

METER / GAUGE SYSTEM

PRECAUTION

NOTICE:
When disconnecting the battery negative (-) terminal, initialize the following systems after the terminal is reconnected.

System name	See procedure
Power Window Control System (with Jam Protection Function)	IN-23
Sliding Roof System	

1. REMOVAL AND INSTALLATION OF BATTERY TERMINAL
- (a) Before performing electronic work, disconnect the battery negative (-) terminal cable in order to prevent it from shorting and burning out.

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

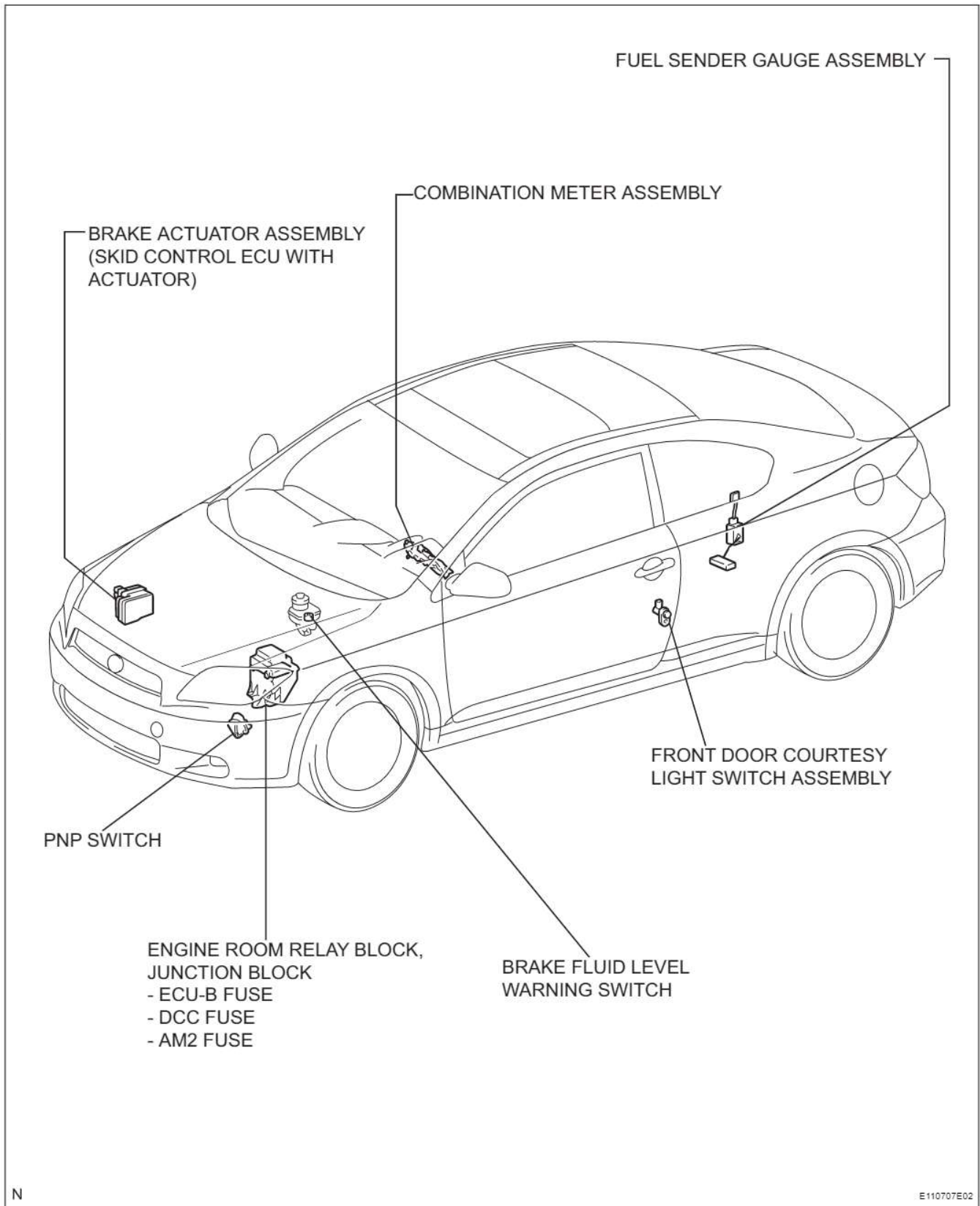
(c) When the battery terminal cable is removed, the memory of the clock, radio, DTCs, etc. are erased. So before removing it, check and make a note of them.

ME

ME-2

METER – METER / GAUGE SYSTEM

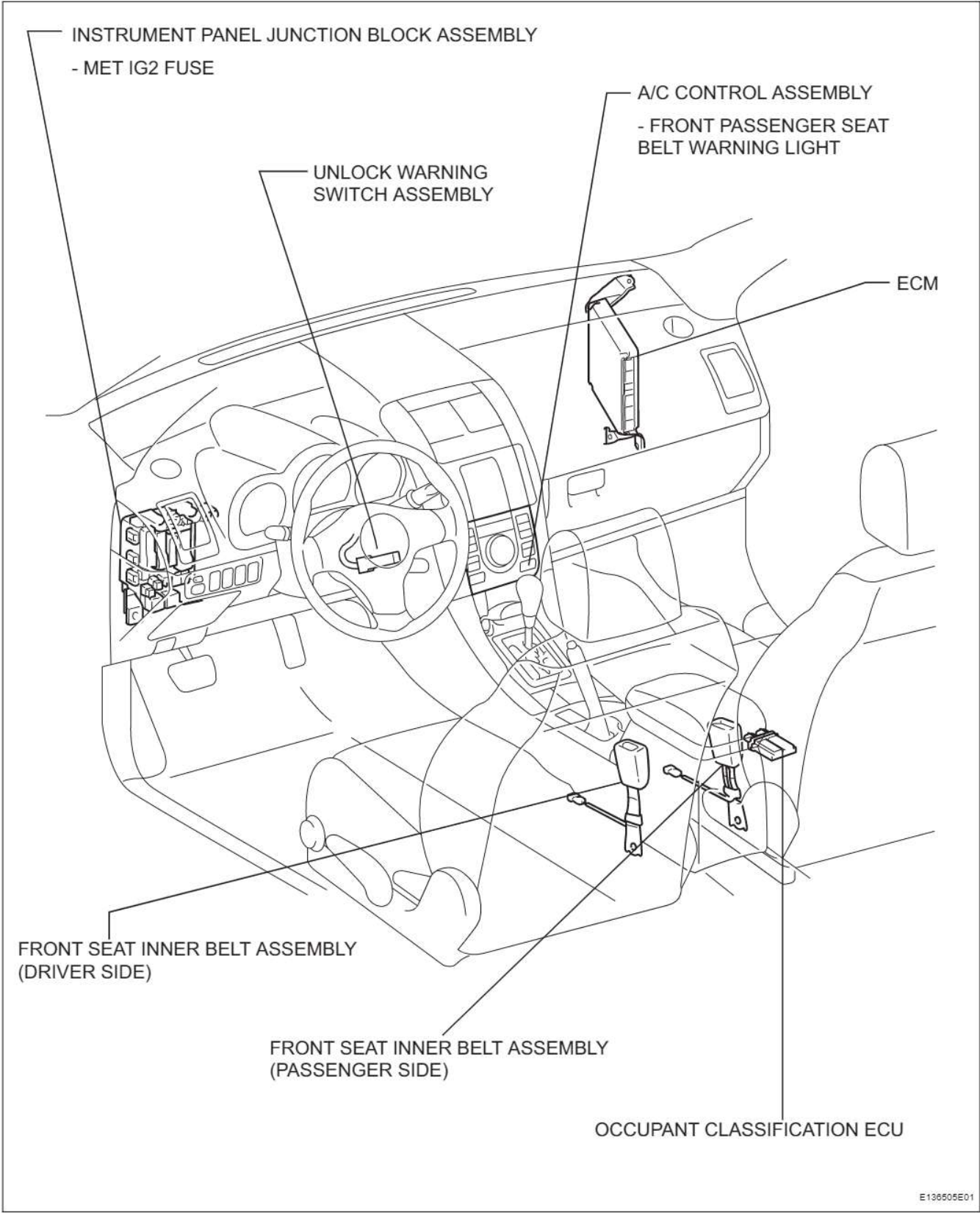
PARTS LOCATION



METER – METER / GAUGE SYSTEM

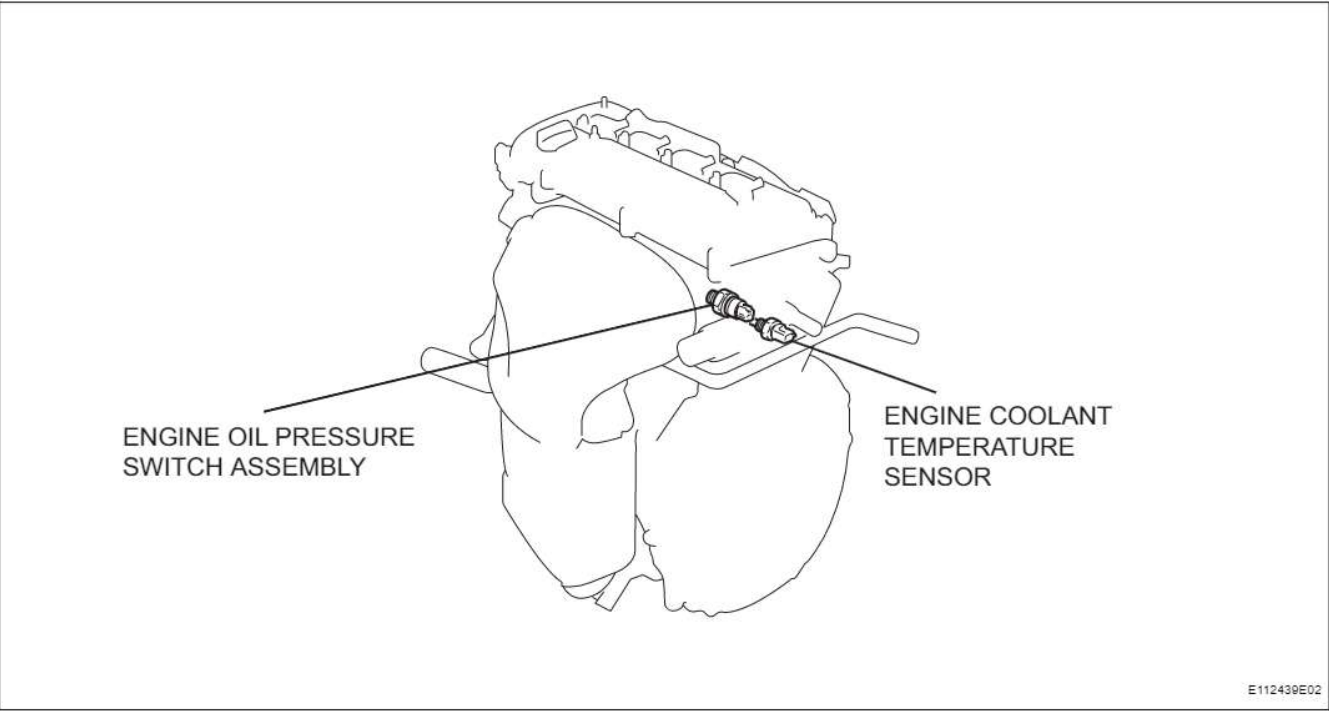
ME-3

ME



ME-4

METER – METER / GAUGE SYSTEM



ME

HOW TO PROCEED WITH
TROUBLESHOOTING

1	VEHICLE BROUGHT TO WORKSHOP
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NEXT

2	PROBLEM SYSTEM CONFIRMATION
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NEXT

3	CIRCUIT INSPECTION
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NEXT

4	REPAIR OR REPLACE
---	-------------------

NEXT

5	CONFIRMATION TEST
---	-------------------

NEXT

END

ME

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METER – METER / GAUGE SYSTEM

CUSTOMIZE PARAMETERS

1. SEAT BELT BUZZER ON/OFF SETTING

The 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 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.
 - The legally required warning buzzer cannot be cancelled.
 - The legally required warning buzzer is the buzzer that sounds when turn the ignition switch to the ON position and the driver seat belt is unfastened. The buzzer sounds in order to warn the driver regardless of the vehicle speed.
- (a) Turn the ignition switch to the ON position.
 - (b) Press the ODO/TRIP switch until the odometer displays "ODO".
 - (c) Turn the ignition switch off.
 - (d) Turn the ignition switch to the ON position.
 - (e) Press the ODO/TRIP switch immediately (within 6 seconds) and hold it down for 10 seconds or more.
 - (f) Continue holding down the ODO/TRIP switch and fasten the driver side seat belt.
 - (g) Check that the odometer displays either "b-on" or "b-oFF".
 - (h) Press the ODO/TRIP switch to change the display to "b-oFF".
 - (i) Turn the ignition switch off.
 - (j) Engine switch off.
 - (k) Check that no buzzer sounds with the vehicle speed is 15 km/h or more and driver side seat belt is unfastened.

ME

METER – METER / GAUGE SYSTEM**ME-7****PROBLEM SYMPTOMS TABLE****COMBINATION METER:**

Symptom	Suspected Area	See page
Entire combination meter does not operate	Power Source Circuit	ME-20
Speedometer malfunction	Speedometer Circuit	ME-22
Tachometer malfunction	Tachometer Circuit	ME-25
Fuel receiver gauge malfunction	Fuel Receiver Gauge Circuit	ME-28
Engine coolant temperature receiver gauge malfunction	Engine Coolant Receiver Gauge Circuit	ME-31
Warning buzzer does not sound.	Warning Buzzer Circuit	ME-34
Driver seat belt warning light does not come on.	Driver Side Seat Belt Warning Light Circuit	ME-37
Front passenger seat belt warning light does not come on.	Front Passenger Side Seat Belt Warning Light Circuit	ME-39

WARNING LIGHTS:

Symptom	Suspected Area	See page
MIL does not come on.	1. MIL Circuit	ES-361
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Charge warning light does not come on.	1. Alternator	-
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Brake warning light does not come on.	1. Brake Fluid Level Switch	-
	2. Brake Warning Light Circuit	BC-60
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-44
ABS warning light does not come on.	1. ABS Warning Light Circuit	BC-57
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
ABS warning light does not go off.	1. ABS Warning Light Circuit	BC-53
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
SRS warning light does not come on.	1. SRS Warning Light Circuit	RS-239
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
SRS warning light does not go off.	1. SRS Warning Light Circuit	RS-234
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Open door warning light does not come on.	1. Door Courtesy Light Switch	-
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Fuel level warning light does not come on.	1. Fuel Sender Gauge assembly	ME-31
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Low oil pressure warning light does not come on.	1. Low Oil Pressure Warning Switch	-
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
TPWS indicator does not come on.	1. Tire Pressure Warning Light Circuit	TW-69
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44

ME

ME-8**METER – METER / GAUGE SYSTEM****INDICATOR LIGHTS:**

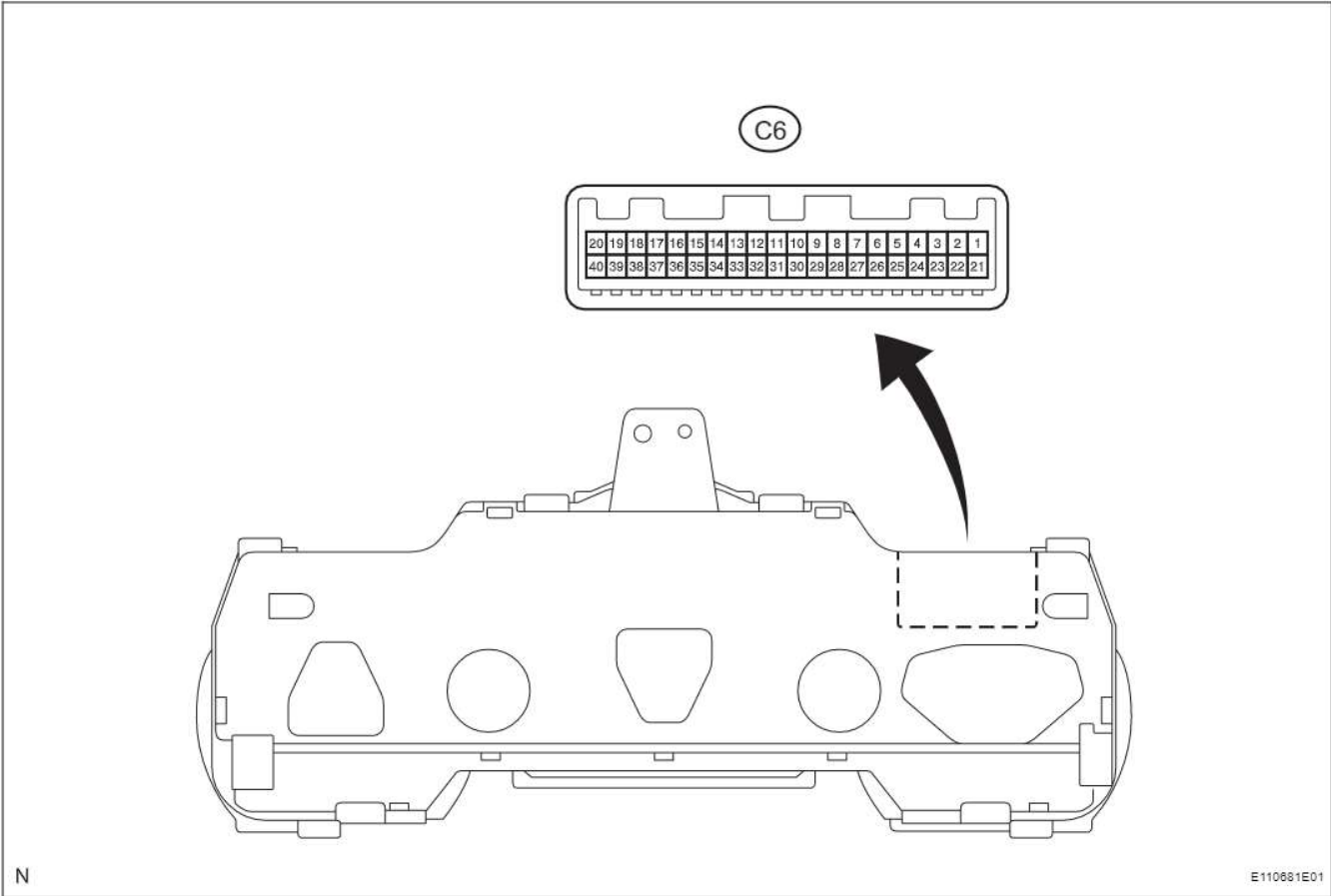
Symptom	Suspected Area	See page
Turn indicator light does not come on.	1. Turn Signal Flasher Relay	LI-1
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
High beam indicator light does not come on.	1. Headlight Dimmer Switch	LI-1
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
Oil charge indicator light does not go off.	1. Combination Meter Assembly (Oil Maintenance Indicator Resetting Procedure Undone)	ME-19
	2. Combination Meter Assembly	ME-44
Cruise indicator light does not come on.	1. Cruise Main Indicator Light Circuit	CC-35
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44
O/D off indicator light does not come on.	1. Park/Neutral Position Switch Circuit	AX-21
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44

ME**BUZZER:**

Symptom	Suspected Area	See page
Key reminder warning buzzer does not sound.	1. Warning Buzzer Circuit	ME-34
	2. Unlock Warning Switch Assembly	-
	3. Wire Harness or Connector	-
	4. Combination Meter Assembly	ME-44
Seat belt warning buzzer does not sound.	1. Seat Belt Buzzer Setting	ME-5
	2. Wire Harness or Connector	-
	3. Combination Meter Assembly	ME-44

TERMINALS OF ECU

1. CHECK COMBINATION METER ASSEMBLY



Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
C6-1 - Body ground	BR - Body ground	Ground	Always	Below 1 Ω
C6-2 - Body ground	SB - Body ground	Ground	Always	Below 1 Ω
C6-3 - Body ground	V - Body ground	Battery	Always	11 to 14 V
C6-4 - Body ground	LG - Body ground	Ignition switch signal	Ignition switch ON	11 to 14 V
			Ignition switch OFF	Below 1 V
C6-5 - Body ground	L - Body ground	Seat belt condition signal	Driver seat belt indicator light is OFF	11 to 14 V
			Driver seat belt indicator light blinks	Below 1 V
C6-6 - Body ground	R - Body ground	Taillight signal	Light control switch ON	11 to 14 V
			Light control switch OFF	Below 1 V
C6-7 - Body ground	Y - Body ground	KEY switch signal	No ignition key inserted	11 to 14 V
			Ignition key inserted	Below 1 V
C6-8 - Body ground	BR - Body ground	Driver door condition signal	Driver door open	11 to 14 V
			Driver door closed	Below 1 V
C6-9 - Body ground	W - Body ground	Oil pressure signal	OIL/P warning light OFF	11 to 14 V
			OIL/P warning light ON	Below 1 V
C6-10 - Body ground	V - Body ground	Brake fluid level signal	Brake fluid level warning light ON	6.7 to 12 V
			Brake fluid level warning light OFF	Below 1 V

ME-10**METER – METER / GAUGE SYSTEM**

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
C6-11 - Body ground	W - Body ground	Illumination signal	Ignition switch ON, rheostat is max	11 to 14 V
			Ignition switch OFF	Below 1 V
C6-12 - Body ground	B - Body ground	Brake fluid level signal	Brake fluid level warning light OFF	11 to 14 V
			Brake fluid level warning light ON	Below 1 V
C6-13 - Body ground	W - Body ground	ABS signal	Ignition switch ON, ABS warning light ON	6.7 to 12 V
			Ignition switch ON, ABS warning light OFF	Below 1 V
C6-14 - Body ground	L - Body ground	Door condition signal	Door open	11 to 14 V
			Door closed	Below 1 V
C6-15 - Body ground	Y - Body ground	Charge signal	Ignition switch ON	11 to 14 V
			Ignition switch OFF	Below 1 V
C6-16 - Body ground	B - Body ground	Transmission signal	P or N indicator light (A/T shift indicator) is ON	7.5 to 11.5 V
			P or N indicator light (A/T shift indicator) is ON	Below 1 V
C6-17 - Body ground	G - Body ground	MIL signal	MIL OFF	11 to 14 V
			MIL ON	Below 1 V
C6-18 - Body ground	L - Body ground	A/T shift condition signal (L)	A/T L indicator light ON	11 to 14 V
			A/T L indicator light OFF	Below 1 V
C6-19 - Body ground	GR - Body ground	A/T shift condition signal (2)	A/T 2 indicator light ON	11 to 14 V
			A/T 2 indicator light OFF	Below 1 V
C6-20 - Body ground	Y - Body ground	A/T shift condition signal (3)	A/T 3 indicator light ON	11 to 14 V
			A/T 3 indicator light OFF	Below 1 V
C6-21 - Body ground	R - Body ground	Coolant temperature signal	Ignition switch ON, coolant temperature is 90°C (194°F)	Pulse generation (See waveform 1)
C6-22 - Body ground	L - Body ground	Seat belt condition signal (passenger side)	Passenger seat belt indicator light blinks	11 to 14 V
			Passenger seat belt indicator light is OFF	Below 1 V
C6-23 - Body ground	G - Body ground	Fuel level signal	Ignition switch ON, fuel level is EMPTY	4 to 7 V
			Ignition switch ON, fuel level is FULL	Below 1 V
C6-24 - Body ground	P - Body ground	Passenger seat belt warning signal	Passenger seat belt indicator light blinks	11 to 14 V
			Passenger seat belt indicator light is OFF	Below 1 V
C6-25 - Body ground	O - Body ground	Speed signal (Input)	Ignition switch ON and turn wheel slowly	Pulse generation (See waveform 2)
C6-26 - Body ground	B - Body ground	Tachometer signal	Engine idle speed	Pulse generation (See waveform 3)
C6-27 - Body ground	L - Body ground	Speed signal (Output)	Ignition switch ON and turn wheel slowly	Pulse generation (See waveform 2)
C6-29 - Body ground	R - Body ground	AIR BAG signal	SRS warning light ON	8 to 14 V
			SRS warning light OFF	Below 1 V
C6-30 - Body ground	GR - Body ground	Hi-beam signal	Hi-beam ON	11 to 14 V
			Hi-beam OFF	Below 1 V
C6-31 - Body ground	R - Body ground	Hi-beam signal	Hi-beam ON	11 to 14 V
			Hi-beam OFF	Below 1 V

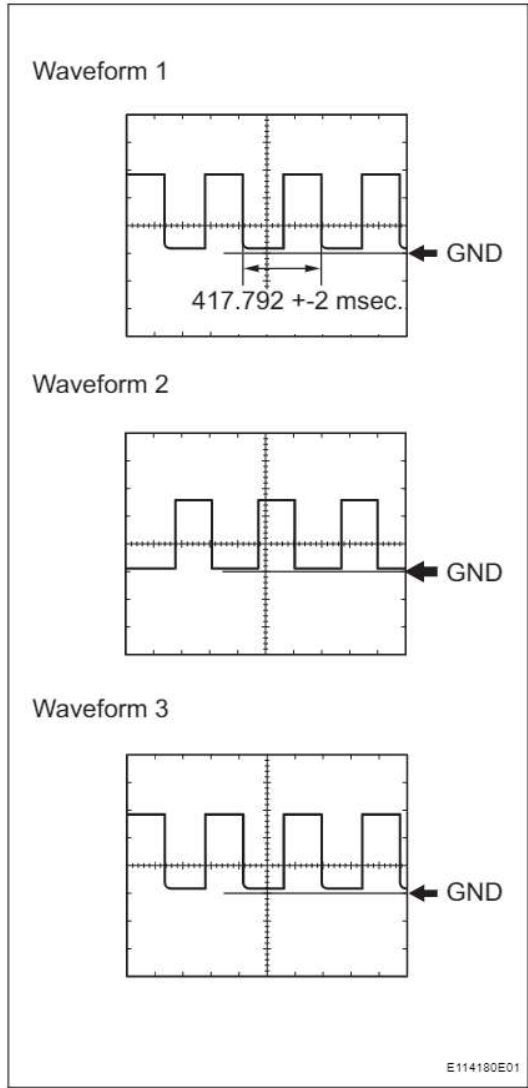
METER – METER / GAUGE SYSTEM**ME-11**

Terminal No.	Wiring Color	Terminal Description	Condition	Specified Condition
C6-32 - Body ground	Y - Body ground	Turn signal L	Ignition switch ON, turn signal LH indicator light ON	11 to 14 V
			Ignition switch ON, turn signal LH indicator light OFF	Below 1 V
C6-33 - Body ground	G - Body ground	Turn signal R	Ignition switch ON, turn signal RH indicator light ON	11 to 14 V
			Ignition switch ON, turn signal RH indicator light OFF	Below 1 V
C6-34 - Body ground	B - Body ground	CRUISE signal	Ignition switch ON and cruise indicator light ON	11 to 14 V
			Ignition switch ON and cruise indicator light OFF	Below 1 V
C6-36 - Body ground	LG - Body ground	TPMS signal	TPMS indicator light ON	11 to 14 V
			TPMS indicator light OFF	Below 1 V
C6-37 - Body ground	B - Body ground	A/T shift condition signal (P)	A/T P indicator light ON	11 to 14 V
			A/T P indicator light OFF	Below 1 V
C6-38 - Body ground	P - Body ground	A/T shift condition signal (R)	A/T R indicator light ON	11 to 14 V
			A/T R indicator light OFF	Below 1 V
C6-39 - Body ground	R - Body ground	A/T shift condition signal (N)	A/T N indicator light ON	11 to 14 V
			A/T N indicator light OFF	Below 1 V
C6-40 - Body ground	LG - Body ground	A/T shift condition signal (D)	A/T D indicator light ON	11 to 14 V
			A/T D indicator light OFF	Below 1 V

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METER – METER / GAUGE SYSTEM



(a) Using an oscilloscope, check the signal waveform of the meter.

Waveform 1 (Reference)

Item	Condition
Tool setting	5 V/DIV., 10 ms./DIV.
Vehicle condition	Ignition switch ON

Waveform 2 (Reference)

Item	Condition
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approx. 20 km/h (12.4 mph)

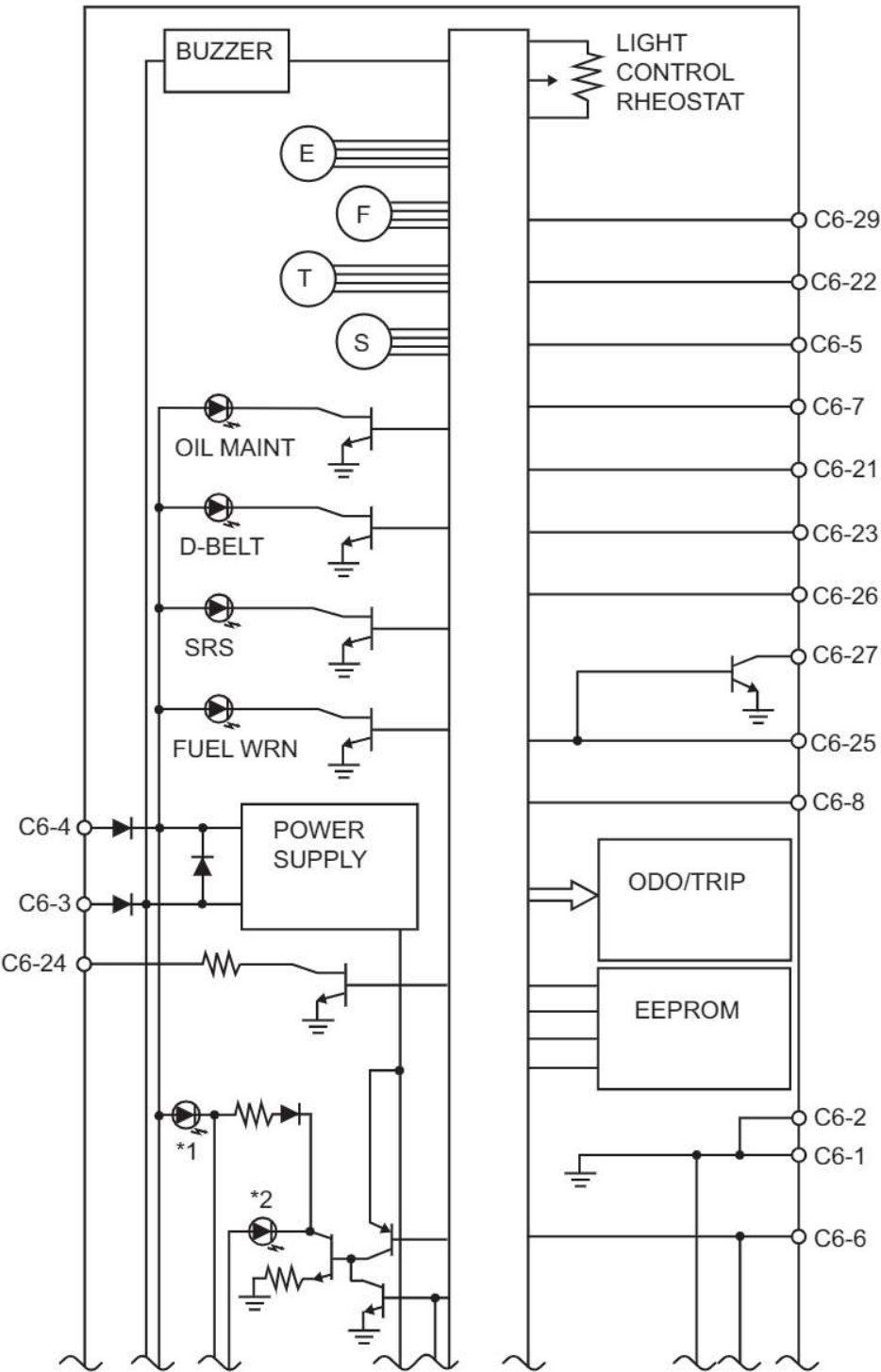
Waveform 3 (Reference)

Item	Condition
Tool setting	5 V/DIV., 10 ms./DIV.
Vehicle condition	Engine idle speed

HINT:
As vehicle speed increases, the cycle of the signal waveform narrows.

METER – METER / GAUGE SYSTEM

ME-13

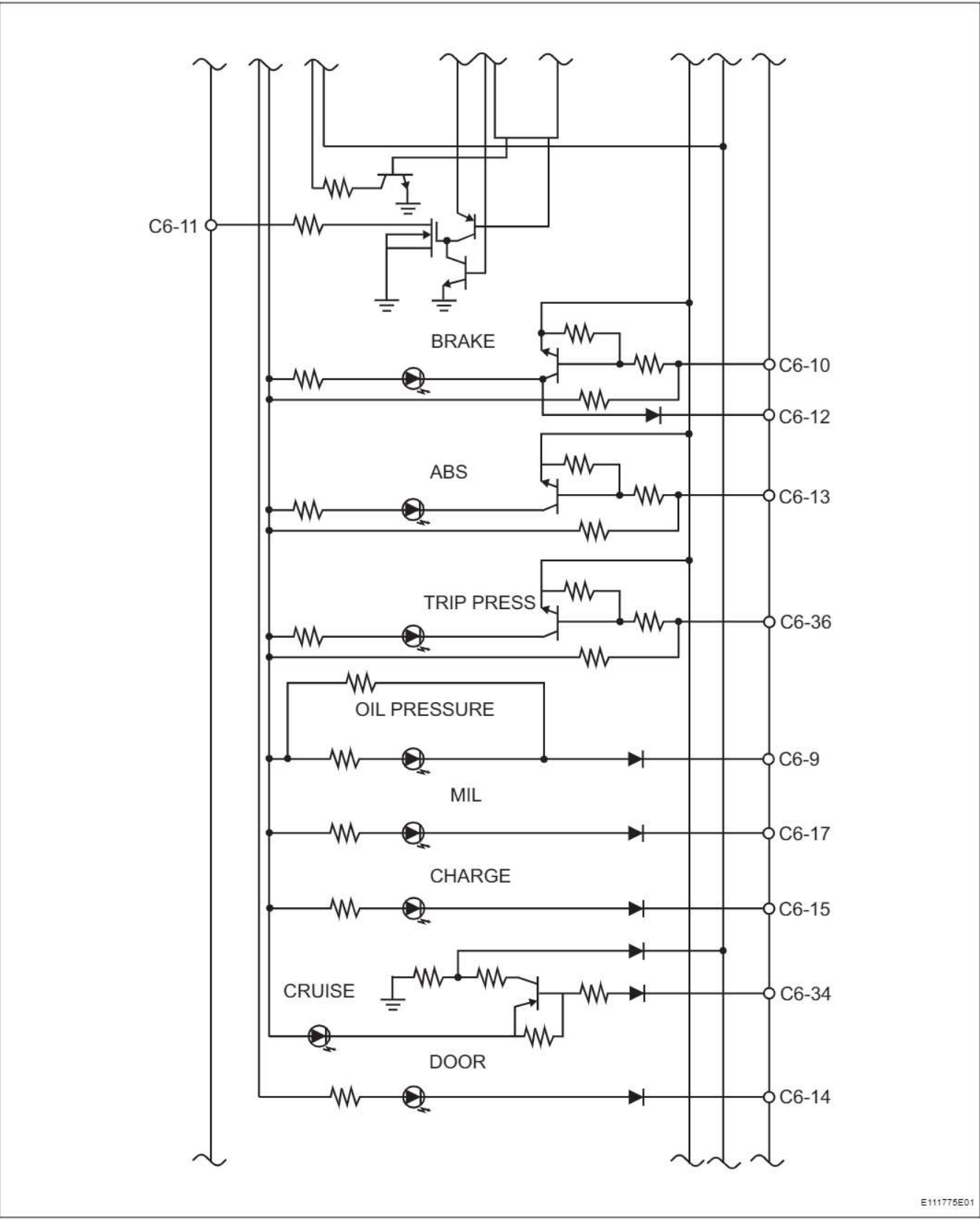


F: Fuel Gauge, T: Tachometer, S: Speedometer, E: Engine Coolant Temperature Gauge
*1: ODO/TRIP Illumination, *2: Except ODO/TRIP Illumination

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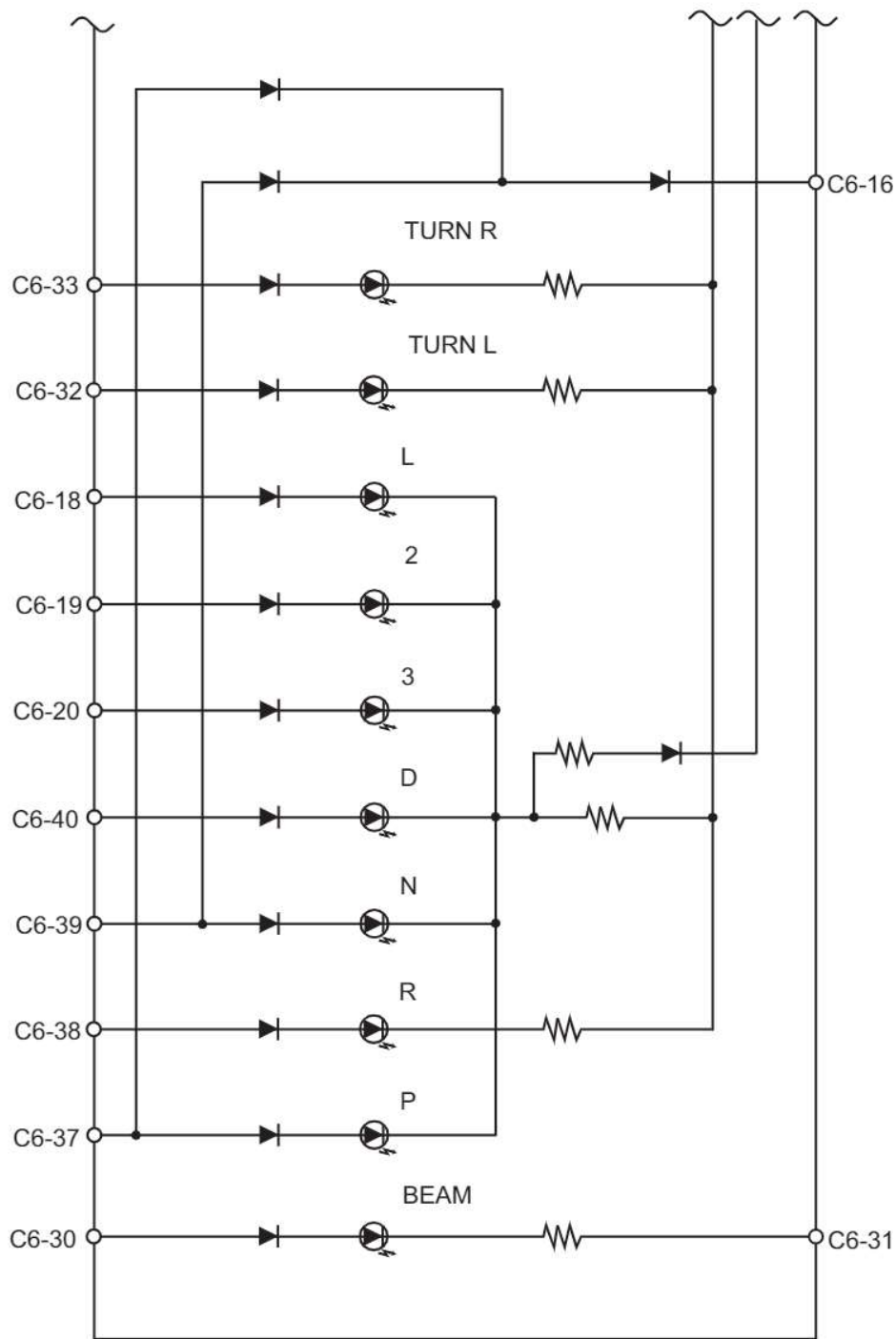
ME-14

METER – METER / GAUGE SYSTEM



METER – METER / GAUGE SYSTEM

ME-15



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ME

ME-16**METER – METER / GAUGE SYSTEM****Table of Terminal Connection**

Terminal No.		Wire harness side
C6	1	Ground
	2	Fuel Sender Gauge Assembly
	3	ECU-B Fuse
	4	MET IG2 Fuse
	5	Front Seat Inner Belt Assembly (Driver Side)
	6	Light Control Switch, Tail Relay
	7	Unlock Warning Switch Assembly
	8	Door Courtesy Light Switch Assembly
	9	Engine Oil Pressure Switch Assembly
	10	Brake Actuator Assembly
	11	Light Control Rheostat
	12	Brake Fluid Level Warning Switch
	13	Brake Actuator Assembly
	14	Integration Relay
	15	Generator
	16	Brake Actuator Assembly
	17	ECM
	18	PNP Switch
	19	PNP Switch
	20	Shift Lock Control ECU
	21	ECM
	22	Front Seat Inner Belt Assembly (Passenger Side)
	23	Fuel Sender Gauge Assembly
	24	Front Passenger Seat Belt Warning Light
	25	Brake Actuator Assembly
	26	ECM
	27	ECM, Integration Relay
	28	-
	29	Airbag Sensor Assembly Center
	30	Headlight Dimmer Relay
	31	Headlight Dimmer Switch
	32	Turn Signal Flasher
	33	Turn Signal Flasher
	34	ECM
	35	-
	36	Brake Actuator Assembly
	37	PNP Switch
	38	PNP Switch
	39	PNP Switch
	40	Shift Lock Control ECU

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

According to DATA LIST display 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) Turn the ignition switch off.
- (c) Connect the intelligent tester to the DLC3.
- (d) Turn the ignition switch ON.
- (e) Operate the intelligent tester according to the step on the display and select "DATA LIST".

ENGINE:

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
VEHICLE SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost the same as the actual vehicle speed (When driving)	-
ENGINE SPD	Engine speed/Min.: 0 rpm, Max.: 16,282 rpm	Almost the same as the actual engine speed (When engine is running)	-
COOLANT TEMP	Coolant temperature/Min.: -40°C (40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140°C (284°F)", sensor circuit is open or shorted

ABS / TRAC / VSC:

Tester Display	Measurement Item/Range	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 the same as actual speed (When driving)	-

ME

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 below.

Reference

Chassis Dynamometer Indication	Allowable Range
20 mph	19.0 to 21.5 mph
40 mph	38 to 41.0 mph
60 mph	57.5 to 61.0 mph
80 mph	77.5 to 81.5 mph
100 mph	97 to 102.0 mph
120 mph	116.5 to 122.0 mph

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)

If the indication is not as specified, go to problem symptoms table (See page ME-6).

2. INSPECT OUTPUT SIGNAL OF VEHICLE SPEED

- (a) Check the output signal waveform.
- (1) Remove the combination meter, with the connector still connected.
- (2) Using an oscilloscope, check the waveform of the combination meter.

Tester Connection	Tool Setting	Vehicle Condition
C6-27 - Body ground	5 V/DIV., 20 ms./DIV.	Driving at approx. 20 km/h (12.4 mph)

OK:

Refer to the illustration.

HINT:

As vehicle speed increases, the cycle of the waveform narrows.

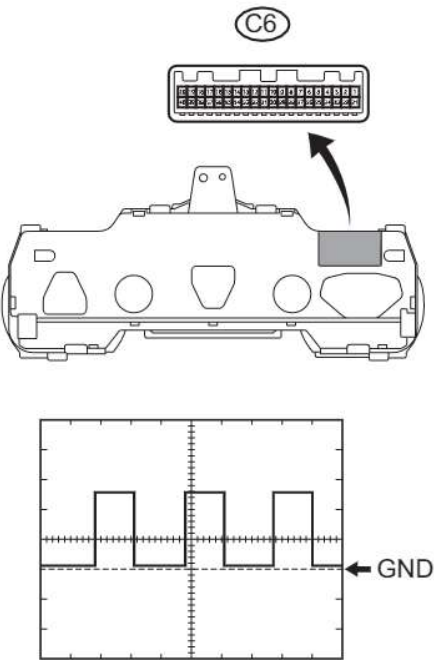
3. INSPECT TACHOMETER

- (a) Check operation.
- (1) Connect a tune-up test tachometer, and start the engine.

NOTICE:

- Do not reverse the connections of the tachometer. This will damage its transistors and diodes.
- When removing or installing the tachometer, be careful not to drop or strike it.

Combination Meter Assembly



E113143E01

- (2) Compare the test tachometer indications and vehicle tachometer indications under the following conditions:
- Vehicle battery voltage is 13.5 V

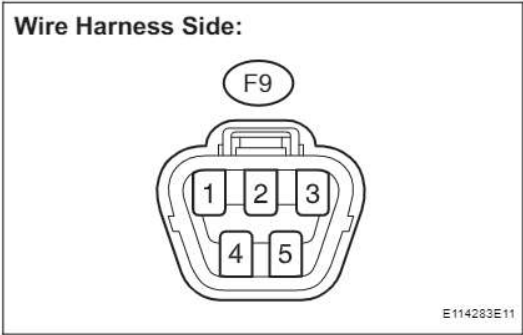
• Ambient temperature is 25°C (77°F)

OK

Standard Indication (rpm)	Acceptable Range (rpm) Data in () are for reference only
700	630 to 770
1,000	(900 to 1,100)
2,000	(1,850 to 2,150)
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

If the indication is not as specified, go to the problem symptoms table (See page ME-6).

ME



4. INSPECT FUEL SENDER GAUGE ASSEMBLY
- (a) Disconnect the F9 gauge connector.

(b) Turn the ignition switch to the ON position, and then check the position of the receiver gauge needle.

OK:

Fuel receiver gauge indicates E

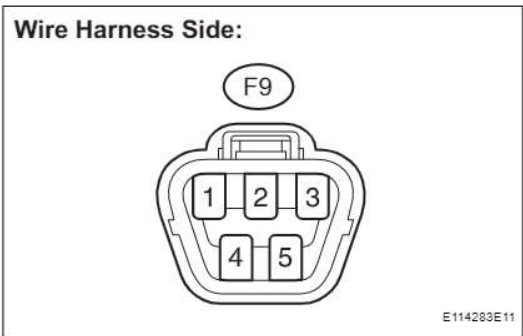
- (c) Connect terminals 2 and 3 of the wire harness side connector.

(d) Turn the ignition switch to the ON position, and then check the position of the receiver gauge needle.

OK:

Fuel receiver gauge indicates F

If the result is not as specified, the combination meter may have a malfunction.



5. INSPECT FUEL LEVEL WARNING LIGHT
- (a) Disconnect the F9 pump and gauge connector.

(b) Turn the ignition switch to the ON position, and then check that the fuel receiver gauge indicates E and that the fuel level warning light turns on.

OK:

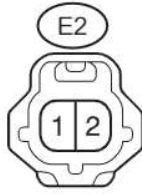
Fuel level warning light turns on

If the result is not as specified, the combination meter may have a malfunction.

ME-20

METER – METER / GAUGE SYSTEM

Wire Harness Side:



N

E113948E02

6. INSPECT ENGINE COOLANT TEMPERATURE RECEIVER GAUGE

- Disconnect the E2 gauge connector.
- Turn the ignition switch to the ON position, and check the position of the receiver gauge needle.

OK:**Needle position is on (COOL).**

- Connect between terminals of the wire harness side connector, and then check the position of the receiver gauge needle.

OK:**Needle position is on (HOT).**

Wire Harness Side:



N

E113949E08

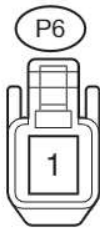
7. INSPECT OIL PRESSURE WARNING LIGHT

- Disconnect the E3 switch connector.
- Connect the E3-1 terminal of the wire harness side connector to the body ground.
- Turn the ignition switch to the ON position, and then check that the low oil pressure warning light turns on.

OK:**Low oil pressure warning light turns on**

If the result is not as specified, the combination meter may have a malfunction.

Wire Harness Side:



N

E113950E02

8. INSPECT BRAKE WARNING LIGHT

- Check the parking brake warning light.
 - Disconnect the P6 switch connector.
 - Connect the P6-1 terminal of the wire harness side connector to the body ground.
 - Turn the ignition switch to the ON position, and then check that the warning light turns on.

OK:**Warning light turns on.**

Wire Harness Side:



N

E113947E09

- Check the brake fluid level warning light.
 - Disconnect the B2 switch connector.
 - Connect the B2-1 and B2-2 terminals of the wire harness side connector.
 - Turn the ignition switch to the ON position, and then check that the warning light turns on.

OK:**Warning light turns on.**

If the result is not as specified, the combination meter may have a malfunction.

9. OIL MAINTENANCE INDICATOR RESETTING PROCEDURE

Indicator Condition:

State	Condition	Specified State
Blinking	The vehicle runs 4,500 miles after the previous setting	The indicator blinks for 15 seconds after the ignition switch is turned on (including 3 seconds for a valve check).
Continuously Illuminated	The vehicle runs 5,000 miles after the previous setting	The indicator is continuously illuminated after the ignition switch is turned on.

METER – METER / GAUGE SYSTEM**ME-21**

- (a) Turn the ignition switch to the ON position.
- (b) Set the display window to ODO.
- (c) Turn the ignition switch off.
- (d) Turn the ignition switch to the ON position while pressing and holding the reset knob for 5 seconds or more.
- (e) Reset procedure is completed.

HINT:

- If the ignition switch is turned off during reset procedure, reset mode is canceled.
- If the reset knob is turned off during the reset procedure, reset mode is canceled and the display shows the condition prior to the reset procedure.

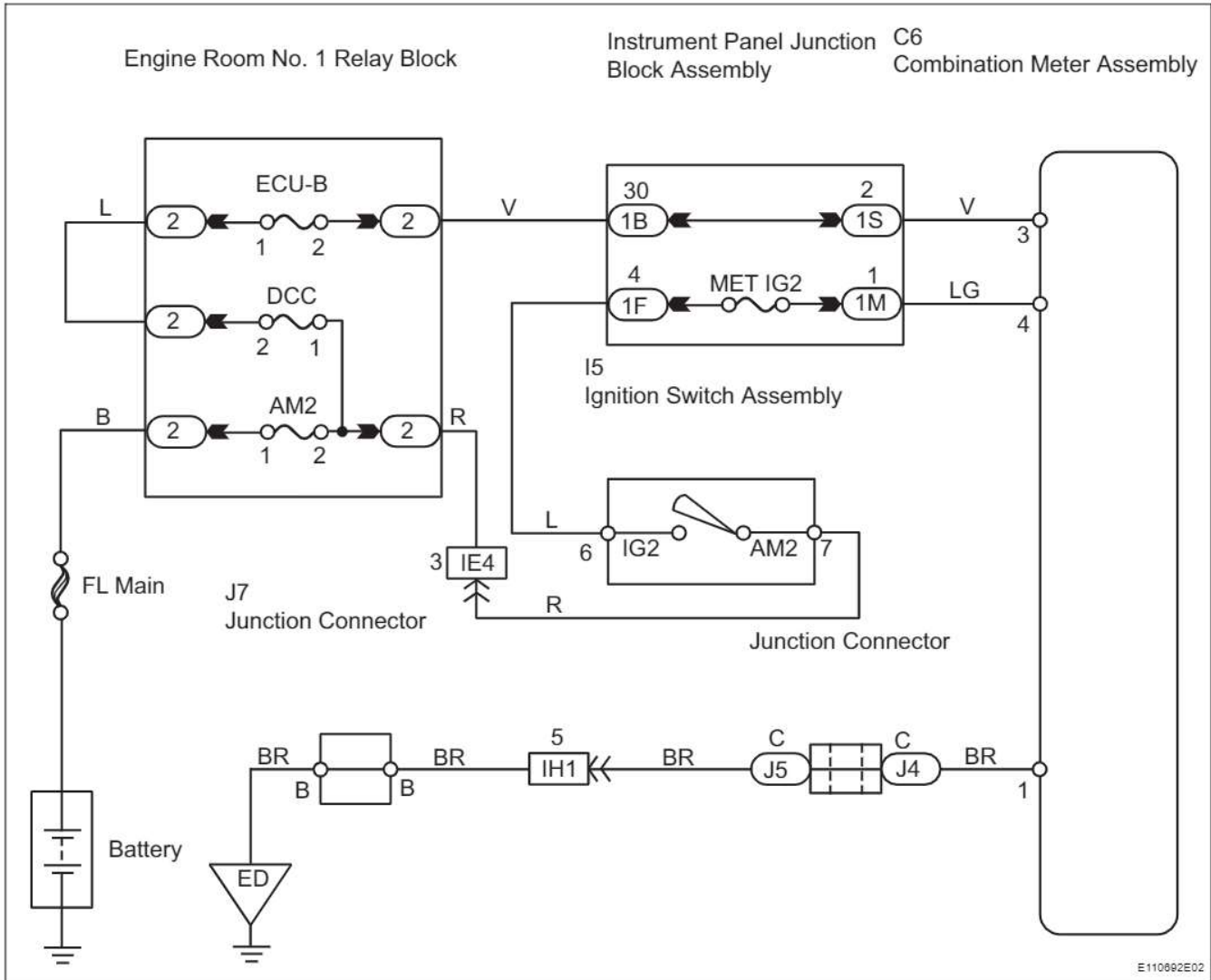
ME

ME-22

METER – METER / GAUGE SYSTEM

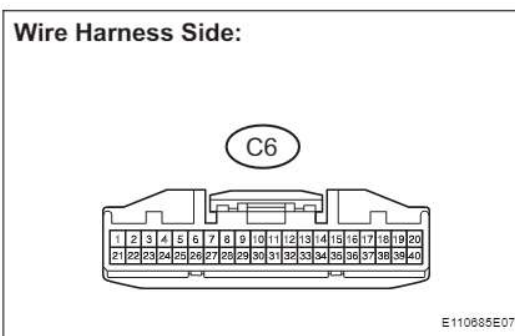
Entire Combination Meter does not Operate

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK WIRE HARNESS (COMBINATION METER - BATTERY AND BODY GROUND)



- (a) Disconnect the C6 meter connector.
- (b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
C6-1 - Body ground	Below 1 Ω

- (c) Measure the voltage of the wire harness side connector.
Standard voltage

Standard voltage

Tester Connection	Condition	Specified Condition
C6-3 - Body ground	Always	11 to 14 V

METER – METER / GAUGE SYSTEM

ME-23

Tester Connection	Condition	Specified Condition
C6-4 - Body ground	Ignition switch ON	11 to 14 V

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

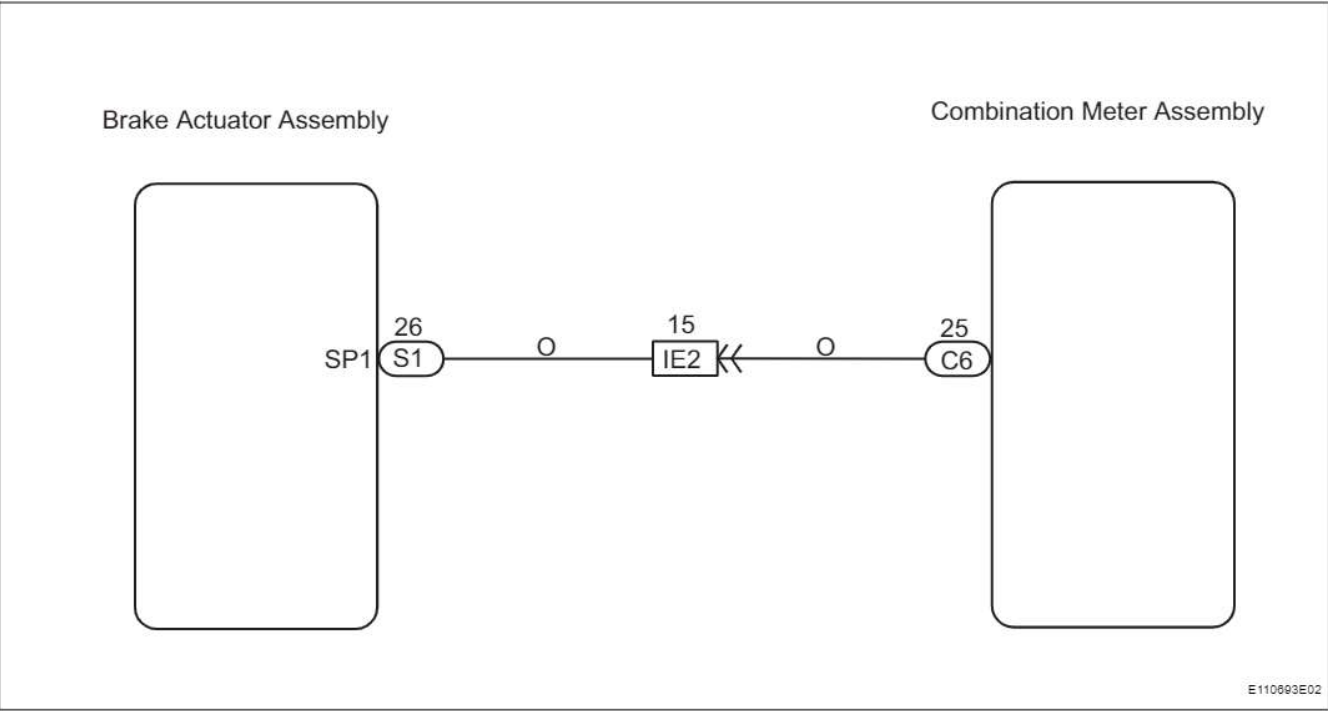
OK

REPLACE COMBINATION METER ASSEMBLY

ME

Speedometer Malfunction

WIRING DIAGRAM



INSPECTION PROCEDURE

1 READ VALUE OF INTELLIGENT TESTER (VEHICLE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the step on the display and select "DATA LIST".

ABS / TRAC / VSC

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
(FR/FL/RR/RL) WHEEL SPD	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost the same as actual speed (When driving)	-

OK:

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

OK

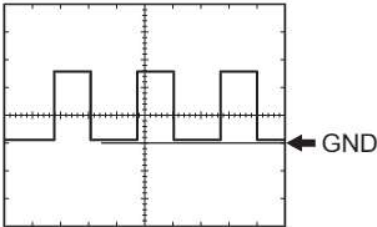
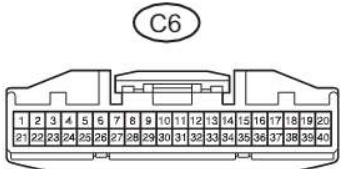
NG

GO TO BRAKE CONTROL SYSTEM

METER – METER / GAUGE SYSTEM

2 CHECK COMBINATION METER ASSEMBLY

Wire Harness Side:



E111771E02

- (a) Disconnect the C6 meter connector.
- (b) Using an oscilloscope, check the signal waveform of the meter.

Tester Connection	Tool setting	Vehicle condition
C6-25 - Body ground	5V/DIV., 20 ms./DIV.	Driving at approx. 20 km/h (12.4 mph)

OK:
As shown in the illustration.

HINT:
As vehicle speed increases, the cycle of the signal waveform narrows.

NG

Go to step 3

OK

ME

REPLACE COMBINATION METER ASSEMBLY

ME-26

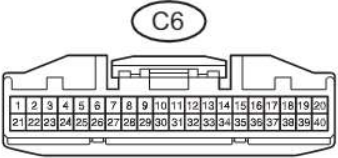
METER – METER / GAUGE SYSTEM

3

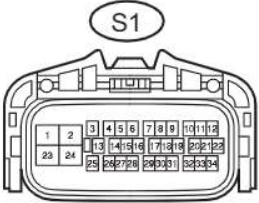
CHECK WIRE HARNESS (COMBINATION METER - BRAKE ACTUATOR)

Wire Harness Side:

Combination Meter Assembly



Brake Actuator Assembly



E110683E02

- (a) Disconnect the C6 meter connector.
- (b) Disconnect the S1 ECU connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
C6-25 - S1-26	Below 1 Ω
C6-25 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4

INSPECT BRAKE ACTUATOR ASSEMBLY (SKID CONTROL ECU WITH ACTUATOR)

Wire Harness Side:



E110684E02

- (a) Disconnect the S1 ECU connector.
- (b) Measure the voltage of the wire harness side connector.

Standard voltage

Tester Connection	Condition	Specified Condition
S1-26 - Body ground	Ignition switch ON	11 to 14 V

- (c) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Specified Condition
S1-2 - Body ground	Below 1 Ω

NG

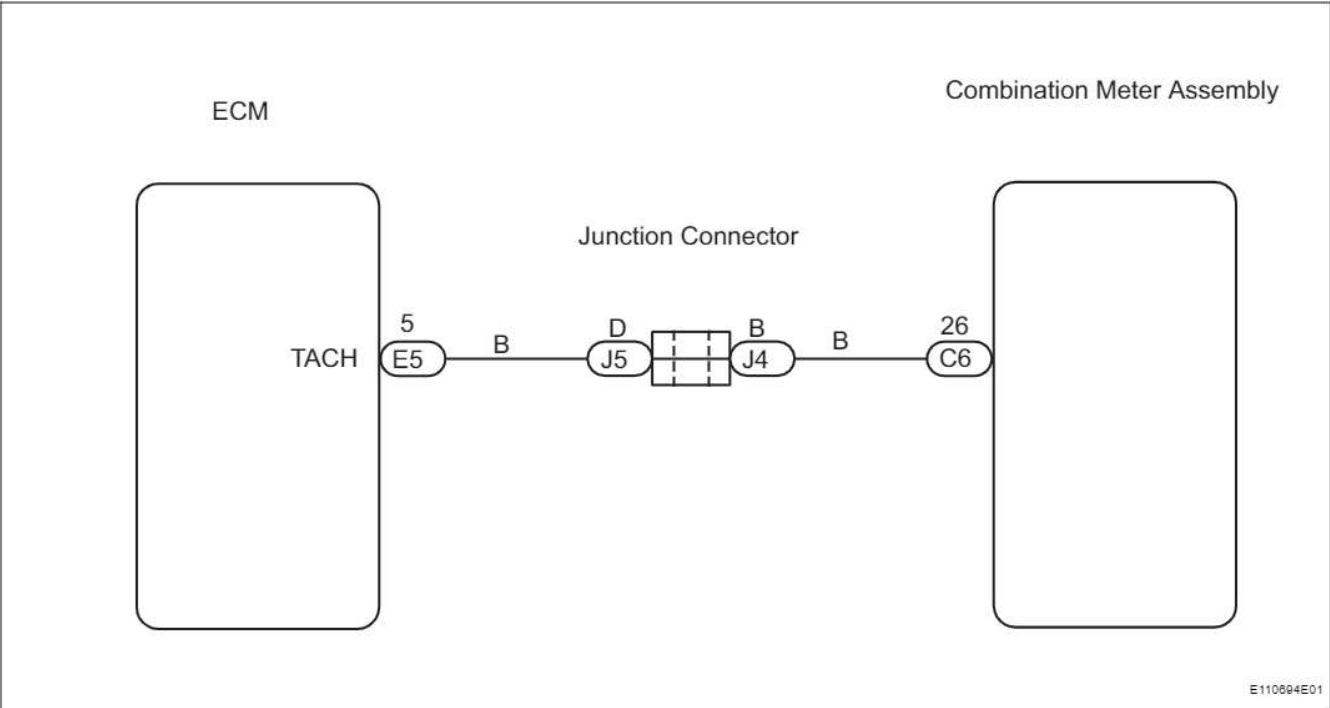
REPLACE COMBINATION METER ASSEMBLY

OK

REPLACE BRAKE ACTUATOR ASSEMBLY

Tachometer Malfunction

WIRING DIAGRAM



ME

INSPECTION PROCEDURE

1 READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED SIGNAL)

- (a) Operate the intelligent tester according to the step on the display and select "DATA LIST".

ENGINE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
ENGINE SPD	Engine speed/Min.: 0 rpm, Max.: 16,383 rpm	Almost the same as actual engine speed (When engine is running)	-

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

NG → GO TO ENGINE CONTROL SYSTEM

OK

ME-28

METER – METER / GAUGE SYSTEM

2

CHECK COMBINATION METER ASSEMBLY

Wire Harness Side:

The diagram shows the C6 meter connector with 40 pins. Below it is an oscilloscope waveform showing a square wave signal. The ground reference is labeled GND. The waveform is a square wave with a period of approximately 10 ms and a peak-to-peak voltage of approximately 5V.

E111772E03

- (a) Disconnect the C6 meter connector.
- (b) Using an oscilloscope, check the signal waveform of the meter.

Tester Connection	Tool Setting	Vehicle Condition
C6-26 - Body ground	5V/DIV., 10 ms./DIV.	Engine idle speed

OK:
As shown in the illustration.

NG

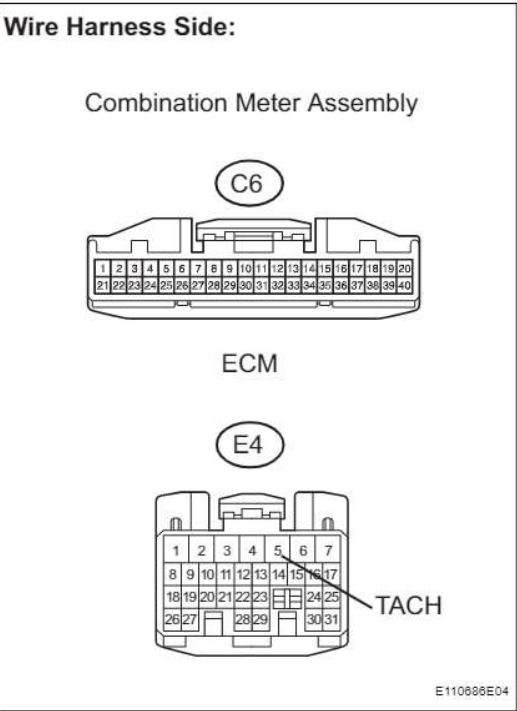
Go to step 3

OK

REPLACE COMBINATION METER ASSEMBLY

3

CHECK WIRE HARNESS (COMBINATION METER ASSEMBLY - ECM)



- (a) Disconnect the C6 meter connector.
- (b) Disconnect the E4 ECM connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
C6-26 - E4-5	Below 1 Ω
C6-26 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

ME

OK

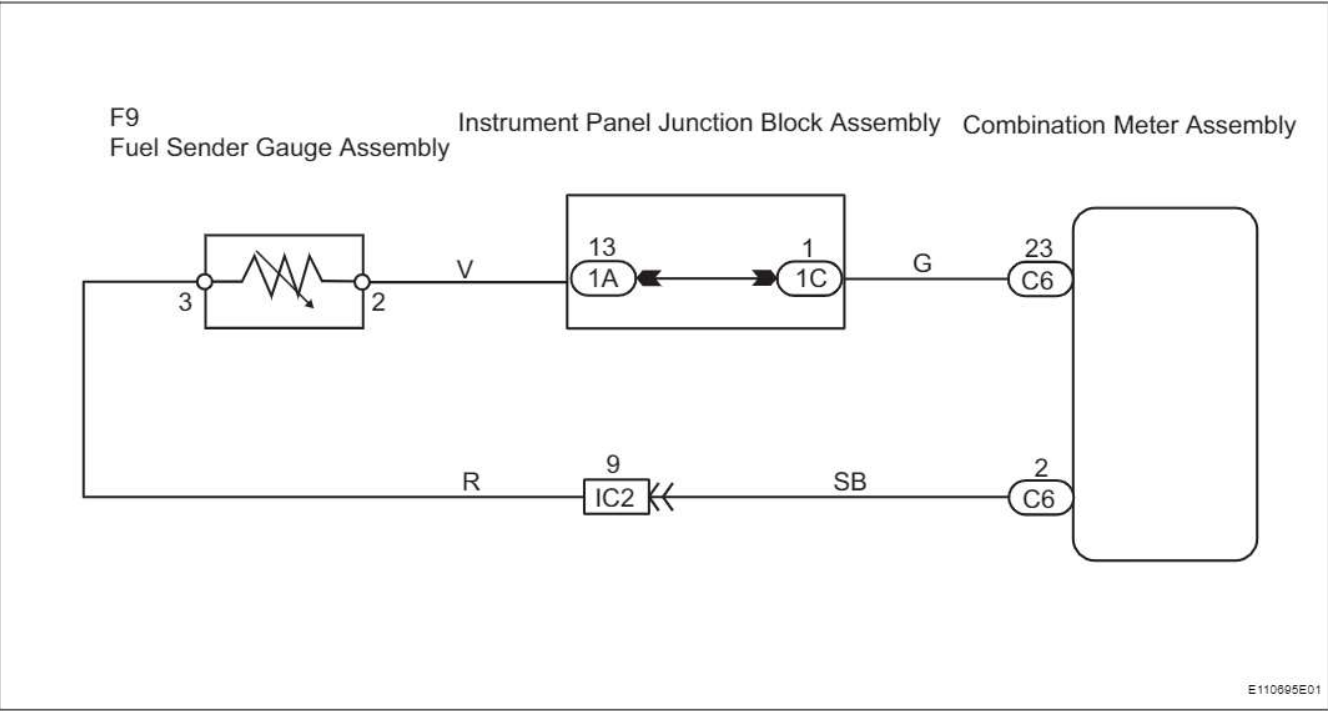
REPLACE ECM

ME-30

METER – METER / GAUGE SYSTEM

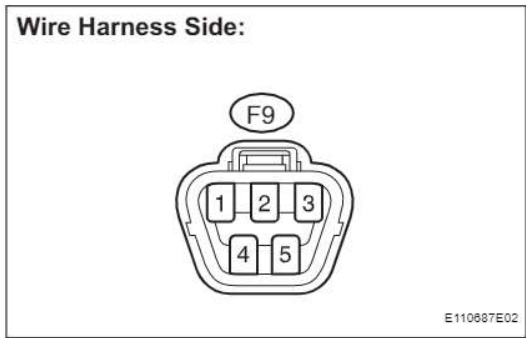
Fuel Gauge Malfunction

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK COMBINATION METER ASSEMBLY



(a) Disconnect the F9 gauge connector.
(b) Check the meter indicator condition.
OK

Wire Connection	Condition	Specified Condition
2 - 3	Short circuit (Ignition switch ON)	Fuel gauge indicator "F" or more (combination meter)

(c) Measure the voltage of the wire harness side connector.
Standard voltage

Tester Connection	Condition	Specified Condition
2 - Body ground	Ignition switch ON	11 to 14 V

NG

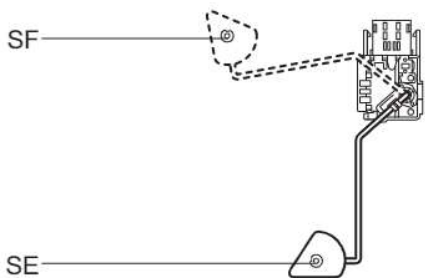
Go to step 3

OK

2

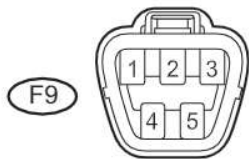
INSPECT FUEL SENDER GAUGE ASSEMBLY

Fuel Sender Gauge Assembly:



Wire Harness Side:

Fuel Sender Gauge:



H

E138504E01

- (a) Remove the fuel sender gauge assembly.
- (b) Check that the float moves smoothly between F and E.
- (c) Measure the resistance between terminals 2 and 3 of the gauge.

Standard resistance

Float Level	Specified Condition
SF	3.0 to 5.0 Ω
Between E and F	3.0 to 111 Ω
SE	109 to 111 Ω

NG

REPLACE FUEL SENDER GAUGE ASSEMBLY

OK

ME

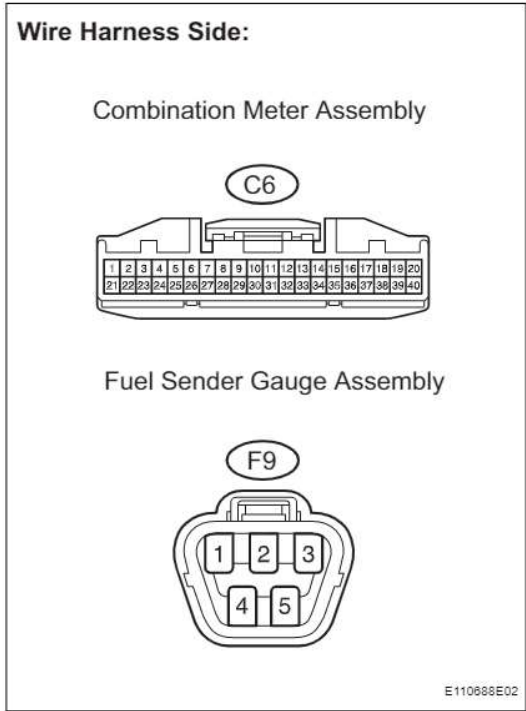
REPLACE COMBINATION METER ASSEMBLY

ME-32

METER – METER / GAUGE SYSTEM

3

CHECK WIRE HARNESS (COMBINATION METER - FUEL SENDER GAUGE)



- (a) Disconnect the C6 meter connector.
- (b) Disconnect the F9 gauge connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
C6-23 - F9-2	Below 1 Ω
C6-2 - F9-3	Below 1 Ω

NG

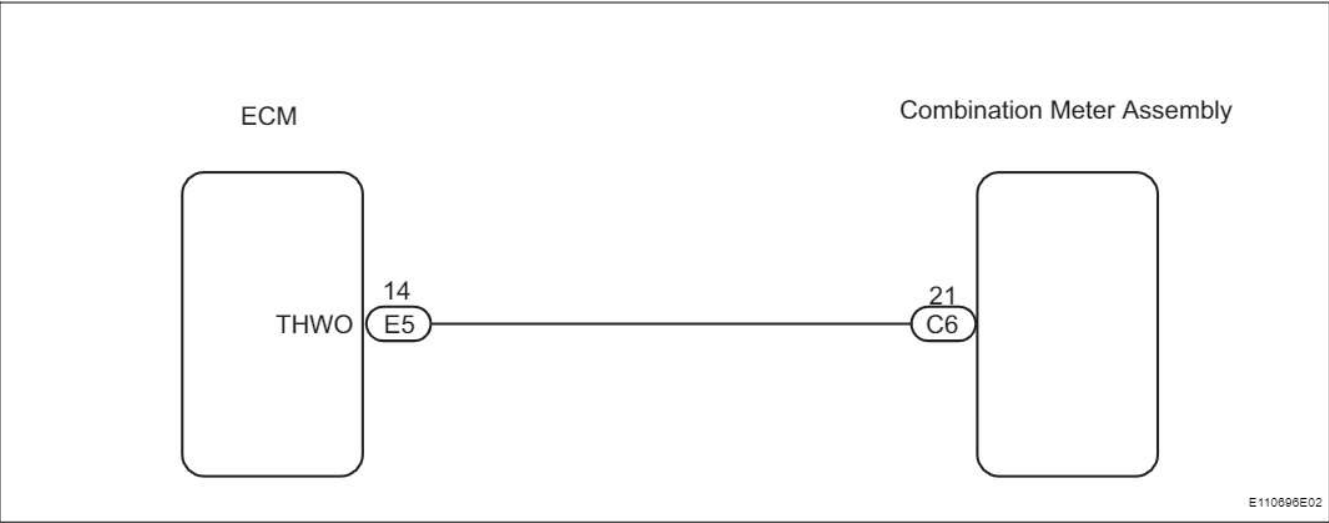
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Engine Coolant Temperature Gauge Malfunction

WIRING DIAGRAM



ME

INSPECTION PROCEDURE

HINT:
If there is an open or short the engine coolant temperature sensor circuit, the ECM outputs DTCs (See page ES-47). Perform troubleshooting with the "SFI SYSTEM".

1 READ VALUE OF INTELLIGENT TESTER (ENGINE COOLANT TEMPERATURE SIGNAL)

- (a) Operate the intelligent tester according to the steps on the display and select "DATA LIST".

ENGINE

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
COOLANT TEMP	Coolant temperature/Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If the value is "-40°C (-40°F)" or "140 °C (284°F)", sensor circuit is open or shorted

OK:
Coolant temperature display on the tester is between 80°C (176°F) and 95°C (203°F) after warming up.

OK

NG → GO TO ENGINE CONTROL SYSTEM

ME-34

METER – METER / GAUGE SYSTEM

2

CHECK COMBINATION METER ASSEMBLY

Wire Harness Side:

The diagram shows the C6 meter connector with 40 pins. Below it is an oscilloscope waveform showing a square wave pulse. The pulse width is labeled as 417.792 +/- 2 msec. The ground reference is labeled GND. The diagram is labeled E111773E02.

- (a) Disconnect the C6 meter connector.
- (b) Using an oscilloscope, check the signal waveform of the meter.

Tester Connection	Tool Setting	Vehicle Condition
C6-21 - Body ground	5 V/DIV., 10 ms./DIV.	Ignition switch ON

OK:
Refer to the illustration.

NG

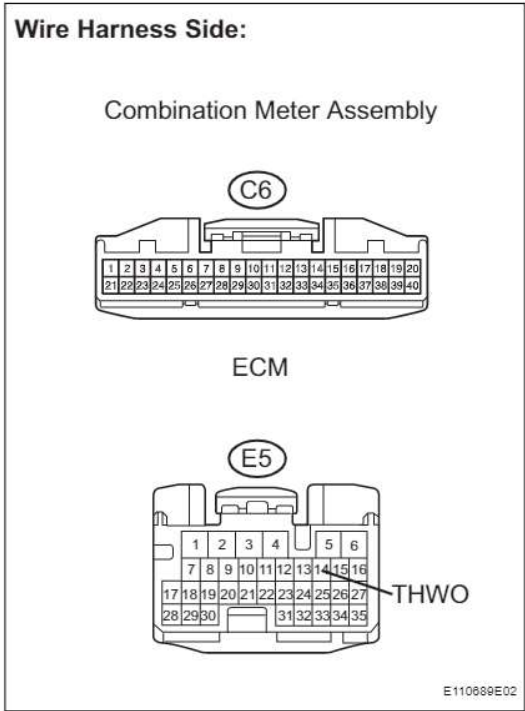
Go to step 3

OK

REPLACE COMBINATION METER ASSEMBLY

3

CHECK WIRE HARNESS (COMBINATION METER ASSEMBLY - ECM)



- (a) Disconnect the C6 meter connector.
- (b) Disconnect the E5 ECM connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
C6-21 - E5-14 (THWO)	Below 1 Ω
C6-21 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

GO TO ENGINE CONTROL SYSTEM

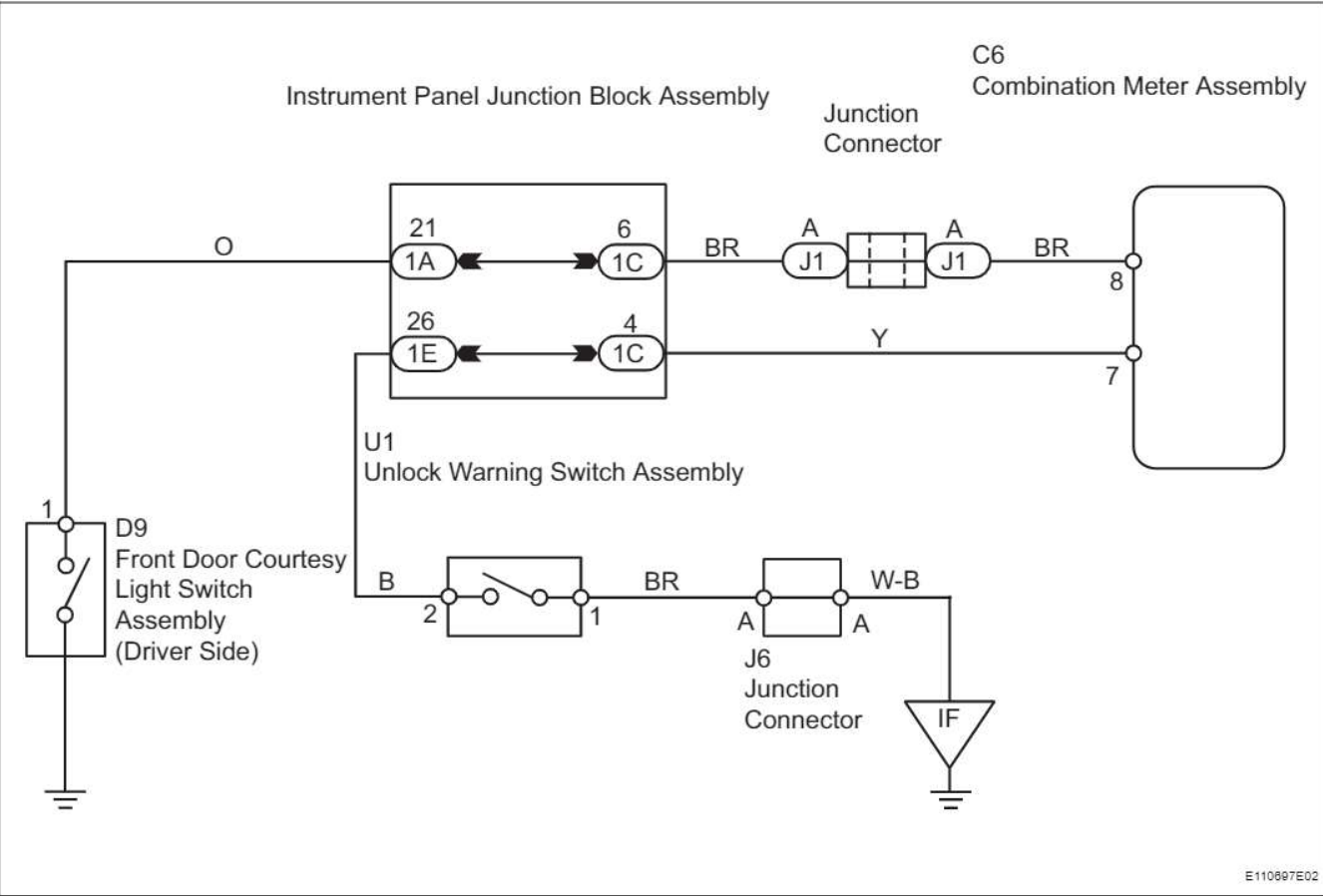
ME

ME-36

METER – METER / GAUGE SYSTEM

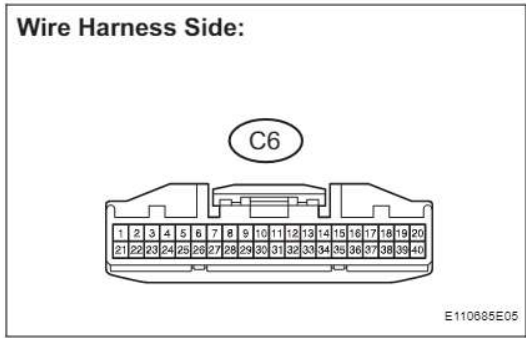
Warning Buzzer does not Sound

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK WIRE HARNESS (COMBINATION METER ASSEMBLY - BODY GROUND)



- (a) Disconnect the C6 meter connector.
- (b) Measure the resistance of the wire harness side connector.
- Standard resistance
- | Tester Connection | Condition | Specified Condition |
|--------------------|------------------------------|---------------------|
| C6-7 - Body ground | Ignition key is inserted | Below 1 Ω |
| C6-7 - Body ground | Ignition key is not inserted | 10 kΩ or higher |

OK

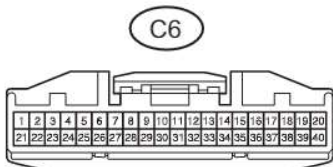
NG

Go to step 3

2

CHECK WIRE HARNESS (COMBINATION METER ASSEMBLY - BODY GROUND)

Wire Harness Side:



E110685E06

- (a) Disconnect the C6 meter connector.
(b) Measure the resistance of the wire harness side connector.

Standard resistance

Tester Connection	Condition	Specified Condition
C6-8 - Body ground	Driver side door is open	Below 1 Ω
C6-8 - Body ground	Driver side door is closed	10 kΩ or higher

NG

Go to step 4

OK

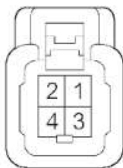
REPLACE COMBINATION METER ASSEMBLY

ME

3

INSPECT UNLOCK WARNING SWITCH ASSEMBLY

A/T:



M/T:



1043077E02

- (a) Remove the unlock warning switch.
(b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Driver side door is open	Below 1 Ω
1 - 2	Driver side door is closed	10 kΩ or higher

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

OK

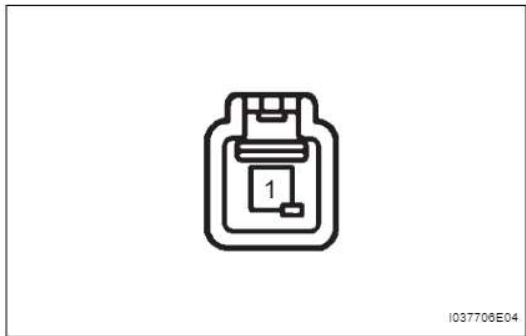
REPAIR OR REPLACE HARNESS AND CONNECTOR (UNLOCK WARNING SWITCH CIRCUIT)

ME-38

METER – METER / GAUGE SYSTEM

4

INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY



- (a) Disconnect the D9 switch connector.
(b) Measure the resistance of the switch.

Standard resistance

Tester Connection	Condition	Specified Condition
D9-1 - Body ground	Driver side door is open	Below 1 Ω
D9-1 - Body ground	Driver side door is closed	10 k Ω or higher

NG REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY

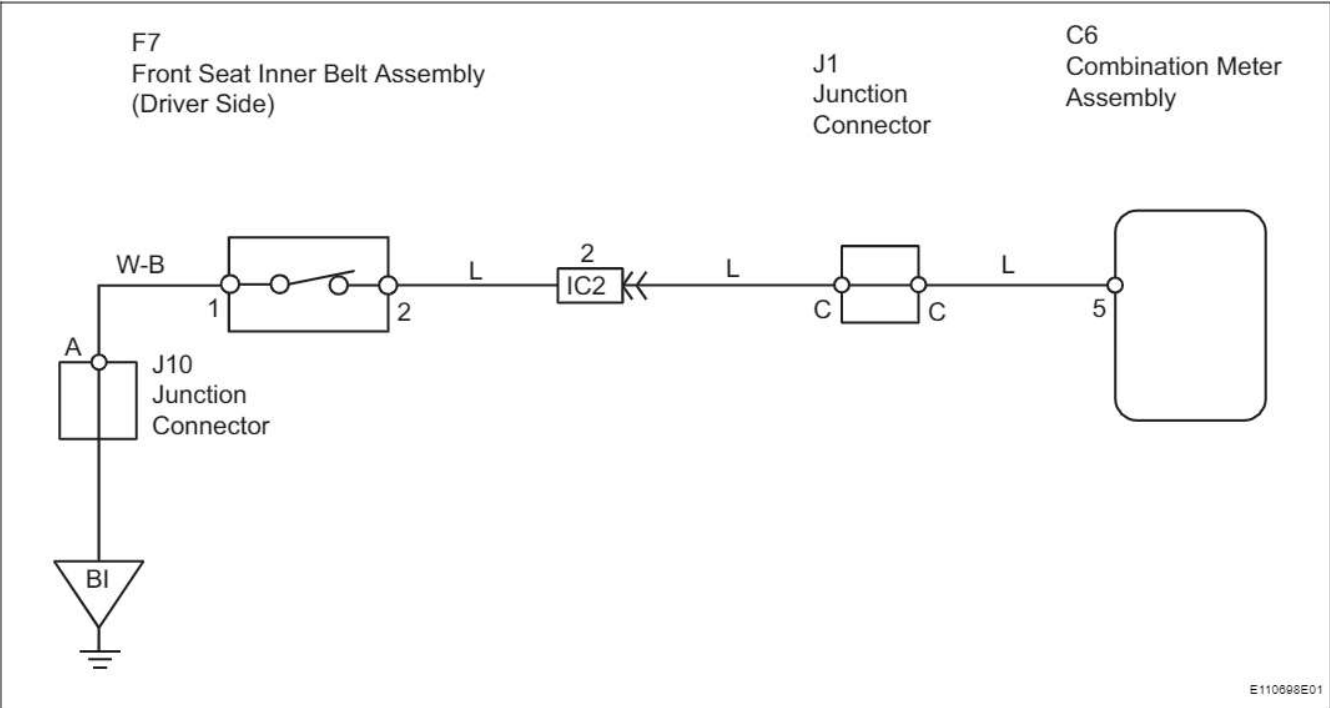
OK

ME

REPAIR OR REPLACE HARNESS AND CONNECTOR (FRONT DOOR COURTESY LIGHT SWITCH CIRCUIT)

Driver Side Seat Belt Warning Light does not Operate

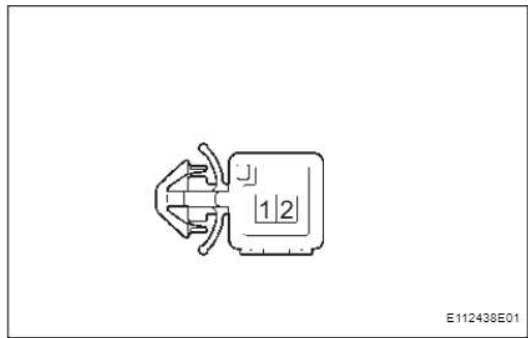
WIRING DIAGRAM



ME

INSPECTION PROCEDURE

1 INSPECT FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)



- (a) Remove the front seat inner belt.
(b) Measure the resistance of the belt.
Standard resistance

Tester Connection	Condition	Specified Condition
1 - 2	Seat belt is fastened	1 MΩ or higher
1 - 2	Seat belt is not fastened	Below 1 Ω

NG REPLACE FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)

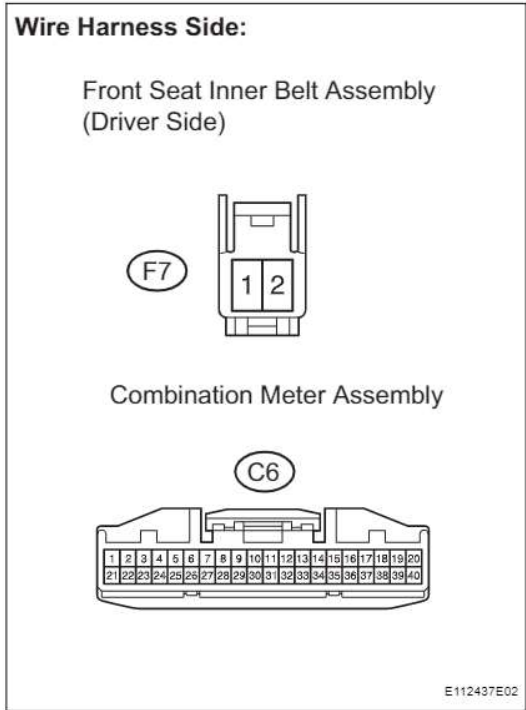
OK

ME-40

METER – METER / GAUGE SYSTEM

2

CHECK WIRE HARNESS (FRONT SEAT INNER BELT - COMBINATION METER AND BODY GROUND)



- (a) Disconnect the F7 belt connector.
- (b) Disconnect the C6 meter connector.
- (c) Measure the resistance of the wire harness side connectors.

Standard resistance

Tester Connection	Specified Condition
F7-1 - Body ground	Below 1 Ω
F7-2 - C6-5	Below 1 Ω
F7-2 - Body ground	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

REPAIR OR REPLACE COMBINATION METER ASSEMBLY

Front Passenger Side Seat Belt Warning Light Malfunction

DESCRIPTION

The occupant classification ECU detects the state of the front seat inner belt assembly (passenger side) when the front passenger seat is occupied with the ignition switch ON. If the front passenger seat belt is not fastened, the front seat belt warning light on the A/C control assembly blinks. If the front passenger seat belt is fastened, the warning light goes off.

HINT:

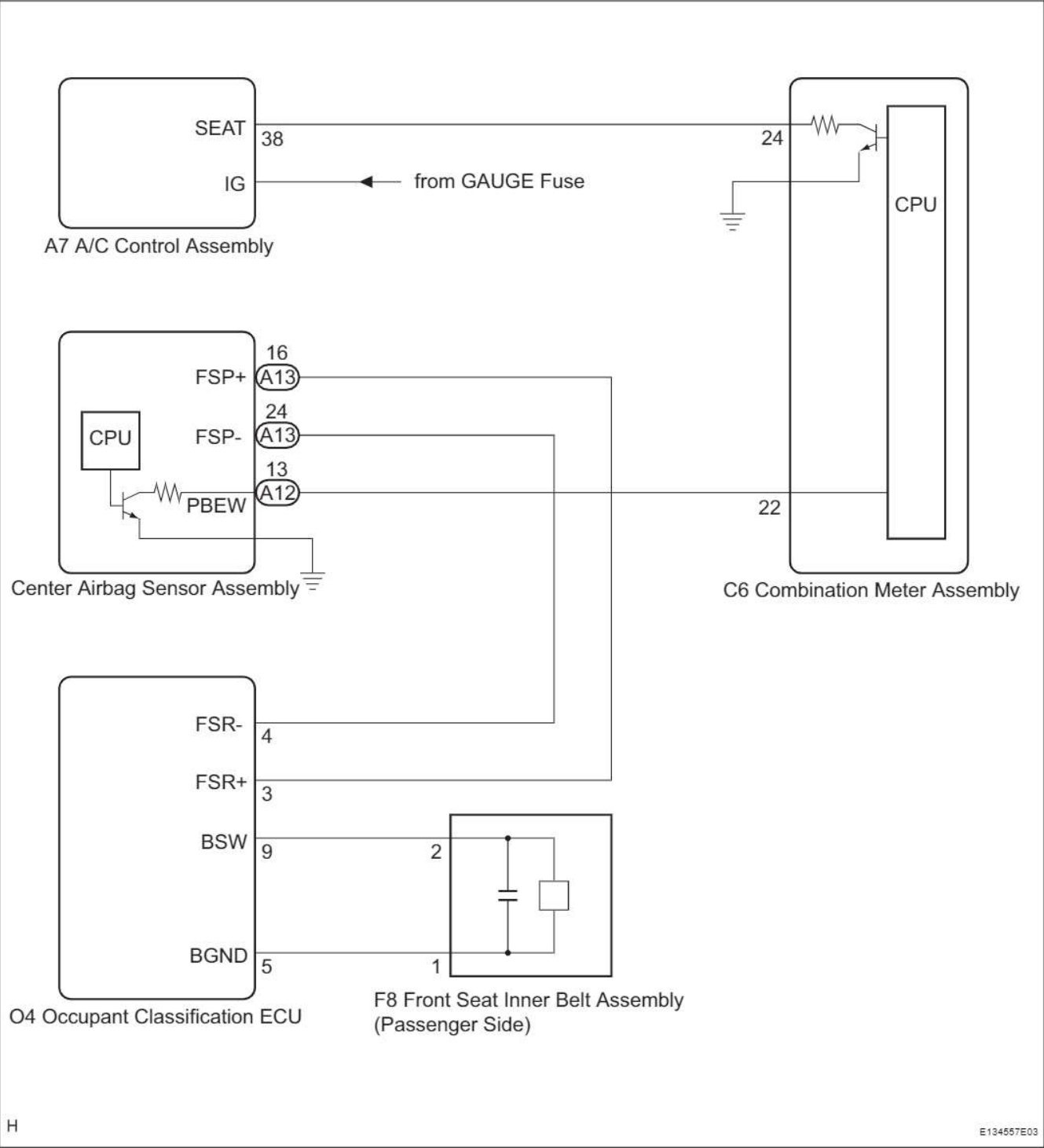
The center airbag sensor assembly uses the front passenger buckle switch signal to control the airbag operation. If there is a communication error between the occupant classification ECU and center airbag sensor assembly, the airbag warning light comes on.

ME

ME-42

METER – METER / GAUGE SYSTEM

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
If there is an open in the passenger side buckle switch circuit (front seat inner belt assembly circuit), the occupant classification ECU outputs DTCs. Perform troubleshooting with the "Occupant Classification System" (See page [RS-260](#)).

1

CHECK DTC

(a) Check for DTCs.

Result

Result	Proceed to
DTC B1771 is not output	A
DTC B1771 is output	B (See page RS-262)

B

GO TO OCCUPANT CLASSIFICATION SYSTEM

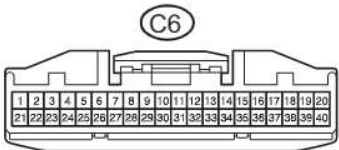
A

2

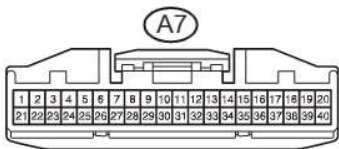
CHECK HARNESS AND CONNECTOR (COMBINATION METER - A/C CONTROL ASSEMBLY)

Wire Harness Side:

Combination Meter Assembly



A/C Control Assembly



E110701E02

- (a) Disconnect the A7 and C6 connectors.
(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
A7-38 (SEAT) - C6-24	Always	Below 1 Ω
C6-24 - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

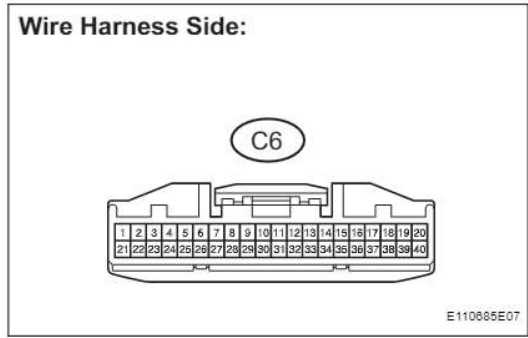
3

INSPECT A/C CONTROL ASSEMBLY

- (a) Reconnect the A7 connector.

ME-44

METER – METER / GAUGE SYSTEM



OK

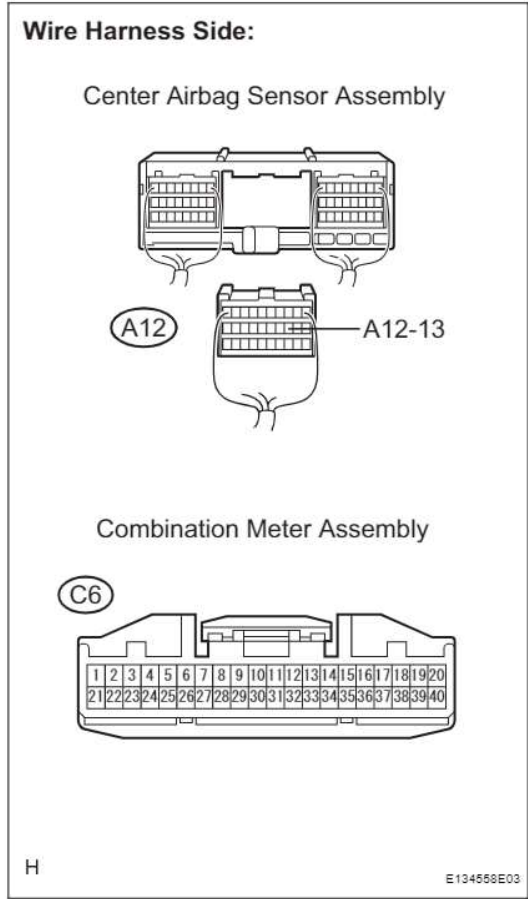
- (b) Measure the voltage according to the value(s) in the table below.
- Standard voltage**

Tester Connection	Condition	Specified Condition
C6-24 - Body ground	Turn the ignition switch to the ON position	11 to 14 V

NG **REPLACE A/C CONTROL ASSEMBLY**

4

CHECK HARNESS AND CONNECTOR (COMBINATION METER - CENTER AIRBAG SENSOR ASSEMBLY)



OK

- (a) Disconnect the A12 connector.
- (b) Measure the resistance according to the value(s) in the table below.
- Standard resistance**

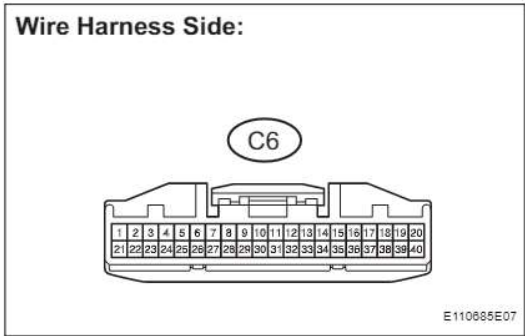
Tester Connection	Condition	Specified Condition
C6-22 - A12-13 (PBEW)	Always	Below 1 Ω
C6-22 - Body ground	Always	10 k Ω or higher

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

5

INSPECT COMBINATION METER ASSEMBLY

- (a) Reconnect the C6 connector.



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

Standard voltage

Tester Connection	Condition	Specified Condition
C6-22 - Body ground	Turn the ignition switch to the ON position	8 to 16 V

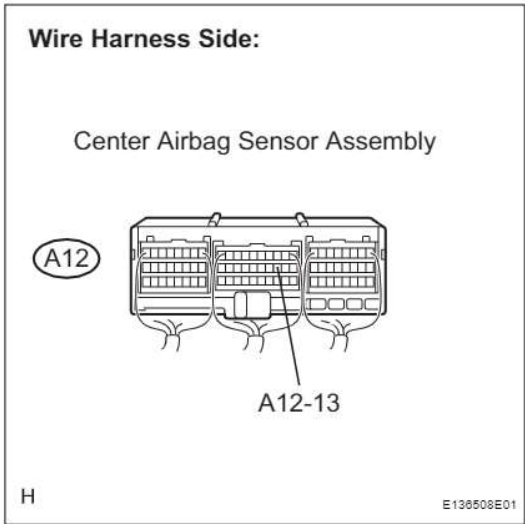
NG

REPLACE COMBINATION METER ASSEMBLY

OK

6

INSPECT CENTER AIRBAG SENSOR ASSEMBLY



(a) Reconnect the A12 connector.

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

Standard voltage

Tester Connection	Condition	Specified Condition
A12-13 (PBEW) - Body ground	Turn the ignition switch to the ON position, sit on the front passenger seat, and front passenger seat belt is unfastened	Below 1 V
A12-13 (PBEW) - Body ground	Turn the ignition switch to the ON position, sit on the front passenger seat, and front passenger seat belt is fastened	8 to 16 V

NG

REPLACE CENTER AIRBAG SENSOR ASSEMBLY

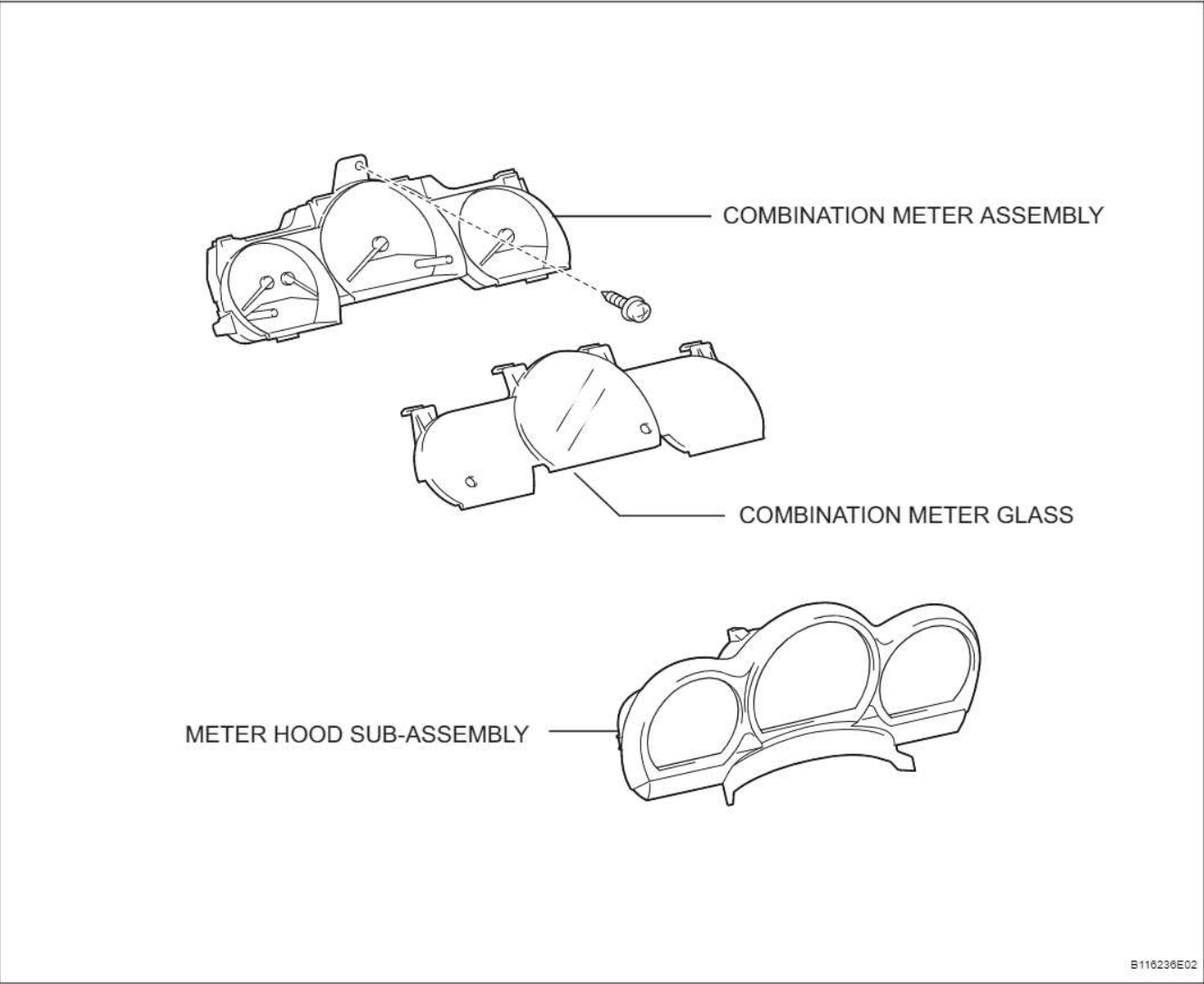
OK

REPLACE COMBINATION METER ASSEMBLY

ME-44

METER – COMBINATION METER

COMBINATION METER
COMPONENTS



REMOVAL

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**

CAUTION:

Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. **REMOVE METER HOOD SUB-ASSEMBLY**

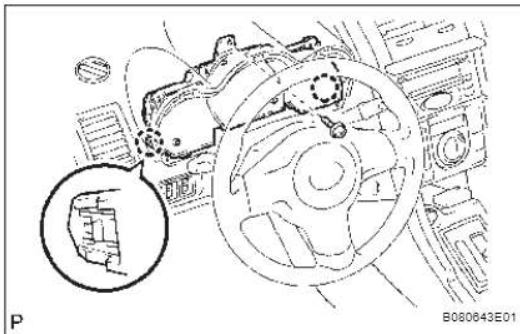
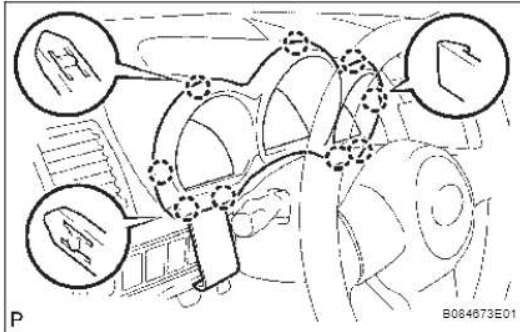
(a) Tilt the steering column assembly down as far as possible.

(b) Using a moulding remover, detach the 9 claws.

HINT:

Tape the moulding remover tip before use.

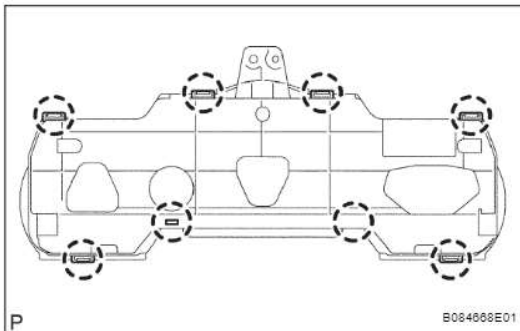
(c) Remove the meter hood.



3. **REMOVE COMBINATION METER ASSEMBLY**

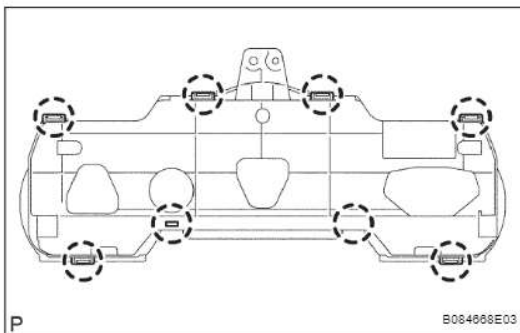
(a) Remove the screw and detach the 2 claws.

(b) Remove the combination meter and disconnect the connectors.



4. **REMOVE COMBINATION METER GLASS**

(a) Detach the 8 claws, and then remove the combination meter glass.

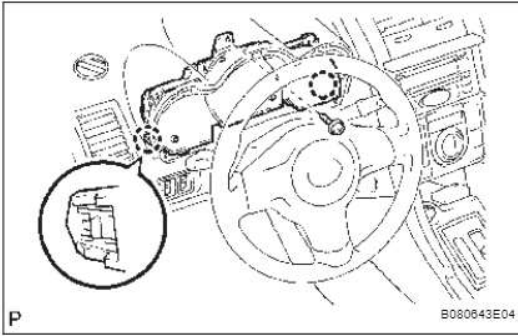


INSTALLATION

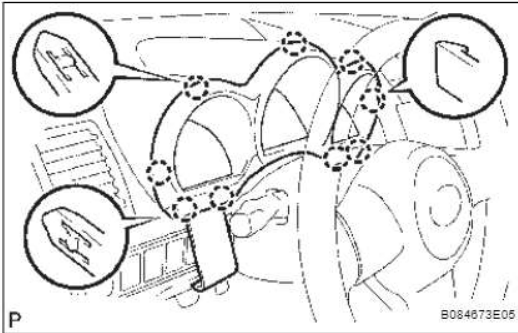
1. **INSTALL COMBINATION METER GLASS**

(a) Attach the 8 claws to install the combination meter glass.

ME

ME-46**METER – COMBINATION METER****2. INSTALL COMBINATION METER ASSEMBLY**

- (a) Connect the connector and install the combination meter.
- (b) Attach the 2 claws to install the screw.

**3. INSTALL METER HOOD SUB-ASSEMBLY**

- (a) Attach the 9 claws to install the meter hood.

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**5. PERFORM INITIALIZATION**

- (a) Perform initialization (see page [IN-23](#)).

NOTICE:

Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.

6. CHECK SRS WARNING LIGHT

- (a) Check the SRS warning light (see page [RS-11](#)).

ME