SECTION MWI
METER, WARNING LAMP & INDICATOR

CONTENTS

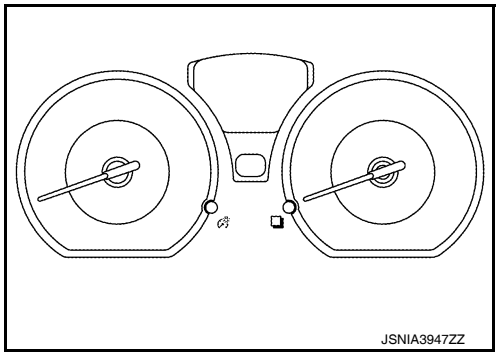
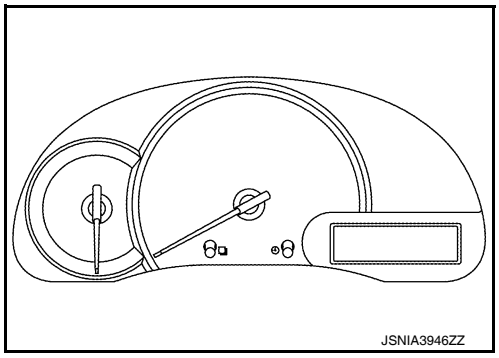
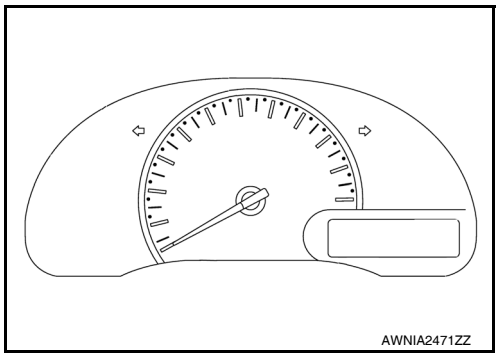
TYPE A

HOW TO USE THIS MANUAL

APPLICATION NOTICE

Information

INFOID:0000000007206054

Service information	Design of combination meter	
TYPE A		 JSNIA3947ZZ
TYPE B	With Tachometer	 JSNIA3946ZZ
	Without Tachometer	 AWNIA2471ZZ

PRECAUTION

PRECAUTIONS

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

INFOID:0000000007661402

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 SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

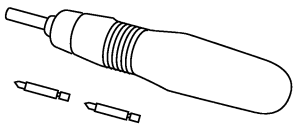
- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious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

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000007747581

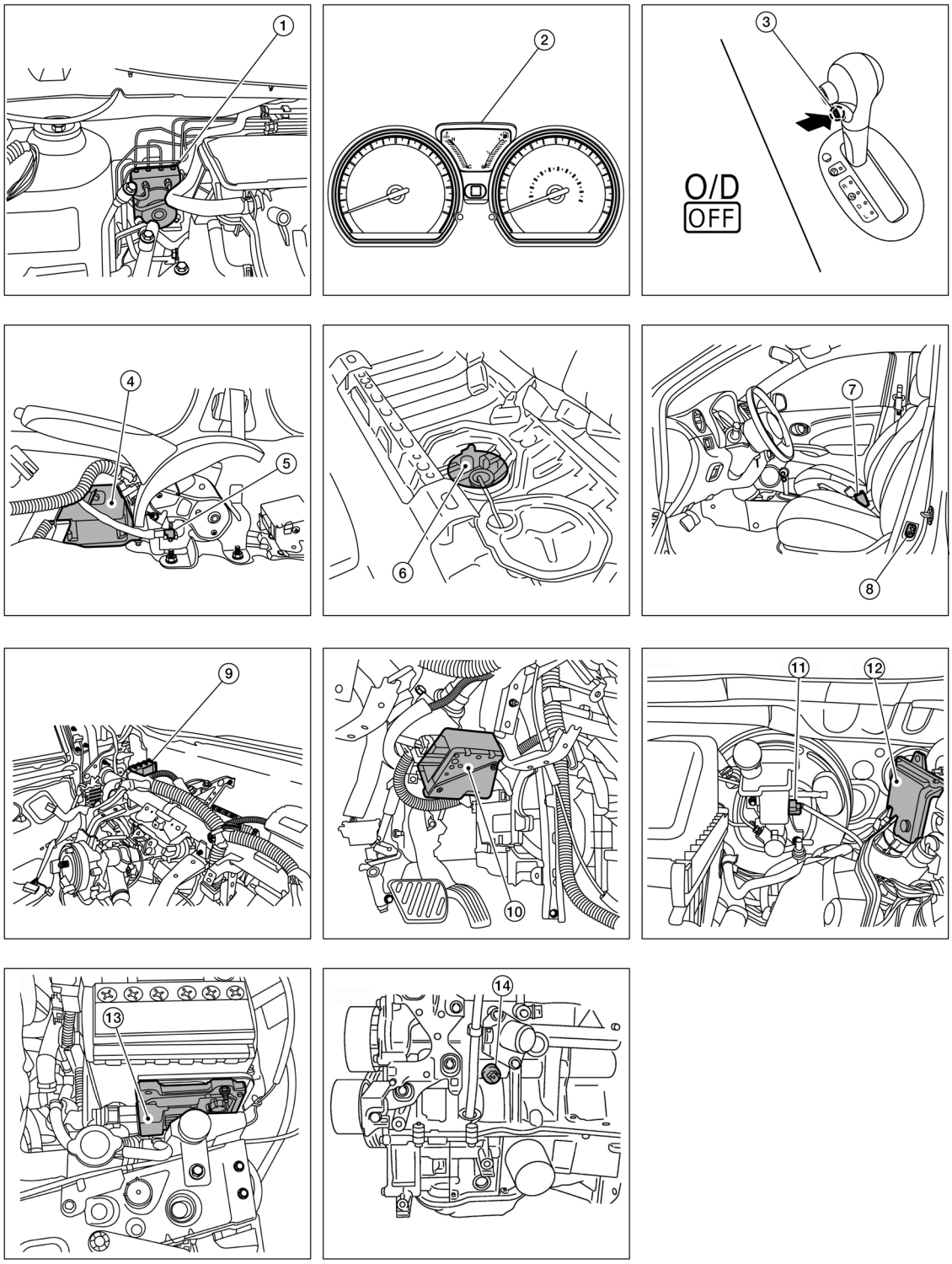
Tool name	Description
Power tool  PBIC0191E	Loosening bolts and nuts

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000007652526



AWNIA2431ZZ

1. ABS actuator and electric unit (control unit)
2. Combination meter
3. CVT shift selector (O/D OFF switch)
4. Air bag diagnosis sensor unit (view with center console removed)
5. Parking brake switch (view with center console removed)
6. Fuel level sensor unit and fuel pump (view with rear seat and access cover removed)
7. Seat belt buckle switch LH
8. Front door switch LH
9. BCM (view with instrument panel removed)
10. EPS control unit (view with instrument lower panel removed)
11. Brake fluid level switch (view with IPDM E/R removed)
12. ECM (view with IPDM E/R removed)
13. TCM
14. Oil pressure switch

Component Description

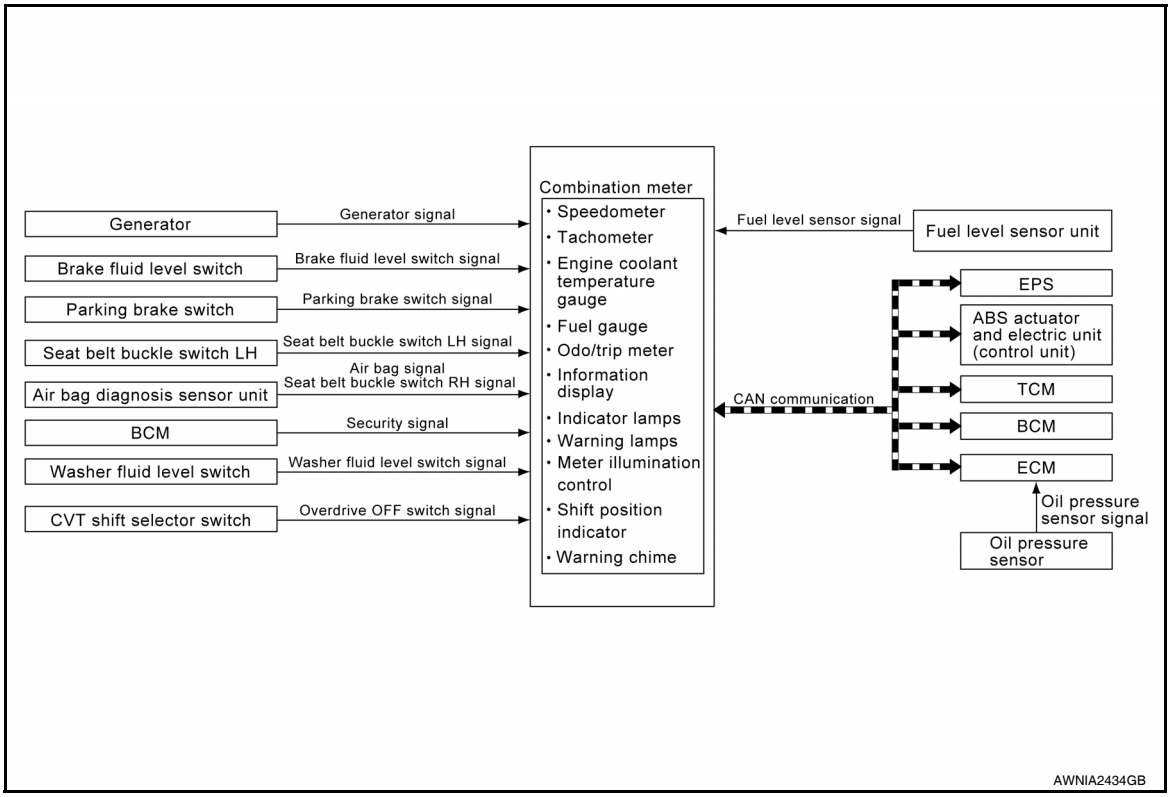
INFOID:0000000007652527

Unit	Description
Combination meter	The combination meter controls the following items according to the signals received from each unit. • Speedometer • Engine coolant temperature gauge • Warning lamps • Information display • Tachometer • Fuel gauge • Indicator lamps • Warning chime • Illumination control
CVT shift selector switch	Transmits the overdrive off switch signal to the combination meter.
Seat belt buckle switch (LH)	Transmits the seat belt buckle switch (LH) signal to the combination meter.
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication.
Air bag diagnosis sensor unit	Transmits the air bag signal and seat belt buckle switch (RH) signal to the combination meter.
EPS Control unit	Transmits the EPS signal to the combination meter via CAN communication.
TCM	Transmits the shift position signal to the combination meter via CAN communication.
ECM	Transmits the following signals to the combination meter via CAN communication. • Engine speed signal • Engine coolant temperature signal • Fuel consumption monitor signal • Oil pressure sensor signal
BCM	Transmits the security signal to the combination meter. Transmits the following signals to the combination meter via CAN communication. • Low tire pressure warning signal • Door open switch signal
Washer fluid level switch (if equipped)	Transmits the washer fluid level switch signal to the combination meter.
Fuel level sensor unit	Transmits the fuel level sensor signal to the combination meter.
Parking brake switch	Transmits the parking brake switch signal to the combination meter.
Brake fluid level switch	Transmits the brake fluid level switch signal to the combination meter.
Oil pressure sensor	Transmits the oil pressure sensor signal to the ECM.

SYSTEM
METER SYSTEM
METER SYSTEM : System Diagram

INFOID:0000000007678399

SYSTEM DIAGRAM



METER SYSTEM : System Description

INFOID:0000000007652525

COMBINATION METER

Combination Meter

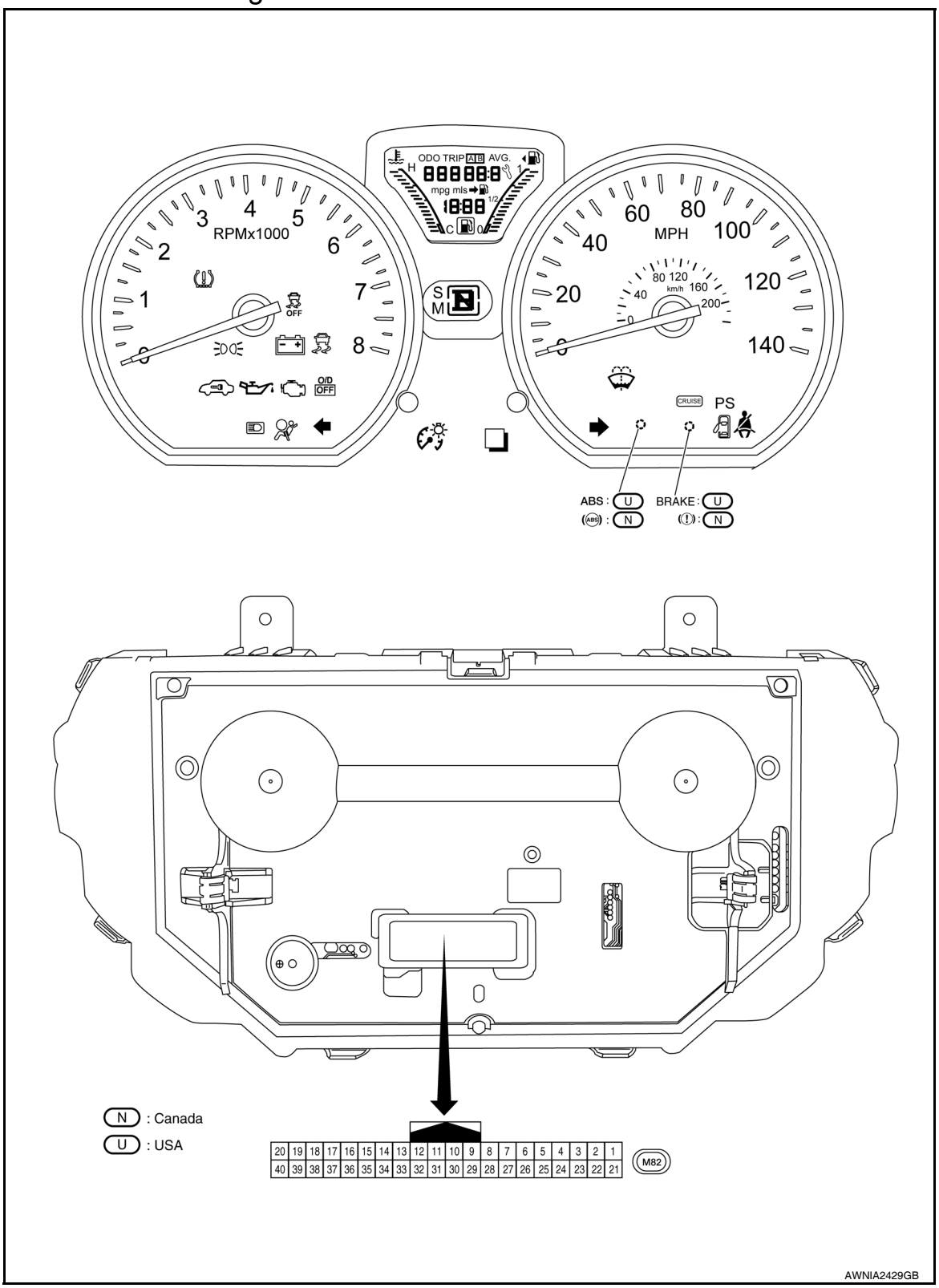
- The combination meter monitors signals from switches, sensors and modules to control the following functions:
  - Speedometer/Tachometer
  - Shift position indicator
  - Warning lamps
  - Indicator lamps
  - Meter illumination control
  - Information display
- The combination meter has an integrated buzzer that is activated when it receives a signal from the BCM via CAN communication. Refer to WCS-7, "WARNING CHIME SYSTEM : System Description" for further details.
- The combination meter includes a self diagnosis function.
- The combination meter can be diagnosed with CONSULT.

METER CONTROL FUNCTION LIST

System			Description	Reference
Speedometer			Indicates vehicle speed.	MWI-12, "SPEEDOMETER : System Description"
Tachometer			Indicates engine speed.	MWI-13, "TACHOMETER : System Description"
Shift position indicator (CVT models)			Display shift position.	MWI-13, "SHIFT POSITION INDICATOR : System Description"
Warning lamp/ indicator lamp	Oil pressure warning lamp		The warning lamp turns ON when it receives the oil pressure warning signal.	MWI-13, "OIL PRESSURE WARNING LAMP : System Description"
	Seat belt warning lamp		The warning lamp turns ON when the LH seat belt is unfastened and the vehicle is moving, and turns OFF when the seat belt is fastened.	SRC-12, "SEAT BELT WARNING LAMP SYSTEM : System Description"
Meter illumination control	Meter illumination control function		Illumination control is enabled when the combination switch (lighting switch) is in the 1st or 2nd position changing from daytime mode to nighttime mode.	MWI-14, "METER ILLUMINATION CONTROL : System Description"
	Meter illumination control switch		The operation of the illumination control switch changes the brightness of meter illumination.	
Information display	Engine coolant temperature gauge		Indicates engine coolant temperature.	MWI-14, "INFORMATION DISPLAY : System Description"
	Fuel gauge		Indicates fuel level.	
	Odo/trip meter		Displays mileage.	
	Trip computer	Instant fuel consumption	Displays current fuel consumption.	
		Average fuel consumption	Displays average fuel consumption.	
		Distance to empty	Displays distance to empty.	

METER SYSTEM : Arrangement of Combination Meter

INFOID:0000000007678400



METER SYSTEM : Fail-Safe

INFOID:0000000007733853

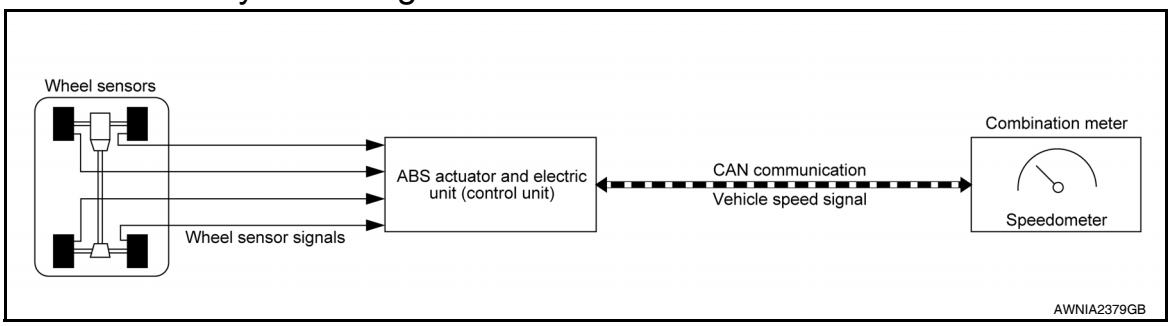
The combination meter activates the fail-safe control if CAN communication with each unit is malfunctioning.

Function			Specifications
Speedometer			Reset to zero by suspending communication.
Tachometer			
Illumination control			When suspending communication, changes to nighttime mode.
Shift position indicator			When suspending communication, not indicate.
Information display	Trip computer	Current fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
		Average fuel consumption	
		Distance to empty	
	Engine coolant temperature gauge		Reset to zero by suspending communication.
	Odo/trip meter		An indicated value is maintained at communications blackout.
Buzzer			The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp		The lamp turns ON by suspending communication.
	Malfunction indicator lamp (MIL)		
	EPS warning lamp		
	Brake warning lamp		
	High beam indicator lamp		The lamp turns OFF by suspending communication.
	Turn signal indicator lamp		
	Door warning lamp		
	Light indicator lamp		
	Oil pressure warning lamp		
	Key warning lamp		
	O/D OFF indicator lamp		

SPEEDOMETER

SPEEDOMETER : System Diagram

INFOID:0000000007678401



SPEEDOMETER : System Description

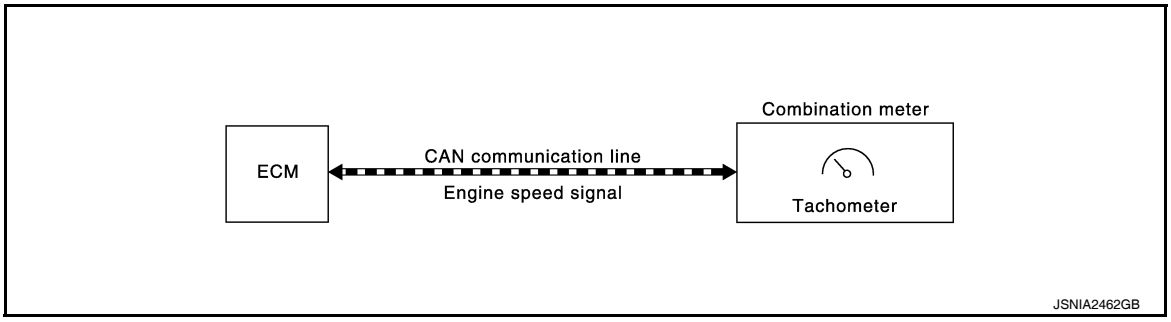
INFOID:0000000007206061

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

TACHOMETER

TACHOMETER : System Diagram

INFOID:0000000007678462



TACHOMETER : System Description

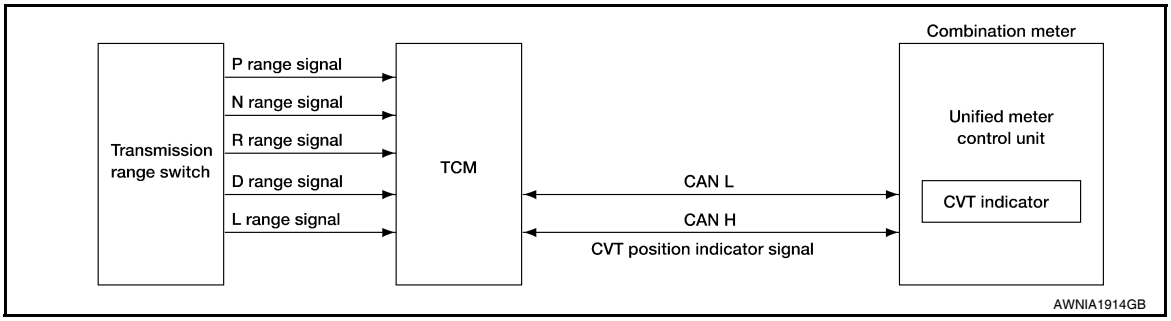
INFOID:0000000007678463

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

SHIFT POSITION INDICATOR

SHIFT POSITION INDICATOR : System Diagram

INFOID:0000000007678407



SHIFT POSITION INDICATOR : System Description

INFOID:0000000007206063

DESCRIPTION

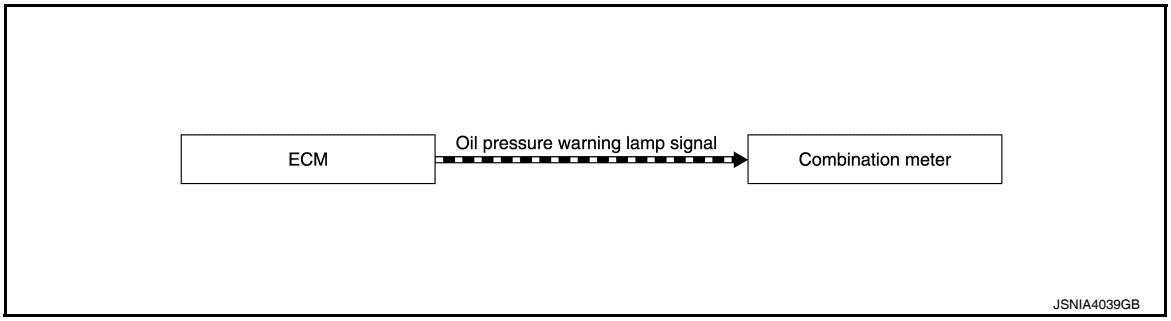
The combination meter receives the shift position signal from TCM via CAN communication, and displays the position of the shift indicator.

OIL PRESSURE WARNING LAMP

OIL PRESSURE WARNING LAMP : System Diagram

INFOID:0000000007678403

SYSTEM DIAGRAM



OIL PRESSURE WARNING LAMP : System Description

INFOID:0000000007206064

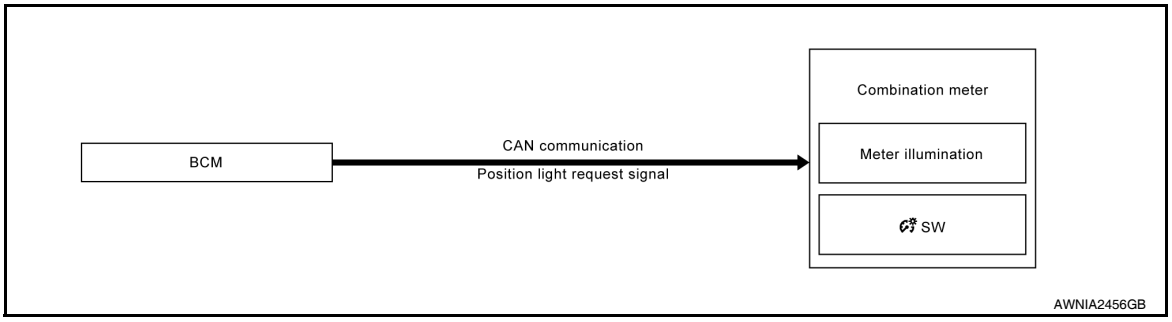
DESCRIPTION

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

METER ILLUMINATION CONTROL

METER ILLUMINATION CONTROL : System Diagram

INFOID:0000000007697696



METER ILLUMINATION CONTROL : System Description

INFOID:0000000007697692

DESCRIPTION

Meter Illumination Control Function

- Meter illumination control is enabled when the meter receives a signal from the BCM that the combination switch is in the 1st or 2nd position and the meter switches from Daytime mode to Nighttime mode.

Condition		Meter illumination
Combination switch (lighting switch)	1ST or 2ND position	Nighttime mode
	Off	Daytime mode

Meter Illumination Control Switch

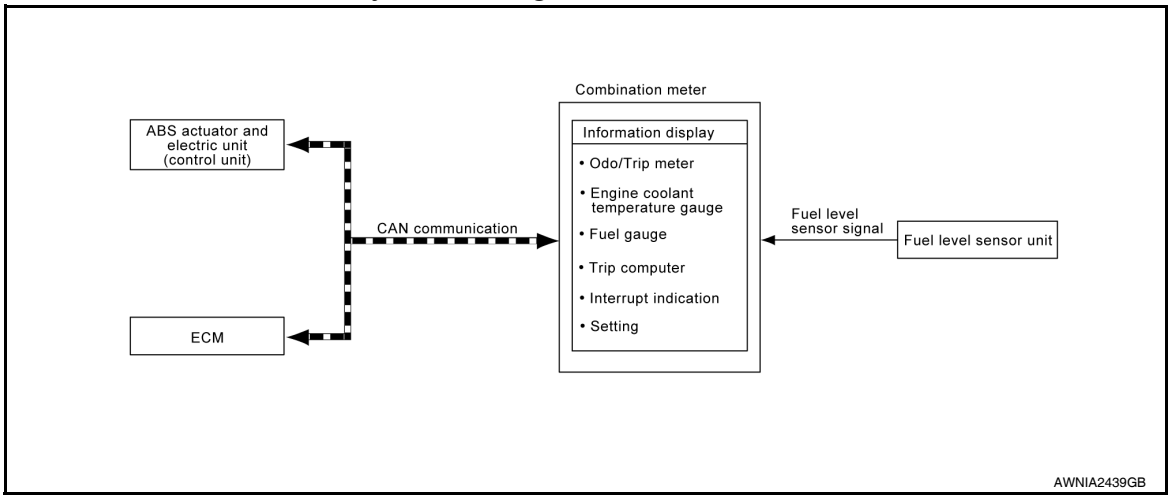
The operation of the illumination control switch changes brightness of the meter illumination.

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

INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

INFOID:0000000007678406



INFORMATION DISPLAY : System Description

INFOID:0000000007678464

DESCRIPTION

- The combination meter receives signals from switches, sensors and modules for operating the following functions on the information display.

- Odo/trip meter

- Engine coolant temperature gauge
- Fuel gauge
- Trip computer
- Interrupt indication
- Meter illumination level
- Setting
- Low fuel warning
- Loose fuel cap warning

ODO/TRIP METER

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

ENGINE COOLANT TEMPERATURE GAUGE

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

FUEL GAUGE

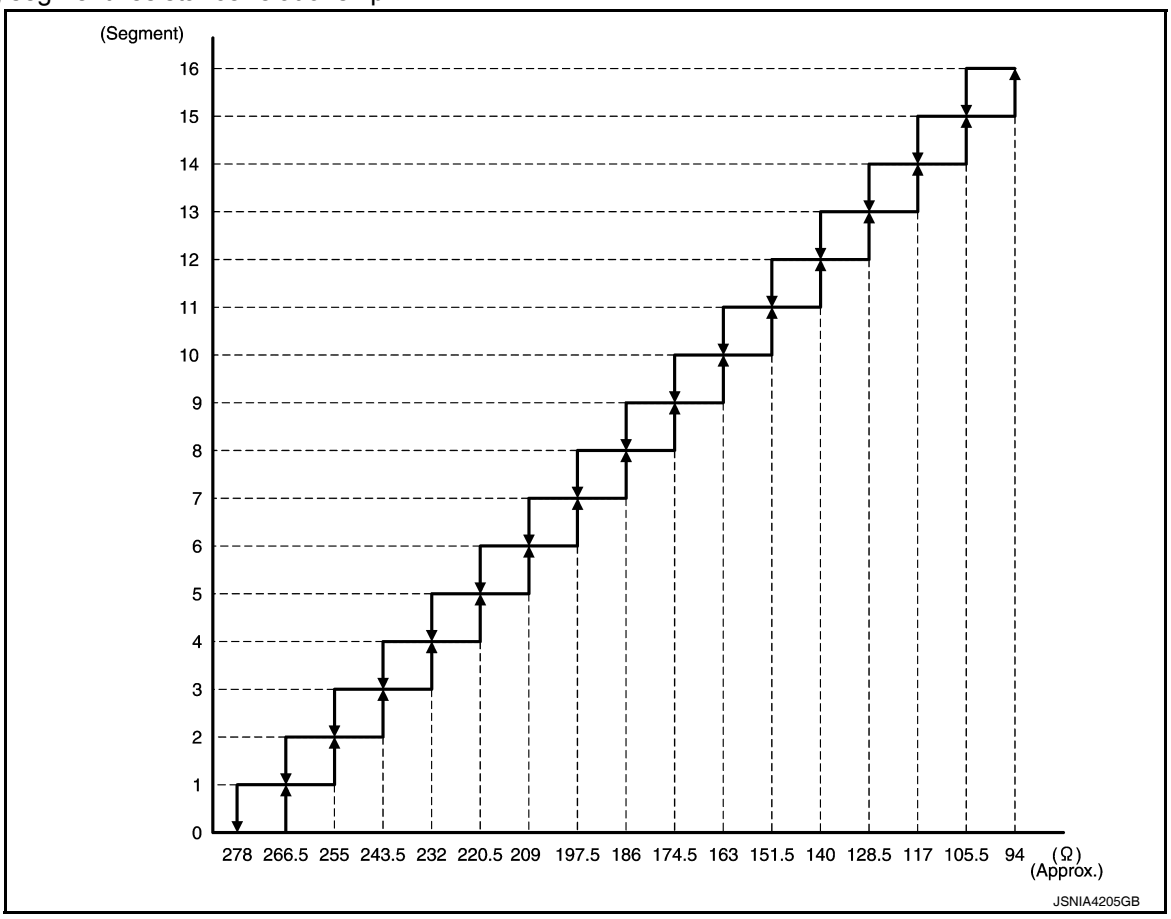
Control Outline

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

Refuel Control

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

Lighting segment-resistance relationship



INTERRUPT INDICATION

Low Fuel Warning

The low fuel warning turns ON when the fuel level in the fuel tank reaches approximately 7 ℓ (1-7/8 US gal, 1-1/2 Imp gal).

LOOSE FUEL CAP WARNING

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

DIAGNOSIS SYSTEM (COMBINATION METER)

Diagnosis Description

INFOID:0000000007678408

COMBINATION METER SELF-DIAGNOSIS MODE

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

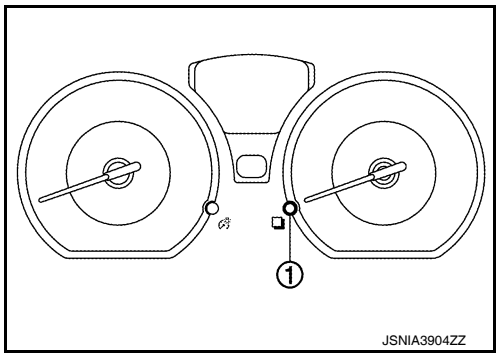
STARTING COMBINATION METER SELF-DIAGNOSIS MODE

NOTE:

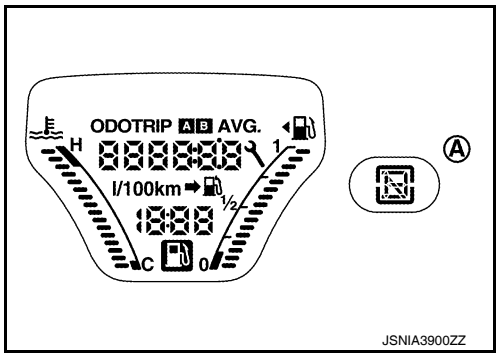
- Check combination meter power supply and ground circuits if self-diagnosis mode does not start. Refer to MWI-43, "COMBINATION METER : Diagnosis Procedure". Replace combination meter if power supply and ground circuits are found to be normal and self-diagnosis mode does not start. Refer to MWI-52, "Removal and Installation".
- Combination meter self-diagnosis mode will function with the ignition switch in ON. Combination meter self-diagnosis mode will exit upon turning the ignition switch to OFF.

How to Initiate Self-Diagnosis Mode

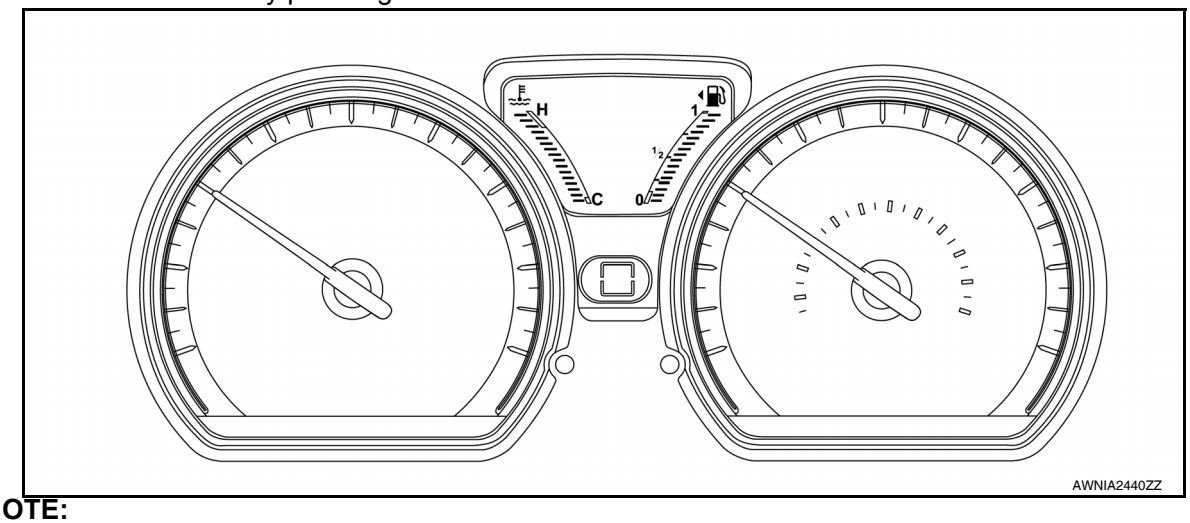
1. Turn ignition switch ON, press the odo/trip meter switch (1) to “trip A” or “trip B”.
2. Turn ignition switch to OFF.
3. Continue holding the odo/trip meter switch (1) and turn the ignition switch ON.
4. Verify the trip meter displays “0000.0”.
5. Press the meter control switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON).



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



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



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

CONSULT Function

INFOID:0000000007206070

APPLICATION ITEMS

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

METER/M&A Diagnosis mode	Description
SELF DIAGNOSTIC RESULT	The combination meter self-diagnosis results.
DATA MONITOR	Displays combination meter input/output data in real time.
SPECIAL FUNCTION	Lighting history of the warning lamp and indicator lamp can be checked.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

SELF DIAG RESULT

Refer to MWI-24, "DTC Index".

DATA MONITOR

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [km/h] or [mph]	X	Displays the value of vehicle speed signal.
SPEED OUTPUT [km/h] or [mph]	X	Displays the value of vehicle speed signal, which is transmitted to each unit with CAN communication.
ODO OUTPUT [km/h or mph]		Displays odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Displays the value of engine speed signal, which is input from ECM.
FUEL METER [L]	X	Displays the fuel level.
W TEMP METER [°C] or [°F]	X	Displays the value of engine coolant temperature signal, which is input from ECM.
ABS W/L [ON/OFF]		Displays [ON/OFF] condition of ABS warning indicator
BRAKE W/L [ON/OFF]		Displays [ON/OFF] condition of brake warning indicator.

Display item [Unit]	MAIN SIGNALS	Description
DOOR W/L [ON/OFF]		Displays [ON/OFF] condition of door warning indicator.
HI-BEAM IND [ON/OFF]		Displays [ON/OFF] condition of high beam indicator.
TURN IND [ON/OFF]		Displays [ON/OFF] condition of turn indicator.
LIGHT IND [ON/OFF]		Displays [ON/OFF] condition of light indicator.
OIL W/L [ON/OFF]		Displays [ON/OFF] condition of oil pressure warning indicator.
MIL [ON/OFF]		Displays [ON/OFF] condition of malfunction indicator.
CRUISE IND [Off]		Displays [ON/OFF] condition of CRUISE indicator.
O/D OFF IND [ON/OFF]		Displays [ON/OFF] condition of O/D OFF indicator.
FUEL W/L [ON/OFF]		Displays [ON/OFF] condition of low-fuel warning indicator.
O/D OFF SW [ON/OFF]		Displays [ON/OFF] condition of O/D OFF switch.
REAR DEF SW [ON/OFF]		Displays [ON/OFF] condition of rear window defogger switch.
BRAKE SW [ON/OFF]		Displays [ON/OFF] condition of brake switch.
EPS W/L [ON/OFF]		Displays [ON/OFF] condition of EPS indicator.
CHAGE W/L [Off]		Displays [ON/OFF] condition of charge warning indicator.
SHIFT IND [P, R, N, D, L]		Displays shift selector position.
FUEL CAP W/L [Off]		Displays [ON/OFF] condition of loose fuel cap warning message.
AIR PRES W/L [ON/OFF]		Displays [ON/OFF] condition of tire pressure warning lamp.
PKB SW [ON/OFF]		Status of parking brake switch.
BUCKLE SW [ON/OFF]		Status of seat belt buckle switch (LH).
PASS BUCKLE SW [ON/OFF]		Status of passenger seat belt buckle switch (RH).
BRAKE OIL SW [ON/OFF]		Status of brake fluid level switch.
DISTANCE [km] or [Mi]		Displays distance to empty.
BUZZER [ON/OFF]	X	Displays [ON/OFF] condition of buzzer.
SLIP IND [ON/OFF]		Displays [ON/OFF] condition of SLIP indicator lamp.
VDC/TCS IND [ON/OFF]		Displays [ON/OFF] condition of VDC OFF indicator lamp.

NOTE:

Some items are not available according to vehicle specification.

SPECIAL FUNCTION

Special menu

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

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

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

Display Item

Display item	Description
ABS W/L	Lighting history of ABS warning lamp.
VDC/TCS IND	Lighting history of VDC warning lamp.
SLIP IND	Lighting history of SLIP warning lamp.
BRAKE W/L	Lighting history of brake warning lamp.
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp (MIL).
AIR PRES W/L	Lighting history of tire pressure warning lamp.
EPS W/L	Lighting history of EPS warning lamp.
CHAGE W/L	Lighting history of charging warning lamp.
DOOR W/L	Lighting history of door warning lamp.
CRUISE W/L	Lighting history of cruise warning lamp.
O/D OFF IND	Lighting history of O/D OFF indicator lamp.
FUEL W/L	Lighting history of fuel warning lamp.
WASHER W/L	Lighting history of washer warning lamp.

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000007206071

VALUES ON THE DIAGNOSIS TOOL

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

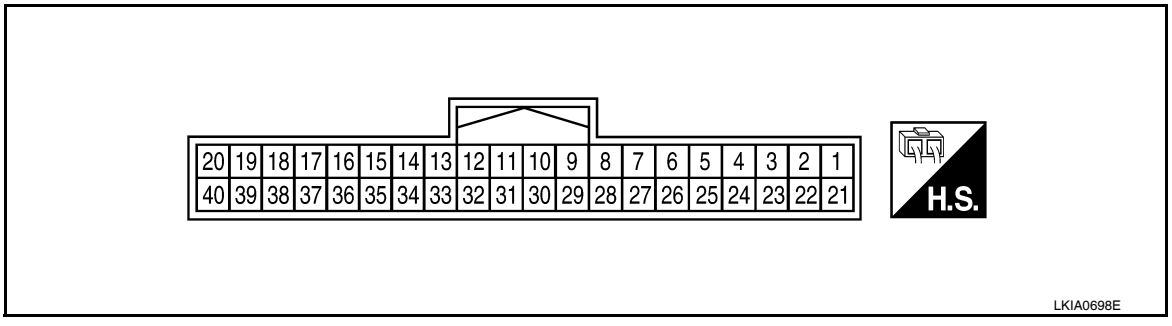
Monitor Item	Display content	Data monitor	
		Condition	Reference value in normal operation
BRAKE SW	Brake switch	When brake pedal is applied	On
		When brake pedal is released	Off
FUEL W/L	Low fuel warning	When low fuel warning is ON	On
		When low fuel warning is Off	Off
EPS W/L	EPS warning lamp	EPS warning lamp ON	On
		EPS warning lamp OFF	Off
CHAGE W/L	Charge warning lamp	Engine running	Off
SHIFT IND	Shift position indicator	The position of the shift position selector.	[P, R, N, D, L]
FUEL CAP W/L	Loose fuel cap warning	When the fuel-filler cap is installed incorrectly.	On
		When the fuel-filler cap is installed correctly.	Off
AIR PRES W/L	Tire pressure warning lamp operation	When tire pressure warning lamp is ON	ON
		When tire pressure warning lamp is OFF	Off
PKB SW	Parking brake switch	When parking brake is active	On
		When parking brake is inactive	Off
BUCKLE SW	Seat belt buckle switch LH	When seat belt buckle is unfastened (LH).	On
		When seat belt buckle is fastened (LH).	Off
BRAKE OIL SW	Brake fluid level switch	When brake fluid level switch ON	On
		When brake fluid level switch OFF	Off
PASS BUCKLE SW	Seat belt buckle switch RH	When passenger seat is occupied and seat belt buckle is unfastened (RH).	On
		When passenger seat is unoccupied and seat belt buckle is unfastened (RH).	Off
DISTANCE	Distance to empty	While driving	[km/h or mph]
BUZZER	Buzzer operation	When Buzzer is ON	On
		When Buzzer is OFF	Off
SLIP IND	Slip indicator lamp	When SLIP indicator lamp is ON.	On
		When SLIP indicator lamp is ON.	Off
VDC/TCS IND	VDC indicator lamp	When VDC indicator lamp is ON.	ON
		When VDC indicator lamp is Off	OFF

*: Displays “Off” if the brake warning lamp is illuminated when the valve check starts, the parking brake switch is turned ON or the brake fluid level switch is turned ON.

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT



PHYSICAL VALUES

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

Fail-Safe

INFOID:0000000007206072

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

Function	Specifications
Speedometer	Reset to zero by suspending communication.
Tachometer	
Illumination control	When suspending communication, changes to nighttime mode.
Shift position indicator	When suspending communication, not indicate.

Function			Specifications
Information display	Trip computer	Current fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than two seconds, the last result calculated during normal condition is indicated.
		Average fuel consumption	
		Distance to empty	
	Engine coolant temperature gauge		Reset to zero by suspending communication.
	Odo/trip meter		An indicated value is maintained at communications blackout.
Buzzer			The buzzer turns OFF by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp		The lamp turns ON by suspending communication.
	Malfunction indicator lamp (MIL)		
	EPS warning lamp		
	Brake warning lamp		
	High beam indicator lamp		The lamp turns OFF by suspending communication.
	Turn signal indicator lamp		
	Door warning lamp		
	Light indicator lamp		
	Oil pressure warning lamp		
	Key warning lamp		
	O/D OFF indicator lamp		

DTC Index

INFOID:0000000007206073

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-38, "Diagnosis Procedure"
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-39, "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-40, "Diagnosis Procedure"
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-41, "Diagnosis Procedure"
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-42, "Diagnosis Procedure"

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000007733002

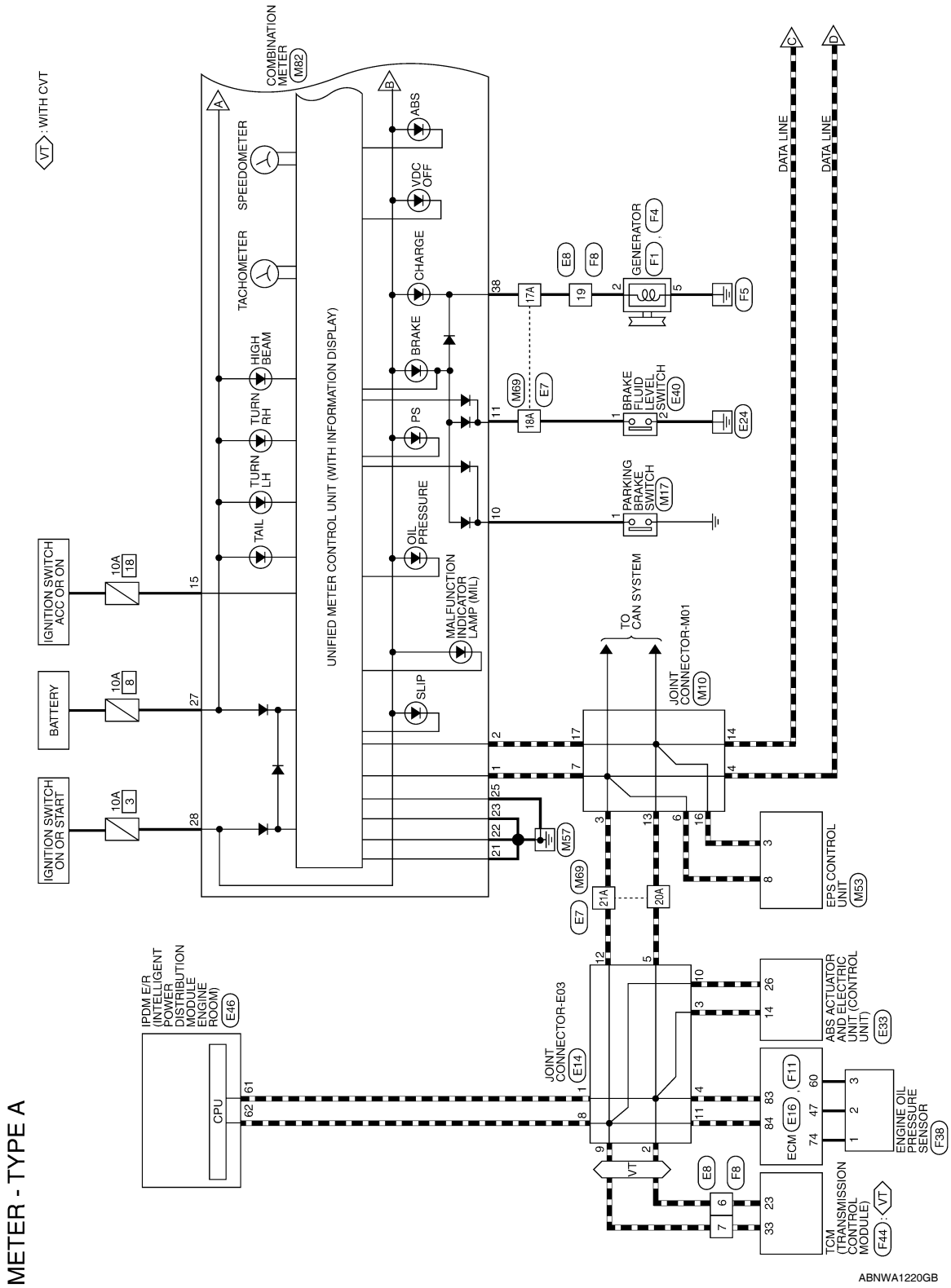
ECU	Reference
BCM	BCS-24, "Reference Value"
	BCS-37, "Wiring Diagram"
	BCS-35, "Fail-safe"
	BCS-35, "DTC Inspection Priority Chart"
	BCS-36, "DTC Index"

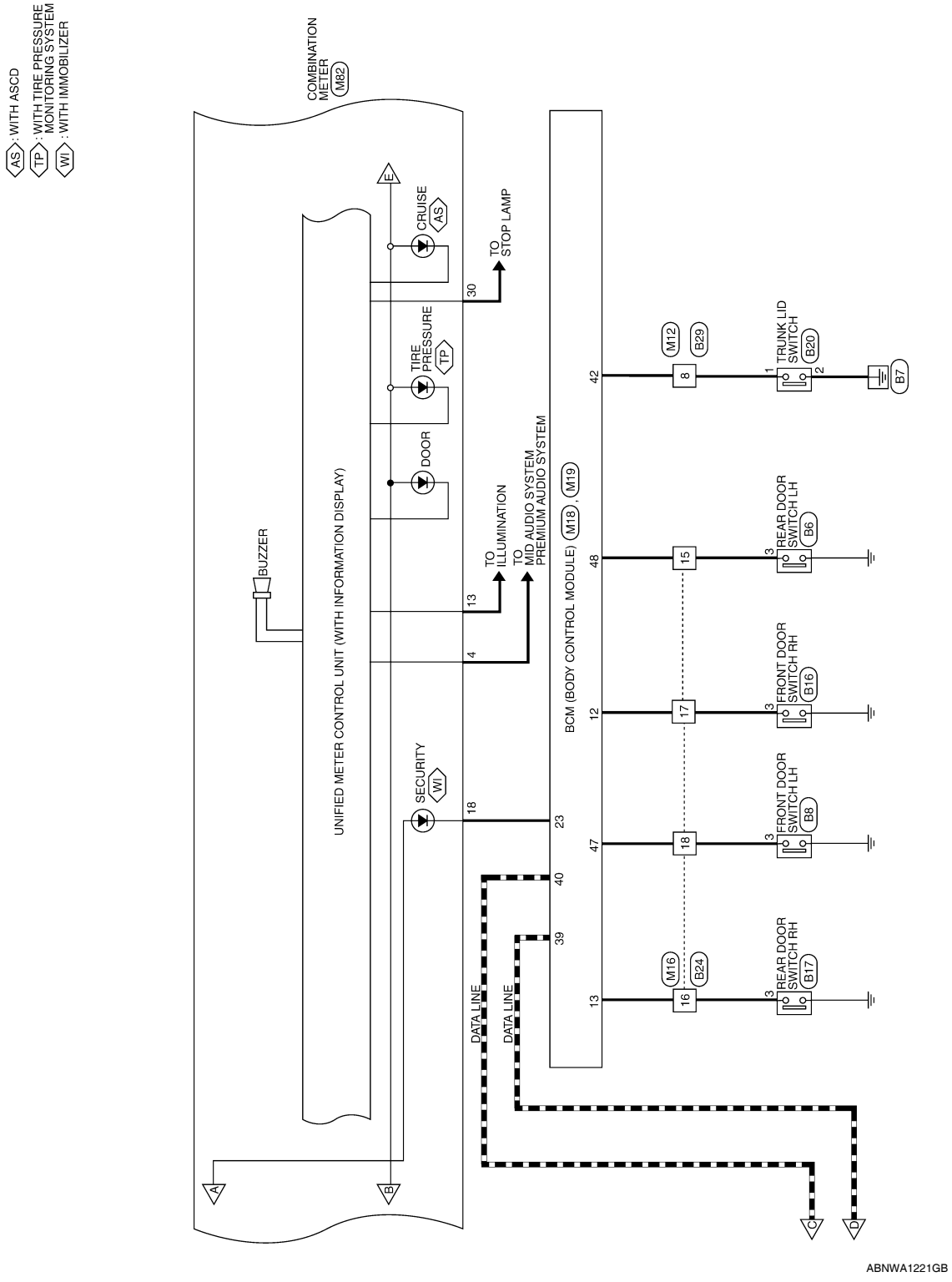
WIRING DIAGRAM

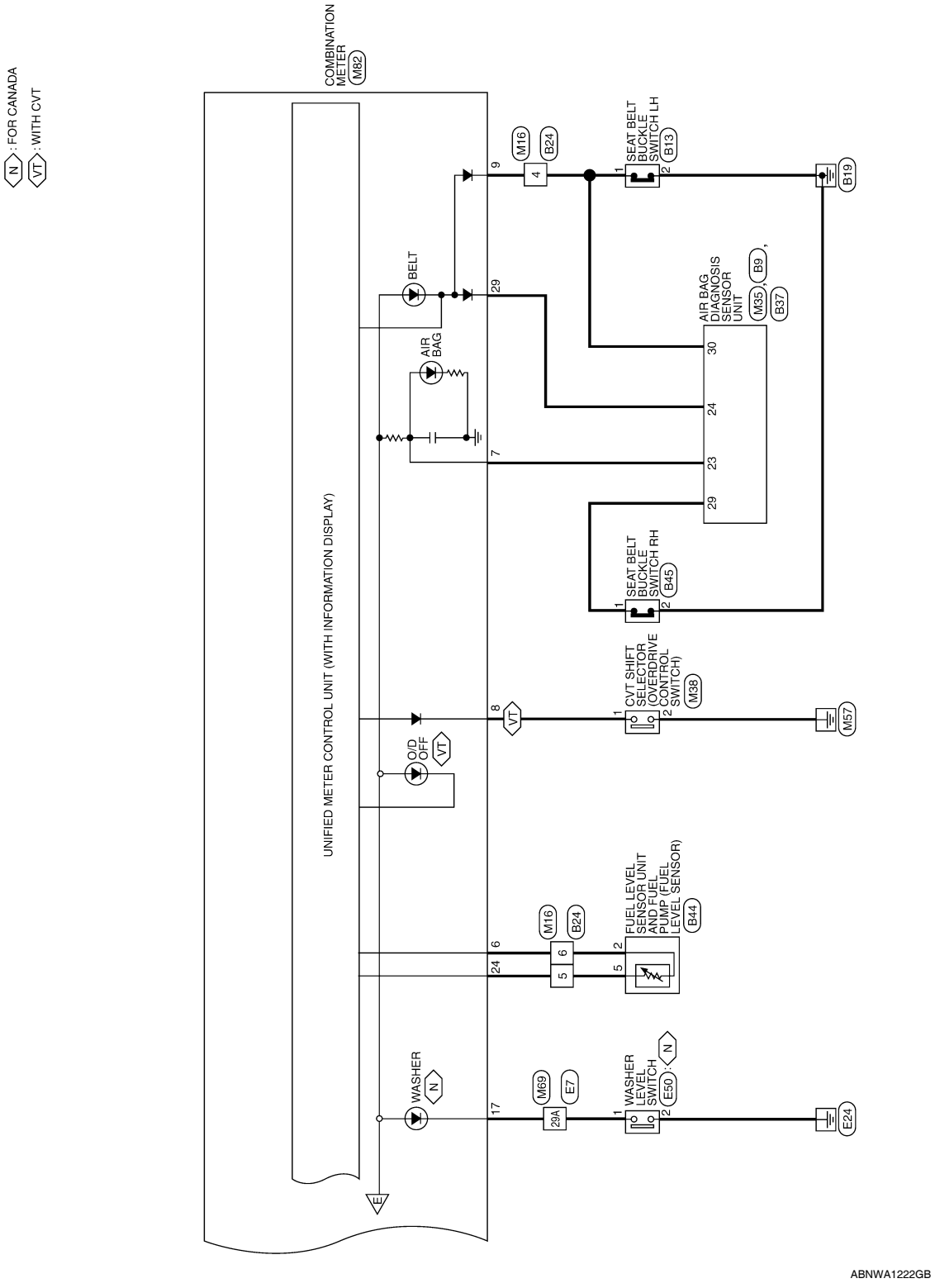
METER SYSTEM

Wiring Diagram

INFOID:0000000007206074




AS : WITH ASCD
TP : WITH TIRE PRESSURE MONITORING SYSTEM
WI : WITH IMMOBILIZER
COMBINATION METER M82
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
BUZZER
CRUISE AS
TIRE PRESSURE TP
DOOR
SECURITY WI
TO STOP LAMP
TO ILLUMINATION
TO MID AUDIO SYSTEM PREMIUM AUDIO SYSTEM
BCM (BODY CONTROL MODULE) M18, M19
DATA LINE
DATA LINE
TRUNK LID SWITCH B20
REAR DOOR SWITCH LH B6
FRONT DOOR SWITCH RH B16
FRONT DOOR SWITCH LH B8
REAR DOOR SWITCH RH B17
M12 B29
M16 B24
B7
ABNWA1221GB


N : FOR CANADA
VT : WITH CVT
COMBINATION METER M82
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
BELT
AIR BAG
O/D OFF
WASHER
SEAT BELT BUCKLE SWITCH LH B13
SEAT BELT BUCKLE SWITCH RH B45
AIR BAG DIAGNOSIS SENSOR UNIT M35, B9, M37, B37
CVT SHIFT SELECTOR (OVERDRIVE CONTROL SWITCH) M38
FUEL LEVEL SENSOR UNIT AND FUEL PUMP (FUEL LEVEL SENSOR) B44
WASHER LEVEL SWITCH E50
M16 B24
M69 E7
B19
M57
E24
ABNWA1222GB

METER CONNECTORS - TYPE A

Connector No.	M10
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY

H.S.

10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11

Terminal No.	Color of Wire	Signal Name
3	L	–
4	L	–
6	L	–
7	L	–
13	P	–
14	P	–
16	P	–
17	P	–

Connector No.	M12
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4	3	2	1
16	15	14	13	12	11	10	9	8
---	---	---	---	---	---	---	---	---

Terminal No.	Color of Wire	Signal Name
8	P	–

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

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
4	V	–
5	GR	–
6	W	–
15	W	–
16	LG	–
17	P	–
18	SB	–

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

H.S.

1

Terminal No.	Color of Wire	Signal Name
1	SB	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
12	P	DOOR SW (AS)
13	LG	DOOR SW (RR)
23	G	SECURITY INDICATE OUTPUT
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

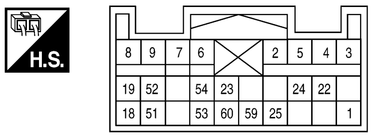
H.S.

41	42	43	44	45	46	47	48	49
50	51	52	53	54	55			

Terminal No.	Color of Wire	Signal Name
42	P	TRUNK/GLASS HATCH SW
47	SB	DOOR SW (DR)
48	W	DOOR SW (RL)

ABNIA3102GB

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



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

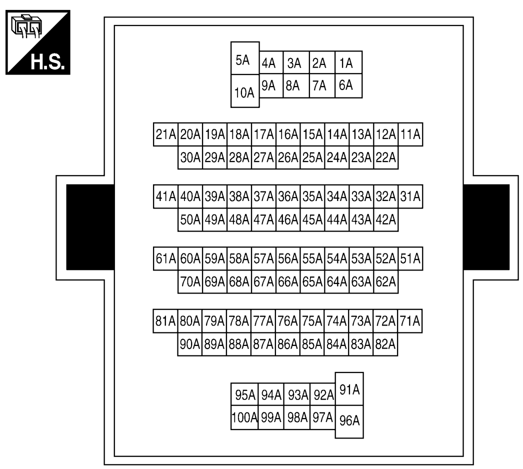
Connector No.	M38
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE

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

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

Terminal No.	Color of Wire	Signal Name
3	P	CAN-L
8	L	CAN-H

Connector No.	M69
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
17A	Y	–
18A	LG	–
20A	P	–
21A	L	–
29A	V	–

ABNIA3103GB

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

H.S.

1A	2A	3A	4A	5A
6A	7A	8A	9A	10A

11A	12A	13A	14A	15A	16A	17A	18A	19A	20A	21A
	22A	23A	24A	25A	26A	27A	28A	29A	30A	

31A	32A	33A	34A	35A	36A	37A	38A	39A	40A	41A
	42A	43A	44A	45A	46A	47A	48A	49A	50A	

51A	52A	53A	54A	55A	56A	57A	58A	59A	60A	61A
	62A	63A	64A	65A	66A	67A	68A	69A	70A	

71A	72A	73A	74A	75A	76A	77A	78A	79A	80A	81A
	82A	83A	84A	85A	86A	87A	88A	89A	90A	

91A	92A	93A	94A	95A
	96A	97A	98A	99A	100A

Terminal No.	Color of Wire	Signal Name
17A	V	–
18A	LG	–
20A	P	–
21A	L	–
29A	V	–

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

Connector No.	M82
Connector Name	COMBINATION METER (WITH TYPE A)
Connector Color	WHITE

H.S.

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21

Terminal No.	Color of Wire	Signal Name
1	L	CAN-H
2	P	CAN-L
3	–	–
4	P	8P/R
5	–	–
6	W	FM SIG
7	V	AIR BAG
8	P	O/D OFF
9	V	BELT
10	SB	PKB SW
11	LG	BRAKE OIL SW
12	–	–
13	B	OUTSIDE ILL OUTPUT
14	–	–
15	R	ACC SW
16	–	–
17	V	WASHER SW
18	G	–
19	–	–
20	–	–
21	B/W	GND (ILL)
22	B	GND (POWER)
23	B	GND (CIRCUIT)
24	GR	FM GND

ABNIA3104GB

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

81	85	89	93	97	101	105	109
82	86	90	94	98	102	106	110
83	87	91	95	99	103	107	111
84	88	92	96	100	104	108	112

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

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

H.S.

12	11	10	9	8	7	6	5	4	3	2	1

Terminal No.	Color of Wire	Signal Name
1	P	–
2	P	–
3	P	–
4	P	–
5	P	–
8	L	–
9	L	–
10	L	–
11	L	–
12	L	–

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

64	63	62	61	60	59	58	57	56	55	54	53
76	75	74	73	72	71	70	69	68	67	66	65

Terminal No.	Color of Wire	Signal Name
61	P	CAN-L
62	L	CAN-H

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

H.S.

1	2

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

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

H.S.

1	2	3	4	5	6	7	8	9	10	11	12
13	14	15	16	17	18	19	20	21	22	23	24

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

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

H.S.

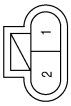
38	37	36	35	34	33	32	31	30	29	28	27	26	25
13												14	1
	24	23	22	21	20	19	18	17	16	15			
	12	11	10	9	8	7	6	5	4	3	2		

Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

ABNIA3105GB

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

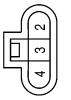
H.S.



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

Connector No.	F1
Connector Name	GENERATOR
Connector Color	BLACK

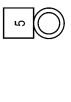
H.S.



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

Connector No.	F4
Connector Name	GENERATOR
Connector Color	–

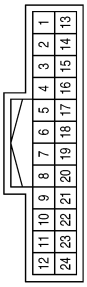
H.S.



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

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

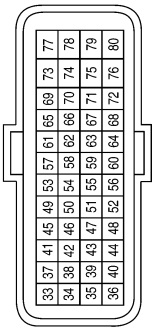
H.S.



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

Connector No.	F11
Connector Name	ECM
Connector Color	BROWN

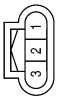
H.S.



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

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

H.S.



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

ABNIA3106GB

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	V	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	LG	–

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

H.S.

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

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

H.S.

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

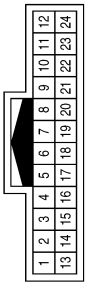
Connector No.	B16
Connector Name	FRONT DOOR SWITCH RH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–

ABNIA3107GB

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



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

Connector No.	B20
Connector Name	TRUNK LID SWITCH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
1	P	–
2	B	–

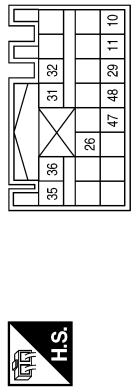
Connector No.	B17
Connector Name	REAR DOOR SWITCH RH
Connector Color	WHITE

Terminal No.	Color of Wire	Signal Name
3	R	–

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

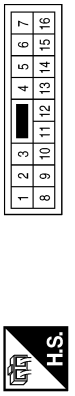
Terminal No.	Color of Wire	Signal Name
2	R	–
5	P	–

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



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

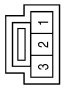
Connector No.	B29
Connector Name	WIRE TO WIRE
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
8	P	–

ABNIA3108GB

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



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

ABNIA3188GB

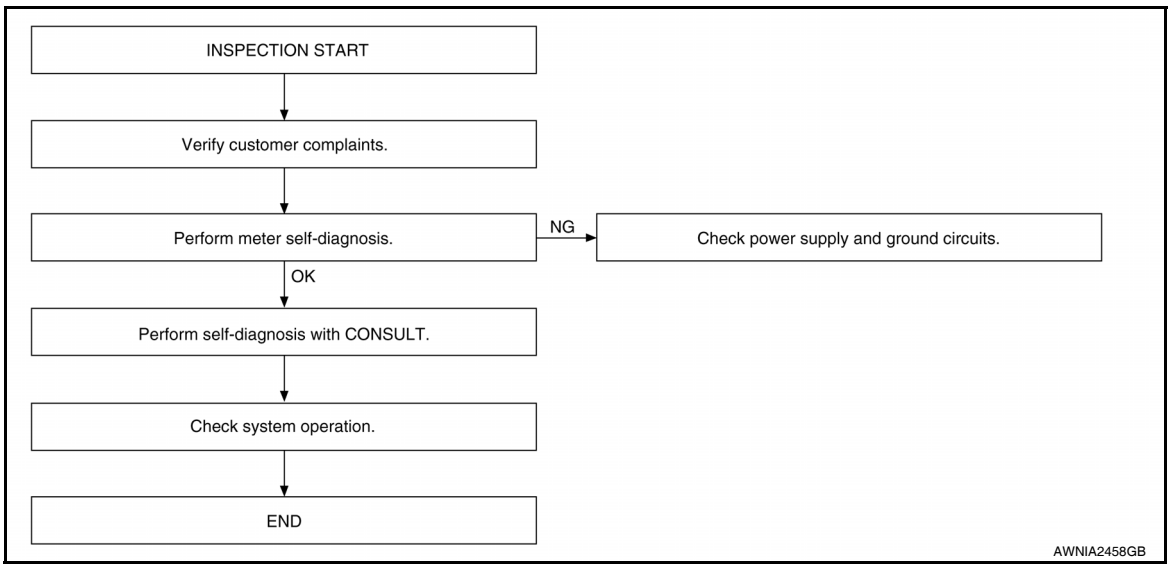
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000007678391

OVERALL SEQUENCE



DETAILED FLOW

1.CONFIRM SYMPTOM

Confirm symptom or customer complaint.

>> GO TO 2

2.SELF-DIAGNOSIS OF COMBINATION METER

Perform self-diagnosis of combination meter. Refer to MWI-17, "Diagnosis Description".

Is the inspection result normal?

YES >> GO TO 3
NO >> If self-diagnosis will not start, check power supply and ground circuit of combination meter. Refer to MWI-43, "COMBINATION METER : Diagnosis Procedure". If power supply and ground circuits are OK, replace combination meter. Refer to MWI-52, "Removal and Installation".

3.CHECK COMBINATION METER WITH CONSULT

Select “METER/M&A” on CONSULT and perform self-diagnosis of combination meter. Refer to MWI-18, "CONSULT Function".

Is the inspection result normal?

YES >> Check symptom. GO TO 4.
NO >> Refer to MWI-24, "DTC Index".

4.CHECK SYSTEM OPERATION

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

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 1

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Logic

INFOID:0000000007705937

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U1000	CAN COMM CIRCUIT	When CAN communication signal is not continuously received for 2 seconds or more	CAN communication system malfunction

Diagnosis Procedure

INFOID:0000000007705938

1.CHECK DTC DETECTION

With CONSULT.
1. Turn ignition switch OFF to ON.
2. Perform self diagnostic result.

Is DTC U1000 detected?

YES >> Proceed to diagnosis procedure. Refer to LAN-14, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000007687567

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000007687568

DTC DETECTION LOGIC

DTC	CONSULT	Description	Probable malfunction location
U1010	CONTROL UNIT (CAN)	Error detected during the initial diagnosis of the CAN controller of combination meter.	Combination meter

Diagnosis Procedure

INFOID:0000000007687569

1.REPLACE COMBINATION METER

Replace combination meter. Refer to MWI-52, "Removal and Installation".

>> Inspection End.

DTC B2205 VEHICLE SPEED CIRCUIT

Description

INFOID:0000000007687570

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

DTC Logic

INFOID:0000000007687571

DTC	CONSULT	Detection condition	Possible malfunction location
B2205	VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is received for 2 seconds or more.	• Combination meter • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000007687572

1.CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to BRC-32, "CONSULT Function (ABS)".

NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

B2267 ENGINE SPEED

Description

INFOID:0000000007206085

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

DTC Logic

INFOID:0000000007206086

DTC DETECTION LOGIC

DTC	CONSULT	Diagnostic item is detected when...	Probable malfunction location
B2267	ENGINE SPEED	Malfunction is detected when an erroneous engine speed signal is recieved for 2 seconds or more.	• Crankshaft position sensor (POS) • ECM

Diagnosis Procedure

INFOID:0000000007206087

1.CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> Perform ECM self-diagnosis. Refer to EC-59, "CONSULT Function".
NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

B2268 WATER TEMP

Description

INFOID:0000000007206088

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

DTC Logic

INFOID:0000000007206089

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible 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:0000000007206090

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-59, "CONSULT Function".

POWER SUPPLY AND GROUND CIRCUIT
COMBINATION METER
COMBINATION METER : Diagnosis Procedure

INFOID:0000000007206091

Regarding Wiring Diagram information, refer to MWI-26, "Wiring Diagram".

1.CHECK FUSE

Check for blown combination meter fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the fuse after repairing the affected circuit.

2.POWER SUPPLY CIRCUIT CHECK

1. Disconnect combination meter connector.
2. Check voltage between combination meter harness connector M82, terminals 27, 28, 15 and ground.

Terminals			Ignition switch position			
(+)		(–)	OFF	ACC	ON	START
Connector	Terminal					
M82	27	Ground	Battery voltage	Battery voltage	Battery voltage	Battery voltage
	28		0V	0V	Battery voltage	Battery voltage
	15		0V	Battery voltage	Battery voltage	0V

Is the inspection result normal?

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

3.GROUND CIRCUIT CHECK

1. Turn ignition switch OFF.
2. Disconnect combination meter connector.
3. Check continuity between combination meter harness connector M82, terminals 22, 23, 24 and ground.

Terminals			Continuity
(+)		(–)	
Connector	Terminal		
M82	21	Ground	Yes
	22		
	23		

Is the inspection result normal?

YES >> Inspection End.
NO >> Check ground harness.

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000007732999

Regarding Wiring Diagram information, refer to BCS-37, "Wiring Diagram".

1.CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse blown?

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

2.CHECK POWER SUPPLY CIRCUIT

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

BCM			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M20	57	Ground	Battery voltage	Battery voltage	Battery voltage
	70				
M18	11		0 V	Battery voltage	Battery voltage
	38		0 V	0 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between BCM connector and ground.

BCM			Continuity
Connector	Terminal		
M20	67	Ground	Yes

Is the inspection result normal?

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

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:0000000007678409

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

Component Function Check

INFOID:0000000007206092

1.COMBINATION METER INPUT SIGNAL

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

Fuel gauge indication position	Reference value of data monitor [L]
1	Approx. 41.1
3/4	Approx. 30.8
1/2	Approx. 20.5
1/4	Approx. 10.2
0	Approx. 2.5

Does monitor value match fuel gauge reading?

YES >> Inspection End.
NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

Diagnosis Procedure

INFOID:0000000007206093

Regarding Wiring Diagram information, refer to MWI-26, "Wiring Diagram".

1.CHECK HARNESS CONNECTOR

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

Is the inspection result normal?

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

2.CHECK FUEL LEVEL SENSOR UNIT CIRCUIT

1. Disconnect combination meter harness connector M82 and fuel level sensor unit and fuel pump harness connector B44.
2. Check continuity between combination meter harness connector M82 terminal 6 and fuel level sensor unit and fuel pump harness connector B44 terminal 2.

Connector	Terminal	Connector	Terminal	Continuity
M82	6	B44	2	Yes

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

Connector	Terminal	Ground	Continuity
B44	2		No

Is the inspection result normal?

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

3.CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

1. Check continuity between combination meter harness connector M82 terminal 24 and fuel level sensor unit and fuel pump harness connector B44 terminal 5.

Connector	Terminal	Connector	Terminal	Continuity
M82	24	B44	5	Yes

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

Connector	Terminal	Ground	Continuity
B44	5		No

Is the inspection result normal?

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

4.CHECK INSTALLATION CONDITION

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

Is the inspection result normal?

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

Component Inspection

INFOID:0000000007206094

1.REMOVE FUEL LEVEL SENSOR UNIT

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

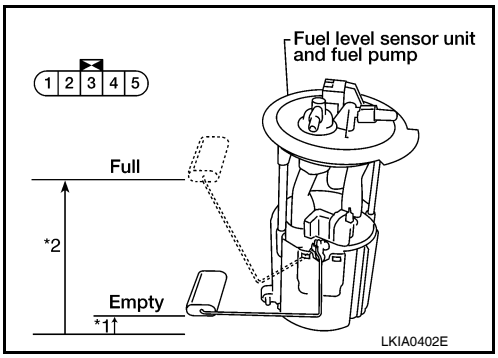
>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT

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

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit				
2	5	Full* (2)	91	177 (6.97)
		Empty* (1)	283	15 (0.59)

*: When float rod is in contact with stopper.



Is inspection result OK?

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

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000007733004

Transmits the washer level switch signal to the combination meter.

Diagnosis Procedure

INFOID:0000000007733005

Regarding Wiring Diagram information, refer to MWI-26, "Wiring Diagram".

1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector M82 and washer fluid level switch connector E50.
3. Check continuity between combination meter harness connector M82 terminal 17 and washer fluid level switch harness connector E50 terminal 1.

17 - 1 : Continuity should exist.

4. Check continuity between combination meter harness connector M82 terminal 17 and ground.

17 - Ground : Continuity should not exist.

Is the inspection result normal?

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

2.CHECK WASHER FLUID LEVEL SWITCH GROUND CIRCUIT

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

2 - Ground : Continuity should exist.

Is the inspection result normal?

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

Component Inspection

INFOID:0000000007733006

1.CHECK WASHER FLUID LEVEL SWITCH

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

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

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace washer fluid level switch.

SYMPTOM DIAGNOSIS

THE FUEL GAUGE INDICATOR DOES NOT OPERATE

Description

INFOID:0000000007206102

Fuel gauge will not indicate from a certain position.

Diagnosis Procedure

INFOID:0000000007206103

1.CHECK COMBINATION METER INPUT SIGNAL

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

Does monitor value match fuel gauge reading?

YES >> GO TO 2.
NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-45, "Diagnosis Procedure".

Is the inspection result normal?

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

3.COMPONENT INSPECTION

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

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace fuel level sensor unit. Refer to FL-5, "Removal and Installation".

4.CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-52, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000007206104

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

Diagnosis Procedure

INFOID:0000000007206105

1.CHECK COMBINATION METER OIL PRESSURE WARNING LIGHT

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

Component	Condition	CONSULT
Oil pressure warning light	Ignition ON	ON
	Ignition OFF	OFF

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000007206106

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

Diagnosis Procedure

INFOID:0000000007206107

1.CHECK COMBINATION METER INPUT SIGNAL

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

Component	Condition	CONSULT
Oil pressure warning light	Engine running	OFF

Is the inspection result normal?

YES >> Perform ECM self-diagnosis. Refer to EC-59, "CONSULT Function".
NO >> Replace combination meter. Refer to MWI-52, "Removal and Installation".

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

Description

INFOID:0000000007733010

- 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:0000000007733011

1.CHECK WASHER FLUID LEVEL SWITCH

Perform a unit check for the washer fluid level switch. Refer to MWI-47, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 2
NO >> Replace washer level switch.

2.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to MWI-47, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-52, "Removal and Installation".
NO >> Repair harness or connector.

REMOVAL AND INSTALLATION

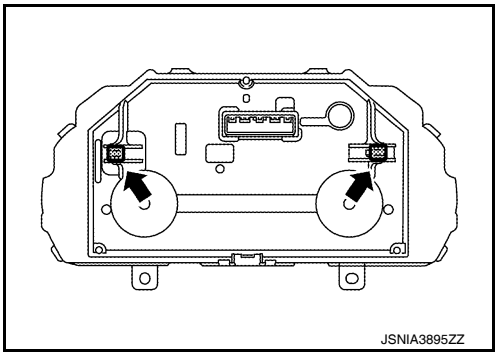
COMBINATION METER

Removal and Installation

INFOID:0000000007206114

REMOVAL

1. Disconnect the negative battery terminal. Refer to PG-61, "Removal and Installation".
2. Remove the cluster lid A. Refer to IP-19, "Removal and Installation".
3. Remove the screws of the combination meter.
4. Pull the combination meter straight to disengage resin clips. (The figure shows the clip positions on the back of the combination meter.)
   CAUTION:
   Never damage the front cover.



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

INSTALLATION

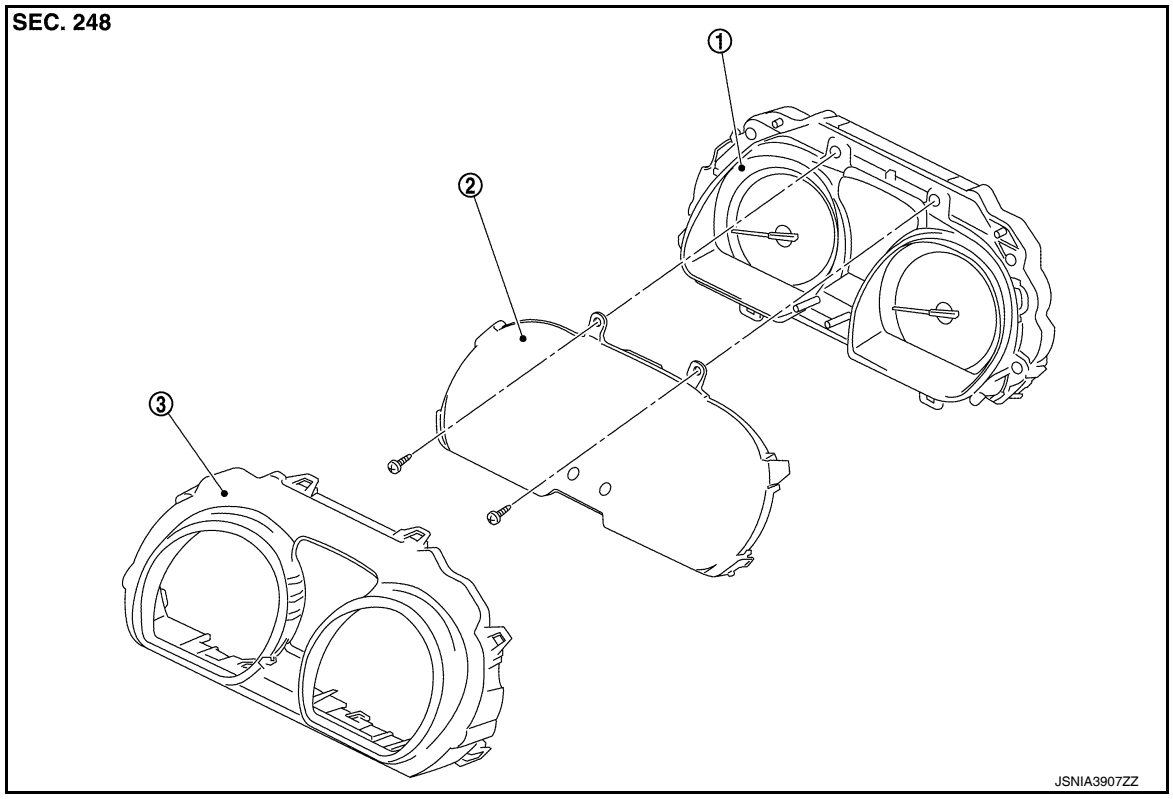
Installation is in the reverse order of removal.

UNIT DISASSEMBLY AND ASSEMBLY

COMBINATION METER

Exploded View

INFOID:0000000007661412



1. Unified meter control unit
2. Front cover
3. Finisher

Disassembly and Assembly

INFOID:0000000007206115

DISASSEMBLY

1. Disengage the pawls of the finisher, using suitable tool and remove the finisher.
   CAUTION:
   Wrap the removal tools with protective tape to prevent scratches.
2. Remove the screws of the front cover.
3. Disengage the pawls of the front cover, using suitable tool.
   CAUTION:
   Wrap the removal tools with protective tape to prevent scratches.
4. Pull the front cover straight to remove it from the unified meter control unit.
   CAUTION:
   - **Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.**
   - **Keep away from magnetic sources.**
   - **Never damage the front cover.**

ASSEMBLY

Assembly is in the reverse order of disassembly.

CAUTION:

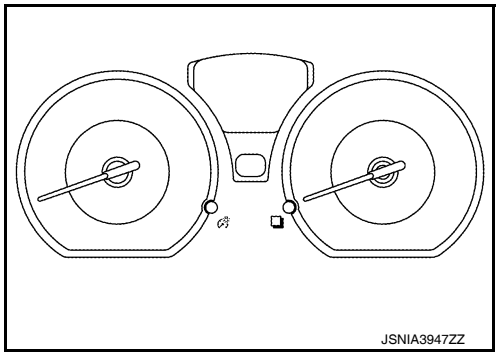
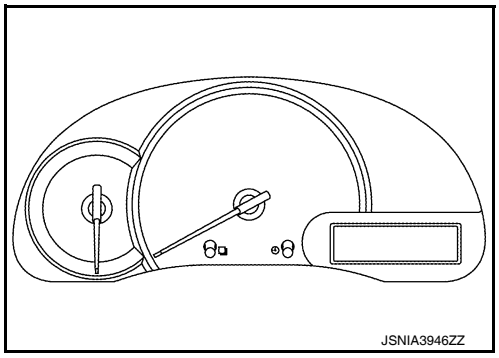
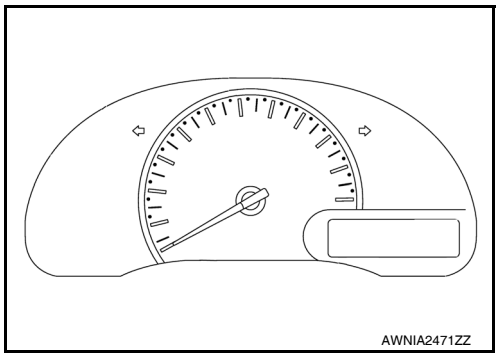
- **Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.**
- **Keep away from magnetic sources.**
- **Never damage the front cover.**

HOW TO USE THIS MANUAL

APPLICATION NOTICE

Information

INFOID:0000000007206116

Service information	Design of combination meter	
TYPE A		 JSNIA3947ZZ
TYPE B	With Tachometer	 JSNIA3946ZZ
	Without Tachometer	 AWNIA2471ZZ

PRECAUTION

PRECAUTIONS

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

INFOID:0000000007661413

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 SR and SB section of this Service Manual.

WARNING:

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

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

WARNING:

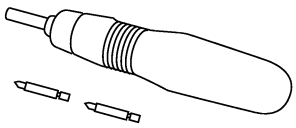
- **When working near the Airbag Diagnosis Sensor Unit or other Airbag System sensors with the Ignition ON or engine running, DO NOT use air or electric power tools or strike near the sensor(s) with a hammer. Heavy vibration could activate the sensor(s) and deploy the air bag(s), possibly causing serious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

PREPARATION

PREPARATION

Commercial Service Tools

INFOID:0000000007747582

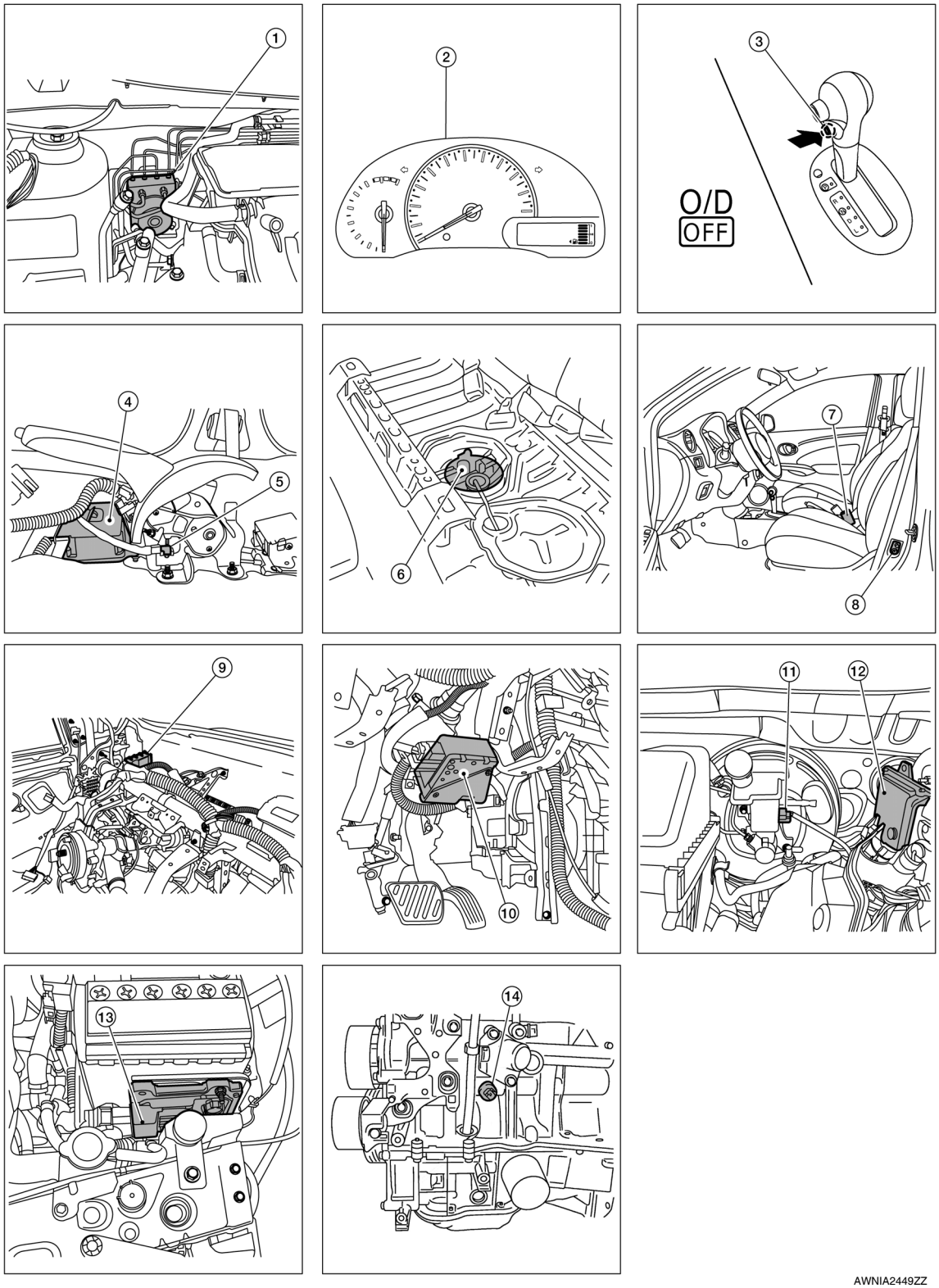
Tool name	Description
Power tool  PBIC0191E	Loosening bolts and nuts

SYSTEM DESCRIPTION

COMPONENT PARTS

Component Parts Location

INFOID:0000000007688646



AWNIA2449ZZ

1. ABS actuator and electric unit (control unit)
2. Combination meter
3. CVT shift selector (O/D OFF switch)
4. Air bag diagnosis sensor unit (view with center console removed)
5. Parking brake switch (view with center console removed)
6. Seat belt buckle switch LH
7. Fuel level sensor unit and fuel pump (view with rear seat and access cover removed)
8. Front door switch LH
9. BCM (view with instrument panel removed)
10. EPS control unit (view with instrument lower panel removed)
11. Brake fluid level switch (view with IPDM E/R removed)
12. ECM (view with IPDM E/R removed)
13. TCM
14. Oil pressure switch

Component Description

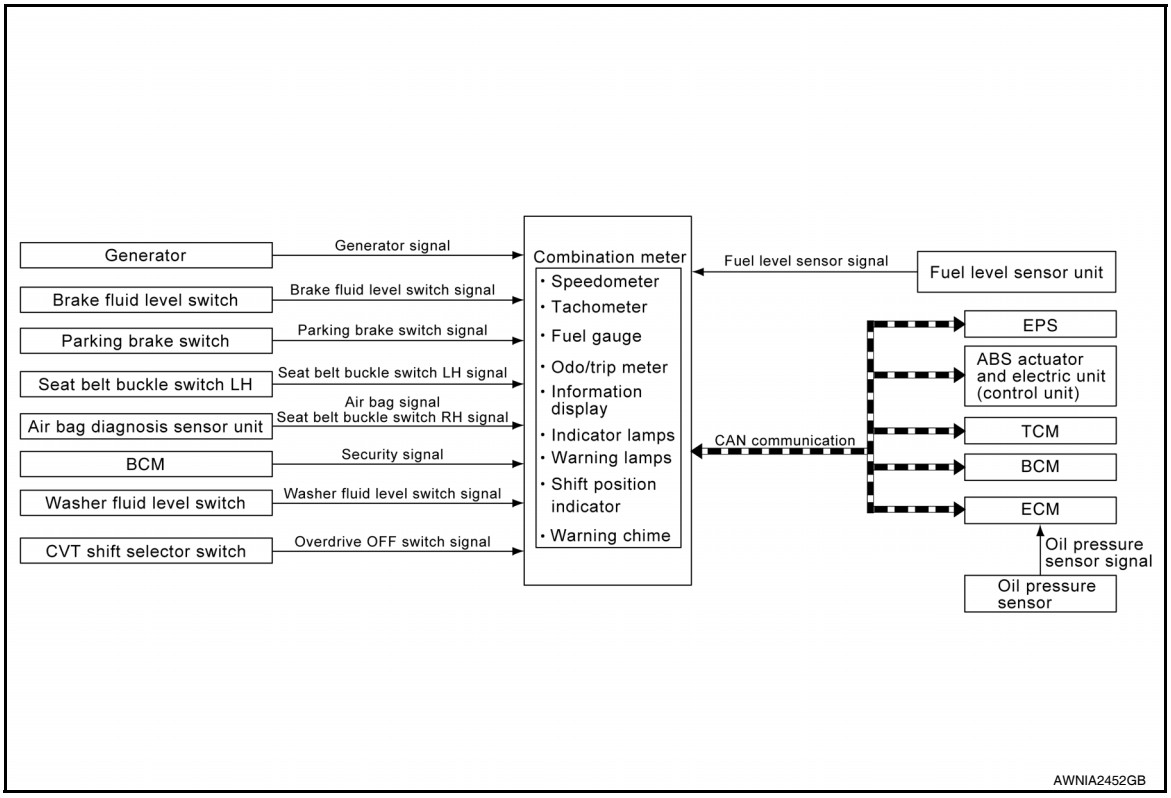
INFOID:0000000007688647

Unit	Description
Combination meter	The combination meter controls the following items according to the signals received from each unit. • Speedometer • Engine oil pressure gauge • Warning lamps • Information display • Oil pressure sensor signal • Tachometer (if equipped) • Fuel gauge • Indicator lamps • Warning chime
CVT shift selector switch	Transmits the overdrive off switch signal to the combination meter.
Seat belt buckle switch (LH)	Transmits the seat belt buckle switch (LH) signal to the combination meter.
ABS actuator and electric unit (control unit)	Transmits the vehicle speed signal to the combination meter via CAN communication.
Air bag diagnosis sensor unit	Transmits the air bag signal and seat belt buckle switch (RH) signal to the combination meter.
EPS Control unit	Transmits the EPS signal to the combination meter via CAN communication.
TCM	Transmits the shift position signal to the combination meter via CAN communication.
ECM	Transmits the following signals to the combination meter via CAN communication. • Engine speed signal • Engine coolant temperature signal • Fuel consumption monitor signal • Oil pressure sensor signal
BCM	Transmits the security signal to the combination meter. Transmits the following signals to the combination meter via CAN communication. • Low tire pressure warning signal • Door open switch signal
Washer fluid level switch (if equipped)	Transmits the washer fluid level switch signal to the combination meter.
Fuel level sensor unit	Transmits the fuel level sensor signal to the combination meter.
Parking brake switch	Transmits the parking brake switch signal to the combination meter.
Brake fluid level switch	Transmits the brake fluid level switch signal to the combination meter.
TCM	Transmits the shift position signal to the combination meter via CAN communication.
Oil pressure sensor	Transmits the oil pressure sensor signal to the ECM.

SYSTEM
METER SYSTEM
METER SYSTEM : System Diagram

INFOID:0000000007688649

SYSTEM DIAGRAM



METER SYSTEM : System Description

INFOID:0000000007688852

COMBINATION METER

Combination Meter

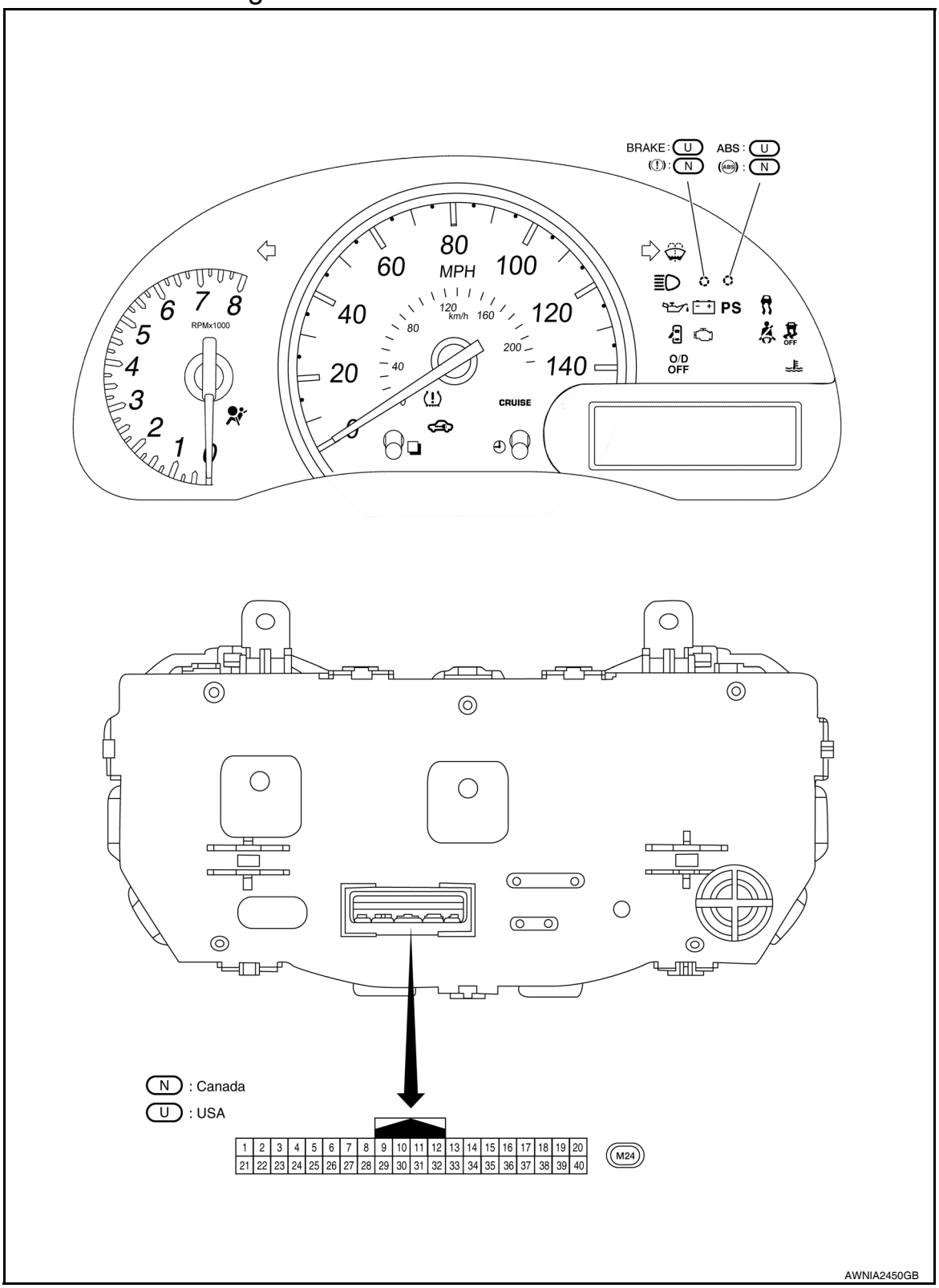
- The combination meter monitors signals from switches, sensors and modules to control the following functions:
  - Speedometer/Tachometer
  - Shift position indicator
  - Warning lamps
  - Indicator lamps
  - Meter illumination control
  - Information display
- The combination meter has an integrated buzzer that is activated when it receives a signal from the BCM via CAN communication. Refer to WCS-7, "WARNING CHIME SYSTEM : System Description" for further details.
- The combination meter includes a self diagnosis function.
- The combination meter can be diagnosed with CONSULT.

METER CONTROL FUNCTION LIST

System			Description	Reference
Speedometer			Indicates vehicle speed.	MWI-12, "SPEEDOMETER : System Description"
Tachometer			Indicates engine speed.	MWI-13, "TACHOMETER : System Description"
Shift position indicator (CVT models)			Display shift position.	MWI-13, "SHIFT POSITION INDICATOR : System Description"
Warning lamp/ indicator lamp	Oil pressure warning lamp		The warning lamp turns ON when it receives the oil pressure warning signal.	MWI-13, "OIL PRESSURE WARNING LAMP : System Description"
	Seat belt warning lamp		The warning lamp turns ON when the LH seat belt is unfastened and the vehicle is moving, and turns OFF when the seat belt is fastened.	SRC-12, "SEAT BELT WARNING LAMP SYSTEM : System Description"
	High temperature warning lamp		The ECM monitors the engine coolant temperature sensor and sends a signal to the combination meter to turn on the high temperature warning lamp via CAN communication.	MWI-63, "HIGH WATER TEMPERATURE WARNING LAMP : System Description"
Meter illumination control	Meter illumination control function		Illumination control is enabled when the combination switch (lighting switch) is in the 1st or 2nd position changing from daytime mode to nighttime mode.	MWI-14, "METER ILLUMINATION CONTROL : System Description"
	Meter illumination control switch		The operation of the illumination control switch changes the brightness of meter illumination.	
Information display	Fuel gauge		Indicates fuel level.	MWI-14, "INFORMATION DISPLAY : System Description"
	Odo/trip meter		Displays mileage.	
	Trip computer	Instant fuel consumption	Displays current fuel consumption.	
		Average fuel consumption	Displays average fuel consumption.	
		Distance to empty	Displays distance to empty.	

METER SYSTEM : Arrangement of Combination Meter

INFOID:0000000007688663



METER SYSTEM : Fail-Safe

INFOID:0000000007688661

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

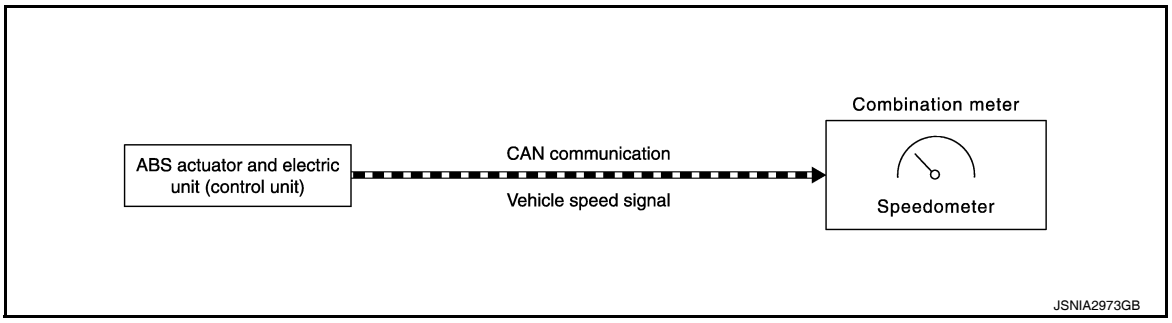
Function			Specifications
Speedometer			Reset to zero by suspending communication.
Tachometer			
Meter Illumination			When suspending communication, changes to nighttime mode.
Information display	Trip computer	Instant fuel consumption	0 km/h is displayed.
		Average fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than 2 seconds, the last result calculated during normal condition is indicated.
		Distance to empty	
	Odo/trip meter		An indicated value is maintained at communications blackout.
	Shift position indicator		The indicator turns OFF by suspending communication.
Buzzer			The buzzer turns off by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp		The lamp turns ON by suspending communication.
	EPS warning lamp		
	Brake warning lamp		
	Malfunction indicator lamp (MIL)		
	High water temperature warning lamp		The lamp turns OFF by suspending communication.
	High beam indicator lamp		
	Turn signal indicator lamp		
	Door warning lamp		
	Oil pressure warning lamp		
	O/D OFF indicator lamp		

SPEEDOMETER

SPEEDOMETER : System Description

INFOID:0000000007206123

SYSTEM DIAGRAM



DESCRIPTION

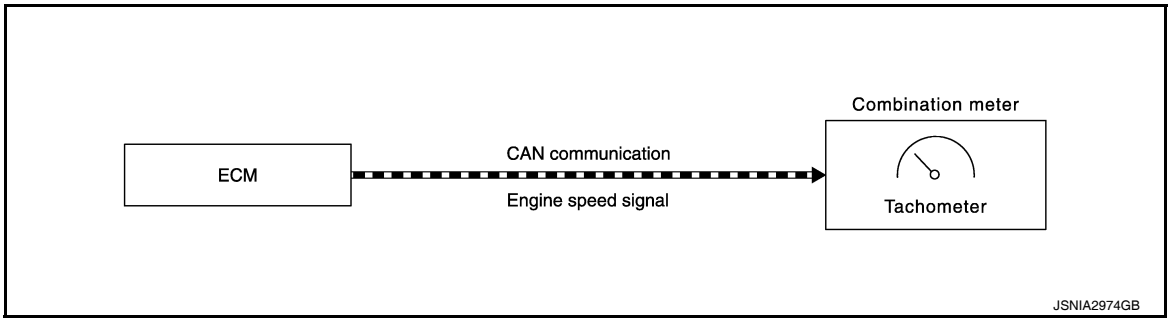
The ABS actuator and electric unit (control unit) receives each wheel speed sensor signal and provides a vehicle speed signal to the combination meter via CAN communication.

TACHOMETER

TACHOMETER : System Description

INFOID:0000000007206124

SYSTEM DIAGRAM



DESCRIPTION

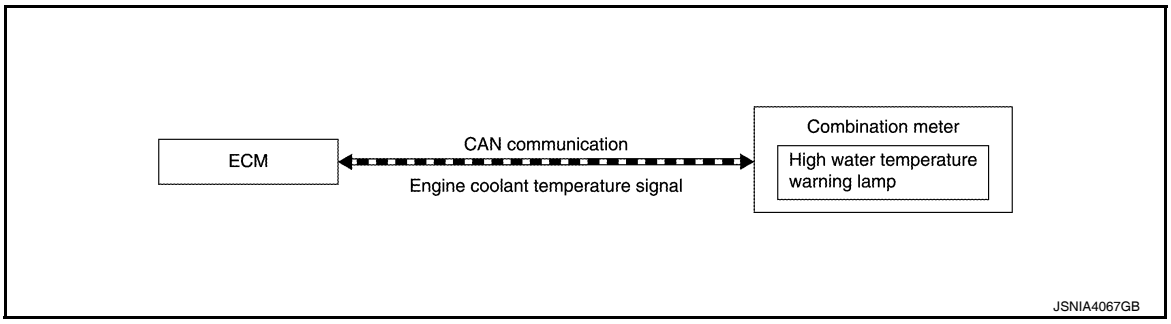
The crank position sensor sends a crankshaft position signal to the ECM. The ECM provides an engine speed signal to the combination meter via CAN communication lines. The tachometer indicates engine speed in revolutions per minute (rpm).

HIGH WATER TEMPERATURE WARNING LAMP

HIGH WATER TEMPERATURE WARNING LAMP : System Description

INFOID:0000000007206125

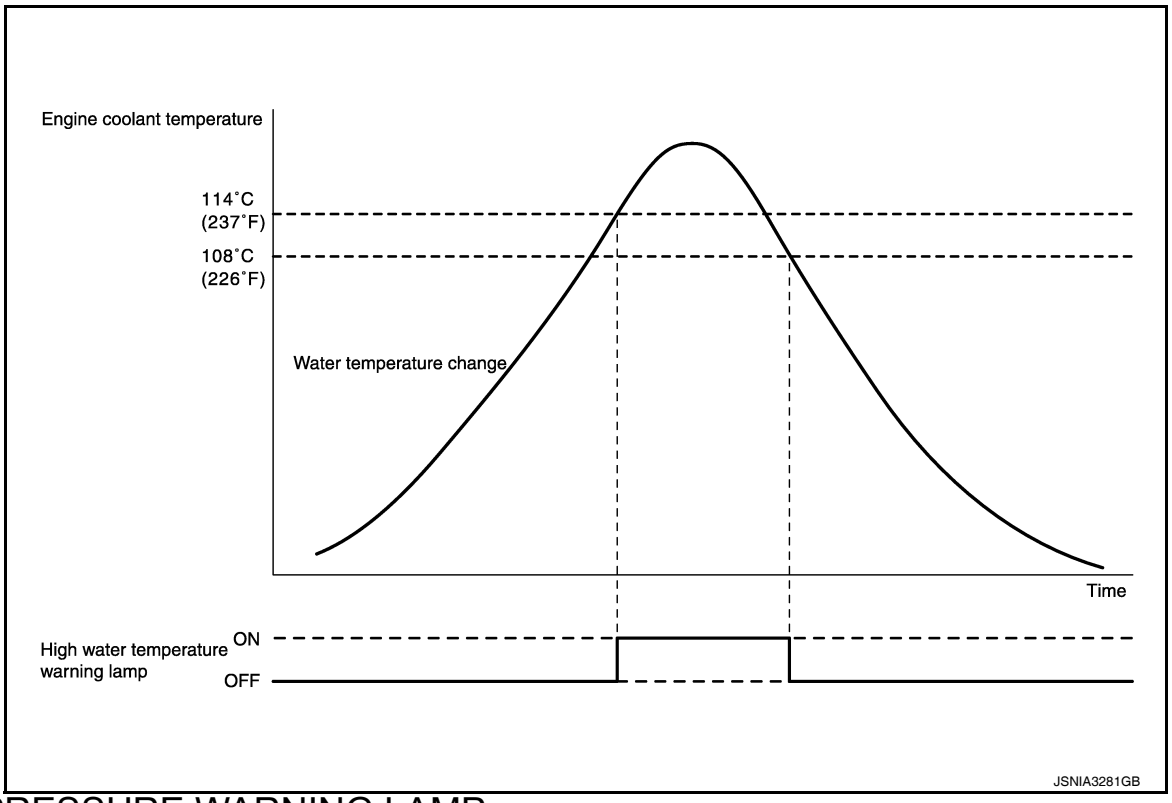
SYSTEM DIAGRAM



DESCRIPTION

The ECM monitors the engine coolant temperature from the engine coolant temperature sensor. When the coolant temperature is above the specified value, the ECM sends a CAN communication signal to the combination meter turning on the high temperature warning lamp.

Timing Chart

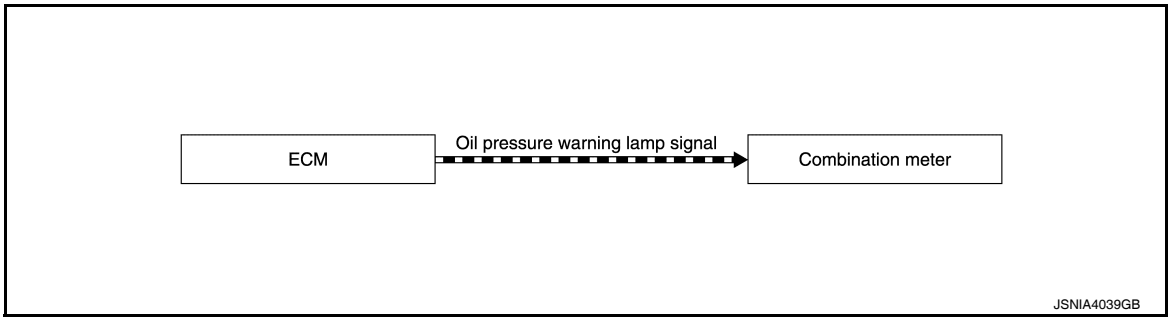


OIL PRESSURE WARNING LAMP

OIL PRESSURE WARNING LAMP : System Diagram

INFOID:0000000007705092

SYSTEM DIAGRAM



OIL PRESSURE WARNING LAMP : System Description

INFOID:0000000007705093

DESCRIPTION

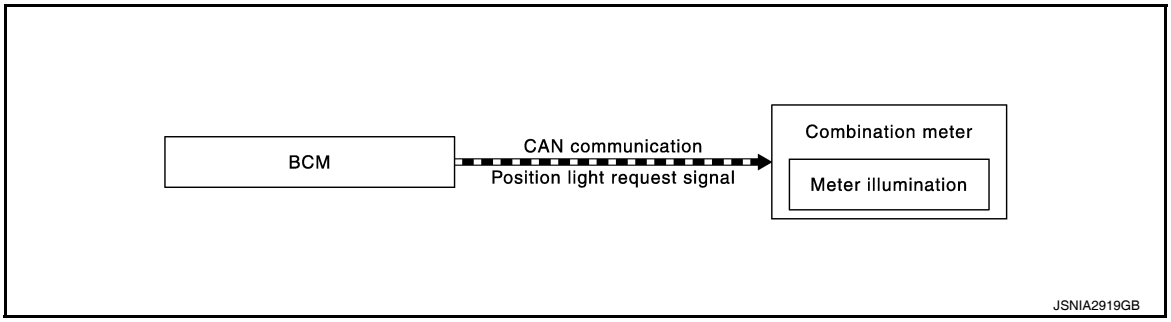
The combination meter turns the oil pressure warning lamp ON when receiving a signal from the ECM via CAN communication.

METER ILLUMINATION

METER ILLUMINATION : System Description

INFOID:0000000007206128

SYSTEM DIAGRAM



DESCRIPTION

Meter Illumination Control Function

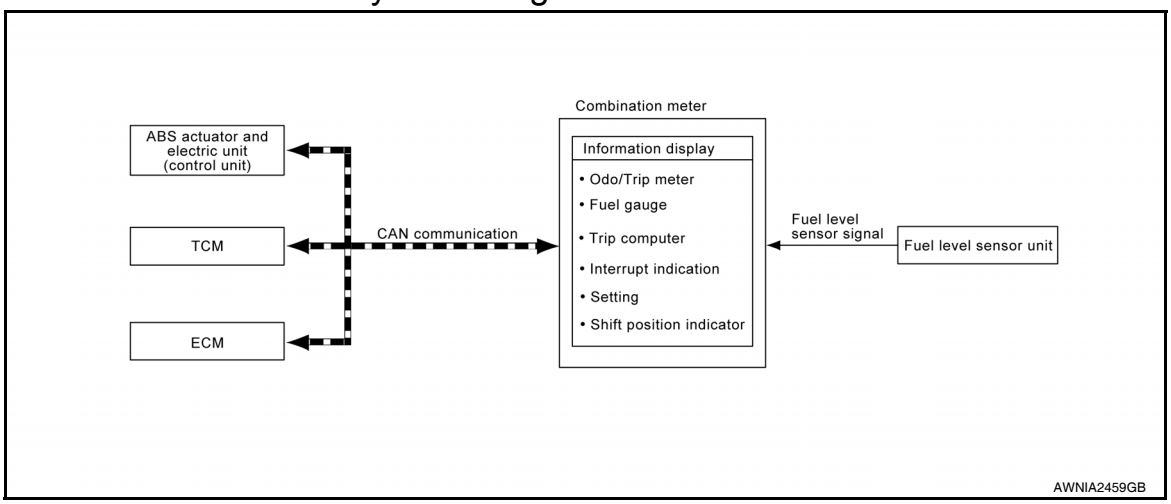
Meter illumination control is enabled when the meter receives a signal from the BCM that the combination switch is in the 1st or 2nd position, the meter switches from Daytime mode to Nighttime mode.

Condition		Meter illumination
Combination switch (lighting switch)	1ST or 2ND position	Nighttime mode
	Off	Daytime mode

INFORMATION DISPLAY

INFORMATION DISPLAY : System Diagram

INFOID:0000000007688873



INFORMATION DISPLAY : System Description

INFOID:0000000007206129

DESCRIPTION

- The combination meter receives signals from switches, sensors and modules for operating the following functions on the information display.

- Odo/trip meter
- Shift position indicator
- Fuel gauge
- Trip computer
- Interrupt indication
- Meter illumination level
- Setting
- Low fuel warning
- Loose fuel cap warning

ODO/TRIP METER

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

SHIFT POSITION INDICATOR

The combination meter displays the location of the shift position selector on the vehicle information display.

FUEL GAUGE

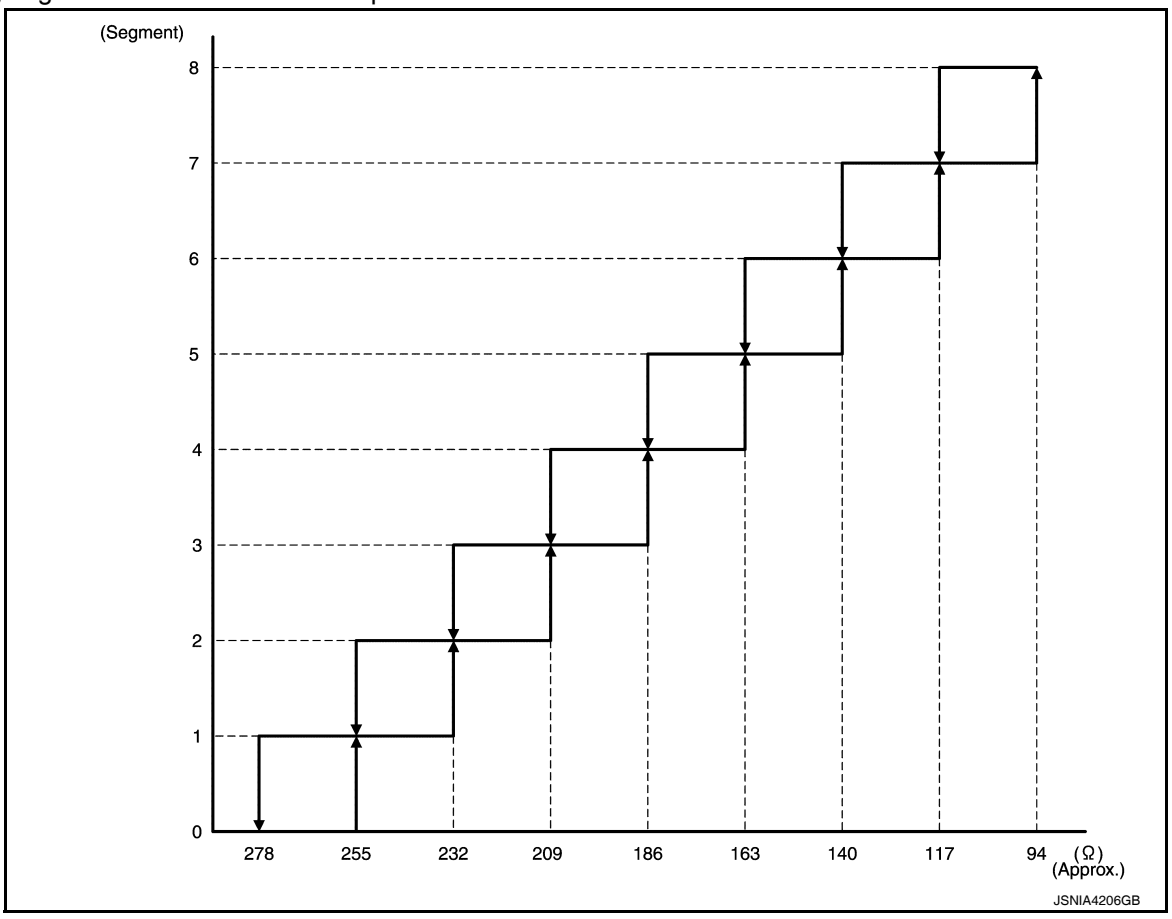
Control Outline

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

Refuel Control

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

Lighting segment-resistance relationship



INTERRUPT INDICATION

The combination meter may interrupt the current information display with a warning, alert or maintenance reminder on the information display, based on signals received from each unit and switch.

Low Fuel Warning

The low fuel warning turns ON when the fuel level in the fuel tank reaches approximately 6.3 ℓ (1-5/8 US gal, 1-3/8 Imp gal).

LOOSE FUEL CAP WARNING

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

DIAGNOSIS SYSTEM (COMBINATION METER)

Diagnosis Description

INFOID:0000000007206131

ON BOARD DIAGNOSIS ITEM

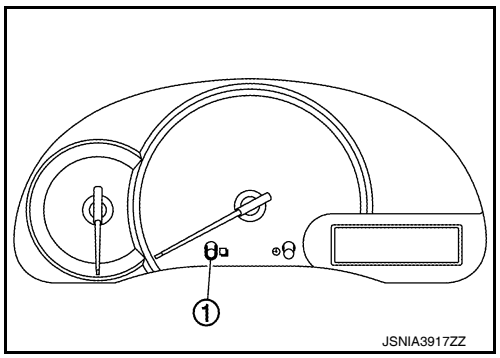
The information display, speedometer and tachometer can be checked in self-diagnosis mode.

NOTE:

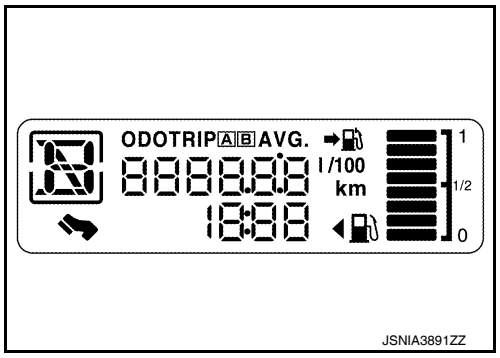
- Check combination meter power supply and ground circuits if self-diagnosis mode does not start. Refer to MWI-43, "COMBINATION METER : Diagnosis Procedure". Replace combination meter if power supply and ground circuits are found to be normal and self-diagnosis mode does not start. Refer to MWI-52, "Removal and Installation".
- Combination meter self-diagnosis mode will function with the ignition switch in ON. Combination meter self-diagnosis mode will exit upon turning the ignition switch to OFF.

METHOD OF STARTING

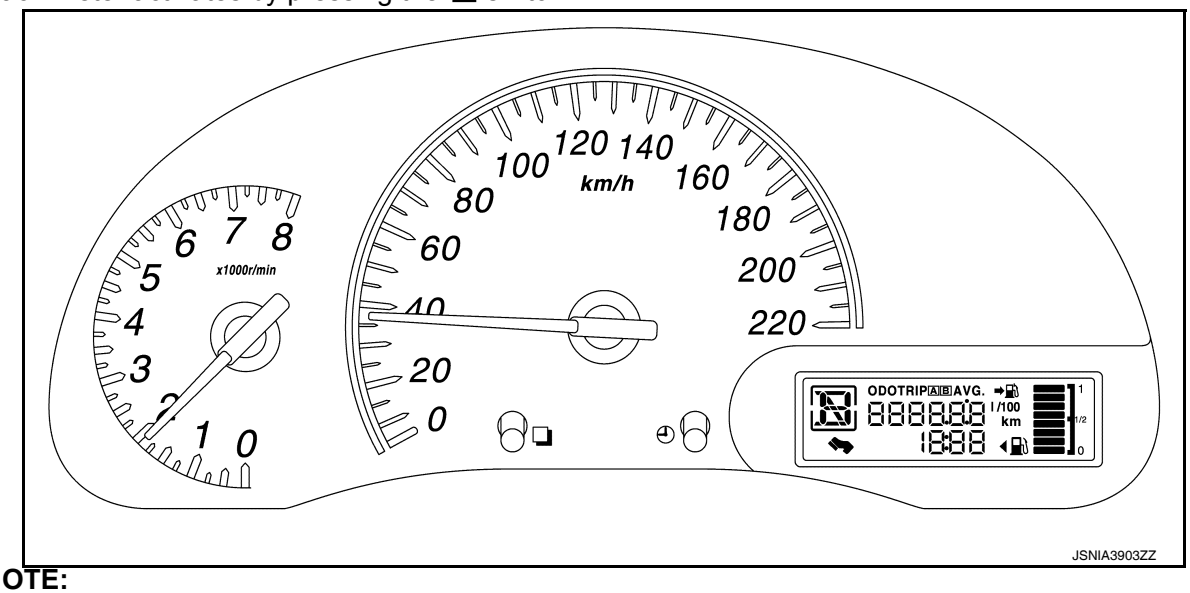
1. Turn the ignition switch OFF.
2. Turn the ignition switch ON while pressing and holding the ❑ switch (1) for 0.8 seconds or more.



3. Press the ❑ switch at least 3 times. (Within 7 seconds after the ignition switch is turned ON.)
4. The combination meter is turned to self-diagnosis mode.
   - All segments of the information display are displayed.



5. Each meter activates by pressing the ❑ switch.



JSNIA3903ZZ

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

CONSULT Function

INFOID:0000000007758012

APPLICATION ITEMS

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

METER/M&A Diagnosis mode	Description
SELF DIAGNOSTIC RESULT	The combination meter self-diagnosis results.
DATA MONITOR	Displays combination meter input/output data in real time.
SPECIAL FUNCTION	Lighting history of the warning lamp and indicator lamp can be checked.
CAN DIAG SUPPORT MNTR	The result of transmit/receive diagnosis of CAN communication can be read.

SELF DIAG RESULT

Refer to MWI-24, "DTC Index".

DATA MONITOR

Display Item List

X: Applicable

Display item [Unit]	MAIN SIGNALS	Description
SPEED METER [km/h] or [mph]	X	Displays the value of vehicle speed signal.
SPEED OUTPUT [km/h] or [mph]	X	Displays the value of vehicle speed signal, which is transmitted to each unit with CAN communication.
ODO OUTPUT [km/h or mph]		Displays odometer signal value transmitted to other units via CAN communication.
TACHO METER [rpm]	X	Displays the value of engine speed signal, which is input from ECM.
FUEL METER [L]	X	Displays the fuel level.
W TEMP METER [°C] or [°F]	X	Displays the value of engine coolant temperature signal, which is input from ECM.
ABS W/L [ON/OFF]		Displays [ON/OFF] condition of ABS warning indicator

Display item [Unit]	MAIN SIGNALS	Description
BRAKE W/L [ON/OFF]		Displays [ON/OFF] condition of brake warning indicator.
DOOR W/L [ON/OFF]		Displays [ON/OFF] condition of door warning indicator.
HI-BEAM IND [ON/OFF]		Displays [ON/OFF] condition of high beam indicator.
TURN IND [ON/OFF]		Displays [ON/OFF] condition of turn indicator.
LIGHT IND [ON/OFF]		Displays [ON/OFF] condition of light indicator.
OIL W/L [ON/OFF]		Displays [ON/OFF] condition of oil pressure warning indicator.
MIL [ON/OFF]		Displays [ON/OFF] condition of malfunction indicator.
CRUISE IND [Off]		Displays [ON/OFF] condition of CRUISE indicator.
O/D OFF IND [ON/OFF]		Displays [ON/OFF] condition of O/D OFF indicator.
FUEL W/L [ON/OFF]		Displays [ON/OFF] condition of low-fuel warning indicator.
O/D OFF SW [ON/OFF]		Displays [ON/OFF] condition of O/D OFF switch.
REAR DEF SW [ON/OFF]		Displays [ON/OFF] condition of rear window defogger switch.
BRAKE SW [ON/OFF]		Displays [ON/OFF] condition of brake switch.
EPS W/L [ON/OFF]		Displays [ON/OFF] condition of EPS indicator.
CHAGE W/L [Off]		Displays [ON/OFF] condition of charge warning indicator.
SHIFT IND [P, R, N, D, L]		Displays shift selector position.
FUEL CAP W/L [Off]		Displays [ON/OFF] condition of loose fuel cap warning message.
AIR PRES W/L [ON/OFF]		Displays [ON/OFF] condition of tire pressure warning lamp.
PKB SW [ON/OFF]		Status of parking brake switch.
BUCKLE SW [ON/OFF]		Status of seat belt buckle switch (LH).
PASS BUCKLE SW [ON/OFF]		Status of passenger seat belt buckle switch (RH).
BRAKE OIL SW [ON/OFF]		Status of brake fluid level switch.
DISTANCE [km] or [Mi]		Displays distance to empty.
BUZZER [ON/OFF]	X	Displays [ON/OFF] condition of buzzer.
SLIP IND [ON/OFF]		Displays [ON/OFF] condition of SLIP indicator lamp.
VDC/TCS IND [ON/OFF]		Displays [ON/OFF] condition of VDC OFF indicator lamp.

NOTE:

Some items are not available according to vehicle specification.

SPECIAL FUNCTION

Special menu

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

W/L ON HISTORY

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

NOTE:

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

Display Item

Display item	Description
ABS W/L	Lighting history of ABS warning lamp.
VDC/TCS IND	Lighting history of VDC warning lamp.
SLIP IND	Lighting history of SLIP warning lamp.
BRAKE W/L	Lighting history of brake warning lamp.
OIL W/L	Lighting history of oil pressure warning lamp.
C-ENG W/L	Lighting history of malfunction indicator lamp (MIL).
AIR PRES W/L	Lighting history of tire pressure warning lamp.
EPS W/L	Lighting history of EPS warning lamp.
CHAGE W/L	Lighting history of charging warning lamp.
DOOR W/L	Lighting history of door warning lamp.
CRUISE W/L	Lighting history of cruise warning lamp.
O/D OFF IND	Lighting history of O/D OFF indicator lamp.
FUEL W/L	Lighting history of fuel warning lamp.
WASHER W/L	Lighting history of washer warning lamp.

ECU DIAGNOSIS INFORMATION

COMBINATION METER

Reference Value

INFOID:0000000007206133

VALUES ON THE DIAGNOSIS TOOL

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

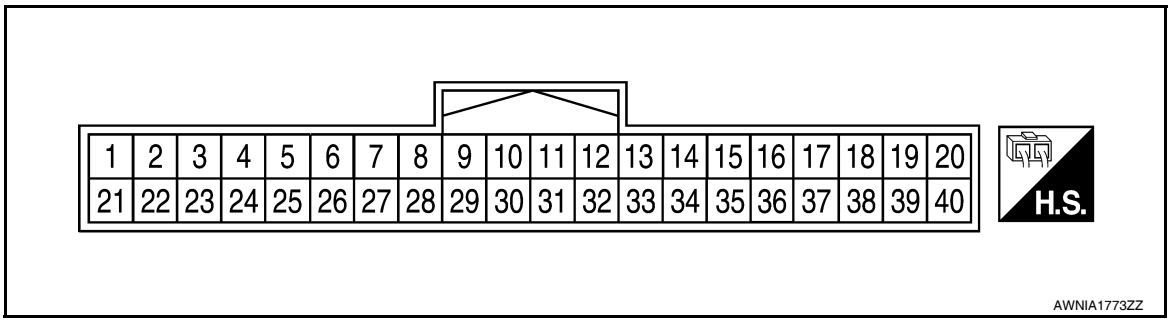
Monitor Item	Display content	Data monitor	
		Condition	Reference value in normal operation
REAR DEF SW	Rear defogger switch	When rear defogger switch is pressed to ON	On
		When rear defogger switch is pressed to Off	Off
BRAKE SW	Brake switch	When brake pedal is applied	On
		When brake pedal is released	Off
FUEL W/L	Low fuel warning	When low fuel warning is ON	On
		When low fuel warning is OFF	Off
EPS W/L	EPS warning lamp	EPS warning lamp ON	On
		EPS warning lamp OFF	Off
CHAGE W/L	Charge warning lamp	Engine running	Off
SHIFT IND	Shift position indicator	The shift position indicator displayed.	[P, R, N, D, L]
FUEL CAP W/L	Loose fuel cap warning	When the fuel-filler cap is installed incorrectly.	On
		When the fuel-filler cap is installed correctly.	Off
AIR PRES W/L	Tire pressure warning lamp operation	When tire pressure warning lamp is ON	On
		When tire pressure warning lamp is OFF	Off
PKB SW	Parking brake switch	When parking brake is active	On
		When parking brake is inactive	Off
BUCKLE SW	Seat belt buckle switch LH	When seat belt buckle is unfastened (LH).	On
		When seat belt buckle is fastened (LH).	Off
BRAKE OIL SW	Brake fluid level switch	When brake fluid level switch ON	On
		When brake fluid level switch OFF	Off
PASS BUCKLE SW	Seat belt buckle switch RH	When passenger seat is occupied and seat belt buckle is unfastened (RH).	On
		When passenger seat is unoccupied and seat belt buckle is unfastened (RH).	Off
DISTANCE	Distance to empty	While driving	[km/h or mph]
BUZZER	Buzzer operation	When Buzzer is ON	On
		When Buzzer is OFF	Off
SLIP IND	Slip indicator lamp	When SLIP indicator lamp is ON.	On
		When SLIP indicator lamp is OFF.	Off
VDC/TCS IND	VDC indicator lamp	When VDC indicator lamp is ON.	On
		When VDC indicator lamp is OFF	Off

*: Displays “OFF” if the brake warning lamp is illuminated when the valve check starts, the parking brake switch is turned ON or the brake fluid level switch is turned ON.

NOTE:

Some items are not available according to vehicle specification.

TERMINAL LAYOUT



PHYSICAL VALUES

Terminal No.	Wire color	Item	Condition		Reference value (V) (Approx.)
			Ignition switch	Operation or condition	
1	R	Battery power supply	OFF		Battery voltage
2	LG	Stop lamp switch	ON	Brake pedal pressed	Battery voltage
				Brake pedal released	0
3	GR	Ignition switch ON or START	ON	—	Battery voltage
4	W	Fuel level sensor signal (+)	—	—	Refer to MWI-46, "Component Inspection".
8	L	CAN-H	—	—	—
10	P	CAN-L	—	—	—
11	V	Washer fluid level switch (Canada models)	ON	Washer fluid level low	0
				Washer fluid level normal	Battery voltage
17	P	8P/R	—	—	—
19	B	Illumination control output	—	—	—
21	B	Ground	—	——	0
22	B				
23	B/W				
26	GR	Fuel level sensor ground (-)	—	—	0
28	P	O/D OFF switch	ON	O/D OFF switch pressed	0
				O/D OFF switch released	Battery voltage
31	G	Security	—	—	—
32	V	Air bag	ON	—	0
33	G	Seat belt buckle switch RH	ON	Fastened (OFF)	Battery voltage
				Unfastened (ON)	0
34	V	Seat belt buckle switch LH	ON	Fastened (OFF)	Battery voltage
				Unfastened (ON)	0
35	Y	Generator	ON	Generator voltage low	0
				Generator voltage normal	Battery voltage
36	LG	Brake fluid level switch	ON	Brake fluid level is normal	Battery voltage
				Brake fluid level low	0
37	SB	Parking brake switch	ON	Parking brake pedal applied	0
				Parking brake pedal released	Battery voltage

Fail-Safe

INFOID:0000000007206134

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			
Meter Illumination			When suspending communication, changes to nighttime mode.
Information display	Trip computer	Instant fuel consumption	0 km/h is displayed.
		Average fuel consumption	• When reception time of an abnormal signal is 2 seconds or less, the last received datum is used for calculation to indicate the result. • When reception time of an abnormal signal is more than 2 seconds, the last result calculated during normal condition is indicated.
		Distance to empty	
	Odo/trip meter		An indicated value is maintained at communications blackout.
	Shift position indicator		The indicator turns OFF by suspending communication.
Buzzer			The buzzer turns off by suspending communication.
Warning lamp/indicator lamp	ABS warning lamp		The lamp turns ON by suspending communication.
	EPS warning lamp		
	Brake warning lamp		
	Malfunction indicator lamp (MIL)		
	High water temperature warning lamp		The lamp turns OFF by suspending communication.
	High beam indicator lamp		
	Turn signal indicator lamp		
	Door warning lamp		
	Oil pressure warning lamp		
	O/D OFF indicator lamp		

DTC Index

INFOID:0000000007206135

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-87
CONTROL UNIT (CAN) [U1010]	When detecting error during the initial diagnosis of the CAN controller of combination meter.	MWI-88
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-89
ENGINE SPEED [B2267]	If ECM continuously transmits abnormal engine speed signals for 2 seconds or more.	MWI-90
WATER TEMP [B2268]	If ECM continuously transmits abnormal engine coolant temperature signals for 60 seconds or more.	MWI-91

BCM (BODY CONTROL MODULE)

List of ECU Reference

INFOID:0000000007733003

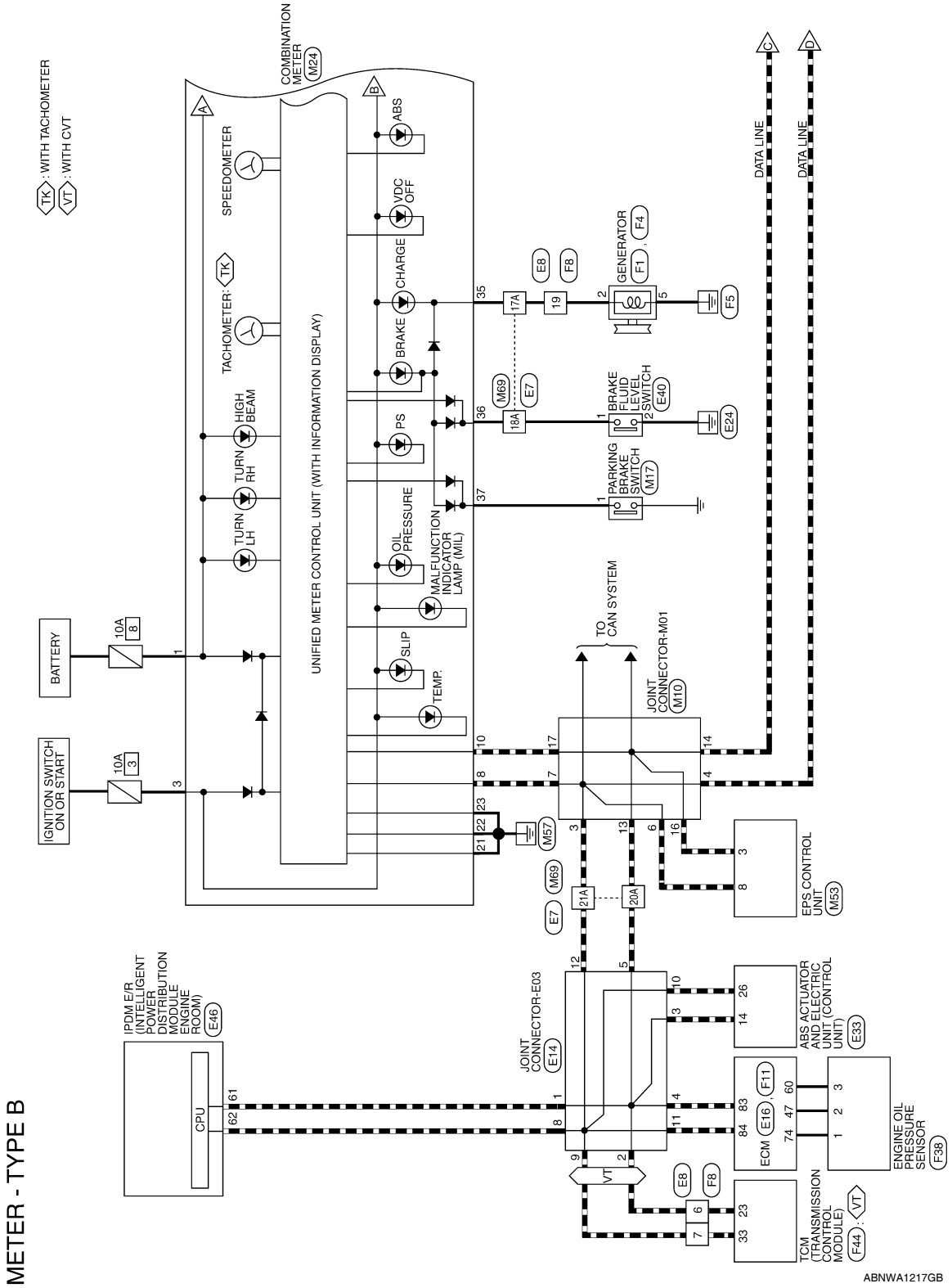
ECU	Reference
BCM	BCS-24, "Reference Value"
	BCS-37, "Wiring Diagram"
	BCS-35, "Fail-safe"
	BCS-35, "DTC Inspection Priority Chart"
	BCS-36, "DTC Index"

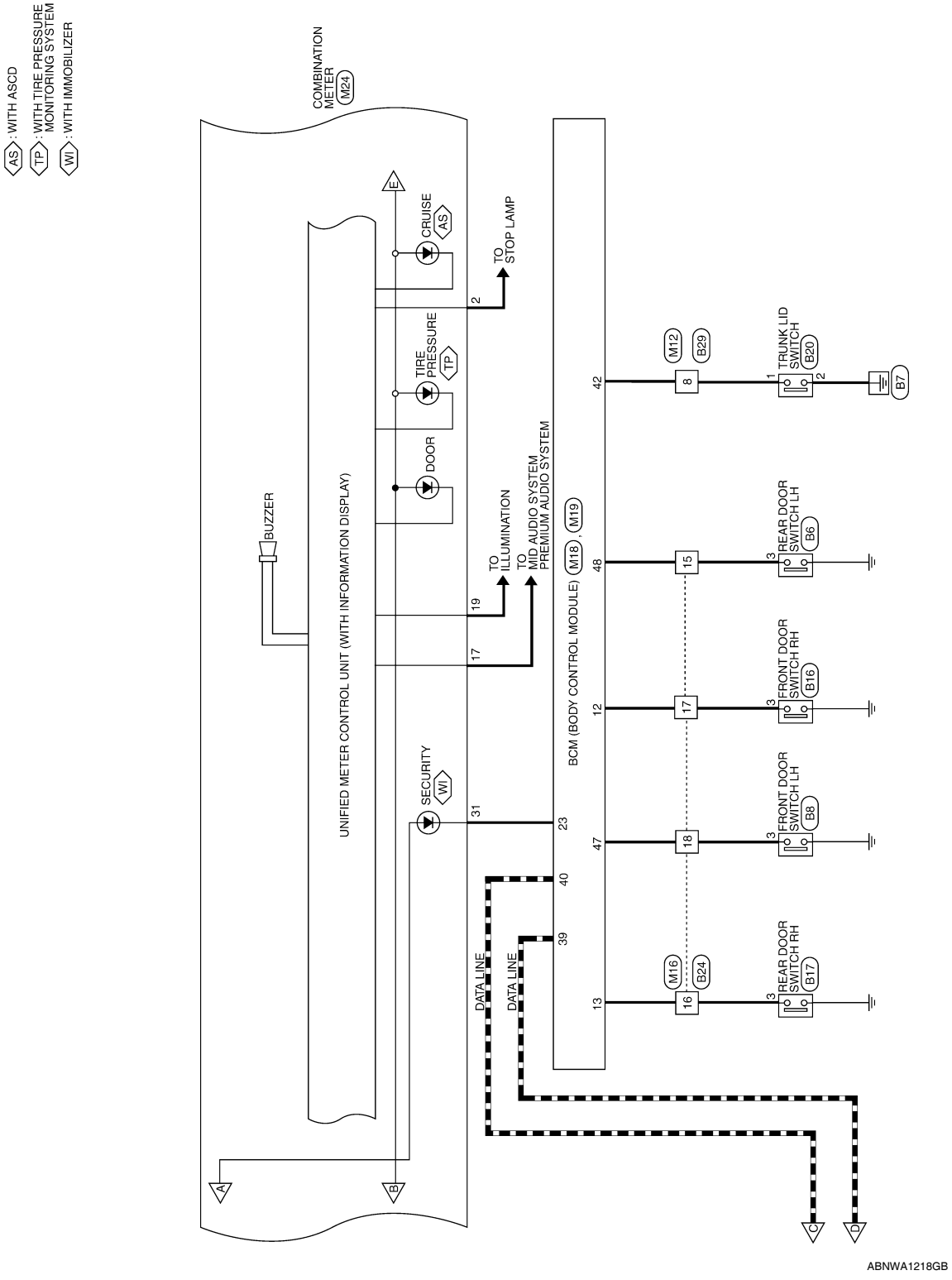
WIRING DIAGRAM

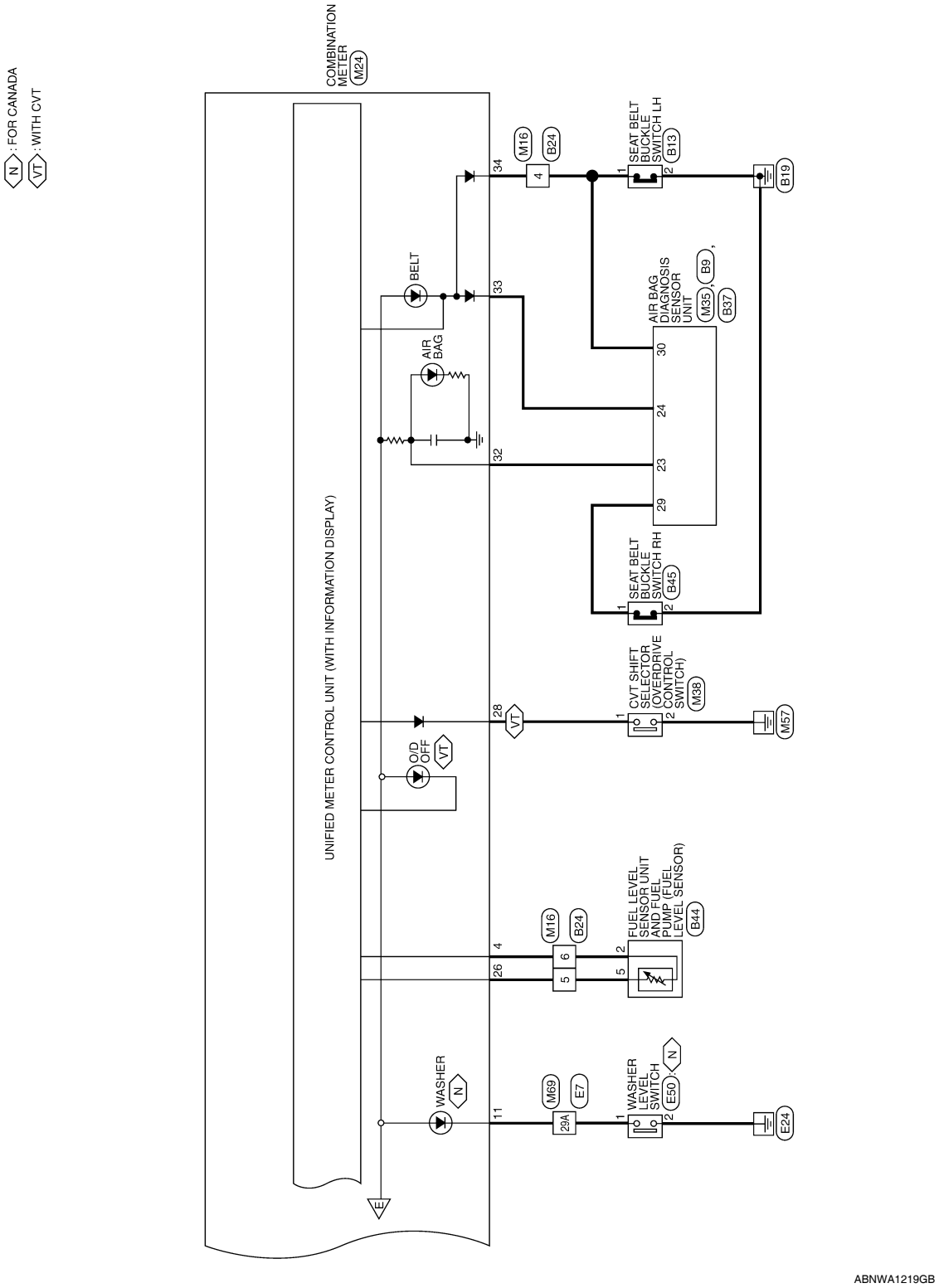
METER SYSTEM

Wiring Diagram

INFOID:0000000007206136




AS : WITH ASCD
TP : WITH TIRE PRESSURE MONITORING SYSTEM
WI : WITH IMMOBILIZER
COMBINATION METER M24
UNIFIED METER CONTROL UNIT (WITH INFORMATION DISPLAY)
BUZZER
CRUISE AS
TIRE PRESSURE TP
DOOR
SECURITY WI
TO STOP LAMP
TO ILLUMINATION
TO MID AUDIO SYSTEM PREMIUM AUDIO SYSTEM
DATA LINE
DATA LINE
BCM (BODY CONTROL MODULE) M18, M19
TRUNK LID SWITCH B20
REAR DOOR SWITCH LH B6
FRONT DOOR SWITCH RH B16
FRONT DOOR SWITCH LH B8
REAR DOOR SWITCH RH B17
M12 B29
M16 B24
B7
ABNWA1218GB



ABNWA1219GB

METER CONNECTORS -TYPE B

Connector No.	M10
Connector Name	JOINT CONNECTOR-M01
Connector Color	GRAY

H.S.

10	9	8	7	6	5	4	3	2	1
20	19	18	17	16	15	14	13	12	11

Terminal No.	Color of Wire	Signal Name
3	L	–
4	L	–
6	L	–
7	L	–
13	P	–
14	P	–
16	P	–
17	P	–

Connector No.	M12
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

7	6	5	4		3	2	1
16	15	14	13	12	11	10	9	8

Terminal No.	Color of Wire	Signal Name
8	P	–

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

H.S.

12	11	10	9	8	7	6	5	4	3	2	1
24	23	22	21	20	19	18	17	16	15	14	13

Terminal No.	Color of Wire	Signal Name
4	V	–
5	GR	–
6	W	–
15	W	–
16	LG	–
17	P	–
18	SB	–

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

H.S.

1

Terminal No.	Color of Wire	Signal Name
1	SB	–

Connector No.	M18
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

H.S.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40

Terminal No.	Color of Wire	Signal Name
12	P	DOOR SW (AS)
13	LG	DOOR SW (RR)
23	G	SECURITY INDICATE OUTPUT
39	L	CAN-H
40	P	CAN-L

Connector No.	M19
Connector Name	BCM (BODY CONTROL MODULE)
Connector Color	WHITE

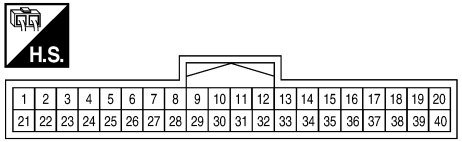
H.S.

41	42	43	44	45	46	47	48	49
50	51	52	53	54	55			

Terminal No.	Color of Wire	Signal Name
42	P	TRUNK/GLASS HATCH SW
47	SB	DOOR SW (DR)
48	W	DOOR SW (RL)

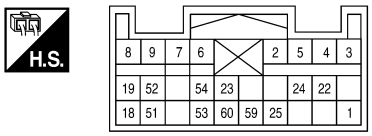
ABNIA3095GB

Connector No.	M24
Connector Name	COMBINATION METER (WITH TYPE B)
Connector Color	WHITE



Terminal No.	Color of Wire	Signal Name
1	R	BAT
2	LG	BRAKE SW
3	GR	IGN
4	W	FUEL SIG
5	–	–
6	–	–
7	–	–
8	L	CAN-H
9	–	–
10	P	CAN-L
11	V	WASHER SW
12	–	–
13	–	–
14	–	–
15	–	–
16	–	–
17	P	8P/R
18	–	–
19	B	ILL CONT OUTPUT
20	–	–
21	B	GND (POWER)
22	B	GND (CIRCUIT)
23	B/W	GND (ILL)
24	–	–
25	–	–
26	GR	FUEL GND
27	–	–
28	P	O/D OFF
29	–	–
30	–	–
31	G	SECURITY
32	V	A/BAG
33	G	AS BUCKLE SW
34	V	DR BUCKEL SW
35	Y	CHG
36	LG	BRAKE OIL SW
37	SB	PKB
38	–	–
39	–	–
40	–	–

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



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

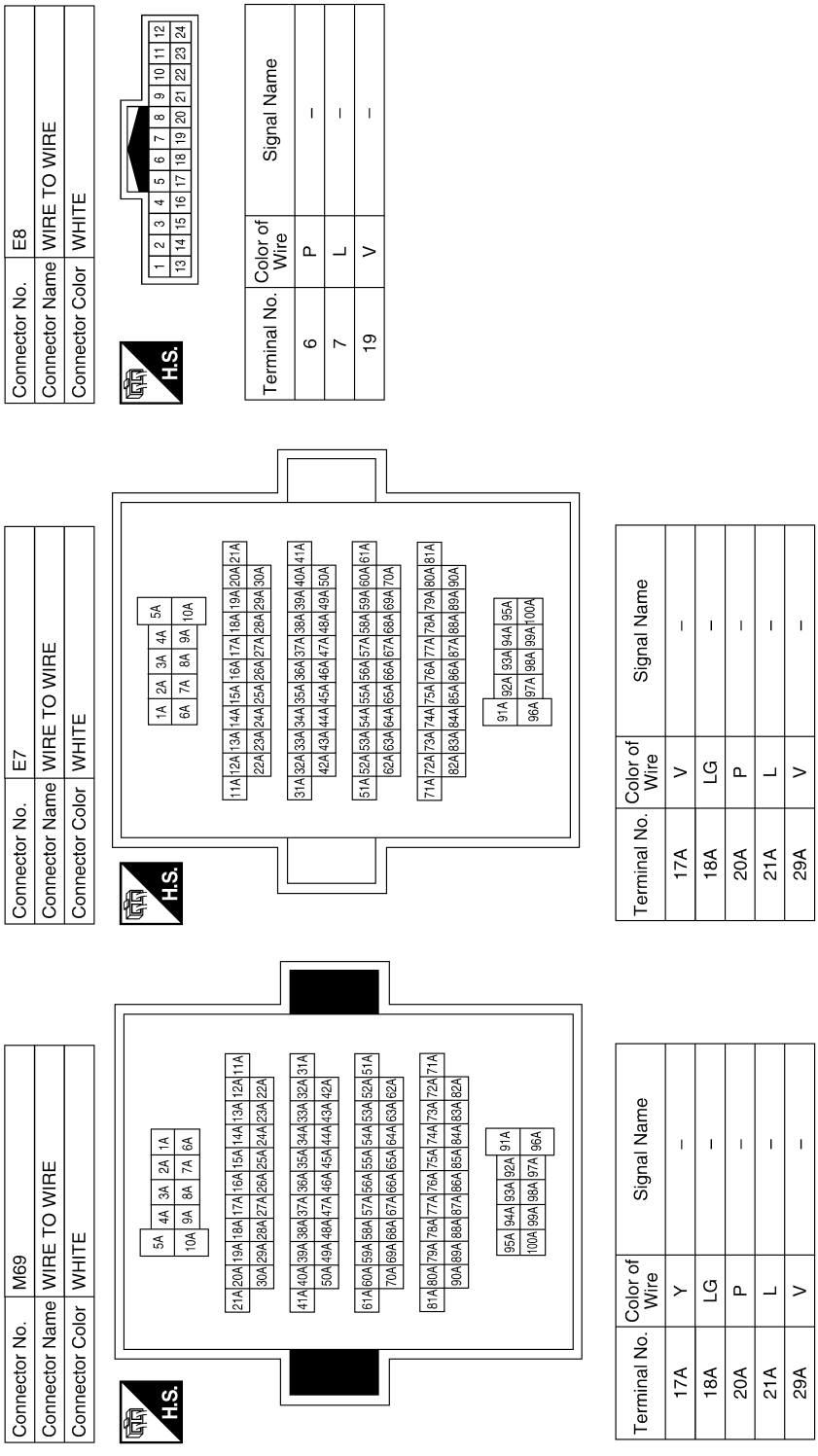
Connector No.	M38
Connector Name	CVT SHIFT SELECTOR
Connector Color	WHITE

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

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

Terminal No.	Color of Wire	Signal Name
3	P	CAN-L
8	L	CAN-H

ABNIA3096GB



ABNIA3097GB

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

H.S.

Terminal No.	Color of Wire	Signal Name
14	P	CAN-L
26	L	CAN-H

Connector No.	E16
Connector Name	ECM
Connector Color	BLACK

H.S.

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

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

H.S.

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

Connector No.	E46
Connector Name	IPDM E/R (INTELLIGENT POWER DISTRIBUTION MODULE ENGINE ROOM)
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
61	P	CAN-L
62	L	CAN-H

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

H.S.

Terminal No.	Color of Wire	Signal Name
1	P	–
2	P	–
3	P	–
4	P	–
5	P	–
8	L	–
9	L	–
10	L	–
11	L	–
12	L	–

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

H.S.

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

ABNIA3098GB

Connector No.	F1
Connector Name	GENERATOR
Connector Color	BLACK

H.S.

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

Connector No.	F4
Connector Name	GENERATOR
Connector Color	–

H.S.

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

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

H.S.

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

Connector No.	F11
Connector Name	ECM
Connector Color	BROWN

H.S.

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

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

H.S.

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

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

H.S.

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

ABNIA3099GB

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

H.S.

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

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	LG	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	V	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	R	–

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

H.S.

Terminal No.	Color of Wire	Signal Name
3	L	–

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

H.S.

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

ABNIA3100GB

Connector No.	B20
Connector Name	TRUNK LID SWITCH
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
1	P	–
2	B	–

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

H.S.

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

Connector No.	B29
Connector Name	WIRE TO WIRE
Connector Color	WHITE

H.S.

Terminal No.	Color of Wire	Signal Name
8	P	–

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

H.S.

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

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

H.S.

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

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

H.S.

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

ABNIA3101GB

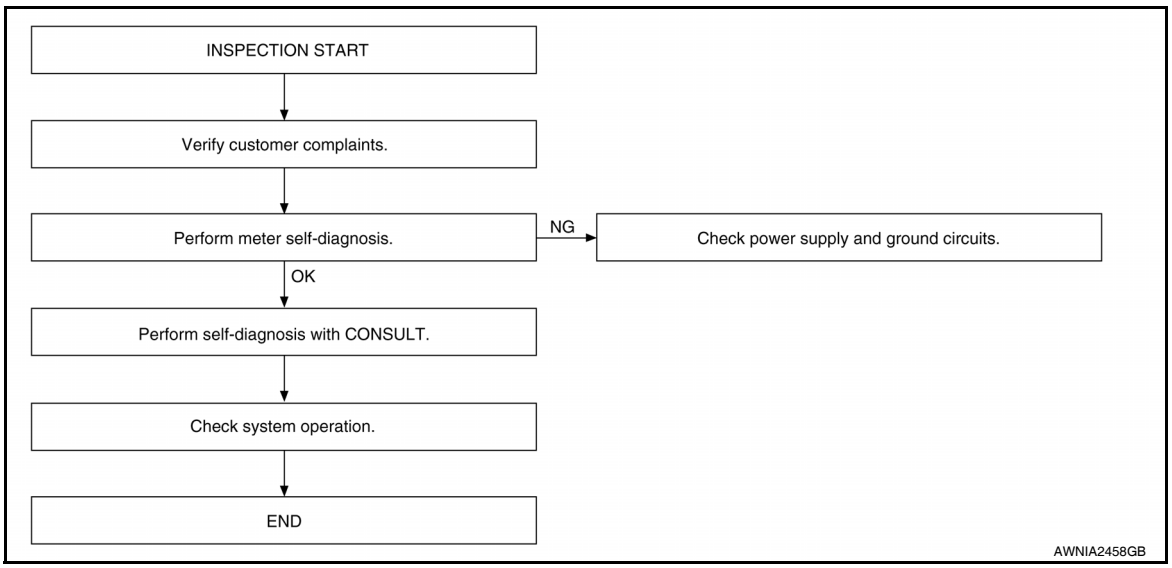
BASIC INSPECTION

DIAGNOSIS AND REPAIR WORKFLOW

Work Flow

INFOID:0000000007738555

OVERALL SEQUENCE



DETAILED FLOW

1.CONFIRM SYMPTOM

Confirm symptom or customer complaint.

>> GO TO 2

2.SELF-DIAGNOSIS OF COMBINATION METER

Perform self-diagnosis of combination meter. Refer to MWI-67, "Diagnosis Description".

Is the inspection result normal?

YES >> GO TO 3
NO >> If self-diagnosis will not start, check power supply and ground circuit of combination meter. Refer to MWI-92, "COMBINATION METER : Diagnosis Procedure". If power supply and ground circuits are OK, replace combination meter. Refer to MWI-101, "Removal and Installation".

3.CHECK COMBINATION METER WITH CONSULT

Select “METER/M&A” on CONSULT and perform self-diagnosis of combination meter. Refer to MWI-68, "CONSULT Function".

Is the inspection result normal?

YES >> Check symptom. GO TO 4.
NO >> Refer to MWI-74, "DTC Index".

4.CHECK SYSTEM OPERATION

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

Is the inspection result normal?

YES >> Inspection End.
NO >> GO TO 1

DTC/CIRCUIT DIAGNOSIS

U1000 CAN COMM CIRCUIT

DTC Logic

INFOID:0000000007738558

DTC DETECTION LOGIC

DTC	Display Item	Malfunction detected condition	Possible causes
U1000	CAN COMM CIRCUIT	When CAN communication signal is not continuously received for 2 seconds or more	CAN communication system malfunction

Diagnosis Procedure

INFOID:0000000007738559

1.CHECK DTC DETECTION

With CONSULT.
1. Turn ignition switch OFF to ON.
2. Perform self diagnostic result.

Is DTC U1000 detected?

YES >> Proceed to diagnosis procedure. Refer to LAN-14, "Trouble Diagnosis Flow Chart".
NO >> Refer to GI-38, "Intermittent Incident".

U1010 CONTROL UNIT (CAN)

Description

INFOID:0000000007733856

Initial diagnosis of combination meter.

DTC Logic

INFOID:0000000007733857

DTC DETECTION LOGIC

DTC	CONSULT	Description	Probable malfunction location
U1010	CONTROL UNIT (CAN)	Error detected during the initial diagnosis of the CAN controller of combination meter.	Combination meter

Diagnosis Procedure

INFOID:0000000007733858

1.REPLACE COMBINATION METER

Replace combination meter. Refer to MWI-101, "Removal and Installation".

>> Inspection End.

DTC B2205 VEHICLE SPEED CIRCUIT

Description

INFOID:0000000007733859

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

DTC Logic

INFOID:0000000007733860

DTC	CONSULT	Detection condition	Possible malfunction location
B2205	VEHICLE SPEED CIRC [B2205]	Malfunction is detected when an erroneous speed signal is received for 2 seconds or more.	• Combination meter • ABS actuator and electric unit (control unit)

Diagnosis Procedure

INFOID:0000000007733861

1.CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> Perform ABS actuator and electric unit (control unit) self-diagnosis. Refer to BRC-32, "CONSULT Function (ABS)".

NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

B2267 ENGINE SPEED

Description

INFOID:0000000007733862

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

DTC Logic

INFOID:0000000007733863

DTC DETECTION LOGIC

DTC	CONSULT	Diagnostic item is detected when...	Probable malfunction location
B2267	ENGINE SPEED	Malfunction is detected when an erroneous engine speed signal is recieved for 2 seconds or more.	• Crankshaft position sensor (POS) • ECM

Diagnosis Procedure

INFOID:0000000007733864

1.CHECK COMBINATION METER INPUT SIGNAL

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

Is the inspection result normal?

YES >> Perform ECM self-diagnosis. Refer to EC-59, "CONSULT Function".
NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

B2268 WATER TEMP

Description

INFOID:0000000007733865

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

DTC Logic

INFOID:0000000007733866

DTC DETECTION LOGIC

DTC	CONSULT	Detection Condition	Possible 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:0000000007733867

1.PERFORM SELF-DIAGNOSIS OF ECM

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

>> Refer to EC-59, "CONSULT Function".

POWER SUPPLY AND GROUND CIRCUIT
COMBINATION METER
COMBINATION METER : Diagnosis Procedure

INFOID:0000000007206153

Regarding Wiring Diagram information, refer to MWI-26, "Wiring Diagram".

1.CHECK FUSE

Check for blown combination meter fuses.

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

Is the inspection result normal?

YES >> GO TO 2.
NO >> Replace the fuse after repairing the affected circuit.

2.CHECK POWER SUPPLY CIRCUIT

Check voltage between combination meter harness connector and ground.
1. Turn ignition switch to OFF.
2. Disconnect combination meter connector.
3. Check voltage between combination meter harness connector M24 terminals 1, 3 and ground.

Terminals			Ignition switch position	Voltage (Approx.)
(+)		(−)		
Combination meter				
Connector	Terminal			
M24	1	Ground	ON	Battery voltage
			OFF	
	3		ON	Battery voltage
			OFF	0

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. Check continuity between combination meter harness connector M24 terminals 21, 22, 23 and ground.

Combination meter			Continuity
Connector	Terminal		
M24	21	Ground	Yes
	22		
	23		

Is the inspection result normal?

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

BCM (BODY CONTROL MODULE)

BCM (BODY CONTROL MODULE) : Diagnosis Procedure

INFOID:0000000007733000

Regarding Wiring Diagram information, refer to BCS-37, "Wiring Diagram".

1.CHECK FUSES AND FUSIBLE LINK

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

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

Is the fuse blown?

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

2.CHECK POWER SUPPLY CIRCUIT

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

BCM			Ignition switch position		
Connector	Terminal		OFF	ACC	ON
M20	57	Ground	Battery voltage	Battery voltage	Battery voltage
	70				
M18	11		0 V	Battery voltage	Battery voltage
	38		0 V	0 V	Battery voltage

Is the inspection result normal?

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

3.CHECK GROUND CIRCUIT

Check continuity between BCM connector and ground.

BCM			Continuity
Connector	Terminal		
M20	67	Ground	Yes

Is the inspection result normal?

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

FUEL LEVEL SENSOR SIGNAL CIRCUIT

Description

INFOID:0000000007705971

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

Component Function Check

INFOID:0000000007705972

1.COMBINATION METER INPUT SIGNAL

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

Fuel gauge indication position	Reference value of data monitor [L]
1	Approx. 41.1
3/4	Approx. 30.8
1/2	Approx. 20.5
1/4	Approx. 10.2
0	Approx. 2.5

Does monitor value match fuel gauge reading?

YES >> Inspection End.
NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

Diagnosis Procedure

INFOID:0000000007705973

Regarding Wiring Diagram information, refer to MWI-76, "Wiring Diagram".

1.CHECK HARNESS CONNECTOR

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

Is the inspection result normal?

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

2.CHECK FUEL LEVEL SENSOR UNIT CIRCUIT

1. Disconnect combination meter harness connector M24 and fuel level sensor unit and fuel pump harness connector B44.
2. Check continuity between combination meter harness connector M24 terminal 4 and fuel level sensor unit and fuel pump harness connector B44 terminal 2.

Connector	Terminal	Connector	Terminal	Continuity
M24	4	B44	2	Yes

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

Connector	Terminal	Ground	Continuity
B44	2		No

Is the inspection result normal?

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

3.CHECK FUEL LEVEL SENSOR GROUND CIRCUIT

1. Check continuity between combination meter harness connector M24 terminal 26 and fuel level sensor unit and fuel pump harness connector B44 terminal 5.

Connector	Terminal	Connector	Terminal	Continuity
M24	26	B44	5	Yes

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

Connector	Terminal	Ground	Continuity
B44	5		No

Is the inspection result normal?

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

4.CHECK INSTALLATION CONDITION

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

Is the inspection result normal?

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

Component Inspection

INFOID:0000000007705974

1.REMOVE FUEL LEVEL SENSOR UNIT

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

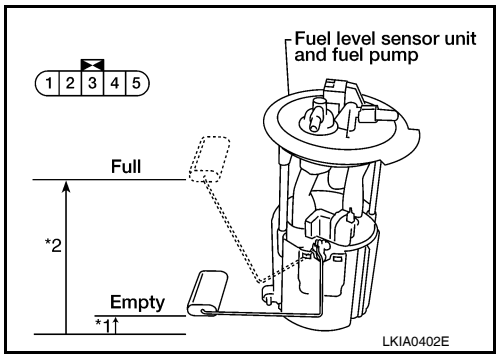
>> GO TO 2.

2.CHECK FUEL LEVEL SENSOR UNIT

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

Terminals		Condition	Resistance (Ω) (Approx.)	Height [mm (in)]
Fuel level sensor unit				
2	5	Full* (2)	91	177 (6.97)
		Empty* (1)	283	15 (0.59)

*: When float rod is in contact with stopper.



Is inspection result OK?

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

WASHER LEVEL SWITCH SIGNAL CIRCUIT

Description

INFOID:0000000007733007

Transmits the washer level switch signal to the combination meter.

Diagnosis Procedure

INFOID:0000000007733008

Regarding Wiring Diagram information, refer to MWI-76, "Wiring Diagram".

1.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

1. Turn ignition switch OFF.
2. Disconnect combination meter connector and washer fluid level switch connector.
3. Check continuity between combination meter harness connector M24 terminal 11 and washer fluid level switch harness connector E50 terminal 1.

11 - 1 : Continuity should exist.

4. Check continuity between combination meter harness connector M24 terminal 11 and ground.

11 - Ground : Continuity should not exist.

Is the inspection result normal?

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

2.CHECK WASHER FLUID LEVEL SWITCH GROUND CIRCUIT

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

2 - Ground : Continuity should exist.

Is the inspection result normal?

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

Component Inspection

INFOID:0000000007733009

1.CHECK WASHER FLUID LEVEL SWITCH

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

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

Is the inspection result normal?

YES >> Inspection End.
NO >> Replace washer fluid level switch.

SYMPTOM DIAGNOSIS

THE FUEL GAUGE INDICATOR DOES NOT OPERATE

Description

INFOID:0000000007705975

Fuel gauge will not indicate from a certain position.

Diagnosis Procedure

INFOID:0000000007705976

1.CHECK COMBINATION METER INPUT SIGNAL

1. Select METER/M&A on CONSULT.
2. Using “DATA MONITOR, compare the monitor value with the fuel gauge reading on the combination meter. Refer to MWI-94, "Component Function Check".

Does monitor value match fuel gauge reading?

YES >> GO TO 2.
NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

2.CHECK FUEL LEVEL SENSOR SIGNAL CIRCUIT

Check the fuel level sensor signal circuit. Refer to MWI-94, "Diagnosis Procedure".

Is the inspection result normal?

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

3.COMPONENT INSPECTION

Perform a component inspection on the fuel level sensor unit. Refer to MWI-95, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 4.
NO >> Replace fuel level sensor unit. Refer to FL-5, "Removal and Installation".

4.CHECK FLOAT INTERFERENCE

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

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-101, "Removal and Installation".
NO >> Repair or replace malfunctioning parts.

THE OIL PRESSURE WARNING LAMP DOES NOT TURN ON

Description

INFOID:0000000007705977

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

Diagnosis Procedure

INFOID:0000000007705978

1.CHECK COMBINATION METER OIL PRESSURE WARNING LIGHT

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

Component	Condition	CONSULT
Oil pressure warning light	Ignition ON	ON
	Ignition OFF	OFF

Is the inspection result normal?

YES >> Inspection end.
NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

THE OIL PRESSURE WARNING LAMP DOES NOT TURN OFF

Description

INFOID:0000000007705980

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

Diagnosis Procedure

INFOID:0000000007705981

1.CHECK COMBINATION METER INPUT SIGNAL

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

Component	Condition	CONSULT
Oil pressure warning light	Engine running	OFF

Is the inspection result normal?

YES >> Perform ECM self-diagnosis. Refer to HAC-42, "Diagnosis Procedure".
NO >> Replace combination meter. Refer to MWI-101, "Removal and Installation".

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

Description

INFOID:0000000007733012

- 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:0000000007733013

1.CHECK WASHER FLUID LEVEL SWITCH

Perform a unit check for the washer fluid level switch. Refer to MWI-96, "Component Inspection".

Is the inspection result normal?

YES >> GO TO 2
NO >> Replace washer level switch.

2.CHECK WASHER FLUID LEVEL SWITCH SIGNAL CIRCUIT

Check the washer fluid level switch signal circuit. Refer to MWI-96, "Diagnosis Procedure".

Is the inspection result normal?

YES >> Replace combination meter. Refer to MWI-101, "Removal and Installation".
NO >> Repair harness or connector.

REMOVAL AND INSTALLATION

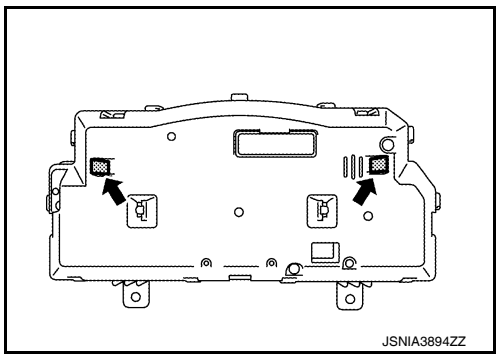
COMBINATION METER

Removal and Installation

INFOID:0000000007206170

REMOVAL

1. Disconnect the negative battery terminal. Refer to PG-61, "Removal and Installation".
2. Remove the cluster lid A. Refer to IP-19, "Removal and Installation".
3. Remove the screws of the combination meter.
4. Pull the combination meter straight to disengage resin clips. (The figure shows the clip positions on the back of the combination meter.)
   CAUTION:
   Never damage the front cover.



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

INSTALLATION

Installation is in the reverse order of removal.

UNIT DISASSEMBLY AND ASSEMBLY

COMBINATION METER

Exploded View

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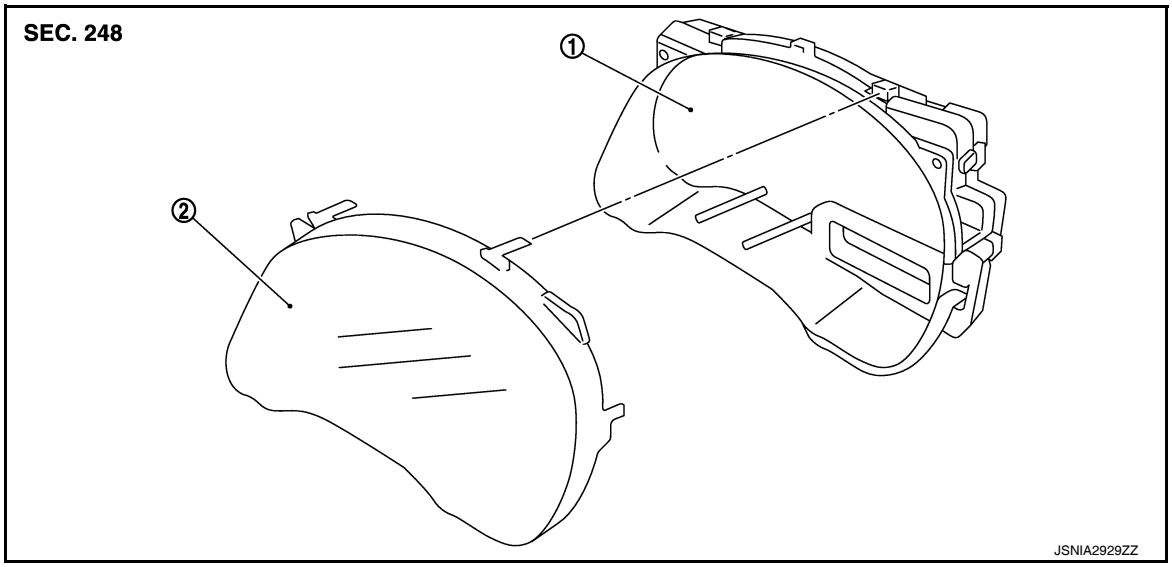

1. Unified meter control unit
2. Front cover

Disassembly and Assembly

INFOID:0000000007206171

DISASSEMBLY

1. Disengage the tabs to separate front cover, using suitable tool.
2. Pull the front cover straight to remove it from the unified meter control unit.
   CAUTION:
   - **Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.**
   - **Keep away from magnetic sources.**
   - **Never damage the front cover.**

ASSEMBLY

Assembly is in the reverse order of disassembly.

CAUTION:

- **Never touch the display, pointer, the inside of front cover and the printed area of the dial during the work.**
- **Keep away from magnetic sources.**
- **Never damage the front cover.**