SECTION MWI
METER, WARNING LAMP & INDICATOR

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000006506714

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.

The vehicle may be equipped with a passenger air bag deactivation switch. Because no rear seat exists where a rear-facing child restraint can be placed, the switch is designed to turn off the passenger air bag so that a rear-facing child restraint can be used in the front passenger seat. The switch is located in the center of the instrument panel, near the ashtray. When the switch is turned to the ON position, the passenger air bag is enabled and could inflate for certain types of collision. When the switch is turned to the OFF position, the passenger air bag is disabled and will not inflate. A passenger air bag OFF indicator on the instrument panel lights up when the passenger air bag is switched OFF. The driver air bag always remains enabled and is not affected by the passenger air bag deactivation switch.

WARNING:

- **To avoid rendering the SRS inoperative, which could increase the risk of personal injury or death in the event of a collision which would result in air bag inflation, all maintenance must be performed by an authorized NISSAN/INFINITI dealer.**
- **Improper maintenance, including incorrect removal and installation of the SRS, can lead to personal injury caused by unintentional activation of the system. For removal of Spiral Cable and Air Bag Module, see the “SRS AIR BAG”.**
- **Do not use electrical test equipment on any circuit related to the SRS unless instructed to in this Service Manual. SRS wiring harnesses can be identified by yellow and/or orange harnesses or harness connectors.**
- **The vehicle may be equipped with a passenger air bag deactivation switch which can be operated by the customer. When the passenger air bag is switched OFF, the passenger air bag is disabled and will not inflate. When the passenger air bag is switched ON, the passenger air bag is enabled and could inflate for certain types of collision. After SRS maintenance or repair, make sure the passenger air bag deactivation switch is in the same position (ON or OFF) as when the vehicle arrived for service.**

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

WARNING:

- **When working near the Air Bag Diagnosis Sensor Unit or other Air Bag System sensors with the ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious injury.**
- **When using air or electric power tools or hammers, always switch the ignition OFF, disconnect the battery, and wait at least 3 minutes before performing any service.**

SYSTEM DESCRIPTION

COMPONENT PARTS

METER SYSTEM

METER SYSTEM : Component Parts Location

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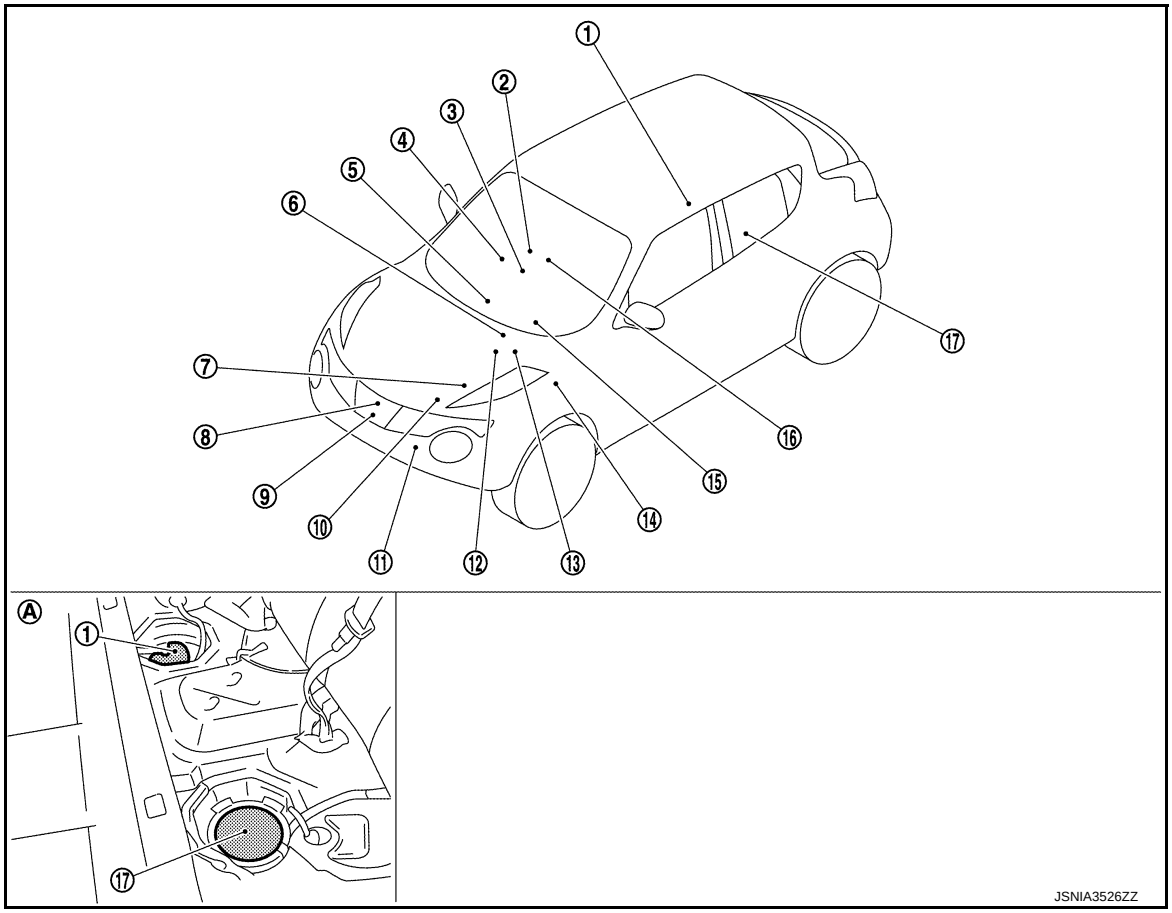

1. Fuel level sensor unit (main)
2. Front seat belt buckle switch (passenger side)
3. CVT shift selector assembly
   Refer to TM-131, "CVT CONTROL SYSTEM : Component Parts Location" (MR16DDT engine models).
   Refer to TM-314, "CVT CONTROL SYSTEM : Component Parts Location" (HR16DE engine models).
4. Occupant detection unit (Under the passenger seat cushion pad)
5. A/C auto amp.
   Refer to HAC-12, "Component Parts Location" (4WD models).
   Refer to HAC-103, "AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location" (2WD models).
6. ECM
   Refer to EC-455, "ENGINE CONTROL SYSTEM : Component Parts Location" (HR16DE engine models).
   Refer to EC-813, "Component Parts Location" (K9K engine models).
7. IPDM E/R
   Refer to PCS-5, "Component Parts Location" (with I-KEY).
   Refer to PCS-37, "Component Parts Location" (without I-KEY).
8. Oil pressure switch
   Refer to EM-103, "Exploded View" (MR16DDT engine models).
   Refer to EM-227, "Exploded View" (HR16DE engine models).
   Refer to LU-37, "Exploded View" (K9K engine models).
9. Oil level sensor
   Refer to EM-99, "Exploded View" (MR16DDT engine models).
   Refer to EM-222, "Exploded View" (HR16DE engine models).
   Refer to EM-330, "Disassembly and Assembly" (K9K engine models).

10. ECM
Refer to EC-25, "ENGINE CONTROL SYSTEM : Component Parts Location" (MR16DDT engine models).
11. Ambient sensor
Refer to HAC-12, "Component Parts Location" (2WD models).
Refer to HAC-103, "AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location" (4WD models).
12. ABS actuator and electric unit (control unit)
Refer to BRC-97, "Component Parts Location" (with ESP).
Refer to BRC-9, "Component Parts Location" (without ESP).
13. TCM
Refer to TM-131, "CVT CONTROL SYSTEM : Component Parts Location" (for RE0F10B models)
Refer to TM-314, "CVT CONTROL SYSTEM : Component Parts Location" (for RE0F11A models)
14. BCM
Refer to BCS-6, "BODY CONTROL SYSTEM : Component Parts Location" (with intelligent key system)
Refer to BCS-96, "BODY CONTROL SYSTEM : Component Parts Location" (without intelligent key system)
15. Combination meter
16. Front seat belt buckle switch (driver side)
17. Fuel level sensor unit (sub)

A. Rear seat (bottom)

METER SYSTEM : Component Description

INFOID:0000000006412890

Unit	Description
Combination meter	• Provides the driver with various kinds of vehicle information via the CAN communication line and the use of signals through the hard wire. • Includes the signal buffer to transmit received signals to other units. • For functions of the combination meter, refer to MWI-7, "METER SYSTEM : System Description".
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 • Oil pressure warning lamp signal
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication.
IPDM E/R (K9K engine models)	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 (K9K engine models) • Position light request signal
TCM	Transmits the following signals to the combination meter. • Shift position signal • Manual mode shift refusal signal • Manual mode signal • Non-manual mode signal • Manual mode shift up signal • Manual mode shift down signal
CVT shift selector (with manual mode)	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 (K9K engine models)	Transmits the oil pressure switch signal to the IPDM E/R.
Oil level sensor	Transmits the oil level sensor signal to the combination meter.
Ambient sensor	Transmits the ambient sensor signal to the A/C auto amp. and the combination meter.
PTC heater control unit	Transmits the PTC heater control unit connection recognition signal to the combination meter.
A/C auto amp.	Transmits the A/C auto amp. connection recognition signal to the combination meter.
Seat belt buckle switch (driver side)	Transmits the seat belt buckle switch signal (driver side) to the combination meter.

Unit	Description
Seat belt buckle switch (passenger side)	Transmits the seat belt buckle switch signal (passenger side) to the combination meter.
Occupant detection unit	Transmits the occupant detection signal to the seat belt buckle switch (passenger side).

SYSTEM
METER SYSTEM

METER SYSTEM : System Diagram

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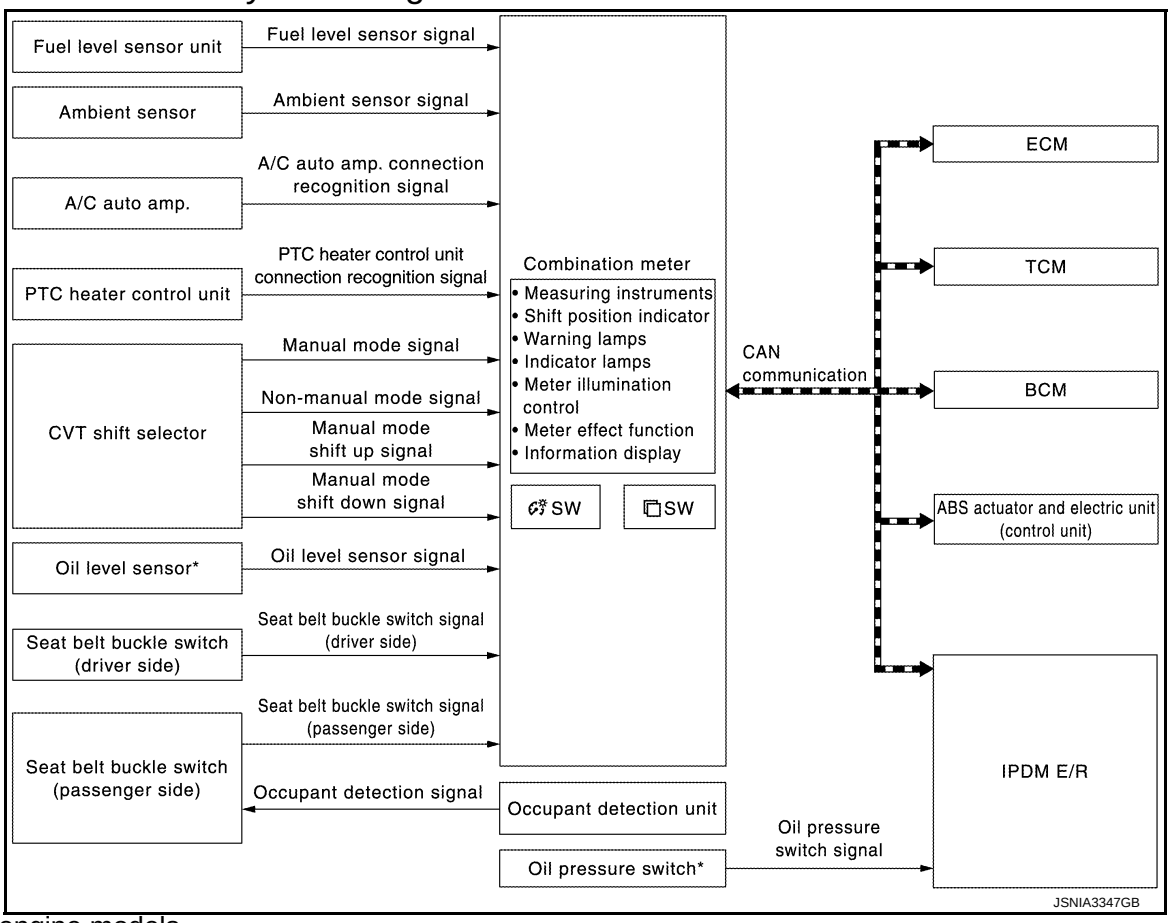


*: K9K engine models

METER SYSTEM : System Description

INFOID:0000000006412893

COMBINATION METER

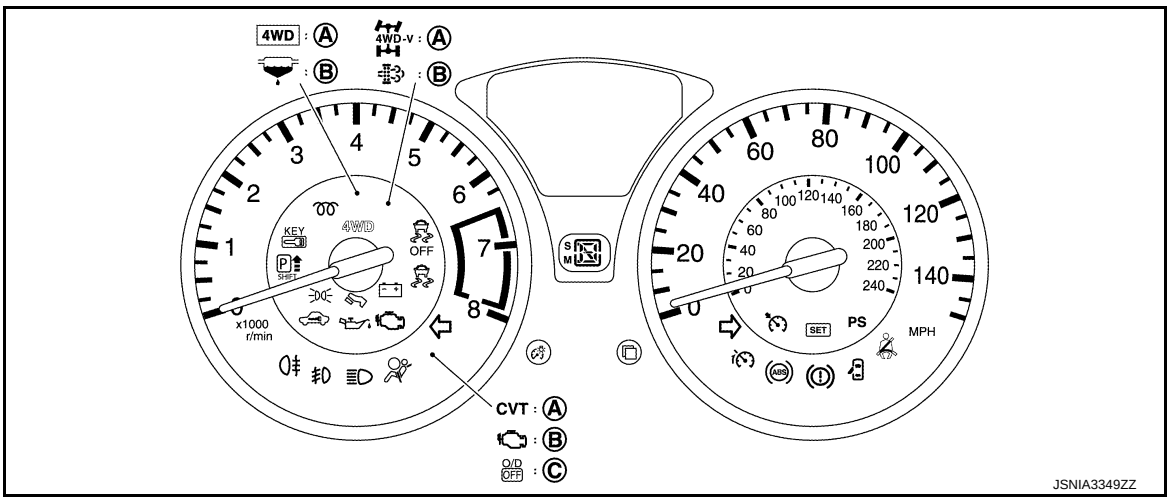
- The combination meter receives necessary signals from each unit, switch, and sensor to control the following functions.
  - Measuring instruments
  - Shift position indicator
  - Warning lamps
  - Indicator lamps
  - Meter illumination control
  - Meter effect function
  - Information display
- The 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-III.

METER CONTROL FUNCTION LIST

System		Description	Reference
Measuring instruments	Speedometer	Indicates vehicle speed.	MWI-11, "SPEEDOMETER : System Description"
	Tachometer	Indicates engine speed.	MWI-11, "TACHOMETER : System Description"
Shift position indicator (CVT models)		Display shift position. (CVT models)	MWI-11, "SHIFT POSITION INDICATOR : System Description"
Warning lamp/ indicator lamp	Oil pressure warning lamp	The warning lamp turns ON or turns OFF, according to engine hydraulic pressure.	MWI-12, "OIL PRESSURE WARNING LAMP : System Description"
	Seat belt warning lamp	The warning lamp turns ON/OFF or blinks depending on vehicle speeds and conditions of the use of seat belts.	MWI-13, "SEAT BELT WARNING LAMP : System Description"
Meter illumination control	Meter illumination control function	Switches back and forth between daytime mode and nighttime mode, according to a light switch position.	MWI-14, "METER ILLUMINATION CONTROL : System Description"
	Meter illumination on/off control function	The meter illumination turns ON/OFF, according to the status of ignition switch and a cranking condition.	
	Buck light illumination control function	The operation of the illumination control switch allows the brightness adjustment of meter illumination.	
Meter effect function	Engine-start effect function	Controls pointers of combination meter and meter illumination at engine start to produce illumination effects.	MWI-15, "METER EFFECT FUNCTION : System Description"

System				Description	Reference
Information display	Engine coolant temperature gauge			Indicates engine coolant temperature.	MWI-16, "INFORMATION DISPLAY : System Description"
	Fuel gauge			Indicates fuel level.	
	Odo/trip meter			Displays mileage.	
	Ambient temperature			Displays ambient temperature.	
	Trip computer	Current fuel consumption		Displays current fuel consumption.	
		Average fuel consumption		Displays average fuel consumption.	
		Distance to empty		Displays distance to empty.	
		Travel time		Displays travel time.	
		Torque distribution indicator		Display torque distribution.	
	Interrupt indication	Low fuel warning		Warns when being low on fuel.	
		Distance to empty		Displays distance to empty when a low fuel warning starts.	
		Low ambient temperature (ICY)		Causes an interrupt when ambient temperature reaches below 3°C (37°F).	
		Maintenance	Engine oil maintenance warning	Causes an interrupt when exceeding randomly set distance.	
			Oil level indicator	Display engine oil level.	
		Meter illumination level		Indicates the brightness of the meter illumination in stages.	
		Oil maintenance warning (K9K engine models)		Receives remaining distance signal and display oil maintenance warning.	
	Setting	Maintenance	Engine oil maintenance warning (except for K9K engine models)	Setting values for engine oil maintenance can be adjusted to meet the user's needs.	

ARRANGEMENT OF COMBINATION METER



A. MR16DDT engine models with manual mode CVT
B. K9K engine models
C. RHD models with CVT

METER SYSTEM : Fail-Safe

INFOID:0000000006412894

FAIL-SAFE

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

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Illumination control		When suspending communication, changes to nighttime mode.
Shift position indicator	Shift position	When suspending communication, not indicate.
	S mode indicator lamp	
Information display	Instantaneous fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption	
	Possible driving distance	
	Torque distribution 4WD	
Buzzer		The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	Malfunction indicator (Yellow)	
	SLIP indicator lamp	
	EPS warning lamp	
	4WD warning lamp	
	Brake warning lamp	
	VDC warning lamp	The lamp turns OFF by suspending communication.
	High beam indicator lamp	
	Turn signal indicator lamp	
	Door warning lamp	
	Light indicator lamp	
	Engine start operation indicator lamp	
	Shift P warning lamp	
	Front fog lamp indicator lamp	
	Rear fog lamp indicator lamp	
	Oil pressure warning lamp	
	Malfunction indicator (Red)	
	CRUISE indicator lamp	
	SET indicator lamp	
	Speed limiter indicator lamp	
	4WD indicator lamp	
	4WD LOCK indicator lamp	
	Key warning lamp	
	DPF (Diesel Particulate Filter) warning lamp	
	Glow indicator lamp	
	CVT indicator lamp	
	Filter warning lamp	

SPEEDOMETER

SPEEDOMETER : System Diagram

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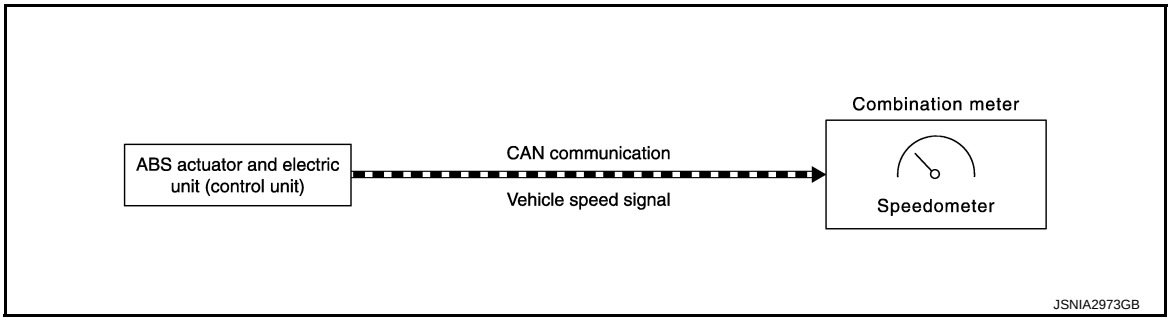

SPEEDOMETER : System Description

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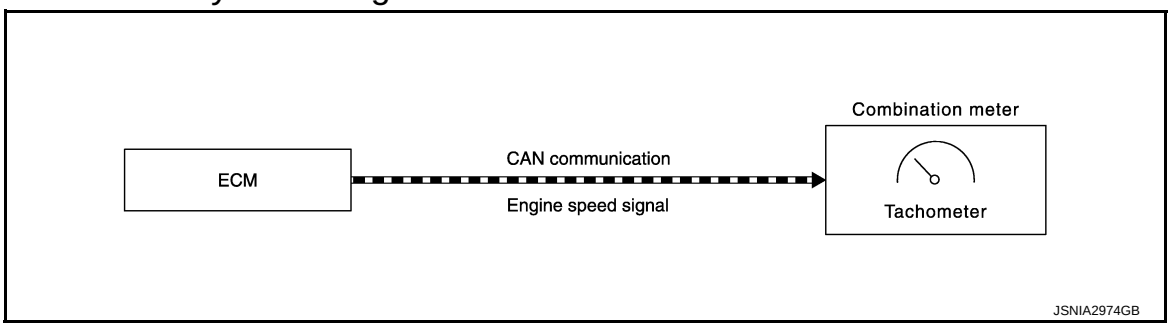
- The ABS actuator and electric unit (control unit) converts the rectangular wave signal provided by the wheel sensor to a vehicle speed signal and transmits it to the combination meter via CAN communication.
- The combination meter indicates the vehicle speed to the speedometer according to the vehicle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

TACHOMETER

TACHOMETER : System Diagram

INFOID:0000000006412897



TACHOMETER : System Description

INFOID:0000000006412898

- 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.

SHIFT POSITION INDICATOR

SHIFT POSITION INDICATOR : System Diagram

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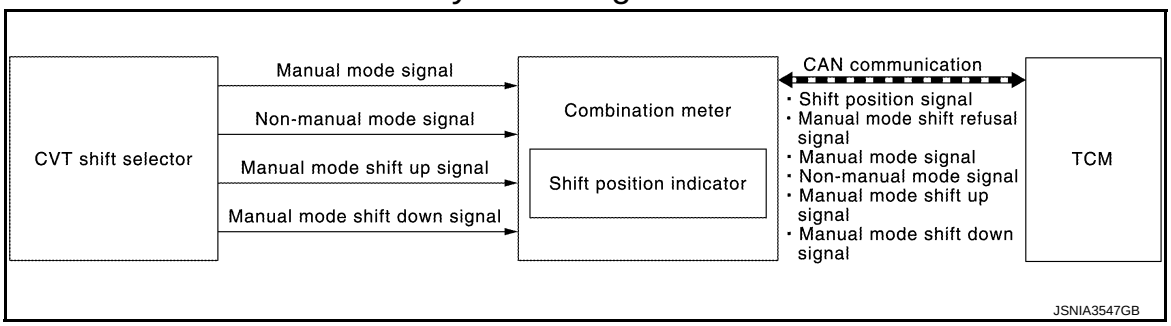

SHIFT POSITION INDICATOR : System Description

INFOID:0000000006468628

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

WITH MANUAL MODE

Manual Mode
- The combination meter receives the manual mode signal, non-manual mode signal, manual mode shift up signal, and manual mode shift down signal from CVT shift selector and transmits them to TCM via CAN communication.
- TCM recognizes the manual mode operation status according to the manual mode signal, non-manual mode signal, manual mode shift up signal, and manual mode shift down signal received via CAN communication and transmits the manual mode indicator signal to the combination meter via CAN communication.
- The combination meter indicates shift position according to the manual mode indicator signal received via CAN communication.

Non-manual Mode
- TCM transmits the shift position signal to the combination meter via CAN communication.
- The combination meter indicates shift position according to the shift position signal received via CAN communication.

Shift refusal warning and alarm
- TCM sends a manual mode shift refusal signal to the combination meter via CAN communication when shift-up and shift-down can not be operated in manual mode.
- The combination meter blinks the shift position indicator and sounds a buzzer according to a manual mode shift refusal signal received via CAN communication.

WITHOUT MANUAL MODE
- TCM transmits the shift position signal to the combination meter via CAN communication.
- The combination meter indicates shift position according to the shift position signal received via CAN communication.

OIL PRESSURE WARNING LAMP

OIL PRESSURE WARNING LAMP : System Diagram

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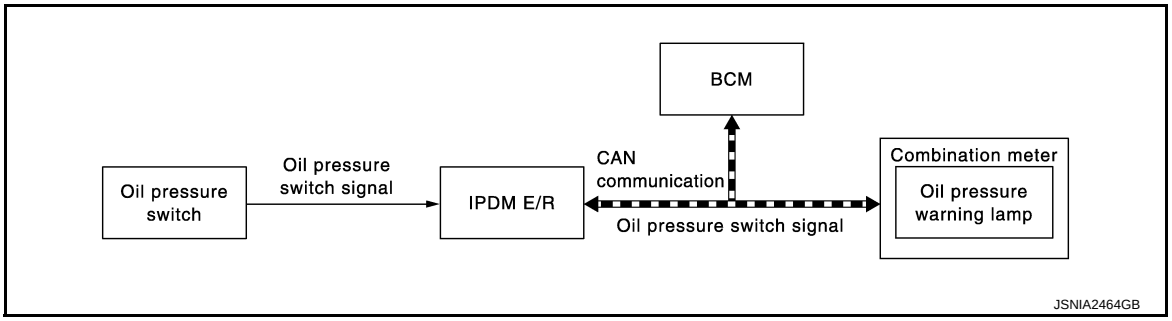
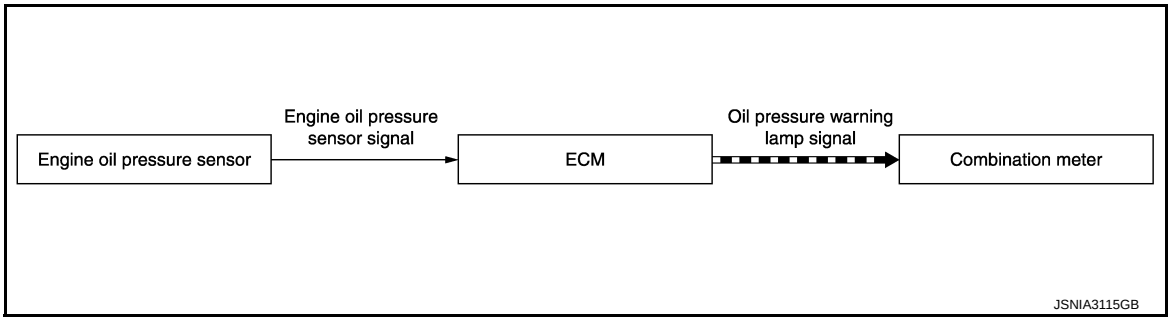
K9K ENGINE MODELS



EXCEPT FOR K9K ENGINE MODELS



OIL PRESSURE WARNING LAMP : System Description

INFOID:0000000006413640

K9K ENGINE MODELS
- 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.

EXCEPT FOR K9K ENGINE MODELS

The combination meter turns the oil pressure warning lamp ON when receiving ECM to the oil pressure switch signal via CAN communication. For details, refer to EC-41, "Engine Oil Pressure Sensor" (MR16DDT) or EC-462, "Engine Oil Pressure Sensor" (HR16DE).

SEAT BELT WARNING LAMP

SEAT BELT WARNING LAMP : System Diagram

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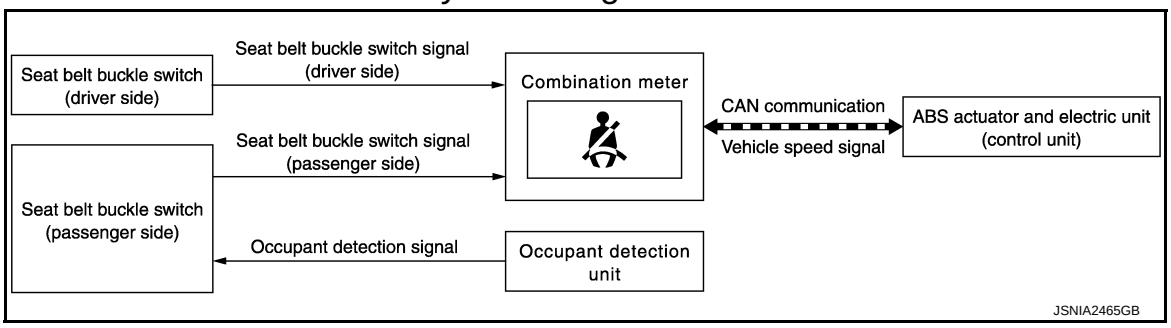

SEAT BELT WARNING LAMP : System Description

INFOID:0000000006413643

- The combination meter turns ON the seat belt warning lamp when the following operating conditions are satisfied.

Operating condition	
Ignition switch	ON
Seat belt	Unfastened [driver side or passenger side (when getting in the passenger seat)]
Vehicle speed	Less than approximately 15 km/h (9.3 MPH)

- The combination meter blinks the seat belt warning lamp when the following operating conditions are satisfied.

Operating condition	
Ignition switch	ON
Seat belt	Unfastened [driver side or passenger side (when getting in the passenger seat)]
Vehicle speed	Approximately 15 km/h (9.3 MPH) or more

- The combination meter turns OFF the seat belt warning lamp when any of the following cancel condition is satisfied

Cancel condition	
Ignition switch	OFF
Seat belt	Fastened [driver side and passenger side (when getting in the passenger seat)]

NOTE:
If cancel conditions are not satisfied, the seat belt warning lamp continues blinking even when a vehicle speed becomes less than approximately 15 km/h (9.3 MPH).

SIGNAL PATH

The combination meter receives the following signals to control seat belt warning lamp.

Signal name	Signal path
Ignition signal	—
Seat belt buckle switch signal (driver side)	Seat belt buckle switch (driver side) → Combination meter

Signal name	Signal path
Seat belt buckle switch signal (passenger side)	Occupant detection unit → Seat belt buckle switch (passenger side) → Combination meter
Vehicle speed signal	ABS actuator and electric unit (control unit) → CAN → Combination meter

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Diagram

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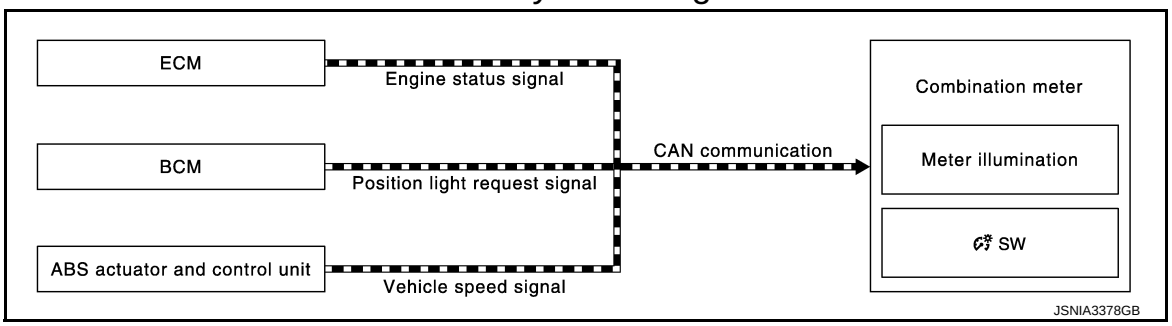

METER ILLUMINATION CONTROL : System Description

INFOID:0000000006412908

METER ILLUMINATION CONTROL FUNCTION

- Combination meter controls meter illumination, based on the following signal.
- Position light request 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		Nighttime mode
	AUTO POSITION	Outdoor: Bright*	Daytime mode
		Outdoor: Dark*	Nighttime mode
	Off		Daytime mode

*: For further information, refer to INL-9, "ILLUMINATION CONTROL SYSTEM : System Description".

BUCK LIGHT ILLUMINATION CONTROL FUNCTION

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

Meter illumination	The number of adjustable steps
Daytime	12 step
Nighttime	12 step

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) and ACC power supply OFF
- Ignition switch OFF or ACC power supply OFF
- 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

METER EFFECT FUNCTION

METER EFFECT FUNCTION : System Diagram

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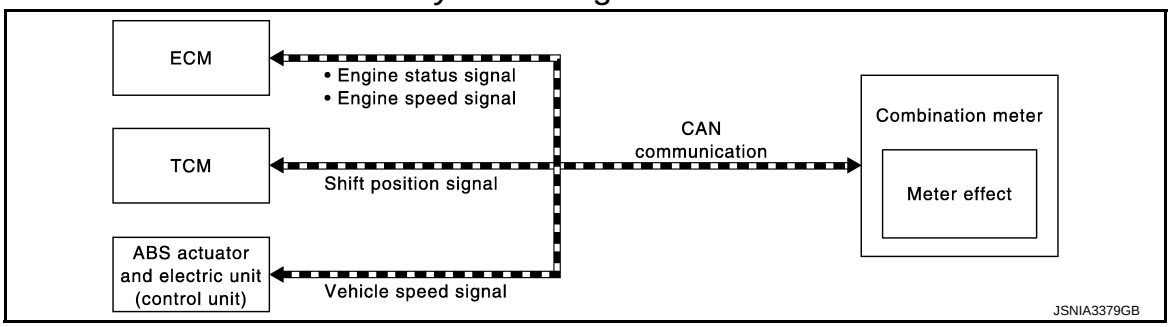

METER EFFECT FUNCTION : System Description

INFOID:0000000006412910

ENGINE-START EFFECT FUNCTION

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

- Speedometer
- Tachometer
- Each meter pointer illumination
- Meter illumination
- Information display illumination
- Shift position indicator (CVT models)
- Start-up illumination (M/T models)

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.
Each meter pointer illumination	Turns on the illumination at the effect level.
Meter illumination	Increases the brightness to the effect level in stages.
Information display illumination	Turns on the illumination at the normal brightness level.
Shift position indicator (CVT models)	Turns ON at effect level brightness after staying OFF for 2 seconds.
Start-up illumination (M/T models)	Turns ON/OFF in stages between OFF and the effect level brightness.

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.

Operational 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
Shift position (CVT models)	“P” range

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 source
Ignition signal	—
Shift position signal	TCM —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

NOTE:
The engine-start effect function ends if any one of the above conditions is lost during the activation of this function.

INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

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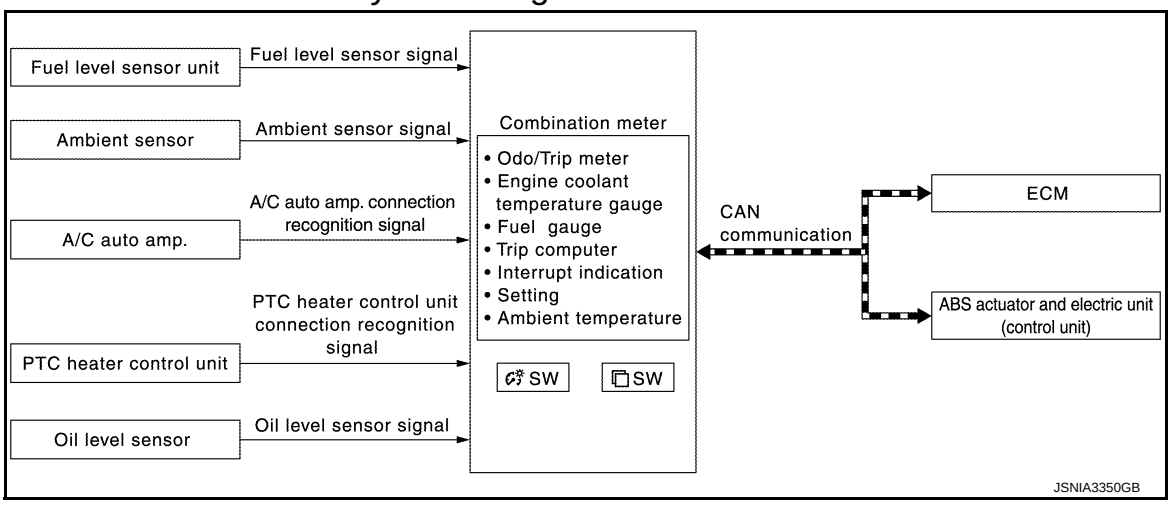


INFORMATION DISPLAY : System Description

INFOID:0000000006412912

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

- Engine coolant temperature gauge
- Fuel gauge
- Trip computer
- Interrupt indication
- Setting
- Ambient temperature

ODO/TRIP METER

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

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

ENGINE COOLANT TEMPERATURE GAUGE

- 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 water temperature gauge according to the engine coolant temperature signal received via CAN communication.

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

FUEL GAUGE

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.

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

Refuel Control

The unit judges that the driver is refueling the vehicle and accelerates the fuel gauge segment movement if the fuel level changes by 15 ℓ (3 - 1/4 lmp gal) or more.

AMBIENT TEMPERATURE

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

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

NOTE:
- The indicated temperature is corrected based on an ignition signal, ambient temperature detected by the ambient sensor, and vehicle speed signal. The indicated temperature is not raised under vehicle speed less than 20 km/h (12 MPH).
- The ambient sensor input value that is displayed on “Data Monitor” of CONSULT-III is the value before the correction. It may not match the indicated temperature on the information display.
- Depending on engine heat or heat on the road surfaces, an ambient temperature may be indicated higher than actual one.

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
Ignition signal	—
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
Ignition signal	—
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
Ignition signal	—
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 ON right after battery removal and installation, “–––” is displayed until after a travel of 30 seconds.

- The indicated values may not match each other when refueling with the ignition switch ON.

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

Torque Distribution Indicator
Refer to DLN-18, "4WD SYSTEM : Torque Split Control".

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.

Meter Illumination Level
The combination meter displays the illuminance level of the back light on the information display by turning the meter control switch.

ICY Warning (low ambient air temperature)

- When the following operating condition is satisfied, the combination meter displays an ICY warning on the information display.

Operating condition	
Ignition switch	ON
Ambient temperature	3 °C (37 °F) or less

- 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

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 9.5 ℓ (2-1/8 Imp gal) or less [1.5 ℓ (3/8 Imp gal) fuel residues included]

- 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

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

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

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:
- Distance to empty on the information display is updated approximately every 30 seconds.
- When the ignition switch is turned ON right after battery removal and installation, "––" is displayed until after a travel of 30 seconds.
- The indicated values may not match each other when refueling with the ignition switch ON.

Oil level Indicator

The combination meter reads a resistance value of the oil level sensor when the following steps are completed and displays the oil level sensor indicator when the ignition switch is turned ON.

1. Ignition switch OFF
2. After a lapse of five minutes or more
3. The door on the front side is opened.

Oil Maintenance Warning (Except For K9K Engine Models)

- When all the following operating conditions are satisfied, the combination meter displays wrench symbol and distance to oil change information on the information display by an interrupt.

Operating condition	
Ignition switch	ON
Mileage	More than value set in setting range

- 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

Oil Maintenance Warning (K9K Engine Models)

- The combination meter receives remaining distance signal from the ECM with CAN communication line.
- The combination meter indicates oil change remaining distance when receiving remaining distance signal.
- The combination meter indicates oil maintenance warning judged with the remaining distance signal received from the ECM.

For details, refer to EC section.

SETTING

Oil maintenance warning indication timing can be set.

Maintenance

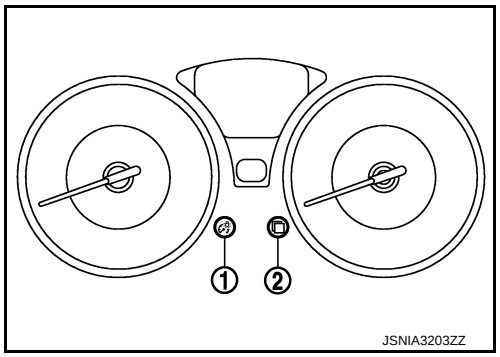
Setting values for engine oil maintenance can be adjusted to meet the user's needs.

Setting item	Setting range
Oil maintenance (except for K9K engine models)	No setting, 1000 km - 30,000 km (No setting, 500 mile - 18,000 mile)

OPERATION

Switch Name and Function

INFOID:0000000006412913



Switch name	Operation	Description
Illumination control switch (1)	Press	An illuminance level of the back light of the combination meter can be adjusted.
Meter control switch (2)		• The information display screen can be switched. • An indicated value of the trip computer can be reset by pressing and holding the meter control switch.

DIAGNOSIS SYSTEM (COMBINATION METER)

On Board Diagnosis Function

INFOID:0000000006412914

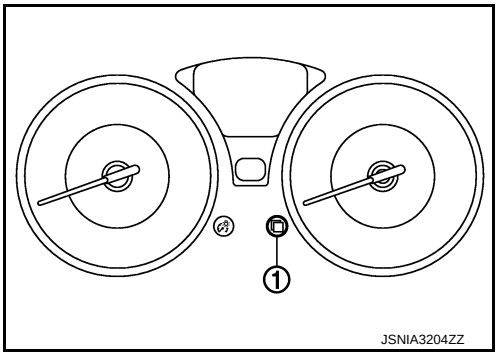
ON BOARD DIAGNOSIS ITEM

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

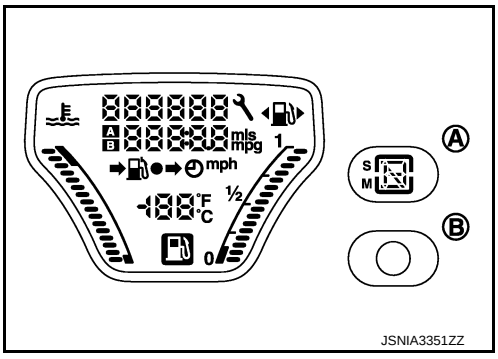
	Diagnosis item
Drive circuit check	• Speedometer • Tachometer
LCD (liquid crystal display) check	Information display

METHOD OF STARTING

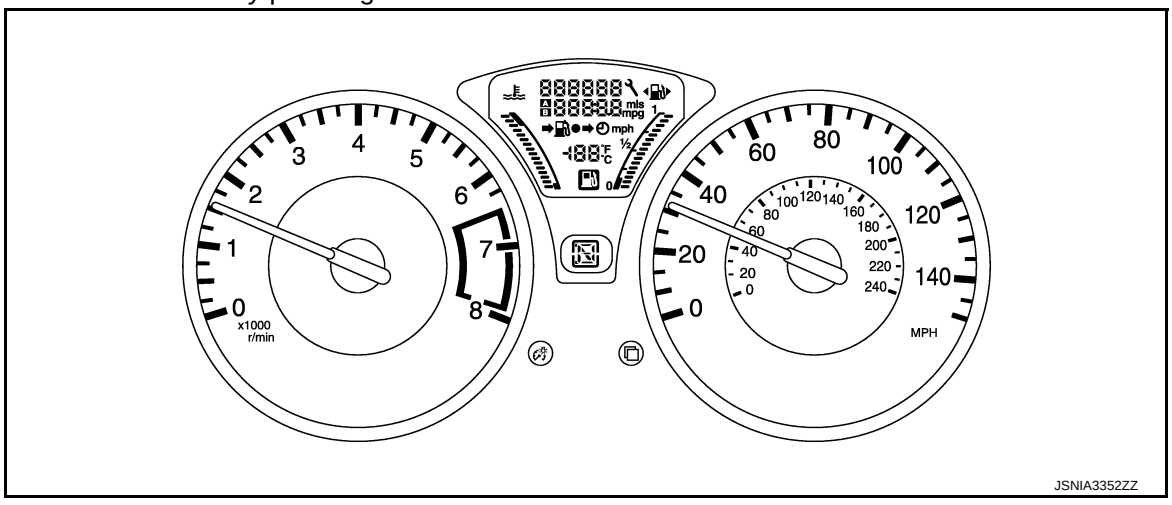
1. Turn ignition switch ON, and switch the trip meter to “trip A” or “trip B”.
2. Turn ignition switch OFF.
3. While pressing the meter control switch (1), turn ignition switch ON.
4. Make sure that the trip meter displays “0000.0”.
5. Press the meter control switch at least 3 times. (Within 7 seconds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



6. The combination meter is turned to self-diagnosis mode.
   All of the segments of engine coolant temperature gauge, fuel gauge, odo/trip meter, shift position indicator (A) for CVT models and information display illuminate.
   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.
   - For M/T models, start-up lamp (B) illuminate instead of shift position indicator.



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



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

CONSULT-III Function

INFOID:0000000006412915

CONSULT-III APPLICATION ITEMS

CONSULT-III 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.
	Special function	Lighting history of the warning lamp and indicator lamp can be checked.

SELF DIAG RESULT

Refer to MWI-36, "DTC Index".

DATA MONITOR

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.
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.
FUEL CAP W/L [Off]		This item is displayed, but cannot be monitored.
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 ESP OFF indicator lamp detected from ESP OFF indicator lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
SLIP IND [On/Off]		Status of ESP warning lamp detected from ESP 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 lamp detected from door switch signal received from BCM via CAN communication.

Display item [Unit]	MAIN SIGNALS	Description
HI-BEAM IND [On/Off]		Status of high beam indicator lamp detected from high beam request signal is received from BCM via CAN communication.
TURN IND [On/Off]		Status of turn indicator lamp detected from turn indicator signal is received from BCM via CAN communication.
FR FOG IND [On/Off]		Status of front fog light indicator lamp detected from front fog light request signal is received from BCM via CAN communication.
RR FOG IND [On/Off]		Status of rear fog light indicator lamp detected from rear fog light request signal is received from BCM via CAN communication.
LIGHT IND [On/Off]		Status of light indicator lamp detected from position light request signal is received from BCM via CAN communication.
OIL W/L [On/Off]		• Status of oil pressure warning lamp detected from oil pressure switch signal is received from BCM via CAN communication. (K9K engine models) • Status of oil pressure warning lamp detected from oil pressure switch signal is received from ECM via CAN communication. (except for K9K engine models)
MIL [On/Off]		Status of malfunction indicator (yellow) detected from malfunctioning indicator lamp signal is received from ECM via CAN communication.
GLOW IND [On/Off]		Status of glow indicator lamp detected from glow indicator lamp signal is received from ECM via CAN communication.
C-ENG2 W/L [On/Off]		Status of malfunction indicator (red) detected from malfunctioning indicator lamp signal is received from ECM via CAN communication.
CRUISE IND [On/Off]		Status of CRUISE indicator lamp detected from ASCD status signal is received from ECM via CAN communication.
SET IND [On/Off]		Status of SET indicator lamp detected from ASCD status signal is received from ECM via CAN communication.
O/D OFF IND [On/Off]		Status of S mode indicator lamp detected from S mode indicator lamp signal is received from TCM via CAN communication.
CVT IND [On/Off]		Status of CVT indicator lamp detected from CVT status signal is received from TCM via CAN communication.
4WD W/L [On/Off]		Status of 4WD warning lamp judged from 4WD warning lamp signal received from 4WD control module with CAN communication line.
4WD LOCK IND [On/Off]		Status of 4WD lock indicator lamp judged from 4WD mode lamp signal received from 4WD control module with CAN communication line.
FUEL W/L [On/Off]		Low fuel warning status detected by the identified fuel level.
KEY G/Y W/L [On/Off]		Status of KEY warning lamp (G/Y) detected from KEY warning lamp signal is received from BCM via CAN communication.
KEY KNOB W/L [On/Off]		Status of shift P warning lamp detected from shift P warning lamp signal is received from BCM via CAN communication.
EPS W/L [On/Off]		Status of EPS warning lamp detected from EPS warning lamp signal is received from EPS control unit via CAN communication.
DPF W/L [On/Off]		Status of Diesel Particulate Filter warning lamp detected from Diesel Particulate Filter warning lamp signal is received from ECM via CAN communication.
FILTER W/L [On/Off]		Status of Filter warning lamp detected from Filter warning lamp signal is received from ECM via CAN communication.
LCD [B&P N, B&P I, SFT P, BATT, NO KY, LK WN]*1 [C&P N, C&P I, SFT P, BATT, NO KY, LK WN]*2		Status of engine start operation indicator lamp, shift P warning lamp and KEY warning lamp, detected from engine start operation indicator lamp signal, shift P warning lamp signal and KEY warning lamp signal are received from BCM via CAN communication.
SHIFT IND [P, R, N, D, L]*3 [P, R, N, D, M1, M2, M3, M4, M5, M6]*4		Status of shift position indicator judged from shift position signal received from TCM with CAN communication line.

Display item [Unit]	MAIN SIGNALS	Description
O/D OFF SW [On/Off]		Status of over drive control switch.
M RANGE SW [On/Off]		Status of manual mode switch.
NM RANGE SW [On/Off]		Status of non-manual mode switch.
AT SFT UP SW [On/Off]		Status of manual mode shift up switch.
AT SFT DWN SW [On/Off]		Status of manual mode shift down switch.
COMP F/B SIG [On/Off]		A/C compressor activation condition that ECM judges according to the engine coolant temperature and the acceleration degree.
PKB SW [On/Off]		Status of parking brake switch.
BUCKLE SW [On/Off]		Status of seat belt buckle switch (driver side).
BRAKE SW [On/Off]		Status of stop lamp switch.
BRAKE OIL SW [On/Off]		Status of brake fluid level switch.
A/C AMP CONN [On/Off]		• Status of A/C auto amp. connection recognition signal. • Status of PTC heater control unit connection recognition signal.
PASS BUCKLE SW [On/Off]		Status of seat belt buckle switch (passenger side).
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.
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.
ASCD SPD BLNK [On/Off]		Blinking status of ASCD or speed limiter set vehicle speed that is judged by the ASCD status signal received from ECM via CAN communication.
ASCD STATUS [Off, ASCD, CRUISE, SL ON, SL SET]		Display status of ASCD and speed limiter status display judged by the ASCD status signal received from ECM via CAN communication.
ASCD REQ SPD [km/h/Off]		ASCD or speed limiter set vehicle speed value that is judged by the ASCD status signal received from ECM via CAN communication.
E/O CHG TMNG [km]		A value of ECM-judged remaining distance to the oil change time.
E/O CHG TMNG RST [On/Off]		Resetting of a remaining distance to the engine oil change time.

- *1: CVT models
- *2: M/T models
- *3: Without manual mode CVT
- *4: With manual mode CVT

NOTE:

Some items are not available according to vehicle specification.

SPECIAL FUNCTION

Special menu

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

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

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

Display Item

Display item	Description
ABS W/L	Lighting history of ABS warning lamp.
VDC/TCS IND	Lighting history of ESP OFF indicator lamp.
SLIP IND	Lighting history of ESP warning lamp.
BRAKE W/L	Lighting history of brake warning lamp.
DOOR W/L	Lighting history of door open warning.
TRUNK/GLAS-H	This item is displayed, but cannot be monitored.
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp (orange).
C-ENG2 W/L	Lighting history of malfunction indicator lamp (red).
CRUISE IND	Lighting history of CRUISE indicator lamp.
SET IND	Lighting history of SET indicator lamp.
CRUISE W/L	This item is displayed, but cannot be monitored.
BA W/L	This item is displayed, but cannot be monitored.
O/D OFF IND	Lighting history of S mode indicator lamp.
ATC/T-AMT W/L	This item is displayed, but cannot be monitored.
ATF TEMP W/L	This item is displayed, but cannot be monitored.
CVT IND	Lighting history of CVT indicator.
SPORT IND	This item is displayed, but cannot be monitored.
4WD W/L	Lighting history of 4WD warning lamp.
FUEL W/L	Lighting history of low fuel level warning.
WASHER W/L	This item is displayed, but cannot be monitored.
AIR PRES W/L	This item is displayed, but cannot be monitored.
KEY G/Y W/L	Lighting history of KEY warning lamp (G/Y).
KEY R W/L	This item is displayed, but cannot be monitored.
KEY KNOB W/L	Lighting history of Shift P warning lamp.
EPS W/L	Lighting history of EPS warning lamp.
e-4WD	This item is displayed, but cannot be monitored.

Display item	Description
AFS OFF IND	This item is displayed, but cannot be monitored.
4WAS/RAS W/L	This item is displayed, but cannot be monitored.
HDC W/L	This item is displayed, but cannot be monitored.
SYS FAIL W/L	This item is displayed, but cannot be monitored.
SFT POSI W/L	This item is displayed, but cannot be monitored.
HV BAT W/L	This item is displayed, but cannot be monitored.
HEV BRAKE W/L	This item is displayed, but cannot be monitored.
SFT OPER W/L	This item is displayed, but cannot be monitored.
LANE W/L	This item is displayed, but cannot be monitored.
CHAGE W/L	This item is displayed, but cannot be monitored.
OIL LEV LOW	This item is displayed, but cannot be monitored.
DPF W/L	Lighting history of DPF warning lamp.
TRAILER IND	This item is displayed, but cannot be monitored.
RUN FLAT W/L	This item is displayed, but cannot be monitored.
E-SUS W/L	This item is displayed, but cannot be monitored.
LAUNCH CNT W/L	This item is displayed, but cannot be monitored.
BSW W/L	This item is displayed, but cannot be monitored.
FILTER W/L	Lighting history of FILTER warning lamp.
BRAKE PAD W/L	This item is displayed, but cannot be monitored.

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000006412916

VALUES ON THE DIAGNOSIS TOOL

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
FUEL CAP W/L	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	ESP OFF indicator lamp ON	On
		ESP OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	ESP warning lamp ON	On
		ESP 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 lamp ON	On
		Door open warning lamp OFF	Off
HI-BEAM IND	Ignition switch ON	High-beam indicator lamp ON	On
		High-beam indicator lamp OFF	Off
TURN IND	Ignition switch ON	Turn signal indicator lamp ON	On
		Turn signal indicator lamp OFF	Off
FR FOG IND	Ignition switch ON	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off

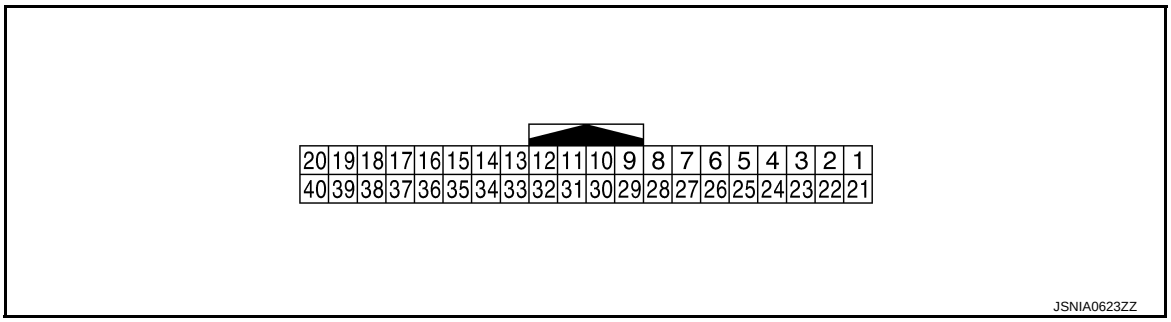
Monitor Item	Condition		Value/Status
RR FOG IND	Ignition switch ON	Rear fog lamp indicator lamp ON	On
		Rear fog lamp indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Tail lamp indicator lamp ON	On
		Tail lamp indicator lamp OFF	Off
OIL W/L	Ignition switch ON	Oil pressure warning lamp ON	On
		Oil pressure warning lamp OFF	Off
MIL	Ignition switch ON	Malfunction indicator (yellow) ON	On
		Malfunction indicator (yellow) OFF	Off
GLOW IND	Ignition switch ON	Glow indicator lamp ON	On
		Glow indicator lamp OFF	Off
C-ENG2 W/L	Ignition switch ON	Engine warning (red) ON	On
		Engine warning (red) OFF	Off
CRUISE IND	Ignition switch ON	CRUISE indicator lamp ON	On
		CRUISE indicator lamp OFF	Off
SET IND	Ignition switch ON	SET indicator ON	On
		SET indicator OFF	Off
O/D OFF IND	Ignition switch ON	S mode indicator lamp ON	On
		S mode indicator lamp OFF	Off
CVT IND	Ignition switch ON	CVT indicator ON	On
		CVT indicator OFF	Off
4WD W/L	Ignition switch ON	4WD warning lamp ON	On
		4WD warning lamp OFF	Off
4WD LOCK IND	Ignition switch ON	4WD LOCK indicator lamp ON	On
		4WD LOCK indicator lamp OFF	Off
KEY G/Y W/L	Ignition switch ON	During Intelligent Key system malfunction indication	On
		Other than the above	Off
KEY KNOB W/L	Ignition switch ON	SHIFT P warning lamp ON	On
		SHIFT P warning lamp OFF	Off
EPS W/L	Ignition switch ON	EPS warning lamp ON	On
		EPS warning lamp OFF	Off
DPF W/L	Ignition switch ON	DPF warning lamp ON	On
		DPF warning lamp OFF	Off
FUEL W/L	Ignition switch ON	During low fuel warning indication	On
		Other than the above	Off
FILTER W/L	Ignition switch ON	Filter warning lamp ON	On
		Filter warning lamp OFF	Off

Monitor Item	Condition		Value/Status
LCD	Ignition switch LOCK or ACC	Engine start operation indicator lamp ON (CVT models)	B&P N
	Ignition switch ON	Engine start operation indicator lamp ON (CVT models)	B&P I
	Ignition switch LOCK or ACC	Engine start operation indicator lamp ON (M/T models)	C&P N
	Ignition switch ON	Engine start operation indicator lamp ON (M/T models)	C&P I
	Ignition switch LOCK	During P position warning lamp indication	SFT P
	Ignition switch LOCK	During Intelligent Key low battery warning indication	BATT
	Ignition switch ON	During take away warning indication	NO KY
	Ignition switch ON	During ACC warning indication	LK WN
SHIFT IND	Ignition switch ON	Shift position indicator P display	P
		Shift position indicator R display	R
		Shift position indicator N display	N
		Shift position indicator D display	D
		Shift position indicator L display (without manual mode CVT)	L
		Shift position indicator M1 display (with manual mode CVT)	M1
		Shift position indicator M2 display (with manual mode CVT)	M2
		Shift position indicator M3 display (with manual mode CVT)	M3
		Shift position indicator M4 display (with manual mode CVT)	M4
		Shift position indicator M5 display (with manual mode CVT)	M5
		Shift position indicator M6 display (with manual mode CVT)	M6
O/D OFF SW	Ignition switch ON	S mode indicator switch ON	On
		S mode indicator 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
COMP F/B SIG	Ignition switch ON	A/C compressor activation condition	On
PKB SW	Ignition switch ON	Parking brake switch ON	On
		Parking brake switch OFF	Off

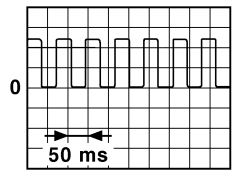
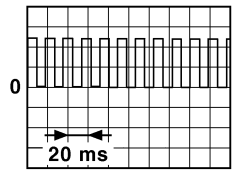
Monitor Item	Condition		Value/Status
BUCKLE SW	Ignition switch ON	Driver seat belt not fastened	On
		Driver seat belt fastened	Off
BRAKE SW	Ignition switch ON	Brake pedal is pressed	On
		Other than the above	Off
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On
		Brake fluid level switch OFF	Off
A/C AMP CONN	Ignition switch ON	Other than the following	On
		Receives A/C auto amp./PTC heater control unit connection recognition signal	Off
PASS BUCKLE SW	Ignition switch ON	Passenger seat belt not fastened	On
		• Passenger seat belt fastened • When getting in the passenger seat	Off
DISTANCE [km]	Ignition switch ON	—	Distance to empty calculated by combination meter
OUTSIDE TEMP [°C or °F]	Ignition switch ON	—	Input value of ambient sensor signal (CAN communication signal) **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
ASCD SPD BLNK	Ignition switch ON	Set vehicle speed indicator blinking	On
		Set vehicle speed indicator not blinking	Off
ASCD STATUS	Ignition switch ON	ASCD and speed limiter system OFF	Off
		ASCD system ON	ASCD
		ASCD set vehicle speed	CRUISE
		Speed limiter system ON	SL ON
		Speed limiter set vehicle speed	SL SET
ASCD REQ SPD [km/h or Off]	Ignition switch ON	While driving	Same value as ASCD or speed limiter set vehicle speed
E/O CHG TMNG	Ignition switch ON	—	A value of ECM-judged remaining distance to the oil change time.
E/O CHG TMNG RST	Ignition switch ON	Resetting of a remaining distance to the engine oil change time.	On
		Other than above	Off

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

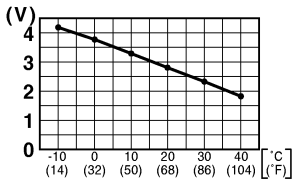
TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (L)	—	CAN-H	—	—	—	—
2 (P)	—	CAN-L	—	—	—	—
3 (GR)	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
4 (Y)	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

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
6 (BR)	Ground	Fuel level sensor signal	Input	Ignition switch ON	Resistance value corresponding to SEG 16/16	• On: 80 Ω / Off: 88 Ω (2WD) • On: 94 Ω / Off: 106 Ω (4WD)
					Resistance value corresponding to SEG 15/16	• On: 87 Ω / Off: 99 Ω (2WD) • On: 105 Ω / Off: 123 Ω (4WD)
					Resistance value corresponding to SEG 14/16	• On: 99 Ω / Off: 111 Ω (2WD) • On: 123 Ω / Off: 144 Ω (4WD)
					Resistance value corresponding to SEG 13/16	• On: 110 Ω / Off: 122 Ω (2WD) • On: 144 Ω / Off: 153 Ω (4WD)
					Resistance value corresponding to SEG 12/16	• On: 121 Ω / Off: 133 Ω (2WD) • On: 152 Ω / Off: 164 Ω (4WD)
					Resistance value corresponding to SEG 11/16	• On: 133 Ω / Off: 144 Ω (2WD) • On: 163 Ω / Off: 173 Ω (4WD)
					Resistance value corresponding to SEG 10/16	• On: 144 Ω / Off: 155 Ω (2WD) • On: 173 Ω / Off: 182 Ω (4WD)
					Resistance value corresponding to SEG 9/16	• On: 154 Ω / Off: 166 Ω (2WD) • On: 182 Ω / Off: 192 Ω (4WD)
					Resistance value corresponding to SEG 8/16	• On: 166 Ω / Off: 177 Ω (2WD) • On: 191 Ω / Off: 200 Ω (4WD)
					Resistance value corresponding to SEG 7/16	• On: 177 Ω / Off: 188 Ω (2WD) • On: 200 Ω / Off: 211 Ω (4WD)
					Resistance value corresponding to SEG 6/16	• On: 188 Ω / Off: 199 Ω (2WD) • On: 211Ω / Off: 219 Ω (4WD)
					Resistance value corresponding to SEG 5/16	• On: 199 Ω / Off: 216 Ω (2WD) • On: 219 Ω / Off: 228 Ω (4WD)
					Resistance value corresponding to SEG 4/16	• On: 215 Ω / Off: 232 Ω (2WD) • On: 227 Ω / Off: 236 Ω (4WD)
					Resistance value corresponding to SEG 3/16	• On: 233 Ω / Off: 252 Ω (2WD) • On: 235 Ω / Off: 245 Ω (4WD)
					Resistance value corresponding to SEG 2/16	• On: 251 Ω / Off: 270 Ω (2WD) • On: 246 Ω / Off: 253 Ω (4WD)
					Resistance value corresponding to SEG 1/16	• On: 271 Ω / Off: 287 Ω (2WD) • On: 253 Ω / Off: 258 Ω (4WD)
7 (R)	Ground	Air bag signal	Input	Ignition switch ON	Air bag warning lamp ON	4 V
					Air bag warning lamp OFF	0 V
8 (P)	Ground	Over drive control switch signal	Input	Ignition switch ON	Over drive control switch ON	4 V
					Over drive control switch OFF	0 V
9 (W)	Ground	Seat belt buckle switch signal (driver side)	Input	Engine idling	When driver seat belt is fastened.	12 V
					When driver seat belt is unfastened.	0 V
10 (SB)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied.	0 V
					Parking brake released.	5 V
11 (G)	Ground	Brake fluid level switch signal	Input	Ignition switch ON	Brake fluid level is normal	5 V
					Brake fluid level is less than LOW level	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
14 (R)	Ground	Manual mode shift up signal	Input	Ignition switch ON	Selector lever UP operation	0 V
					Other than the above	12 V
15 (L)	Ground	ACC power supply	Input	Ignition switch ACC	—	Battery voltage
16 (W)	Ground	Manual mode shift down signal	Input	Ignition switch ON	Selector lever DOWN operation	0 V
					Other than the above	12 V
18 (R)	Ground	Security signal	Input	Ignition switch OFF	Security indicator lamp ON	0 V
					Security indicator lamp OFF	12 V
19 (GR)	Ground	Ambient sensor signal	Input	Ignition switch ON	Changes depending to ambient temperature.	 JSNIA0014GB
20 (R)	Ground	Ambient sensor ground	—	Ignition switch ON	—	0 V
21 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
22 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
23 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
24 (L)	Ground	Fuel level sensor ground	—	Ignition switch ON	—	0 V
25 (B)	Ground	ESP ground	—	Ignition switch ON	—	0 V
27 (LG)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
28 (GR)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
29 (V)	Ground	Seat belt buckle switch signal (passenger side)	Input	Engine idling	• When getting in the passenger seat. • When passenger seat belt is fastened.	12 V
					• When getting in the passenger seat. • When passenger seat belt is unfastened.	0 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
30 (R)	Ground	Stop lamp switch signal	Input	Ignition switch ON	Brake pedal is depressed	12 V
					Other than the above	0 V
31 (P)	Ground	A/C auto amp. /PTC heater control unit connection recognition signal	Input	Ignition switch ON	—	5 V
33 (B/R)	Ground	Filter warning signal	Input	Ignition switch ON	—	—
36 (Y)	Ground	Manual mode signal	Input	Ignition switch ON	Selector manual mode position	0 V
					Other than the above	12 V
37 (G)	Ground	Non-manual mode signal	Input	Ignition switch ON	Selector manual mode position	12 V
					Other than the above	0 V
38 (P)	Ground	Alternator signal	Input	Ignition switch ON	Charge warning lamp ON	2 V
					Charge warning lamp OFF	12 V
39 (Y)	Ground	Oil level sensor signal	Input	Ignition switch ON	—	Refer to MWI-50, "Component Inspection".
40 (SB)	Ground	Oil level sensor ground	—	Ignition switch ON	—	0 V

Fail-Safe

INFOID:0000000006412917

FAIL-SAFE

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

Function		Specifications
Speedometer		Reset to zero by suspending communication.
Tachometer		
Engine coolant temperature gauge		
Illumination control		When suspending communication, changes to nighttime mode.
Shift position indicator	Shift position	When suspending communication, not indicate.
	S mode indicator lamp	
Information display	Instantaneous fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
	Average fuel consumption	
	Possible driving distance	
	Torque distribution 4WD	
Buzzer		The buzzer turns OFF by suspending communication.

Function		Specifications
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	Malfunction indicator (Yellow)	
	SLIP indicator lamp	
	EPS warning lamp	
	4WD warning lamp	
	Brake warning lamp	
	VDC warning lamp	The lamp turns OFF by suspending communication.
	High beam indicator lamp	
	Turn signal indicator lamp	
	Door warning lamp	
	Light indicator lamp	
	Engine start operation indicator lamp	
	Shift P warning lamp	
	Front fog lamp indicator lamp	
	Rear fog lamp indicator lamp	
	Oil pressure warning lamp	
	Malfunction indicator (Red)	
	CRUISE indicator lamp	
	SET indicator lamp	
	Speed limiter indicator lamp	
	4WD indicator lamp	
	4WD LOCK indicator lamp	
	Key warning lamp	
	DPF (Diesel Particulate Filter) warning lamp	
	Glow indicator lamp	
	CVT indicator lamp	
	Filter warning lamp	

DTC Index

INFOID:0000000006412918

Display contents of CONSULT-III	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-44, "Diagnosis Procedure"
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-45, "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-46, "Diagnosis Procedure"
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-47, "Diagnosis Procedure"
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-48, "Diagnosis Procedure"

Display contents of CONSULT-III	Diagnostic item is detected when...	Refer to
OIL LEV SEN OPEN [B2321]	Signal from oil level sensor is open (resistance value of oil level sensor is larger than 20 Ω).	MWI-49, "Diagnosis Procedure"
OIL LEV SEN SHORT [B2322]	Signal from oil level sensor is shorted (resistance value of oil level sensor is smaller than 3 Ω).	MWI-49, "Diagnosis Procedure"

IPDM E/R

List of ECU Reference

INFOID:0000000006412919

ECU	Reference
IPDM E/R	PCS-17, "Reference Value" (with I-KEY), or PCS-48, "Reference Value" (without I-KEY)
	PCS-24, "Fail-Safe" (with I-KEY), or PCS-54, "Fail-Safe" (without I-KEY)
	PCS-25, "DTC Index" (with I-KEY), or PCS-55, "DTC Index"(without I-KEY)

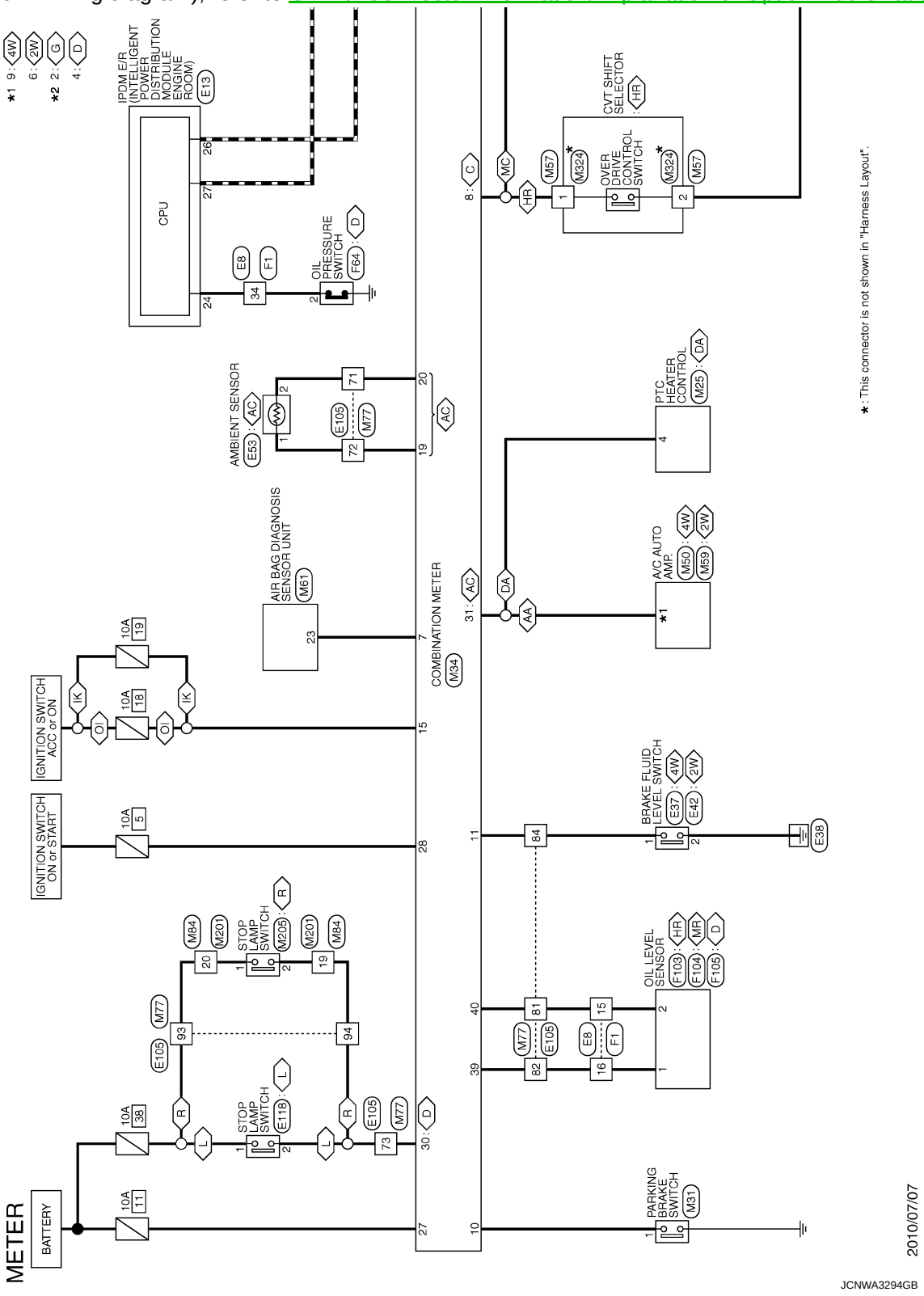
WIRING DIAGRAM

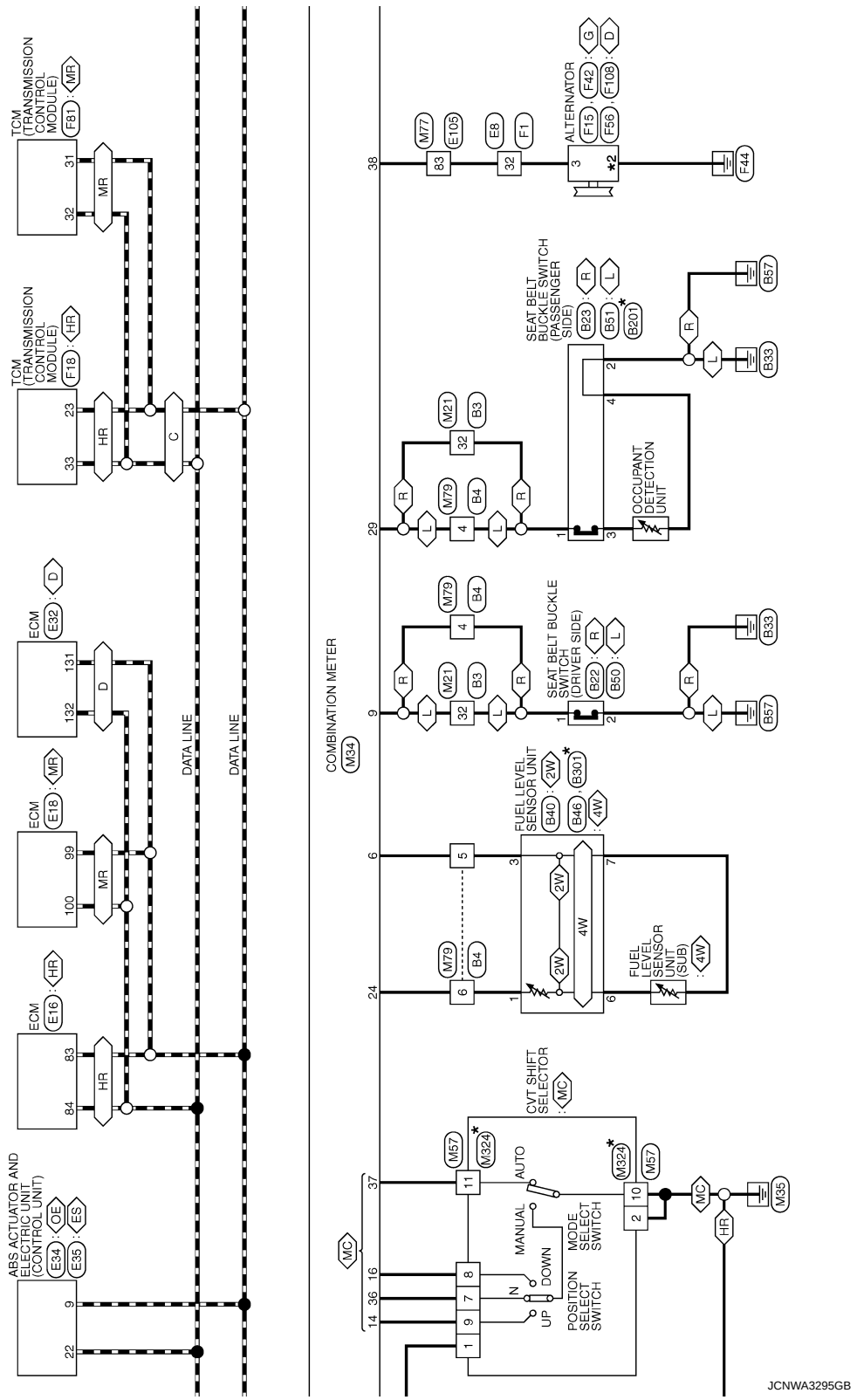
METER SYSTEM

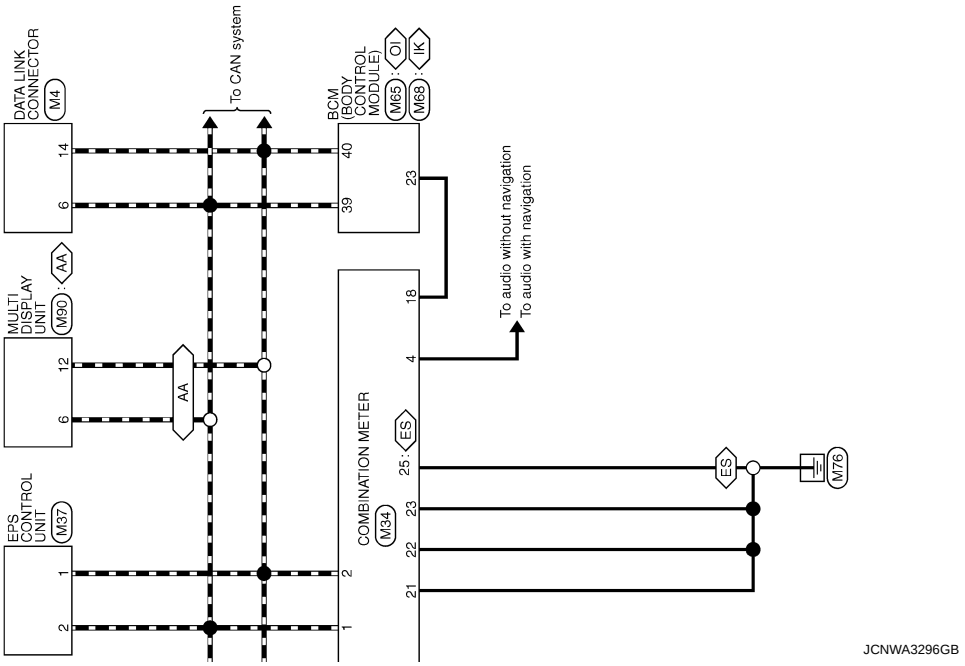
Wiring Diagram

INFOID:0000000006412920

For connector terminal arrangements, harness layouts, and alphabets in a ⬡ (option abbreviation; if not described in wiring diagram), refer to GI-12, "Connector Information/Explanation of Option Abbreviation".




TCM (TRANSMISSION CONTROL MODULE) F81 : MR
TCM (TRANSMISSION CONTROL MODULE) F18 : HR
ECM E32 : D
ECM E18 : MR
ECM E16 : HR
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) E34 : OE E35 : ES
DATA LINE
DATA LINE
COMBINATION METER M34
CVT SHIFT SELECTOR : MC
POSITION SELECT SWITCH
MODE SELECT SWITCH
FUEL LEVEL SENSOR UNIT B40 : 2W B46 : 4W B301 *
FUEL LEVEL SENSOR UNIT (SUB) : 4W
SEAT BELT BUCKLE SWITCH (DRIVER SIDE) B22 : R B50 : L
SEAT BELT BUCKLE SWITCH (PASSENGER SIDE) B23 : R B51 : L B201 *
OCCUPANT DETECTION UNIT
ALTERNATOR F15 : F42 : G F56 : F108 : D *2
JCNWA3295GB


DATA LINK CONNECTOR
M4
14
6
To CAN system
BCM (BODY CONTROL MODULE)
M65 : OI
M68 : IK
40
39
23
MULTI DISPLAY UNIT
M90 : AA
12
6
AA
18
4
To audio without navigation
To audio with navigation
EPS CONTROL UNIT
M37
1
2
2
1
COMBINATION METER
M34
25 : ES
23
22
21
ES
M76
JCNWA3296GB

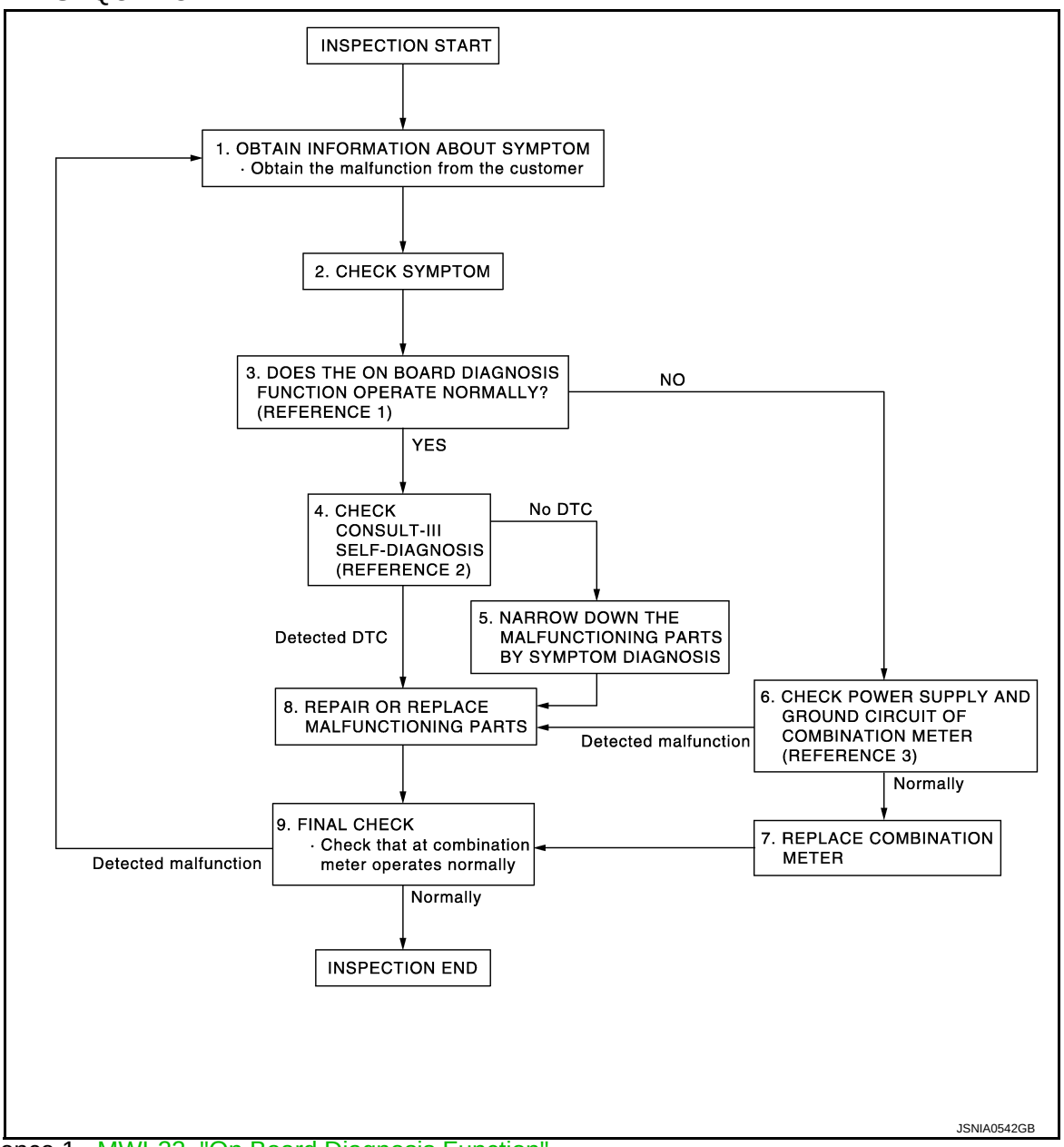
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

Work flow

INFOID:0000000006412922

OVERALL SEQUENCE



- Reference 1···MWI-22, "On Board Diagnosis Function".
- Reference 2···MWI-36, "DTC Index".
- Reference 3···MWI-51, "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-22, "On Board Diagnosis Function".

Does the on board diagnosis function operate normally?

YES >> GO TO 4.
NO >> GO TO 6.

4.CHECK CONSULT-III SELF-DIAGNOSIS RESULTS

Connect CONSULT-III and perform self-diagnosis. Refer to MWI-36, "DTC Index".

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-51, "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:0000000006412923

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-31, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC Logic

INFOID:0000000006412924

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	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:0000000006412925

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-17, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-42, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000006412926

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000006412927

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	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:0000000006412928

1.REPLACE COMBINATION METER

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

>> INSPECTION END

B2205 VEHICLE SPEED

Description

INFOID:0000000006412929

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

DTC Logic

INFOID:0000000006412930

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	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:0000000006412931

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

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

>> • Refer to BRC-131, "CONSULT-III Function" (with ESP).
• Refer to BRC-24, "CONSULT-III Function" (without ESP).

B2267 ENGINE SPEED

Description

INFOID:0000000006412932

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

DTC Logic

INFOID:0000000006412933

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	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:0000000006412934

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-108, "DTC Index" (MR16DDT), EC-522, "DTC Index" (HR16DE), or EC-855, "DTC Index" (K9K).

B2268 WATER TEMP

Description

INFOID:0000000006412935

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

DTC Logic

INFOID:0000000006412936

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	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:0000000006412937

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-108, "DTC Index" (MR16DDT), EC-522, "DTC Index" (HR16DE), or EC-855, "DTC Index" (K9K).

B2321, B2322 OIL LEVEL SENSOR

Description

INFOID:0000000006413654

The oil level sensor detects the level of engine oil, and then transmits the oil level signal to the combination meter.

DTC Logic

INFOID:0000000006413655

DTC DETECTION LOGIC

DTC	Display contents of CONSULT-III	Diagnostic item is detected if...	Probable malfunction location
B2321	OIL LEV SEN OPEN	Oil level sensor signal circuit is open. (Resistance value of oil level sensor exceeds 20 Ω)	• Oil level sensor signal circuit • Oil level sensor
B2322	OIL LEV SEN SHORT	Oil level sensor signal circuit is shorted. (Resistance value of oil level sensor is less than 3 Ω)	

NOTE:
When the following conditions are satisfied, the combination meter reads the resistance value of oil level sensor. The combination meter does not read the oil level sensor resistance value within 5 minutes after the previous reading of oil level sensor resistance value by the combination meter.
1. Turn the ignition switch OFF.
2. Wait for 5 minutes or more, then open the front door.

DTC (B2321: OIL LEV SEN OPEN, B2322: OIL LEV SEN SHORT) is also detected at the timing described above.

Diagnosis Procedure

INFOID:0000000006413656

1.CHECK OIL LEVEL SENSOR SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect connectors of combination meter and oil level sensor.
3. Check for continuity between combination meter harness connector and oil level sensor harness connector.

Combination meter		Oil level sensor		Continuity
Connector	Terminal	Connector	Terminal	
M34	39	F103*1	1	Existed
		F104*2		
		F105*3		

*1: HR16DE engine models
*2: MR16DDT engine models
*3: K9K engine models

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	39		Not existed

Is the inspection result normal?

YES >> GO TO 2.
NO >> Repair harnesses or connectors.

2.CHECK OIL LEVEL SENSOR GROUND CIRCUIT

Check for continuity between combination meter harness connector and oil level sensor harness connector.

Combination meter		Oil level sensor		Continuity
Connector	Terminal	Connector	Terminal	
M34	40	F103*1	2	Existed
		F104*2		
		F105*3		

*1: HR16DE engine models
*2: MR16DDT engine models
*2: K9K engine models

Is the inspection result normal?

YES >> INSPECTION END
NO >> Repair harnesses or connectors.

Component Inspection

INFOID:0000000006413657

1.CHECK OIL LEVEL SENSOR

1. Turn ignition switch OFF.
2. Disconnect oil level sensor connector.
3. Check resistance between oil level sensor terminals 1 and 2.

Terminal		Resistance value (Ω)
1	2	3 - 20

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace oil level sensor.

POWER SUPPLY AND GROUND CIRCUIT
COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000006412938

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	11
Ignition switch ON or START	5
Ignition switch ACC or ON	18 (Without intelligent key)
	19 (With intelligent key)

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				
Connector	Terminal			
M34	27	Ground	OFF	Battery voltage
	15		ACC	
	28		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			Continuity
Connector	Terminal		
M34	21	Ground	Existed
	22		
	23		
	25 (With ESP)		

Is the inspection result normal?

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

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Component Function Check

INFOID:0000000006412941

2WD MODELS

1.CHECK COMBINATION METER OUTPUT SIGNAL

Select the “Data Monitor” for the “METER/M&A” and compare the “FUEL METER” monitor value with the fuel gauge reading on the combination meter.

Fuel gauge indication position	Reference value of data monitor [L]
16/16	Approx. 44.7
14/16	Approx. 43.4
12/16	Approx. 40.0
10/16	Approx. 35.4
8/16	Approx. 29.8
6/16	Approx. 23.7
4/16	Approx. 17.3
2/16	Approx. 8.3
0/16	Approx. 1.2

Does monitor value match fuel gauge reading?

YES >> INSPECTION END
NO >> Replace combination meter. Refer to MWI-69, "Removal and Installation".

4WD MODELS

1.CHECK COMBINATION METER OUTPUT SIGNAL

Select the “Data Monitor” for the “METER/M&A” and compare the “FUEL METER” monitor value with the fuel gauge reading on the combination meter.

Fuel gauge indication position	Reference value of data monitor [L]
16/16	Approx. 44.2
14/16	Approx. 39.5
12/16	Approx. 33.2
10/16	Approx. 27.6
8/16	Approx. 22.9
6/16	Approx. 18.3
4/16	Approx. 14.2
2/16	Approx. 9.6
0/16	Approx. 6.8

Does monitor value match fuel gauge reading?

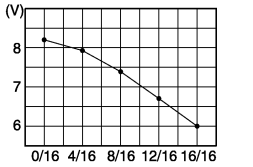
YES >> INSPECTION END
NO >> Replace combination meter. Refer to MWI-69, "Removal and Installation".

Diagnosis Procedure

INFOID:0000000006412942

1.CHECK COMBINATION METER INPUT SIGNAL

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

Terminals			Voltage (Approx.)
(+)		(–)	
Combination meter			
Connector	Terminal		
M34	6	Ground	

JSNIA3305ZZ

Does it match fuel gauge reading?

YES >> GO TO 2.
NO >> Replace the combination meter. Refer to MWI-69, "Removal and Installation".

2. CHECK FUEL LEVEL SENSOR CIRCUIT

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

Combination meter		Fuel level sensor unit		Continuity
Connector	Terminal	Connector	Terminal	
M34	6	B40*1	3	Existed
		B46*2	3	

*1: 2WD models
*2: 4WD models

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	6		Not existed

Is the inspection result normal?

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

3. CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

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

Fuel level sensor unit		Combination meter		Continuity
Connector	Terminal	Connector	Terminal	
B40*1	1	M34	24	Existed
B46*2	1			

*1: 2WD models
*2: 4WD models

Is the inspection result normal?

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

Component Inspection

INFOID:0000000006412943

2WD MODELS

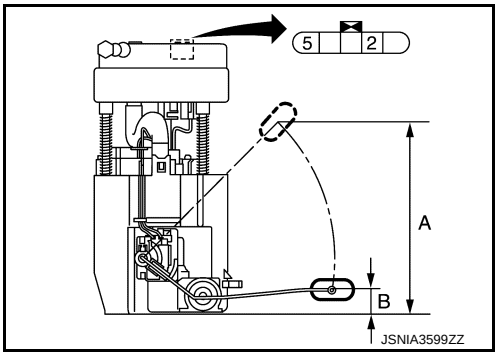
1.REMOVE FUEL LEVEL SENSOR UNIT (MAIN)

Remove the fuel level sensor unit (main). Refer to FL-6, "2WD : Removal and Installation" (MR16DDT), FL-33, "Removal and Installation" (HR16DE), or FL-51, "Removal and Installation" (K9K).

>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT (MAIN)

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



Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit (main)				
1	3	Full* (A)	51	140.6 (7.02)
		Empty* (B)	283	13.9 (1.425)

*: When float rod is contact with stopper.

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace the fuel level sensor unit (main). Refer to FL-6, "2WD : Removal and Installation" (MR16DDT), FL-33, "Removal and Installation" (HR16DE), or FL-51, "Removal and Installation" (K9K).

4WD MODELS

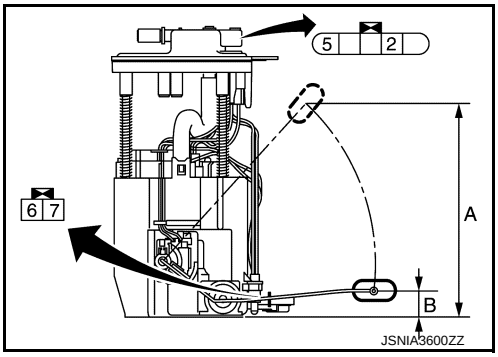
1.REMOVE FUEL LEVEL SENSOR UNIT (MAIN)

Remove the fuel level sensor unit (main). Refer to FL-11, "4WD : Removal and Installation".

>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT (MAIN)

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



Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit (main)				
6	1	Full* (A)	25.5	177 (7.33)
		Empty* (B)	99.5	24 (1.429)
4	7	—	0	—

*: When float rod is contact with stopper.

Is inspection result OK?

YES >> GO TO 3.
NO >> Replace fuel level sensor unit (main). Refer to FL-11, "4WD : Removal and Installation".

3.REMOVE FUEL LEVEL SENSOR UNIT (SUB)

Remove the fuel level sensor unit (sub). Refer to FL-11, "4WD : Removal and Installation".

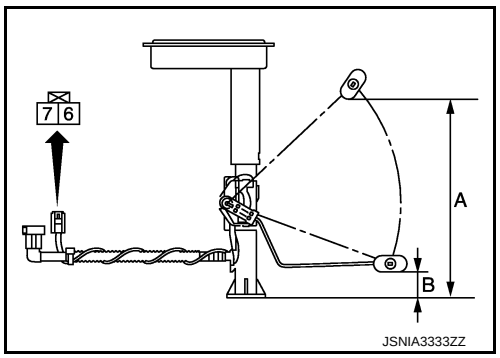
>> GO TO 4.

4.CHECK FUEL LEVEL SENSOR UNIT (SUB)

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

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit (sub)				
7	6	Full* (A)	25.5	180 (7.4)
		Empty* (B)	183.5	15 (1.24)

*: When float rod is contact with stopper.



Is inspection result OK?

YES >> INSPECTION END
NO >> Replace fuel level sensor unit (sub). Refer to FL-11, "4WD : Removal and Installation".

OIL PRESSURE SWITCH SIGNAL CIRCUIT

Component Function Check

INFOID:0000000006413644

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:0000000006413645

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	F64	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.

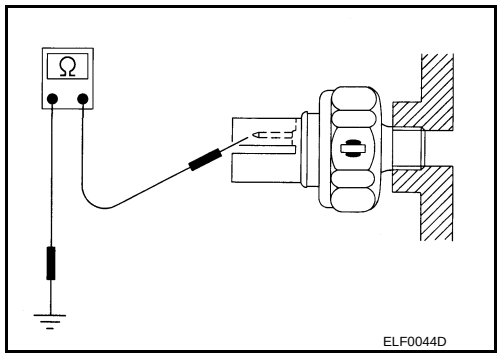
Component Inspection

INFOID:0000000006413646

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 LU-8, "Inspection" (MR16DDT), LU-25, "Inspection" (HR16DE), or LU-33, "Inspection" (K9K).

SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT (DRIVER SIDE)

Component Function Check

INFOID:0000000006413648

1.CHECK COMBINATION METER INPUT SIGNAL

Select the “Data Monitor” for the “METER/M&A” and check the “BUCKLE SW” monitor value.

BUCKLE SW
When driver seat belt is fastened : Off
When driver seat belt is unfastened : On

>> INSPECTION END

Diagnosis Procedure

INFOID:0000000006413649

1.CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and seat belt buckle switch (driver side) connector.
3. Check continuity between combination meter harness connector and seat belt buckle switch (driver side) harness connector.

Combination meter		Seat belt buckle switch (driver side)		Continuity
Connector	Terminal	Connector	Terminal	
M34	9	B50*1	1	Existed
		B22*2		

*1: LHD models
*2: RHD models

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	9		Not existed

Is the inspection result normal?

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

2.CHECK SEAT BELT BUCKLE SWITCH (DRIVER SIDE) GROUND CIRCUIT

Check harness continuity between seat belt buckle switch (driver side) harness connector and ground.

Seat belt buckle switch (driver side)		Ground	Continuity
Connector	Terminal		
B50*1	2		Existed
B22*2			

*1: LHD models
*2: RHD models

Is the inspection result normal?

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

Component Inspection

INFOID:0000000006413650

1. CHECK SEAT BELT BUCKLE SWITCH UNIT

1. Turn ignition switch OFF.
2. Disconnect the seat belt buckle switch (driver side) connector.
3. Check continuity between terminals.

Terminal		Condition	Continuity
1	2	When driver seat belt is fastened	Not existed
		When driver seat belt is unfastened	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the seat belt buckle (driver side). Refer to SB-8, "SEAT BELT BUCKLE : Removal and Installation".

SEAT BELT BUCKLE SWITCH SIGNAL CIRCUIT (PASSENGER SIDE)

Diagnosis Procedure

INFOID:0000000006413651

1.CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE) CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and seat belt buckle switch (passenger side) connector.
3. Check continuity between combination meter harness connector and seat belt buckle switch (passenger side) harness connector.

Combination meter		Seat belt buckle switch (passenger side)		Continuity
Connector	Terminal	Connector	Terminal	
M34	29	B23*1	1	Existed
		B51*2		

*1: RHD models
*2: LHD models

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	29		Not existed

Is the inspection result normal?

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

2.CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE) GROUND CIRCUIT

Check harness continuity between seat belt buckle switch (passenger side) harness connector and ground.

Seat belt buckle switch (passenger side)		Ground	Continuity
Connector	Terminal		
B23*1	2		Existed
B51*2			

*1: RHD models
*2: LHD models

Is the inspection result normal?

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

Component Inspection (Seat Belt Buckle Switch)

INFOID:0000000006413652

1.CHECK SEAT BELT BUCKLE SWITCH (PASSENGER SIDE)

1. Turn ignition switch OFF.
2. Disconnect the seat belt buckle switch (passenger side) connectors.
3. Check continuity between terminals.

Terminal		Condition	Continuity
1	3	When passenger seat belt is fastened	Not existed
		When passenger seat belt is unfastened	Existed
2	4	—	Existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the seat belt buckle (passenger side). Refer to SB-8, "SEAT BELT BUCKLE : Removal and Installation".

Component Inspection (Occupant Detection Unit)

INFOID:0000000006413653

1. CHECK OCCUPANT DETECTION UNIT

1. Turn ignition switch OFF.
2. Disconnect the occupant detection unit connector.
3. Check continuity between terminals.

Terminal		Condition	Continuity
3	4	When getting in the passenger seat	Existed
		Other than above	Not existed

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace the seat cushion trim and pad. Refer to SE-21, "SEAT CUSHION : Disassembly and Assembly" (2WD) or SE-29, "SEAT CUSHION : Disassembly and Assembly" (4WD).

A/C AUTO AMP. CONNECTION RECOGNITION SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000006413647

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	31		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	31	M50*1	9*1	Existed
		M59*2	6*2	

*1: 4WD models
*2: 2WD models

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	31		Not existed

Is the inspection result normal?

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

PTC HEATER CONTROL UNIT CONNECTION RECOGNITION SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000006498593

1.CHECK PTC HEATER CONTROL UNIT 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	31		5 V

Is the inspection result normal?

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

2.CHECK PTC HEATER CONTROL UNIT CONNECTION RECOGNITION SIGNAL CIRCUIT

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

Combination meter		PTC heater control unit		Continuity
Connector	Terminal	Connector	terminal	
M34	31	M25	4	Existed

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

Combination meter		Ground	Continuity
Connector	Terminal		
M34	31		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:0000000006412949

Fuel gauge will not indicate from a certain position.

Diagnosis Procedure

INFOID:0000000006412950

1.CHECK COMBINATION METER OUTPUT SIGNAL

1. Connect CONSULT-III.
2. Select the “Data Monitor” for the “METER/M&A” and compare the “FUEL METER” monitor value with the fuel gauge reading on the combination meter. Refer to MWI-52, "Component Function Check".

Does monitor value match fuel gauge reading?

YES >> GO TO 2.
NO >> Replace combination meter. Refer to MWI-69, "Removal and Installation".

2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-52, "Diagnosis Procedure".

Is the inspection result normal?

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

3.CHECK FUEL LEVEL SENSOR UNIT

Perform a unit check for the fuel level sensor unit. Refer to MWI-54, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace fuel level sensor unit (main or sub). Refer to FL-6, "2WD : Removal and Installation" (MR16DDT) (2WD), FL-11, "4WD : Removal and Installation" (MR16DDT) (4WD), FL-33, "Removal and Installation" (HR16DE), or FL-51, "Removal and Installation" (K9K).

4.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 >> Replace combination meter. Refer to MWI-69, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000006412953

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

Diagnosis Procedure

INFOID:0000000006412954

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-12, "Diagnosis Description" (with I-KEY) or PCS-43, "Diagnosis Description" (without I-KEY).

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-56, "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-56, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation" (with I-KEY) or PCS-63, "Removal and Installation" (without I-KEY).
NO >> Replace oil pressure switch. Refer to EM-330, "Disassembly and Assembly" (K9K).

4.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT-III and perform an input signal check for the combination meter. Refer to MWI-56, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-69, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation" (with I-KEY) or PCS-63, "Removal and Installation" (without I-KEY).

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000006412957

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

Diagnosis Procedure

INFOID:0000000006412958

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-12, "Diagnosis Description" (with I-KEY) or PCS-43, "Diagnosis Description" (without I-KEY).

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 and ground.

Terminals			Voltage (Approx.)
(+)		(–)	
Oil pressure switch		Ground	
Connector	Terminal		
F64	2		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-56, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation" (with I-KEY) or PCS-63, "Removal and Installation" (without I-KEY).
NO >> Replace oil pressure switch. Refer to EM-330, "Disassembly and Assembly" (K9K).

4.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-56, "Diagnosis Procedure".

Is the inspection result normal?

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

5.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT-III and perform an input signal check for the combination meter. Refer to MWI-56, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-69, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-34, "Removal and Installation" (with I-KEY) or PCS-63, "Removal and Installation" (without I-KEY).

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:0000000006412969

- 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:0000000006412970

NOTE:
Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to MWI-68, "INFORMATION DISPLAY : Description".

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to HAC-56, "Diagnosis Procedure" (4WD models) or HAC-146, "Diagnosis Procedure" (2WD models).

Is the inspection result normal?

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

2.CHECK A/C AUTO AMP./PTC HEATER CONTROL UNIT CONNECTION RECOGNITION SIGNAL CIRCUIT

Check the A/C auto amp./PTC heater control unit connection recognition signal circuit. Refer to MWI-62, "Diagnosis Procedure" (A/C auto amp.) or MWI-63, "Diagnosis Procedure" (PTC heater control unit).

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-57, "Component Inspection" (4WD models) or HAC-147, "Component Inspection" (2WD models).

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-69, "Removal and Installation".
NO >> Replace ambient sensor. Refer to HAC-92, "Removal and Installation" (4WD models) or HAC-189, "Removal and Installation" (2WD models).

NORMAL OPERATING CONDITION
INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:0000000006412971

AMBIENT TEMPERATURE

The displayed ambient temperature on the information display may differ from the actual temperature because it is a corrected value calculated from the ambient sensor signal by the combination meter. Refer to MWI-16, "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

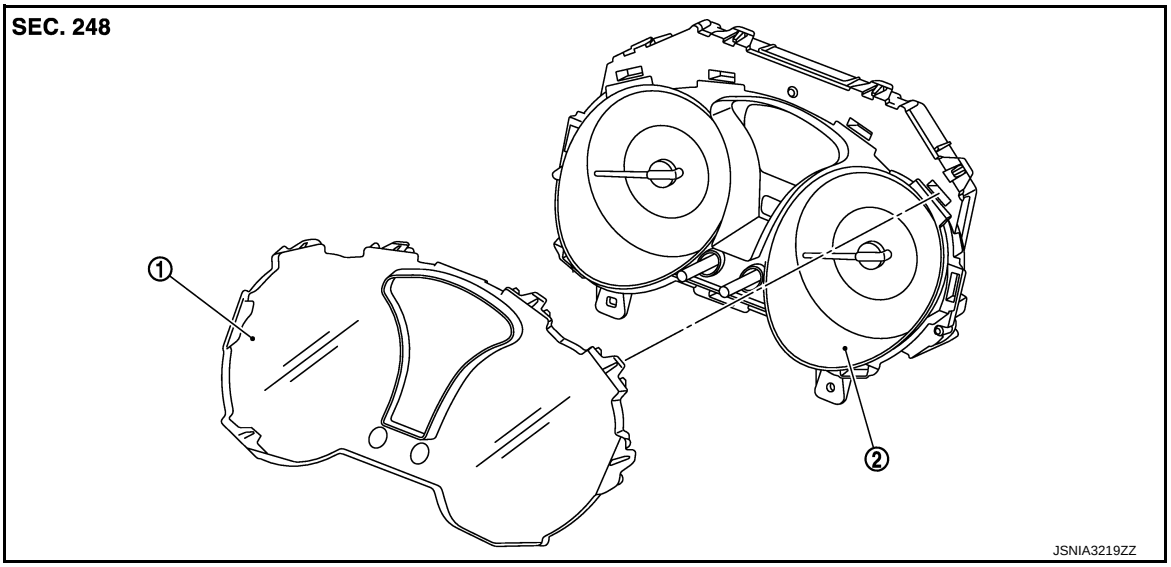
Exploded View

INFOID:0000000006413665

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



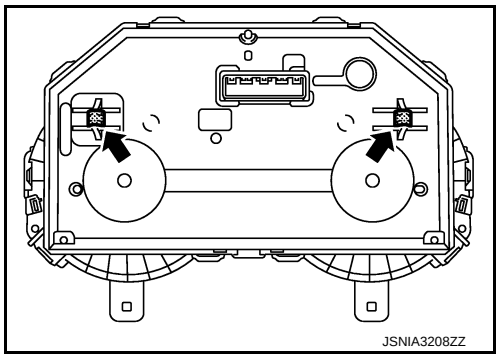
1. Front cover
2. Unified meter control unit

Removal and Installation

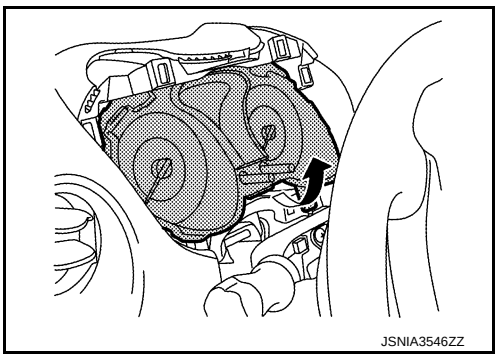
INFOID:0000000006413666

REMOVAL

1. Remove cluster lid A. Refer to IP-13, "Removal and Installation".
2. Remove the mounting screws of the combination meter.
3. Pull the combination meter straight to disengage resin clips. (The figure shows the clip positions on the back of the combination meter.)
   CAUTION:
   Never damage the front cover.



4. Turn the lower part of the combination meter in the direction of the arrow to remove the combination meter from the instrument panel assembly.
   CAUTION:
   Never damage the front cover.



5. Remove connector to remove the combination meter.
   CAUTION:
   Never damage the front cover.

INSTALLATION

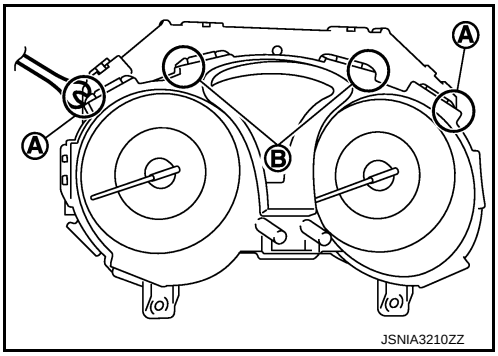
Install in the reverse order of removal.

Disassembly and Assembly

INFOID:0000000006413667

DISASSEMBLY

1. Disengage the pawls (2 on the sides, 3 on the lower part) of the combination meter.
2. Insert the removal tool into the clearance (in the order of A, B) between the front cover and the meter control unit. Remove 4 pawls on the upper side of the front cover by turning the tool while increasing the clearance.
   CAUTION:
   Wrap the removal tools with protective tape to prevent scratches.



3. Pull the front cover straight to remove it from the meter control unit assembly.
   CAUTION:
   Never damage the front cover.
   Never touch the pointer and the crystalline liquid.

ASSEMBLY

Install the front cover straight to the meter control unit assembly and engage all the pawl.
CAUTION:
Never damage the front cover.