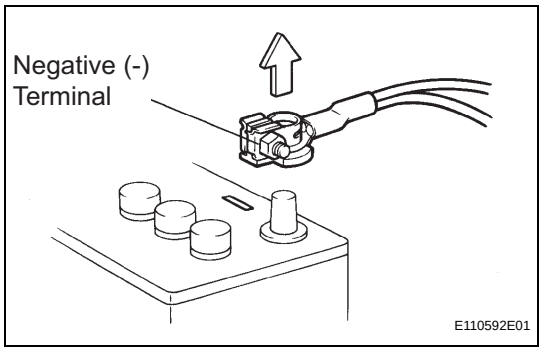


METER / GAUGE SYSTEM

PRECAUTION

1. REMOVAL AND INSTALLATION OF THE BATTERY TERMINAL

(a) Before performing electrical work, disconnect the battery negative (-) terminal in order to prevent a short in the system.

(b) When disconnecting and reconnecting the battery cable, turn the ignition switch and lighting switches off and loosen the terminal nut completely. Perform these operations without prying on the terminal.

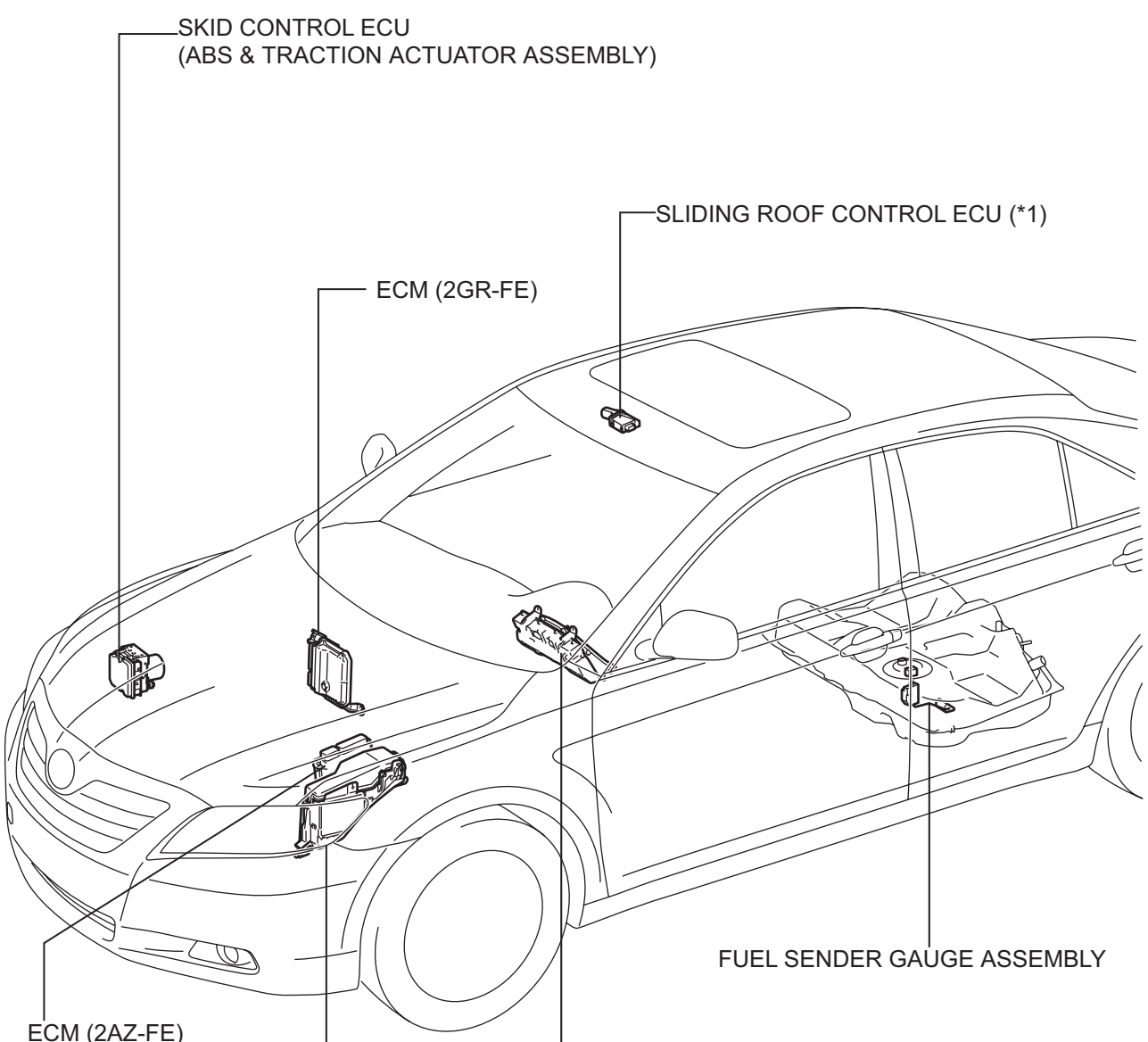
2. EXPRESSIONS OF IGNITION SWITCH

The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

Switch Type / Expression	Ignition Switch (position)	Engine Switch (condition)
Ignition switch off	LOCK	Off
Ignition switch on (IG)	ON	On (IG)
Ignition switch on (ACC)	ACC	On (ACC)
Engine start	START	Start

F053330E02

PARTS LOCATION



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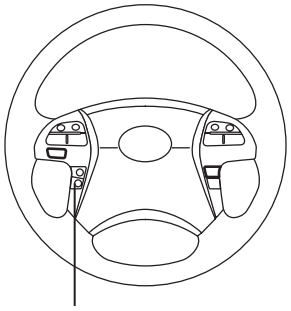
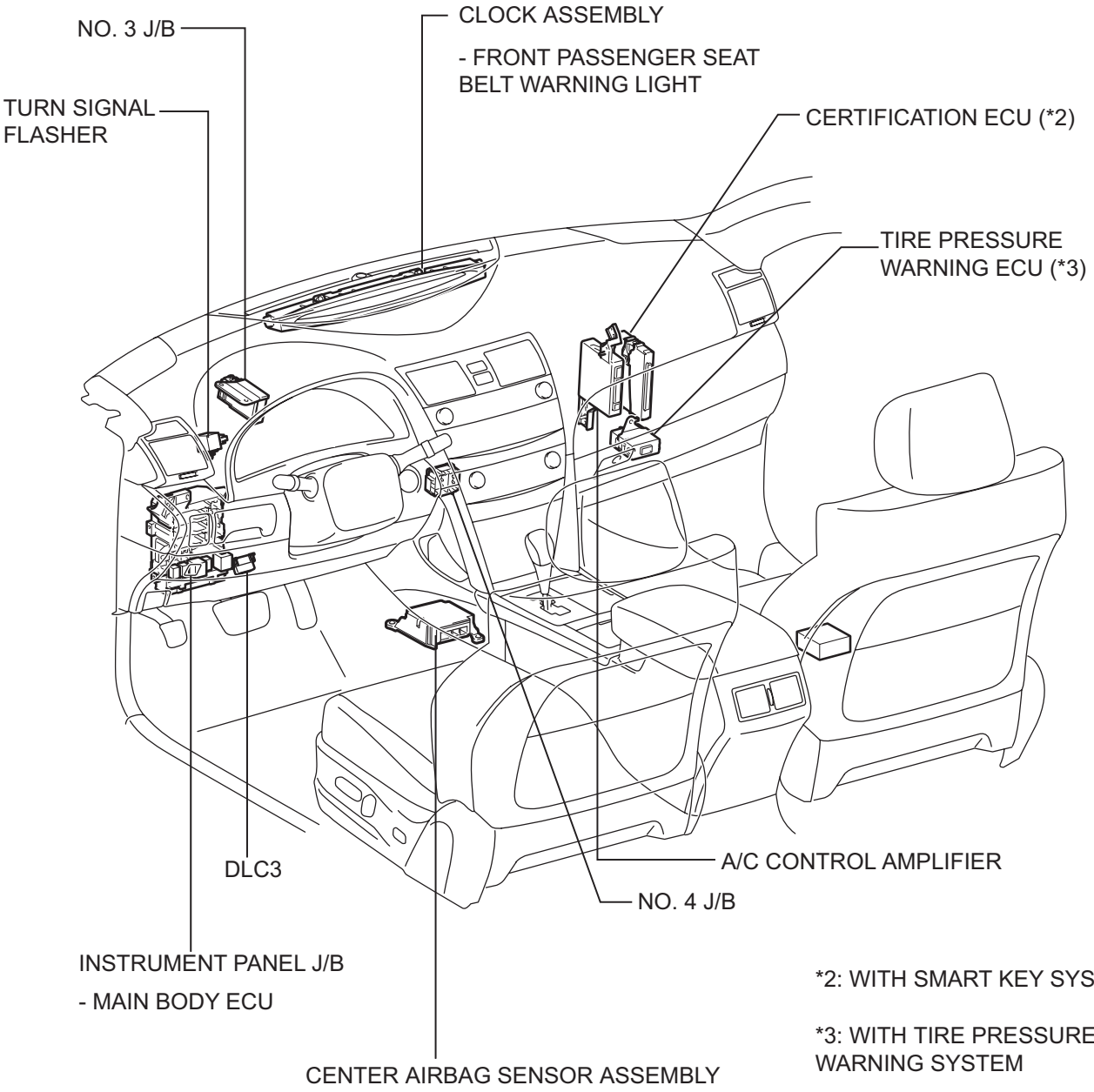
FOR 4 SPOKE MODEL:



STEERING PAD SWITCH



*2: WITH SMART KEY SYSTEM

*3: WITH TIRE PRESSURE WARNING SYSTEM

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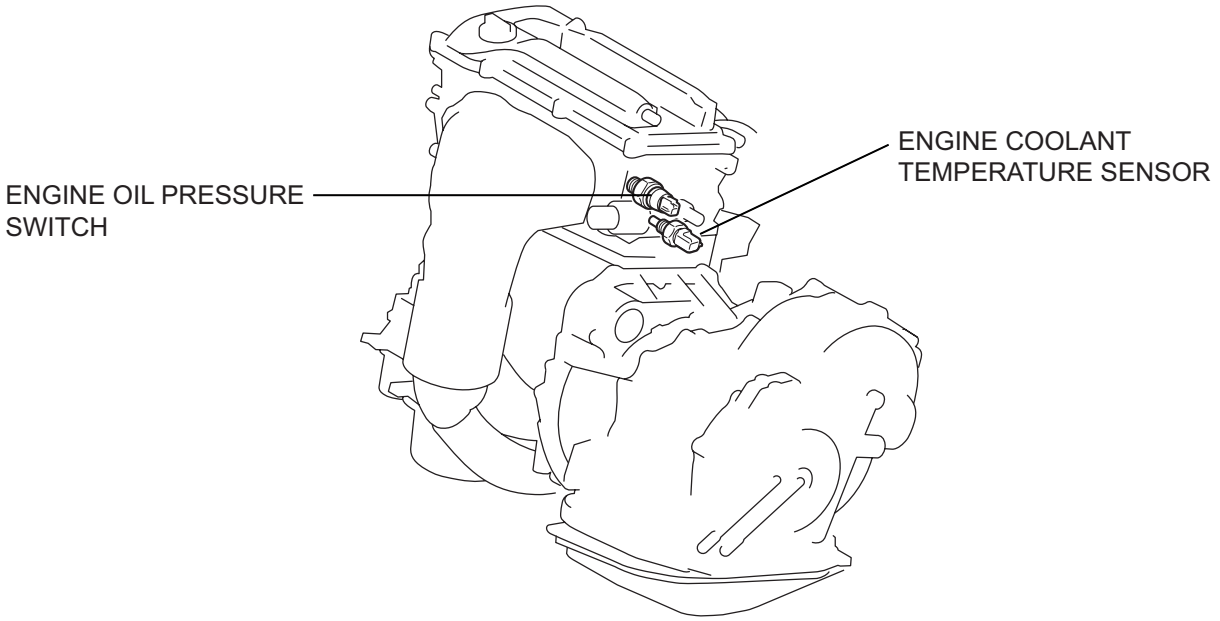
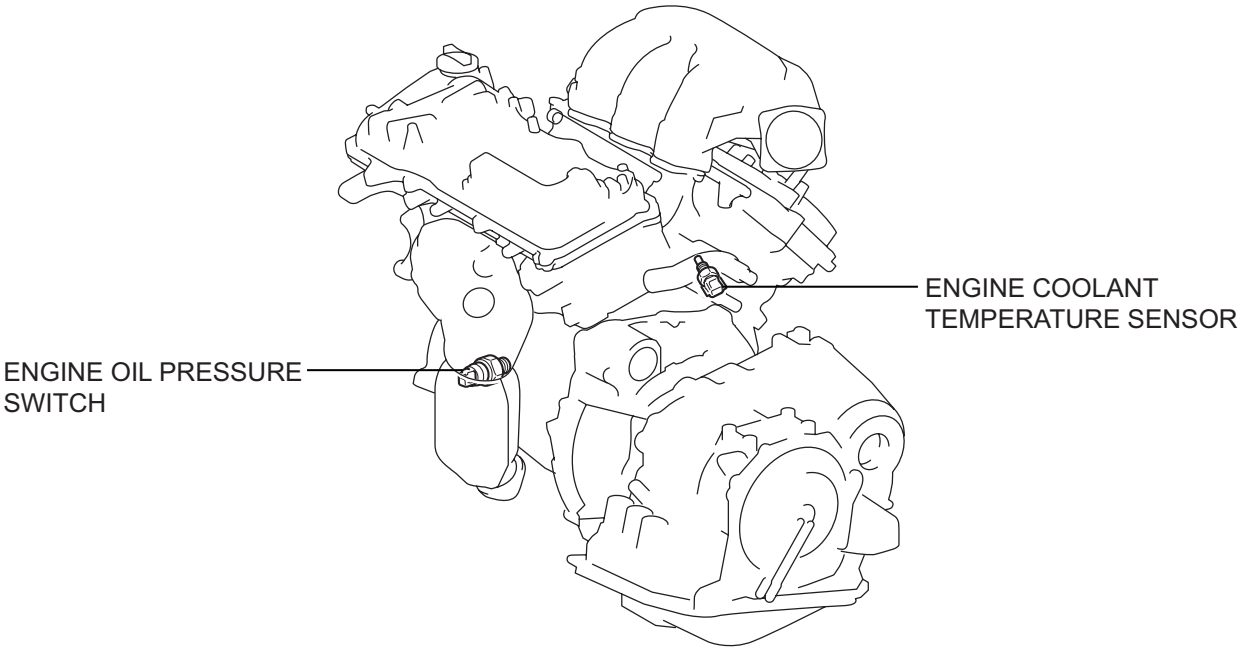
2AZ-FE:



2GR-FE:



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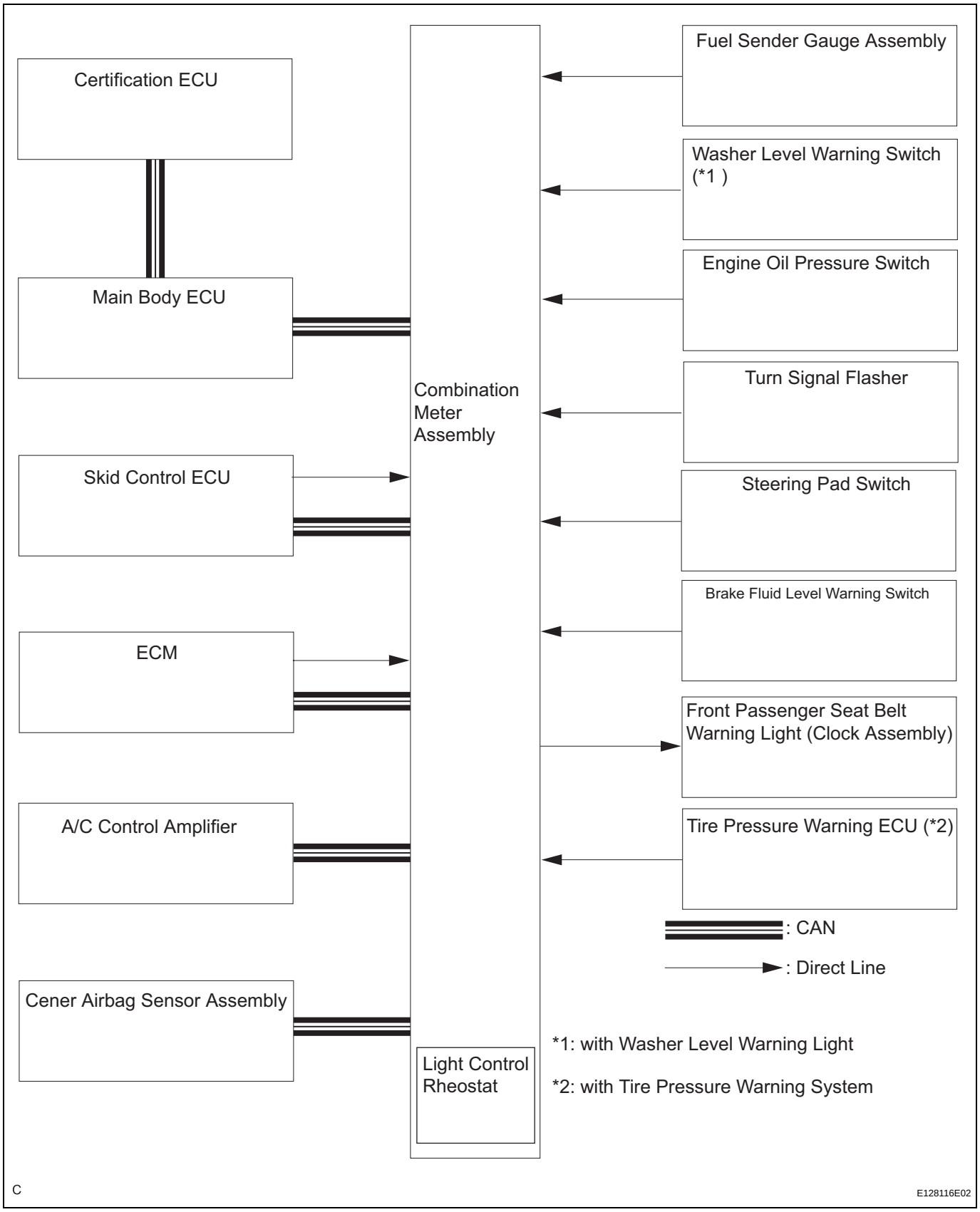
SYSTEM DIAGRAM



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INPUT AND OUTPUT SIGNALS OF THE COMBINATION METER ASSEMBLY:

Sender	Receiver	Communication Signal	Communication Line
Combination Meter Assembly	• ECM • A/C Control Amplifier • Center Airbag Sensor Assembly • Main Body ECU	Vehicle speed signal	CAN (CAN No. 1 Bus)
	Certification ECU		CAN (CAN MS Bus)
	• Main Body ECU • A/C Control Amplifier	Rheostat duty signal	CAN (CAN No. 1 Bus)
		Tail cancel signal	
	Main Body ECU	Lounge illumination signal	CAN (CAN No. 1 Bus)
	• Center Airbag Sensor Assembly • ECM	Vehicle specification signal (Destination/Handle code)	CAN (CAN No. 1 Bus)
	Certification ECU	Odometer signal	CAN (CAN MS Bus)
	Clock assembly	Passenger seat belt warning light signal	Direct Line
ECM	Combination Meter Assembly	Starter signal	CAN (CAN No. 1 Bus)
		Test mode signal	
		Cruise operation indicator	
		Cruise control warning	
		Charge light indicator	
		TM oil temperature range	
		Engine coolant temperature signal	
		Engine type information	
		Shift position signal (*1)	
		Reject buzzer signal	
		Gear position signal	
		Sports mode indicator (*1)	
		Engine RPM data	
Main Body ECU	Combination Meter Assembly	Illuminance data	CAN (CAN No. 1 Bus)
		Auto dimmer signal	
		ACC switch signal	
		Key switch signal	
		Each door courtesy switch signal	
		Slide roof signal (*2)	
		Smart key signal (*3)	
		Driver side seat belt switch signal	
		Parking brake switch signal	
		High beam indicator light signal	
		Head (*4)/Tail (*5) indicator light signal	
		Front fog indicator light signal	
• Main Body ECU • Certification ECU	Combination Meter Assembly	Hood courtesy switch signal	CAN (CAN MS Bus)

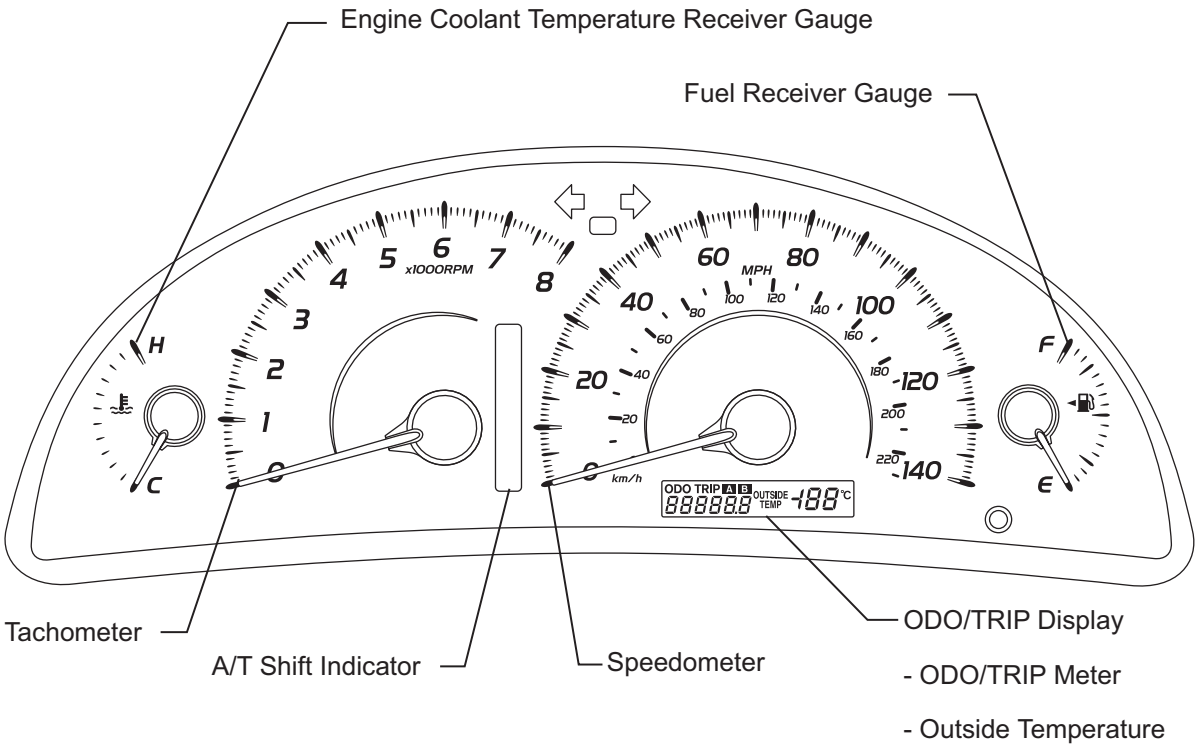
Sender	Receiver	Communication Signal	Communication Line
Certification ECU	Combination Meter Assembly	Meter buzzer request signal	CAN (CAN MS Bus)
		Each door open display signal	
		Key lose warning signal (*3)	
		Low key battery warning signal (*3)	
		Shift position warning signal	
		Steeling lock abnormal warning (*3)	
		Steeling lock unlock warning (*3)	
		Immobiliser Key Identification Completion	
Skid Control ECU	Combination Meter Assembly	Vehicle speed signal	CAN (CAN No. 1 Bus)
		Brake Warning light Control Flag	
		ABS Warning Light signal	
		Slip Indicator light signal (*6)	
		VSC Warning light signal (*6)	
• ECM • Skid Control ECU	Combination Meter Assembly	Diagnosis signal	CAN (CAN No. 1 Bus)
A/C Control Amplifier	Combination Meter Assembly	Ambient temperature display signal	CAN (CAN No. 1 Bus)
Center Airbag Sensor Assembly	Combination Meter Assembly	Airbag warning light signal	CAN (CAN No. 1 Bus)
		Front passenger seat condition signal	Direct Line
		Front passenger seat belt condition signal	
Steering Pad Switch	Combination Meter Assembly	Steering pad switch operation signal	Direct Line
Oil Pressure Switch	Combination Meter Assembly	Engine oil pressure warning light signal	Direct Line
Fuel Sender Gauge Assembly	Combination Meter Assembly	Fuel level signal	Direct Line
Turn Signal flasher	Combination Meter Assembly	Turn LH/RH indicator light signal	Direct Line
Tire Pressure Warning ECU (*7)	Combination Meter Assembly	Tire pressure warning light signal	Direct Line
Washer Level Switch (*8)	Combination Meter Assembly	Washer fluid level warning light signal	Direct Line
Brake Fluid Level Warning Switch	Combination Meter Assembly	Brake fluid level warning light signal	Direct Line

*1: for Automatic Transaxle
*2: with Sliding Roof
*3: with Smart Key System
*4: for U.S.A.
*5: for Canada
*6: with VSC
*7: with Tire Pressure Warning System
*8: with Washer Level Warning Light

SYSTEM DESCRIPTION

1. METER GAUGE

without Multi-information Display:



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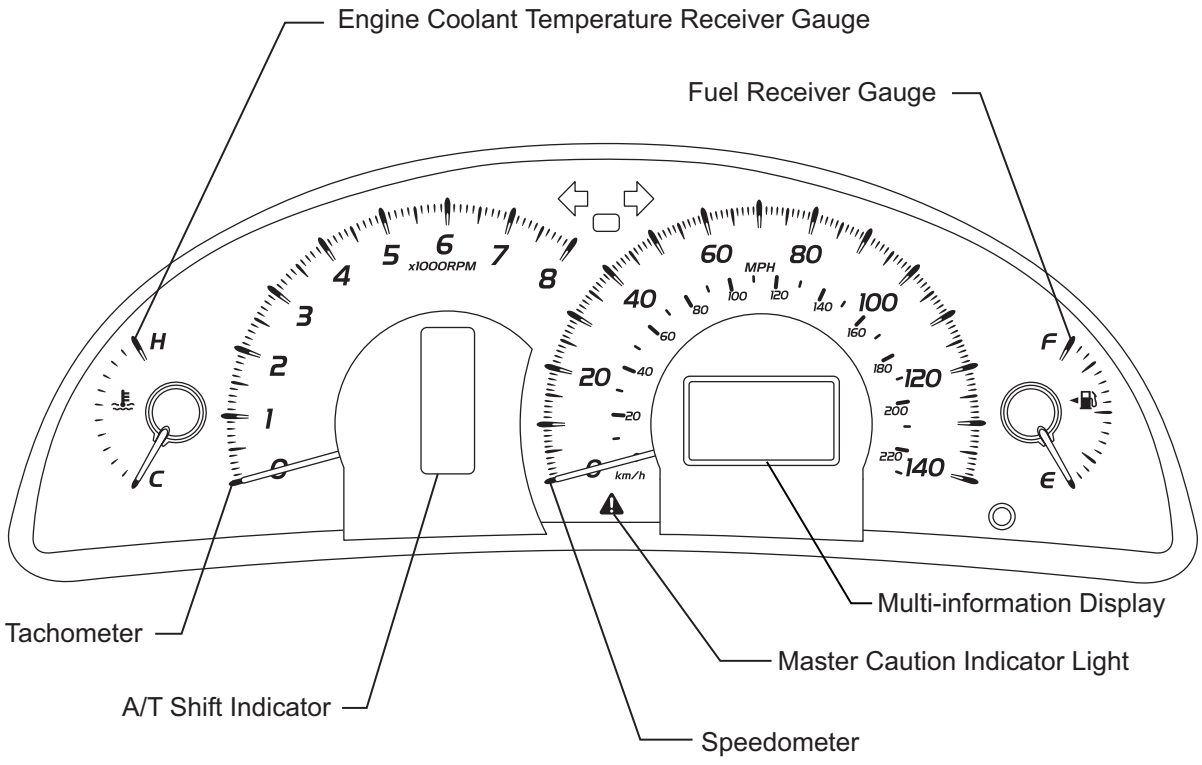
with Multi-information Display:



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METER GAUGE:

Item	Detail
Speedometer	Indicates the vehicle speed receiving a signal from the skid Control ECU. (CAN (CAN No. 1 Bus))
Tachometer	Indicates the engine speed based on a signal received from the ECM. (CAN (CAN No. 1 Bus))
Engine Coolant Temperature Receiver Gauge	Indicates the engine coolant temperature based on a signal received from the ECM. (CAN (CAN No. 1 Bus))
Fuel Receiver Gauge	Indicates the fuel level based on a signal the fuel sender gauge. (Direct Line)

WARNING/INDICATOR:

Item	Detail
TURN SIGNAL	Receives a turn signal from the turn signal flasher. (Direct Line)
BEAM	Receives a beam signal from the main body ECU. (CAN (CAN No. 1 Bus))
CHARGE	Receives a charge light signal from the alternator L terminal. (Direct Line)
CHECK E/G	Receives a check engine light signal from the ECM. (Direct Line)
DOOR	Open door indicator light comes on receiving a door condition signal from the main body ECU. (CAN (CAN MS Bus))
D-BELT	Receives a driver side seat belt signal from the center airbag sensor assembly. (CAN (CAN No. 1 Bus))
P-BELT	Receives a passenger side seat belt signal from the center airbag sensor assembly via the main body ECU (CAN) and transmits a passenger side seat belt condition signal to the clock assembly. (Direct Line)
HEAD (*1)	Receives a HEAD indicator light signal from main body ECU. (CAN (CAN No. 1 Bus))
TAIL (*2)	Receives a TAIL indicator light signal from the main body ECU. (CAN (CAN No. 1 Bus))
A/T SHIFT	Receives an A/T shift condition and A/T gear position signal from the park/neutral position switch and the ECM. (CAN (CAN No. 1 Bus))
FUEL	Receives a fuel signal from the fuel sender gauge. (Direct Line)
ABS	Receives an ABS signal from the skid Control ECU. (CAN (CAN No. 1 Bus))

Item	Detail
SLIP (*3)	Receives a SLIP signal from the skid Control ECU. (CAN (CAN No. 1 Bus))
VSC (*3)	Receives a VSC signal from the skid Control ECU. (CAN (CAN No. 1 Bus))
BRAKE	Receives a brake signal from the brake fluid level warning switch (Direct Line) and the skid Control ECU and main body ECU. (CAN (CAN No. 1 Bus))
CRUISE	Receives a cruise signal from the ECM. (CAN (CAN No. 1 Bus))
AIRBAG	Receives an airbag signal from the center airbag sensor assembly. (CAN (CAN No. 1 Bus))
Oil pressure	Receives an oil pressure signal from the engine oil pressure switch. (Direct Line)
Tire pressure (*4)	Receives a tire pressure signal from the tire pressure warning ECU. (Direct Line)
Washer (*5)	Receives a washer signal from the washer level warning switch. (Direct Line)
Maintenance required (*1)	An oil change reminder light comes on/blinks to remind the driver to change the engine oil depending on the vehicle driving distance.

*1: for U.S.A.
*2: except for U.S.A.
*3: with VSC
*4: with Tire Pressure Warning System
*5: with Washer Level Indicator

HINT:

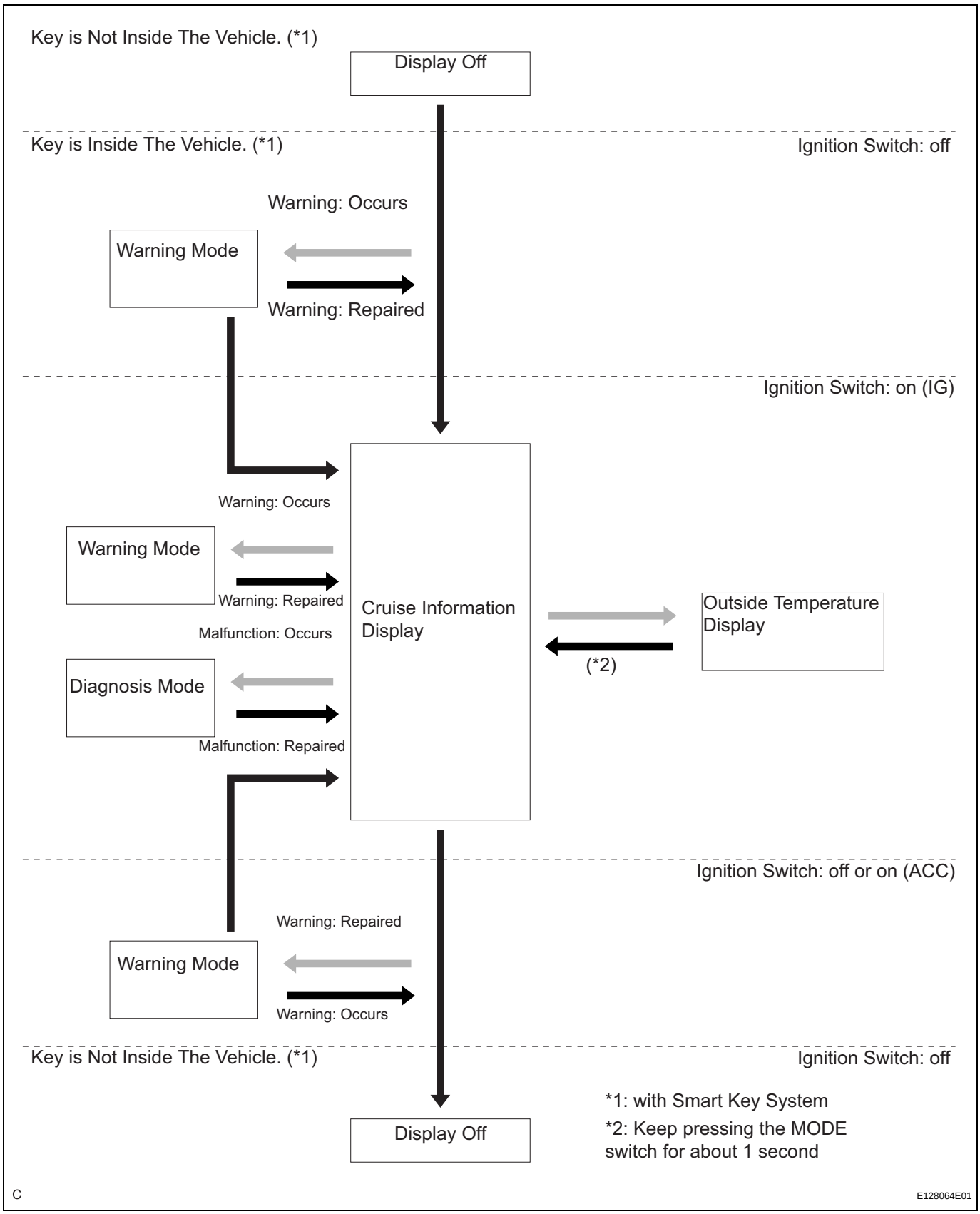
- The multi-information display has been located in the center of the combination meter assembly.
- The display shows a message or animation for each of the functions described in the table below.

MULTI-INFORMATION DISPLAY:

Item	Detail
Door warning	When a door (driver/passenger/rear left/rear right/back/hood) of the vehicle is opened or closed, this item displays a warning message and animation to inform the driver of the condition of the door.
Maintenance required (*1)	• A maintenance required will display the warning message to remind the driver to change the engine oil depending on the vehicle driving distance. • Displays the mode while in the maintenance request reset mode.
ODO/TRIP display	• This display switches between odometer, trip meter A, and trip meter B in accordance with the operation of the ODO/TRIP switch. • It is possible to reset the trip display to keep pressing the trip reset knob for 0.8 second or more.
Outside temperature display	Displays the outside temperature in accordance with the ambient temperature signal from the A/C control amplifier.
Average fuel consumption (after refueling)	• Displays the value that has been calculated by the meter CPU, which is based on the driven distance and the fuel consumption volume after the ignition switch is on (IG). • The average fuel consumption exceeds 99.9 or more, the indication will be "99.9".
Possible running distance	Displays the value that has been calculated by the meter CPU, which is based on the the fuel consumption volume, fuel level, and vehicle speed.
Cruising distance	Displays the cruising distance after starting the engine.
Average vehicle speed	Displays the average vehicle speed after starting the engine.
Warning message	Illuminates or blinks the master warning light and displays a warning message for each type of system failure.
DTC (Diagnostic Trouble Code) display (*3)	Displays the DTCs pertaining to the VSC function.

*1: for U.S.A.
*2: Except for U.S.A.
*3: with VSC

2. MULTI-INFORMATION DISPLAY



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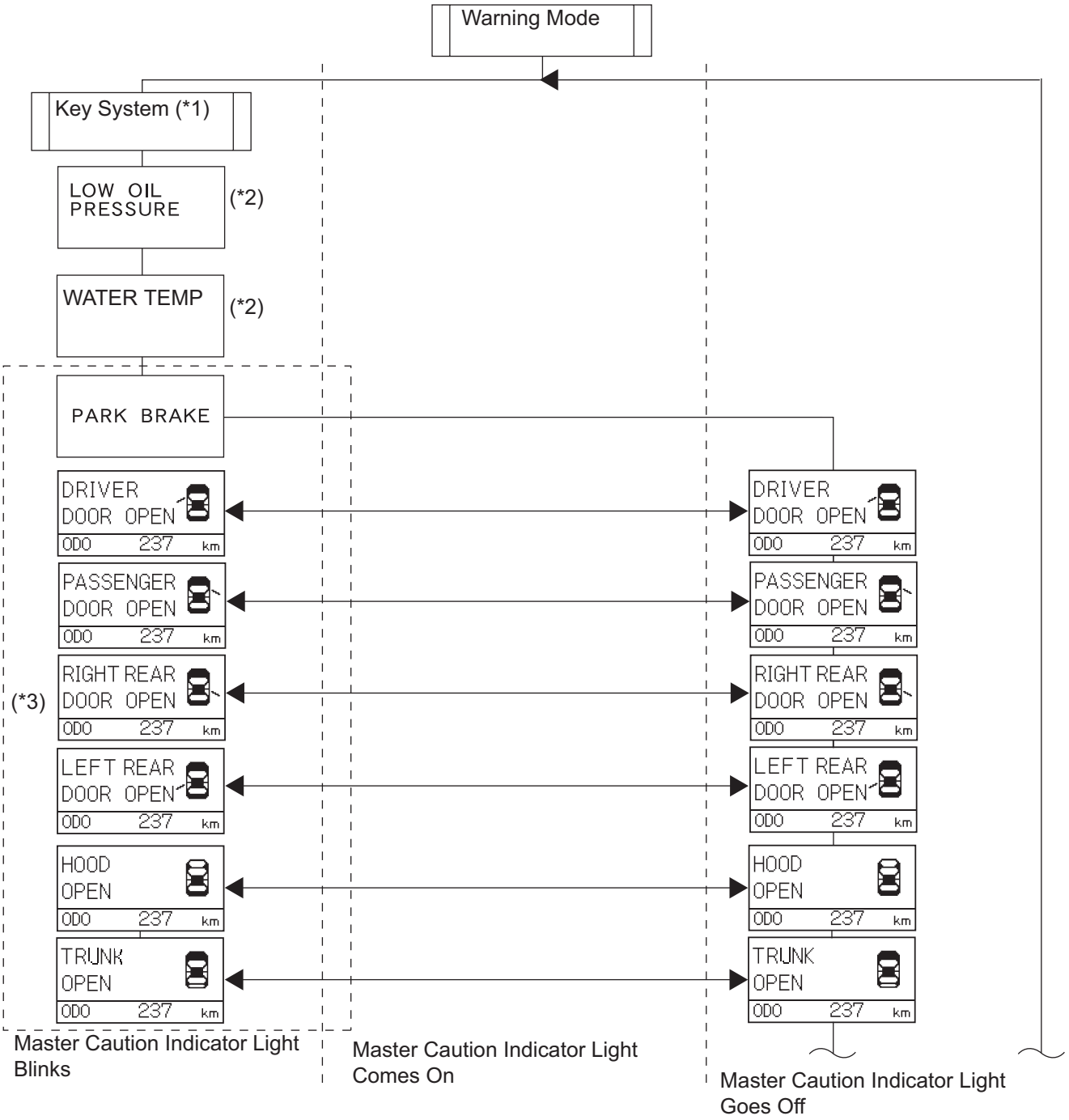

*1: with Smart Key System

*2: Warning buzzer sounds when the indication appears.

*3: When the vehicle speed is 5 km/h (3mph) or more, the waring buzzer sounds.

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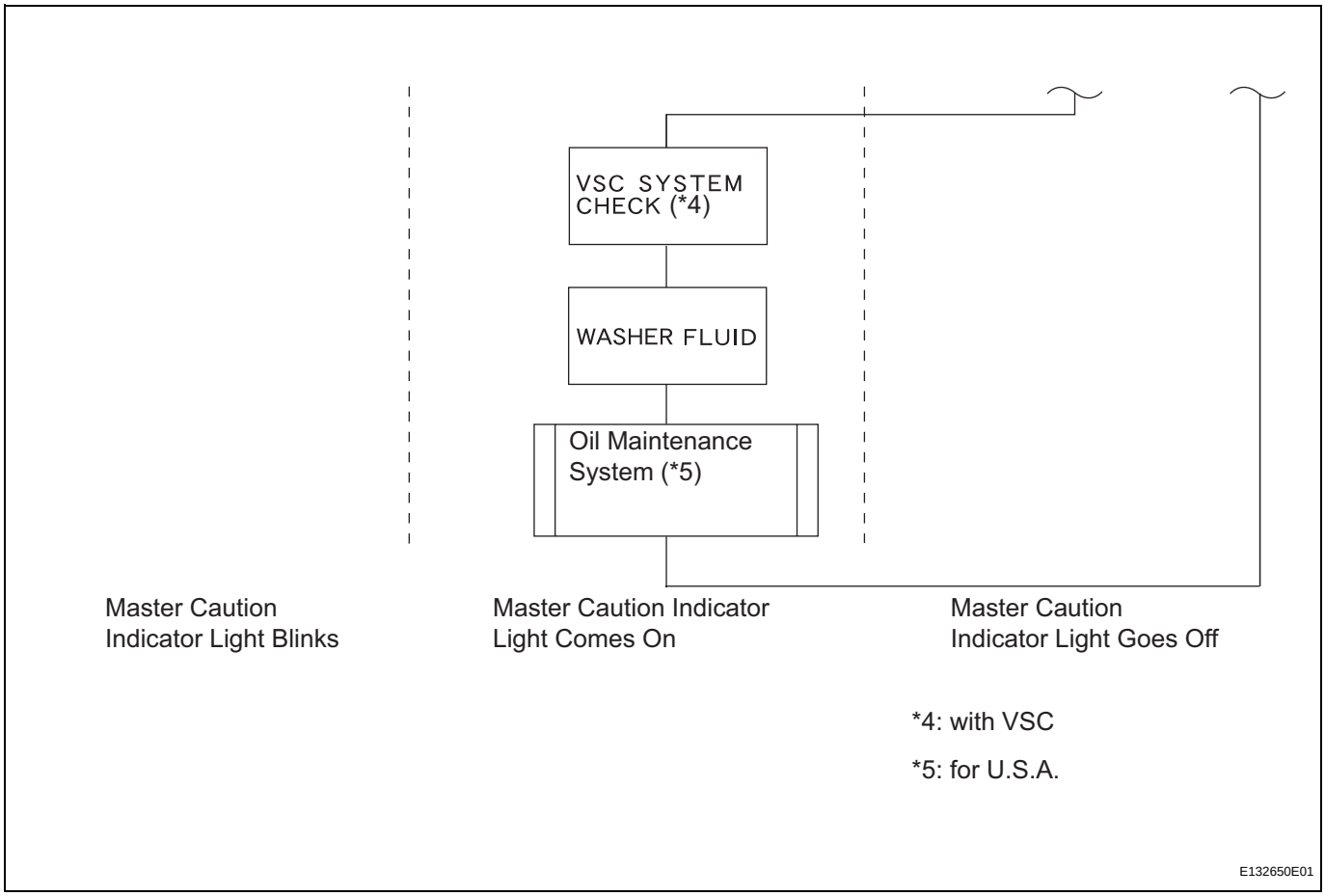
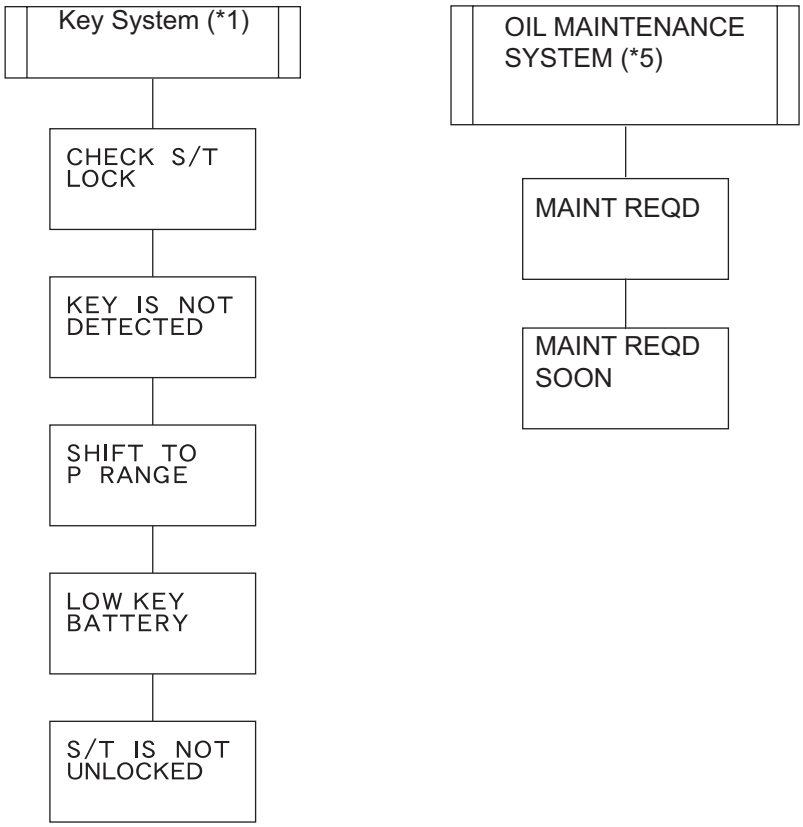

VSC SYSTEM CHECK (*4)
WASHER FLUID
Oil Maintenance System (*5)
Master Caution Indicator Light Blinks
Master Caution Indicator Light Comes On
Master Caution Indicator Light Goes Off
*4: with VSC
*5: for U.S.A.
E132650E01



3. DIAGNOSIS SYSTEM

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HINT:

- The multi-information display shows "DIAG" when turn the ignition switch on (IG) (See page BC-141 for Advics, BC-302 for Bosch).
- Diagnosis information can be displayed on the multi-information display after connecting a jumper wire between TC and CG of the DLC3 connector.

HOW TO PROCEED WITH TROUBLESHOOTING

1	VEHICLE BROUGHT TO WORKSHOP

NEXT

2	CUSTOMER PROBLEM ANALYSIS

NEXT

3	CHECK CAN COMMUNICATION SYSTEM

(a) Check for DTC output.
HINT:
See page CA-25.

→	CAN DTC OUTPUT (PROCEED TO "CAN COMMUNICATION SYSTEM")
→	NO CAN DTC (GO TO STEP 4)

4	PROBLEM SYMPTOM CONFIRMATION

NEXT

5	PROBLEM SYMPTOMS TABLE

HINT:
See page ME-19.

NEXT

6	CIRCUIT INSPECTION

NEXT

7	REPAIR OR REPLACE

NEXT

8	**CONFIRMATION TEST**

NEXT

END

CUSTOMIZE PARAMETERS

1. COMBINATION METER ASSEMBLY

NOTICE:

Be sure to record the current value before customizing.

HINT:

The following items can be customized using intelligent tester.

METER:

Display (Item)	Default	Contents	Setting
KEY REMND VOLUM	LARGE	Function to change the volume of the key remind warning buzzer	LARGE, MEDIUM, SMALL
KEY REMND SOUND	NORMAL	Function to change the cycle of the key remind warning buzzer	FAST, NORMAL, SLOW
SEAT-BELT WARN	D/P ON	Function to change the setting of the seat belt buzzer.	D/P on, D ON, P on, D/P off

HINT:

This setting is only valid for the buzzer which sounds at the 5 km/h (3 mph) or more.

2. SEAT BELT BUZZER ON/OFF SETTING (Procedure "A")

The seat belt buzzer ON/OFF setting, which is a setting of the buzzer function of the combination meter, can disable the driver and front passenger side seat belt buzzers.

NOTICE:

- **These buzzers should be on for safe driving. Perform these procedures only if it is necessary to set the buzzer off (disabled).**
- **When either the battery cable or the combination meter connector is disconnected, these buzzers are set on (enabled).**
- **Odometer returns to 0 after starting this procedure, although it is not displayed.**

HINT:

"b-oFF" indicates that the buzzer is OFF. "b-on" indicates that the buzzer is ON. The seat belt buzzer ON/OFF setting will be finished (the odometer will display "ODO") if the ODO/TRIP switch is not operated for 10 seconds or more. In this case, perform step 11 to check that the buzzer ON/OFF setting is complete. If it is not complete, start from step 1 again.

(a) Driver and front passenger side seat belt buzzers
  (1) Turn the ignition switch on (IG).
  (2) Press the ODO/TRIP switch until the odometer displays "ODO".
  (3) Ignition switch off.
  (4) Turn the ignition switch on (IG).
  (5) Press the ODO/TRIP switch immediately (within 6 seconds) and hold it down for 10 seconds or more.
  (6) Continue holding down the ODO/TRIP switch and fasten the driver side seat belt.

(7) Check that the odometer displays either "b-on" or "b-oFF".
(8) Press the ODO/TRIP switch to change the display to "b-oFF".
(9) Ignition switch off.
(10) Turn the ignition switch on (IG).
(11) Check that no buzzer sounds.

(b) Front passenger side seat belt buzzer
(1) Turn the ignition switch on (IG).
(2) Press the ODO/TRIP switch until the odometer displays "ODO".
(3) Ignition switch off.
(4) Turn the ignition switch on (IG).
(5) Sit in the front passenger seat. Press the ODO/TRIP switch immediately (within 6 seconds) and hold it down for 10 seconds or more.
(6) Sit in the front passenger seat. Continue holding down the ODO/TRIP switch and fasten the front passenger side seat belt.
(7) Check that the odometer displays either "b-on" or "b-oFF".
(8) Press the ODO/TRIP switch to change the display to "b-oFF".
(9) Ignition switch off.
(10) Turn the ignition switch on (IG).
(11) Check that no buzzer sounds.

INITIALIZATION

1. OIL MAINTENANCE INFORMATION MODE RESET OPERATION

HINT:

- The trip meter reset knob is located on the right side of the combination meter assembly.
- This reset operation is required only for U.S.A..

(a) without multi-information display:

(1) Turn the ignition switch on (IG).

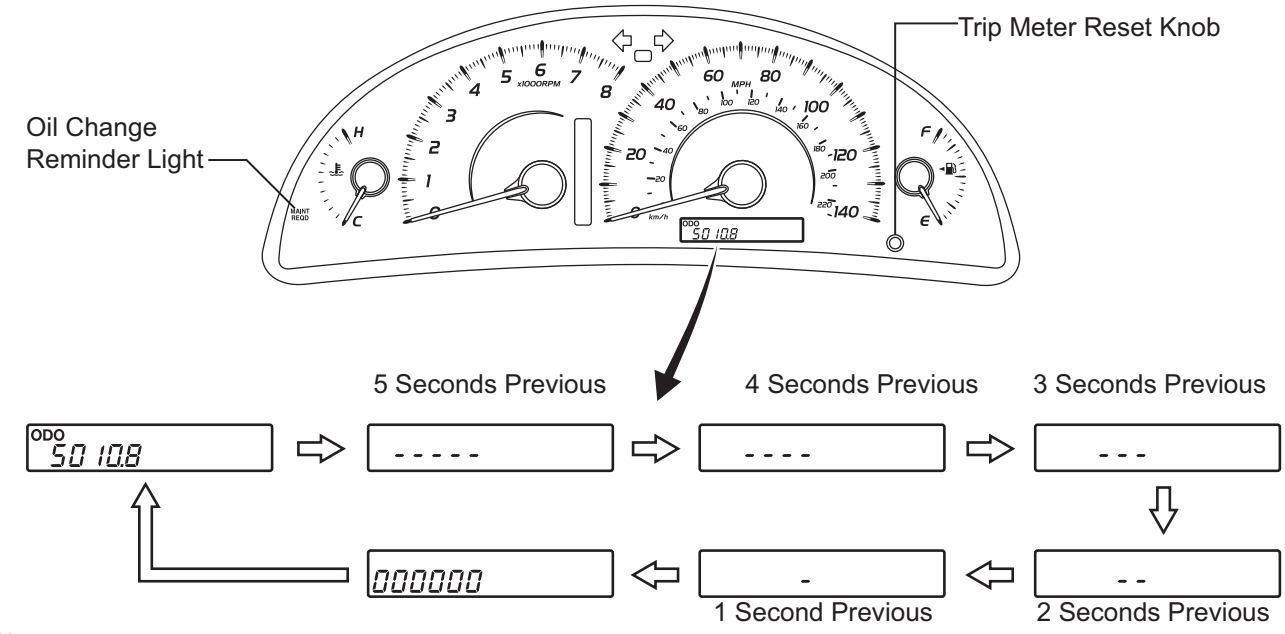
(2) Press the ODO/TRIP switch until the odometer appears.

(3) Ignition switch off.

(4) Turn the ignition switch on (IG).

(5) Turn the ignition switch on (IG) while pressing and holding the trip meter reset knob. Hold the trip meter reset knob until the following conditions are met and 5 seconds have passed.

without Multi-information display:



- When oil change reminder light turns off, the reset is complete.

(b) with multi-information display:

(1) Turn the ignition switch on (IG).

(2) Press the ODO/TRIP switch until the odometer appears.

(3) Ignition switch off.

(4) Turn the ignition switch on (IG).

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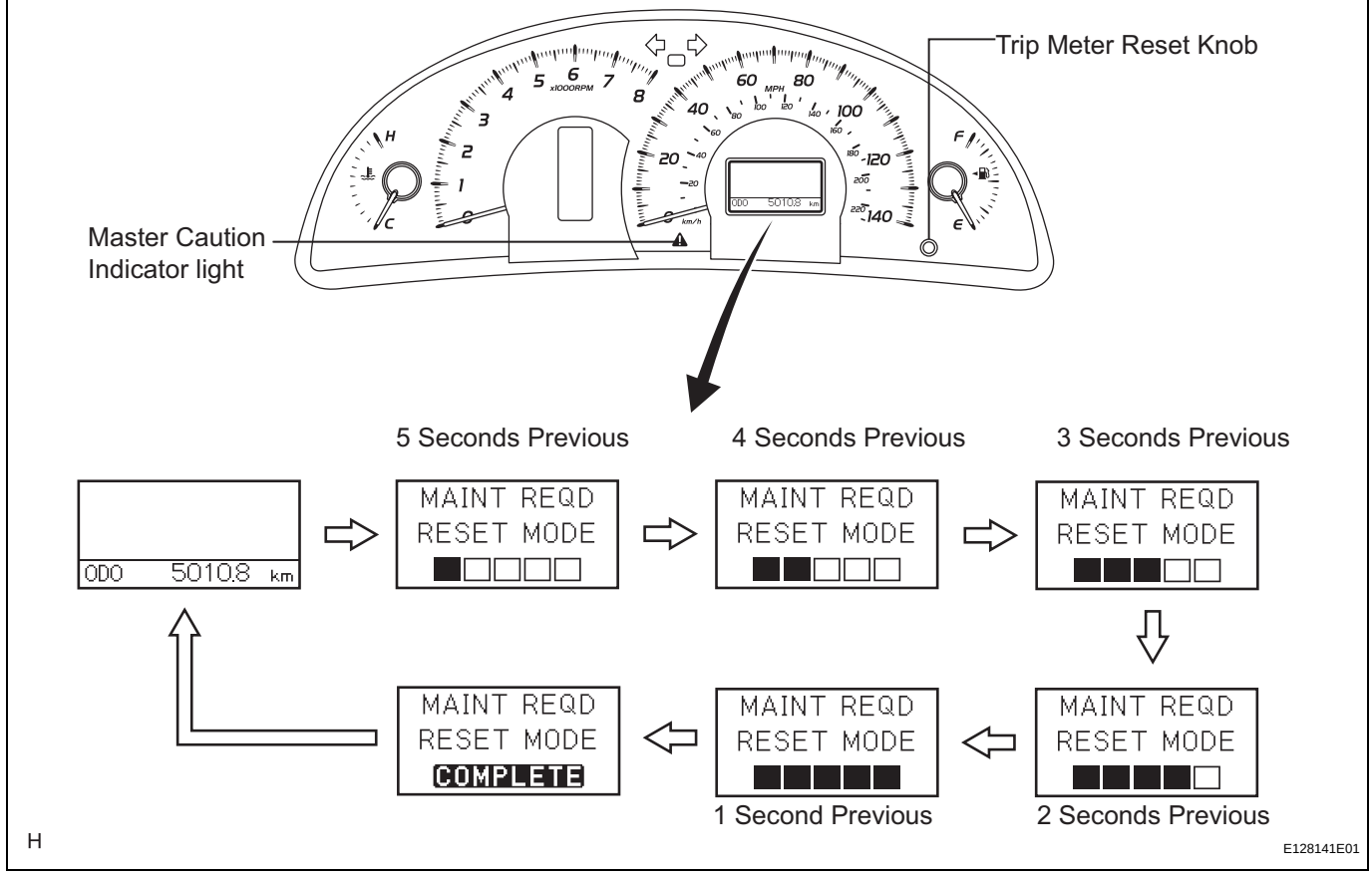
(5) Turn the ignition switch on (IG) while pressing and holding the trip meter reset knob. Hold the trip meter reset knob until the following conditions are met and 5 seconds have passed.

with Multi-information display:



- The multi-information display shows "MAINT REQD RESET MODE".
- The master caution indicator light illuminates.
- When oil change reminder light turns off, the reset is complete.

(6) When "MAINT REQD RESET MODE COMPLETE" disappears and the master caution indicator light turns off, the reset is complete.

PROBLEM SYMPTOMS TABLE

ENTIRE SYSTEM:

Symptom	Suspected area	See page
Entire combination meter does not operate.	Power Source Circuit	ME-42
Meter illumination is always dark.	Meter Illumination Circuit	ME-57
Meter illumination does not dim at night.	Meter Illumination Circuit	ME-59

METER GAUGES:

Symptom	Suspected area	See page
Speedometer malfunction	Speedometer Circuit	ME-44
Tachometer malfunction	Tachometer Circuit	ME-47
Fuel receiver gauge malfunction	Fuel Receiver Gauge Circuit	ME-50
Engine coolant temperature malfunction	Engine Coolant Temperature Receiver Gauge Circuit	ME-54

WARNING LIGHTS:

Symptom	Suspected area	See page
Check engine warning light does not come on.	1. MIL Circuit (for 2AZ-FE)	ES-397
	2. MIL Circuit (for 2GR-FE)	ES-471
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-63
Charge warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. ECM (for 2AZ-FE)	-
	4. ECM (for 2GR-FE)	-
	5. Combination Meter Assembly	ME-63
Brake warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Brake Warning Light Circuit (without VSC)	BC-91
	4. Brake Warning Light Circuit (with VSC, Bosch Made)	BC-404
	5 Brake Warning Light Circuit (with VSC, Advics Made)	BC-91
	6. Main Body ECU	-
	7. Parking Brake Switch	-
	8. Combination Meter Assembly	ME-63
Brake warning light does not go off.	1. Combination Meter (LED)	ME-63
	2. Wire Harness or Connector	-
	3. Brake Warning Light Circuit (without VSC)	BC-91
	4. Brake Warning Light Circuit (with VSC, Bosch Made)	BC-404
	5. Brake Warning Light Circuit (with VSC, Advics Made)	BC-252
	6. Main Body ECU	-
	7. Parking Brake Switch	-
	8. Combination Meter Assembly	ME-63
ABS warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. ABS Warning Light Circuit (without VSC)	BC-78
	4. ABS Warning Light Circuit (with VSC, Bosch Made)	BC-385
	5. ABS Warning Light Circuit (with VSC, Advics Made)	BC-233
	6. Combination Meter Assembly	ME-63

Symptom	Suspected area	See page
ABS warning light does not go off.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. ABS Warning Light Circuit (without VSC)	BC-78
	4. ABS Warning Light Circuit (with VSC, Bosch Made)	BC-385
	5. ABS Warning Light Circuit (with VSC, Advics)	BC-233
	6. Combination Meter Assembly	ME-63
Airbag warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Airbag Warning Light Circuit	RS-228
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-63
Airbag warning light does not go off.	1. Combination Meter (LED)	ME-32
	2. Airbag Warning Light Circuit	RS-222
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-63
Open door warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Door Courtesy Switch	LI-129
	4. Main Body ECU	-
	5. Combination Meter Assembly	ME-63
Fuel level warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Fuel Sender Gauge Assembly (for 2AZ-FE)	ME-71
	4. Fuel Sender Gauge Assembly (for 2GR-FE)	ME-74
	5. Combination Meter Assembly	ME-63
Low oil pressure warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Low Oil Pressure Switch	ME-37
	4. Combination Meter Assembly	ME-63
Driver seat belt warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Driver Seat Belt Warning Light Circuit	SB-9
	4. Main Body ECU	-
	5. Center Airbag Sensor Assembly	-
	6. Combination Meter Assembly	ME-63
Front passenger seat belt warning light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Front Passenger Seat Belt Warning Light Circuit	SB-11
	4. Combination Meter Assembly	ME-63
	5. Center Airbag Sensor Assembly	-
	6. Clock Assembly	OT-4
Tire pressure warning light does not come on. (with Tire Pressure Warning System)	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Tire Pressure Warning System	TW-65
	4. Combination Meter Assembly	ME-63
Washer level warning light does not come on (with washer level warning light). (with Washer Level Warning Light)	1. Wire Harness or Connector	-
	2. Combination Meter Assembly	-
	3. Washer Level Switch	-

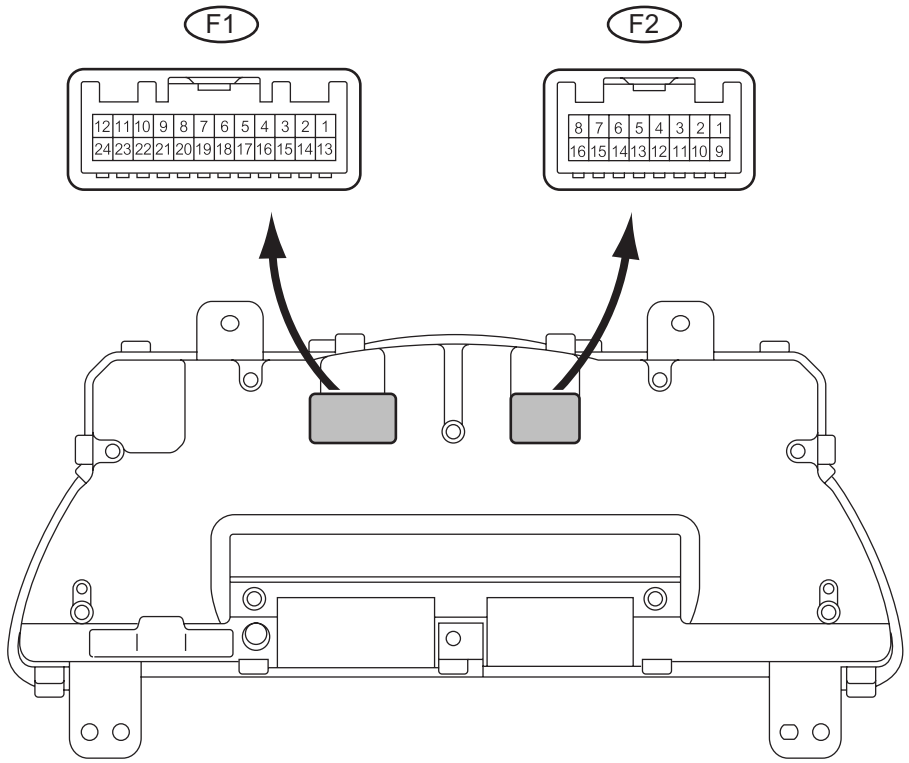
Symptom	Suspected area	See page
VSC warning light does not come on (without Multi-information Display, with VSC).	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. VSC Indicator Light Circuit (with VSC, Bosch Made)	BC-392
	4. VSC Indicator Light Circuit (with VSC, Advics Made)	BC-240
	5. Combination Meter Assembly	ME-63
VSC warning light does not come on (without Multi-information Display, with VSC).	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. VSC Indicator Light Circuit (with VSC, Bosch Made)	BC-392
	4. VSC Indicator Light Circuit (with VSC, Advics Made)	BC-240
	5. Combination Meter Assembly	ME-63

INDICATOR LIGHTS:

Symptom	Suspected area	See page
Shift indicator light does not come on. (for 2AZ-FE, Automatic Transaxle)	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Transmission Range Sensor Circuit	AX-39
	4. ECM	ES-432
	5. Combination Meter Assembly	ME-63
Shift indicator light does not come on. (for 2GR-FE, Automatic Transaxle,)	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Park/Neutral Position Switch Circuit	AX-158
	4. Transmission Control Switch Circuit	AX-154
	5. ECM	ES-518
	6. Combination Meter Assembly	ME-63
Turn indicator light does not come on.	1. Wire Harness or Connector	-
	2. Turn Indicator Light Circuit	LI-12
	3. Combination Meter Assembly	ME-63
SLIP indicator light does not come on (with VSC).	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. SLIP Indicator Light Circuit (with VSC, Bosch Made)	BC-412
	4. SLIP Indicator Light Circuit (with VSC, Advics Made)	BC-259
	5. Combination Meter Assembly	ME-63
SLIP indicator light does not go off (with VSC).	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. SLIP Indicator Light Circuit (with VSC, Bosch Made)	BC-412
	4. SLIP Indicator Light Circuit (with VSC, Advics Made)	BC-259
	5. Combination Meter Assembly	ME-63
CRUISE indicator light does not come on.	1. Combination Meter (LED)	ME-32
	2. Wire Harness or Connector	-
	3. Cruise Main Indicator Light Circuit	CC-34
	4. Combination Meter Assembly	ME-63
High beam indicator light does not come on.	1. Wire Harness of Connector	-
	2. Headlight Dimmer Switch	-
	3. Main Body ECU	-
	4. Combination Meter Assembly	ME-63

TERMINALS OF ECU

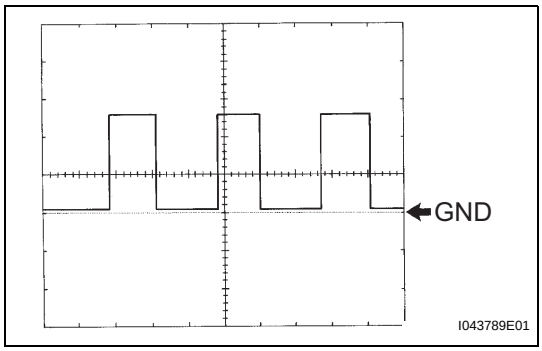
1. COMBINATION METER ASSEMBLY



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
B (F2-1) - Body ground	G - Body ground	Turn indicator light signal	Turn the ignition switch on (IG), turn signal RH indicator light OFF	Below 1 V
			Turn the ignition switch on (IG), turn signal RH indicator light ON	10 to 14 V
B (F2-2) - Body ground	L - Body ground	Turn indicator light signal	Turn the ignition switch on (IG), turn signal LH indicator light OFF	Below 1 V
			Turn the ignition switch on (IG), turn signal LH indicator light ON	10 to 14 V
CHK (F2-4) - Body ground	R - Body ground	Malfunction indicator lamp signal	Turn the ignition switch on (IG), CHECK ENGINE warning light ON	Below 3 V
			Turn the ignition switch on (IG), CHECK ENGINE warning light OFF	10 to 14 V
B/LE (F2-6) - Body ground	LG - Body ground	Brake fluid level warning light signal	Turn the ignition switch on (IG), BRAKE warning light OFF	10 to 14 V
			Turn the ignition switch on (IG), BRAKE warning light ON	Below 1 V
+S (F2-12) - Body ground	V - Body ground	Speed signal (Output)	Turn the wheel slowly	Pulse generation (See waveform 1)
SI (F2-14) - Body ground	V - Body ground	Speed signal (Input)	Turn the ignition switch on (IG), turn the wheel slowly	Pulse generation (See waveform 1)

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
FR (F2-15) - Body ground	GR - Body ground	Fuel signal	Turn the ignition switch on (IG), fuel level is FULL	Below 1 V
			Turn the ignition switch on (IG), fuel level is EMPTY	3 to 7 V
FE (F2-16) - Body ground	P - Body ground	Ground (Fuel ground)	Always	Below 1 V
B2 (F1-1) - Body ground	R - Body ground	Battery	Always	10 to 14 V
B (F1-2) - Body ground	V - Body ground	Battery	Always	10 to 14 V
WLVL (F1-5) (*1) - Body ground	LG - Body ground	Washer level warning switch signal	Turn the ignition switch on (IG), washer level warning light ON	Below 1 V
			Turn the ignition switch on (IG), washer level warning light off	10 to 14 V
TIRE (F1-7) (*2) - Body ground	L - Body ground	Tire pressure warning light signal	Turn the ignition switch on (IG), tire pressure warning light ON	0.9 to 3.2 V
			Turn the ignition switch on (IG), tire pressure warning light off	3.2 V or higher
S (F1-8) - Body ground	O - Body ground	Engine oil pressure warning light signal	Turn the ignition switch on (IG), engine oil pressure warning light OFF	10 to 14 V
			Turn the ignition switch on (IG), engine oil pressure warning light ON	Below 1 V
P/SB (F1-9) - Body ground	P - Body ground	Passenger seat belt warning light signal	Sit on the front passenger seat, turn the ignition switch on (IG), front passenger seat belt warning light OFF	10 to 14 V
			Sit on the front passenger seat, turn the ignition switch on (IG), front passenger seat belt warning light Blinks	10 to 14 V ←→ Below 1 V
ILL- (F1-11) - Body ground	BR - Body ground	Illumination signal	Turn the ignition switch on (IG)	10 to 14 V ←→ Below 1 V
E2 (F1-12) - Body ground	W-B - Body ground	Ground (Power ground)	Always	Below 1 V
IG+ (F1-13) - Body ground	GR - Body ground	Ignition switch signal	Turn the ignition switch off	Below 1 V
			Turn the ignition switch on (IG)	10 to 14 V
CANH (F1-17) - Body ground	B - Body ground	CAN communication signal	-	-
CANL (F1-18) - Body ground	W - Body ground	CAN communication signal	-	-
DISP (F1-22) - Body ground	V - Body ground	Steering pad switch signal	Turn the ignition switch on (IG), DISP switch off	4 to 6 V
			Turn the ignition switch on (IG), DISP switch ON	Below 1 V
CHG- (F1-23) - Body ground	L - Body ground	Charge warning light signal	Turn the ignition switch on (IG), CHARGE warning light OFF	10 to 14 V
			Turn the ignition switch on (IG), CHARGE warning light ON	Below 1 V
ES (F1-24) - Body ground	BR - Body ground	Ground (Signal ground)	Always	Below 1 V

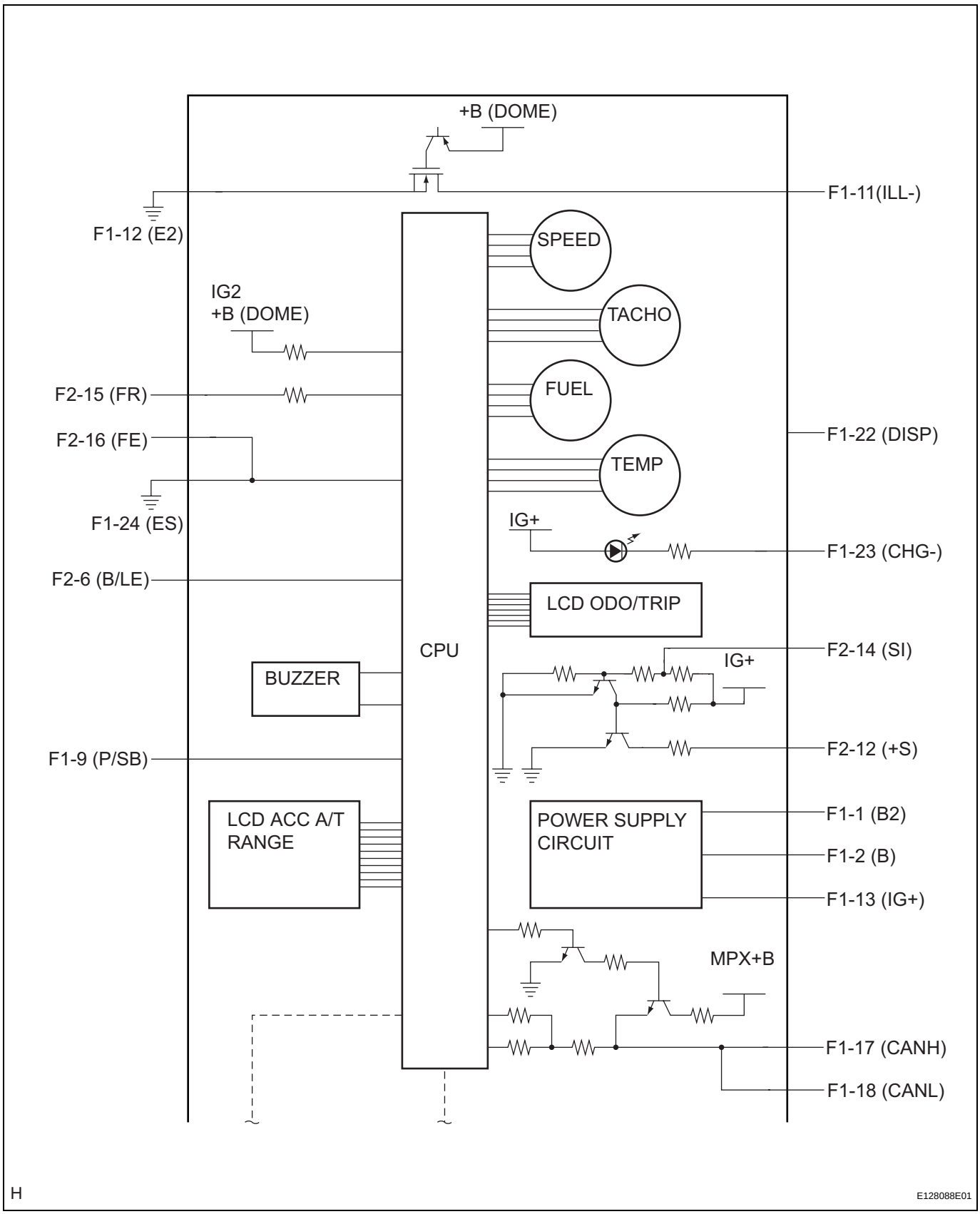
*1: with Washer Level Warning Light
*2: with Tire Pressure Warning System



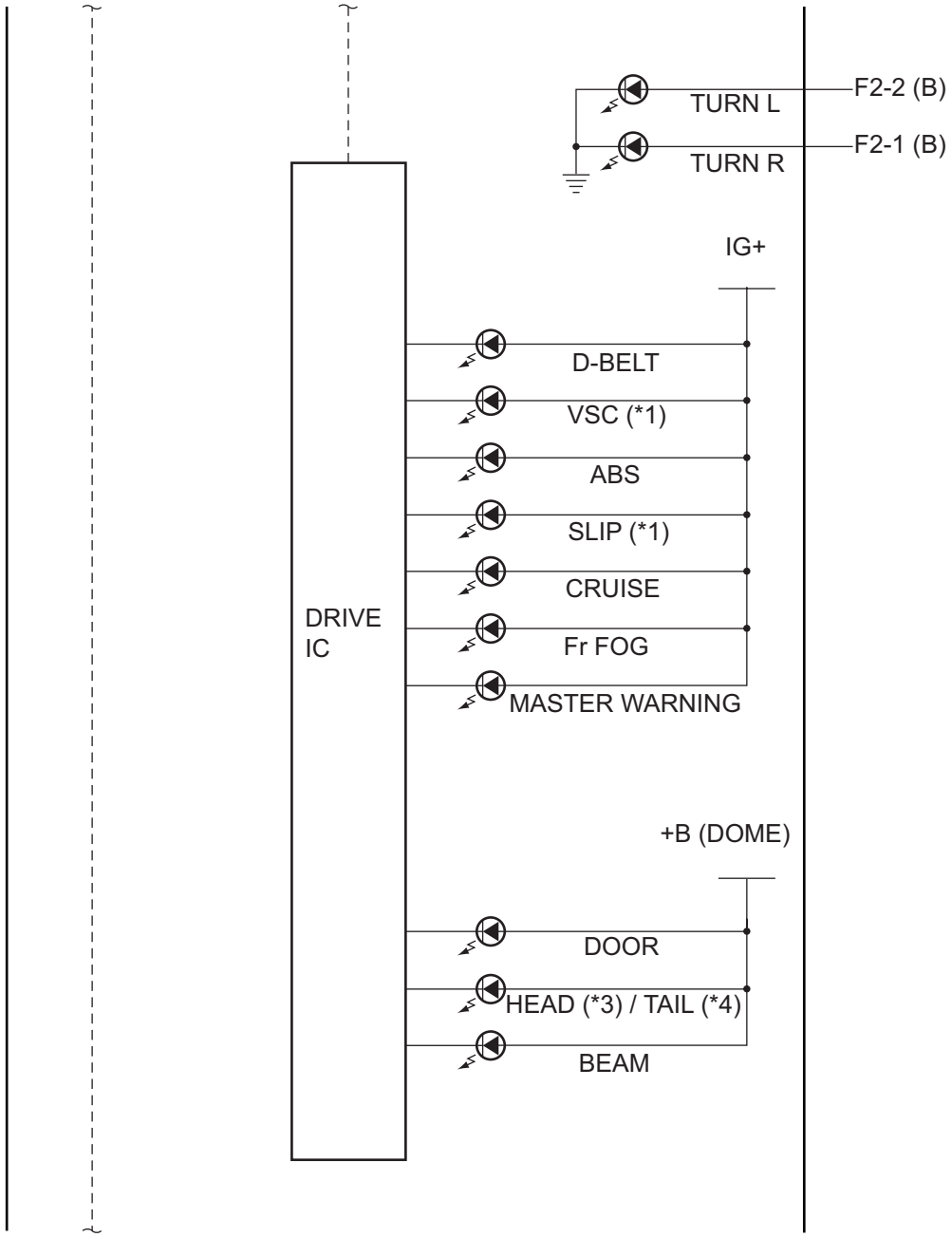
(a) Waveform 1 (Reference): Using oscilloscope:

Item	Condition
Tool setting	5 V/DIV., 20 ms/DIV.
Vehicle condition	Driving at approx. 20 km/h (12 mph)

2. COMBINATION METER INNER CIRCUIT



ME

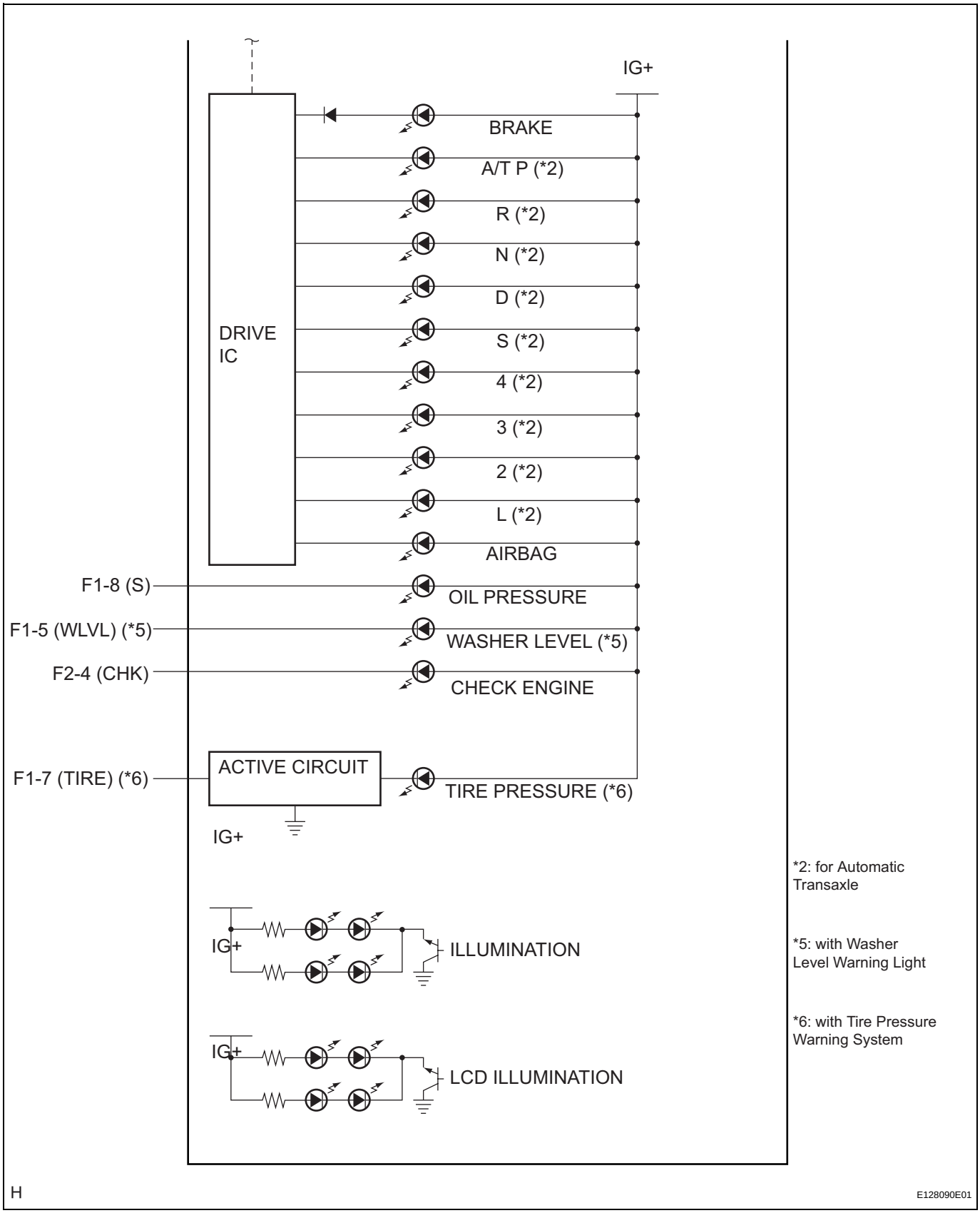


*1: with VSC *2: for Automatic Transaxle *3: for U.S.A. *4: for Canada

H

E128089E01

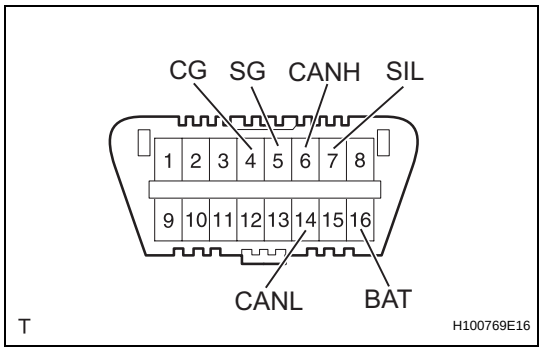
ME


IG+
DRIVE IC
BRAKE
A/T P (*2)
R (*2)
N (*2)
D (*2)
S (*2)
4 (*2)
3 (*2)
2 (*2)
L (*2)
AIRBAG
F1-8 (S)
OIL PRESSURE
F1-5 (WLVL) (*5)
WASHER LEVEL (*5)
F2-4 (CHK)
CHECK ENGINE
F1-7 (TIRE) (*6)
ACTIVE CIRCUIT
TIRE PRESSURE (*6)
IG+
IG+
ILLUMINATION
IG+
LCD ILLUMINATION
*2: for Automatic Transaxle
*5: with Washer Level Warning Light
*6: with Tire Pressure Warning System
H
E128090E01

ME

Terminal No.		Wire harness side
F2	1	Turn Signal Flasher (B)
	2	Turn Signal Flasher (B)
	3	-
	4	ECM (CHK)
	5	-
	6	Brake Fluid Level Warning Switch (B/LE)
	7	-
	8	-
	9	-
	10	-
	11	-
	12	Each part that uses speed signal
	13	-
	14	Brake Actuator Assembly (*1) / ABS & Traction Actuator Assembly (*2) (SI)
	15	Fuel Sender Gauge Assembly (FR)
	16	Fuel Sender Gauge Assembly (FE)
F1	1	MPX-B Fuse
	2	DOME Fuse
	3	-
	4	-
	5	Washer Level Warning Switch (*3)
	6	-
	7	Tire Pressure Warning ECU (*4)
	8	Oil Pressure Warning Switch
	9	Clock Assembly (P/SB)
	10	-
	11	PANEL Fuse
	12	Ground (E2)
	13	No. 2 GAUGE Fuse
	14	-
	15	-
	16	-
	17	CAN Communication Line (CAN H)
	18	CAN Communication Line (CAN L)
	19	-
	20	-
	21	-
	22	Steering Pad Switch (DISP)
	23	Alternator L Terminal
	24	Ground (ES)

*1: without VSC
*2: with VSC
*3: with Washer Level Warning Light
*4: with Tire Pressure Warning System



DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) The ECU uses ISO 15765-4 for communication. The terminal arrangement of the DLC3 complies with SAE J1962 and matches ISO 15765-4 format. If the result is not as specified, the DLC3 may have a malfunction. Repair or replace harness and connector.

Symbols (Terminal No.)	Terminal Description	Condition	Specified Condition
SIL (7) - SG (5)	Bus "+" line	During transmission	Pulse generation
CG (4) - Body ground	Chassis ground	Always	Below 1 Ω
CG (4) - Body ground	Signal ground	Always	Below 1 Ω
BAT (16) - Body ground	Battery positive	Always	11 to 14 V
CANH (6) - CANL (14)	CAN bus line	Ignition switch off	54 to 69 Ω
CANH (6) - CG (4)	HIGH-level CAN bus line	Ignition switch off*	200 Ω or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch off*	200 kΩ or higher
CANH (6) - BAT (16)	HIGH-level CAN bus line	Ignition switch off*	6 kΩ or higher
CANL (14) - CG (4)	LOW-level CAN bus line	Ignition switch off*	6 kΩ or higher

NOTICE:

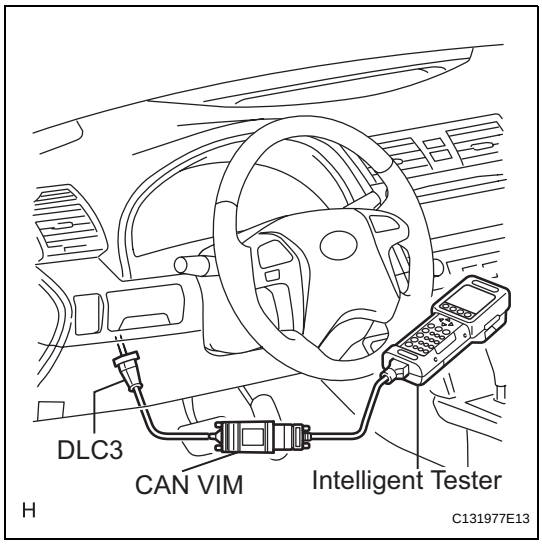
***: Before measuring the resistance, leave the vehicle as is for at least 1 minute and do not operate the ignition switch, any other switches or the doors.**

If the result is not as specified, the DLC3 may have a malfunction. Repair or replace the harness and connector.

HINT:

If the display shows an error message after having connected the cable of the intelligent tester to the DLC3, turn the ignition switch on (IG), and operated the tester, there is a problem on either the vehicle side or the tool side.

- If communication is normal when the tool is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still impossible when the tool is connected to another vehicle, the problem is probably in the tool itself. Consult the Service Department listed in the tool's instruction manual.



DTC CHECK / CLEAR

1. CHECK DTC

(a) Connect the intelligent tester (with CAN VIM) to the DLC3.
(b) Turn the ignition switch on (IG) and turn the intelligent tester on.
(c) Enter the following menus: DIAGNOSTICS / OBD/ MOBD / METER / DTC INFO / CURRENT CODES.
(d) Check for DTCs.

2. CLEAR DTC

(a) Connect the intelligent tester (with CAN VIM) to the DLC3.
(b) Turn the ignition switch on (IG) and turn the intelligent tester on.
(c) Enter the following menus: DIAGNOSTICS / OBD/ MOBD / METER / DTC INFO / CURRENT CODES.
(d) Erase DTCs by pressing the YES button on the tester.

FAIL-SAFE CHART

ENGINE COOLANT TEMPERATURE GAUGE:

Condition	Response	Recovery
Engine coolant temperature data is interrupted for 3.1 seconds.	The gauge needle indicates between / and C.	Engine coolant temperature data is received.

SHIFT INDICATOR:

Condition	Response	Recovery
Shift position data is interrupted for 3.1 seconds.	All indicator light go off.	Normal data is received.
Gear position data is interrupted for 3 seconds.	The gear position indicator light goes off.	Normal data is received.

ABS & BRAKE:

Condition	Response	Recovery
ABS & brake data is interrupted for 1 second.	The warning light comes on.	Normal data is received.

DOOR:

Condition	Response	Recovery
Each door condition data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

DRIVER SIDE SEAT BELT:

Condition	Response	Recovery
Driver side front seat inner belt assembly data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

TIRE PRESSURE:

Condition	Response	Recovery
Tire pressure data is interrupted for 10 seconds.	The tire pressure indicator light blinks for 60 to 64 seconds, then comes on.	Normal data is received.

OIL MAINTENANCE (*1):

Condition	Response	Recovery
The running distance after performing oil maintenance reminder light resetting procedure.	Oil change reminder light comes on.	Normal data is received.

HEAD (*1)/TAIL (*2):

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

BEAM:

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

AIRBAG:

Condition	Response	Recovery
Airbag data is interrupted for 10 seconds.	The warning light comes on.	Normal data is received.
Turn the ignition switch on (IG), then the combination meter (meter CPU) can't detect the voltage of 9 V or more for 60 seconds.		

FRONT PASSENGER SIDE SEAT BELT:

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

CRUISE:

Condition	Response	Recovery
Regular data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

CHARGE:

Condition	Response	Recovery
Regular data is interrupted.	The warning light goes off.	Normal data is received.

MULTI-INFORMATION DISPLAY:

Condition	Response	Recovery
Cruise information data is interrupted for 60 seconds.	The display becomes blank (only measurement units are displayed).	Normal data is received.

*1: for U.S.A.
*2: Except for U.S.A.

DATA LIST / ACTIVE TEST

1. DATA LIST

According to the DATA LIST displayed by the intelligent tester, you can read the values of the switches, sensors, actuators and so on without parts removal. Reading the DATA LIST as the first step of troubleshooting is one method to shorten work time.

(a) Warm up the engine.
(b) Ignition switch off.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch on (IG).
(e) Turn the tester ON.
(f) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / DATA LIST.
(g) Check values by referring to the table below.

METER:

ITEM	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
TAIL CANCEL SW	TAIL CANCEL switch is ON/OFF	ON: Rheostat knob turns fully clockwise	-
		OFF: Rheostat knob turns fully counterclockwise	-
ODO/TRIP SW	ODO/TRIP switch is ON/OFF	ON: Switch is pushed	-
		OFF: Switch is released	-
P-BELT BUCKL SW	Front passenger buckle switch is ON/OFF	ON: Seat belt is fastened	-
		OFF: Seat belt is unfastened	-
SPEED METER	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual vehicle speed (When driving)	If data received from the skid control ECU exceeds the range that can be displayed on the meter, the meter continues to display the maximum value of the range.
TACHO METER	Engine speed/Min.: 0 rpm, Max.: 12,750 rpm	Almost same at the meter rpm (When engine is running)	If data received from the ECM exceeds the range that can be displayed on the meter, the meter continues to display the maximum value of the range.
COOLANT TEMP	Engine coolant temperature 0°C (32°F) to 127.5°C (261.5°F)	After warming up: 78°C (172.4°F) to 105°C (221°F)	•If -40°C (-40°F): sensor circuit open •If 140°C (284°F) or more: sensor circuit shorted
WASHER SW	Washer level warning switch is ON/OFF	ON: Washer level is more than low	-
		OFF: Washer level is less than low	-
MULTI DISP SW	MODE switch in the steering pad is ON/OFF	ON: Mode switch is ON	-
		OFF: Mode switch is OFF	-
+B VOLTAGE VAL	Battery voltage/Min.: 0 V, Max.: 25.5 V	10 to 14 V	-
OIL MAINTENANCE	Oil maintenance warning value: Min.: 0, Max. 25500	The running distance after performing oil maintenance resetting procedure is displayed	If the value is 5,000 or more, perform oil maintenance resetting procedure after changing the oil.
FUEL GAUGE	Fuel input signal Min.: 0, Max. 255	Fuel gauge indicates (F): 35	-
		Fuel gauge indicates (3/4): 85	-
		Fuel gauge indicates (1/2): 145	-
		Fuel gauge indicates (1/4): 186	-
		Fuel gauge indicates (E): 205	-

ITEM	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
AMBIENT TEMP	Outside temperature: Min.: -40°C (-40°F) to 87.5°C (189.5°F)	Almost same as actual outside temperature	The temperature displayed on the multi-information display is -22 to 122°C (-30 to 50 °F)
RHEOSTAT	Light Control Rheostat/Min.: 0, Max.: 100	Light control rheostat switch is Dark (0) → Bright (100)	-
KEY REMND SOUND	The cycle of the key reminder warning buzzer is FAST, NORMAL, SLOW	The customized setting of the cycle of the key reminder warning buzzer is displayed.	-
SEAT-BELT WARN	The volume of the seat belt warning buzzer is D/P ON, D ON, P ON, D/P OFF	The customized setting of the volume of the seat belt warning buzzer is displayed.	-
KEY REMND VOLUM	The volume of the key reminder warning buzzer is LARGE, MEDIUM, SMALL	The customized setting of the volume of the key reminder warning buzzer is displayed.	-

ABS/TRAC/VSC:

ITEM	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
FR/FL/RR/RL WHEEL SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual vehicle speed (When driving)	-
VEHICLE SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual vehicle speed (When driving)	-

ENGINE:

ITEM	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
ENGINE SPD	Vehicle speed/Min.: 0 rpm, Max.: 16,383.75 rpm	Almost same as actual vehicle speed (When driving)	-
COOLANT TEMP	Engine coolant temperature: Min.: -40°C (-40°F), Max.: 140°C (284°F)	80 to 100°C (176 to 212°F): After warming up	• If -40°C (-40°F): sensor circuit open • If 140°C (284°F) or more: sensor circuit shorted

2. ACTIVE TEST

Performing the ACTIVE TEST using the intelligent tester allows the meters, indicators and so on to operate without parts removal. Performing the ACTIVE TEST as the first step of troubleshooting is one way to shorten labor time.

It is possible to display the DATA LIST on the intelligent tester during the ACTIVE TEST.

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST.
(e) From the display on the tester, performing the "ACTIVE TEST".

ME

METER:

Item	Test Details	Diagnostic Note
SPEED METER	0, 40 (24), 80 (48), 120 (72), 160 (96), 200 (120) km/h (mph)	-
TACHOMETER	0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000 (rpm)	-
FUEL GAUGE	EMPTY, 1/2, FULL	-
COOLANT TEMP	LOW, NORM, HIGH	-
A/T INDIC (1) (*1)	A/T shift indicator light L, 2, 3, 4, S, D, N, R, P is OFF/ON	-
A/T INDIC (2) (*1)	A/T gear range indicator light is OFF/ON	

Item	Test Details	Diagnostic Note
METER DISPLAY 1	All the dot in the multi-information display OFF/ON	Confirm that the vehicle is stopped, engine idling
METER DISPLAY 2	All the dot in the A/T shift indicator display OFF/ON	Confirm that the vehicle is stopped, engine idling
SRS WARN	SRS warning light is OFF/ON	-
OPEN DOOR WARN	Open door indicator is OFF/ON	-
P-BELT REMIND	P-belt indicator is OFF/ON	-
D-BELT REMIND	D-belt indicator is OFF/ON	-
ABS WARN	ABS OFF indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
DISCHARGE WARN	Charge warning light is OFF/ON	-
VSC WARN (*2)	VSC warning light is OFF/ON	-
SLIP INDIC	SLIP indicator is OFF/ON	-
HIGH BEAM INDIC	Hi-beam indicator is OFF/ON	-
HEADLIGHT INDIC (*3)	HEAD indicator is OFF/ON	-
TAILLIGHT INDIC (*4)	TAIL indicator is OFF/ON	-
Fr FOG INDIC	Fr FOG indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
D DOOR OPEN	D DOOR OPEN indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
P DOOR OPEN	P DOOR OPEN indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
RR DOOR OPEN	RR DOOR OPEN indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
RL DOOR OPEN	RL DOOR OPEN indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
LUGG DOOR OPEN	Luggage DOOR OPEN indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
LOW WASHER WARN (*5)	LOW WASHER warning light is OFF/ON	Confirm that the vehicle is stopped, engine idling
LOW FUEL WARN	Fuel warning light is OFF/ON	-
TIRE PRESS WARN (*6)	TIRE PRESS warning is OFF/ON	-
ECB INDIC	BRAKE warning light is OFF/ON	Confirm that the vehicle is stopped, engine idling
CRUISE INDIC	CRUISE indicator is OFF/ON	-
BRAKE WARN	BRAKE warning light is OFF/ON	Confirm that the vehicle is stopped, engine idling
OIL MAINTENANCE (*3)	MAINTENANCE indicator light is OFF/ON	Confirm that the vehicle is stopped, engine idling
MST WARN INDIC	MASTER WARNING light is OFF/ON	Confirm that the vehicle is stopped, engine idling

*1: for Automatic Transaxle
*2: without Multi-information Display, with VSC
*3: for U.S.A.
*4: for Canada
*5: with Washer Level Warning Light
*6: with Tire Pressure Warning System

DIAGNOSTIC TROUBLE CODE CHART

DTC No.	Detection Item	Trouble Area	See page
U0100	Lost Communication with ECM/ PCM "A"	- ECM - CAN communication system	ME-38
U0129	Lost Communication with Skid Control ECU	- ABS and traction actuator assembly (Skid control ECU) - CAN communication system	ME-40

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check the operation.

(1) Using a speedometer tester (calibrated chassis dynamometer), check the speedometer indication according to the table below.

Reference: mph (U.S.A.)

Chassis dynamometer indication	Acceptable range
20 mph	20.0 to 23.0 mph
40 mph	40.0 to 43.5 mph
60 mph	60.0 to 64.0 mph
80 mph	80.0 to 84.5 mph
100 mph	100.0 to 105.0 mph
120 mph	120.0 to 125.5 mph
140 mph	140.0 to 146.0 mph
160 mph	160.0 to 166.5 mph

Reference: km/h (Canada)

Chassis dynamometer indication	Acceptable range Data in ( ) is for reference
20 km/h	(17.5 to 21.5 km/h)
40 km/h	38.0 to 42.0 km/h
60 km/h	58.0 to 63.0 km/h
80 km/h	78.0 to 84.0 km/h
100 km/h	98.5 to 104.5 km/h
120 km/h	119.0 to 125.0 km/h
140 km/h	139.0 to 146.0 km/h
160 km/h	159.0 to 167.0 km/h
180 km/h	179.0 to 188.0 km/h
200 km/h	199.0 to 209.0 km/h
220 km/h	219.0 to 230.0 km/h
240 km/h	239.0 to 251.0 km/h

NOTICE:
Tire wear as well as over or under inflation will cause errors.

(2) Check the deviation from the acceptable range of the speedometer indication.

Reference:
Less than 0.5 km/h (0.3 mph)

HINT:
If the indication is not as specified, go to problem symptoms table (See page ME-19).

2. INSPECT TACHOMETER

(a) Connect a tune-up tachometer, and start the engine.

(b) Compare the test results with the tachometer indications.

DC 13.5 V, at 25°C (77°F)

Tune-up tachometer indication (rpm)	Acceptable range Data in ( ) is for reference
700	630 to 770
1,000	(900 to 1,100)
2,000	(1,850 to 2,150)

Tune-up tachometer indication (rpm)	Acceptable range Data in ( ) is for reference
3,000	2,800 to 3,200
4,000	(3,800 to 4,200)
5,000	4,800 to 5,200
6,000	(5,750 to 6,250)
7,000	6,700 to 7,300
8,000	(7,700 to 8,300)

HINT:
If the indication is not as specified, go to the problem symptoms table (See page ME-19).

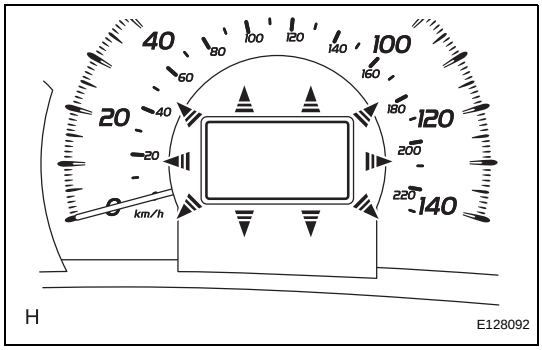
3. INSPECT ENGINE OIL PRESSURE SWITCH

(a) Disconnect the connector from the engine oil pressure switch.
(b) Turn the ignition switch on (IG).
(c) Ground the terminal of the wire harness side connector, then check the low oil pressure warning light or message.

OK

Vehicle Specification	Condition	Result
with multi-information display	**Turn the ignition switch on (IG) and engine idling for 10 seconds or more**	**Warning message is displayed.**
without multi-information display	**Turn the ignition switch on (IG) and engine off**	**Oil pressure warning light comes on.**
	Turn the ignition switch on (IG) and engine idling	**Oil pressure warning light goes off.**

HINT:
If the warning light or message is not displayed, go to the problem symptoms table (See page ME-19).



4. INSPECT MULTI-INFORMATION DISPLAY

(a) Ignition switch off.
(b) Press the "DISP" button and hold it down.
(c) Ignition switch on (IG).

OK:

All the dots in the multi-information display come on.

HINT:
This test is also available on "ACTIVE TEST" (See page ME-32).

(d) Ignition switch off to finish this test mode.

HINT:
If the result is not as specified, replace the combination meter assembly.

ME

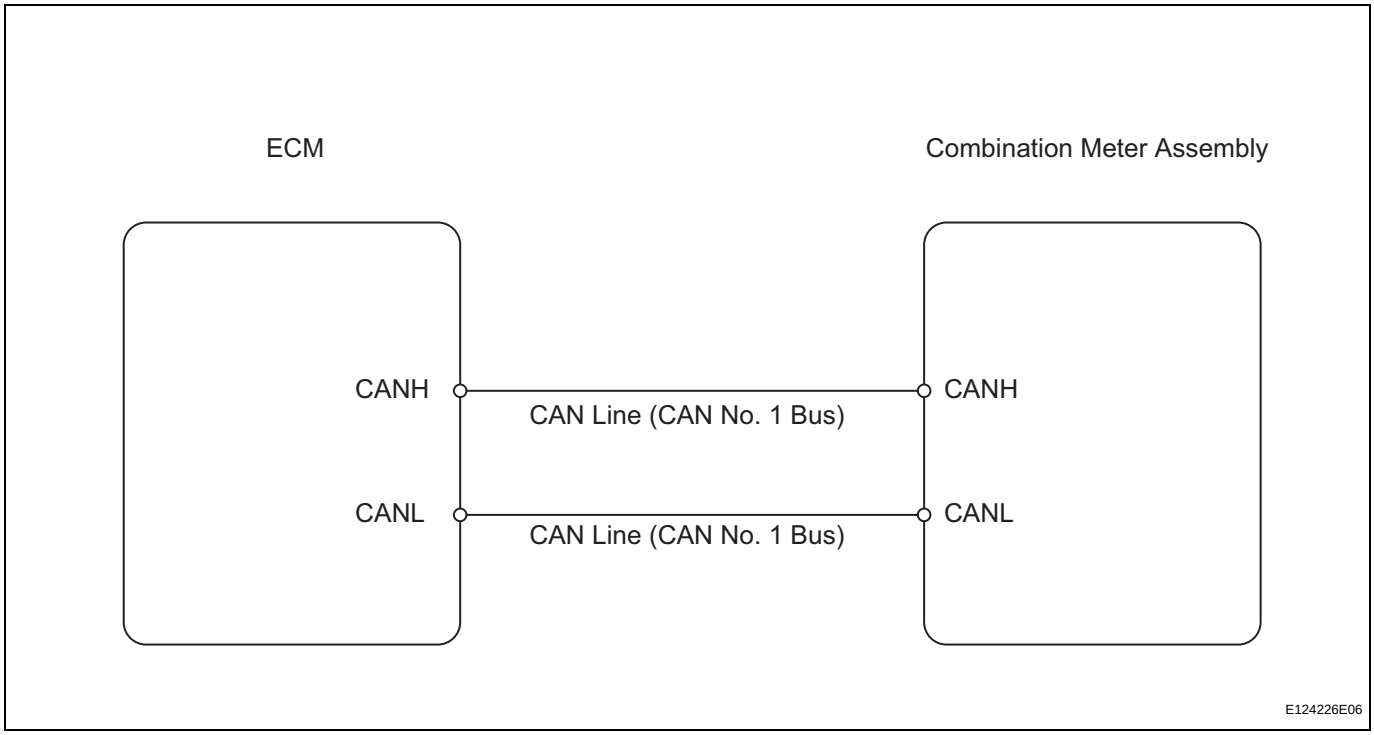
DTC	U0100	Lost Communication with ECM/PCM "A"

DESCRIPTION

The combination meter assembly communicates with the ECM via the CAN communication lines (CAN No. 1 Bus).

DTC No.	DTC Detection Conditions	Trouble Areas
U0100	When either of following conditions detected: 1. Vehicle speed 5 km/h (3.1 mph) or more and IG voltage 10.5 V or more 2. No communication with ECM continues for 3 seconds or more (No communication to ECM or skid control ECU continues for 60 seconds or more)	• CAN communication system • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CONFIRM DTC OUTPUT

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester on.
(d) Clear the stored DTCs by selecting the following menu items on the tester: DIAGNOSIS / OBD / MOBD / METER / DTC INFO / CLEAR CODES.
(e) Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.
(f) Stop the vehicle.
(g) Check for DTCs (See page CA-25).

ME

Result

Result	Proceed to
DTC output	A (See page CA-31)
DTC not output	B

B → **USE SIMULATION METHOD TO CHECK**

A

GO TO CAN COMMUNICATION SYSTEM

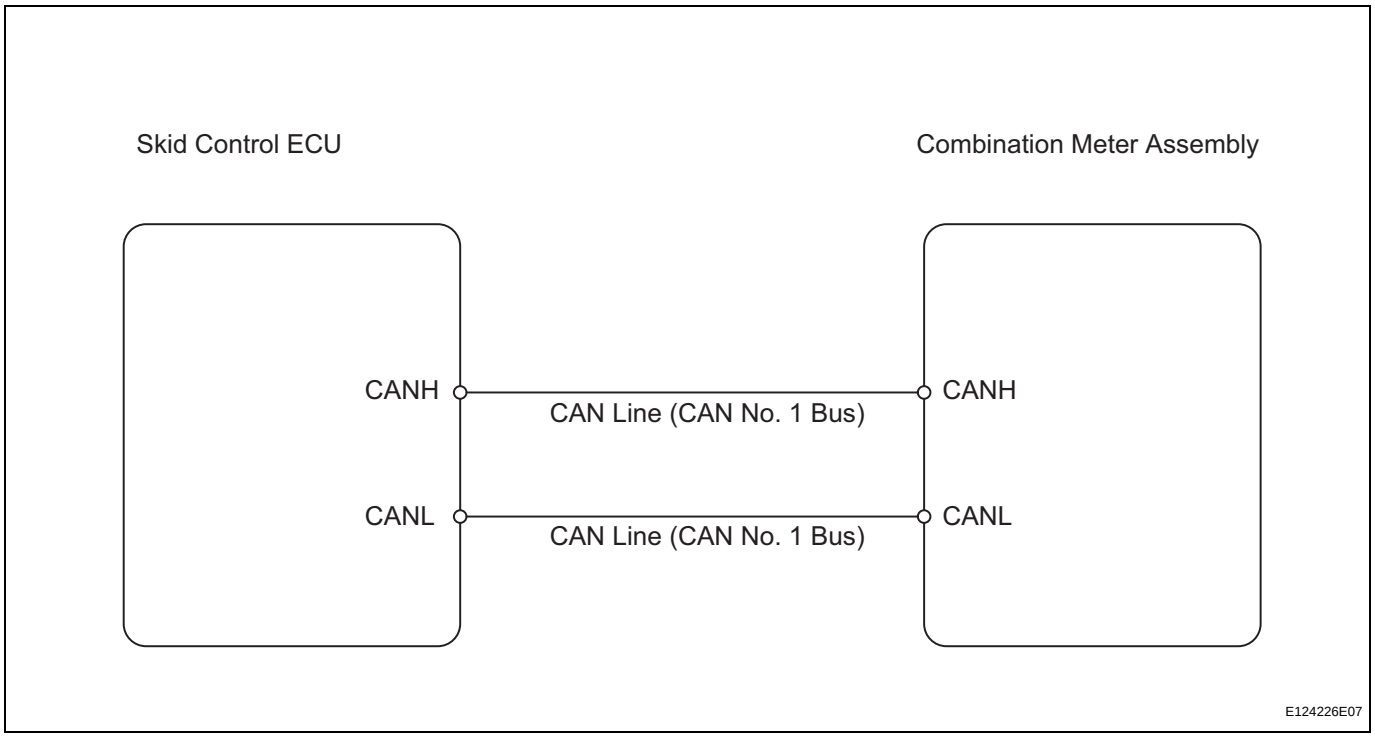
DTC	U0129	Lost Communication with Skid Control ECU

DESCRIPTION

The combination meter assembly communicates with the ABS and traction actuator (skid control ECU) via the CAN communication lines (CAN No. 1 Bus).

DTC No.	DTC Detection Conditions	Trouble Areas
U0129	When either of following conditions detected: 1. 15 seconds have elapsed since engine started and IG voltage 10.5 V or more 2. No communication with ABS and traction actuator (skid control ECU) continues for 3 seconds or more (No communication with ECM or skid control ECU continues for 60 seconds or more)	• ABS and traction actuator assembly (Skid control ECU) • CAN communication system

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CONFIRM DTC OUTPUT

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester on.
(d) Clear the stored DTCs by selecting the following menu items on the tester: DIAGNOSIS / OBD / MOBD / METER / DTC INFO / CLEAR CODES.
(e) Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.
(f) Stop the vehicle.
(g) Check for DTCs (See page CA-25).

Result

Result	Proceed to
DTC output	A (See page CA-31)
DTC not output	B

B → **USE SIMULATION METHOD TO CHECK**

A

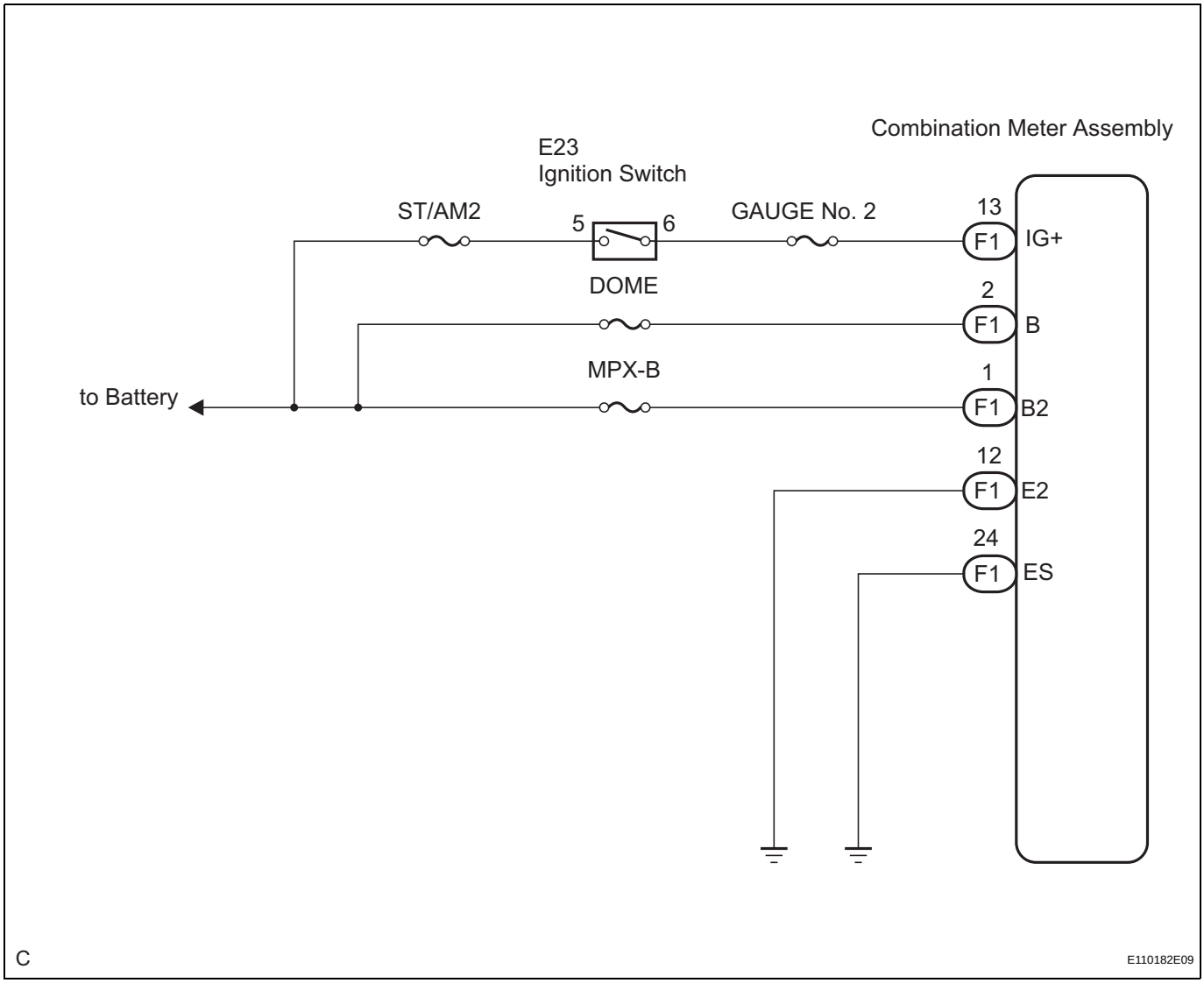
GO TO CAN COMMUNICATION SYSTEM

Entire Combination Meter does not Operate

DESCRIPTION

This circuit is the power source circuit for the meter. This circuit provides two types of power sources; one is a constant power source mainly used as a backup power source, and the other is a power source mainly used for signal transmission. The constant power source is mainly used as a backup power source of the meter CPU, however, it is also used for communication. If a voltage of 12 V is not applied to terminal IG+ when turn the ignition switch on (IG), the indicator will not operate.

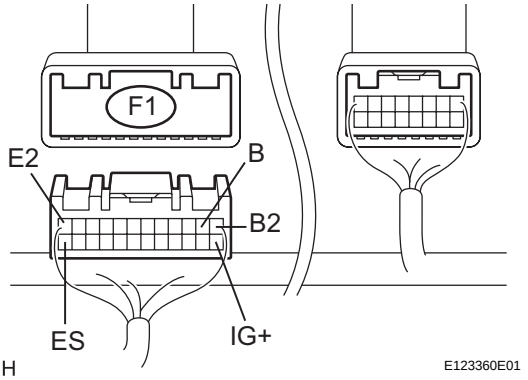
WIRING DIAGRAM



INSPECTION PROCEDURE

1	INSPECT COMBINATION METER ASSEMBLY

Combination Meter Assembly Wire Harness View:



(a) Disconnect the F1 connector.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
F1-12 (E2) - Body ground	Always	Below 1 Ω
F1-24 (ES) - Body ground	Always	Below 1 Ω

(c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester Connection	Condition	Specified Condition
F1-13 (IG+) - Body ground	Turn the ignition switch on (IG)	10 to 14 V
F1-1 (B2) - Body ground	Always	10 to 14 V
F1-2 (B) - Body ground	Always	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

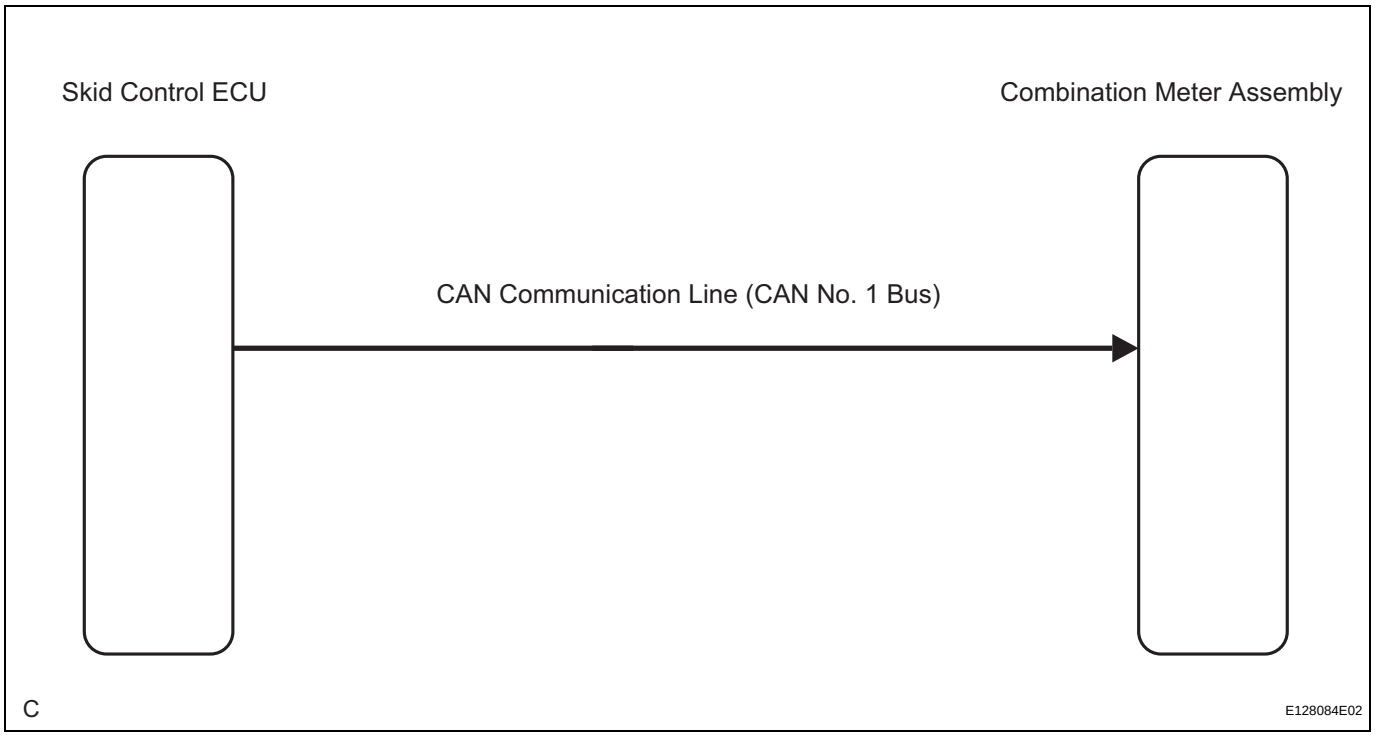
REPLACE COMBINATION METER ASSEMBLY

Speedometer Malfunction

DESCRIPTION

The meter CPU receives vehicle speed signals from the skid control ECU via the CAN communication lines (CAN No. 1 Bus). The vehicle speed sensor detects the voltage that varies according to the vehicle speed. The skid control ECU supplies power to the vehicle speed sensor. The skid control ECU detects vehicle speed signals based on the pulses of the voltage.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).

ME

(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST.
(e) Check the values by referring to the values in the table below.

METER:

Item	Test Details	Diagnostic Note
SPEED METER	0, 40, (24), 80 (48), 120 (72), 160 (96), 200 (120) km/h (mph)	-

OK:
Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

3	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / DATA TEST.
(e) Check the values by referring to the values in the table below.

METER:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
SPEED METER	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual speed (When driving)	If data received from the skid control ECU exceeds the range that can be displayed on the meter, the meter continues to display the maximum value of the range.

OK:
Vehicle speed displayed on the tester is almost the same as the actual vehicle speed measured using a speedometer tester (calibrated chassis dynamometer).

NG → **Go to step 4**

OK

ME

REPLACE COMBINATION METER ASSEMBLY

4	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / ABS/TRAC/VSC / DATA LIST.

(e) Check the values by referring to the table below.

ABS/TRAC/VSC:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
(FL/FR/RL/RR) WHEEL SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

OK:

Vehicle speed displayed on the tester is almost the same as the actual vehicle speed.

NG → **GO TO BRAKE CONTROL SYSTEM**

OK

5 **REPLACE SKID CONTROL ECU**

(a) Replace the skid control ECU to a new or a normal one.

OK:

The operation of the speedometer returns to normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

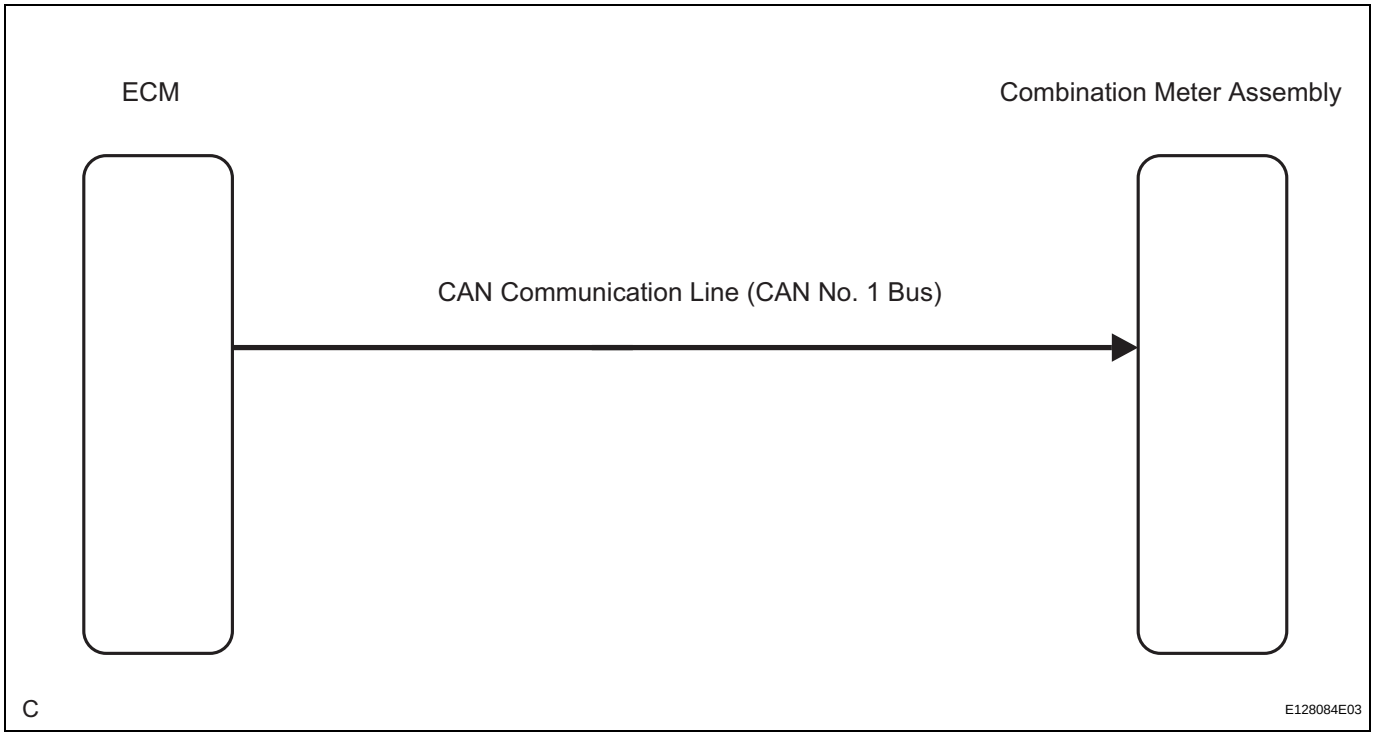
END

Tachometer Malfunction

DESCRIPTION

The meter CPU receives engine revolution signals from the ECM via the CAN communication lines (CAN No. 1 Bus). The meter CPU displays engine revolution data that is calculated based on the data received from the ECM.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.

ME

(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST.
(e) Check the values by referring to the values in the table below.

METER:

Item	Test Details	Diagnostic Note
TACHO METER	0, 1,000, 2,000, 3,000, 4,000, 5,000, 6,000, 7,000, (rpm)	-

OK:
Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

3 **READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED SIGNAL)**

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / DATA LIST.
(e) Check the values by referring to the values in the table below.

METER:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
TACHO METER	Engine speed/Min.: 0 rpm, Max.: 12,750 rpm	Almost same as actual engine speed (When engine is running)	If data received from the ECM exceeds the range that can be displayed on the meter, the meter continues to display the maximum value of the range.

OK:
Engine speed displayed on the tester is almost the same as the actual engine speed.

NG → **Go to step 4**

OK

REPLACE COMBINATION METER ASSEMBLY

4 **READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED SIGNAL)**

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / ENGINE / DATA LIST.

(e) Check the values by referring to the table below.

ENGINE:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed/Min.: 0 rpm, Max.: 12,800 rpm	Almost same as actual engine speed (When engine is running)	-

OK:

Engine speed displayed on the tester is almost the same as the actual engine speed.

NG → **GO TO SFI SYSTEM**

OK

5	REPLACE ECM

(a) Replace the ECM to a new or a normal one.

OK:

The operation of the tachometer returns to normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

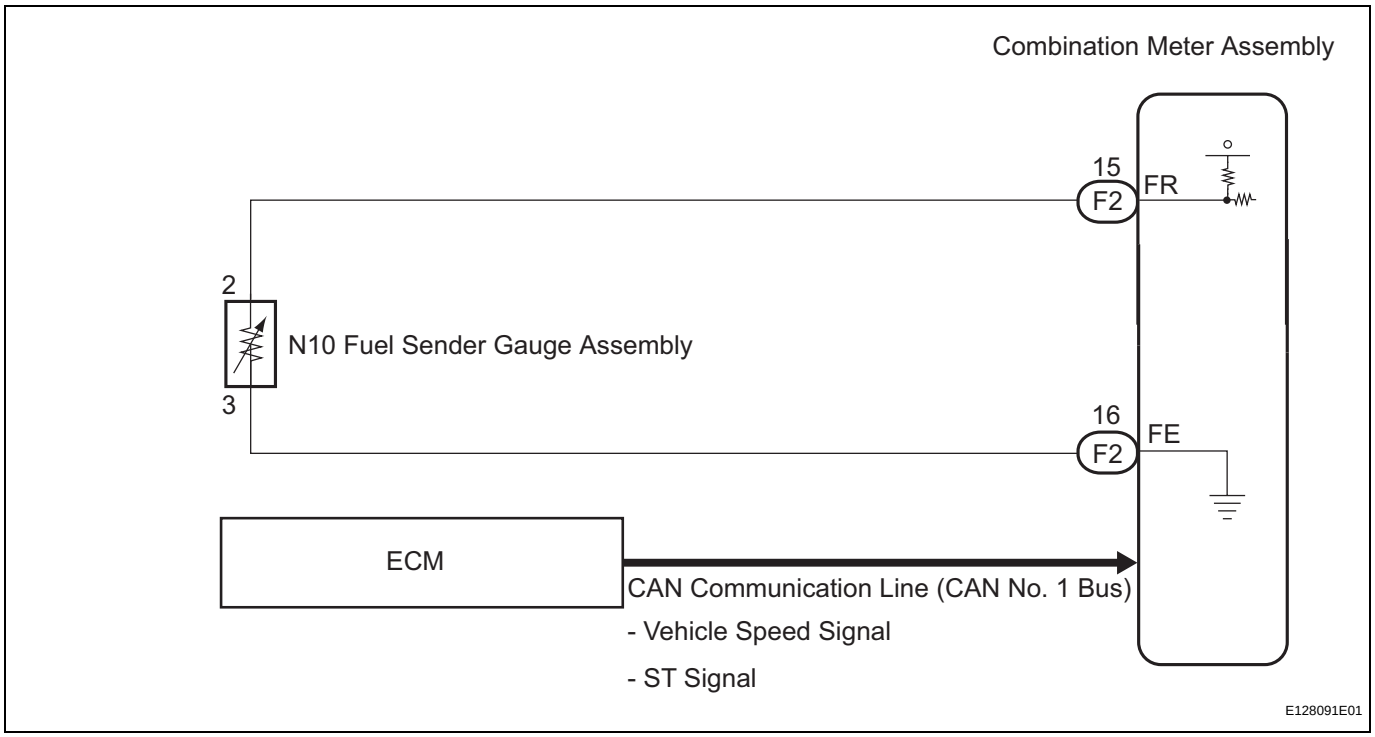
END

Fuel Receiver Gauge Malfunction

DESCRIPTION

The meter CPU uses the fuel sender gauge assembly to determine the level of the fuel in the fuel tank. The resistance of the fuel sender gauge will vary between approximately 15 Ω with the float at the full position, and 410 Ω with the float at the empty position. The meter outputs battery voltage through two 820 Ω resistors that are mounted in parallel inside the meter ECU. The meter CPU measures the voltage between the variable resistor in the fuel sender gauge and the two resistors mounted in parallel in the meter. Voltage measured at this point will vary as the float of the fuel sender gauge is moved. The highest voltage observed should be approximately half of battery voltage.
HINT:
The fuel level warning light will come on when the fuel level is below 10.5 liters.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

Result

Result	Proceed to
CAN communication DTC is not output	A
CAN communication DTC is output	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

ME

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST.
(e) Check the values by referring to the table below.

METER:

Item	Test Details	Diagnostic Note
FUEL GAUGE	EMPTY, 1/2, FULL	-

OK:
Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

3	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter following menus: DIAGNOSIS / OBD/MOBD / METER / DATA LIST.
(e) Check the values by referring to the table below.

METER:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
FUEL GAUGE	Fuel input signal Min.: 0, Max.: 255	Fuel gauge indicates (F): 35 Fuel gauge indicates (3/4): 85 Fuel gauge indicates (1/2): 145 Fuel gauge indicates (3/4): 186 Fuel gauge indicates (E): 205	-

OK:
Fuel value signal displayed on the tester is almost the same as needle indication.

NG → **Go to step 4**

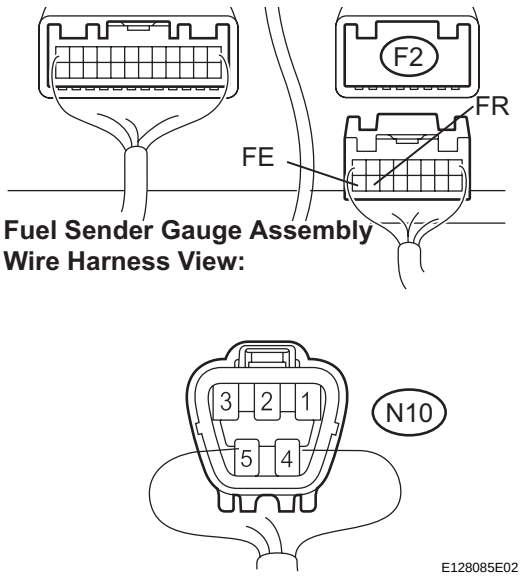
OK

REPAIR OR REPLACE HARNESS OR CONNECTOR

ME

4	CHECK HARNESS AND CONNECTOR (COMBINATION METER - FUEL SENDER GAUGE ASSEMBLY)

Combination Meter Assembly Wire Harness View:



Fuel Sender Gauge Assembly Wire Harness View:

E128085E02

(a) Disconnect the F2 and N10 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
F2-15 (FR) - N10-2	Always	Below 1 Ω
F2-16 (FE) - N10-3	Always	Below 1 Ω
N10-2 - Body ground	Always	10 kΩ or higher
F2-16 - Body ground	Always	10 kΩ or higher

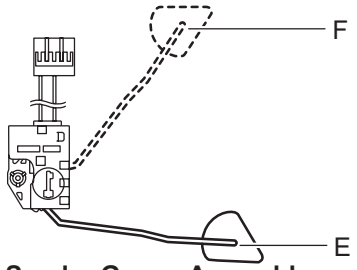
NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

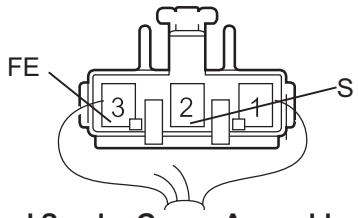
ME

5	INSPECT FUEL SENDER GAUGE ASSEMBLY

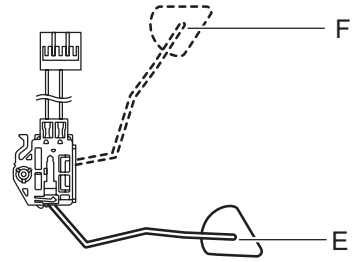
Fuel Sender Gauge Assembly (for 2GR-FE):



Fuel Sender Gauge Assembly Wire Harness View:



Fuel Sender Gauge Assembly (for 2AZ-FE):



E128086E01

(a) Disconnect the fuel sender gauge connector.
(b) Remove the fuel sender gauge assembly.
(c) Check that the float moves smoothly between F and E.
(d) Measure the resistance between the terminals 2 (S) and 3 (FE) of connector according to the value(s) in the table below.

Standard resistance

Float Level	Resistance (Ω)
F	13.5 to 16.5
Between E and F	13.5 to 414.5 (Gradually changes)
E	405.5 to 414.5

NG → **REPLACE FUEL SENDER GAUGE ASSEMBLY**

OK

6	REPLACE COMBINATION METER ASSEMBLY

(a) Replace the combination meter assembly to a new one or a normal one.

OK:

The operation of the combination meter assembly returns to normal.

NG → **REPLACE ECM**

OK

END

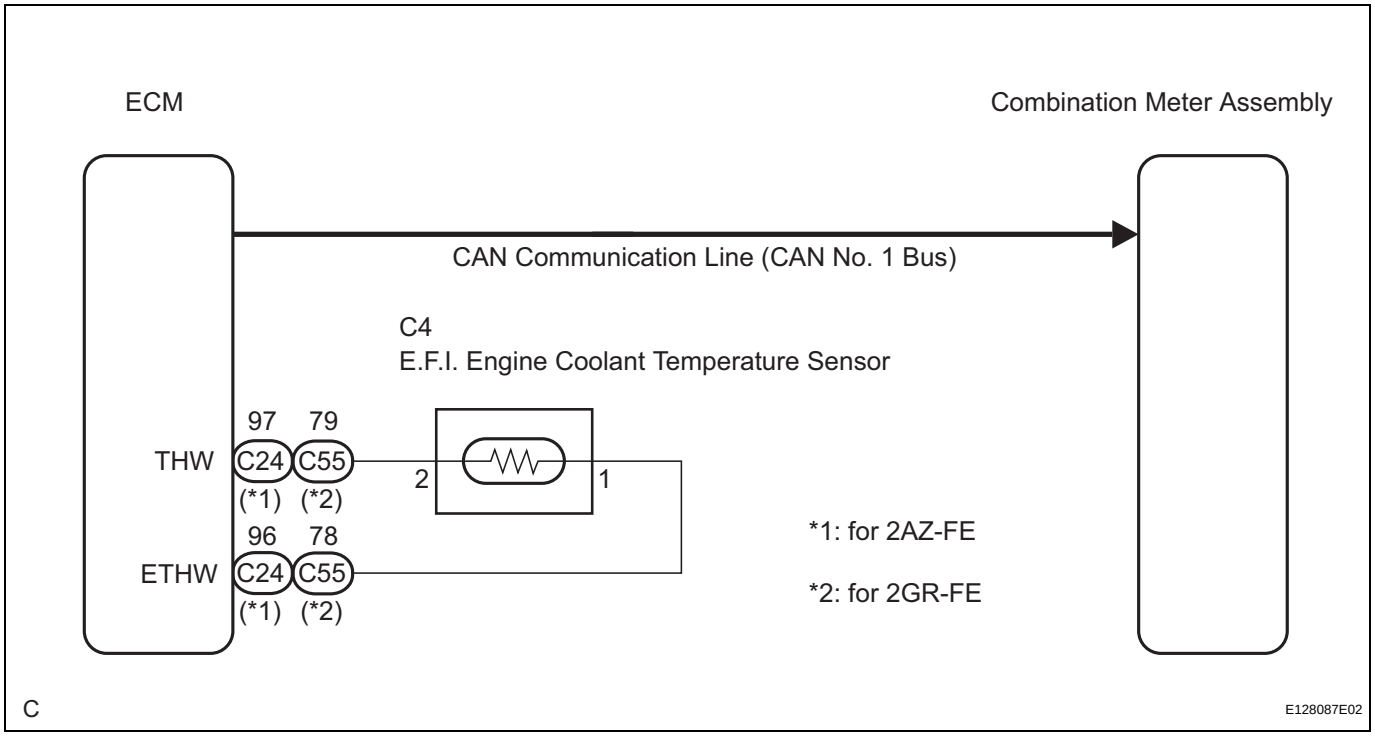
ME

Engine Coolant Temperature Receiver Gauge Malfunction

DESCRIPTION

The meter CPU receives engine coolant temperature signals from the ECM via the CAN communication lines (CAN No. 1 Bus). The meter CPU displays engine coolant temperature that is calculated based on the data received from the ECM.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
If there is an open or short in the engine coolant temperature sensor circuit, the ECM outputs the DTCs. Perform troubleshooting with the "SFI System" (See page ES-38 for 2AZ-FE, ES-63 for 2GR-FE).

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

ME

2	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / ACTIVE TEST.
(e) Check the values by referring to the values in the table below.

METER:

Item	Test Details	Diagnostic Note
COOLANT TEMP	LOW, NORMAL, HI	-

OK:
Needle indication is normal.

NG → **REPLACE COMBINATION METER ASSEMBLY**

OK

3	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / METER / DATA LIST.

METER:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
COOLANT TEMP	Engine coolant temperature: 0°C (-40°F) to 127.5°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	•If -40°C (-40°F): sensor circuit open •If 140°C (284°F) or more: sensor circuit shorted

OK:
Engine coolant temperature value displayed on the tester is almost the same as needle indication.

NG → **Go to step 4**

OK

REPLACE COMBINATION METER ASSEMBLY

4	READ VALUE OF INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / OBD/MOBD / ENGINE / DATA LIST.

(e) Check the values by referring to the values in the table below.

ENGINE:

Item	Measurement Item/Range (Display)	Normal Condition	Diagnostic Note
WATER TEMP	Engine coolant temperature: -40°C (-40°F) to 140°C (284°F)	80 to 100°C (176 to 212°F): After warming up	•If -40°C (-40°F): sensor circuit open •If 140°C (284°F) or more: sensor circuit shorted

OK:

Engine coolant temperature value displayed on the tester is almost the same as needle indication.

NG → **GO TO SFI SYSTEM**

OK

5	REPLACE COMBINATION METER ASSEMBLY

(a) Replace the combination meter assembly to a new or a normal one.

OK:

The operation of the combination meter assembly returns to normal.

NG → **GO TO SFI SYSTEM**

OK

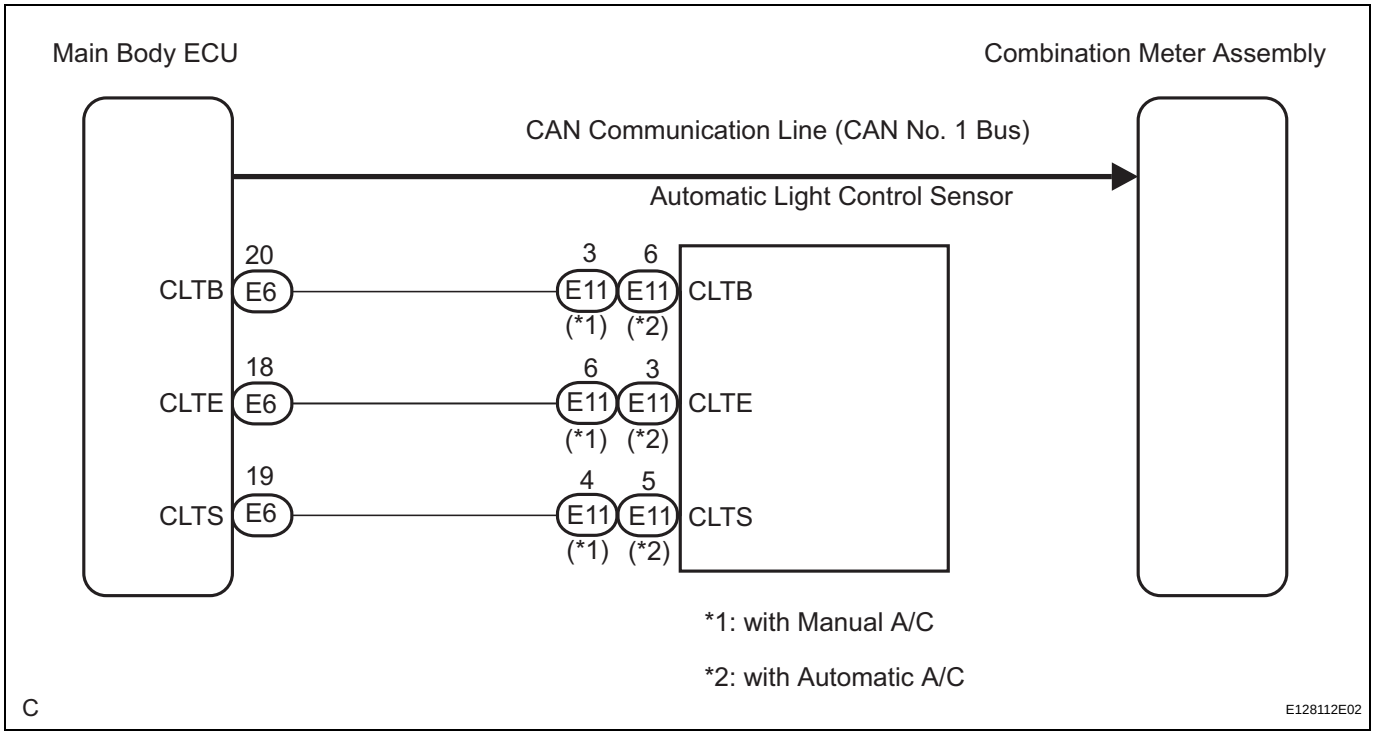
END

Meter Illumination is Always Dark

DESCRIPTION

The meter CPU receives auto dimmer signals from the main body ECU via the CAN communication lines (CAN No. 1 Bus). When the meter CPU receives an auto dimmer signal, it dims the meter illumination. The main body ECU determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU determines that it is daytime, the ECU does not send auto dimmer signals. Therefore, the meter illumination (warning and indicator lights) will not dim even if the driver accidentally turns the light control switch to the TAIL or HEAD position in daytime.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

2	CHECK DTC

(a) Check if DTC B1244 is output (See page LI-20).

Result

Result	Proceed to
B1244 is not output	A
B1244 is output	B (See page LI-23)

B → GO TO LIGHTING SYSTEM

A

3	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / BODY / MAIN BODY / ACTIVE TEST.
(e) Check the meter illumination.

MAIN BODY:

Item	Test Details	Diagnostic Note
DIMMER SIG	Auto dimmer signal ON/OFF	-

OK:
The meter illumination is dimmed when the DIMMER SIG is ON.
HINT:
Refer to the sensitivity setting in the customization table of the automatic light control system. (See page LI-10)

NG → **Go to step 4**

OK

CHECK LIGHTING SETTING

4	REPLACE COMBINATION METER ASSEMBLY

(a) Replace the combination meter assembly to a new or a normal one.

OK:
The operation of the combination meter assembly returns to normal.

NG → **REPLACE MAIN BODY ECU**

OK

END

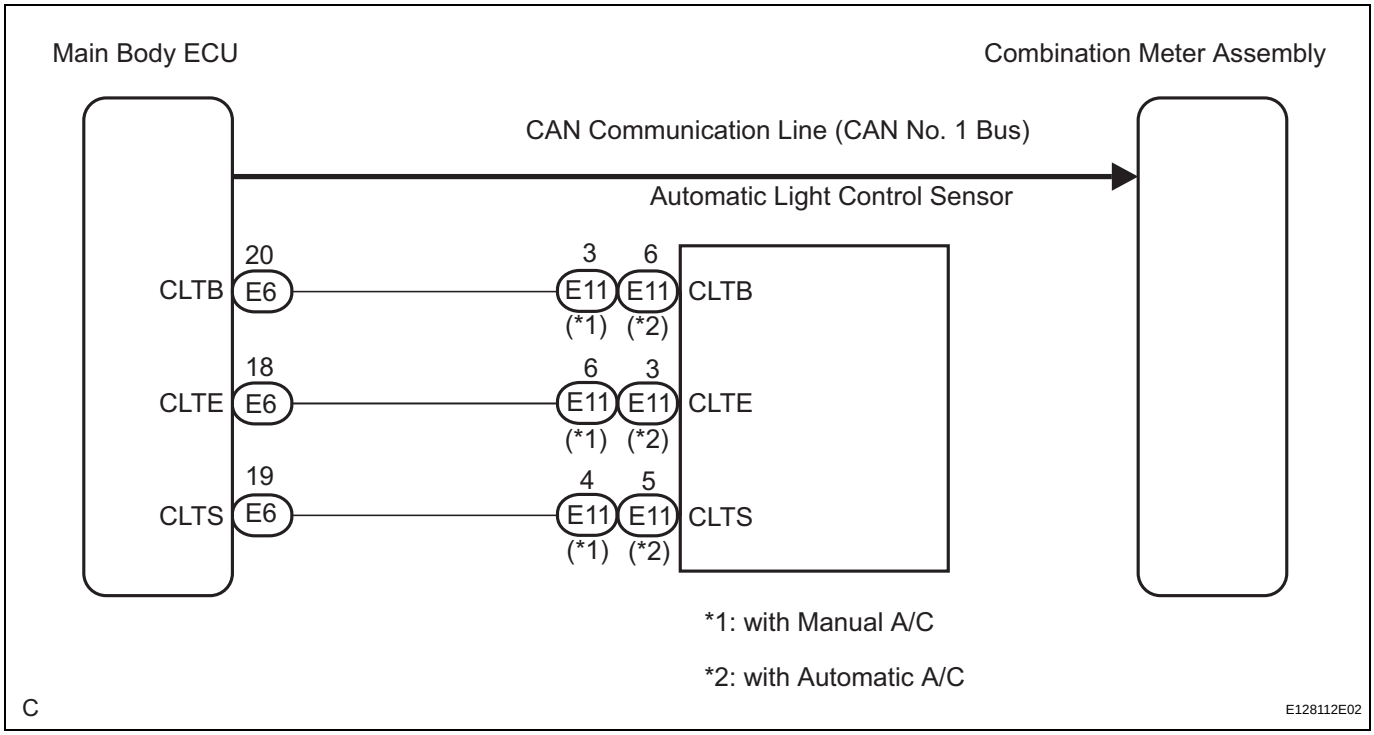
ME

Meter Illumination does not Dim at Night

DESCRIPTION

The meter CPU receives auto dimmer signals from the main body ECU via the CAN communication lines (CAN No. 1 Bus). When the meter CPU receives an auto dimmer signal, it dims the meter illumination. The main body ECU determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU determines that it is daytime, the ECU does not send auto dimmer signals. Therefore, the meter illumination (warning and indicator lights) will not dim even if the driver accidentally turns the light control switch to the TAIL or HEAD position in daytime.

WIRING DIAGRAM



INSPECTION PROCEDURE

1	CHECK CAN COMMUNICATION SYSTEM

(a) Check if CAN communication DTC is output (See page CA-25).

ME

Result

Result	Proceed to
CAN communication DTC is not output.	A
CAN communication DTC is output.	B (See page CA-31)

B → GO TO CAN COMMUNICATION SYSTEM

A

2	CHECK DTC

(a) Check if DTC B1244 is output (See page LI-20).

Result

Result	Proceed to
B1244 is not output	A
B1244 is output	B (See page LI-23)

B → GO TO LIGHTING SYSTEM

A

3	PERFORM ACTIVE TEST BY INTELLIGENT TESTER

(a) Connect the intelligent tester to the DLC3.
(b) Turn the ignition switch on (IG).
(c) Turn the tester ON.
(d) Enter the following menus: DIAGNOSIS / BODY / MAIN BODY / ACTIVE TEST.
(e) Check the meter illumination.

MAIN BODY:

Item	Test Details	Diagnostic Note
DIMMER SIG	Auto dimmer signal ON/OFF	-

OK:
The meter illumination is dimmed when the DIMMER SIG is ON.
HINT:
Refer to the sensitivity setting in the customization table of the automatic light control system. (See page LI-12)

NG → **Go to step 4**

OK

CHECK LIGHTING SETTING

4	REPLACE COMBINATION METER ASSEMBLY

(a) Replace the combination meter assembly to a new or a normal one.

OK:
The operation of the combination meter assembly returns to normal.

NG → **REPLACE MAIN BODY ECU RH**

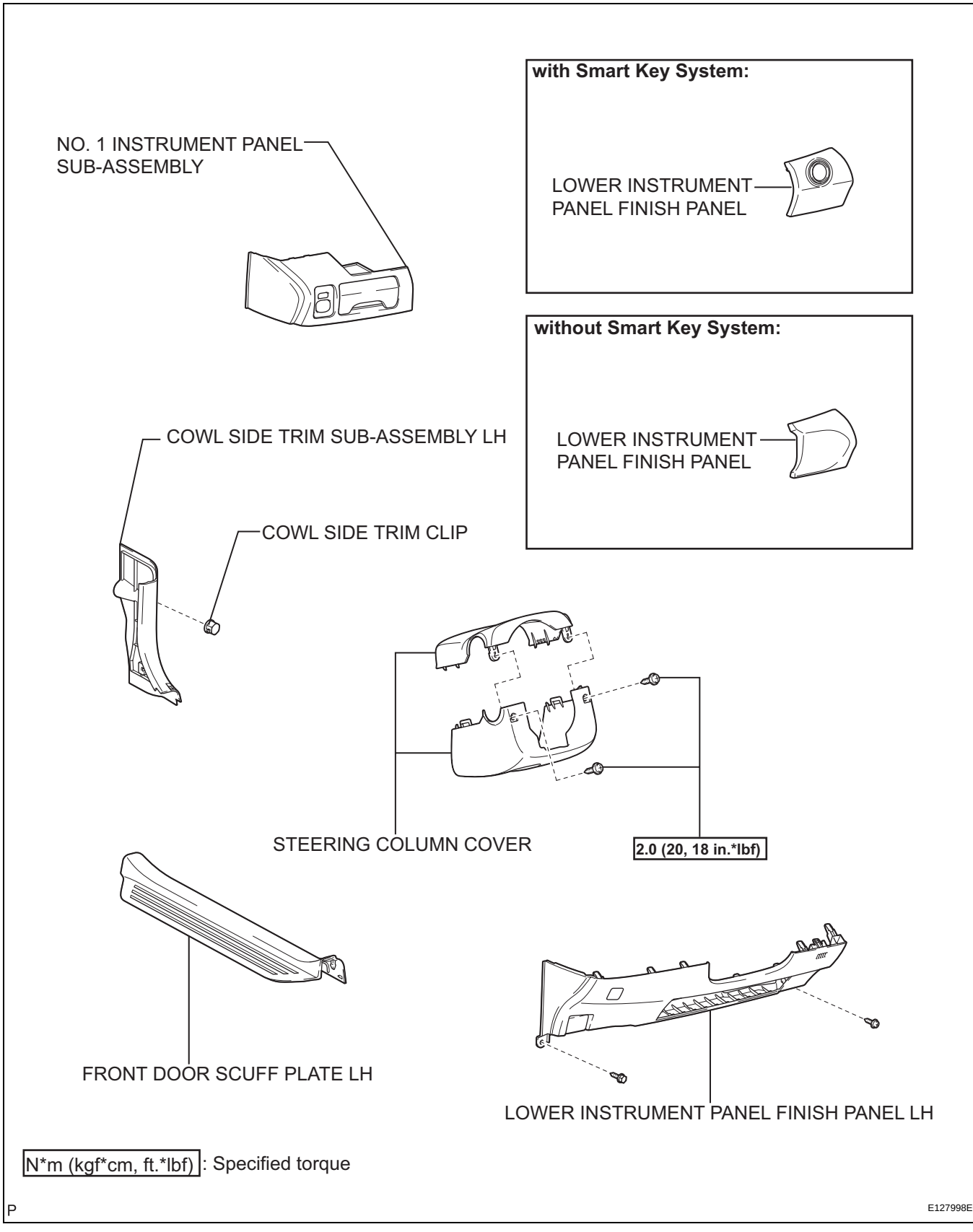
OK

END

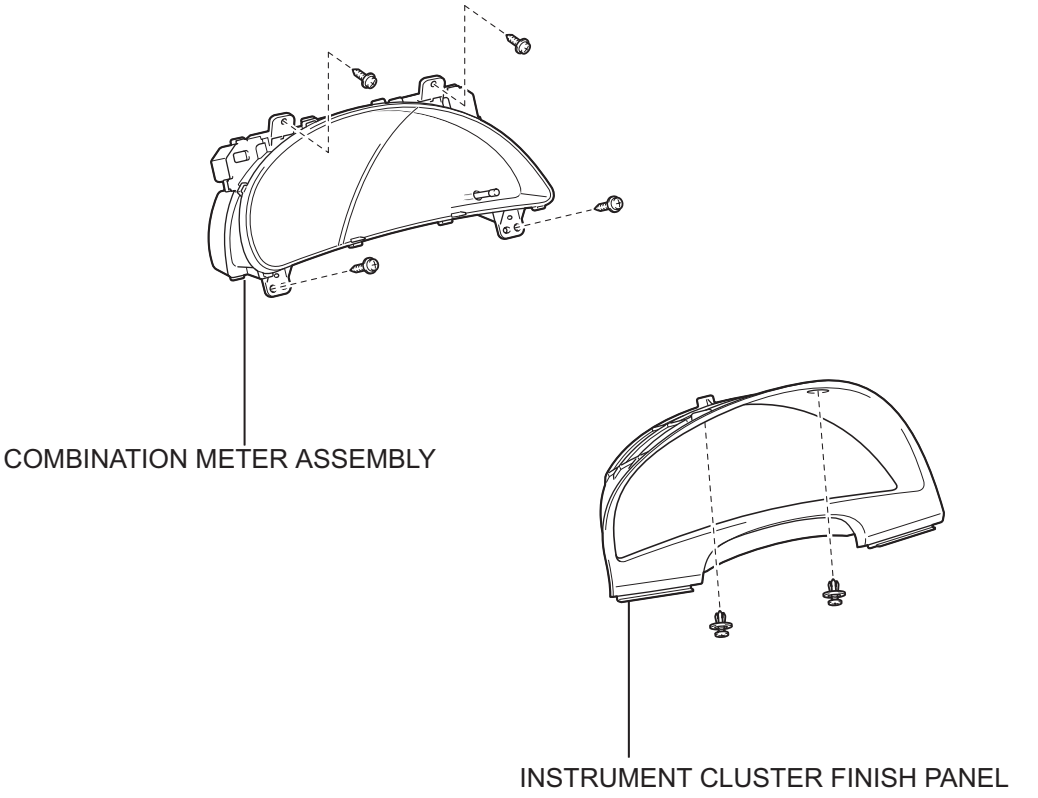
ME

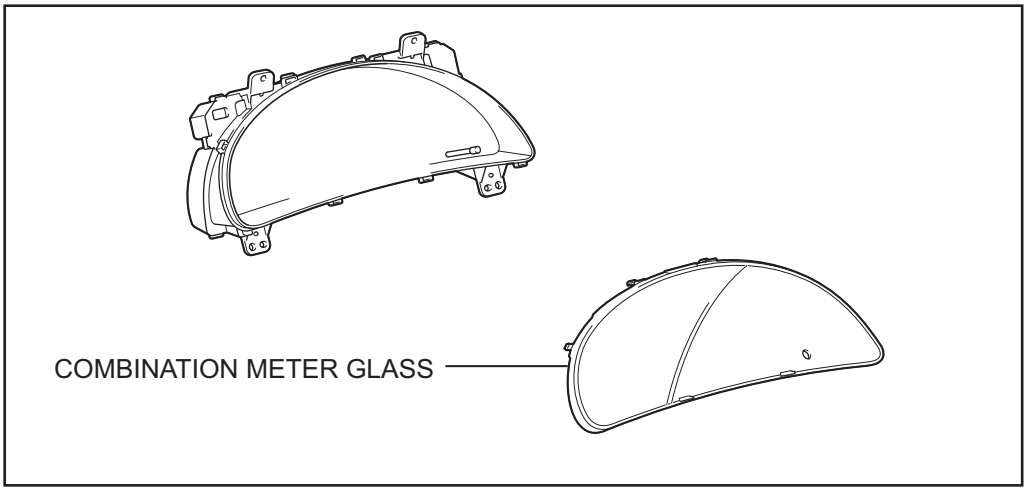
COMBINATION METER

COMPONENTS



ME





ME

P

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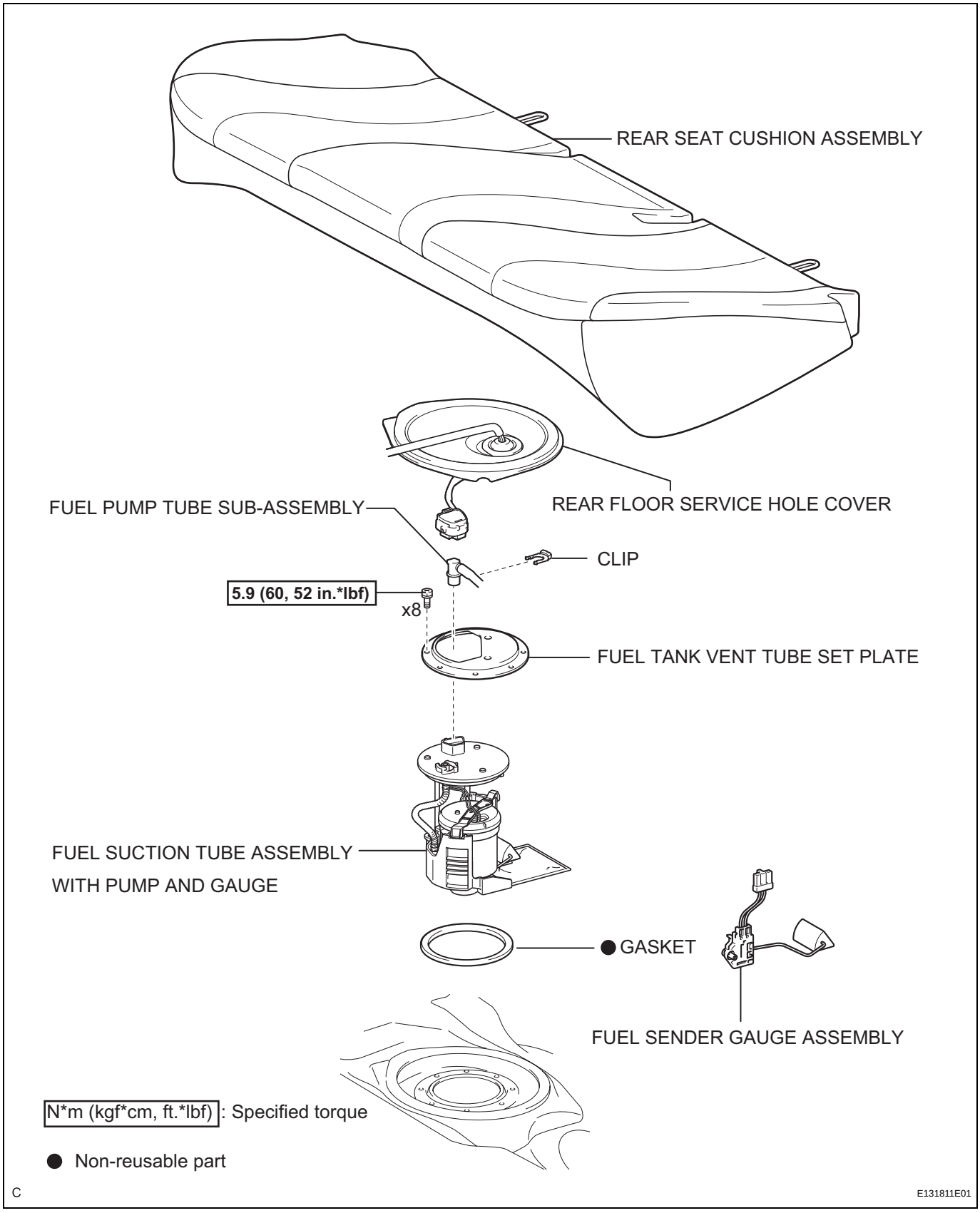
FUEL SENDER GAUGE ASSEMBLY (for 2AZ-FE)

COMPONENTS



ME

REMOVAL

1. **DISCHARGE FUEL SYSTEM PRESSURE**
   HINT:
   (See page FU-1)
2. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
   CAUTION:
   Wait for 90 seconds after disconnecting the cable to prevent airbag deployment (See page RS-1).
3. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-77)**
4. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-47)**
5. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-62)**
6. **REMOVE REAR FLOOR SERVICE HOLE COVER (See page FU-23)**
7. **SEPARATE FUEL PUMP TUBE SUB-ASSEMBLY (See page FU-23)**
8. **REMOVE FUEL TANK VENT TUBE SET PLATE (See page FU-24)**
9. **REMOVE FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE (See page FU-24)**
10. **REMOVE FUEL SENDER GAUGE ASSEMBLY (See page FU-24)**

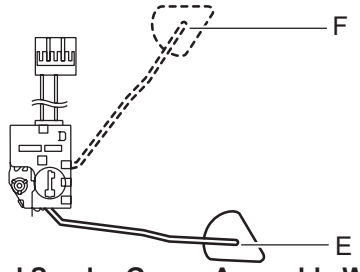
INSPECTION

1. **INSPECT FUEL SENDER GAUGE ASSEMBLY**
   (a) Remove the fuel sender gauge assembly.
   (b) Check that the float moves smoothly between F and E.
   (c) Measure the resistance between the terminals 2 (S) and 3 (FE) of connector according to the value(s) in the table below.
   Standard resistance

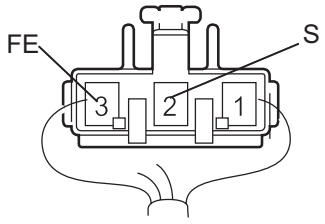
Float Level	Resistance (Ω)
F	13.5 to 16.5
Between E and F	13.5 to 414.5 (Gradually changes)
E	405.5 to 414.5

HINT:
If the value is not as specified, replace the fuel sender gauge assembly.

Fuel Sender Gauge Assembly:



Fuel Sender Gauge Assembly Wire Harness View:



E132666E01

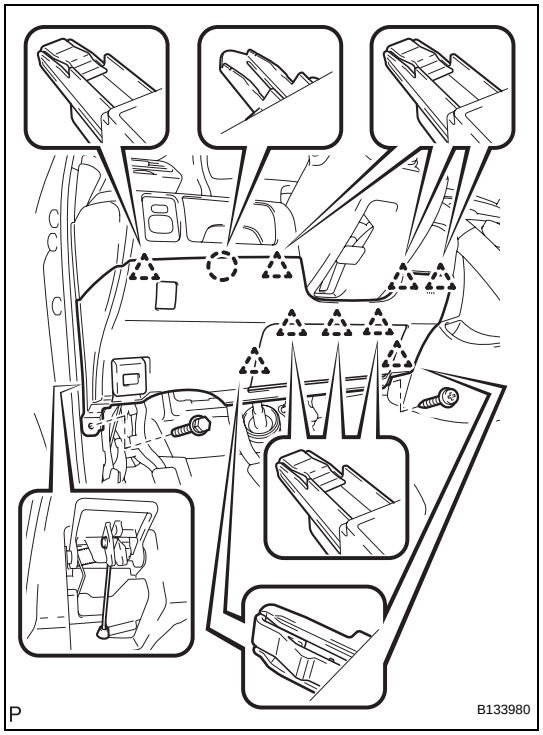
ME

INSTALLATION

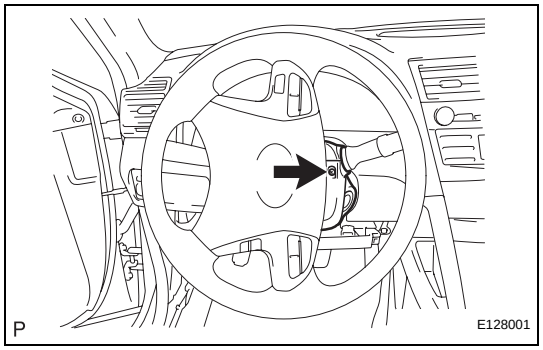
1. **INSTALL FUEL SENDER GAUGE ASSEMBLY (See page FU-30)**
2. **INSTALL FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE (See page FU-30)**
3. **INSTALL FUEL TANK VENT TUBE SET PLATE (See page FU-31)**
4. **CONNECT FUEL PUMP TUBE SUB-ASSEMBLY (See page FU-31)**
5. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
6. **CHECK FOR FUEL LEAKS (See page FU-8)**
7. **INSTALL REAR FLOOR SERVICE HOLE COVER (See page FU-31)**
8. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-84)**
9. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-58)**
10. **INSTALL REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-73)**

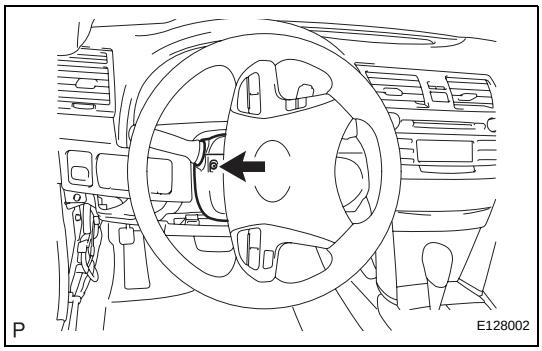
REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
   CAUTION:
   Wait for 90 seconds after disconnecting the cable to prevent airbag deployment (See page RS-1).
2. **REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-24)**
3. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-25)**
4. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH**
   (a) Remove the screw and the bolt.
   (b) Disconnect the hood lock control cable assembly.
   (c) Disengage the claw and the 9 clips.
   (d) Remove the air hose, disconnect the connector, and then remove the lower instrument panel finish panel LH.

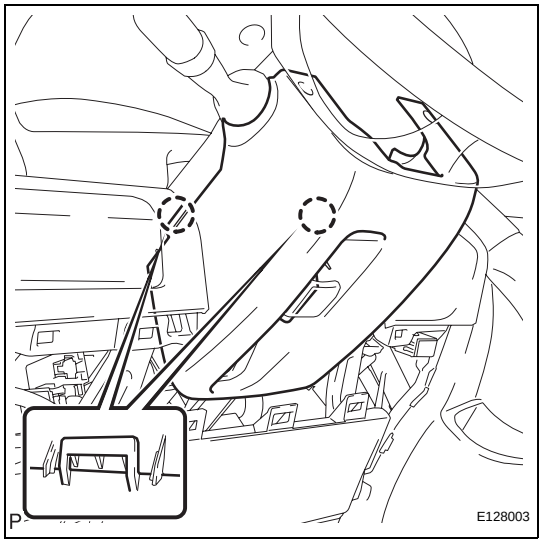


5. **REMOVE STEERING COLUMN COVER**
   (a) Turn the steering wheel assembly to the right and remove the screw as shown in the illustration.

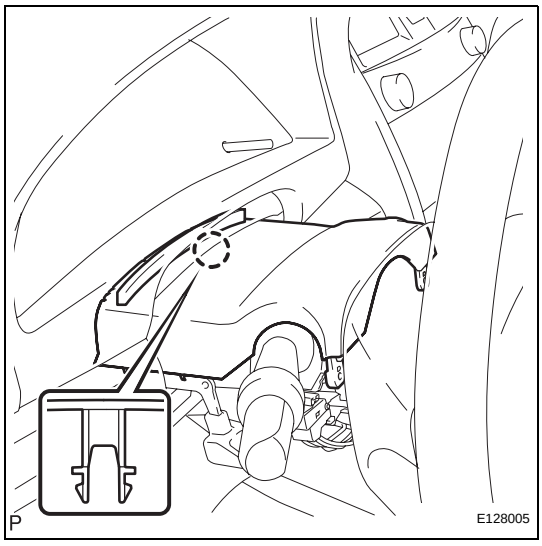




(b) Turn the steering wheel assembly to the left and remove the screw as shown in the illustration.



(c) Disengage the 2 claws and remove the steering column cover lower.

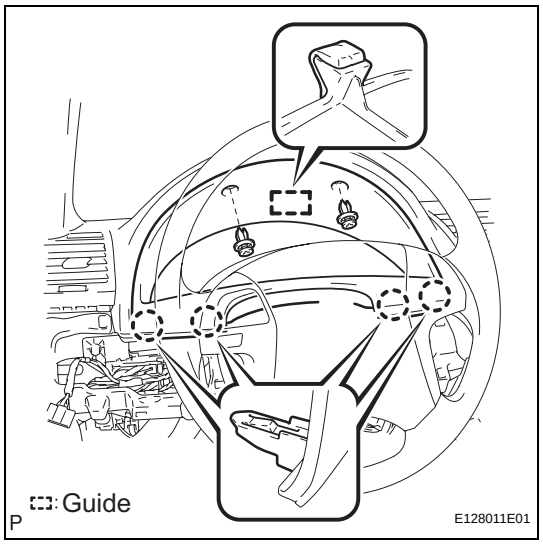


(d) Disengage the claw and remove the steering column cover upper.

6. **REMOVE NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-22)**

7. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL (w/o Smart Key System) (See page IP-22)**

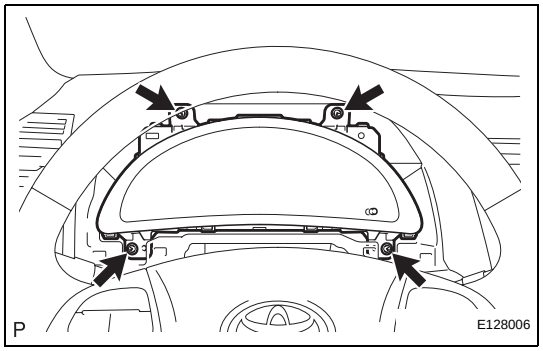
8. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL (w/ Smart Key System) (See page IP-22)**



9. REMOVE INSTRUMENT CLUSTER FINISH PANEL

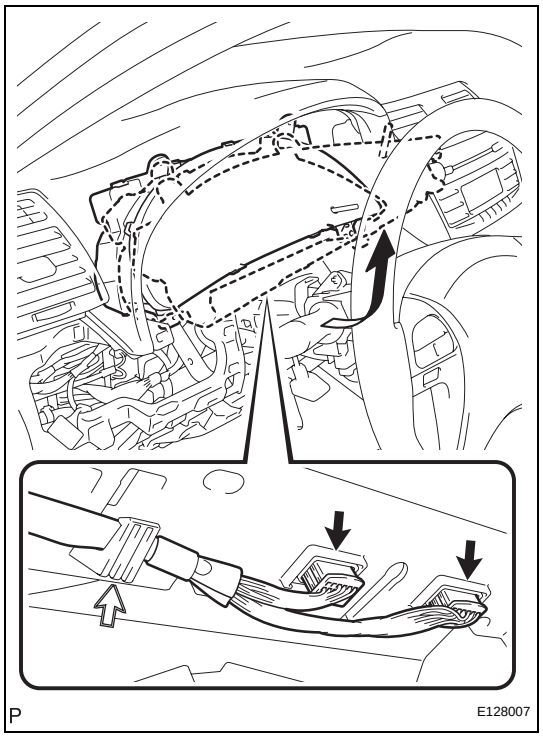
(a) Remove the 2 clips.

(b) Disengage the guide and the 4 claws, and then remove the instrument cluster finish panel.



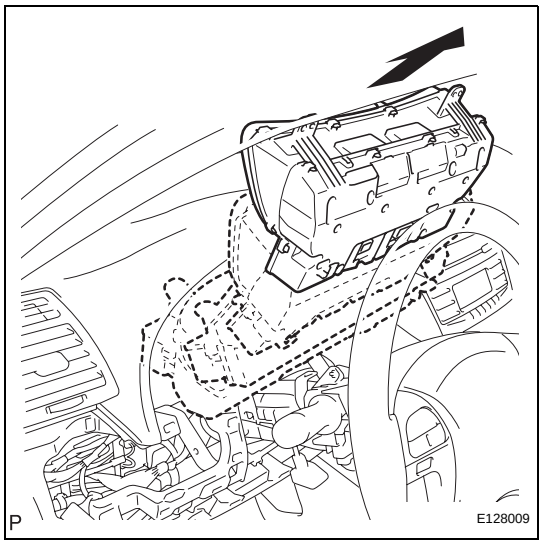
10. REMOVE COMBINATION METER ASSEMBLY

(a) Remove the 4 screws.

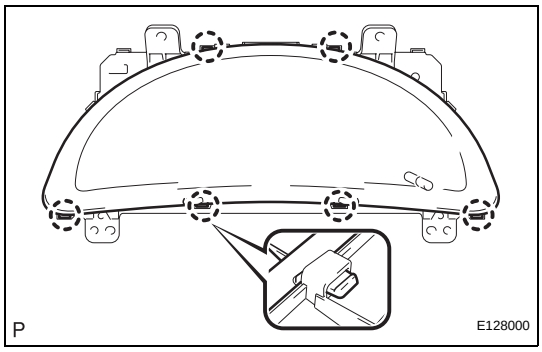


(b) Disconnect the 2 connectors.

(c) Disengage the wire harness from the combination meter assembly.



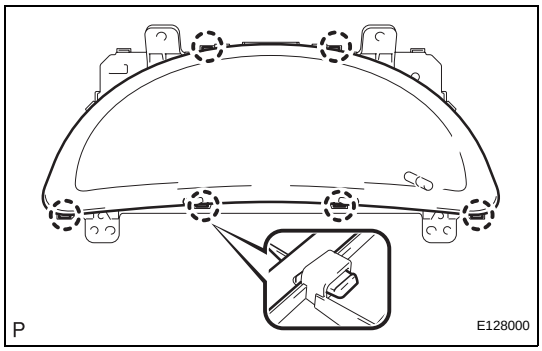
(d) Remove the combination meter assembly as shown in the illustration.



DISASSEMBLY

1. REMOVE COMBINATION METER GLASS

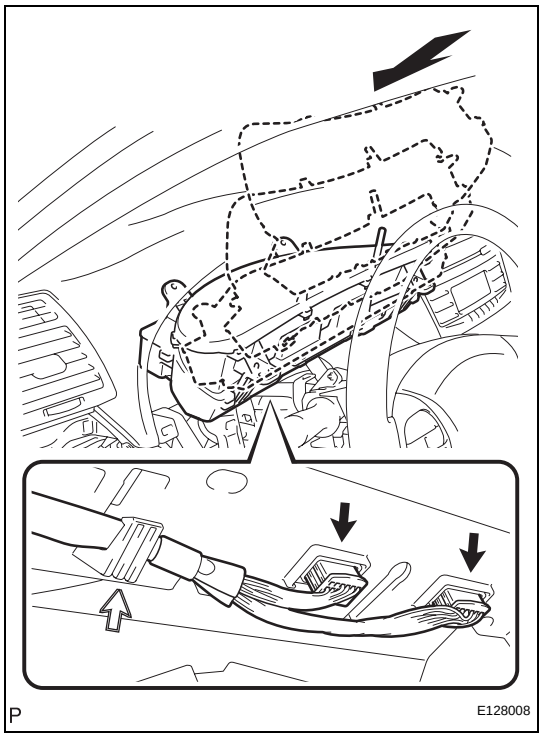
(a) Disengage the 6 claws and remove the combination meter glass.



REASSEMBLY

1. INSTALL COMBINATION METER GLASS

(a) Engage the 6 claws and install the combination meter glass.

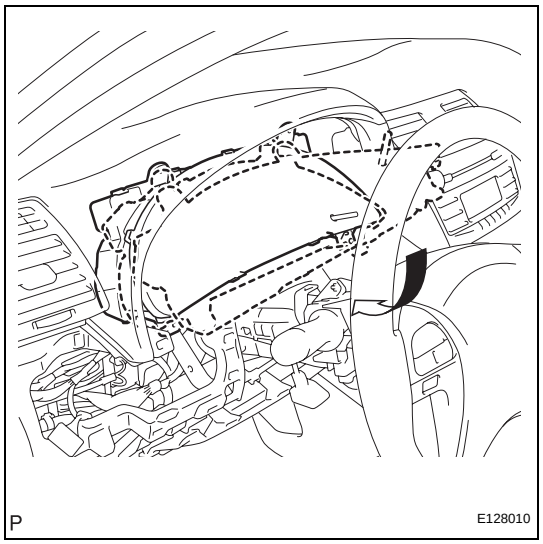


INSTALLATION

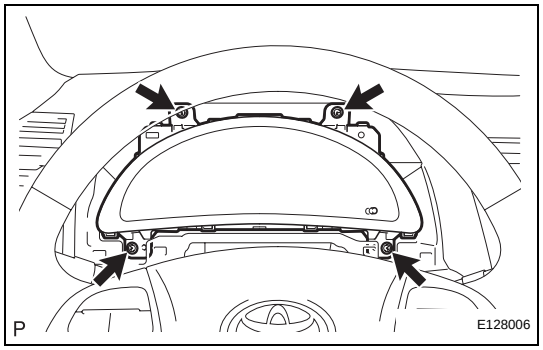
1. INSTALL COMBINATION METER ASSEMBLY

(a) Connect the 2 connectors as shown in the illustration.

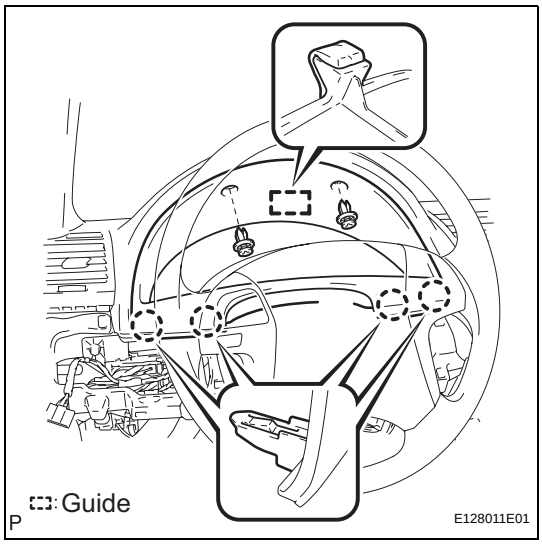
(b) Secure the wire harness to the combination meter assembly.



(c) Install the combination meter assembly as shown in the illustration.



(d) Install the 4 screws.



2. INSTALL INSTRUMENT CLUSTER FINISH PANEL

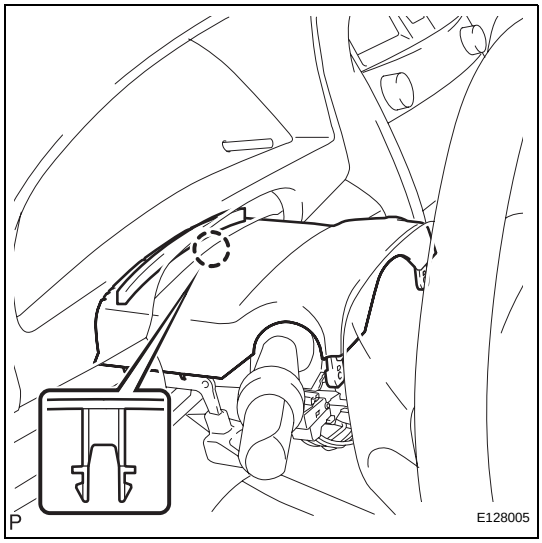
(a) Engage the 4 claws and the guide.

(b) Install the instrument cluster finish panel with the 2 clips.

3. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL (w/o Smart Key System) (See page IP-57)

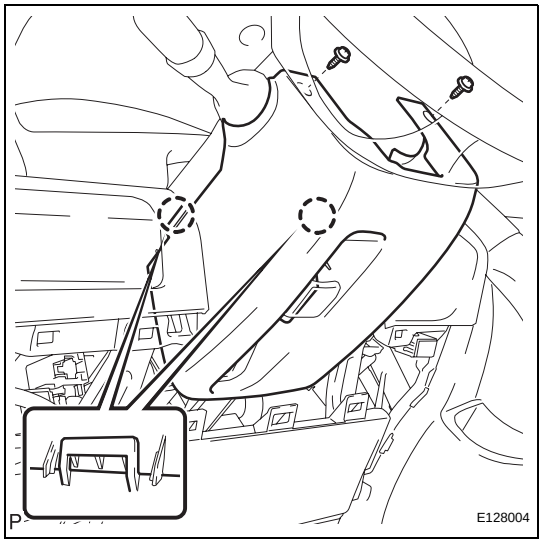
4. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL (w/ Smart Key System) (See page IP-57)

5. INSTALL NO. 1 INSTRUMENT PANEL SUB-ASSEMBLY (See page IP-57)



6. INSTALL STEERING COLUMN COVER

(a) Engage the claw and install the upper steering column cover.



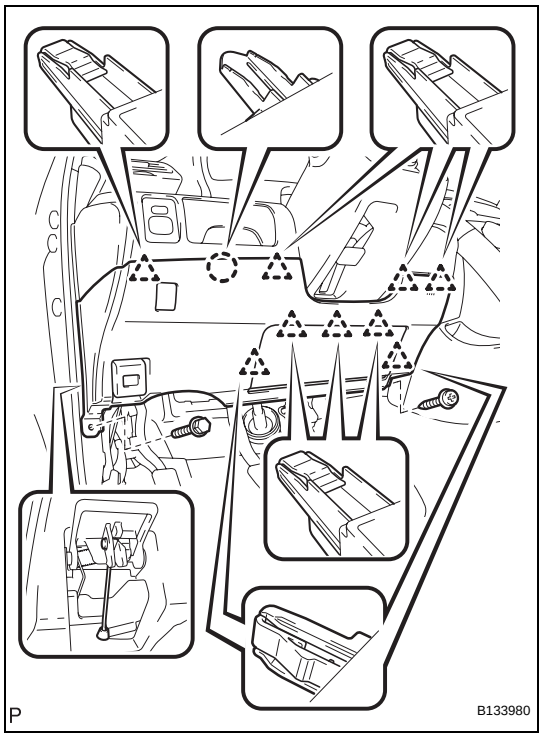
(b) Engage the 2 claws.

(c) Install the lower steering column cover with the 2 screws.

Torque: 2.0 N*m (20 kgf*cm, 18 in.*lbf)

7. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH

(a) Install the air hose and connect the connector.



(b) Engage the claw and the 9 clips.
(c) Connect the hood lock control cable assembly.
(d) Install the lower instrument panel finish panel LH with the screw and bolt.

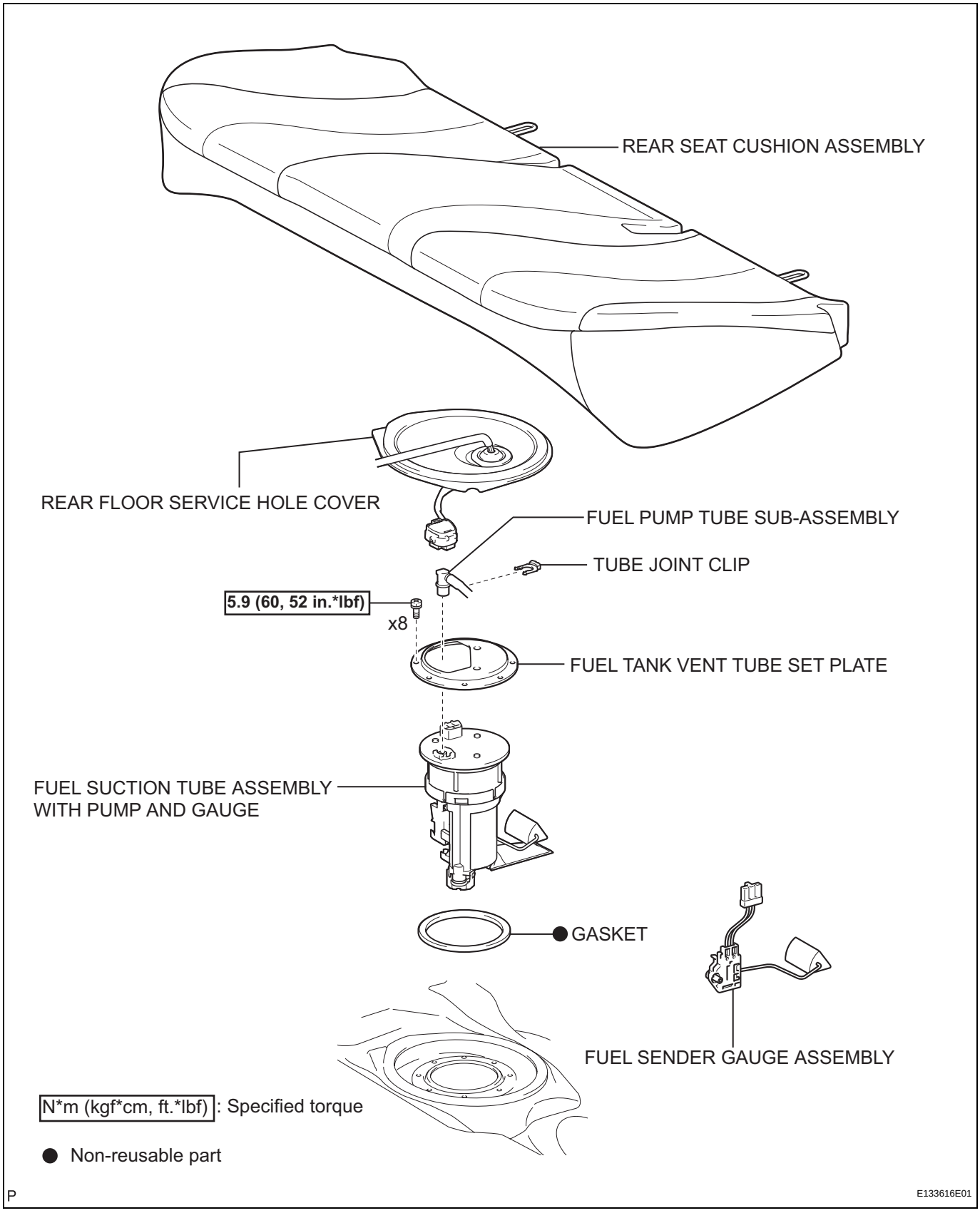
8. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH (See page IR-54)**

9. **INSTALL FRONT DOOR SCUFF PLATE LH (See page IR-54)**

10. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

FUEL SENDER GAUGE ASSEMBLY (for 2GR-FE)

COMPONENTS



ME

REMOVAL

1. **DISCHARGE FUEL SYSTEM PRESSURE**
   HINT:
   (See page FU-1)
2. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
   CAUTION:
   Wait for 90 seconds after disconnecting the cable to prevent airbag deployment (See page RS-1).
3. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-77)**
4. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-47)**
5. **REMOVE REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-62)**
6. **REMOVE REAR FLOOR SERVICE HOLE COVER (See page FU-27)**
7. **SEPARATE FUEL PUMP TUBE SUB-ASSEMBLY (See page FU-27)**
8. **REMOVE FUEL TANK VENT TUBE SET PLATE (See page FU-28)**
9. **REMOVE FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE (See page FU-28)**
10. **REMOVE FUEL SENDER GAUGE ASSEMBLY (See page FU-28)**

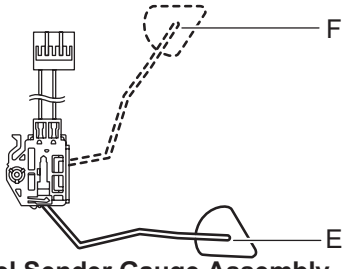
INSPECTION

1. **INSPECT FUEL SENDER GAUGE ASSEMBLY**
   (a) Remove the fuel sender gauge assembly.
   (b) Check that the float moves smoothly between F and E.
   (c) Measure the resistance between the terminals 2 (S) and 3 (FE) of connector according to the value(s) in the table below.
   Standard resistance

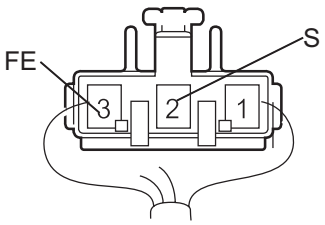
Float Level	Resistance (Ω)
F	13.5 to 16.5
Between E and F	13.5 to 414.5 (Gradually changes)
E	405.5 to 414.5

HINT:
If the value is not as specified, replace the fuel sender gauge assembly.

Fuel Sender Gauge Assembly:



Fuel Sender Gauge Assembly Wire Harness View:



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ME

INSTALLATION

1. INSTALL FUEL SENDER GAUGE ASSEMBLY (See page FU-31)
2. INSTALL FUEL SUCTION TUBE ASSEMBLY WITH PUMP AND GAUGE (See page FU-32)
3. INSTALL FUEL TANK VENT TUBE SET PLATE (See page FU-32)
4. CONNECT FUEL PUMP TUBE SUB-ASSEMBLY (See page FU-33)
5. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
6. CHECK FOR FUEL LEAKS (See page FU-8)
7. INSTALL REAR FLOOR SERVICE HOLE COVER (See page FU-33)
8. INSTALL REAR SEAT CUSHION ASSEMBLY (for Fixed Seat Type) (See page SE-84)
9. INSTALL REAR SEAT CUSHION ASSEMBLY (for Fold Down Seat Type) (See page SE-58)
10. INSTALL REAR SEAT CUSHION ASSEMBLY (for Reclining Seat Type) (See page SE-73)

ENGINE OIL PRESSURE SWITCH

ON-VEHICLE INSPECTION

1. INSPECT ENGINE OIL PRESSURE SWITCH ASSEMBLY

(a) Disconnect the connector from the oil pressure switch assembly.

(b) With the switch still installed, measure the resistance between the terminal of the engine oil pressure switch and engine ground.

Standard resistance:

Engine stopped:

Below 1 Ω

Engine idling:

10 kΩ or higher

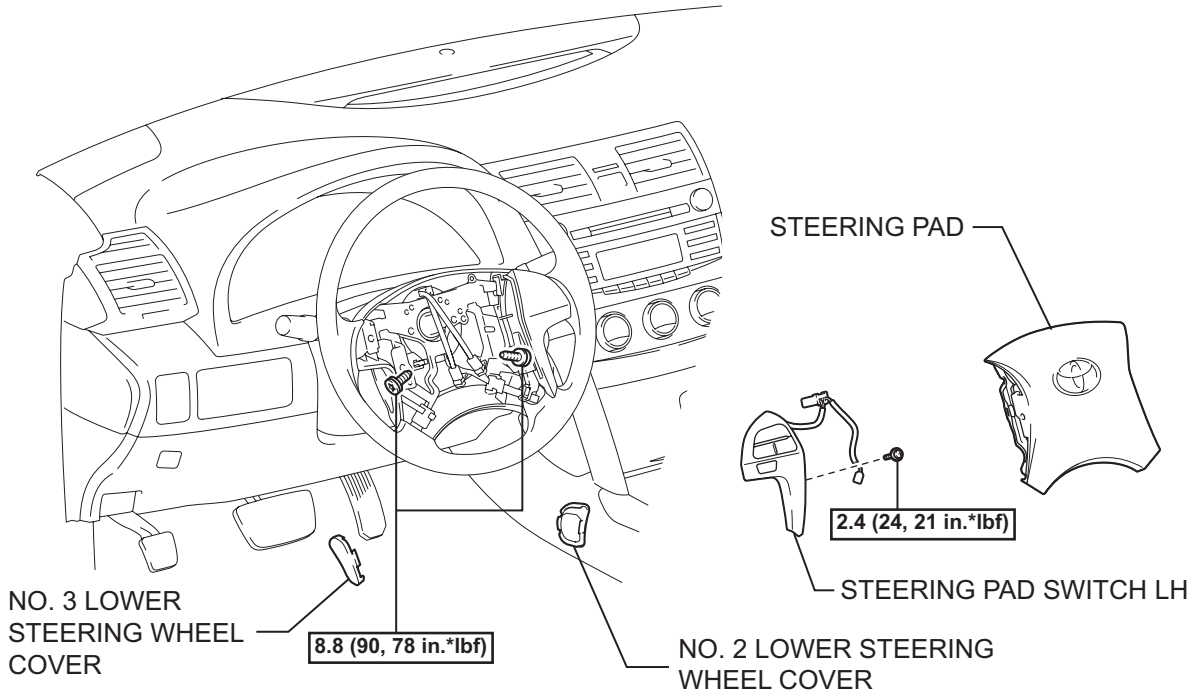
HINT:

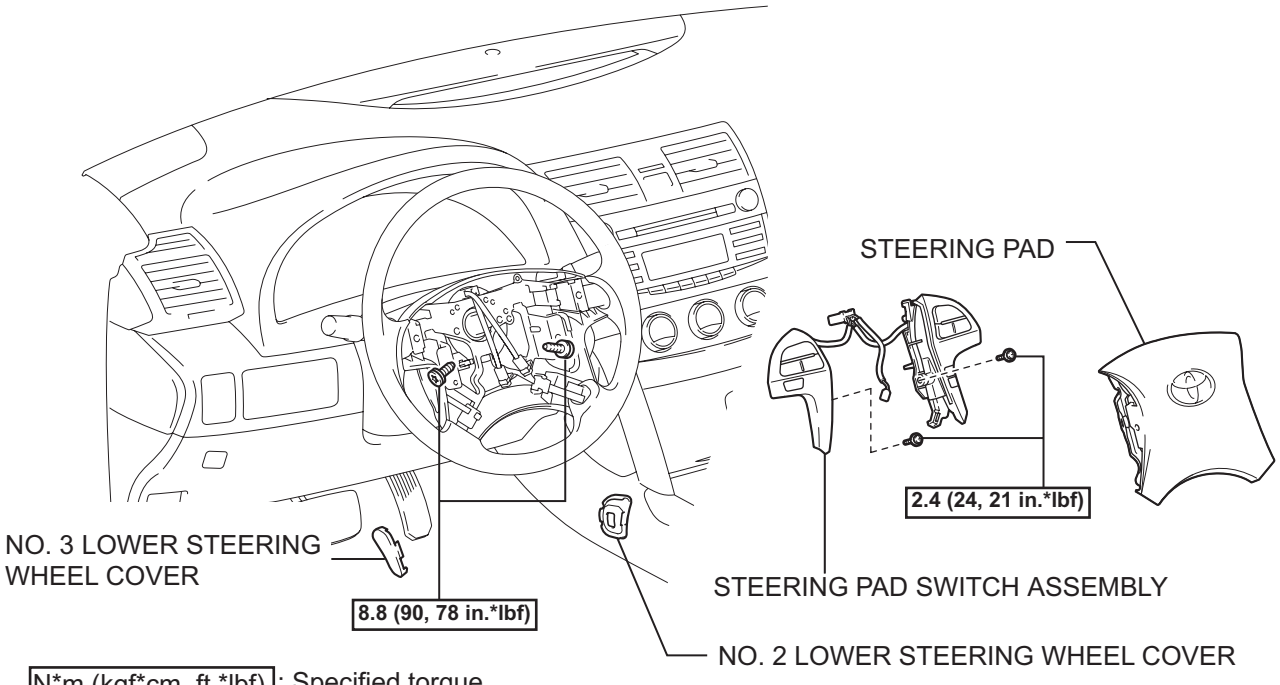
If the value is not as specified, replace the engine oil pressure switch.

STEERING PAD SWITCH

COMPONENTS

for 4 Spoke:





N*m (kgf*cm, ft.*lbf) : Specified torque

P

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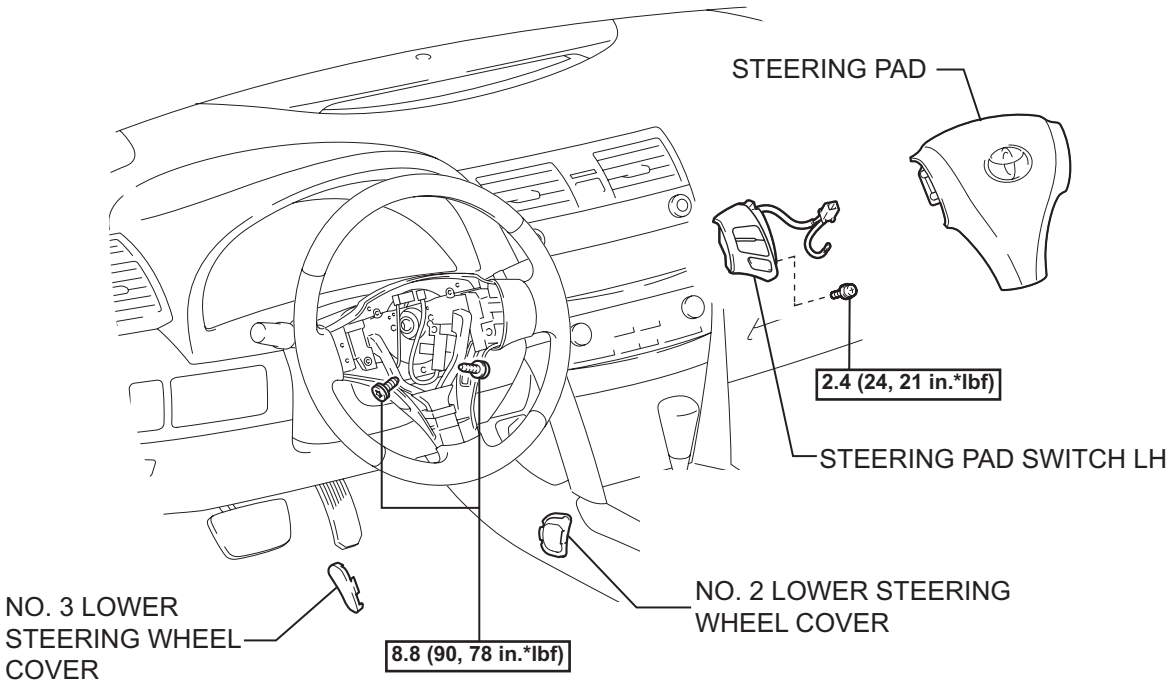
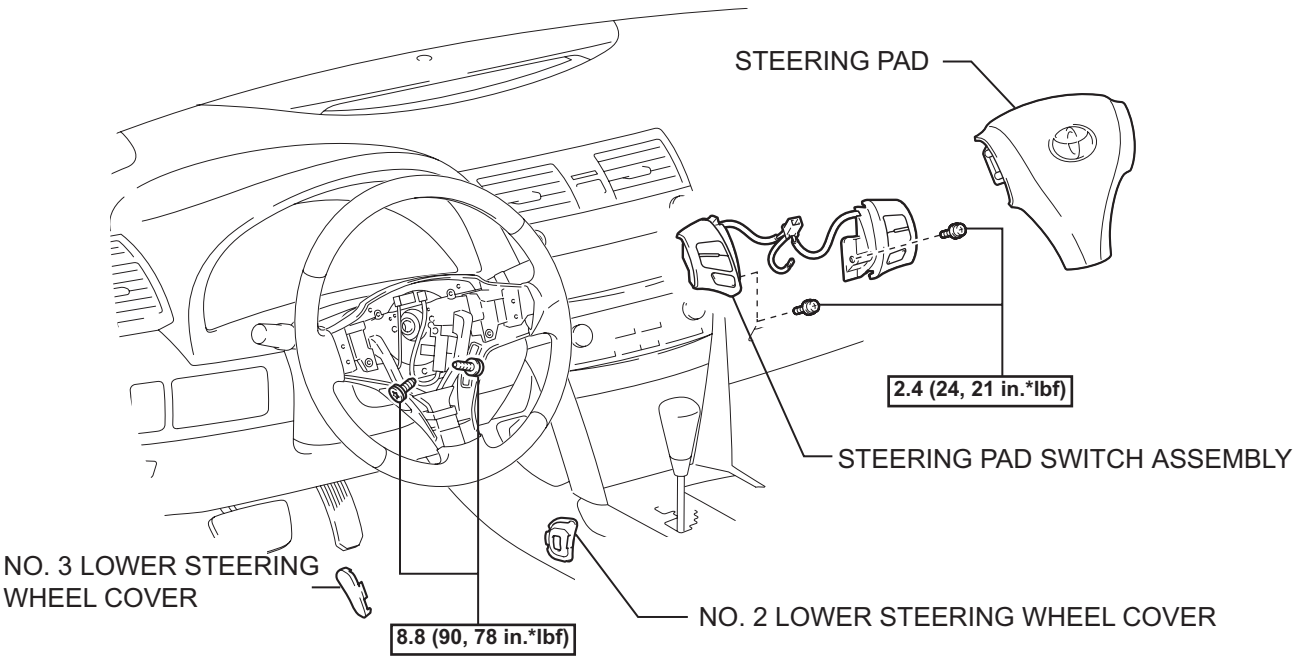
ME

for 3 Spoke:





ME

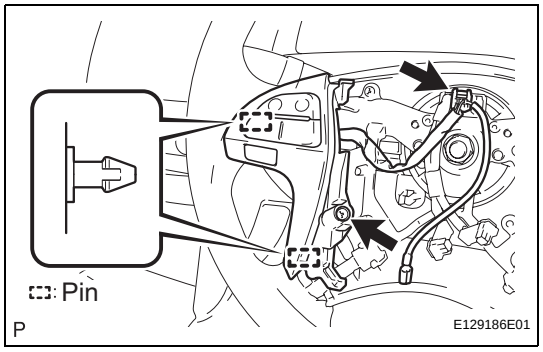
N*m (kgf*cm, ft.*lbf): Specified torque

P

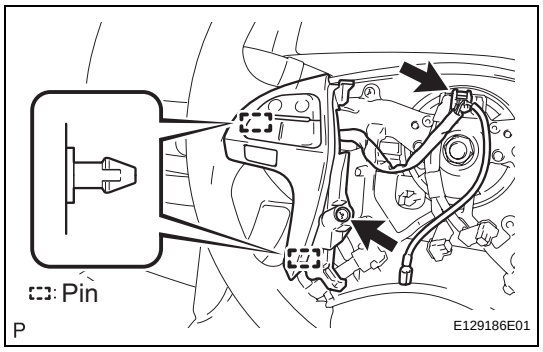
E129201E02

REMOVAL

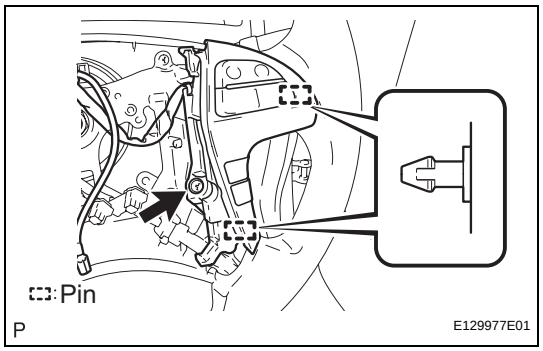
1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
   CAUTION:
   Wait for 90 seconds after disconnecting the cable to prevent airbag deployment (See page RS-1).
2. **REMOVE LOWER NO. 3 STEERING WHEEL COVER (See page RS-349)**
3. **REMOVE LOWER NO. 2 STEERING WHEEL COVER (See page RS-349)**
4. **REMOVE STEERING PAD (See page RS-350)**
5. **REMOVE STEERING PAD SWITCH LH (for 4 Spoke)**
   (a) Disconnect the pad switch connector from the spiral cable.
   (b) Remove the screw.
   (c) Disengage the 2 pins and remove the steering pad switch LH.

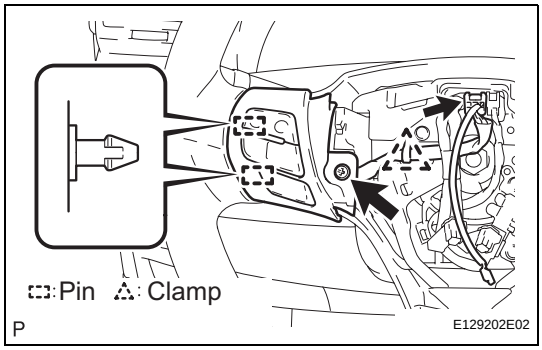


6. **REMOVE STEERING PAD SWITCH ASSEMBLY (for 4 Spoke)**
   (a) Disconnect the pad switch connector from the spiral cable.
   (b) Remove the screw.
   (c) Disengage the 2 pins and remove the steering pad switch.



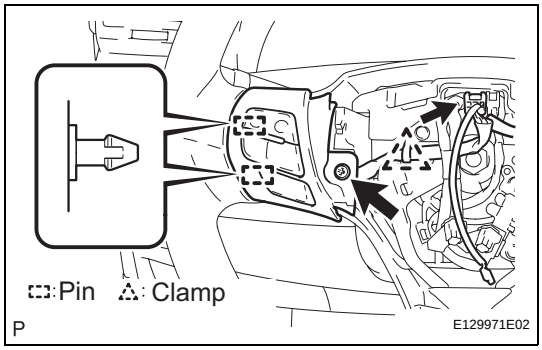
   (d) Remove the screw.
   (e) Disengage the 2 pins and remove the steering pad switch assembly.





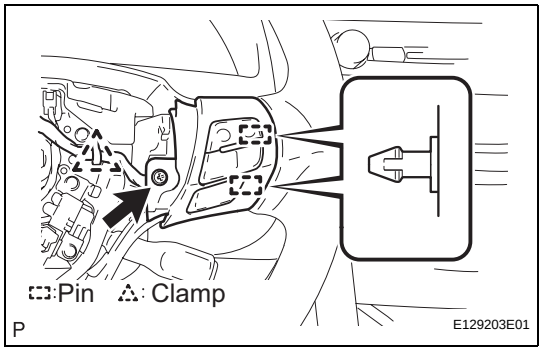
7. REMOVE STEERING PAD SWITCH LH (for 3 Spoke)

(a) Disconnect the pad switch connector from the spiral cable and disengage the clamp.
(b) Remove the screw.
(c) Disengage the 2 pins and remove the steering pad switch LH.



8. REMOVE STEERING PAD SWITCH ASSEMBLY (for 3 Spoke)

(a) Disconnect the pad switch connector from the spiral cable.
(b) Disengage the clamp and remove the screw.
(c) Disengage the 2 pins and remove the steering pad switch.



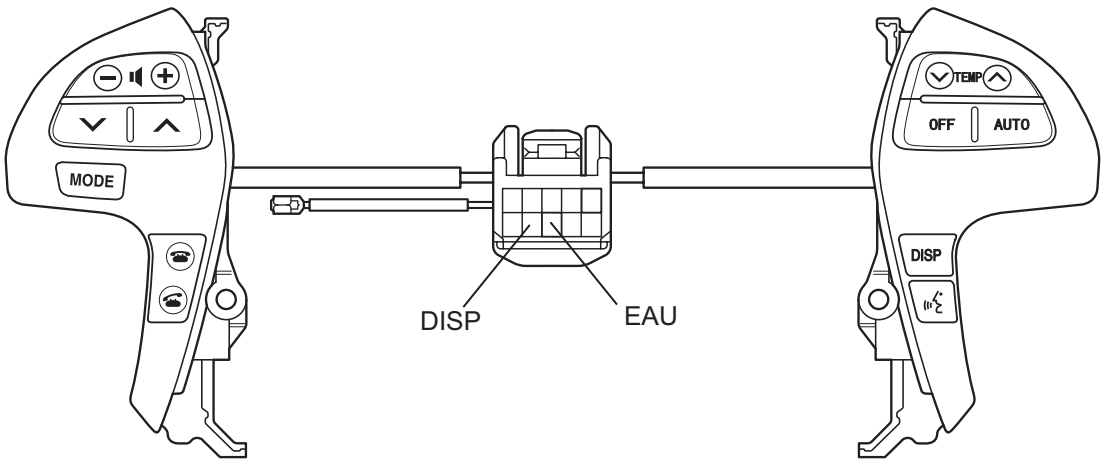
(d) Disengage the clamp and remove the screw.
(e) Disengage the 2 pins and remove the steering pad switch assembly.

INSPECTION

1. INSPECT STEERING PAD SWITCH

(a) Disconnect the steering pad switch connector.

4 Spoke Model:



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(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
DISP - EAU	DISP switch is not pushed in.	10 kΩ or higher
DISP - EAU	DISP switch is pushed in.	Below 1 Ω

HINT:

- This inspection is needed only for 4 spoke model steering pad switch.
- If the value is not as specified, replace the steering pad switch.

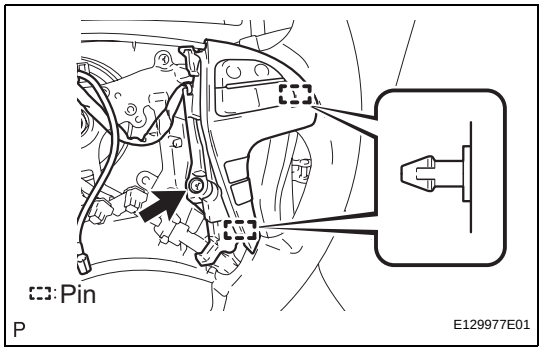
INSTALLATION

1. INSTALL STEERING PAD SWITCH ASSEMBLY (for 4 Spoke)

(a) Engage the 2 pins and install the steering pad switch assembly.

(b) Install the screw.

Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)



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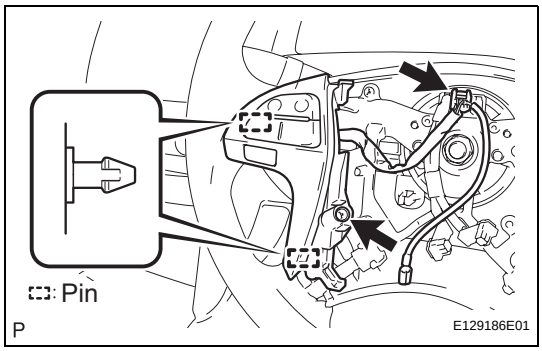
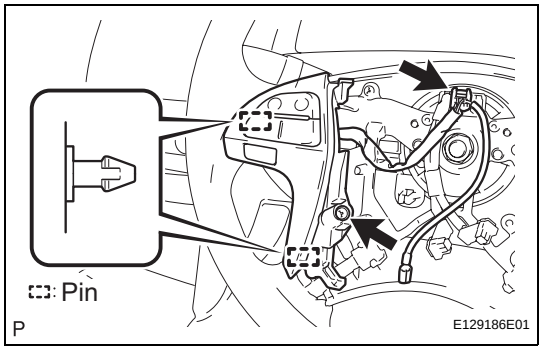
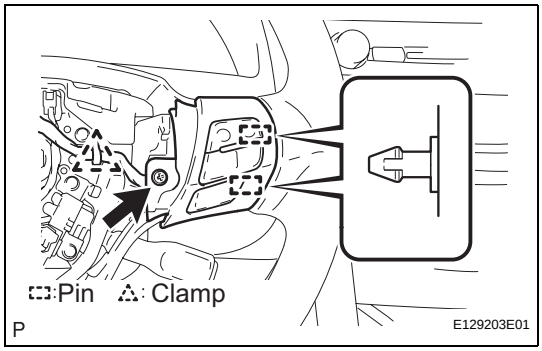


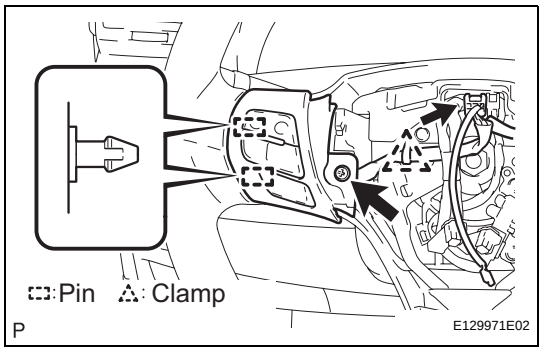
(c) Engage the 2 pins and install the steering pad switch assembly.
(d) Install the screw.
Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)
(e) Connect the connector to the spiral cable.



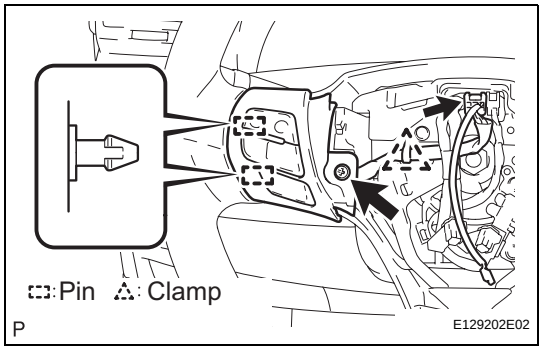
2. INSTALL STEERING PAD SWITCH LH (for 4 Spoke)
(a) Engage the 2 pins and install the steering pad switch LH.
(b) Install the screw.
Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)
(c) Connect the connector to the spiral cable.



3. INSTALL STEERING PAD SWITCH ASSEMBLY (for 3 Spoke)
(a) Engage the 2 pins and install the steering pad switch assembly.
(b) Install the screw and engage the clamp.
Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)



(c) Engage the 2 pins and install the steering pad switch assembly.
(d) Install the screw and engage the clamp.
Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)
(e) Connect the connector to the spiral cable.



4. INSTALL STEERING PAD SWITCH LH (for 3 Spoke)
(a) Engage the 2 pins and install the steering pad switch LH.
(b) Install the screw and engage the clamp.
Torque: 2.4 N*m (24 kgf*cm, 21 in.*lbf)
(c) Connect the connector to the spiral cable.

5. INSTALL STEERING PAD (See page RS-350)

6. INSTALL LOWER NO. 3 STEERING WHEEL COVER (See page RS-351)

ME

7. **INSTALL LOWER NO. 2 STEERING WHEEL COVER (See page RS-352)**
8. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
9. **INSPECT SRS WARNING LIGHT (See page RS-352)**