

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

Timing Chart



INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

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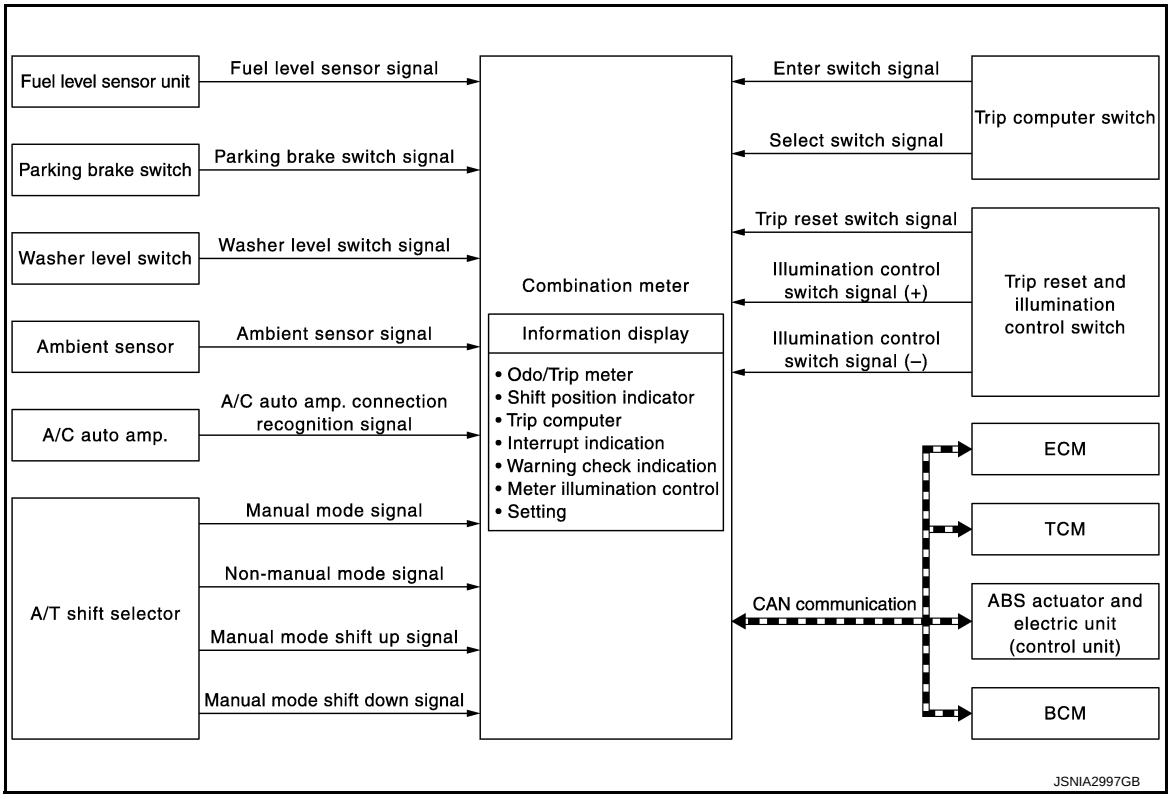


INFORMATION DISPLAY : System Description

INFOID:0000000009011922

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

SHIFT POSITION INDICATOR

MANUAL MODE

- 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 (CAN) → TCM
Non-manual mode signal	
Manual mode shift up signal	
Manual mode shift down signal	

- TCM judges a shift position, manual mode, 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 (CAN) → Combination meter
Manual mode shift refusal signal	

- 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 lamp 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

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
Fuel consumption monitor signal	ECM (CAN) → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) (CAN) → Combination meter

NOTE:
- Current fuel consumption on the information display is updated approximately every 0.5 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.

Signal name	Signal path
Fuel consumption monitor signal	ECM (CAN) → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) (CAN) → 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).

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
Fuel level sensor signal	Fuel level sensor unit → Combination meter
Fuel consumption monitor signal	ECM → (CAN) → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) → (CAN) → 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.

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) → (CAN) → 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) → (CAN) → Combination meter

Ambient Temperature

- The combination meter corrects an indicated temperature, based on various signals.
- The combination meter calculates ambient air 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 → Combination meter
A/C auto amp. connection recognition signal	A/C auto amp. → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) → (CAN) → Combination meter

Correction Process (Temperature indicated soon after the ignition switch ON)

- A temperature indicated soon after the ignition switch is turned ON depends on the time from the ignition switch OFF to ON and a temperature detected by the ambient sensor.

When any condition described below is met, an ambient sensor-detected temperature is indicated.
- Time from the ignition switch OFF to ON ≥ Predetermined time
- Sensor-detected temperature < Temperature at the last ignition switch OFF

Correction Process (Temperature at the Ignition switch ON)
- A temperature indicated when the ignition switch is ON depends on a vehicle speed, an ambient sensor-detected temperature, and traveling time.

The temperature on the information display is corrected to an ambient sensor-detected temperature when the following condition is met.
- Ambient sensor-detected temperature < Temperature on the information display

A temperature on the information display is not updated when the following condition is met.
- Ambient sensor-detected temperature ≥ Temperature on the information display
- Vehicle speed ≤ 20 km/h (12 MPH)

A temperature on the information display slowly rises to an ambient sensor-detected temperature when the following condition is met.
- Ambient sensor-detected temperature ≥ Temperature on the information display
- Vehicle speed ≥ 20 km/h (12 MPH)

A temperature on the information display rapidly rises to an ambient sensor-detected temperature when the following condition is met.
- Ambient sensor-detected temperature ≥ Temperature on the information display
- Vehicle speed ≥ 20 km/h (12 MPH)
- When driving more than set time

A/C auto amp. connection recognition
- The combination meter judges the A/C auto amp. connection/disconnection, based on an A/C auto amp. connection recognition signal to judge the presence/absence of the ambient sensor power output.

NOTE:
- After an ignition switch is turned ON, "——" is displayed until after a 2.5 seconds.
- 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.
- After removal and installation of the battery and combination meter, an ambient sensor-detected temperature is indicated 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

- 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 (CAN) → 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) → (CAN) → 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 15.0 ℓ (4 US gal, 3-1/4 Imp gal) or less (including fuel remained)

*: With the vehicle in a horizontal position

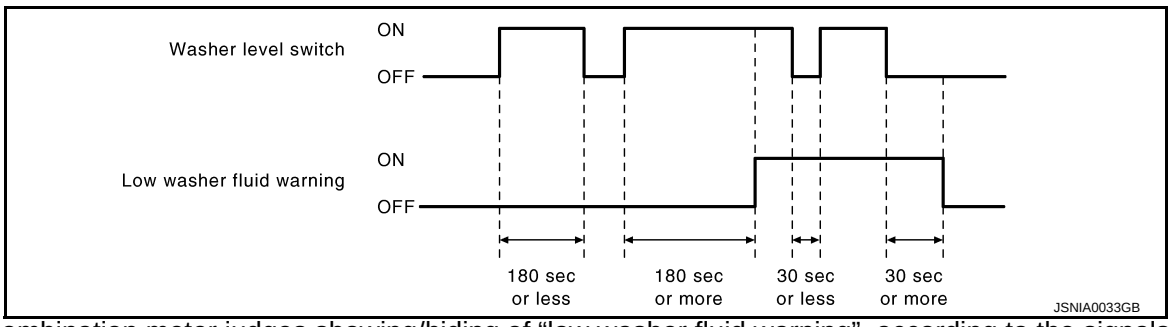
- The combination meter judges showing/hiding of “low fuel warning”, according to the signals below:

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 —CAN→ Combination meter

- For further information, refer to EC-54, "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 —CAN→ Combination meter

- For further information, refer to WT-9, "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 signals 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 → 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:

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

Signal name	Signal path
Ignition signal	—
Illumination control switch signal (+)	Trip reset and illumination 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	Tire	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)
	Filter	No setting, 500 km - 30,000 km (No setting, 250 mile - 18,500 mile)
	Oil	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

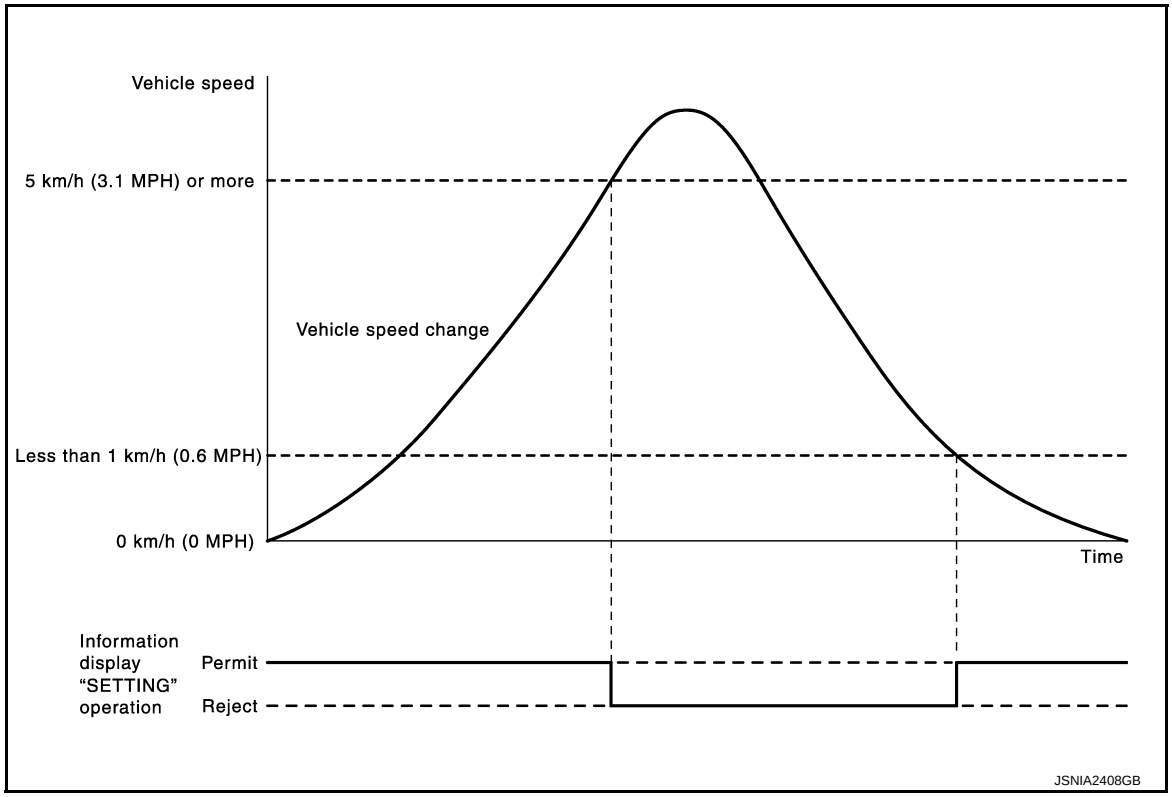
Setting values for unit and effect items can be adjusted to meet the user's needs.

Setting item		
Options	Language	English
		Francais
		Espanol
	Unit	Miles, MPG, °F
		km, l/100 km, °C
	Effects	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.

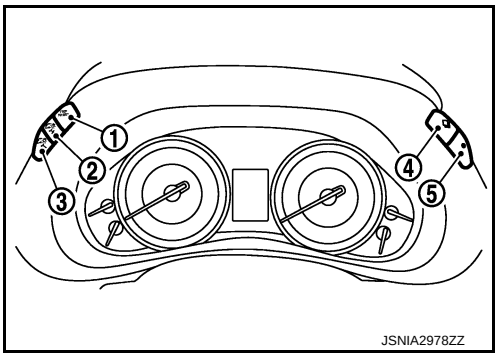
Signal name	Signal path
Ignition signal	—
Vehicle speed signal	ABS actuator and electric unit (control unit) CAN Combination meter



OPERATION

Switch Name and Function

INFOID:0000000009011923



Switch name		Operation	Description
Trip reset and illumination control switch	Trip reset switch (1)	Press	• The trip meter can be switched between A and B. • Trip meter A/B can be reset by pressing and holding the trip reset switch.
	Illumination control switch (+) (2)		An illuminance level of the back light of the combination meter can be adjusted.
	Illumination control switch (–) (3)		
Trip computer switch	Enter switch (4)		• The information display screen can be switched. • The item indicated on the information display can be confirmed. • An indicated value of the trip computer can be reset by pressing and holding the enter switch.
	Select switch (5)		When plural items are shown on the information display, a selected item can be changed to the other item.

DIAGNOSIS SYSTEM (COMBINATION METER)

On Board Diagnosis Function

INFOID:0000000009011924

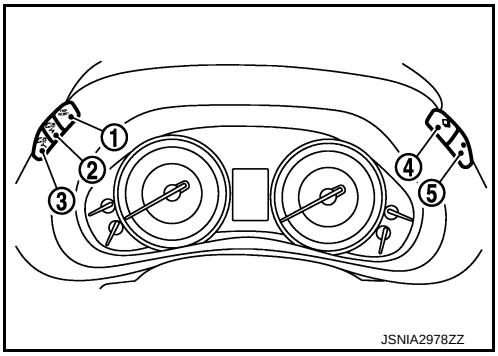
ON BOARD DIAGNOSIS ITEM

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

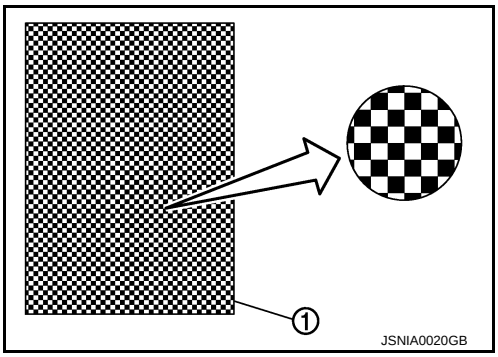
Diagnosis item	
Drive circuit check	• Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge • Engine oil pressure gauge • Voltmeter
LCD (liquid crystal display) check	Information display

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”.)

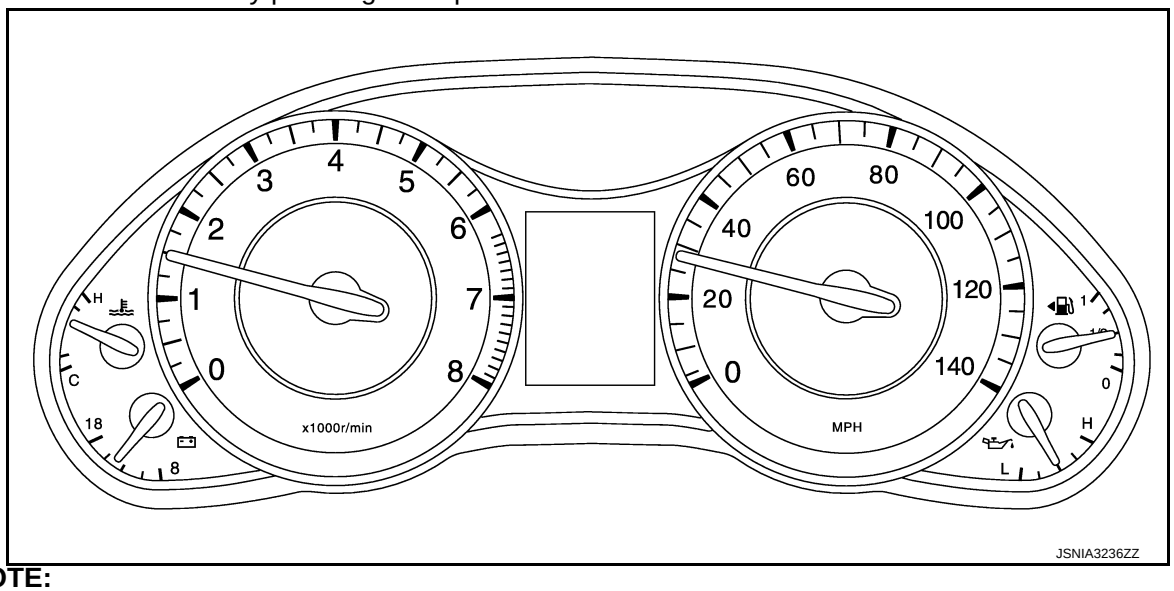


4. Make sure that the trip meter displays “0000.0”.
5. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
6. The combination meter is turned to self-diagnosis mode.
   - Speedometer, tachometer, engine coolant temperature gauge, fuel gauge, engine oil pressure gauge, and voltmeter 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.

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:0000000009011925

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-44, "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. **NOTE:** 655.35 is displayed when the malfunction signal is received.
SPEED OUTPUT [km/h]	X	Vehicle speed signal value transmitted to other units via CAN communication. **NOTE:** 655.35 is displayed when the malfunction signal is received.
ODO OUTPUT [km/h or mph]		Odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Value of the engine speed signal received from ECM via CAN communication. **NOTE:** 8191.875 is displayed when the malfunction signal is received.
FUEL METER [L]	X	Fuel level indicated on combination meter.

Display item [Unit]	MAIN SIGNALS	Description
W TEMP METER [°C]	X	Value of engine coolant temperature signal is received from ECM via CAN communication. **NOTE:** 215 is displayed when the malfunction signal is input.
ABS W/L [On/Off]		Status of ABS warning lamp detected from ABS warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
VDC/TCS IND [On/Off]		Status of VDC OFF indicator lamp detected from VDC OFF indicator lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
SLIP IND [On/Off]		Status of VDC warning lamp detected from VDC warning lamp signal received from ABS actuator and electric unit (control unit) via CAN communication.
BRAKE W/L [On/Off]		Status of brake warning lamp detected from brake warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication. **NOTE:** Displays “Off” if the brake warning lamp is illuminated when the valve check starts, the parking brake switch is turned ON or the brake fluid level switch is turned ON.
DOOR W/L [On/Off]		Status of door open warning detected from door 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 [Off]		This item is displayed, but cannot be monitored.
RR FOG IND [Off]		This item is displayed, but cannot be monitored.
LIGHT IND [On/Off]		Status of light indicator lamp detected from position light request signal is received from BCM via CAN communication.
OIL W/L [On/Off]		Status of oil pressure warning lamp detected from oil pressure switch signal is received from BCM via CAN communication.
MIL [On/Off]		Status of malfunction indicator lamp detected from malfunctioning indicator lamp signal is received from ECM via CAN communication.
GLOW IND [Off]		This item is displayed, but cannot be monitored.
CRUISE IND [On/Off]		• Status of CRUISE indicator detected from ASCD status signal is received from ECM via CAN communication. (ASCD models) • Status of CRUISE indicator detected from meter display signal is received from ADAS control unit via CAN communication. (ICC models)
SET IND [On/Off]		Status of SET indicator detected from meter display signal is received from ADAS control unit via CAN communication.
CRUISE W/L [On/Off]		Status of CRUISE warning lamp judged from ICC warning lamp signal received from ADAS control unit with CAN communication line.
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.
ATF TEMP W/L [Off]		This item is displayed, but cannot be monitored.
4WD W/L [On/Off]		Status of 4WD warning lamp judged from 4WD warning lamp signal received from 4WD control unit with CAN communication line.
FUEL W/L [On/Off]		Low-fuel warning lamp 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.

Display item [Unit]	MAIN SIGNALS	Description
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.
KEY G/Y W/L [On/Off]		Status of KEY warning lamp (Green/Yellow) detected from KEY warning lamp signal is received from BCM via CAN communication.
KEY KNOB W/L [Off]		This item is displayed, but cannot be monitored.
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.
DDS* W/L [Off]		This item is displayed, but cannot be monitored.
LANE W/L [On/Off]		Status of lane departure warning lamp judged from lane departure warning lamp signal received from 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.
ATP W/L [On/Off]		Status of ATP warning lamp judged from ATP warning lamp signal received from 4WD control unit with CAN communication line.
DCA IND [Off]		This item is displayed, but cannot be monitored.
CHECK SUS IND [On/Off]		Status of CK SUSP indicator lamp judged from CK SUSP indicator lamp signal received from E-SUS 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 [Off, km/h]		Status of set vehicle speed indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC UNIT [On/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 and manual mode indicator signal received from TCM with CAN communication line.
4WD IND [AUTO, LOCK, 2W, 4Lo, HL1, HL2, MALF]		Status of 4WD indicator judged from 4WD indicator signal received from 4WD control unit with CAN communication line.
BSW IND [On/Off]		Status of Blind Spot Intervention ON indicator (green) judged from Blind Spot Intervention ON indicator signal received from ADAS control unit with CAN communication line.
BSW W/L [On/Off]		Status of Blind spot Warning/Blind Spot Intervention warning lamp (yellow) judged from Blind spot Warning/Blind Spot Intervention warning lamp signal received from ADAS control unit with CAN communication line.
FUEL CAP W/L [On/Off]		Status of fuel filler cap warning display detected from fuel filler cap warning display signal received from ECM via CAN communication.
AT S MODE SW [On/Off]		Status of snow mode switch.
M RANGE SW [On/Off]		Status of manual mode switch.

Display item [Unit]	MAIN SIGNALS	Description
NM RANGE SW [On/Off]		Status of non-manual mode switch.
AT SFT UP SW [On/Off]		Status of manual mode shift up switch.
AT SFT DWN SW [On/Off]		Status of manual mode shift down switch.
PKB SW [On/Off]		Status of parking brake switch.
BUCKLE SW [On/Off]		Status of seat belt buckle switch (driver side).
BRAKE OIL SW [On/Off]		Status of brake fluid level switch.
A/C AMP CONN [Off]		This item is displayed, but cannot be monitored.
ENTER SW [On/Off]		Status of ❑ (ENTER) switch.
SELECT SW [On/Off]		Status of ● (SELECT) switch.
DISTANCE [km]		Value of distance to empty calculated by combination meter.
OUTSIDE TEMP [°C or °F]		Ambient temperature value converted from ambient sensor signal received from ambient sensor. **NOTE:** This may not match with the temperature value indicated on the information display. (Because the information display value is a corrected value from the ambient sensor input value.)
FUEL LOW SIG [On/Off]		Status of fuel level low warning signal to output to AV control unit via CAN communication.
TOW MODE IND [On/Off]		Status of TOW mode indicator lamp judged from TOW mode indicator lamp signal received from TCM with CAN communication line.
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.

*: DDS (hill descent control)

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.

Display item	Description
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.
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp.
CRUISE IND	Lighting history of CRUISE indicator lamp.
SET IND	Lighting history of SET indicator lamp.
CRUISE W/L	Lighting history of CRUISE 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.
4WD W/L	Lighting history of 4WD warning lamp.
FUEL W/L	Lighting history of low fuel level warning.
WASHER W/L	Lighting history of low washer fluid warning.
AIR PRES W/L	Lighting history of low tire pressure warning lamp.
KEY G/Y W/L	Lighting history of KEY warning lamp.
LANE W/L	Lighting history of lane departure warning lamp.

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

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000009011926

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) **NOTE:** 655.35 is displayed when the malfunction signal is received
SPEED OUTPUT [km/h]	Ignition switch ON	While driving	Output value of vehicle speed signal (CAN communication signal) **NOTE:** 655.35 is displayed when the malfunction 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) **NOTE:** 8191.875 is displayed when the malfunction 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 temperature signal (CAN communication signal) **NOTE:** 215 is displayed when the malfunction signal is input
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	VDC OFF indicator lamp ON	On
		VDC OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	VDC warning lamp ON	On
		VDC warning lamp OFF	Off
BRAKE W/L	Ignition switch ON	Brake warning lamp ON	On
		Brake warning lamp OFF	Off
DOOR W/L	Ignition switch ON	Door open warning ON	On
		Other than the above	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
FR FOG IND	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off

Monitor Item	Condition		Value/Status
RR FOG IND	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
LIGHT IND	Ignition switch ON	Position lamp indicator lamp ON	On
		Position 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
GLOW IND	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	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
ATF TEMP W/L	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
4WD W/L	Ignition switch ON	4WD warning lamp ON	On
		4WD warning lamp OFF	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	KEY warning lamp (Green/Yellow) ON	On
		KEY warning lamp (Green/Yellow) OFF	Off
KEY KNOB W/L	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
AFS OFF IND	Ignition switch ON	AFS OFF indicator lamp ON	On
		AFS OFF indicator lamp OFF	Off
DDS W/L	Ignition switch ON	**NOTE:** 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

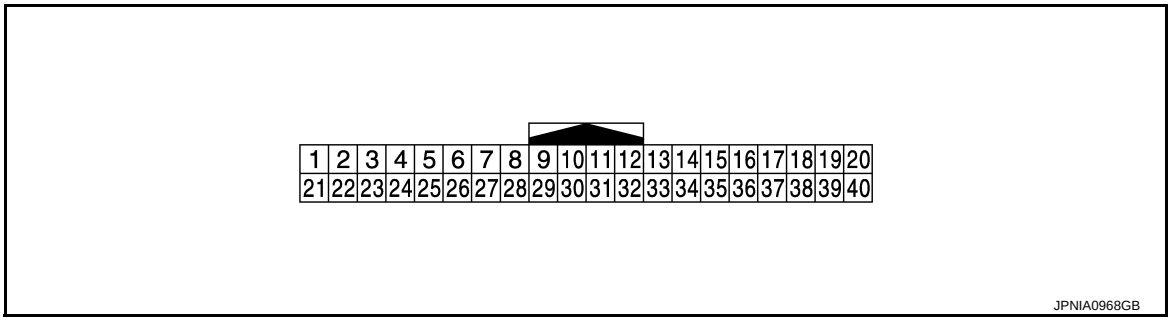
Monitor Item	Condition		Value/Status
ATP W/L	Ignition switch ON	ATP warning lamp ON	On
		ATP warning lamp OFF	Off
DCA IND	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
CHECK SUS IND	Ignition switch ON	CK SUSP indicator lamp ON	On
		CK SUSP indicator lamp OFF	Off
LCD	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

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
4WD IND	Ignition switch ON	4WD shift switch in AUTO position	AUTO
		4WD shift switch in 4H position	LOCK
		4WD shift switch in 4L position	LOCK/4Lo
BSW IND	Ignition switch ON	Blind Spot Intervention ON indicator (green) ON	On
		Blind Spot Intervention ON indicator (green) OFF	Off
BSW W/L	Ignition switch ON	Blind Spot Warning/Blind Spot Intervention warning lamp (yellow) ON	On
		Blind Spot Warning/Blind Spot Intervention warning lamp (yellow) OFF	Off
FUEL CAP W/L	Ignition switch ON	Fuel filler cap warning display ON	On
		Fuel filler cap warning display OFF	Off
AT S MODE SW	Ignition switch ON	Snow mode switch ON	On
		Snow mode switch OFF	Off
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
AT SFT DWN SW	Ignition switch ON	Selector lever in – position	On
		Other than the above	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

Monitor Item	Condition		Value/Status
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On
		Brake fluid level switch OFF	Off
A/C AMP CONN	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
TOW MODE IND	Ignition switch ON	TOW mode indicator lamp ON	On
		TOW mode indicator lamp 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	—	Equivalent to ambient temperature **NOTE:** 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

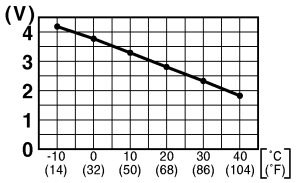
NOTE:
Some items are not available according to vehicle specification.

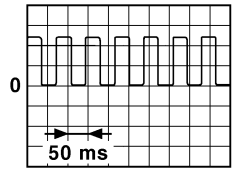
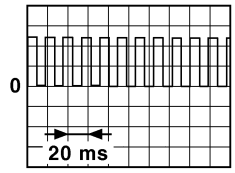
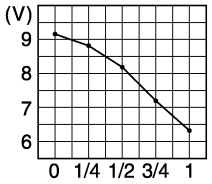
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (Y)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (GR)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
3 (B)	Ground	Ground	—	Ignition switch ON	—	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
7 (R)	Ground	TOW mode signal	Input	Ignition switch ON	When TOW mode switch is pressed	0 V
					Other than the above	12 V
8 (P/L)	Ground	Trip reset switch signal	Input	Ignition switch ON	When trip reset switch is pressed	0 V
					Other than the above	5 V
11 (G)	Ground	Enter switch signal	Input	Ignition switch ON	When ❑ switch (enter switch) is pressed	0 V
					Other than the above	5 V
12 (O)	Ground	Select switch signal	Input	Ignition switch ON	When ● switch (select switch) is pressed	0 V
					Other than the above	5 V
13 (W/R)	Ground	Illumination control switch signal (+)	Input	Ignition switch ON	When + switch [illumination control switch (+)] is pressed	0 V
					Other than the above	5 V
14 (R)	Ground	Illumination control switch signal (–)	Input	Ignition switch ON	When – switch [illumination control switch (–)] is pressed	0 V
					Other than the above	5 V
15 (R/W)	Ground	Air bag signal	Input	Ignition switch ON	Air bag warning lamp ON	4 V
					Air bag warning lamp OFF	0 V
18 (W/R)	Ground	Ambient sensor signal	Input	—	—	 JSNIA0014GB
19 (V/W)	Ground	A/C auto amp. connection recognition signal	Input	—	When A/C auto amp. is connected	5 V
					Other than the above	0 V
20 (B)	Ground	Ambient sensor ground	—	Ignition switch ON	—	0 V
21 (L)	—	CAN-H	—	—	—	—
22 (P)	—	CAN-L	—	—	—	—
23 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
24 (V)	Ground	Fuel level sensor ground	—	Ignition switch ON	—	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
25 (O/L)	Ground	Alternator signal	Input	Ignition switch ON	Charge warning lamp ON	2 V
					Charge warning lamp OFF	Battery voltage
26 (W)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied	0 V
					Parking brake released	12 V
28 (GR/R)	Ground	Security signal	Input	Ignition switch ON	Security indicator lamp ON	0 V
					Security indicator lamp OFF	12 V
29 (BR)	Ground	Washer level switch signal	Input	Ignition switch ON	Washer level switch ON	0 V
					Washer level switch OFF	5 V
30 (SB)	Ground	Vehicle speed signal (2-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0015GB
31 (BR/W)	Ground	Vehicle speed signal (8-pulse)	Output	Ignition switch ON	Speedometer operated [When vehicle speed is approx. 40 km/h (25 MPH)]	**NOTE:** The maximum voltage varies depending on the specification (destination unit).  JSNIA0012GB
33 (W)	Ground	SNOW mode signal	Input	Ignition switch ON	When SNOW mode switch is pressed	12 V
					Other than the above	0 V
34 (BR/Y)	Ground	Fuel level sensor signal	Input	Ignition switch ON	—	 JSNIA3013ZZ
35 (O/B)	Ground	Seat belt buckle switch signal (driver side)	Input	Ignition switch ON	When driver side belts is fastened	12 V
					When driver side belts is unfastened	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
36 (G/Y)	Ground	Passenger seat belt warning signal	Input	Ignition switch ON	• When driver side seat belt fastened • When getting in the passenger seat • When passenger seat belt fastened	12 V
					• When driver side seat belt fastened • When getting in the passenger seat • When passenger seat belt unfastened	0 V
37 (R/Y)	Ground	Non-manual mode signal	Input	Ignition switch ON	Selector manual mode position	12 V
					Other than the above	0 V
38 (L/W)	Ground	Manual mode shift down signal	Input	Ignition switch ON	Selector lever DOWN operation	0 V
					Other than the above	12 V
39 (Y/B)	Ground	Manual mode shift up signal	Input	Ignition switch ON	Selector lever UP operation	0 V
					Other than the above	12 V
40 (G/W)	Ground	Manual mode signal	Input	Ignition switch ON	Selector manual mode position	0 V
					Other than the above	12 V

Fail-Safe

INFOID:0000000009011927

FAIL-SAFE

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

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Engine oil pressure gauge		
Illumination control		When suspending communication, changes to nighttime mode.
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.
	Fuel filler cap warning	
	Low tire pressure warning	
Buzzer		The buzzer turns OFF by suspending communication.

Function		Specifications
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	VDC warning lamp	
	Brake warning lamp	
	IBA OFF indicator lamp	
	4WD warning lamp	
	Malfunction indicator lamp	
	VDC OFF indicator lamp	
	CRUISE warning lamp	
	Low tire pressure warning lamp	The lamp blinking caused by suspending communication.
	High beam indicator lamp	The lamp turns OFF by suspending communication.
	Turn signal indicator lamp	
	Position lamp indicator lamp	
	A/T CHECK indicator lamp	
	Key warning lamp	
	ATP warning lamp	
	Lane departure warning lamp	
	LDP ON indicator lamp	
	CRUISE indicator lamp	
	Oil pressure warning lamp	
	SNOW mode indicator lamp	
	TOW mode indicator lamp	
	CK SUSP indicator lamp	
	Blind Spot Intervention ON indicator	
	Blind Spot Warning/Blind Spot Intervention warning lamp	

DTC Index

INFOID:0000000009011928

Display contents of CONSULT	Diagnostic item is detected when...	Refer to
CAN COMM CIRCUIT [U1000]	When combination meter is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-61, "Diagnosis Procedure"
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-62, "Diagnosis Procedure"
VEHICLE SPEED [B2205]	The abnormal vehicle speed signal is input from the ABS actuator and electric unit (control unit) for 2 seconds or more.	MWI-63, "Diagnosis Procedure"
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-64, "Diagnosis Procedure"
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-65, "Diagnosis Procedure"

IPDM E/R

List of ECU Reference

INFOID:0000000009011929

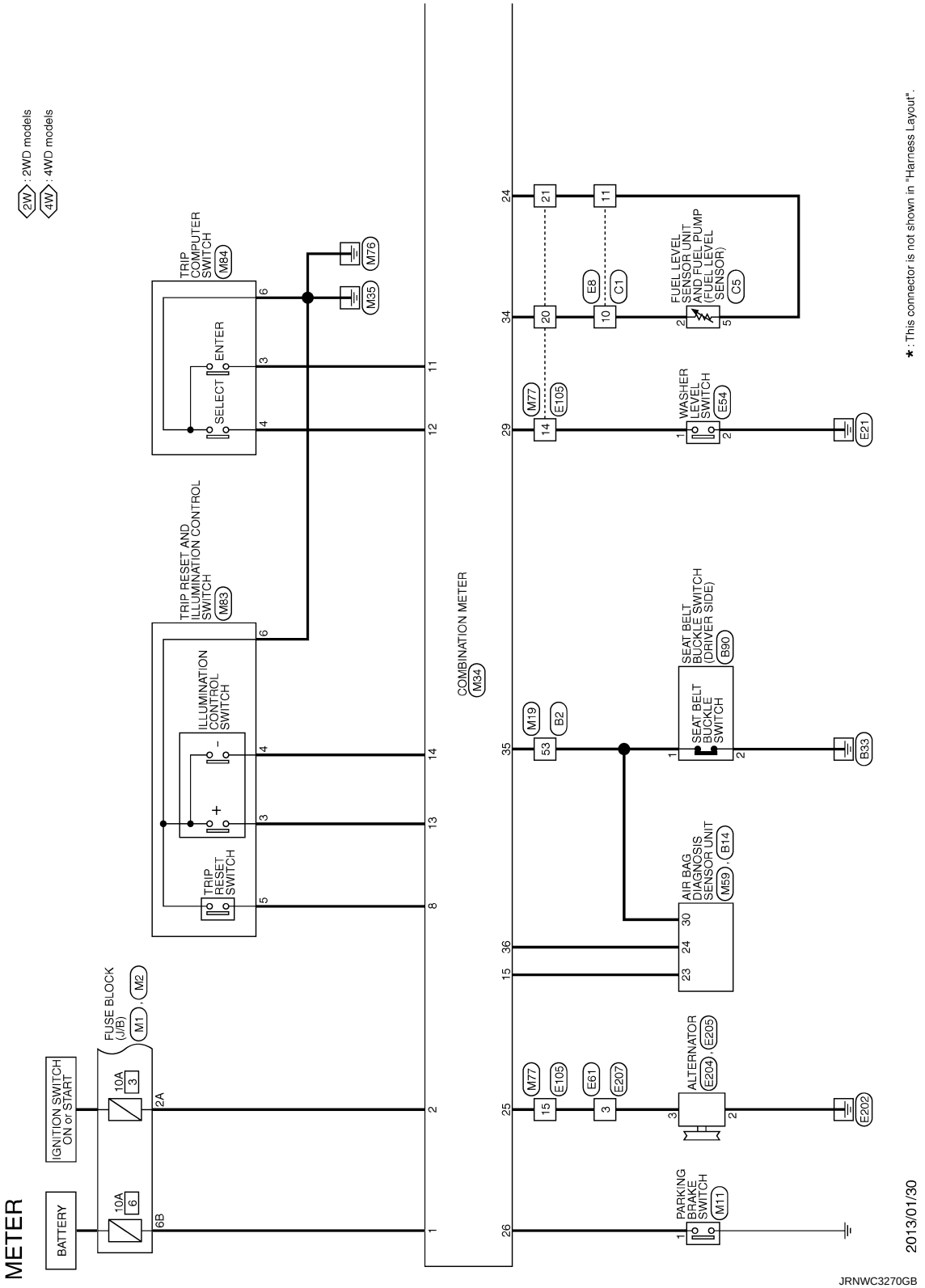
ECU	Reference
IPDM E/R	PCS-15, "Reference Value"
	PCS-20, "Fail-safe"
	PCS-22, "DTC Index"

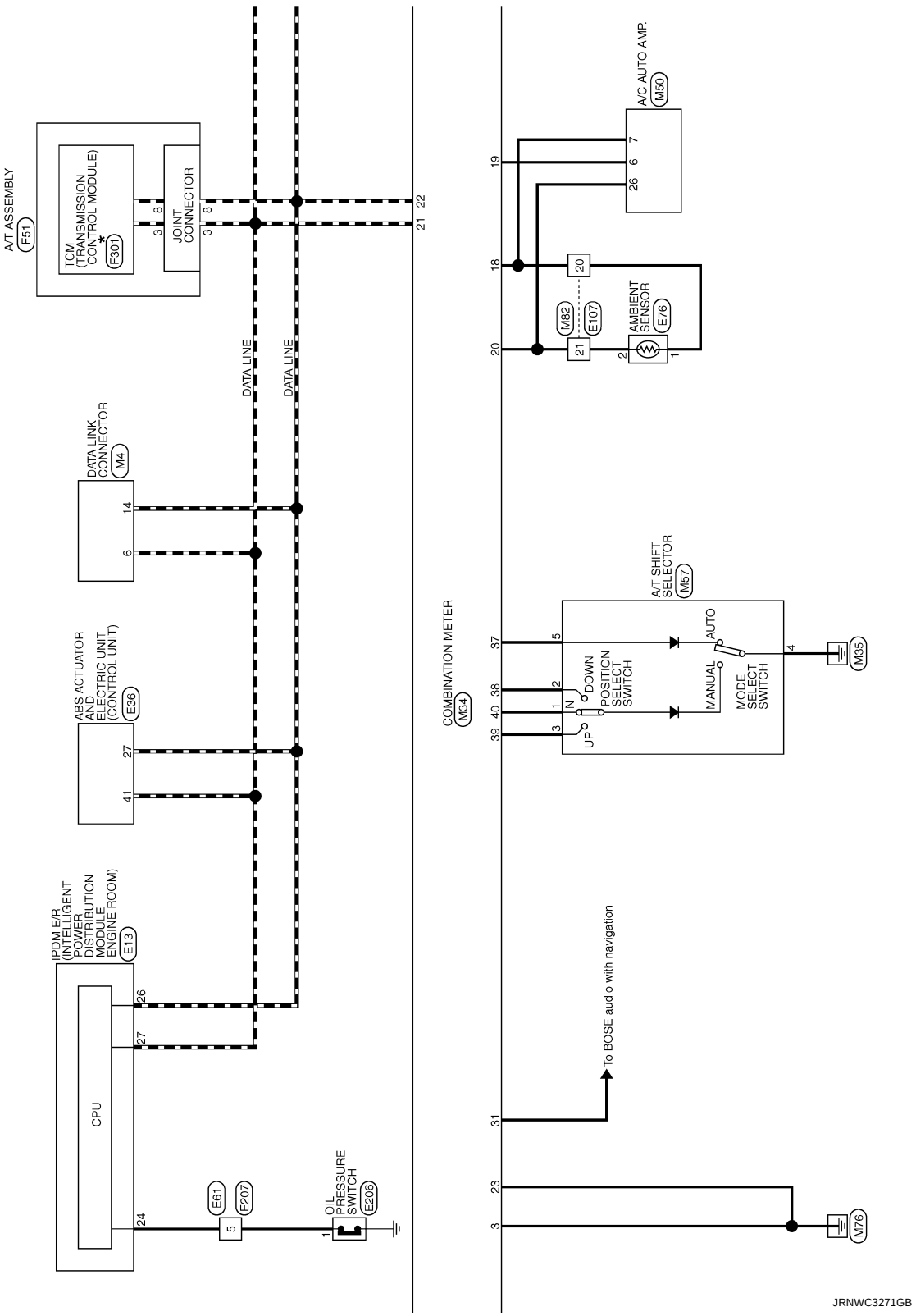
WIRING DIAGRAM

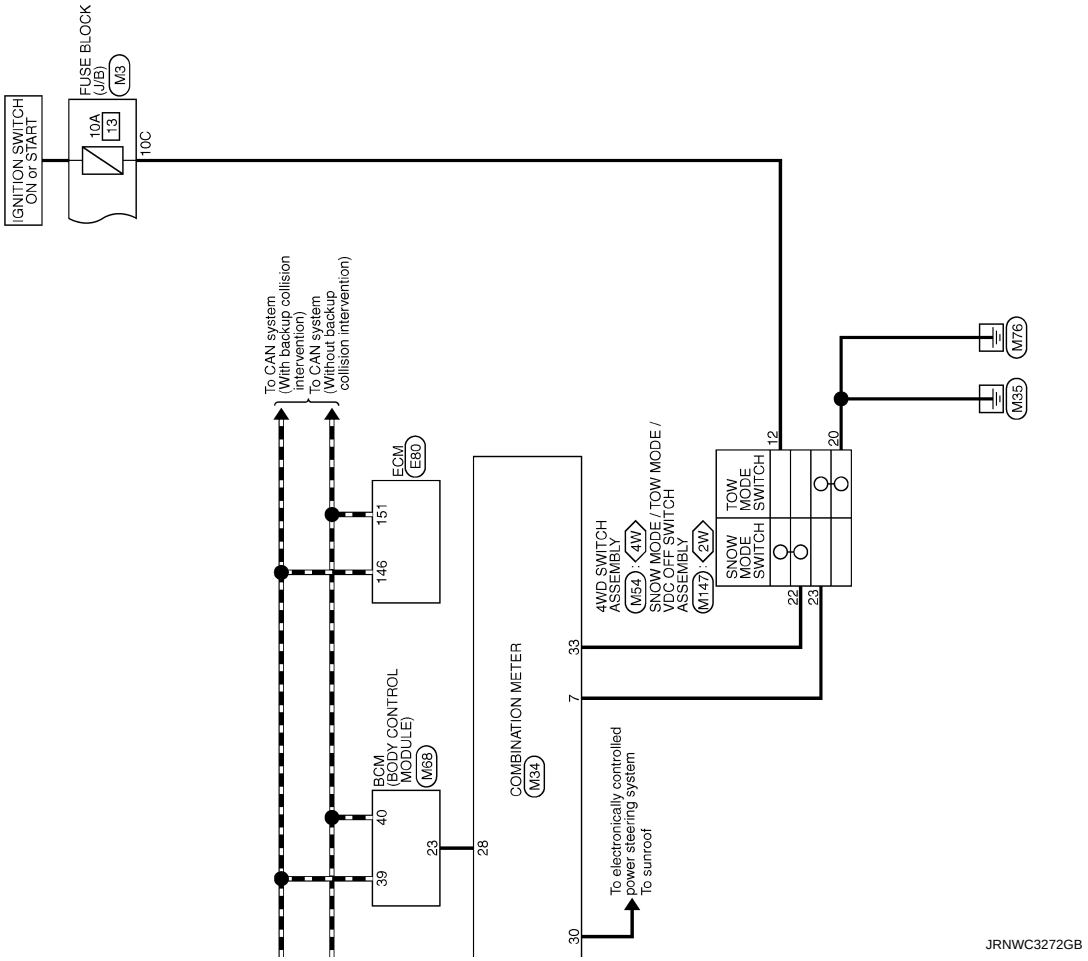
METER SYSTEM

Wiring Diagram

INFOID:0000000009011930



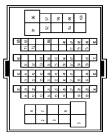

A/T ASSEMBLY
F51
TCM
(TRANSMISSION
CONTROL MODULE)
E301
JOINT
CONNECTOR
DATA LINE
DATA LINE
DATA LINK
CONNECTOR
M4
ABS ACTUATOR
AND
ELECTRIC UNIT
(CONTROL UNIT)
E36
IPDM E/R
(INTELLIGENT
POWER
DISTRIBUTION
MODULE
ENGINE ROOM)
E13
CPU
E61
E207
OIL
PRESSURE
SWITCH
E206
A/C AUTO AMP.
M50
AMBIENT
SENSOR
E76
M82
E107
COMBINATION METER
M34
A/T SHIFT
SELECTOR
M57
POSITION
SELECT
SWITCH
DOWN
N
UP
MODE
SELECT
SWITCH
AUTO
MANUAL
M35
M76
To BOSE audio with navigation
JRNWC3271GB


IGNITION SWITCH ON or START
FUSE BLOCK (J/B) M3
10A 13
10C
To CAN system (With backup collision intervention)
To CAN system (Without backup collision intervention)
ECM E80
151
146
BCM (BODY CONTROL MODULE) M68
40
39
23
28
COMBINATION METER M34
33
7
30
To electronically controlled power steering system
To sunroof
4WD SWITCH ASSEMBLY 4W M54
SNOW MODE / TOW MODE / VDC OFF SWITCH ASSEMBLY 2W M147
SNOW MODE SWITCH
TOW MODE SWITCH
12
22
23
20
M76
M35
JRNWC3272GB

METER

Connector No.	B2
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

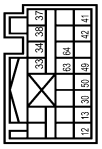
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
2	L	-
3	BR	-
5	R/W	-
6	L	-
7	V	-
9	G	-
11	W/B	-
12	BR	-
13	G/R	-
14	B/Y	-
15	W/R	-
16	GR/R	-
18	G/W	-
19	V	-
20	W/G	-
21	B/W	-
22	V	-
24	G	-
25	O	-
26	Y	-
27	L/O	-
28	Y/R	-
29	L	-
30	R	-
31	G/Y	-
32	B/SB	-
33	LG/R	-
34	BR/W	-
35	GR/R	-
36	SB	-
37	LG	-
38	L	-
39	P	-
40	W/G	-
41	O	-
42	G/R	-
43	V/W	-
44	LG/B	-
45	R/Y	-
46	B	-
47	BR	-
49	GR	-
50	R/B	-
51	W/R	-
52	BR/Y	-
53	O/B	-
54	G/O	-
55	R/B	-
56	LG/R	-
57	GR/R	-
58	Y/G	-
59	V/W	-
60	R	-
63	B	-
64	R	-
65	W	-
66	G	-
67	SHIELD	-
69	LG/B	-
70	P/L	-
71	L	-
72	R	-
77	Y/B	-
78	Y/L	-
79	Y	-
80	W/R	-
81	Y/L	-
84	L/O	-
86	O	-
87	W/R	-
88	O	-
89	W/L	-
90	GR/L	-
91	W	-
92	G	-
94	W/R	-
96	L/W	-
97	R	-
98	V	-
99	L/W	-
100	P/B	-

Connector No.	B14
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH22FY-2V-EX

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
12	Y/L	PLH (+)
13	O	PLH (-)
30	O/B	LH BUCKLE SW INPUT
33	Y	SIDE INF LH+
34	Y/R	SIDE INF LH-
37	Y/G	CLH (+)
38	Y/B	CLH (-)
41	Y	CLH (+)
42	Y/R	CLH (-)
49	P	SIDE SENS LH+
50	L	SIDE SENS LH-
63	W	SATELLITE LH (+)
64	R	SATELLITE LH (-)

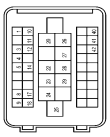
Connector No.	B90
Connector Name	SEAT BELT BUCKLE SWITCH[DRIVER SIDE]
Connector Type	A03FW

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	O/B	-
2	B	-
3	LG/R	-

Connector No.	C1
Connector Name	WIRE TO WIRE
Connector Type	SAA36FB-RS10-SJZ2

H.S.



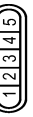
Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
3	SB	-
4	L/Y	-
5	R	-
8	V	-
9	P	-
10	BR/Y	-
11	Y/V	-
12	V/W	-
14	Y/L	-
17	BR	-
18	R/O	-
20	G/W	-
22	L/W	-
23	B	-
24	Y/G	-
25	R	-
26	SB	-
27	R/G	-
28	V	-
29	B	-
40	LG/R	-
41	R/G	-
42	B/R	-

JRNWC5781GB

METER

Connector No.	C5
Connector Name	FUEL LEVEL SENSOR UNIT AND FUEL PUMP
Connector Type	E05FGY-RS

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G/Y	-
2	BR/Y	-
3	G/R	-
4	V/W	-
5	Y/V	-

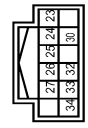
Connector No.	E8
Connector Name	WIRE TO WIRE
Connector Type	SAA36MB-RS10-SJZ2

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	-
3	SB	-
4	L/Y	-
5	R	-
8	V	-
9	P	-
10	BR/Y	-
11	Y/V	-
12	V/W	-
14	Y/L	-
17	BR	-
18	R/O	-
20	G/W	-
22	L/W	-
23	B	-
24	Y/G	-
25	R	-
26	SB	-
27	R/G	-
28	V	-
29	B	-
40	LG/R	-
41	R/G	-
42	B/R	-

Connector No.	E13
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Type	TH12FW-NH

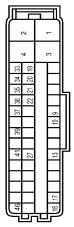
H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
23	GR/R	-
24	W/G	-
25	L/Y	-
26	P	-
27	L	-
30	R/W	-
32	LG	-
33	R	-
34	G	-

Connector No.	E36
Connector Name	ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT)
Connector Type	SAZ42FB-SJZ4

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	G	BAT
2	B	GND
3	B	GND
4	W	MOTOR SUPPLY
9	R/B	YAW RATE / SIDE / DIESEL G SENSOR COMMUNICATION-H
10	P/B	YAW RATE / SIDE / DIESEL G SENSOR COMMUNICATION-L
13	GR	BRAKE FLUID LEVEL SW
17	L/R	STP2
18	W/B	IGN
19	O	DS FR
20	SB	DP FL
21	R/O	DS RR
22	V	DP RL
27	P	CAN-L
33	LG	DP FR
34	G	DS FL
35	BR	DP RR
36	P	DS RL
37	R	STP
39	L/W	VDC OFF SW
41	L	CAN-H
46	W	STOP LAMP SW ON

Connector No.	E54
Connector Name	WASHER LEVEL SWITCH
Connector Type	Z02FBR

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	BR	-
2	B	-

Connector No.	E61
Connector Name	WIRE TO WIRE
Connector Type	RH08MB

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W	-
2	R	-
3	L/B	-
4	L/Y	-
5	W/G	-
7	V	-
8	B/W	-

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METER

Connector No.	E76
Connector Name	AMBIENT SENSOR
Connector Type	RS02FB

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	W/R	AMBIENT SENSOR SIGNAL
2	B	SENSOR GROUND

Connector No.	E80
Connector Name	ECM
Connector Type	MAB55FB-MEB10-LH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
111	R	FUEL INJECTOR DRIVER POWER SUPPLY
112	SB	FUEL INJECTOR DRIVER POWER SUPPLY
113	G	-
114	B	ECM GROUND
115	B	ECM GROUND
120	Y	EVAP CANISTER VENT CONTROL VALVE
122	BR/W	VVEL ACTUATOR MOTOR RELAY ASCIST SIGNAL (VVEL CONTROL MODULE)
123	V/R	THROTTLE CONTROL MOTOR RELAY
125	GR	FUEL PUMP CONTROL MODULE (FPCM)
126	O	ACCELERATOR PEDAL POSITION SENSOR 2
128	Y	ASCD/ICC STEERING SWITCH
129	P/L	SENSOR GROUND
130	R	SENSOR GROUND
131	L/W	SENSOR POWER SUPPLY
133	SB	SENSOR POWER SUPPLY
134	V/W	FUEL TEMPERATURE SENSOR
136	W/R	ACCELERATOR PEDAL POSITION SENSOR 1
137	W/G	SENSOR POWER SUPPLY
138	V	BATTERY CURRENT SENSOR
139	G	BATTERY TEMPERATURE SENSOR
140	R/Y	SENSOR GROUND
141	SB	IGNITION SWITCH
142	R/W	FUEL PUMP CONTROL MODULE (FPCM) CHECK
143	L/Y	EVAP CONTROL SYSTEM PRESSURE SENSOR
144	O/B	REFRIGERANT PRESSURE SENSOR
146	L	CAN COMMUNICATION LINE
147	G/Y	ASCD/ICC BRAKE SWITCH
150	R	SENSOR GROUND
151	P	CAN COMMUNICATION LINE
156	L	POWER SUPPLY FOR ECM (BACK-UP)
158	W/B	STOP LAMP SWITCH
161	R/W	ECM COMMUNICATION LINE
163	L/G	ECM RELAY (SELF SHUT-OFF)
165	GR/R	-
166	W	ECM COMMUNICATION LINE
169	G/B	ENGINE SPEED SIGNAL OUTPUT
171	W	POWER SUPPLY FOR ECM
172	W	POWER SUPPLY FOR ECM
173	O	THROTTLE CONTROL MOTOR POWER SUPPLY
174	B	ECM GROUND
175	B	ECM GROUND

Connector No.	E105
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
2	L/W	-
3	R/B	-
4	L	-
5	Y	-
7	W/G	-
8	P/B	-
9	W/B	-
10	G	-
11	L	-
12	P	-
13	P/B	-
14	BR	-
15	L/B	-
16	SB	-
18	BR	-
19	Y/G	-
20	BR/Y	-
21	Y/V	-
22	L	-
23	Y	-
24	L/W	-
28	O	-
29	R/W	-
30	L/B	-
31	Y	-
32	GR/R	-
34	Y	-
35	R	-
36	B/R	-
37	G/Y	-
38	G	-
40	SB	-
41	W/R	-
42	R	-
43	V	-
51	L/O	-
52	BR/W	-
53	BR/Y	-
54	GR/L	-
60	W	-
61	B	-
62	R	-
63	G	-
64	SHIELD	-
91	BR	-
92	L/W	-
94	Y/B	-
95	G/R	-
97	R	-
98	G/B	-
100	W/R	-

Connector No.	E107
Connector Name	WIRE TO WIRE
Connector Type	TH80MW-CS16-TM4

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	-
4	V/W	-
5	G/R	-
6	P	-
9	GR/L	-
10	Y/R	-
11	L/R	-
12	W/G	-
13	BR/Y	-
14	LG	-
15	BR/W	-
16	B/Y	-
17	W/B	-
18	GR/R	-
20	W/R	-
21	B	-
22	R/L	-
23	G/R	-
24	R/W	-
25	W/L	-
26	R	-
27	L	-
28	G/B	-
35	G	-
36	Y	-
37	R	-
38	G/Y	-
39	O	-
40	W	-
41	R	-
42	B	-
43	G	-
44	SHIELD	-
46	B	-
47	W	-
48	SHIELD	-

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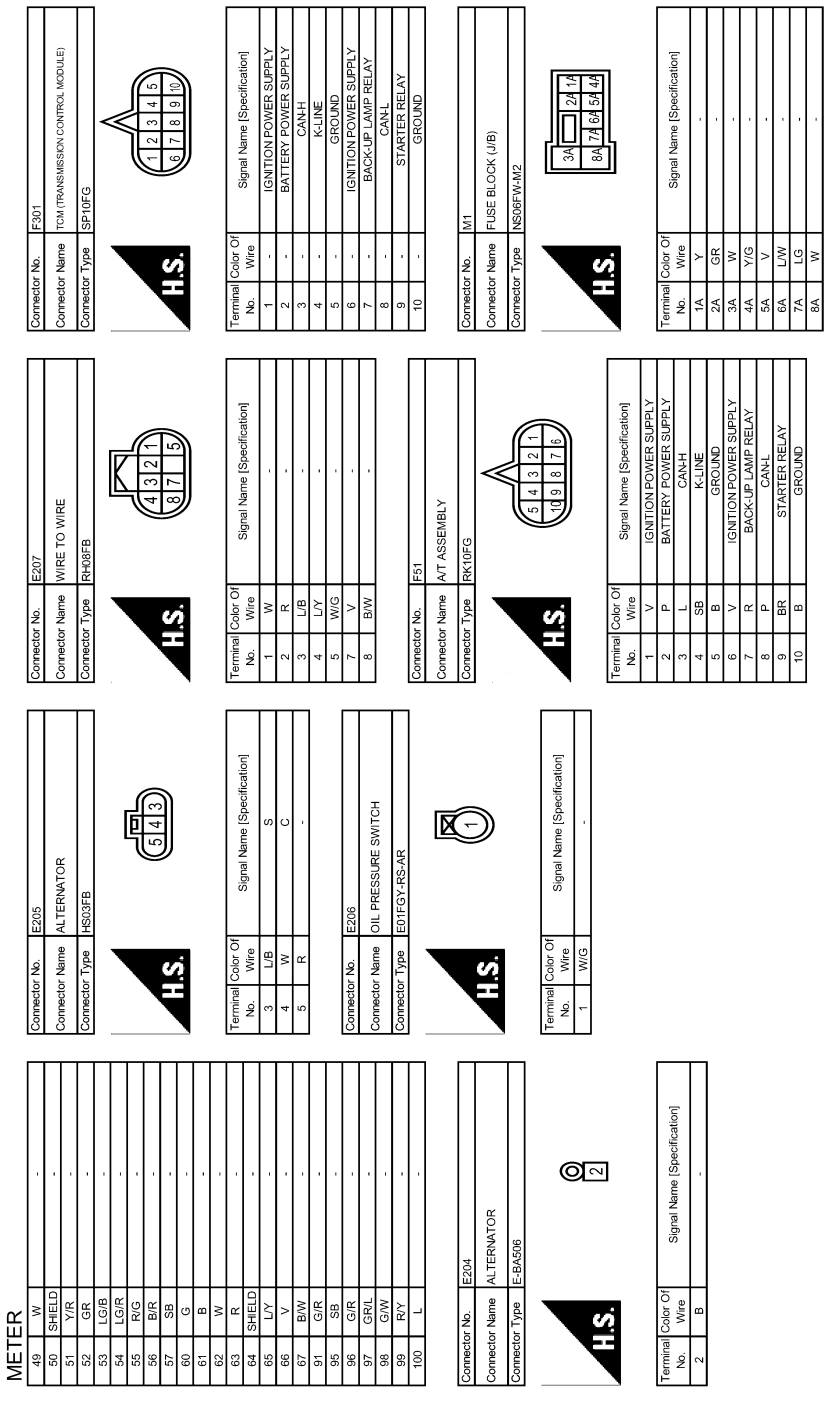

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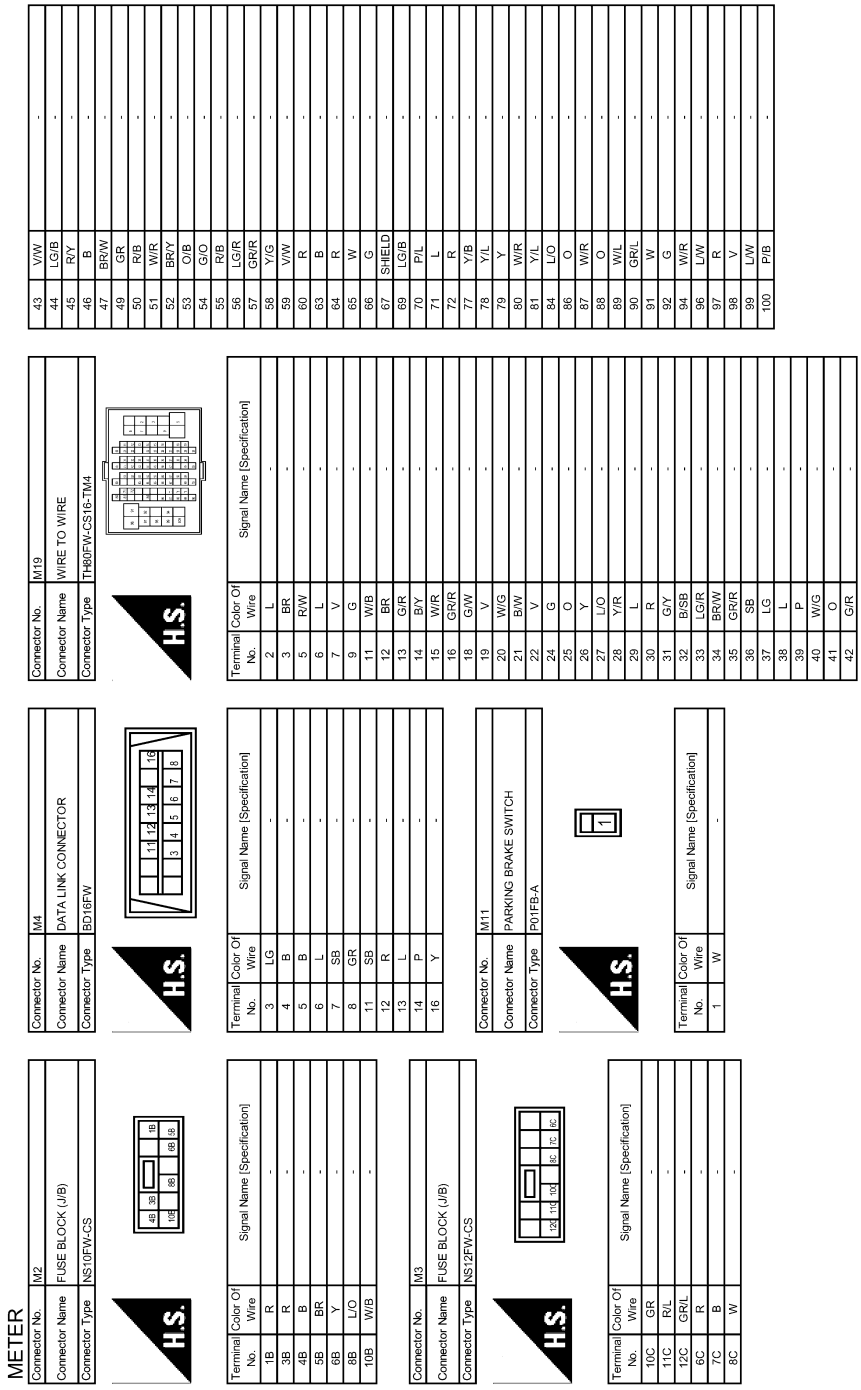


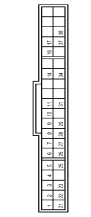
JRNWC5785GB

METER

Connector No.	M34
Connector Name	COMBINATION METER
Connector Type	TH40FW-NH

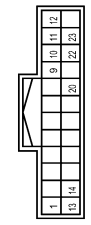
Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	BATTERY POWER SUPPLY
2	GR	IGNITION SIGNAL
3	B	GROUND
4	B	ILL GND
5	B	ILL CONTROL OUTPUT
7	R	TOW MODE SIGNAL
8	P/L	TRIP RESET SWITCH SIGNAL
11	G	ENTER SWITCH SIGNAL
12	O	SELECT SWITCH SIGNAL
13	W/R	ILLUMINATION CONTROL SWITCH SIGNAL (+)
14	R	ILLUMINATION CONTROL SWITCH SIGNAL (-)
15	R/W	AIR BAG SIGNAL
18	W/R	AMBIENT SENSOR SIGNAL
19	V/W	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
20	B	AMBIENT SENSOR GROUND
21	L	CAN-H
22	P	CAN-L
23	B	GROUND
24	V	FUEL LEVEL SENSOR GROUND
25	O/L	ALTERNATOR SIGNAL
26	W	PARKING BRAKE SWITCH SIGNAL
28	GR/R	SECURITY SIGNAL
29	BR	WASHER LEVEL SWITCH SIGNAL
30	SB	VEHICLE SPEED SIGNAL (2-PULSE)
31	BR/W	VEHICLE SPEED SIGNAL (8-PULSE)
33	W	SNOW MODE SIGNAL
34	BR/Y	FUEL LEVEL SENSOR SIGNAL
35	O/B	SEAT BELT BUCKLE SWITCH SIGNAL [DRIVER SIDE]
36	G/Y	PASSENGER SEAT BELT WARNING SIGNAL
37	R/Y	NON-MANUAL MODE SIGNAL
38	L/W	MANUAL MODE SHIFT DOWN SIGNAL
39	Y/B	MANUAL MODE SHIFT UP SIGNAL
40	G/W	MANUAL MODE SIGNAL

Connector No.	M50
Connector Name	A/C AUTO AMP.
Connector Type	SAB40FW



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L	CAN-H
2	B	GROUND
3	Y/G	BATTERY POWER SUPPLY
4	V	ACC POWER SUPPLY
5	W	IGNIZER CONTROL SIGNAL
6	V/W	A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL
7	W/R	AMBIENT SENSOR SIGNAL
8	GR/L	RR IN-VEHICLE SENSOR SIGNAL
9	BR	SUNLOAD SENSOR (DR) SIGNAL
10	V/W	EXP. GAS / OUTSIDE DOOR DETECTING SENSOR SIGNAL
11	W	COMM (A/C AUTO AMP.-RR A/C CONT)
14	O/L	FR BLOWER MOTOR CONTROL SIGNAL
16	R/G	EACH DOOR MOTOR LIN SIGNAL
17	L/Y	EACH DOOR MOTOR POWER SUPPLY
21	P	CAN-L
22	B	GROUND
23	GR/L	IGNITION POWER SUPPLY
25	R	-
26	B	SENSOR GROUND
27	GR	FR IN-VEHICLE SENSOR SIGNAL
28	R	INTAKE SENSOR SIGNAL
29	O	SUNLOAD SENSOR (PASS) SIGNAL
31	O/L	COMM (RR A/C CONT-A/C AUTO AMP.)
34	L/O	RR BLOWER MOTOR CONTROL SIGNAL
37	B	GROUND
38	G/W	RR A/C RELAY CONTROL SIGNAL

Connector No.	M54
Connector Name	4WD SWITCH ASSEMBLY
Connector Type	TH24FW-NH



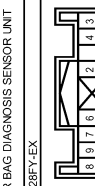
Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/W	VDC OFF SW
9	W/R	AUTO SW
10	R	4H SW
11	V	4L SW
12	GR	IGN
13	L/W	LIGHT SW
14	B/O	ILL CONT
20	B	GND
22	W	SNOW SW
23	R	TOW

Connector No.	M57
Connector Name	A/T SHIFT SELECTOR
Connector Type	TH16FW-NH

Terminal No.	Color Of Wire	Signal Name [Specification]
1	G/W	-
2	L/W	-
3	Y/B	-
4	B/SB	-
5	R/Y	-
9	L/W	-
10	B	-
11	L/R	-
12	B	-
13	R/B	-

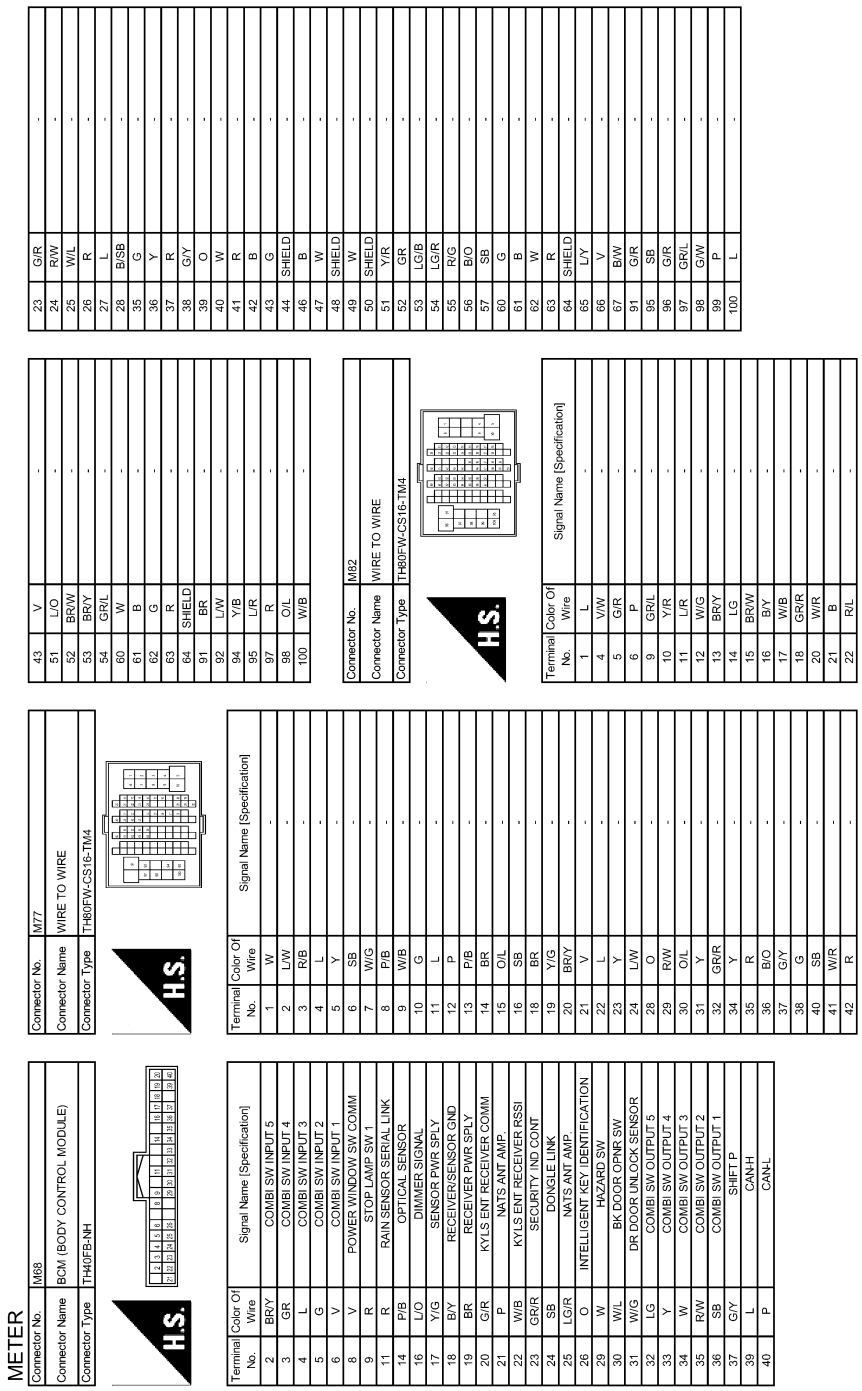
14	G/Y	-

Connector No.	M59
Connector Name	AIR BAG DIAGNOSIS SENSOR UNIT
Connector Type	NH28FY-EX



Terminal No.	Color Of Wire	Signal Name [Specification]
1	R/L	IGN
2	B	GND
3	Y	DR1 (+)
4	Y/R	DR1 (-) DR2 (-)
6	Y/L	AS1 (+)
7	Y/B	AS1 (-)
8	B/Y	AS 2 (+)
9	Y	AS 2 (-)
18	O	EC2S (+)
19	W	EC2S (-)
22	SHIELD	GND
23	R/W	AIRBAG W/L
24	G/Y	SEATBELT W/L
25	R	CUTOFF TELLTALE
57	R/W	DEPLOYMENT INFORMATION
59	L	CAN-H
60	P	CAN-L

JRNWC5786GB



JRNWC5787GB

METER

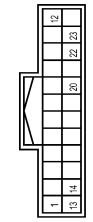
Connector No.	M83
Connector Name	TRIP RESET AND ILLUMINATION CONTROL SWITCH
Connector Type	TH08FW-NH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/O	ILLUMINATION +
2	B/O	ILLUMINATION GROUND
3	W/R	ILLUMINATION CONTROL +
4	R	ILLUMINATION CONTROL -
5	P/L	TRIP RESET SWITCH
6	B	GROUND

Connector No.	M147
Connector Name	SNOW MODE / TOW MODE / VDC OFF SWITCH ASSEMBLY
Connector Type	TH24FW-NH

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/W	VDC OFF SW
12	GR	IGN
13	L/W	LIGHT SW
14	B/O	ILL CONT
20	B	GND
22	W	SNOW SW
23	R	TOW

Connector No.	M84
Connector Name	TRIP COMPUTER SWITCH
Connector Type	TH08FW-NH

H.S.

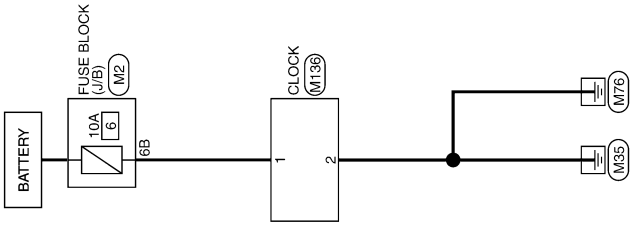
Terminal No.	Color Of Wire	Signal Name [Specification]
1	L/O	ILLUMINATION +
2	B	ILLUMINATION GROUND
3	G	ENTER SWITCH
4	O	SELECT SWITCH
6	B	GROUND

JRNWC5788GB

CLOCK

Wiring Diagram

INFOID:0000000009011931



CLOCK

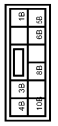
2010/03/12

JCNWM4735GB

CLOCK

Connector No.	M2
Connector Name	FUSE BLOCK (J/B)
Connector Type	NS10FW-CS

H.S.



Terminal No.	Color Of Wire	Signal Name [Specification]
1B	R	–
3B	R	–
4B	B	–
5B	BR	–
6B	Y	–
8B	L/O	–
10B	W/B	–

Connector No.	M136
Connector Name	CLOCK
Connector Type	TH04FW-NH

H.S.

Terminal No.	Color Of Wire	Signal Name [Specification]
1	Y	BAT
2	B	GND
3	L/W	ILLUMINATION (+)
4	B/O	ILLUMINATION (-)

JRNWC5789GB

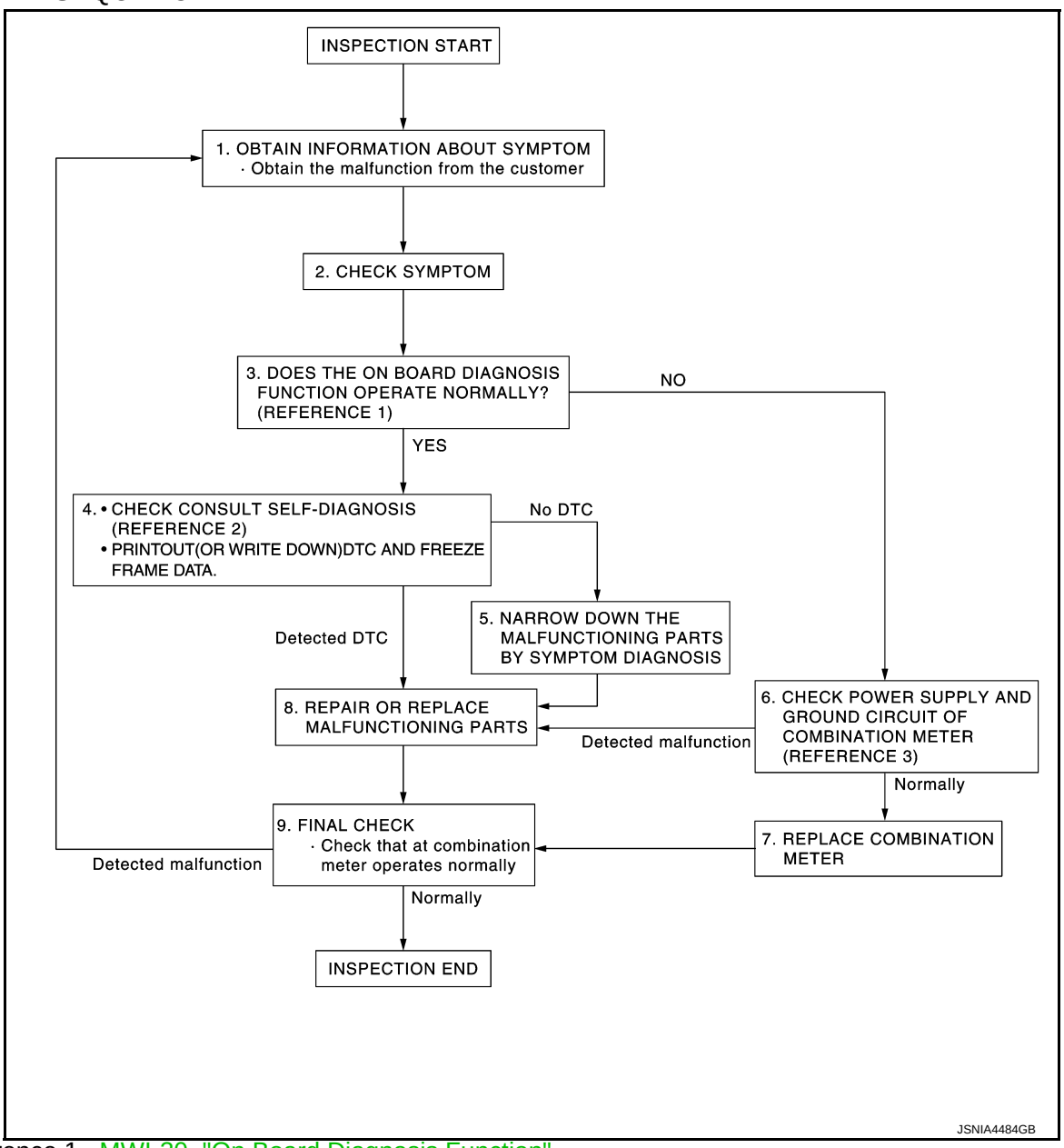
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

Work flow

INFOID:0000000009011932

OVERALL SEQUENCE



- Reference 1···MWI-30, "On Board Diagnosis Function".
- Reference 2···MWI-44, "DTC Index".
- Reference 3···MWI-66, "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.

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-30, "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-44, "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 8.

5.NARROW DOWN THE MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS

Perform symptom diagnosis and narrow down the malfunctioning parts.

>> GO TO 8.

6.CHECK COMBINATION METER POWER SUPPLY AND GROUND CIRCUITS

Check combination meter power supply and ground circuits. Refer to MWI-66, "COMBINATION METER : Diagnosis Procedure".

Is inspection result OK?

YES >> GO TO 7.
NO >> GO TO 8.

7.REPLACE COMBINATION METER

Replace combination meter.

>> GO TO 9.

8.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

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

>> GO TO 9.

9.FINAL CHECK

Check that the combination meter operates normally.

Do they operate normally?

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

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

Description

INFOID:0000000009011933

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-32, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC Logic

INFOID:0000000009011934

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:0000000009011935

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-22, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-43, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000009011936

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000009011937

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:0000000009011938

1.REPLACE COMBINATION METER

When DTC “U1010” is detected, replace combination meter.

>> INSPECTION END

B2205 VEHICLE SPEED

Description

INFOID:0000000009011939

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

DTC Logic

INFOID:0000000009011940

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	• Wheel sensor • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000009011941

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

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

>> Refer to BRC-50, "DTC Index".

B2267 ENGINE SPEED

Description

INFOID:0000000009011942

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

DTC Logic

INFOID:0000000009011943

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	• Crankshaft position sensor (POS) • ECM

Diagnosis Procedure

INFOID:0000000009011944

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-107, "DTC Index" (VK56VD FOR USA AND CANADA) or EC-672, "DTC Index" (VK56VD FOR MEXICO).

B2268 WATER TEMP

Description

INFOID:0000000009011945

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

DTC Logic

INFOID:0000000009011946

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	• Engine coolant temperature sensor • ECM

Diagnosis Procedure

INFOID:0000000009011947

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-107, "DTC Index" (VK56VD FOR USA AND CANADA) or EC-672, "DTC Index" (VK56VD FOR MEXICO).

POWER SUPPLY AND GROUND CIRCUIT
COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000009011948

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	6
Ignition switch ON or START	3

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		Ground		
Connector	Terminal			
M34	1		OFF	Battery voltage
	2		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		
M34	3		Existed
	23		

Is the inspection result normal?

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

TRIP RESET AND ILLUMINATION CONTROL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000009011949

1.CHECK COMBINATION METER INPUT SIGNAL

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

(+)		(–)	Condition	Voltage (Approx.)
Combination meter				
Connector	Terminals			
M34	8	Ground	When trip reset switch is pressed	0 V
			Other than the above	5 V
	13		When illumination control switch (+) is pressed	0 V
			Other than the above	5 V
	14		When illumination control switch (–) is pressed	0 V
			Other than the above	5 V

Is the inspection result normal?

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

2.CHECK TRIP RESET AND ILLUMINATION CONTROL SWITCH SIGNAL CIRCUIT

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

Terminals				Continuity
Combination meter		Trip reset and illumination control switch		
Connector	Terminal	Connector	Terminal	
M34	8	M83	5	Existed
	13		3	
	14		4	

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

Combination meter			Continuity
Connector	Terminal		
M34	8	Ground	Not existed
	13		
	14		

Is the inspection result normal?

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

3.CHECK TRIP RESET AND ILLUMINATION CONTROL SWITCH GROUND CIRCUIT

Check continuity between trip reset and illumination control switch connector and ground.

Trip reset and illumination control switch		Ground	Continuity
Connector	Terminal		
M83	6		Existed

Is the inspection result normal?

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

Component Inspection

INFOID:0000000009011950

1. CHECK TRIP RESET AND ILLUMINATION CONTROL SWITCH

1. Turn ignition switch OFF.
2. Disconnect trip reset and illumination control switch connector.
3. Check trip reset and illumination control switch.

Terminals		Condition	Continuity
Trip reset and illumination control switch			
5	6	When trip reset switch is pressed	Existed
		Other than the above	Not existed
3		When illumination control switch (+) is pressed	Existed
		Other than the above	Not existed
4		When illumination control switch (–) is pressed	Existed
		Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace trip reset and illumination control switch. Refer to MWI-88, "Removal and Installation".

TRIP COMPUTER SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000009011951

1.CHECK COMBINATION METER INPUT SIGNAL

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

(+)		(–)	Condition	Voltage (Approx.)
Combination meter				
Connector	Terminals			
M34	11	Ground	When enter switch is pressed	0 V
			Other than the above	5 V
	12		When select 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 TRIP COMPUTER SWITCH SIGNAL CIRCUIT

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

Terminals				Continuity
Combination meter		Trip computer switch		
Connector	Terminal	Connector	Terminal	
M34	11	M84	3	Existed
	12		4	

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	11		Not existed
	12		

Is the inspection result normal?

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

3.CHECK TRIP COMPUTER SWITCH GROUND CIRCUIT

Check continuity between trip computer switch connector and ground.

Trip computer switch		Ground	Continuity
Connector	Terminal		
M84	6		Existed

Is the inspection result normal?

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

Component Inspection

INFOID:0000000009011952

1. CHECK TRIP COMPUTER SWITCH

1. Turn ignition switch OFF.
2. Disconnect trip computer switch connector.
3. Check trip computer switch.

Terminals		Condition	Continuity
Trip computer switch			
3	6	When enter switch is pressed	Existed
		Other than the above	Not existed
4		When select switch is pressed	Existed
		Other than the above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace trip computer switch. Refer to MWI-89, "Removal and Installation".

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Component Function Check

INFOID:0000000009011953

1.PERFORM COMPONENT FUNCTION CHECK (1)

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

Fuel level sensor unit and fuel pump		
Connector	Terminals	
C5	2	5

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

Resistance (Ω)* (Approx.)	Fuel gauge indication position (Approx.)
Less than 94.0	Full
140.0	3/4
186.0	2/4
232.0	1/4
More than 278.0	Empty

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Refer to MWI-71, "Diagnosis Procedure".

2.PERFORM COMPONENT FUNCTION CHECK (2)

Check the fuel level sensor unit and fuel pump. Refer to MWI-72, "Component Inspection".

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the fuel level sensor unit and fuel pump. Refer to FL-5, "Removal and Installation".

Diagnosis Procedure

INFOID:0000000009011954

1.CHECK FUEL LEVEL SENSOR CIRCUIT

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

Terminals				Continuity
(+)		(-)		
Combination meter		Fuel level sensor unit and fuel pump		
Connector	Terminal	Connector	Terminal	
M34	34	C5	2	Existed

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

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

Is the inspection result normal?

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

2.CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

1. Check continuity between fuel level sensor unit and fuel pump harness connector terminal and combination meter harness connector terminal.

Terminals				Continuity
(+)		(-)		
Fuel level sensor unit and fuel pump		Combination meter		
Connector	Terminal	Connector	Terminal	
C5	5	M34	24	Existed

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

Terminals			Continuity
(+)		(-)	
Fuel level sensor unit and fuel pump		Ground	
Connector	Terminal		
C5	5		Not existed

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Repair the harnesses or connectors.

Component Inspection

INFOID:0000000009011955

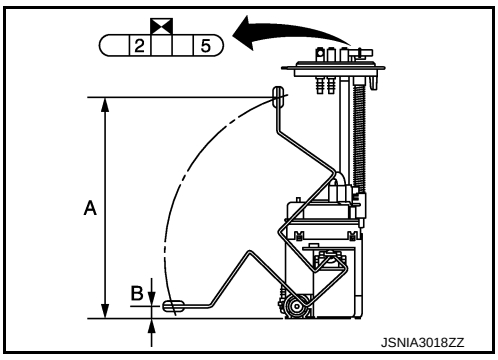
1.REMOVE FUEL LEVEL SENSOR UNIT AND FUEL PUMP

Remove the fuel level sensor unit and fuel pump. Refer to FL-5, "Removal and Installation".

>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT AND FUEL PUMP

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



Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit and fuel pump				
2	5	Full* (A)	46.0	280.7 (11.05)
		Empty* (B)	283.0	29.4 (1.157)

*: When float rod is contact with stopper.

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace fuel level sensor unit and fuel pump. Refer to FL-5, "Removal and Installation".

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Component Function Check

INFOID:0000000009011956

1.CHECK COMBINATION METER INPUT SIGNAL

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

“OIL W/L”
Ignition switch ON : On
Engine running : Off

>> INSPECTION END

Diagnosis Procedure

INFOID:0000000009011957

1.CHECK OIL PRESSURE SWITCH CIRCUIT

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

Terminals				Continuity
(+)		(–)		
IPDM E/R		Oil pressure switch		
Connector	Terminal	Connector	Terminal	
E13	24	E206	1	Existed

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

Terminals			Continuity
(+)		(–)	
IPDM E/R		Ground	
Connector	Terminal		
E13	24		Not existed

Is the inspection result normal?

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

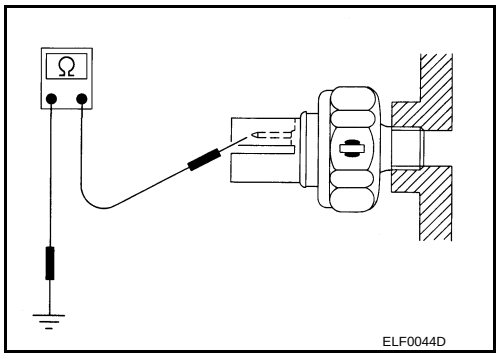
Component Inspection

INFOID:0000000009011958

1.CHECK OIL PRESSURE SWITCH

Check continuity between oil pressure switch and ground.

Condition	Continuity
Engine stopped	Existed
Engine running	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace oil pressure switch. Refer to EM-60, "Removal and Installation".

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000009011959

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	
M34	29	E54	1	Existed

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

Terminals			Continuity
Combination meter		Ground	
Connector	Terminal		
M34	29		Not existed

Is the inspection result normal?

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

2.CHECK WASHER LEVEL SWITCH GROUND CIRCUIT

Check continuity between washer level switch connector and ground.

Terminals			Continuity
Washer level switch		Ground	
Connector	Terminal		
E54	2		Existed

Is the inspection result normal?

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

Component Inspection

INFOID:0000000009011960

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-61, "Removal and Installation".

A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000009011961

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

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

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

Is the inspection result normal?

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

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

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

Combination meter		A/C auto amp.		Continuity
Connector	Terminal	Connector	Terminal	
M34	19	M50	6	Existed

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	19		Not existed

Is the inspection result normal?

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

SYMPTOM DIAGNOSIS

THE FUEL GAUGE INDICATOR DOES NOT OPERATE

Description

INFOID:0000000009011962

Fuel gauge will not indicate from a certain position.

Diagnosis Procedure

INFOID:0000000009011963

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-30, "On Board Diagnosis Function".

Is the inspection result normal?

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

2.CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Repair or replace malfunctioning part.

3.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-71, "Component Function Check".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-43, "Intermittent Incident".
NO >> Repair or replace malfunctioning parts.

THE TRIP RESET AND ILLUMINATION CONTROL SWITCH IS INOPERATIVE

Description

INFOID:0000000009011964

If any of the following malfunctions is found for the trip reset and illumination control switch operation.
- All switches are inoperative
- The specified switch cannot be operated

Diagnosis Procedure

INFOID:0000000009011965

1.CHECK TRIP RESET AND ILLUMINATION CONTROL SWITCH SIGNAL CIRCUIT

Check the trip reset and illumination control switch signal circuit. Refer to MWI-67, "Diagnosis Procedure".

Is the inspection result normal?

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

2.CHECK TRIP RESET AND ILLUMINATION CONTROL SWITCH

Perform a unit check for the trip reset and illumination control switch. Refer to MWI-68, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NG >> Replace trip reset and illumination control switch. Refer to MWI-88, "Removal and Installation".

THE TRIP COMPUTER SWITCH IS INOPERATIVE

Description

INFOID:0000000009011966

If any of the following malfunctions is found for the trip computer switch operation.
- All switches are inoperative
- The specified switch cannot be operated

Diagnosis Procedure

INFOID:0000000009011967

1.CHECK TRIP COMPUTER SWITCH SIGNAL CIRCUIT

Check the trip computer switch signal circuit. Refer to MWI-69, "Diagnosis Procedure".

Is the inspection result normal?

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

2.CHECK TRIP COMPUTER SWITCH

Perform a unit check for the trip computer switch. Refer to MWI-70, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NG >> Replace trip computer switch. Refer to MWI-89, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000009011968

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

Diagnosis Procedure

INFOID:0000000009011969

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-10, "Diagnosis Description".

Is oil pressure warning lamp blinking?

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

2.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-73, "Diagnosis Procedure".

Is the inspection result normal?

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

3.CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to MWI-73, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace oil pressure switch. Refer to EM-60, "Removal and Installation".

4.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to MWI-73, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000009011970

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

Diagnosis Procedure

INFOID:0000000009011971

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-10, "Diagnosis Description".

Is oil pressure warning lamp blinking?

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

2.CHECK IPDM E/R OUTPUT VOLTAGE

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

Terminals			Voltage (Approx.)
(+)		(–)	
Oil pressure switch		Ground	
Connector	Terminal		
E206	1		12 V

Is the inspection result normal?

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

3.CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to MWI-73, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".
NO >> Replace oil pressure switch. Refer to EM-60, "Removal and Installation".

4.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-73, "Diagnosis Procedure".

Is the inspection result normal?

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

5.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to MWI-73, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation".

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

Description

INFOID:0000000009011972

- 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:0000000009011973

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-87, "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-43, "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-127, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace parking brake switch. Refer to PB-5, "Exploded View".

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

Description

INFOID:0000000009011974

- 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:0000000009011975

1.CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check the washer level switch signal circuit. Refer to MWI-75, "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-75, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace washer level switch. Refer to WW-61, "Removal and Installation".

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000009011976

- The door open warning is displayed even though all of the doors are closed.
- The door open warning is not displayed even though a door is ajar.

Diagnosis Procedure

INFOID:0000000009011977

1.CHECK BCM INPUT/OUTPUT SIGNAL

Connect CONSULT and check the BCM input signals. Refer to DLK-119, "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-87, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-95, "Removal and Installation".

3.CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to DLK-119, "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-120, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace applicable door switch. Refer to DLK-260, "Removal and Installation".

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:0000000009011978

- 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:0000000009011979

NOTE:
Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to MWI-86, "INFORMATION DISPLAY : Description".

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to HAC-82, "Diagnosis Procedure".

Is the inspection result normal?

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

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

Check the A/C auto amp. connection recognition signal circuit. Refer to MWI-76, "Diagnosis Procedure".

Is the inspection result normal?

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

3.CHECK AMBIENT SENSOR

Perform the part check for the ambient sensor. Refer to HAC-83, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-87, "Removal and Installation".
NO >> Replace ambient sensor. Refer to HAC-153, "Removal and Installation".

NORMAL OPERATING CONDITION
INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:0000000009011980

AMBIENT AIR TEMPERATURE

The displayed ambient air temperature on the information display may differ from the actual temperature because it is a corrected value calculated from the ambient sensor signal by the combination meter. Refer to MWI-20, "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.

REMOVAL AND INSTALLATION

COMBINATION METER

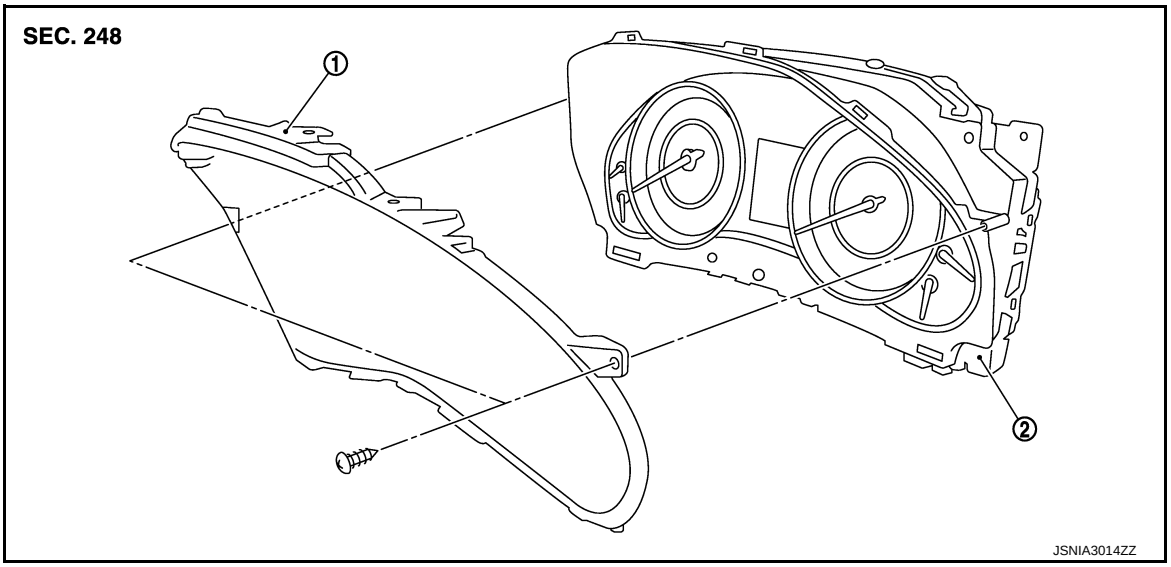
Exploded View

INFOID:0000000009011981

REMOVAL

Refer to IP-13, "Exploded View".

DISASSEMBLY



1. Front cover
2. Unified meter control unit

Removal and Installation

INFOID:0000000009011982

REMOVAL

1. Remove the cluster lid A. Refer to IP-14, "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:0000000009011983

DISASSEMBLY

1. Remove screws.
2. Disengage the tabs to separate front cover.

ASSEMBLY

Assemble in the reverse order of disassembly.

TRIP RESET AND ILLUMINATION CONTROL SWITCH

Exploded View

INFOID:0000000009011984

REMOVAL

Refer to IP-13, "Exploded View".

Removal and Installation

INFOID:0000000009011985

REMOVAL

1. Remove cluster lid A. Refer to IP-14, "Removal and Installation".
2. Remove clip.
3. Press pawls and remove trip reset and illumination control switch.

INSTALLATION

Install in the reverse order of removal.

TRIP COMPUTER SWITCH

Exploded View

INFOID:0000000009011986

REMOVAL

Refer to IP-13, "Exploded View".

Removal and Installation

INFOID:0000000009011987

REMOVAL

1. Remove cluster lid A. Refer to IP-14, "Removal and Installation".
2. Press pawls and remove trip computer switch.

INSTALLATION

Install in the reverse order of removal.

CLOCK

Exploded View

INFOID:0000000009011988

REMOVAL
Refer to IP-13, "Exploded View".

Removal and Installation

INFOID:0000000009011989

REMOVAL

1. Remove cluster lid C assembly. Refer to IP-14, "Removal and Installation".
2. Disengage the tabs to separate clock.

INSTALLATION
Install in the reverse order of removal.