SECTION MWI
METER, WARNING LAMP & INDICATOR

CONTENTS

PRECAUTION

PRECAUTIONS

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

INFOID:0000000010099271

The Supplemental Restraint System such as “AIR BAG” and “SEAT BELT PRE-TENSIONER”, used along with a front seat belt, helps to reduce the risk or severity of injury to the driver and front passenger for certain types of collision. This system includes seat belt switch inputs and dual stage front air bag modules. The SRS system uses the seat belt switches to determine the front air bag deployment, and may only deploy one front air bag, depending on the severity of a collision and whether the front occupants are belted or unbelted. Information necessary to service the system safely is included in the “SRS AIR BAG” and “SEAT BELT” of this Service Manual.

WARNING:

Always observe the following items for preventing accidental activation.

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

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

WARNING:

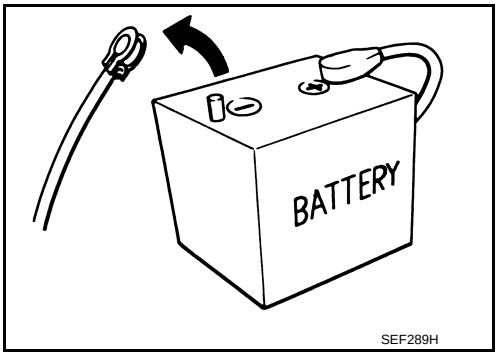
Always observe the following items for preventing accidental activation.

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

Precautions for Removing of Battery Terminal

INFOID:0000000010271024

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



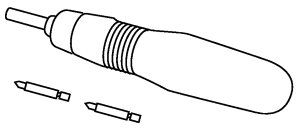
- After installing the 12V battery, always check "Self Diagnosis Result" of all ECUs and erase DTC.
  NOTE:
  The removal of 12V battery may cause a DTC detection error.

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000010099272

Tool name	Description
Power tool  PBIC0191E	Loosening screws

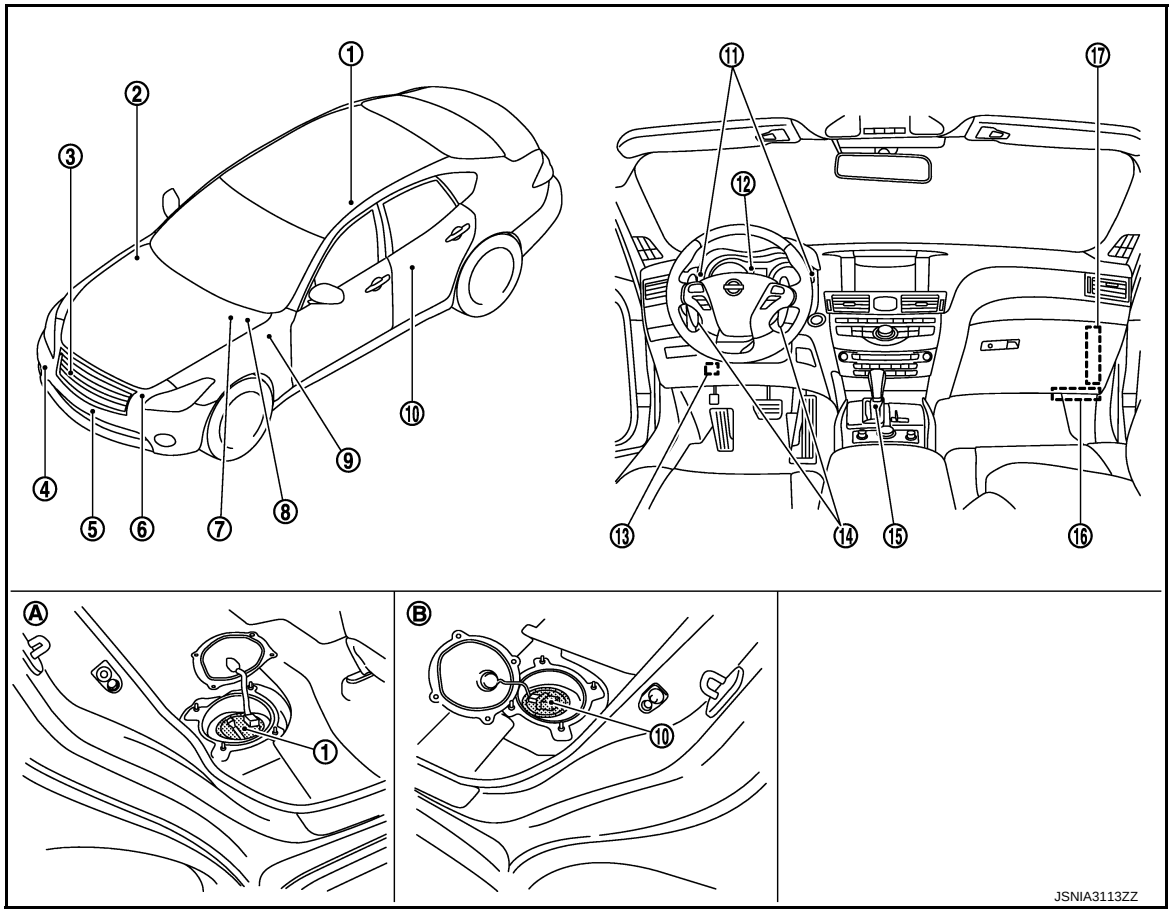
SYSTEM DESCRIPTION

COMPONENT PARTS

METER SYSTEM

METER SYSTEM : Component Parts Location

INFOID:0000000010099273



1. Fuel level sensor unit (main)
2. IPDM E/R
   Refer to PCS-5, "IPDM E/R : Component Parts Location"
3. Oil pressure switch (VQ37VHR)
   Refer to EM-48, "Exploded View" (2WD)
   Refer to LU-15, "Exploded View" (AWD)
4. Washer level switch
5. Ambient sensor
6. Engine oil pressure sensor (VK56VD)
   Refer to EM-233, "Exploded View"
7. TCM
   Refer to TM-11, "A/T CONTROL SYSTEM : Component Parts Location"
8. ABS actuator and electric unit (control unit)
   Refer to BRC-10, "Component Parts Location"
9. BCM
   Refer to BCS-4, "BODY CONTROL SYSTEM : Component Parts Location"
10. Fuel level sensor unit (sub)
11. Meter control switch
12. Combination meter
13. Parking brake switch
14. Paddle shifter
15. A/T shift selector

16. ECM
Refer to EC-37, "ENGINE CONTROL SYSTEM : Component Parts Location" (VQ37VHR FOR USA AND CANADA) or EC-567, "ENGINE CONTROL SYSTEM : Component Parts Location" (VQ37VHR FOR MEXICO)
Refer to EC-984, "ENGINE CONTROL SYSTEM : Component Parts Location" (VK56VD FOR USA AND CANADA) or EC-1577, "ENGINE CONTROL SYSTEM : Component Parts Location" (VK56VD FOR MEXICO)
17. A/C auto amp.
Refer to HAC-6, "AUTOMATIC AIR CONDITIONING SYSTEM : Component Parts Location".

A. Rear seat (bottom right)
B. Rear seat (bottom left)

METER SYSTEM : Component Description

INFOID:0000000010099274

Unit	Description
Combination meter	Controls the following with the signals received from each unit via CAN communication and the signals from switches and sensors. • Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge • Warning lamps • Indicator lamps • Meter illumination control • Meter effect function • Information display
Meter control switch	Transmits the following signals to the combination meter. • Enter switch signal • Select switch signal • Trip reset switch signal • Illumination control switch signal (+) • Illumination control switch signal (–)
ECM	Transmits the following signals to the combination meter via CAN communication. • Engine speed signal • Engine coolant temperature signal • Engine status signal • Fuel consumption monitor signal • Fuel filler cap warning display signal • Oil pressure warning lamp signal (VK56VD engine models)
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication.
IPDM E/R	Transmits the oil pressure switch signal to the BCM via CAN communication.
BCM	Transmits the following signals to the combination meter via CAN communication. • Oil pressure switch signal (VQ37VHR engine models) • Dimmer signal • Door switch signal • Trunk switch signal • Meter ring illumination request signal • Starter relay status signal • Low tire pressure warning lamp signal
TCM	Transmits the following signals to the combination meter. • Shift position signal • Manual mode shift refusal signal

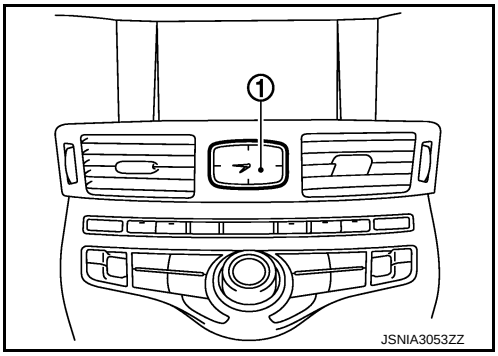
Unit	Description
A/T shift selector	Transmits the following signals to the combination meter. • Manual mode signal • Non-manual mode signal • Manual mode shift up signal • Manual mode shift down signal
Paddle shifter	Transmits the following signals to the combination meter. • Paddle shifter shift up signal • Paddle shifter shift down signal
Fuel level sensor unit	Transmits the fuel level sensor signal to the combination meter.
Oil pressure switch (VQ37VHR engine models)	Transmits the oil pressure switch signal to the IPDM E/R.
Engine oil pressure sensor (VK56VD engine models)	Transmits the Engine oil pressure sensor signal to the ECM.
Ambient sensor	Transmits the ambient sensor signal to the A/C auto amp.
A/C auto amp.	Transmits the ambient sensor signal to the combination meter via CAN communication.
Parking brake switch	Transmits the parking brake switch signal to the combination meter.
Washer level switch	Transmits the washer level switch signal to the combination meter.

CLOCK

CLOCK : Component Parts Location

INFOID:0000000010099275

1 : Clock



SYSTEM
METER SYSTEM

METER SYSTEM : System Diagram

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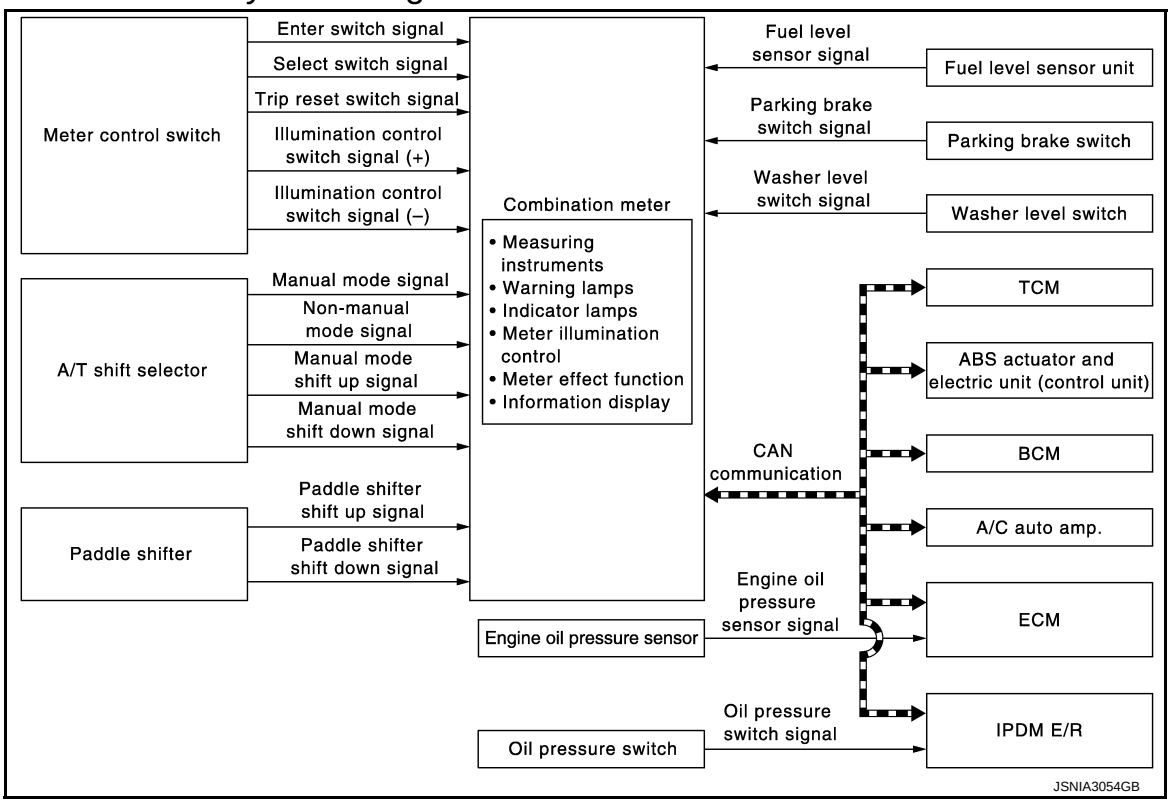


METER SYSTEM : System Description

INFOID:0000000010099277

COMBINATION METER

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

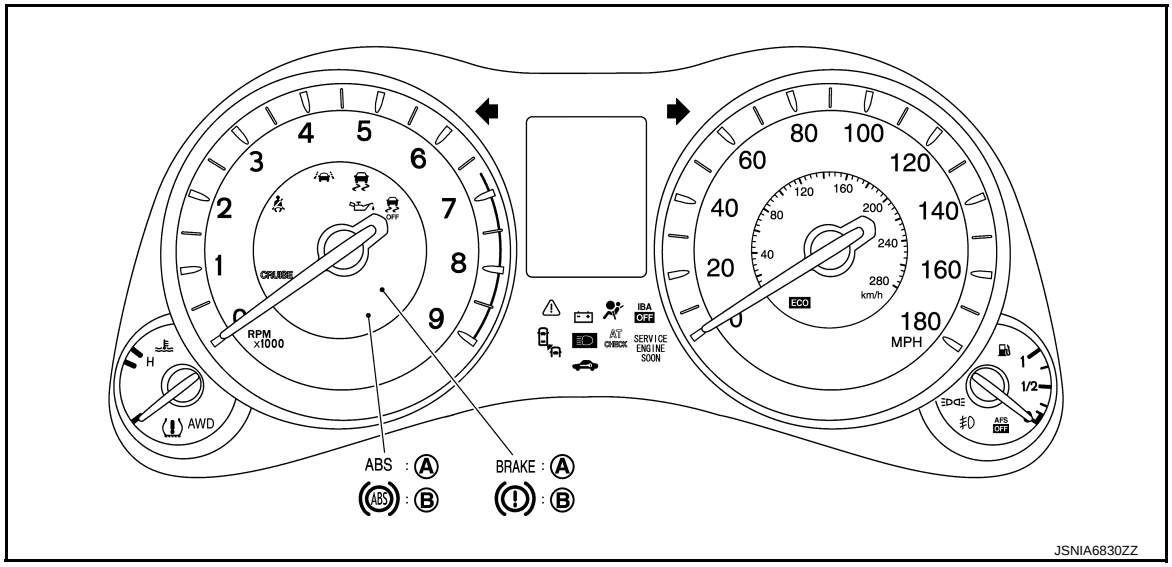
METER CONTROL FUNCTION LIST

System		Description	Reference
Measuring instruments	Speedometer	Indicates vehicle speed.	MWI-13, "SPEEDOMETER : System Description"
	Tachometer	Indicates engine speed.	MWI-14, "TACHOMETER : System Description"
	Engine coolant temperature gauge	Indicates engine coolant temperature.	MWI-14, "ENGINE COOLANT TEMPERATURE GAUGE : System Description"
	Fuel gauge	Indicates fuel level.	MWI-14, "FUEL GAUGE : System Description"
Warning lamp/ indicator lamp	Oil pressure warning lamp	The warning lamp turns ON or turns OFF, according to engine hydraulic pressure.	MWI-15, "OIL PRESSURE WARNING LAMP : System Description"
	Master warning lamp	Turns ON/OFF in synchronization with a warning indicated on the information display.	MWI-16, "MASTER WARNING LAMP : System Description"
Meter illumination control	Meter illumination control function	Switches back and forth between daytime mode and nighttime mode, according to a light switch position.	MWI-16, "METER ILLUMINATION CONTROL : System Description"
Meter effect function	Engine-start effect function	Controls pointers of combination meter and meter illumination at engine start to produce illumination effects.	MWI-17, "METER EFFECT FUNCTION : System Description"
	Driver welcome function	Controls meter illumination to produce illumination effects when getting in the vehicle.	

System				Description	Reference
Information display	Odo/trip meter			Displays mileage.	MWI-19, "INFORMATION DISPLAY : System Description"
	Shift position indicator			Displays shift position.	
	Trip computer	Current fuel consumption		Displays current fuel consumption.	
		Average fuel consumption		Displays average fuel consumption.	
		Distance to empty		Displays distance to empty.	
		Average vehicle speed		Displays average vehicle speed.	
		Travel time		Displays travel time.	
		Travel distance		Displays mileage.	
		Ambient temperature		Displays ambient temperature.	
	Interrupt indication	Warning	Door open warning	Warns when a door is open.	
			Trunk open warning	Warns when a trunk is open.	
			Parking brake release warning	Warns if traveling when the parking brake is under operating condition.	
			Low fuel warning	Warns when being low on fuel.	
			Low washer fluid warning	Displayed/Hidden, depending on washer fluid level.	
			Fuel filler cap warning	Warns, according to the tightening condition of fuel filler cap.	
			Low tire pressure warning	Warns, according to tire inflation pressure.	
		Alert	Travel time	Causes an interrupt when exceeding randomly set time.	
			Low ambient temperature	Causes an interrupt when ambient temperature reaches below 3°C (37°F).	
		Maintenance	Tire	Causes an interrupt when exceeding randomly set distance.	
			Oil filter	Causes an interrupt when exceeding randomly set distance.	
			Engine oil	Causes an interrupt when exceeding randomly set distance.	
			Other	Causes an interrupt when exceeding randomly set distance.	
		Meter illumination level		Indicates the brightness of the meter illumination in stages.	

System				Description	Reference
Information display	Setting	Alert	Timer	Allows the user to set a display time for “Travel time”.	MWI-19, "INFORMATION DISPLAY : System Description"
			ICY	Allows the ON/OFF setting of the low ambient temperature (alert) function.	
		Maintenance	Tire	Alerts when reaching mileage set in “SETTING”.	
			Filter	Alerts when reaching mileage set in “SETTING”.	
			Oil	Alerts when reaching mileage set in “SETTING”.	
			Other	Alerts when reaching mileage set in “SETTING”.	
		Options	Language	Allows the user to set language for information display.	
			Unit	Allows unit settings.	
			Effects	Allows the ON/OFF setting of the engine-start effect function.	

ARRANGEMENT OF COMBINATION METER



A. For U.S.A. B. For Canada

METER SYSTEM : Fail-Safe

INFOID:0000000010099278

FAIL-SAFE

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

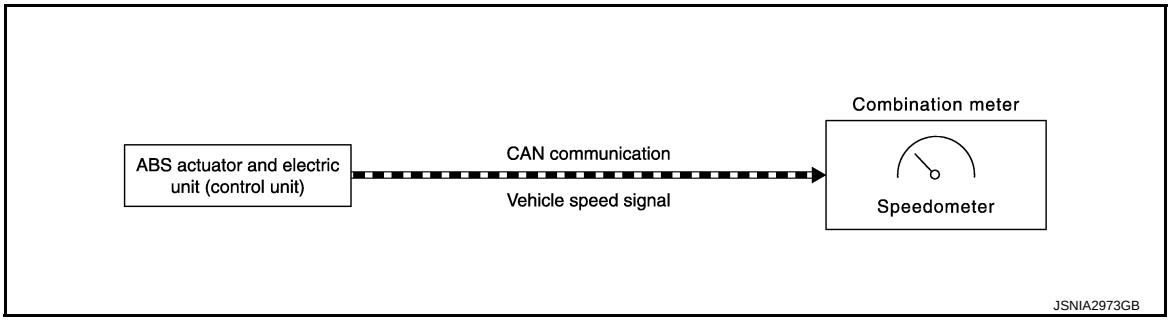
Function	Specifications
Speedometer	Reset to zero by suspending communication.
Tachometer	
Engine coolant temperature gauge	
Illumination control	When suspending communication, changes to nighttime mode.

Function		Specifications
Information display	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The display turns OFF by suspending communication.
	Door open warning	The display turns OFF by suspending communication.
	Trunk open warning	
	Fuel filler cap warning	
	Low tire pressure warning	
Buzzer		The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	VDC warning lamp	
	VDC OFF indicator lamp	
	Brake warning lamp	
	IBA OFF indicator lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	CRUISE warning lamp	
	Low tire pressure warning lamp	The lamp blinking caused by suspending communication.
	AFS OFF indicator lamp	
	High beam indicator lamp	The lamp turns OFF by suspending communication.
	Turn signal indicator lamp	
	Front fog lamp indicator lamp	
	Tail lamp indicator lamp	
	A/T CHECK indicator lamp	
	Lane departure warning lamp	
	LDP ON indicator lamp	
	Oil pressure warning lamp	
	ECO drive indicator	
	Blind Spot Intervention ON indicator	
	BSW/Blind Spot Intervention warning lamp	

SPEEDOMETER

SPEEDOMETER : System Diagram

INFOID:0000000010099279



SPEEDOMETER : System Description

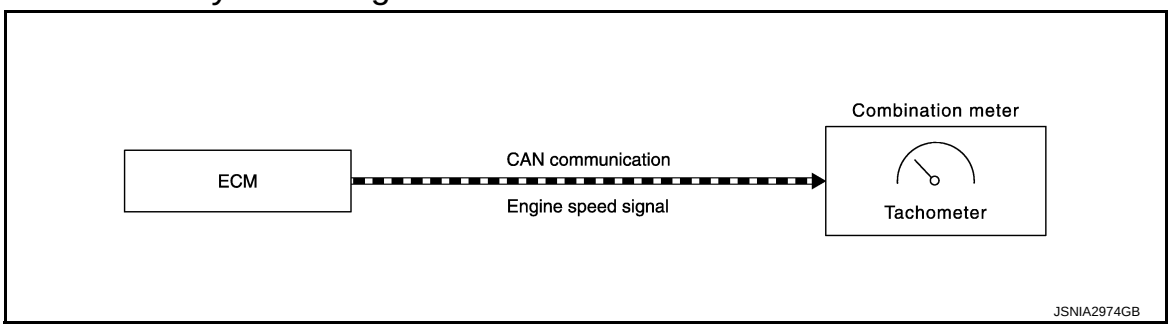
INFOID:0000000010099280

- 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:0000000010099281



TACHOMETER : System Description

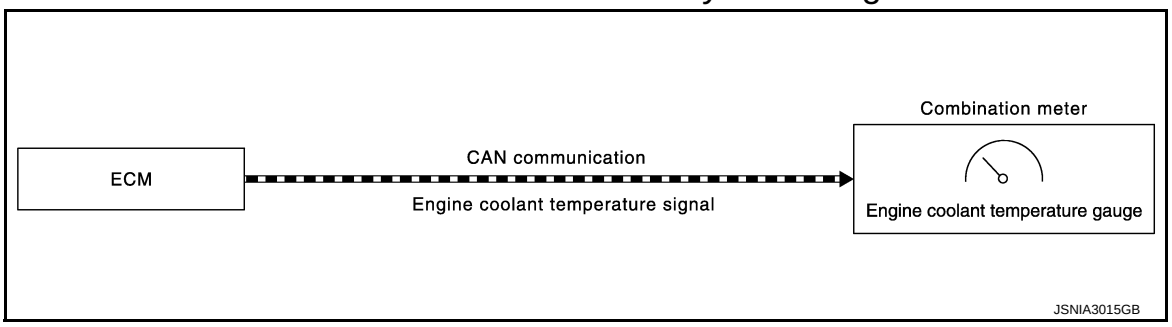
INFOID:0000000010099282

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

ENGINE COOLANT TEMPERATURE GAUGE

ENGINE COOLANT TEMPERATURE GAUGE : System Diagram

INFOID:0000000010099283



ENGINE COOLANT TEMPERATURE GAUGE : System Description

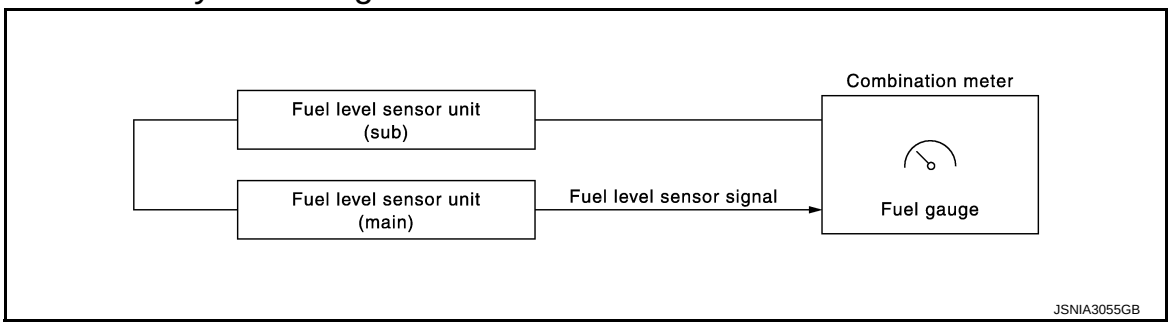
INFOID:0000000010099284

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

FUEL GAUGE

FUEL GAUGE : System Diagram

INFOID:0000000010099285



FUEL GAUGE : System Description

INFOID:0000000010099286

CONTROL OUTLINE

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

REFUEL CONTROL

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

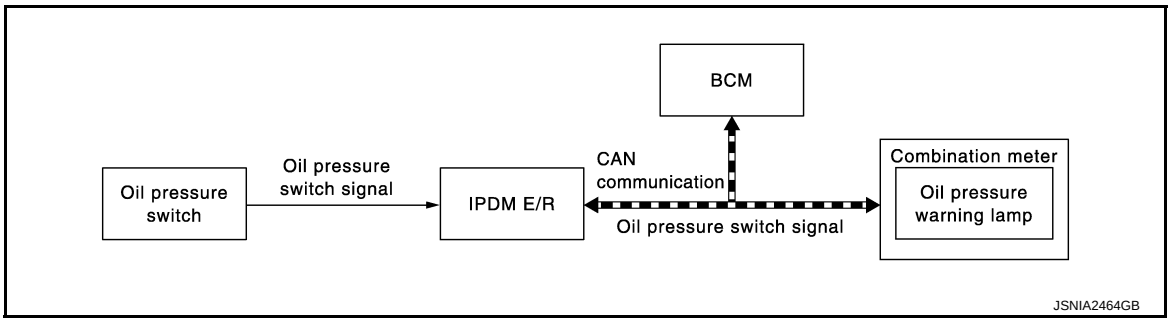
- Ignition switch is ON position.
- The vehicle is not moving.
- The fuel level change by 15 ℓ (4 US gal, 3-1/4 Imp gal) or more.

OIL PRESSURE WARNING LAMP

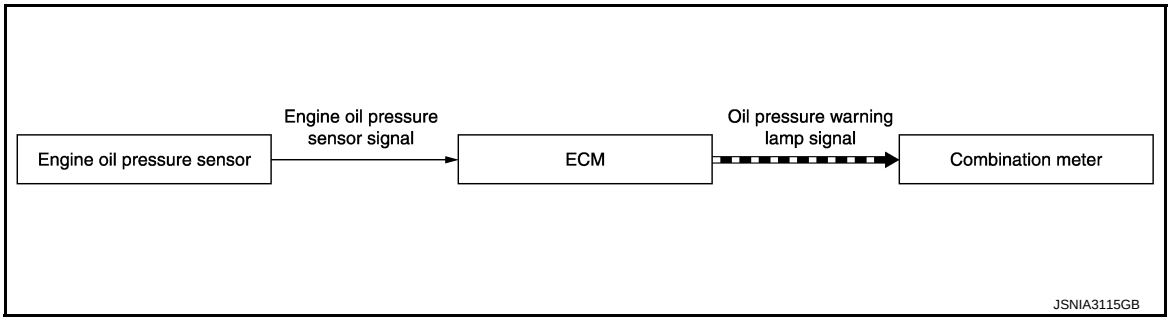
OIL PRESSURE WARNING LAMP : System Diagram

INFOID:0000000010099287

VQ37VHR ENGINE MODELS



VK56VD ENGINE MODELS



OIL PRESSURE WARNING LAMP : System Description

INFOID:0000000010099288

VQ37VHR ENGINE MODELS

- IPDM E/R receives an oil pressure switch signal from the oil pressure switch and transmits the signal to BCM via CAN communication.
- BCM transmits the oil pressure switch signal received from IPDM E/R to the combination meter via CAN communication.
- The combination meter turns ON/OFF the oil pressure warning lamp, according to an oil pressure switch signal received from BCM via CAN communication.

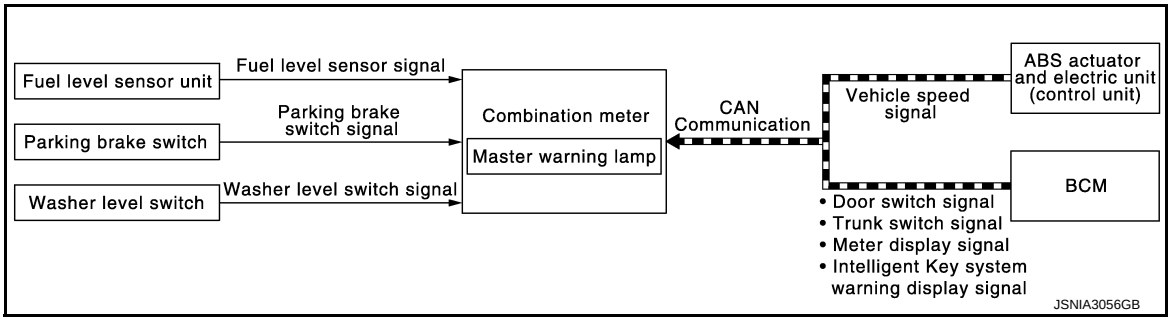
VK56VD ENGINE MODELS

- ECM receives an engine oil pressure sensor signal from the engine oil pressure sensor and transmits an oil pressure warning lamp signal to the combination switch via CAN communication.
- The combination meter turns ON/OFF the oil pressure warning lamp, according to an oil pressure warning lamp signal received from ECM via CAN communication.

MASTER WARNING LAMP

MASTER WARNING LAMP : System Diagram

INFOID:0000000010099289



MASTER WARNING LAMP : System Description

INFOID:0000000010099290

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

- Door open warning
- Trunk open warning
- Parking brake release warning
- Low fuel warning
- Low washer fluid warning
- Intelligent Key system malfunction
- NO KEY warning

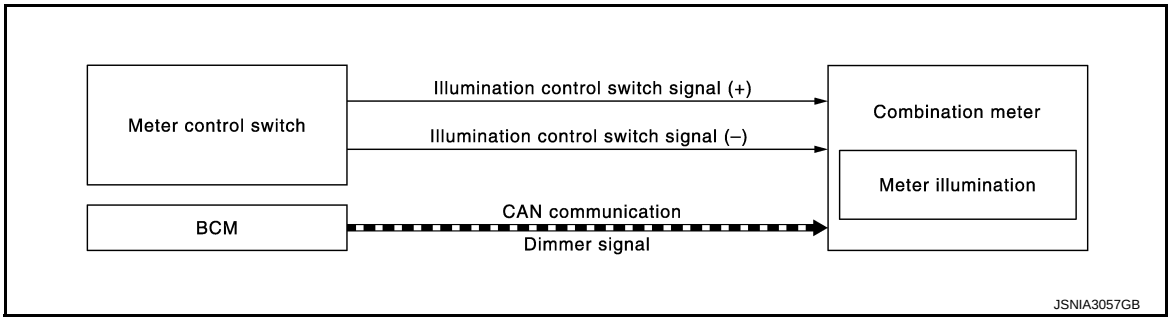
NOTE:

For details on warnings displayed on the information display, refer to MWI-19, "INFORMATION DISPLAY : System Description".

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Diagram

INFOID:0000000010099291



METER ILLUMINATION CONTROL : System Description

INFOID:0000000010099292

METER ILLUMINATION CONTROL FUNCTION

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

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

*: For further information, refer to INL-11, "AUTO LIGHT ADJUSTMENT SYSTEM : System Description".

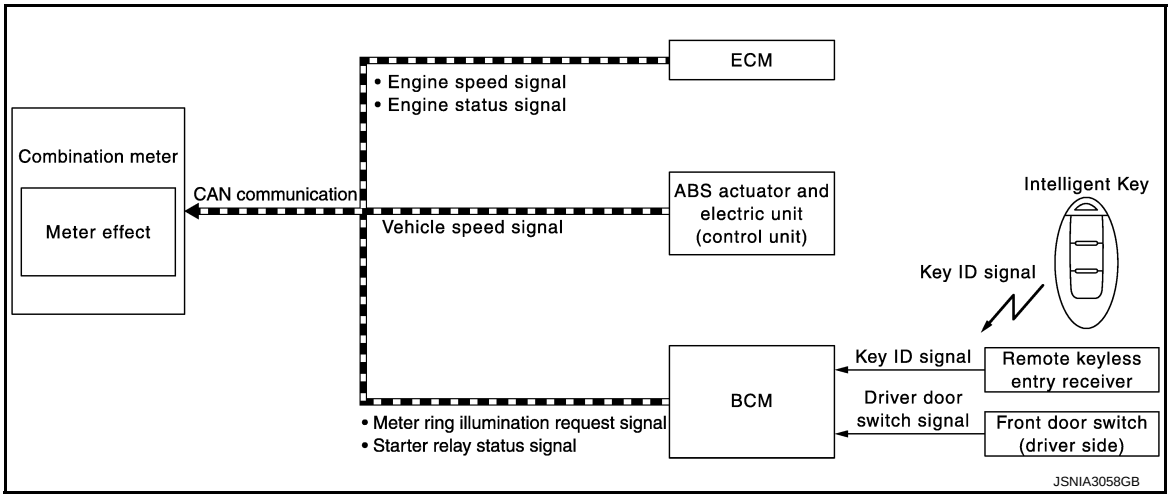
- The operation of the illumination control switch allows the brightness adjustment of meter illumination.

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

METER EFFECT FUNCTION

METER EFFECT FUNCTION : System Diagram

INFOID:0000000010099293



METER EFFECT FUNCTION : System Description

INFOID:0000000010099294

ENGINE-START EFFECT FUNCTION

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

- Speedometer
- Tachometer
- Engine coolant temperature gauge
- Fuel gauge
- Meter illumination

Meter and Illumination Operations During Engine-start Effect

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

Control item		Operation
Speedometer		Sweeps the pointer.
Tachometer		Sweeps the pointer.
Engine coolant temperature gauge		Stops the pointer.
Fuel gauge		Stops the pointer.
Meter illumination	Pointers	Turns on the illumination at the effect level.
	Information display	Turns on the illumination at the normal brightness level.
	Other than those above	Increases the brightness to the effect level in stages.

NOTE:

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

Engine Start Judgment

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
Information display (SETTING)	The setting of “EFFECT” is “ON”

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

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

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

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

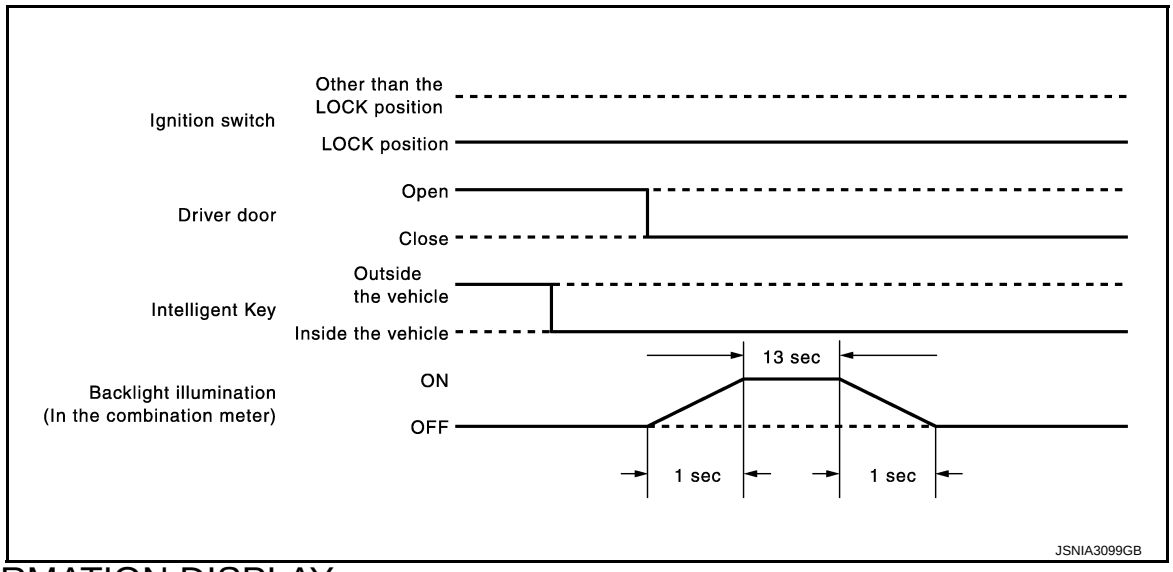
DRIVER WELCOME FUNCTION

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

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

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

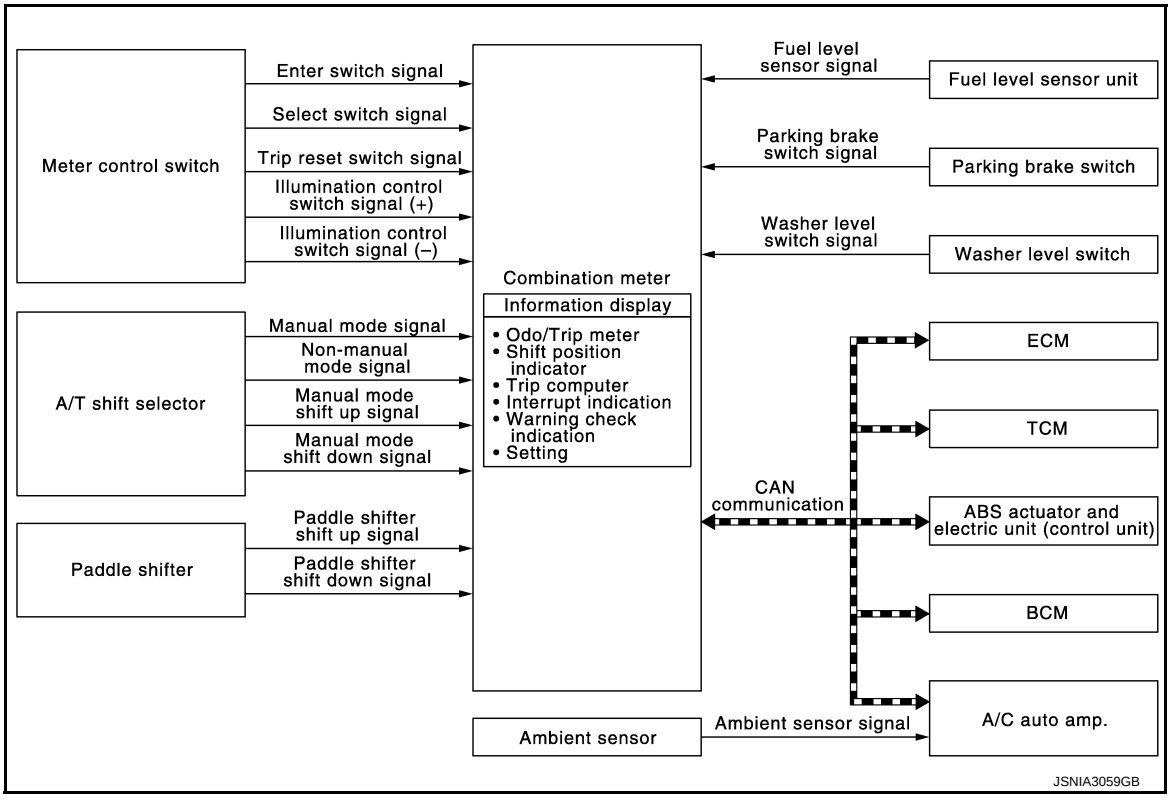
Timing Chart



INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

INFOID:0000000010099295



INFORMATION DISPLAY : System Description

INFOID:0000000010099296

DESCRIPTION

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

- Odo/trip meter
- Shift position indicator
- Trip computer

- Interrupt indication
- Warning check indication
- Setting

ODO/TRIP METER

The 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

SHIFT POSITION INDICATOR

Manual Mode

WHEN OPERATED WITH A/T SHIFT SELECTOR

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

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

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

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

3. The combination meter activates the shift position indicator, and manual mode information, based on signals received from TCM via CAN communication.
   NOTE:
   When receiving a manual mode shift refusal signal from TCM via CAN communication, the combination meter blinks the shift position indicator lamp and allows the integrated buzzer to ring a beep tone. For further information, refer to TM-54, "SHIFT PATTERN CONTROL : System Description".

WHEN OPERATED WITH PADDLE SHIFTER

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

Signal name	Signal path
Paddle shifter shift up signal	Paddle shifter → Combination meter → CAN → TCM
Paddle shifter shift down signal	

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

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

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

NOTE:
When receiving a manual mode shift refusal signal from TCM via CAN communication, the combination meter blinks the shift position indicator lamp and allows the integrated buzzer to ring a beep tone. For further information, refer to TM-54, "SHIFT PATTERN CONTROL : System Description".

Non-manual Mode

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

TRIP COMPUTER

Current Fuel Consumption

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

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

Average Fuel Consumption

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

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 from OFF to ON, "–––" is displayed until after a travel of approximately 500 m (0.31 mile).
- The indicated values may not match each other when refueling with the ignition switch ON.

Average Vehicle Speed

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

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

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

Travel Time

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

Travel Distance

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

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

Ambient Temperature

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

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

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

INTERRUPT INDICATION

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

Door Open Warning

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

Operating condition	
Ignition switch	ON
Door	Any door is open

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

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

Trunk Open Warning

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

Operating condition	
Ignition switch	ON
Trunk	Open

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

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

Parking Brake Release Warning

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

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

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

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

Low Fuel Warning

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

Operating condition	
Ignition switch	ON
Fuel remaining quantity*	Approximately 16 ℓ (4 - 1/4 US gal, 3 - 1/2 Imp gal) or less (including fuel remained)

*: With the vehicle in a horizontal position

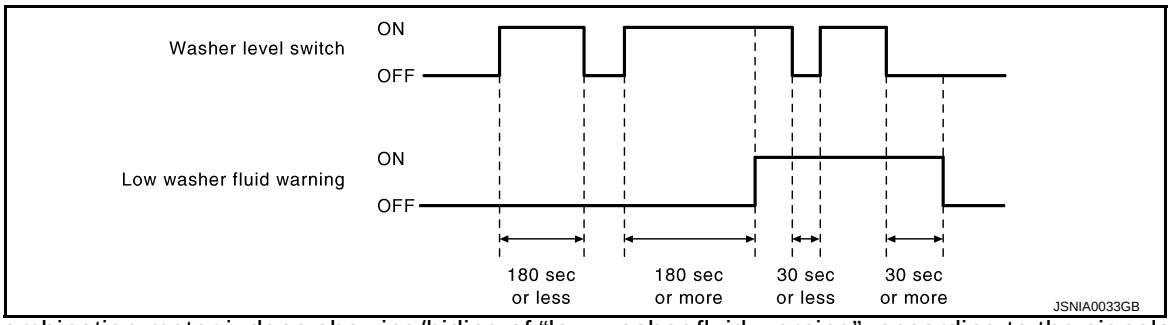
- The combination meter judges showing/hiding of “low fuel warning”, according to the signals below:

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

Low washer fluid warning

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

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



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

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

Fuel Filler Cap Warning

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

Signal name	Signal path
Ignition signal	—
Fuel filler cap warning display signal	ECM —CAN→ Combination meter

- For further information, refer to EC-66, "FUEL FILLER CAP WARNING SYSTEM : System Description" (VQ37VHR) or EC-1020, "FUEL FILLER CAP WARNING SYSTEM : System Description" (VK56VD).

Low Tire Pressure Warning

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

Signal name	Signal path
Ignition signal	—
Low tire pressure warning lamp signal	BCM —CAN→ Combination meter

- For further information, refer to WT-9, "System Description".

Travel Time (Alert)

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

Operating condition	
Ignition switch	Switch-ON time

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

Signal name	Signal path
Ignition signal	—

Low Ambient Temperature (Alert)

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

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

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

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

Tire (Maintenance)

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

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

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

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

Oil Filter (Maintenance)

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

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

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

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

Engine Oil (Maintenance)

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

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

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

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

Other (Maintenance)

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

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

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

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

Meter Illumination Level Indication

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

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

WARNING CHECK INDICATION

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

SETTING

Warning indication timing and time can be set.

Alert

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

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

Maintenance

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

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

Options

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

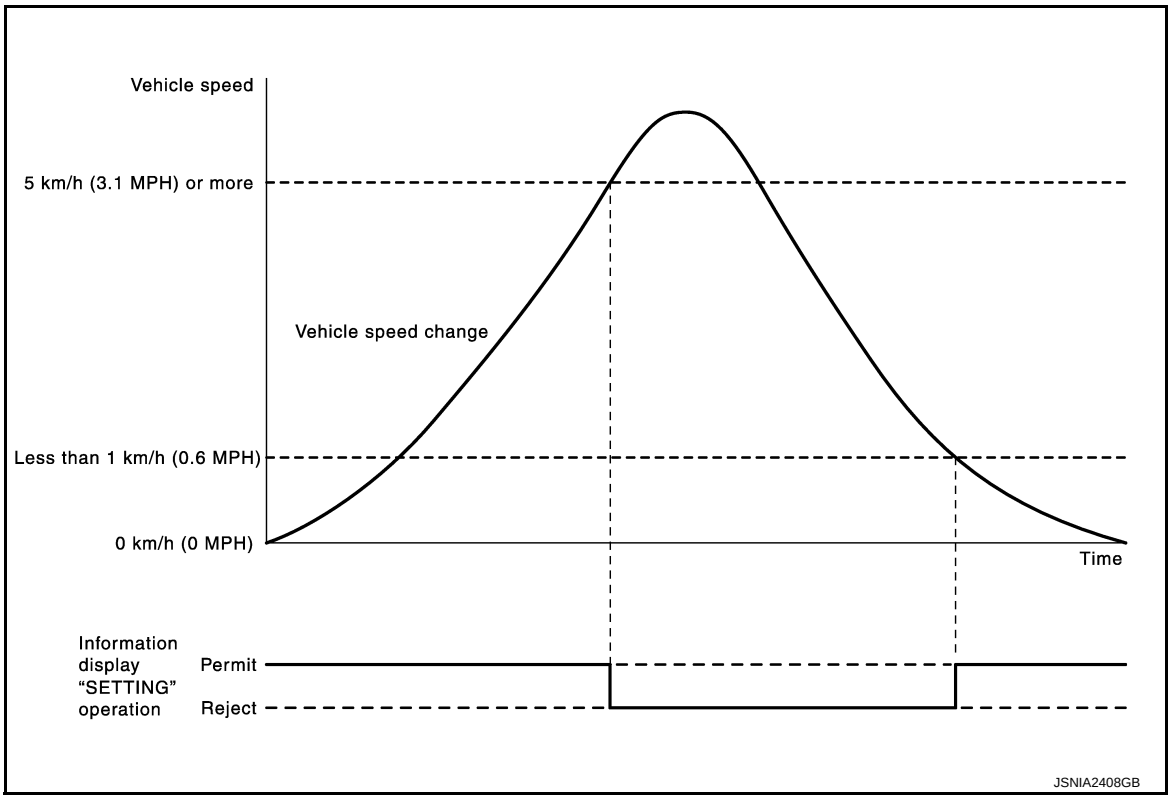
Setting item		
Options	Language	ENGLISH
		FRANCAISE
	Unit	miles, MPG, °F
		km, l/100 km, °C
	Effect	ON/OFF

Settings-reject Indication

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

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

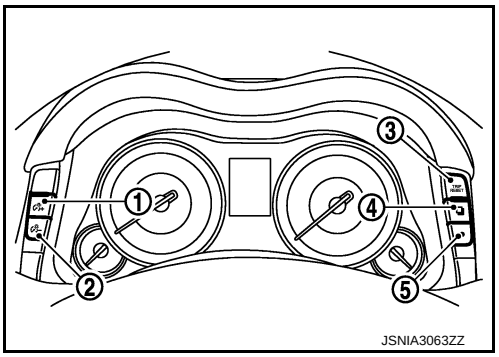
TIMING CHART



OPERATION

Switch Name and Function

INFOID:0000000010099297



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

DIAGNOSIS SYSTEM (COMBINATION METER)

On Board Diagnosis Function

INFOID:0000000010099298

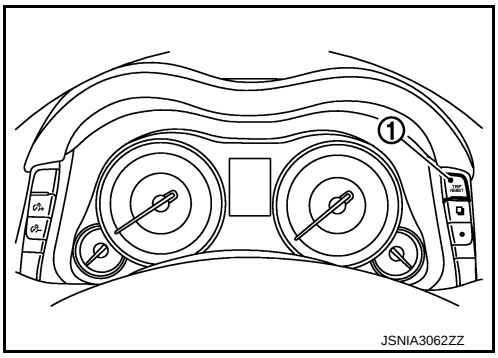
ON BOARD DIAGNOSIS ITEM

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

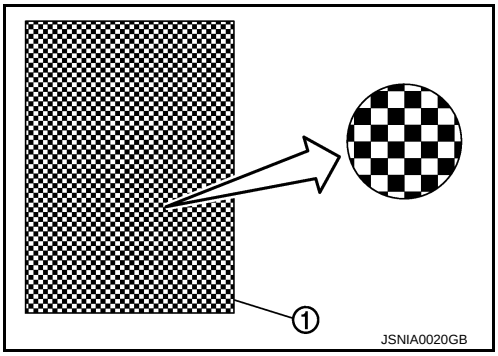
	Diagnosis item
Drive circuit check	• Speedometer • Tachometer • Engine coolant temperature gauge • Fuel gauge
LCD (liquid crystal display) check	Information display

METHOD OF STARTING

1. Turn ignition switch OFF.
2. While pressing the trip reset switch (1), turn ignition switch ON.
3. If the diagnosis function is activated with “trip A” displayed, the mileage on “trip A” is reset to “0000.0”. (The same way for “trip B”.)



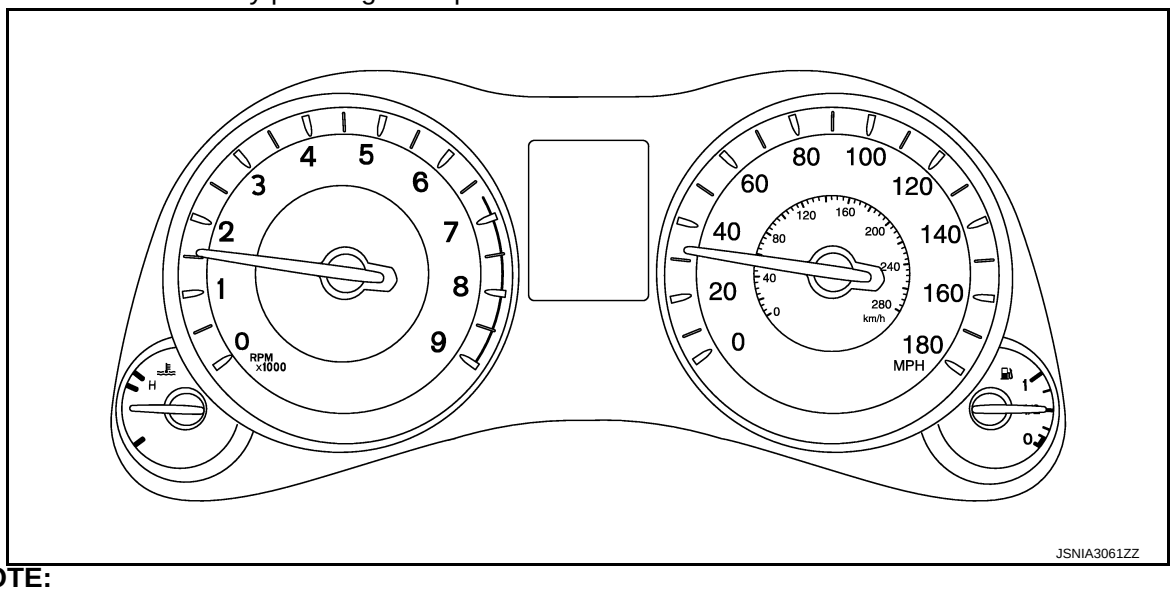
4. Make sure that the trip meter displays “0000.0”.
5. Press the trip reset switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
6. The combination meter is turned to self-diagnosis mode.
   - Speedometer, tachometer, engine coolant temperature gauge, fuel gauge, and return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



NOTE:

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

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



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

CONSULT Function

INFOID:0000000010099299

CONSULT APPLICATION ITEMS

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

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

SELF DIAG RESULT

Refer to MWI-44, "DTC Index".

DATA MONITOR

NOTE:

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

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [km/h]	X	Value of vehicle speed signal received from ABS actuator and electric unit (control unit) via CAN communication. **NOTE:** 655.35 is displayed when the malfunction signal is received.
SPEED OUTPUT [km/h]	X	Vehicle speed signal value transmitted to other units via CAN communication. **NOTE:** 655.35 is displayed when the malfunction signal is received.
ODO OUTPUT [km/h or mph]		Odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Value of the engine speed signal received from ECM via CAN communication. **NOTE:** 8191.875 is displayed when the malfunction signal is received.
FUEL METER [L]	X	Fuel level indicated on combination meter.

Display item [Unit]	MAIN SIGNALS	Description
W TEMP METER [°C]	X	Value of engine coolant temperature signal is received from ECM via CAN communication. **NOTE:** 215 is displayed when the malfunction signal is input.
ABS W/L [On/Off]		Status of ABS warning lamp detected from ABS warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
VDC/TCS IND [On/Off]		Status of VDC OFF indicator lamp detected from VDC OFF indicator lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication.
SLIP IND [On/Off]		Status of VDC warning lamp detected from VDC warning lamp signal received from ABS actuator and electric unit (control unit) via CAN communication.
BRAKE W/L [On/Off]		Status of brake warning lamp detected from brake warning lamp signal is received from ABS actuator and electric unit (control unit) via CAN communication. **NOTE:** Displays “Off” if the brake warning lamp is illuminated when the valve check starts, the parking brake switch is turned ON or the brake fluid level switch is turned ON.
DOOR W/L [On/Off]		Status of door open warning detected from door switch signal received from BCM via CAN communication.
TRUNK/GLAS-H [On/Off]		Status of trunk open warning detected from trunk switch signal received from BCM via CAN communication.
HI-BEAM IND [On/Off]		Status of high beam indicator lamp detected from high beam request signal is received from BCM via CAN communication.
TURN IND [On/Off]		Status of turn indicator lamp detected from turn indicator signal is received from BCM via CAN communication.
FR FOG IND [On/Off]		Status of front fog light indicator lamp detected from front fog light request signal is received from BCM via CAN communication.
LIGHT IND [On/Off]		Status of light indicator lamp detected from position light request signal is received from BCM via CAN communication.
OIL W/L [On/Off]		• Status of oil pressure warning lamp detected from oil pressure switch signal is received from BCM via CAN communication. (VQ37VHR engine models) • Status of oil pressure warning lamp detected from oil pressure warning lamp signal is received from ECM via CAN communication. (VK56VD engine models)
MIL [On/Off]		Status of malfunction indicator lamp detected from malfunctioning indicator lamp signal is received from ECM via CAN communication.
GLOW IND [Off]		**NOTE:** This item is displayed, but cannot be monitored.
CRUISE IND [On/Off]		• Status of CRUISE indicator detected from ASCD status signal is received from ECM via CAN communication. (ASCD models) • Status of CRUISE indicator detected from meter display signal is received from ADAS control unit via CAN communication. (ICC models)
SET IND [On/Off]		• Status of SET indicator detected from ASCD status signal is received from ECM via CAN communication. (ASCD models) • Status of SET indicator detected from meter display signal is received from ADAS control unit via CAN communication. (ICC models)
CRUISE W/L [On/Off]		Status of ICC warning lamp detected from ICC warning lamp signal is received from ADAS control unit via CAN communication.
BA W/L [On/Off]		Status of IBA OFF indicator lamp judged from IBA OFF indicator lamp signal received from ADAS control unit with CAN communication line.
ATC/T-AMT W/L [On/Off]		Status of A/T CHECK warning lamp judged from A/T CHECK indicator lamp signal received from TCM with CAN communication line.
4WD W/L [On/Off]		Status of AWD warning lamp judged from AWD warning lamp signal received from AWD control unit with CAN communication line.
FUEL W/L [On/Off]		Low fuel warning status detected by the identified fuel level.

Display item [Unit]	MAIN SIGNALS	Description
WASHER W/L [On/Off]		Status of low washer fluid warning judged from washer level switch input to combination meter.
AIR PRES W/L [On/Off]		Status of low tire pressure warning lamp judged from low tire pressure warning lamp signal received from BCM with CAN communication line.
KEY G/Y W/L [On/Off]		Status of Intelligent Key system malfunction detected from Intelligent Key warning display signal is received from BCM via CAN communication.
AFS OFF IND [On/Off]		Status of AFS OFF indicator lamp judged from AFS OFF indicator lamp signal received from AFS control unit with CAN communication line.
4WAS/RAS W/L [Off]		**NOTE:** This item is displayed, but cannot be monitored.
LANE W/L [On/Off]		Status of lane departure warning lamp judged from lane departure warning lamp signal received from ADAS control unit with CAN communication line.
LDP IND [On/Off]		Status of LDP ON indicator lamp judged from LDP ON indicator lamp signal received from ADAS control unit with CAN communication line.
LCD [B&P N, B&P I, ID NG, ROTAT, SFT P, INSRT, BATT, NO KY, OUTKY, LK WN]		Displays status of Intelligent Key system warning judged from meter display signal received from BCM with CAN communication line.
ACC TARGET [On/Off]		Status of vehicle ahead detection indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC DISTANCE [Off, Short, Middle, Long]		Status of set distance indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC OWN VHL [On/Off]		Status of own vehicle indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC SET SPEED [On/Off]		Status of set vehicle speed indicator judged from meter display signal received from ADAS control unit with CAN communication line.
ACC UNIT [km/h/Off]		Status of display unit judged from meter display signal received from ADAS control unit with CAN communication line.
SHIFT IND [P, R, N, D, M1, M2, M3, M4, M5, M6, M7]		Status of shift position indicator judged from shift position signal received from TCM with CAN communication line.
ECO DRIVE IND G [On/Off]		Status of ECO drive indicator (green) judged from ECO drive indicator control signal received from ECM with CAN communication line.
ECO DRIVE IND O [On/Off]		Status of ECO drive indicator (orange) judged from ECO drive indicator control signal received from ECM with CAN communication line.
BSW IND [On/Off]		Status of Blind Spot Intervention ON indicator (green) judged from Blind Spot Intervention ON indicator signal received from ADAS control unit with CAN communication line.
BSW W/L [On/Off]		Status of BSW/Blind Spot Intervention warning lamp (yellow) judged from BSW/Blind Spot Intervention warning lamp signal received from ADAS control unit with CAN communication line.
FUEL CAP W/L [On/Off]		Status of fuel filler cap warning display detected from fuel filler cap warning display signal received from ECM via CAN communication.
DRIVE MODE STATS [SNOW, SN-EC, ECO, EC-ST, STD, ST-SP, SPORT, ERROR]		Status of drive mode select 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.

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

NOTE:

Some items are not available according to vehicle specification.

Warning History

- Stores histories when warning/indicator lamp is turned on.
- “Warning History” indicates the “TIME” when the warning/ indicator lamp is turned on.
- The “TIME” above is:

- 0: The condition that the warning/indicator lamp has been turned on 1 or more times after starting the engine and waiting for 30 seconds.
- 1 - 39: The number of times the engine was restarted after the 0 condition.
- NO Warning History: Stores NO (0) turning on history of warning/indicator lamp.

NOTE:

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

Display Item

Display item	Description
ABS W/L	Lighting history of ABS warning lamp.
VDC/TCS IND	Lighting history of VDC OFF indicator lamp.
SLIP IND	Lighting history of VDC warning lamp.
BRAKE W/L	Lighting history of brake warning lamp.
DOOR W/L	Lighting history of door open warning.
TRUNK/GLAS-H	Lighting history of trunk open warning.

Display item	Description
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp.
CRUISE IND	Lighting history of CRUISE indicator.
SET IND	Lighting history of SET indicator.
CRUISE W/L	Lighting history of ICC warning lamp.
BA W/L	Lighting history of IBA OFF indicator lamp.
ATC/T-AMT W/L	Lighting history of A/T CHECK warning lamp.
4WD W/L	Lighting history of AWD warning lamp.
FUEL W/L	Lighting history of low fuel level warning.
WASHER W/L	Lighting history of low washer fluid warning.
AIR PRES W/L	Lighting history of low tire pressure warning lamp.
KEY G/Y W/L	Lighting history of Intelligent Key system malfunction.
AFS OFF IND	Lighting history of AFS OFF indicator lamp.
4WAS/RAS W/L	Lighting history of 4WAS warning lamp.
LANE W/L	Lighting history of lane departure warning lamp.
BSW W/L	Lighting history of BSW/Blind Spot Intervention warning lamp (yellow).

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

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000010099300

VALUES ON THE DIAGNOSIS TOOL

NOTE:

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

Monitor Item	Condition		Value/Status
SPEED METER [km/h]	Ignition switch ON	While driving	Input value of vehicle speed signal (CAN communication signal) **NOTE:** 655.35 is displayed when the malfunction signal is received
SPEED OUTPUT [km/h]	Ignition switch ON	While driving	Output value of vehicle speed signal (CAN communication signal) **NOTE:** 655.35 is displayed when the malfunction signal is received
ODO OUTPUT [km/h or mph]	Ignition switch ON	—	Output value of odometer signal (CAN communication signal)
TACHO METER [rpm]	Ignition switch ON	Engine running	Input value of engine speed signal (CAN communication signal) **NOTE:** 8191.875 is displayed when the malfunction signal is received
FUEL METER [L]	Ignition switch ON	—	Input value of fuel level sensor signal
W TEMP METER [°C]	Ignition switch ON	—	Input value of engine coolant temperature signal (CAN communication signal) **NOTE:** 215 is displayed when the malfunction signal is input
ABS W/L	Ignition switch ON	ABS warning lamp ON	On
		ABS warning lamp OFF	Off
VDC/TCS IND	Ignition switch ON	VDC OFF indicator lamp ON	On
		VDC OFF indicator lamp OFF	Off
SLIP IND	Ignition switch ON	VDC warning lamp ON	On
		VDC warning lamp OFF	Off
BRAKE W/L	Ignition switch ON	Brake warning lamp ON	On
		Brake warning lamp OFF	Off
DOOR W/L	Ignition switch ON	Door open warning ON	On
		Door open warning OFF	Off
TRUNK/GLAS-H	Ignition switch ON	Trunk open warning ON	On
		Trunk open warning OFF	Off
HI-BEAM IND	Ignition switch ON	High-beam indicator lamp ON	On
		High-beam indicator lamp OFF	Off
TURN IND	Ignition switch ON	Turn signal indicator lamp ON	On
		Turn signal indicator lamp OFF	Off

Monitor Item	Condition		Value/Status
FR FOG IND	Ignition switch ON	Front fog lamp indicator lamp ON	On
		Front fog lamp indicator lamp OFF	Off
LIGHT IND	Ignition switch ON	Light indicator lamp ON	On
		Tail lamp indicator lamp OFF	Off
OIL W/L	Ignition switch ON	Oil pressure warning lamp ON	On
		Oil pressure warning lamp OFF	Off
MIL	Ignition switch ON	Malfunction indicator lamp ON	On
		Malfunction indicator lamp OFF	Off
GLOW IND	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
CRUISE IND	Ignition switch ON	CRUISE indicator ON	On
		CRUISE indicator OFF	Off
SET IND	Ignition switch ON	SET indicator ON	On
		SET indicator OFF	Off
CRUISE W/L	Ignition switch ON	CRUISE warning lamp ON	On
		CRUISE warning lamp OFF	Off
BA W/L	Ignition switch ON	IBA OFF indicator lamp ON	On
		IBA OFF indicator lamp OFF	Off
ATC/T-AMT W/L	Ignition switch ON	A/T check warning lamp ON	On
		A/T check warning lamp OFF	Off
4WD W/L	Ignition switch ON	AWD warning lamp ON	On
		AWD warning lamp OFF	Off
FUEL W/L	Ignition switch ON	During low fuel warning indication	On
		Other than the above	Off
WASHER W/L	Ignition switch ON	During low washer fluid warning indication	On
		Other than the above	Off
AIR PRES W/L	Ignition switch ON	Low tire pressure warning lamp ON	On
		Low tire pressure warning lamp OFF	Off
KEY G/Y W/L	Ignition switch ON	During Intelligent Key system malfunction indication	On
		Other than the above	Off
AFS OFF IND	Ignition switch ON	AFS OFF indicator lamp ON	On
		AFS OFF indicator lamp OFF	Off
4WAS/RAS W/L	Ignition switch ON	**NOTE:** This item is displayed, but cannot be monitored.	Off
LANE W/L	Ignition switch ON	Lane departure warning lamp ON	On
		Lane departure warning lamp OFF	Off
LDP IND	Ignition switch ON	LDP ON indicator lamp ON	On
		LDP ON indicator lamp OFF	Off

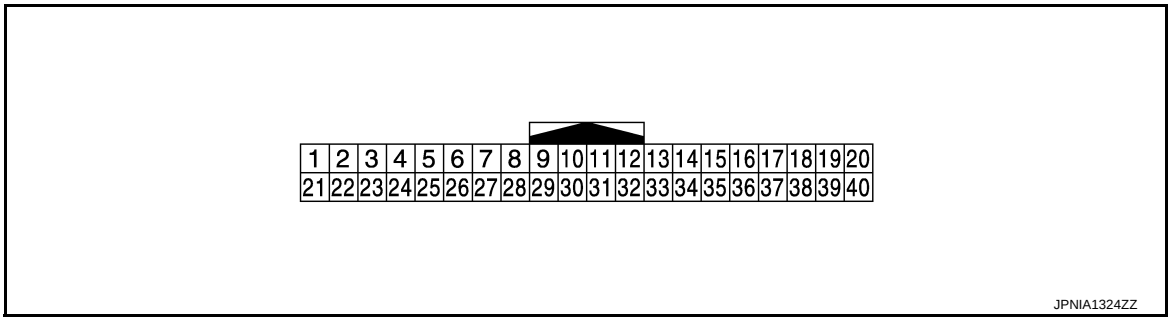
Monitor Item	Condition		Value/Status
LCD	Ignition switch ON	During engine start information indication	B&P I
	Ignition switch ACC	During engine start information indication	B&P N
	Ignition switch LOCK	During key ID warning indication	ID NG
	Ignition switch LOCK	During steering lock information indication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

Monitor Item	Condition		Value/Status
SHIFT IND	Ignition switch ON	During the indication of “P” by shift position indicator	P
		During the indication of “R” by shift position indicator	R
		During the indication of “N” by shift position indicator	N
		During the indication of “D” by shift position indicator	D
		During the indication of “M1” by shift position indicator	M1
		During the indication of “M2” by shift position indicator	M2
		During the indication of “M3” by shift position indicator	M3
		During the indication of “M4” by shift position indicator	M4
		During the indication of “M5” by shift position indicator	M5
		During the indication of “M6” by shift position indicator	M6
		During the indication of “M7” by shift position indicator	M7
ECO DRIVE IND G	Ignition switch ON	ECO drive indicator (green) ON	On
		ECO drive indicator (green) OFF	Off
ECO DRIVE IND O	Ignition switch ON	ECO drive indicator (orange) ON	On
		ECO drive indicator (orange) OFF	Off
BSW IND	Ignition switch ON	Blind Spot Intervention ON indicator (green) ON	On
		Blind Spot Intervention ON indicator (green) OFF	Off
BSW W/L	Ignition switch ON	BSW/Blind Spot Intervention warning lamp (yellow) ON	On
		BSW/Blind Spot Intervention warning lamp (yellow) OFF	Off
FUEL CAP W/L	Ignition switch ON	Fuel filler cap warning display ON	On
		Fuel filler cap warning display OFF	Off
DRIVE MODE STATS	Ignition switch ON	Drive mode select switch in SNOW position	SNOW
		Drive mode select switch in between SNOW and ECO position	SN-EC
		Drive mode select switch in ECO position	ECO
		Drive mode select switch in between ECO and ● (STANDARD mode)	EC-ST
		Drive mode select switch ● (STANDARD mode) position	STD
		Drive mode select switch in between ● (STANDARD mode) and SPORT	ST-SP
		Drive mode select switch in SPORT position	SPORT
		Reception of an abnormal signal other than those above	ERROR

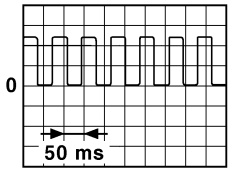
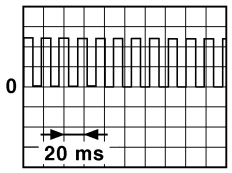
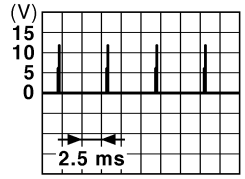
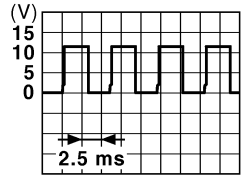
Monitor Item	Condition		Value/Status
M RANGE SW	Ignition switch ON	Selector lever in manual mode position	On
		Other than the above	Off
NM RANGE SW	Ignition switch ON	Selector lever in manual mode position	Off
		Other than the above	On
AT SFT UP SW	Ignition switch ON	Selector lever in + position	On
		Other than the above	Off
AT SFT DWN SW	Ignition switch ON	Selector lever in – position	On
		Other than the above	Off
ST SFT UP SW	Ignition switch ON	Paddle shifter in + position	On
		Other than the above	Off
ST SFT DWN SW	Ignition switch ON	Paddle shifter in – position	On
		Other than the above	Off
PKB SW	Ignition switch ON	Parking brake switch ON	On
		Parking brake switch OFF	Off
BUCKLE SW	Ignition switch ON	Driver seat belt not fastened	On
		Driver seat belt fastened	Off
BRAKE OIL SW	Ignition switch ON	Brake fluid level switch ON	On
		Brake fluid level switch OFF	Off
ENTER SW	Ignition switch ON	When ❑ switch (enter switch) is pressed	On
		Other than above	Off
SELECT SW	Ignition switch ON	When ● switch (select switch) is pressed	On
		Other than above	Off
DISTANCE [km]	Ignition switch ON	—	Distance to empty calculated by combination meter
OUTSIDE TEMP [°C or °F]	Ignition switch ON	—	Input value of ambient sensor signal (CAN communication signal) **NOTE:** This may not match the indicated value on the information display.
FUEL LOW SIG	Ignition switch ON	During low fuel warning indication	On
		Other than above	Off
BUZZER	Ignition switch ON	Buzzer ON	On
		Buzzer OFF	Off

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

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
1 (W)	Ground	Battery power supply	Input	Ignition switch OFF	—	Battery voltage
2 (BG)	Ground	Ignition signal	Input	Ignition switch ON	—	Battery voltage
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 (R)	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
5 (B)	Ground	Illumination control signal	Output	Ignition switch ON	• Lighting switch 1ST position • When meter illumination is maximum	 JPNIA1687GB
					• Lighting switch 1ST position • When meter illumination is step 11	 JPNIA1686GB
					• Lighting switch 1ST position • When meter illumination is minimum	12 V
7 (SB)	6 (B)	Enter switch signal	Input	Ignition switch ON	When ❑ switch (enter switch) is pressed	0 V
					Other than the above	5 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
8 (LG)	6 (B)	Select switch signal	Input	Ignition switch ON	When ● switch (select switch) is pressed	0 V
					Other than the above	5 V
9 (G)	6 (B)	Illumination control switch signal (+)	Input	Ignition switch ON	When switch [illumination control switch (+)] is pressed	0 V
					Other than the above	5 V
10 (GR)	6 (B)	Illumination control switch signal (–)	Input	Ignition switch ON	When switch [illumination control switch (–)] is pressed	0 V
					Other than the above	5 V
11 (L)	6 (B)	Trip reset switch signal	Input	Ignition switch ON	When trip reset switch is pressed	0 V
					Other than the above	5 V
12 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
14 (L)	—	CAN-H	—	—	—	—
15 (P)	—	CAN-L	—	—	—	—
16 (R)	Ground	Air bag signal	Input	Ignition switch ON	Air bag warning lamp ON	3 V
					Air bag warning lamp OFF	0 V
23 (B)	Ground	Ground	—	Ignition switch ON	—	0 V
25 (W)	Ground	Alternator signal	Input	Ignition switch ON	Charge warning lamp ON	2 V
					Charge warning lamp OFF	Battery voltage
26 (V)	Ground	Parking brake switch signal	Input	Ignition switch ON	Parking brake applied	0 V
					Parking brake released	12 V
27 (V)	Ground	Brake fluid level switch signal	Input	Ignition switch ON	Brake fluid level is normal	12 V
					The brake fluid level is lower than the low level	0 V
28 (G)	Ground	Security signal	Input	Ignition switch ON	Security indicator lamp ON	0 V
					Security indicator lamp OFF	12 V
29 (L)	Ground	Washer level switch signal	Input	Ignition switch ON	Washer level switch ON	0 V
					Washer level switch OFF	5 V
32 (G)	Ground	Paddle shifter shift down signal	Input	Ignition switch ON	Paddle shifter shift down operation	0 V
					Other than the above	12 V
33 (BG)	Ground	Paddle shifter shift up signal	Input	Ignition switch ON	Paddle shifter shift up operation	0 V
					Other than the above	12 V

Terminal No. (Wire color)		Description		Condition		Value (Approx.)
+	–	Signal name	Input/ Output			
34 (G)	24 (B)	Fuel level sensor signal	Input	Ignition switch ON	—	 JSNIA2672ZZ
35 (W)	Ground	Seat belt buckle switch signal (driver side)	Input	Ignition switch ON	When driver seat belt is fastened	12 V
					When driver seat belt is unfastened	0 V
36 (G)	Ground	Passenger seat belt warning signal	Input	Ignition switch ON	• When driver seat belt is fastened • When getting in the passenger seat • When passenger seat belt is fastened	12 V
					• When driver seat belt is fastened • When getting in the passenger seat • When passenger seat belt is unfastened	0 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 (V)	Ground	Manual mode shift down signal	Input	Ignition switch ON	Selector lever shift down operation	0 V
					Other than the above	12 V
39 (L)	Ground	Manual mode shift up signal	Input	Ignition switch ON	Selector lever shift up operation	0 V
					Other than the above	12 V
40 (W)	Ground	Manual mode signal	Input	Ignition switch ON	Selector manual mode position	0 V
					Other than the above	12 V

Fail-Safe

INFOID:0000000010099301

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.

Function		Specifications
Information display	Odo/trip meter	An indicated value is maintained at communications blackout.
	Shift position indicator	The display turns OFF by suspending communication.
	Door open warning	The display turns OFF by suspending communication.
	Trunk open warning	
	Fuel filler cap warning	
	Low tire pressure warning	
Buzzer		The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp	The lamp turns ON by suspending communication.
	VDC warning lamp	
	VDC OFF indicator lamp	
	Brake warning lamp	
	IBA OFF indicator lamp	
	AWD warning lamp	
	Malfunction indicator lamp	
	CRUISE warning lamp	
	Low tire pressure warning lamp	The lamp blinking caused by suspending communication.
	AFS OFF indicator lamp	
	High beam indicator lamp	The lamp turns OFF by suspending communication.
	Turn signal indicator lamp	
	Front fog lamp indicator lamp	
	Tail lamp indicator lamp	
	A/T CHECK indicator lamp	
	Lane departure warning lamp	
	LDP ON indicator lamp	
	Oil pressure warning lamp	
	ECO drive indicator	
	Blind Spot Intervention ON indicator	
	BSW/Blind Spot Intervention warning lamp	

DTC Index

INFOID:0000000010099302

Display contents of CONSULT	Diagnostic item is detected when...	Refer to
CAN COMM CIRCUIT [U1000]	When combination meter is not transmitting or receiving CAN communication signal for 2 seconds or more.	MWI-67, "Diagnosis Procedure"
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-68, "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-69, "Diagnosis Procedure"
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-70, "Diagnosis Procedure"
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-71, "Diagnosis Procedure"

IPDM E/R

List of ECU Reference

INFOID:0000000010099303

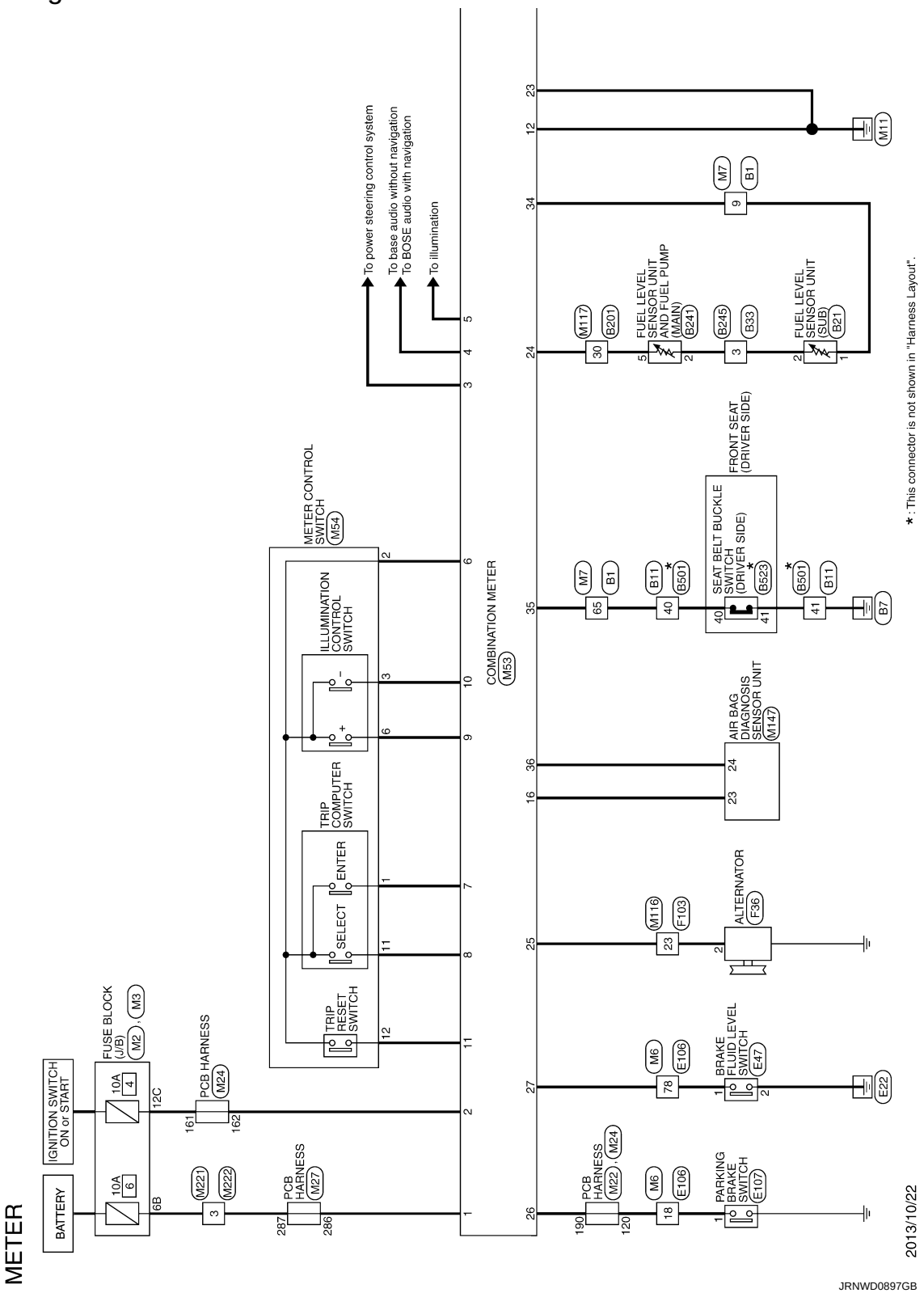
ECU	Reference
IPDM E/R	PCS-16, "Reference Value"
	PCS-23, "Fail-safe"
	PCS-24, "DTC Index"

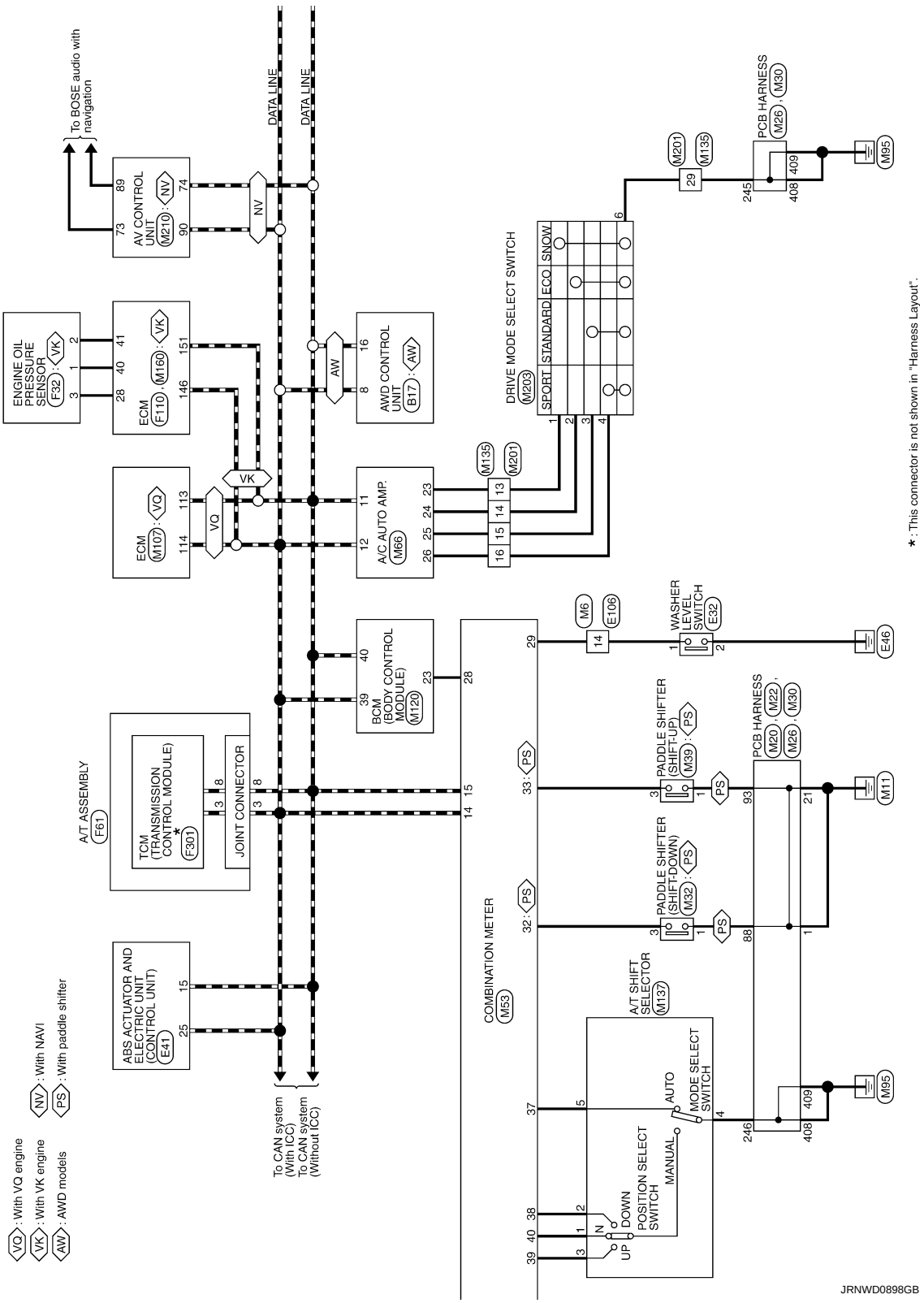
WIRING DIAGRAM

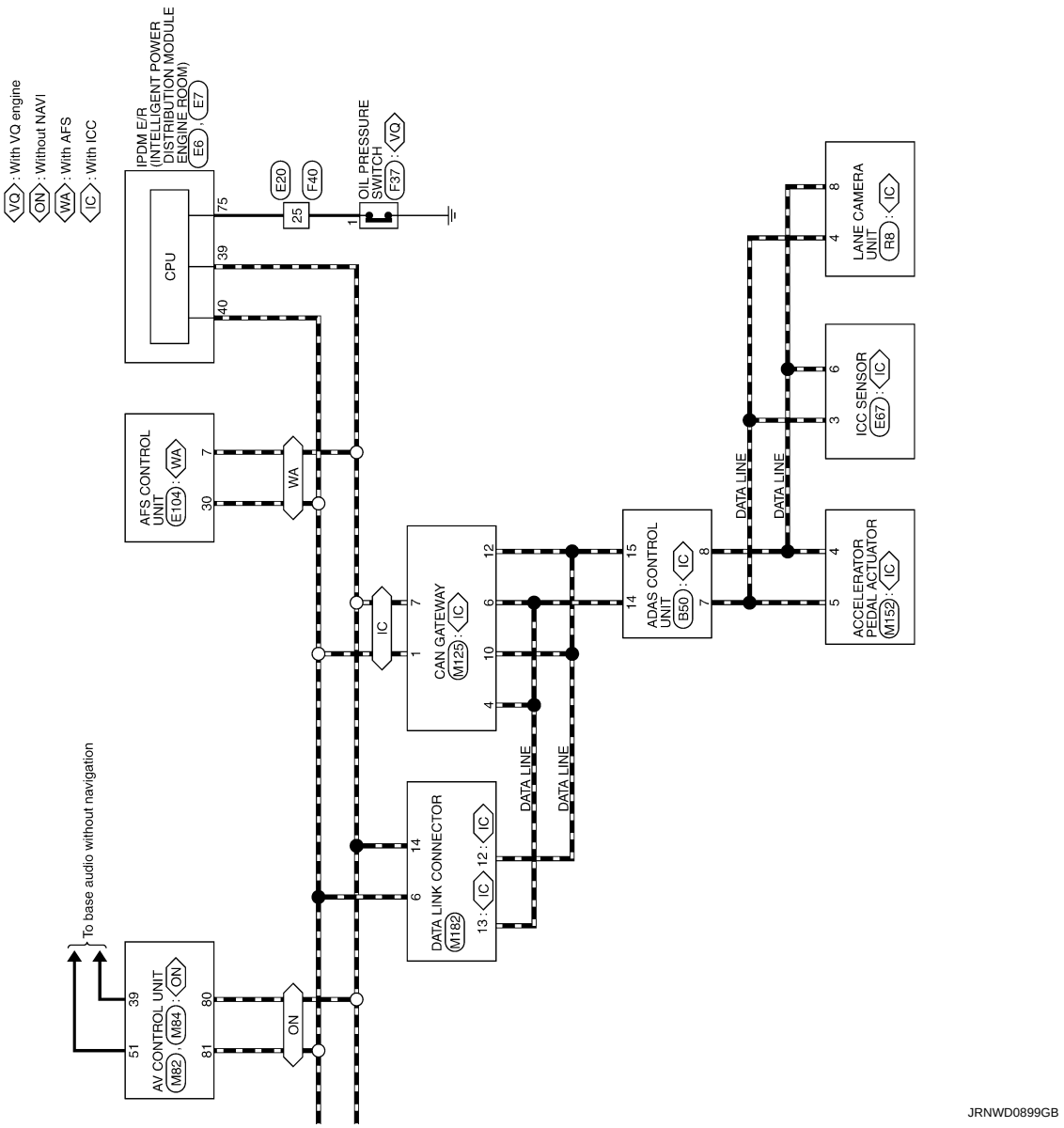
METER SYSTEM

Wiring Diagram

INFOID:0000000010099304




To BOSE audio with navigation
DATA LINE
DATA LINE
AV CONTROL UNIT (M210)
NV
ENGINE OIL PRESSURE SENSOR (F32)
ECM (F110), (M160)
VK
AW
AWD CONTROL UNIT (B17)
ECM (M107)
VQ
VK
VQ
A/C AUTO AMP. (M66)
M135
M201
DRIVE MODE SELECT SWITCH (M203)
SPORT
STANDARD
ECO
SNOW
PCB HARNESS (M26), (M30)
M95
* : This connector is not shown in "Harness Layout".
WASHER LEVEL SWITCH (E32)
M6
E106
E46
BCM (BODY CONTROL MODULE) (M120)
A/T ASSEMBLY (F61)
TCM (TRANSMISSION CONTROL MODULE) (F301)
JOINT CONNECTOR
PADDLE SHIFTER (SHIFT-UP) (M39)
PADDLE SHIFTER (SHIFT-DOWN) (M32)
PS
PCB HARNESS (M20), (M22), (M26), (M30)
M11
COMBINATION METER (M53)
A/T SHIFT SELECTOR (M137)
MODE SELECT SWITCH
AUTO
MANUAL
POSITION SELECT SWITCH
UP
DOWN
N
ABS ACTUATOR AND ELECTRIC UNIT (CONTROL UNIT) (E41)
To CAN system (With ICC)
To CAN system (Without ICC)
VQ : With VQ engine
VK : With VK engine
AW : AWD models
NV : With NAVI
PS : With paddle shifter
JRNWD0898GB



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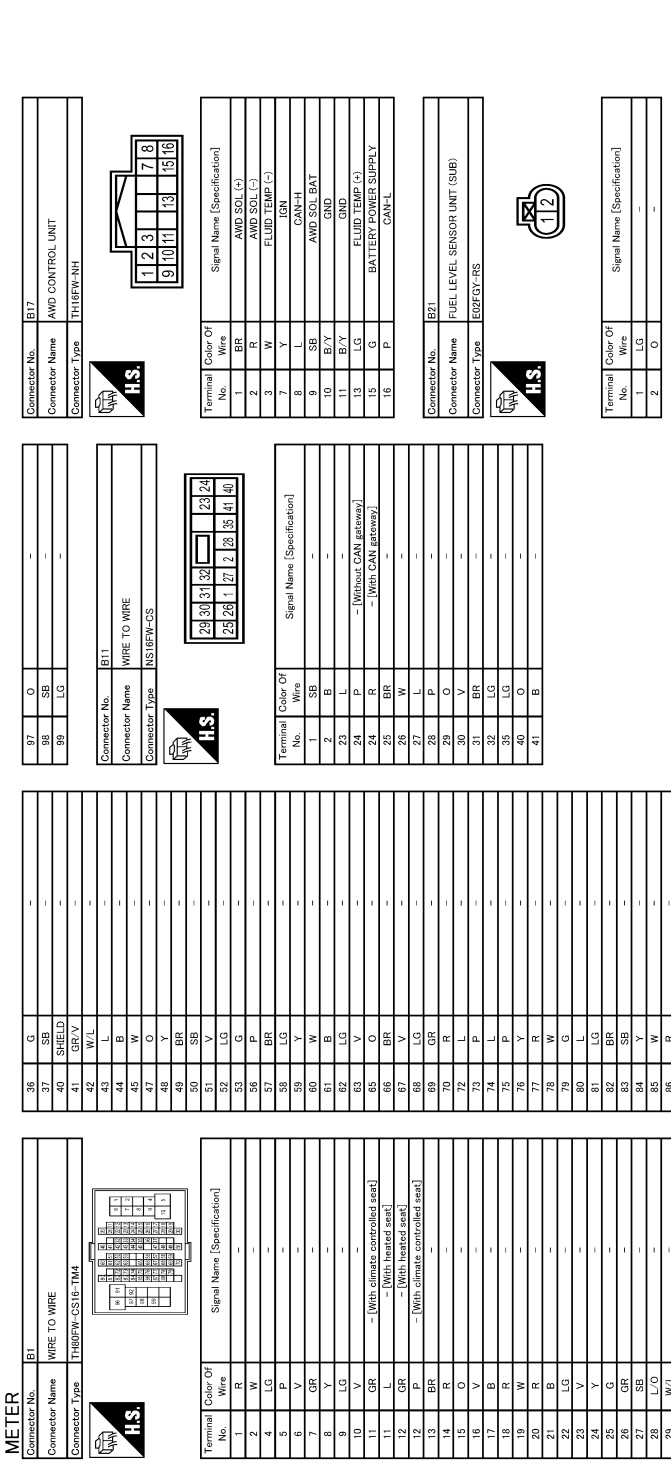

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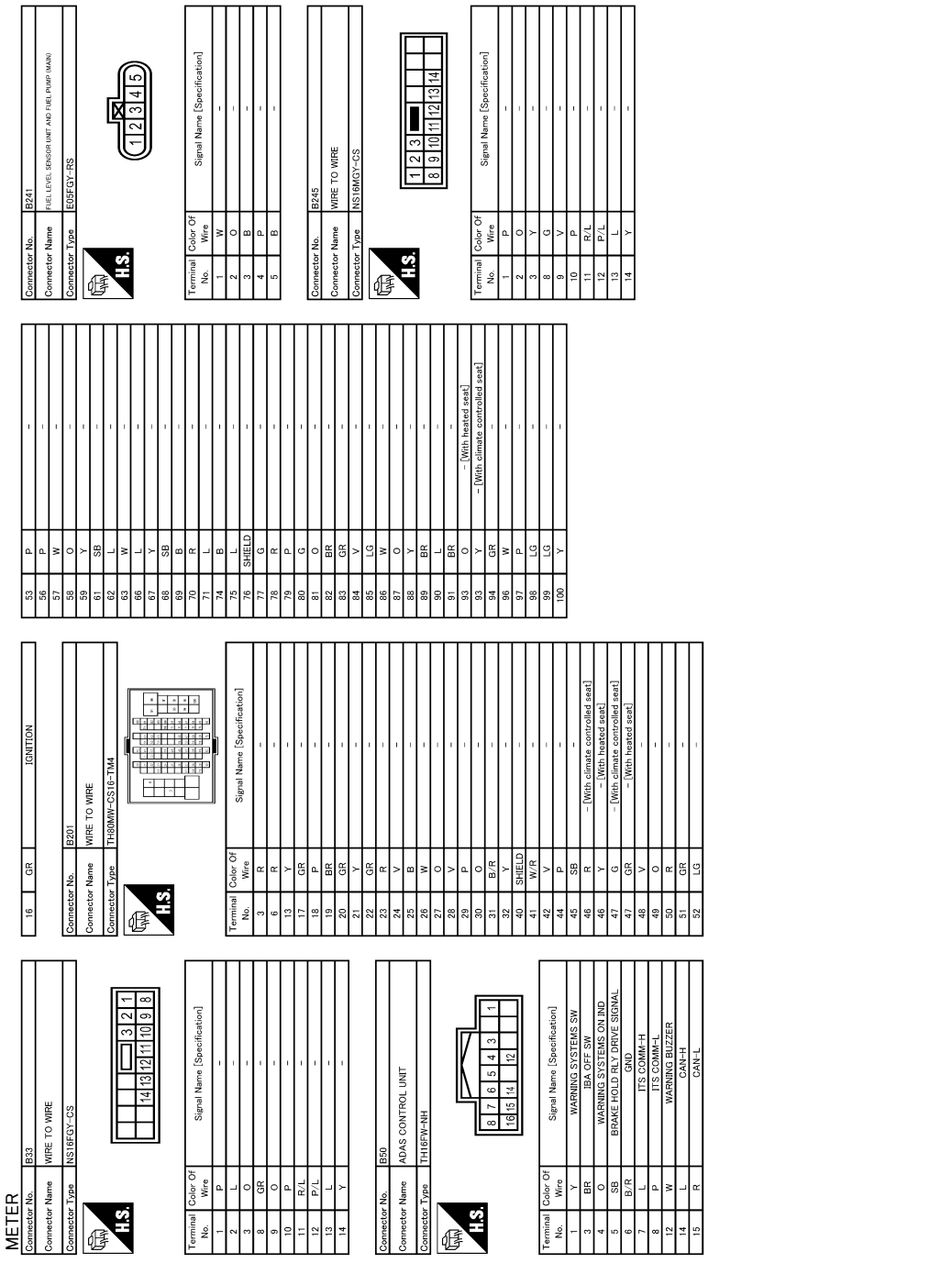

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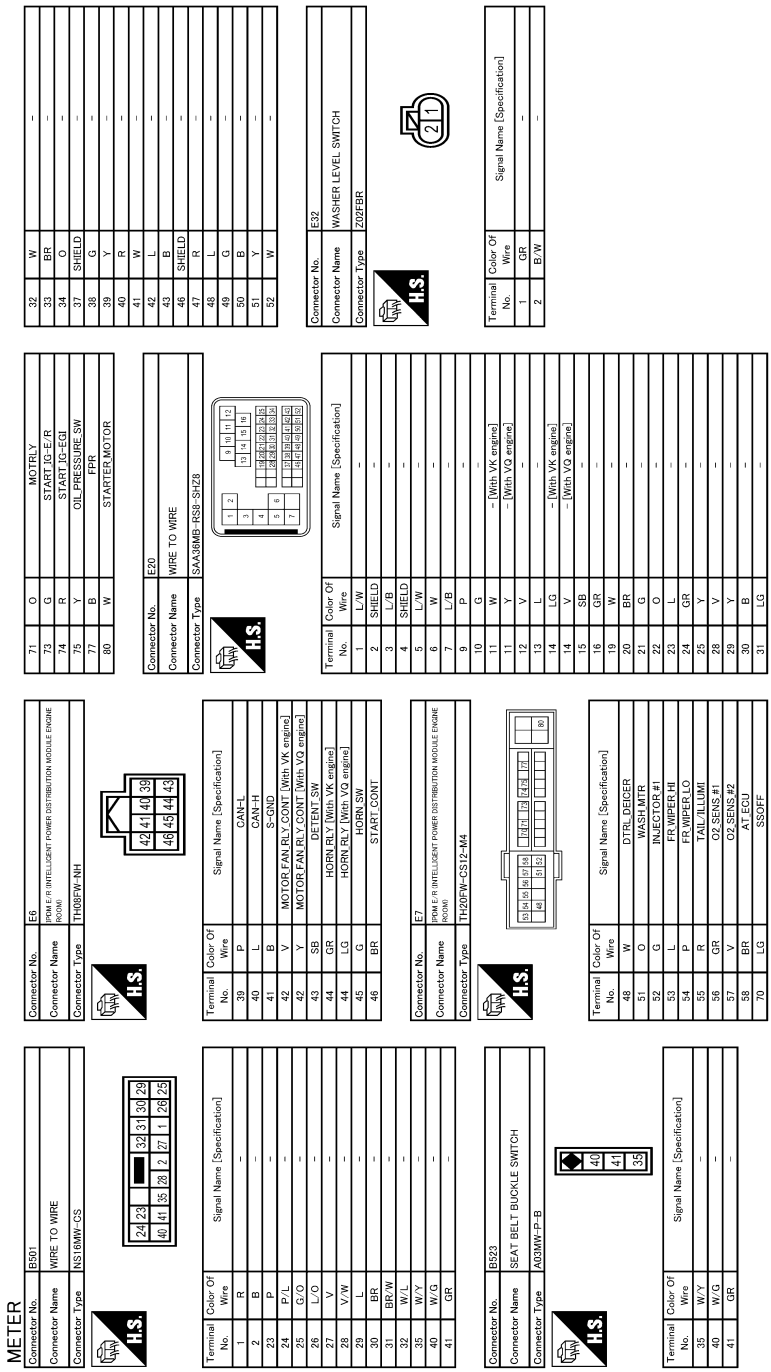

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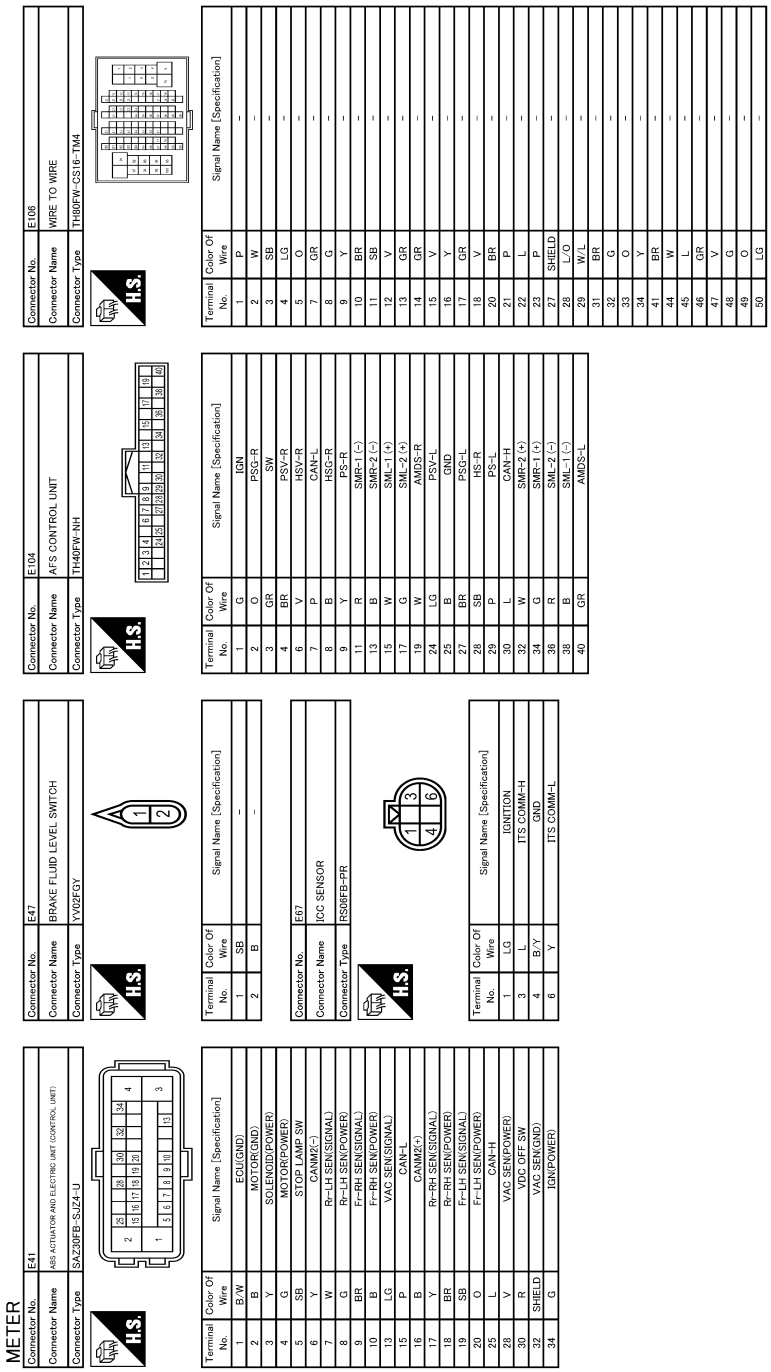

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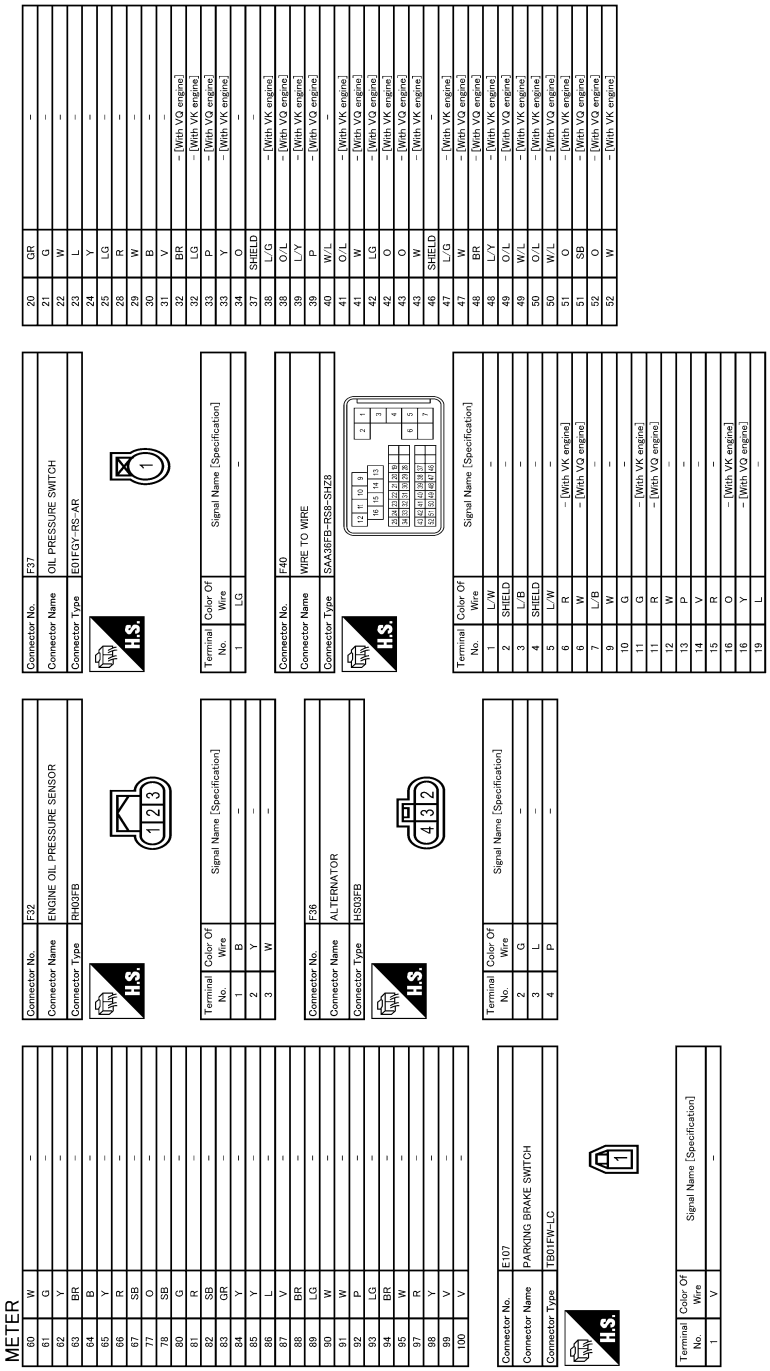

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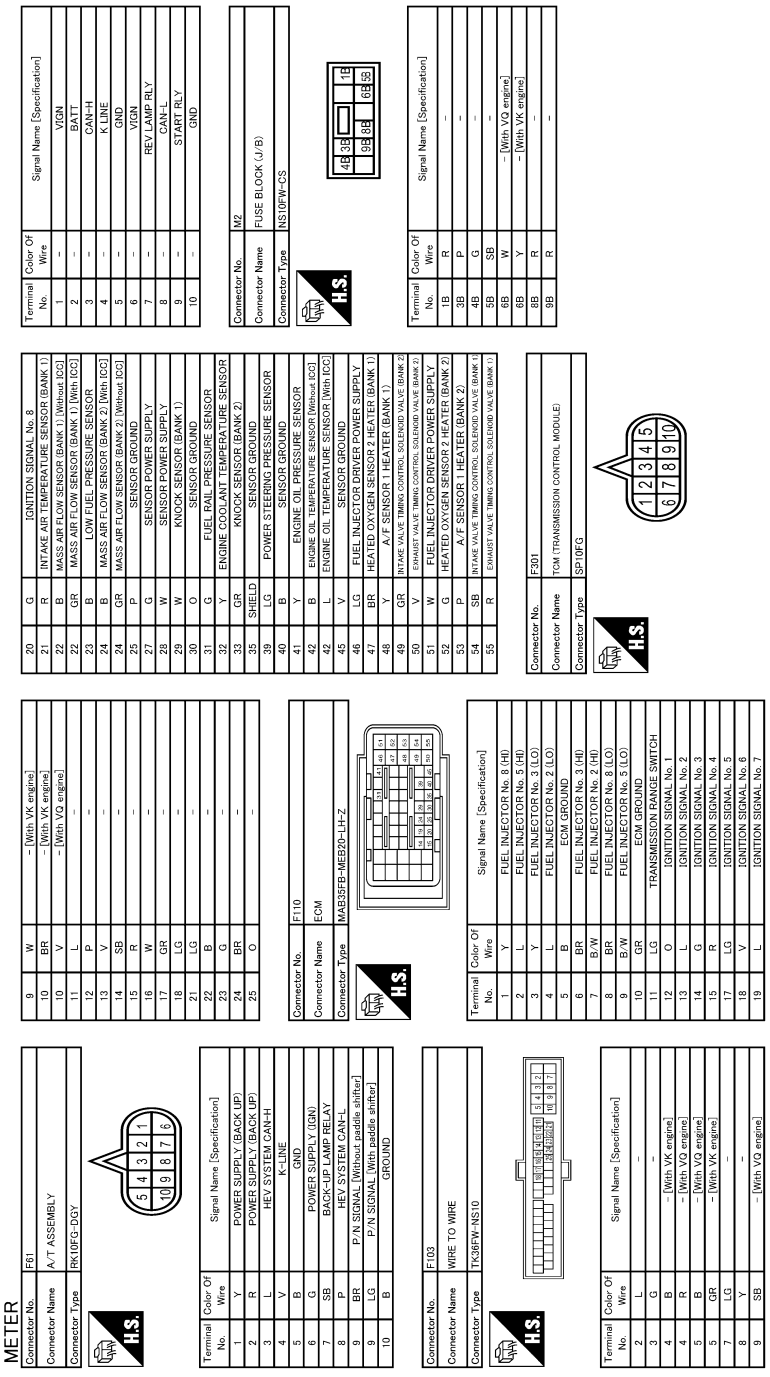

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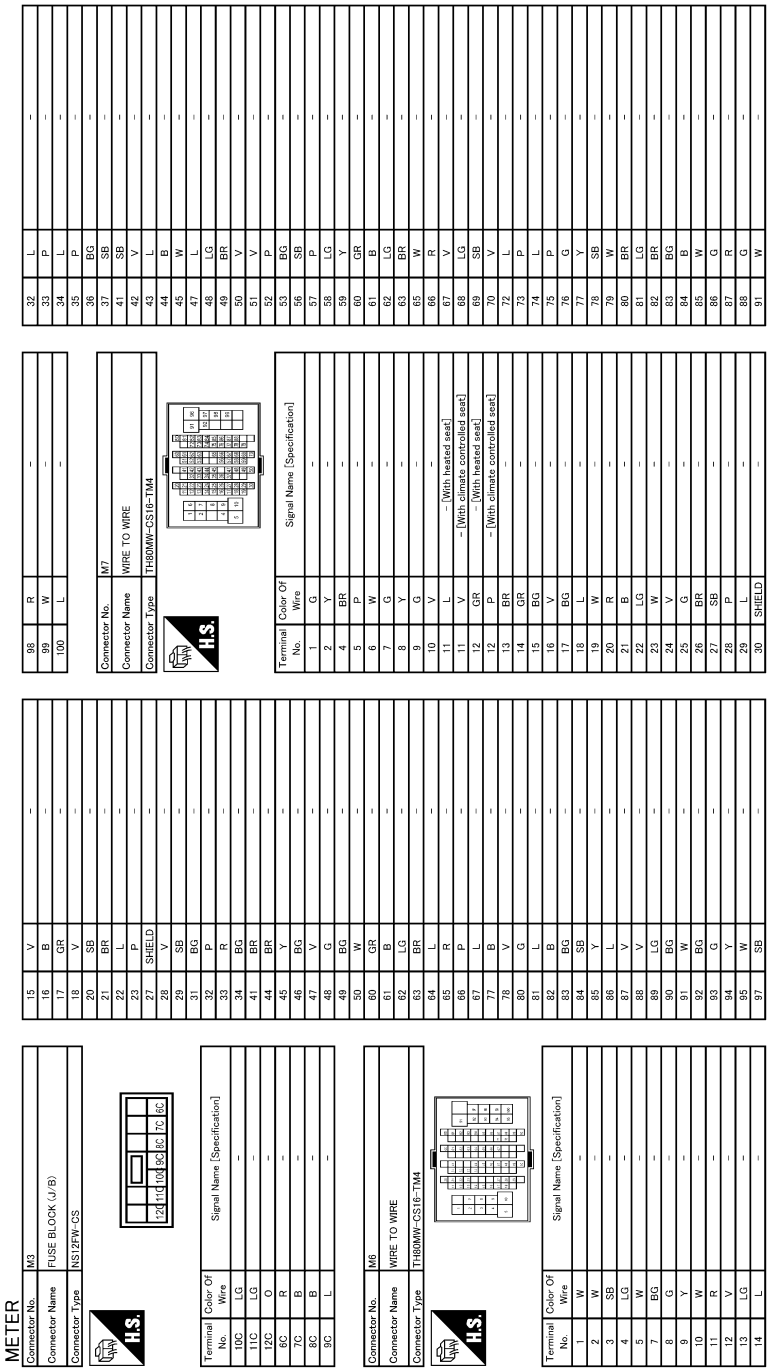

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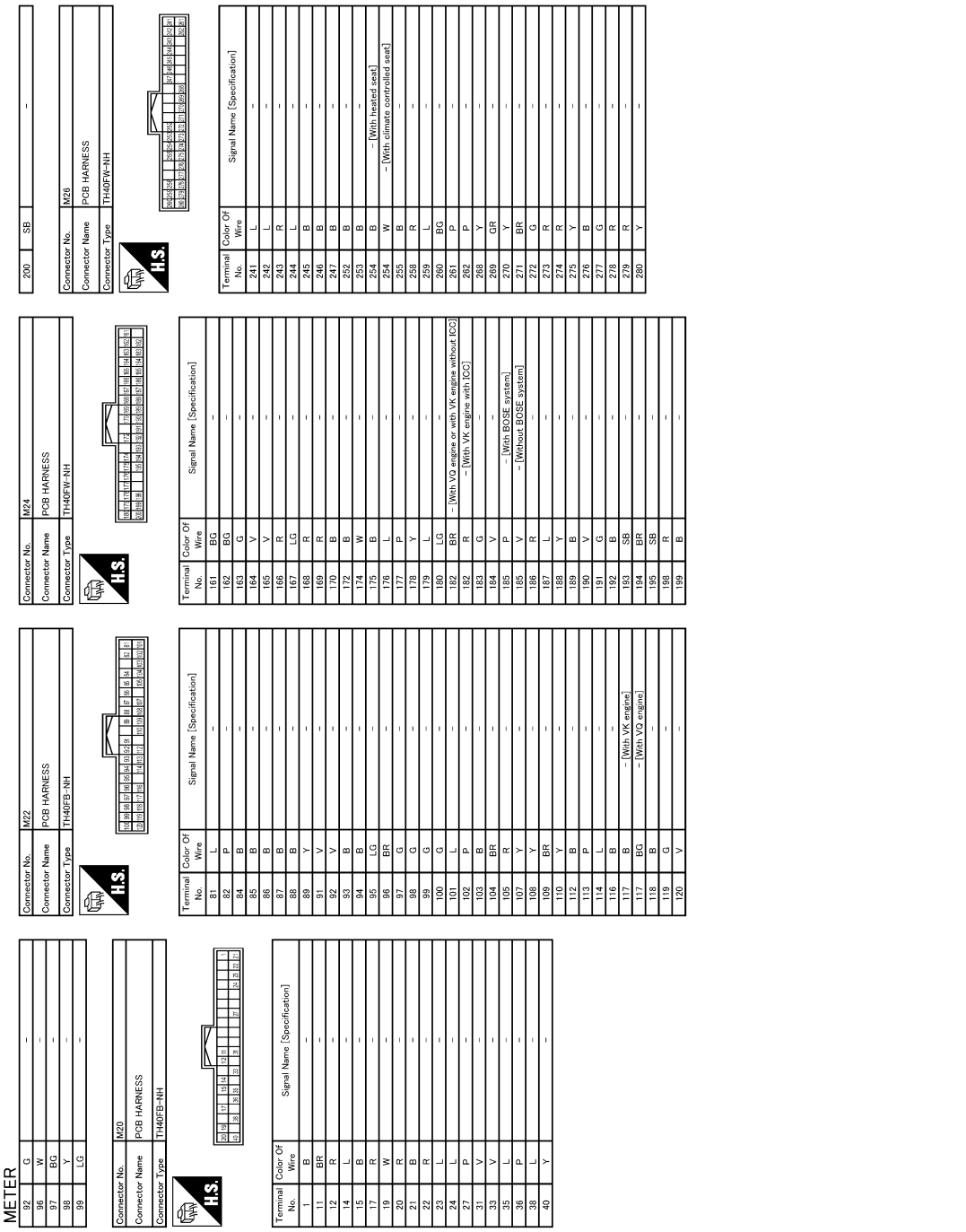

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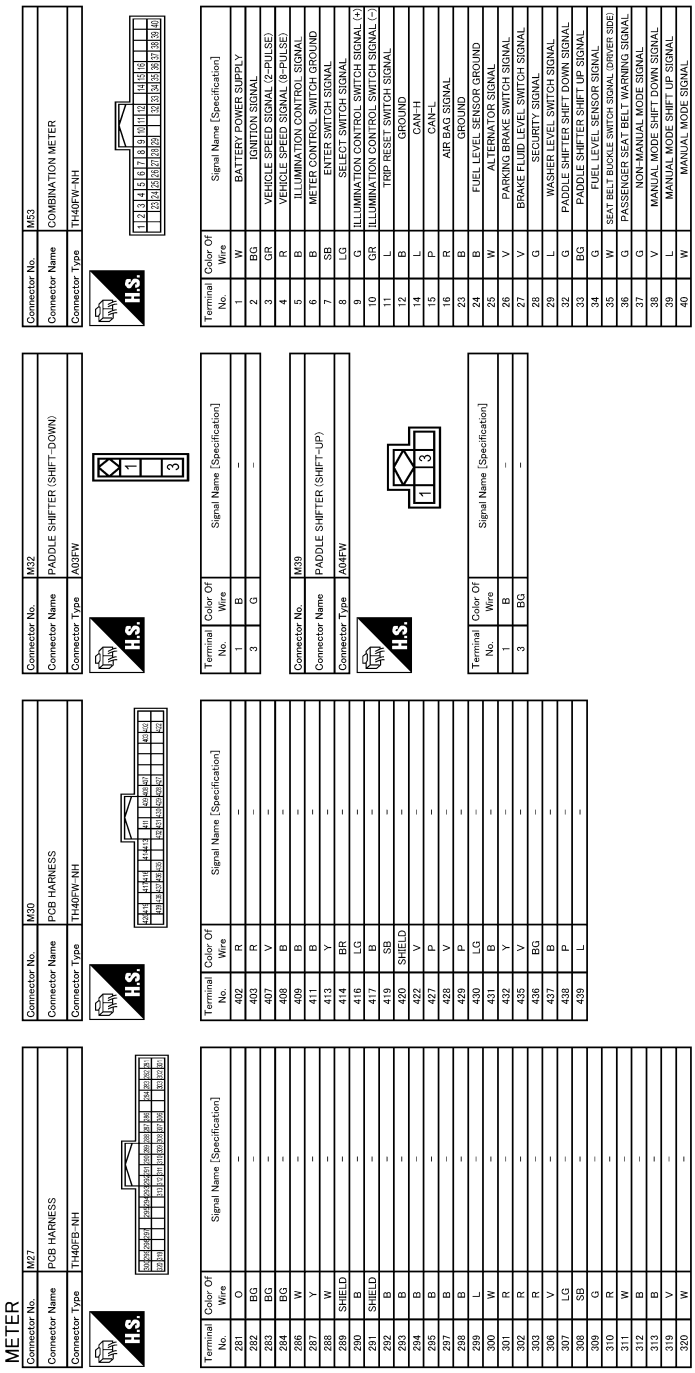

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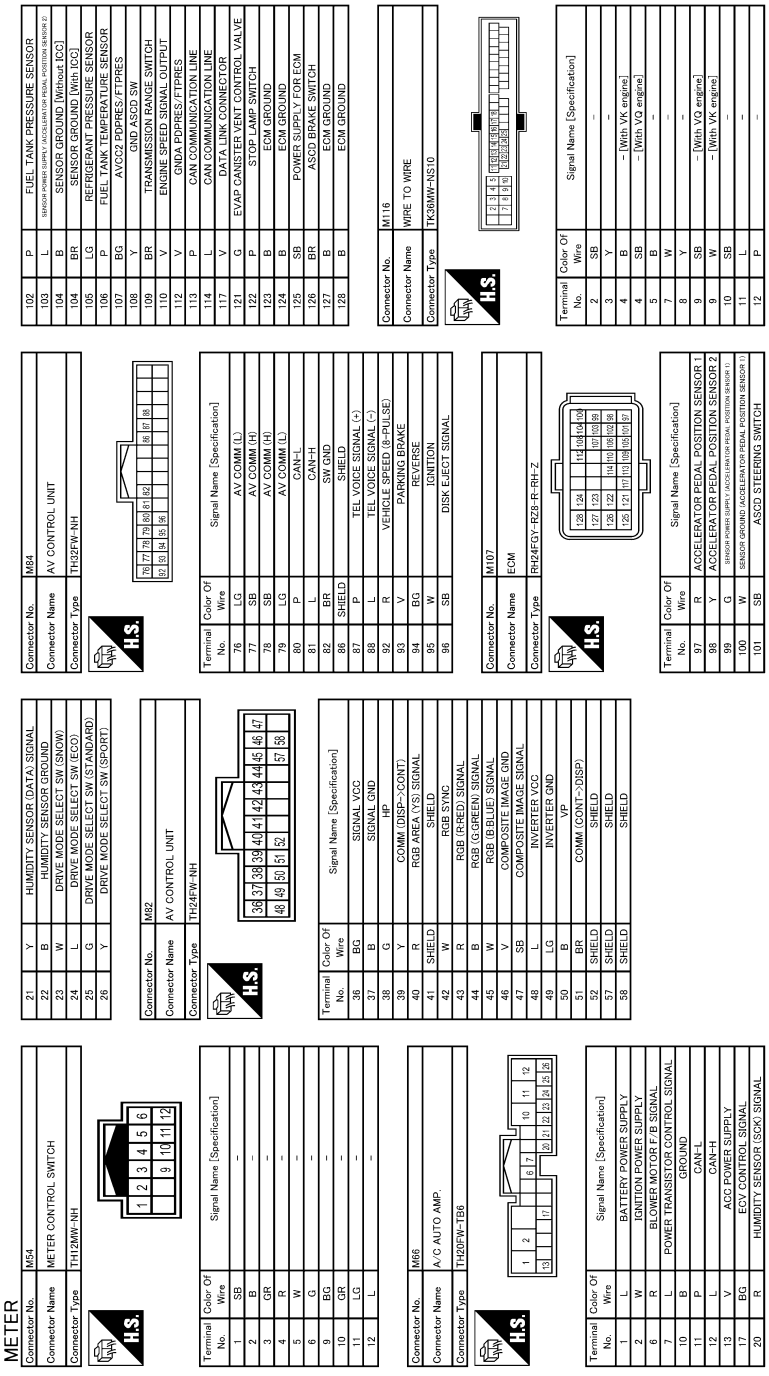

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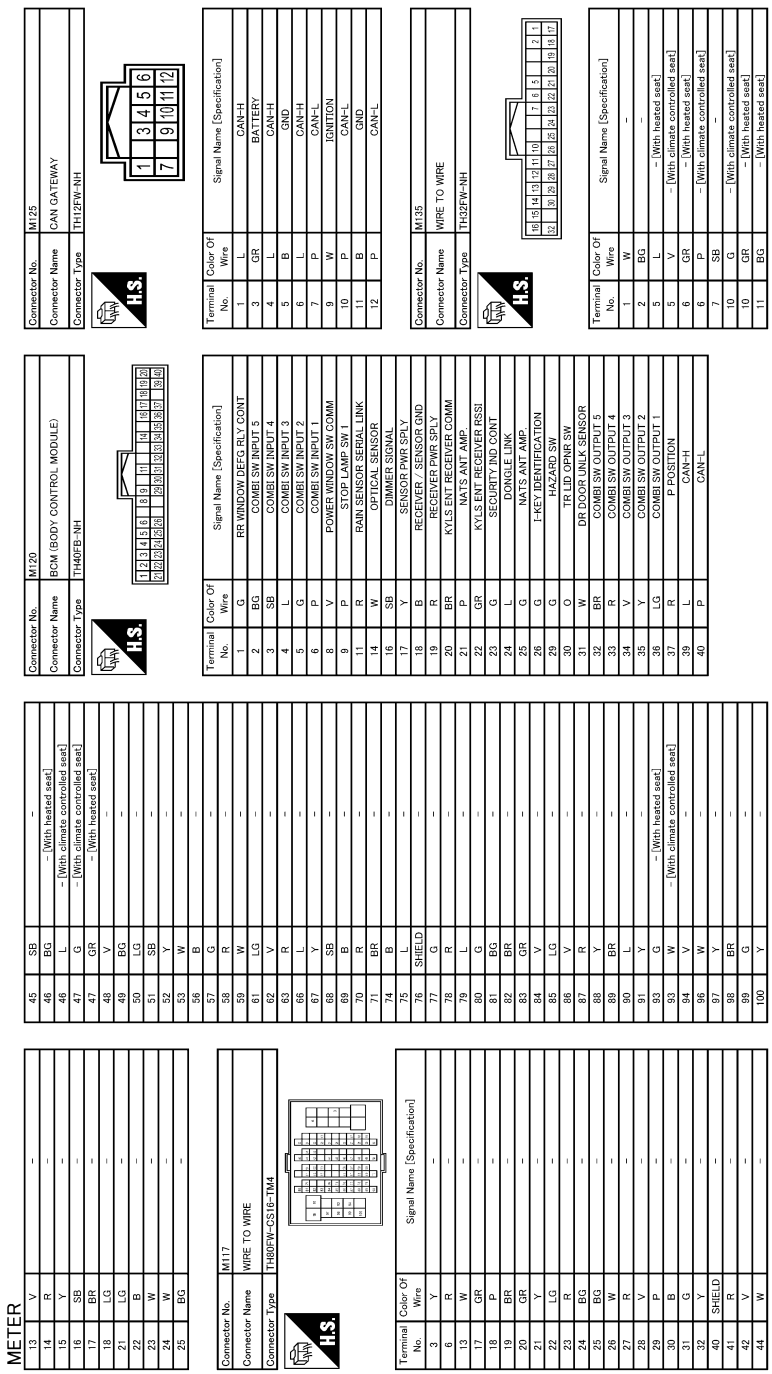

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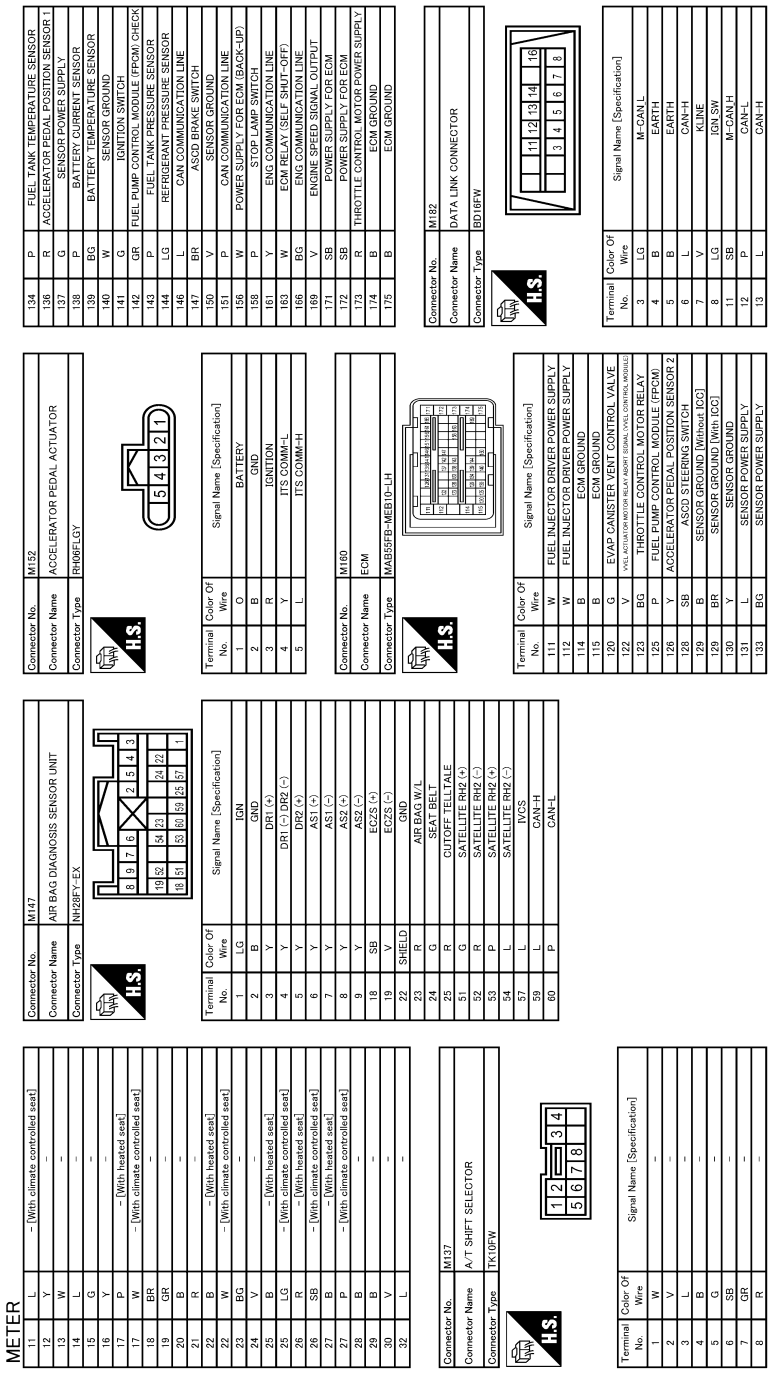

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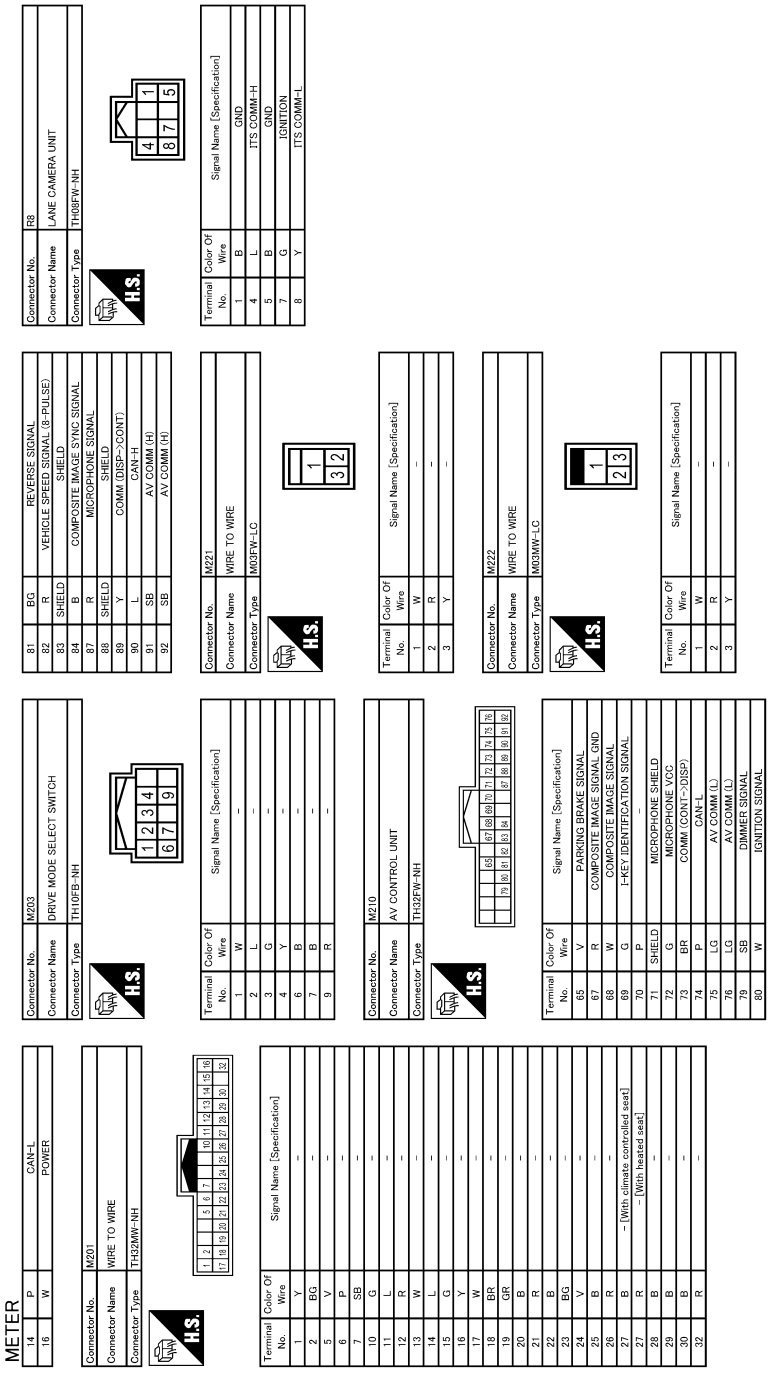

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CLOCK

Wiring Diagram

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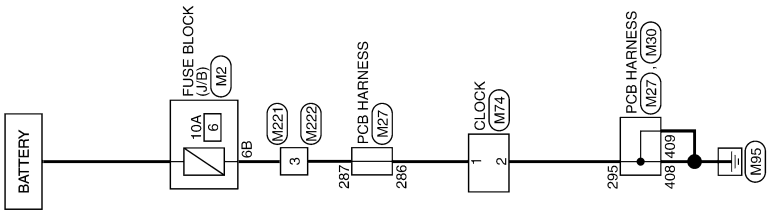
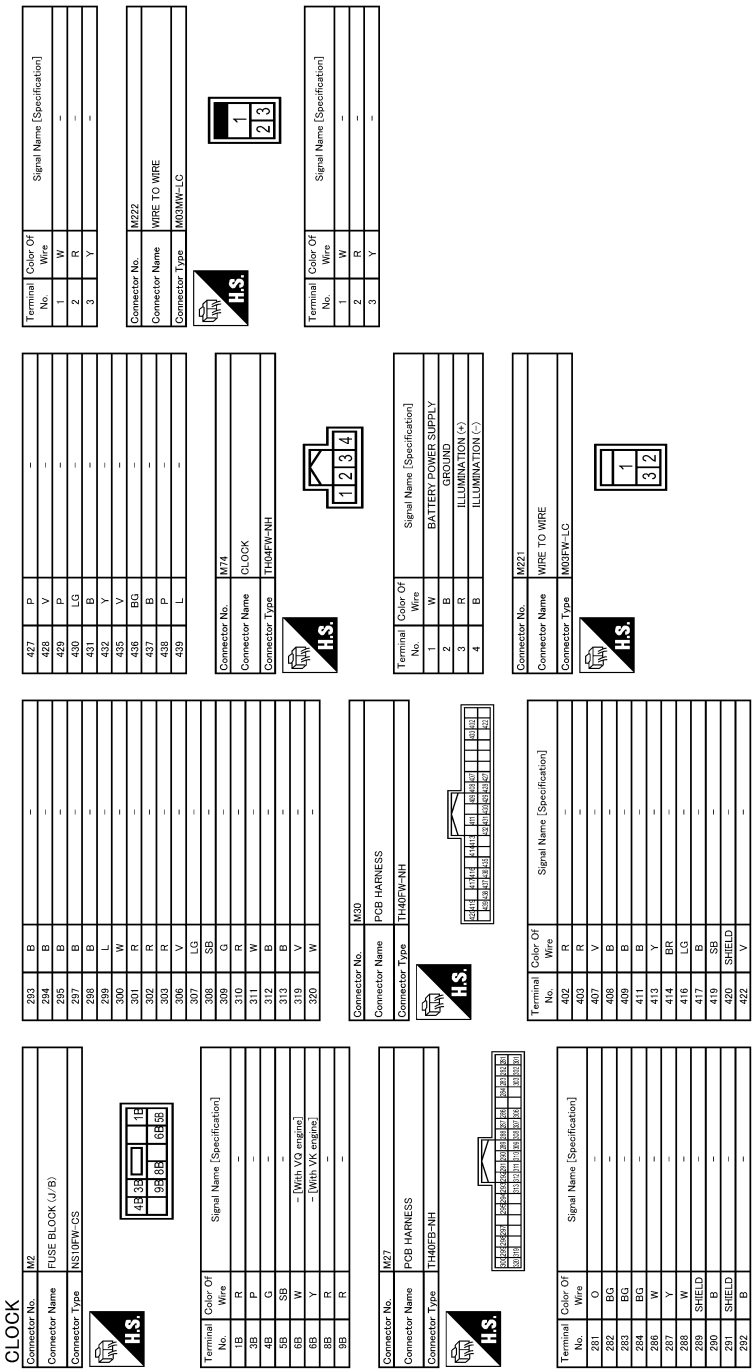


CLOCK

2013/10/22

JRNWD0913GB



JRNWD0914GB

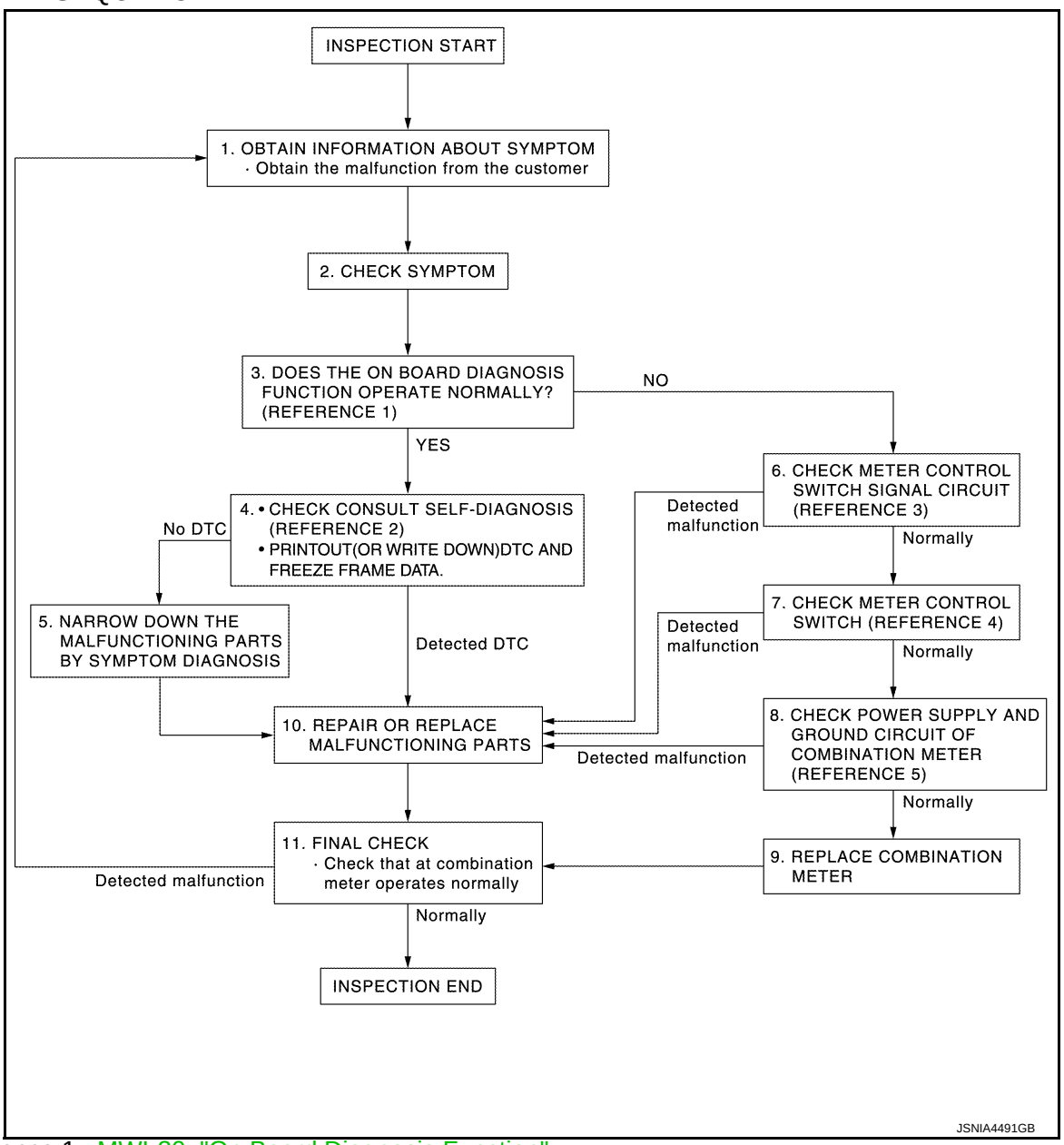
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW (METER SYSTEM)

Work flow

INFOID:0000000010099306

OVERALL SEQUENCE



- Reference 1···MWI-30, "On Board Diagnosis Function".
- Reference 2···MWI-44, "DTC Index".
- Reference 3···MWI-73, "Diagnosis Procedure".
- Reference 4···MWI-74, "Component Inspection".
- Reference 5···MWI-72, "COMBINATION METER : Diagnosis Procedure".

DETAILED FLOW

1.OBTAIN INFORMATION ABOUT SYMPTOM

Interview the customer to obtain as much information as possible about the conditions and environment under which the malfunction occurred.

>> GO TO 2.

2.CHECK SYMPTOM

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

>> GO TO 3.

3.CHECK ON BOARD DIAGNOSIS OPERATION

Check that the on board diagnosis function operates. Refer to MWI-30, "On Board Diagnosis Function".

Does the on board diagnosis function operate normally?

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

4.CHECK CONSULT SELF-DIAGNOSIS RESULTS

1. Connect CONSULT and perform self-diagnosis. Refer to MWI-44, "DTC Index".
2. When DTC is detected, follow the instructions below:

- Record DTC and Freeze Frame Data.

Are self-diagnosis results normal?

YES >> GO TO 5.
NO >> GO TO 10.

5.NARROW DOWN THE MALFUNCTIONING PARTS BY SYMPTOM DIAGNOSIS

Perform symptom diagnosis and narrow down the malfunctioning parts.

>> GO TO 10.

6.CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

Check meter control switch signal circuit. Refer to MWI-73, "Diagnosis Procedure".

Is inspection result OK?

YES >> GO TO 7.
NO >> GO TO 10.

7.CHECK METER CONTROL SWITCH

Check meter control switch. Refer to MWI-74, "Component Inspection".

Is inspection result OK?

YES >> GO TO 8.
NO >> GO TO 10.

8.CHECK COMBINATION METER POWER SUPPLY AND GROUND CIRCUITS

Check combination meter power supply and ground circuits. Refer to MWI-72, "COMBINATION METER : Diagnosis Procedure".

Is inspection result OK?

YES >> GO TO 9.
NO >> GO TO 10.

9.REPLACE COMBINATION METER

Replace combination meter.

>> GO TO 11.

10.REPAIR OR REPLACE MALFUNCTIONING PARTS

Repair or replace the malfunctioning parts.

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

>> GO TO 11.

11. 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:0000000010099307

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-34, "CAN COMMUNICATION SYSTEM : CAN Communication Signal Chart".

DTC Logic

INFOID:0000000010099308

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000010099309

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-24, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-47, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000010099310

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000010099311

DTC DETECTION LOGIC

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

Diagnosis Procedure

INFOID:0000000010099312

1.REPLACE COMBINATION METER

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

>> INSPECTION END

B2205 VEHICLE SPEED

Description

INFOID:0000000010099313

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

DTC Logic

INFOID:0000000010099314

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when...	Probable malfunction location
B2205	VEHICLE SPEED	An abnormal vehicle speed signal is input from ABS actuator and electric unit (control unit) for 2 seconds or more	• Wheel sensor • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000010099315

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-41, "CONSULT Function".

B2267 ENGINE SPEED

Description

INFOID:0000000010099316

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

DTC Logic

INFOID:0000000010099317

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when...	Probable malfunction location
B2267	ENGINE SPEED	ECM continuously transmits abnormal engine speed signals for 2 seconds or more	• Crankshaft position sensor (POS) • ECM

Diagnosis Procedure

INFOID:0000000010099318

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-116, "DTC Index" (VQ37VHR FOR USA AND CANADA), EC-638, "DTC Index" (VQ37VHR FOR MEXICO), EC-1077, "DTC Index" (VK56VD FOR USA AND CANADA), or EC-1664, "DTC Index" (VK56VD FOR MEXICO).

B2268 WATER TEMP

Description

INFOID:0000000010099319

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

DTC Logic

INFOID:0000000010099320

DTC DETECTION LOGIC

DTC	Display contents of CONSULT	Diagnostic item is detected when...	Probable malfunction location
B2268	WATER TEMP	ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more	• Engine coolant temperature sensor • ECM

Diagnosis Procedure

INFOID:0000000010099321

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-116, "DTC Index" (VQ37VHR FOR USA AND CANADA), EC-638, "DTC Index" (VQ37VHR FOR MEXICO), EC-1077, "DTC Index" (VK56VD FOR USA AND CANADA), or EC-1664, "DTC Index" (VK56VD FOR MEXICO).

POWER SUPPLY AND GROUND CIRCUIT
COMBINATION METER

COMBINATION METER : Diagnosis Procedure

INFOID:0000000010099322

1.CHECK FUSE

Check for blown fuses.

Power source	Fuse No.
Battery	6
Ignition switch ON or START	4

Is the inspection result normal?

YES >> GO TO 2.
NO >> Be sure to eliminate cause of malfunction before installing new fuse.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector and ground.

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

Is the inspection result normal?

YES >> GO TO 3.
NO >> Check harness between combination meter and fuse.

3.CHECK GROUND CIRCUIT

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

Combination meter		Ground	Continuity
Connector	Terminal		
M53	12		Existed
	23		

Is the inspection result normal?

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

METER CONTROL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000010099323

1.CHECK COMBINATION METER INPUT SIGNAL

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

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

Is the inspection result normal?

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

2.CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

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

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

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

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

Is the inspection result normal?

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

Component Inspection

INFOID:0000000010099324

1. CHECK METER CONTROL SWITCH

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace meter control switch. Refer to MWI-93, "Removal and Installation".

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Component Function Check

INFOID:0000000010099325

1.PERFORM COMPONENT FUNCTION CHECK (1)

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

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

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

Resistance (Ω)* (Approx.)	Fuel gauge indication position (Approx.)
Less than 94	Full
140	3/4
186	2/4
232	1/4
More than 278	Empty

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Refer to MWI-75, "Diagnosis Procedure".

2.PERFORM COMPONENT FUNCTION CHECK (2)

Check the fuel level sensor unit and fuel pump (main) and/or the fuel level sensor unit (sub). Refer to MWI-76, "Component Inspection".

Is the inspection result normal?

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

Diagnosis Procedure

INFOID:0000000010099326

1.CHECK FUEL LEVEL SENSOR CIRCUIT

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

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

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

Combination meter		Ground	Continuity
Connector	Terminal		
M53	34		Not existed

Is the inspection result normal?

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

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

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

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

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

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

Is the inspection result normal?

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

3.CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

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

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

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

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Repair harness or connector.

Component Inspection

INFOID:0000000010099327

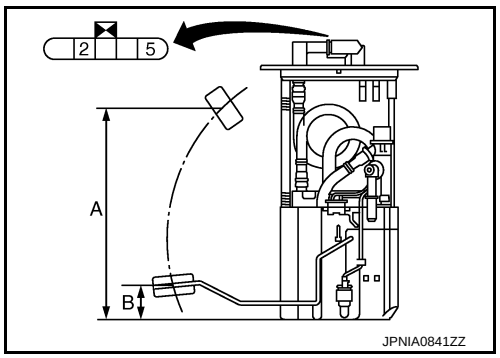
1.REMOVE FUEL LEVEL SENSOR UNIT (MAIN)

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

>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT (MAIN)

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



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

*: When float rod is contact with stopper.

Is inspection result OK?

YES >> GO TO 3.
NO >> Replace fuel level sensor unit and fuel pump (main). Refer to FL-6, "Removal and Installation".

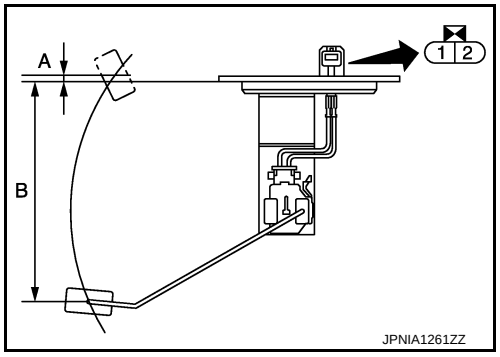
3.REMOVE FUEL LEVEL SENSOR UNIT (SUB)

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

>> GO TO 4.

4.CHECK FUEL LEVEL SENSOR UNIT (SUB)

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



Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit (main)				
1	2	Full* (A)	7	3.9 (0.154)
		Empty* (B)	142	175.8 (6.92)

*: When float rod is contact with stopper.

Is inspection result OK?

YES >> INSPECTION END
NO >> Replace fuel level sensor unit (sub). Refer to FL-6, "Removal and Installation".

OIL PRESSURE SWITCH SIGNAL CIRCUIT (VQ37VHR ENGINE MODELS)

Component Function Check

INFOID:0000000010099328

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:0000000010099329

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	
E7	75	F37	1	Existed

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

Terminals			Continuity
(+)		(–)	
IPDM E/R		Ground	
Connector	Terminal		
E7	75		Not existed

Is the inspection result normal?

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

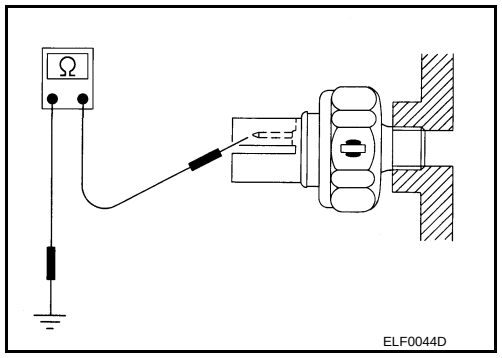
Component Inspection

INFOID:0000000010099330

1.CHECK OIL PRESSURE SWITCH

Check continuity between oil pressure switch and ground.

Condition	Continuity
Engine stopped	Existed
Engine running	Not existed



Is the inspection result normal?

YES >> INSPECTION END

NO >> Replace oil pressure switch. Refer to EM-90, "2WD : Disassembly and Assembly" (2WD models) or LU-16, "Removal and Installation" (AWD).

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Diagnosis Procedure

INFOID:0000000010099331

1.CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

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

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

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

Terminals			Continuity
Combination meter		Ground	
Connector	Terminal		
M53	29		Not existed

Is the inspection result normal?

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

2.CHECK WASHER LEVEL SWITCH GROUND CIRCUIT

Check continuity between washer level switch connector and ground.

Terminals			Continuity
Washer level switch		Ground	
Connector	Terminal		
E32	2		Existed

Is the inspection result normal?

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

Component Inspection

INFOID:0000000010099332

1.CHECK WASHER LEVEL SWITCH

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

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace washer level switch. Refer to WW-51, "Removal and Installation".

SYMPTOM DIAGNOSIS

THE FUEL GAUGE INDICATOR DOES NOT OPERATE

Description

INFOID:0000000010099333

Fuel gauge will not indicate from a certain position.

Diagnosis Procedure

INFOID:0000000010099334

1. CONDUCTING THE COMBINATION METER SELF-DIAGNOSIS MODE

Perform the self-diagnosis mode of combination meter, and then check that the fuel gauge operates normally. Refer to MWI-30, "On Board Diagnosis Function".

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace combination meter. Refer to MWI-92, "Removal and Installation".

2. CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

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

3. CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-75, "Component Function Check".

Is the inspection result normal?

YES >> Check intermittent incident. Refer to GI-47, "Intermittent Incident".
NO >> Repair or replace malfunctioning parts.

THE METER CONTROL SWITCH IS INOPERATIVE

Description

INFOID:0000000010099335

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

Diagnosis Procedure

INFOID:0000000010099336

1.CHECK METER CONTROL SWITCH SIGNAL CIRCUIT

Check the meter control switch signal circuit. Refer to MWI-73, "Diagnosis Procedure".

Is the inspection result normal?

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

2.CHECK METER CONTROL SWITCH

Perform a unit check for the meter control switch. Refer to MWI-74, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NG >> Replace meter control switch. Refer to MWI-93, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

VQ37VHR

VQ37VHR : Description

INFOID:0000000010099337

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

VQ37VHR : Diagnosis Procedure

INFOID:0000000010099338

1. CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-11, "Diagnosis Description".

Is oil pressure warning lamp blinking?

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

2. CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-78, "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-78, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".
NO >> Replace oil pressure switch. Refer to EM-90, "2WD : Disassembly and Assembly" (2WD models) or LU-16, "Removal and Installation" (AWD).

4. CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to MWI-78, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".

VK56VD

VK56VD : Description

INFOID:0000000010099339

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

VK56VD : Diagnosis Procedure

INFOID:0000000010099340

1. CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace combination meter. Refer to MWI-92, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

VQ37VHR

VQ37VHR : Description

INFOID:0000000010099341

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

VQ37VHR : Diagnosis Procedure

INFOID:0000000010099342

1.CHECK OIL PRESSURE WARNING LAMP

Perform auto active test. Refer to PCS-11, "Diagnosis Description".

Is oil pressure warning lamp blinking?

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

2.CHECK IPDM E/R OUTPUT VOLTAGE

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

Terminals			Voltage (Approx.)
(+)		(–)	
Oil pressure switch		Ground	
Connector	Terminal		
F37	1		12 V

Is the inspection result normal?

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

3.CHECK OIL PRESSURE SWITCH

Perform a unit check for the oil pressure switch. Refer to MWI-78, "Component Inspection".

Is the inspection result normal?

YES >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".
NO >> Replace oil pressure switch. Refer to EM-90, "2WD : Disassembly and Assembly" (2WD models) or LU-16, "Removal and Installation" (AWD).

4.CHECK OIL PRESSURE SWITCH SIGNAL CIRCUIT

Check the oil pressure switch signal circuit. Refer to MWI-78, "Diagnosis Procedure".

Is the inspection result normal?

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

5.CHECK COMBINATION METER INPUT SIGNAL

Connect CONSULT and perform an input signal check for the combination meter. Refer to MWI-78, "Component Function Check".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace IPDM E/R. Refer to PCS-35, "Removal and Installation".

VK56VD

VK56VD : Description

INFOID:0000000010099343

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

VK56VD : Diagnosis Procedure

INFOID:0000000010099344

1. CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> INSPECTION END
NO >> Replace combination meter. Refer to MWI-92, "Removal and Installation".

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

Description

INFOID:0000000010099345

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

Diagnosis Procedure

INFOID:0000000010099346

1.CHECK PARKING BRAKE WARNING LAMP OPERATION

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

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> GO TO 2.

2.CHECK PARKING BRAKE SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Check the parking brake switch signal circuit. Refer to WCS-44, "Diagnosis Procedure".

Is the inspection result normal?

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

3.CHECK PARKING BRAKE SWITCH UNIT

Perform a unit check for the parking brake switch. Refer to WCS-44, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace parking brake switch. Refer to PB-6, "Exploded View".

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

Description

INFOID:0000000010099347

- The warning is still displayed even after washer fluid is added.
- The warning is not displayed even though the washer tank is empty.

Diagnosis Procedure

INFOID:0000000010099348

1.CHECK WASHER LEVEL SWITCH SIGNAL CIRCUIT

Check the washer level switch signal circuit. Refer to MWI-80, "Diagnosis Procedure".

Is the inspection result normal?

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

2.CHECK WASHER LEVEL SWITCH UNIT

Perform a unit check for the washer level switch. Refer to MWI-80, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace washer level switch. Refer to WW-51, "Removal and Installation".

THE DOOR OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010099349

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

Diagnosis Procedure

INFOID:0000000010099350

1.CHECK BCM INPUT/OUTPUT SIGNAL

Connect CONSULT and check the BCM input signals. Refer to DLK-77, "Component_Function_Check".

Is the inspection result normal?

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

2.CHECK COMBINATION METER INPUT SIGNAL

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

“DOOR W/L”	
Door open	: On
Door closed	: Off

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-90, "Removal and Installation".

3.CHECK DOOR SWITCH SIGNAL CIRCUIT

Check the door switch signal circuit. Refer to DLK-77, "Diagnosis Procedure".

Is the inspection result normal?

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

4.CHECK DOOR SWITCH

Perform a unit check for the door switch. Refer to DLK-79, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace applicable door switch. Refer to DLK-198, "Removal and Installation".

THE TRUNK OPEN WARNING CONTINUES DISPLAYING, OR DOES NOT DISPLAY

Description

INFOID:0000000010099351

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

Diagnosis Procedure

INFOID:0000000010099352

1.CHECK BCM INPUT SIGNAL

1. Connect the CONSULT.
2. Check the BCM input signals. Refer to DLK-95, "Component_Function_Check".

Is the inspection result normal?

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

2.CHECK COMBINATION METER INPUT SIGNAL

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

“TRUNK/GLAS-H”	
Trunk lid open	: On
Trunk lid closed	: Off

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace BCM. Refer to BCS-90, "Removal and Installation".

3.CHECK TRUNK LID OPEN SIGNAL CIRCUIT

Check trunk lid open signal circuit. Refer to DLK-90, "Diagnosis Procedure".

Is the inspection result normal?

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

4.CHECK TRUNK CLOSURE ASSEMBLY

Check trunk closure assembly. Refer to DLK-99, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace trunk closure assembly. Refer to .DLK-191, "Removal and Installation"

THE AMBIENT TEMPERATURE DISPLAY IS INCORRECT

Description

INFOID:0000000010099353

- 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:0000000010099354

NOTE:
Check that the symptom is not applicable to the normal operating condition before starting diagnosis. Refer to MWI-91, "INFORMATION DISPLAY : Description".

1.CHECK AMBIENT SENSOR SIGNAL CIRCUIT

Check the ambient sensor signal circuit. Refer to HAC-86, "Diagnosis Procedure".

Is the inspection result normal?

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

2.CHECK AMBIENT SENSOR

Perform the part check for the ambient sensor. Refer to HAC-87, "Component Inspection".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-92, "Removal and Installation".
NO >> Replace ambient sensor. Refer to HAC-176, "Removal and Installation".

NORMAL OPERATING CONDITION
INFORMATION DISPLAY

INFORMATION DISPLAY : Description

INFOID:0000000010099355

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-19, "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

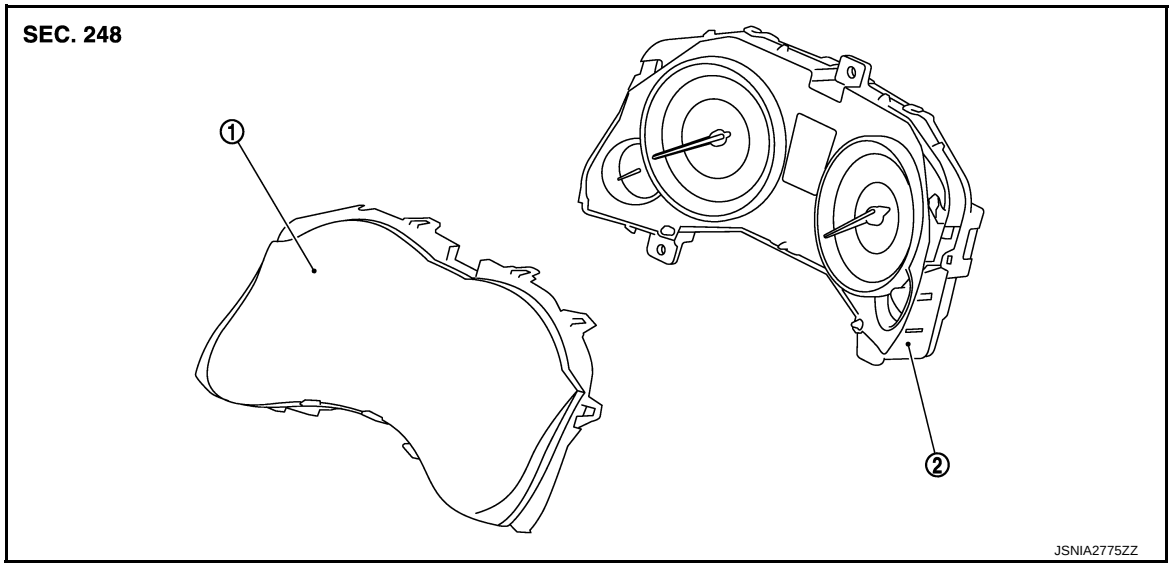
COMBINATION METER

Exploded View

INFOID:0000000010099356

REMOVAL
Refer to IP-12, "Exploded View".

DISASSEMBLY



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

Removal and Installation

INFOID:0000000010099357

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

INSTALLATION
Install in the reverse order of removal.

Disassembly and Assembly

INFOID:0000000010099358

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

ASSEMBLY
Assemble in the reverse order of disassembly.

METER CONTROL SWITCH

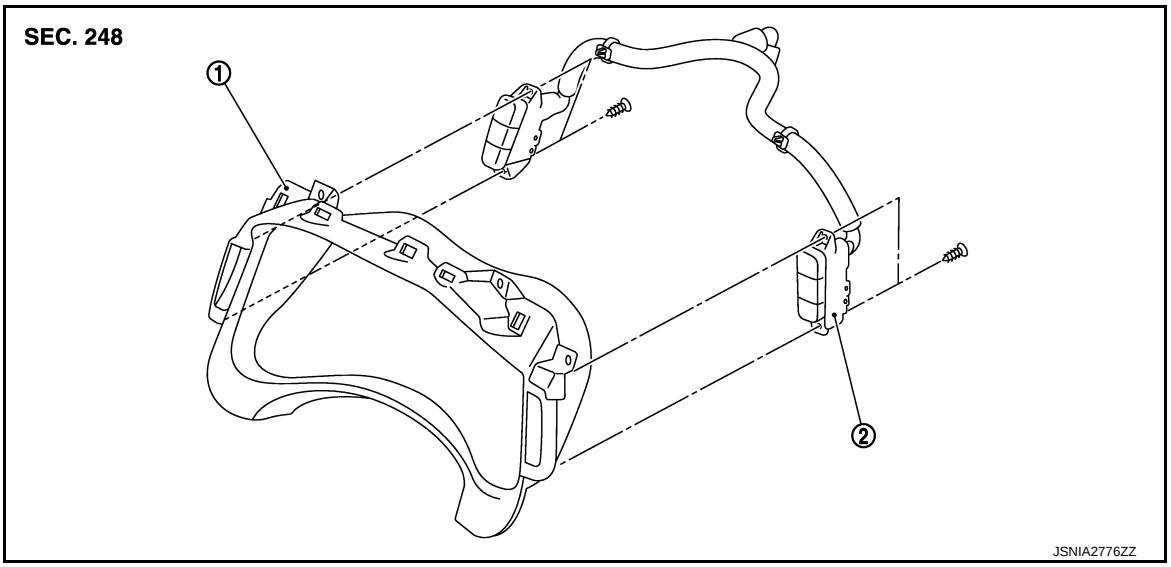
Exploded View

INFOID:0000000010099359

REMOVAL

Refer to IP-12, "Exploded View".

DISASSEMBLY



1. Cluster lid A
2. Meter control switch

Removal and Installation

INFOID:0000000010099360

REMOVAL

1. Remove cluster lid A. Refer to IP-13, "Removal and Installation".
2. Remove clip.
3. Remove screws and remove meter control switch.

INSTALLATION

Install in the reverse order of removal.

CLOCK

Exploded View

INFOID:0000000010099361

REMOVAL
Refer to IP-12, "Exploded View".

Removal and Installation

INFOID:0000000010099362

REMOVAL

1. Remove center ventilator assembly. Refer to IP-13, "Removal and Installation".
2. Remove screws and remove clock.

INSTALLATION
Install in the reverse order of removal.