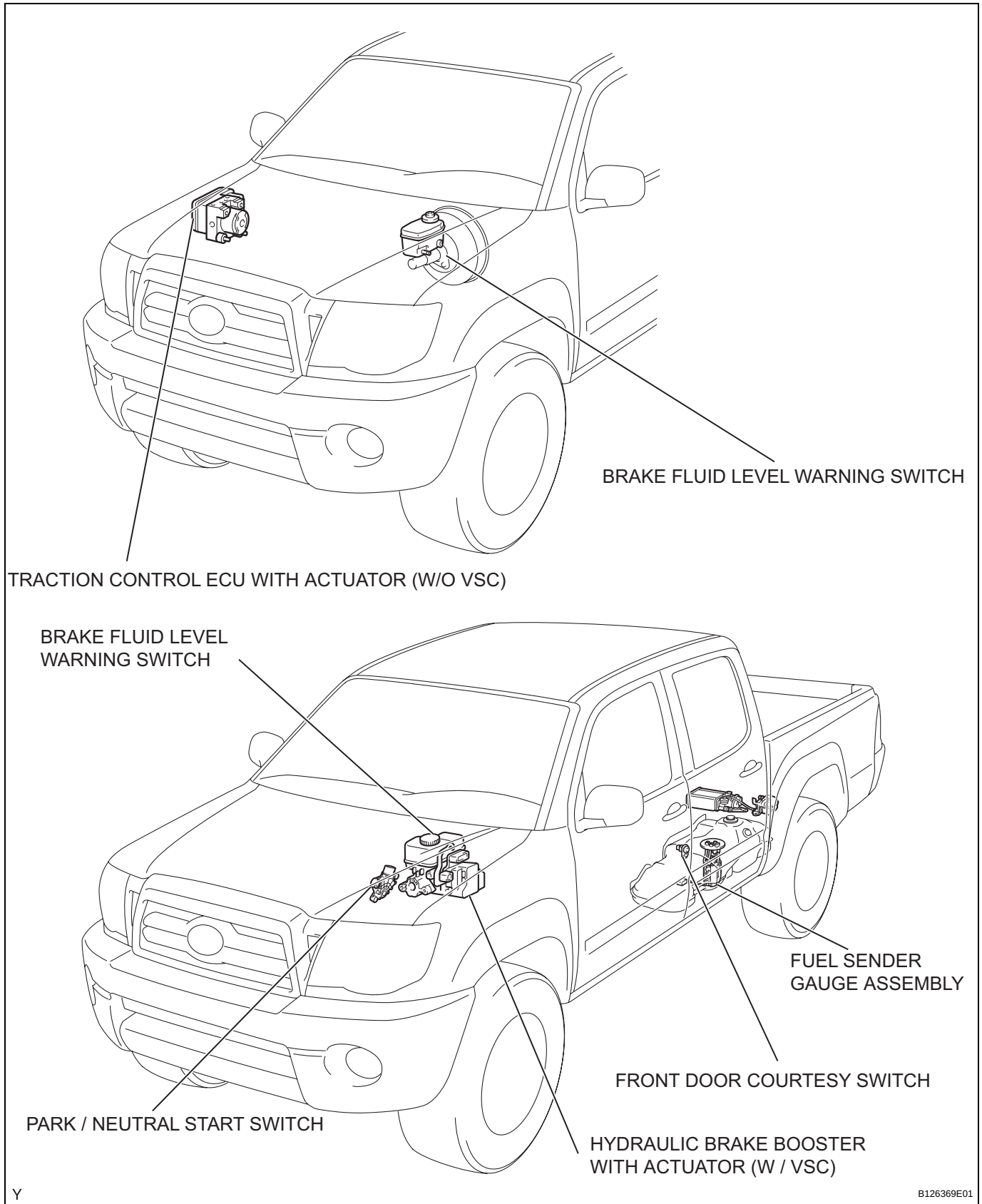
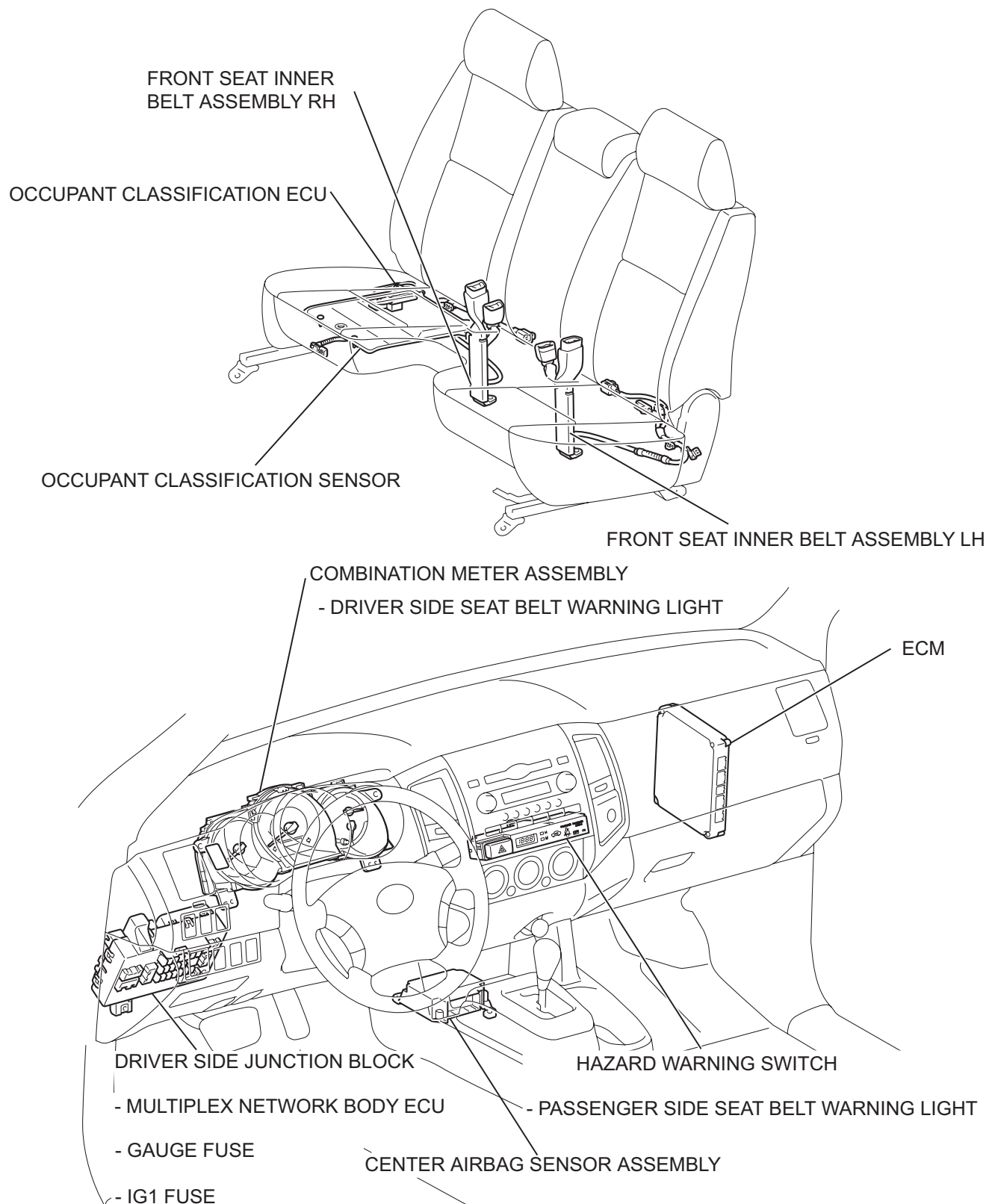


METER / GAUGE SYSTEM

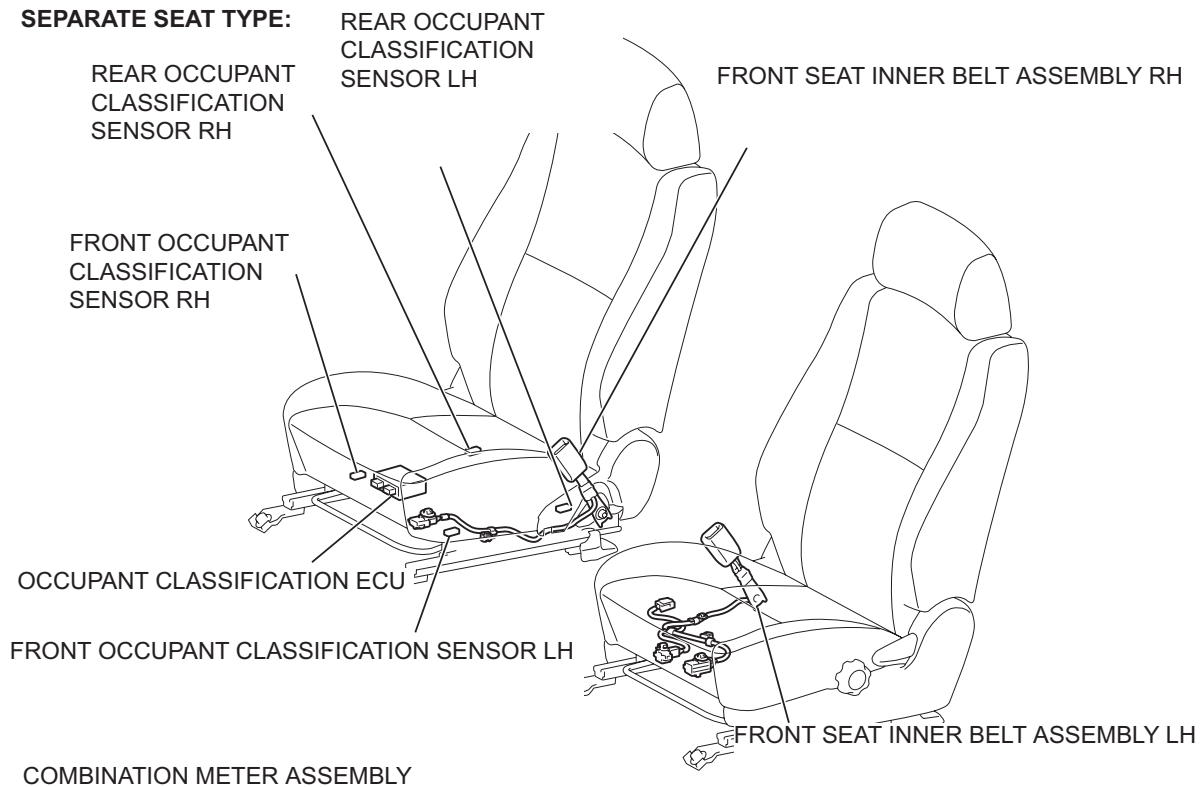
PARTS LOCATION



BENCH SEAT TYPE:

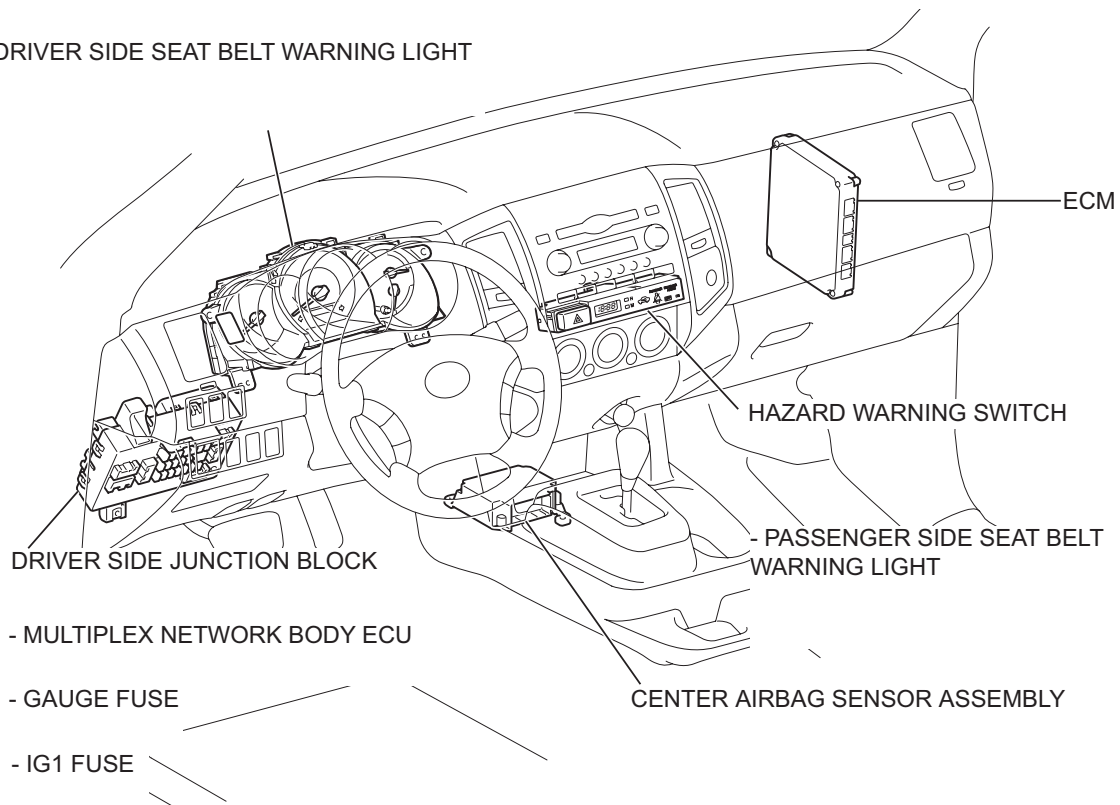


SEPARATE SEAT TYPE:



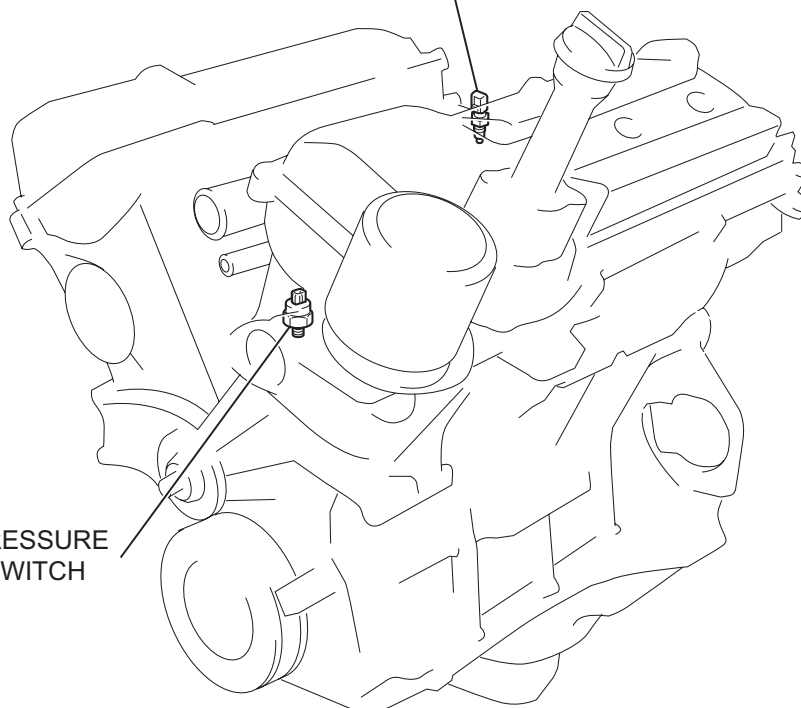
COMBINATION METER ASSEMBLY

- DRIVER SIDE SEAT BELT WARNING LIGHT

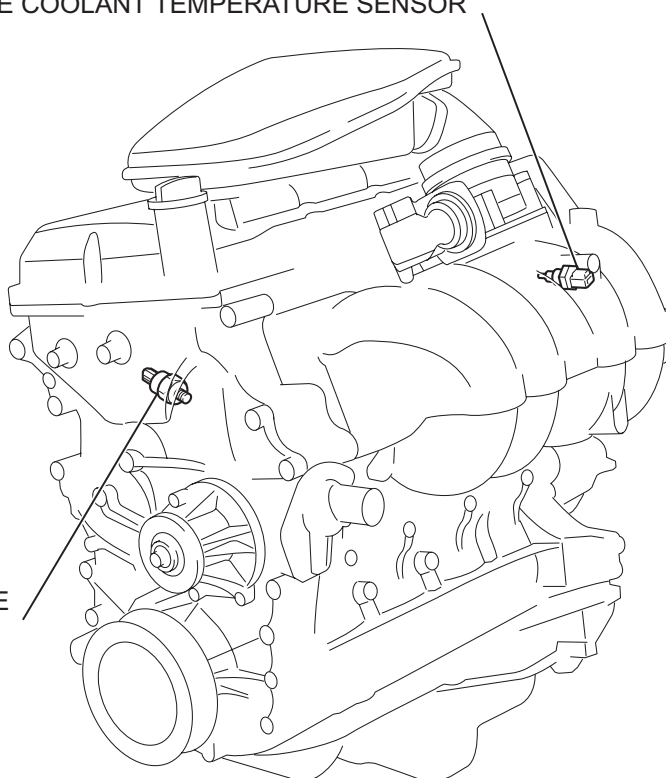


1GR-FE:

ENGINE COOLANT TEMPERATURE SENSOR

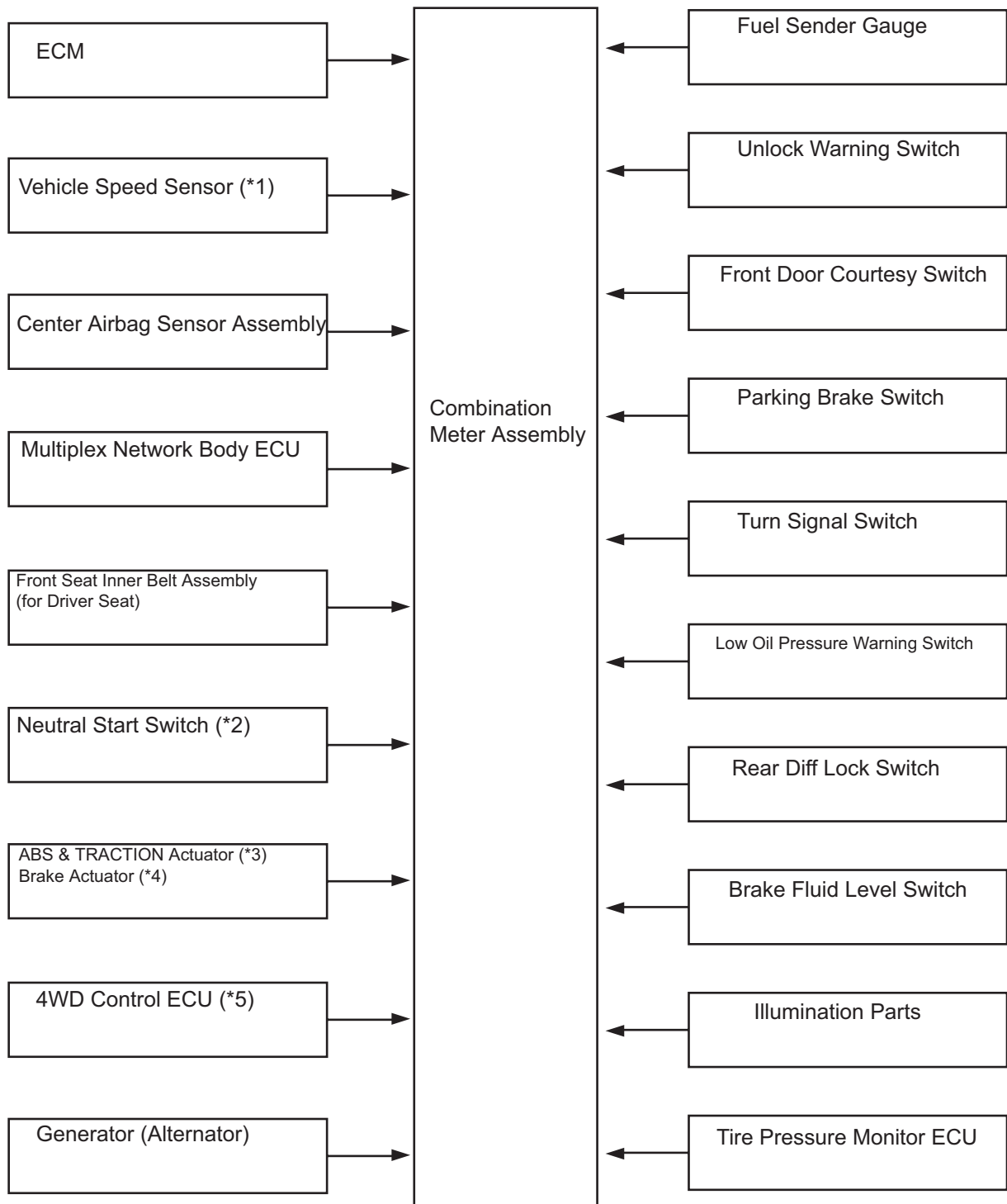
LOW OIL PRESSURE
WARNING SWITCH**2TR-FE:**

ENGINE COOLANT TEMPERATURE SENSOR

LOW OIL PRESSURE
WARNING SWITCH

SYSTEM DIAGRAM

Combination Meter Assembly:



*1: M/T Vehicle

*3: w/ VSC

*5: 4WD Vehicle

*2: A/T Vehicle

*4: w/o VSC

B127007E02

SYSTEM DESCRIPTION

1. METER GAUGE AND WARNING/INDICATOR

GAUGE:

Item	Detail
Speedometer (with VSC)	Based on signals received from wheel speed sensor, hydraulic brake booster calculates vehicle speed and transmits data to meter.
Tachometer	ECM transmits engine speed to meter to display.
ODO/TRIP meter	Combination meter assembly.
Fuel	Displays fuel level in accordance with signal from fuel sender gauge.
Water Temperature	Displays water temperature in accordance with signal from ECM.

WARNING / INDICATOR:

Item	Signal Description
TURN	Turn signal switch is ON.
BEAM	Displays reception of signal from multiplex network body ECU.
CHARGE	Receives malfunction signals from generator (alternator).
OIL PRESSURE	Warning is displayed when oil pressure is low (pressure switch is ON).
MIL	Receives malfunction signals from ECM.
DOOR	Open door indicator comes on when signal is received from multiplex network body ECU.
SEAT BELT	Driver's seat belt buckle switch is OFF (Unfastened).
BRAKE	Displays warning when parking brake switch is ON or brake fluid level warning switch is ON.
MAINT (Blinks)	Blinks when 4,500 miles has been run after ODO/TRIP switch is set.
MAINT (Comes on)	Comes on when 5,000 miles has been run after ODO/TRIP switch is set.
CRUISE	Receives malfunction signals from ECM.
AIR BAG	Receives malfunction signals from airbag ECU.
FUEL	Receives fuel empty signals from fuel sender gauge.
A/T P (A/T)	Receives P signals from neutral start switch.
A/T R (A/T)	Receives R signals from neutral start switch.
A/T N (A/T)	Receives N signals from neutral start switch.
A/T D (A/T)	Receives D signals from neutral start switch.
A/T 4 (A/T)	Receives 4 signals from neutral start switch.
A/T 3 (A/T)	Receives 3 signals from neutral start switch.
A/T 2 (A/T)	Receives 2 signals from neutral start switch.
A/T L (A/T)	Receives L signals from neutral start switch.
TAIL	Displays when receiving signals from multiplex network body ECU.
A/T OIL TEMP	Displays when receiving signals from ECU.
AUTO LSD	Receives signals from hydraulic brake booster while AUTO LSD is operating.
SLIP	- Receives signals from hydraulic brake booster while VSC, TRAC, A-TRAC, A-LSD, DAC, RR DIFF LOCK and HCA are operating. - Receives malfunction signals of TRAC, A-TRAC and A-LSD from hydraulic brake booster.
VSC TRAC	Receives malfunction signals of VSC, TRAC, A-TRAC, A-LSD, DAC and HAC from hydraulic brake booster.
VSC OFF	- Receives signals from hydraulic brake booster while H4L, L4L and RR DIFF LOCK are operating. - Receives malfunction signals of VSC from hydraulic brake booster.
DAC	- Receives signals from hydraulic brake booster while DAC and RR DIFF LOCK are operating. - Receives malfunction signals of the DAC from hydraulic brake booster.
4WD	Receives signals from 4WD control ECU while 4WD is operating.
4LO	Receives signals from 4WD control ECU while 4LO is operating.
RR DIFF LOCK	Receives signals from 4WD control ECU while RR DIFF LOCK is operating.
ABS	- Receives signals from hydraulic brake booster while DIFF LOCK is operating. - Receives malfunction signals of ABS, BRAKE ASSIST, and EBD from hydraulic brake booster.
TIRE PRESSURE	Receives signals from tire pressure monitor ECU.

BUZZER:

Item	Signal Description
Key Reminder	Buzzer is ON: Ignition switch is OFF, key is inserted, and door is open.
Fasten Belt	Buzzer is ON: Ignition switch is ON and seat belt is unfastened.
Manual Shift Reverse (6MT)	Buzzer is ON: Ignition switch is ON, shift position is reverse.

2. SYSTEM FEATURES

The combination meter in this vehicle has the following features:

- (a) Built-in buzzer for the reminder system (key and seat belt).
- (b) Integrated rheostat, trip and odometer knobs.
 - Rotate the knob to adjust the interior illumination.
 - Press and release the knob to scroll through trip A, trip B, and odometer features.
 - Press and hold the trip knob to reset the trip meter functions.
- (c) Oil maintenance indicator.
 - 4,500 miles after the ODO/TRIP switch is set, the maintenance indicator blinks for 15 seconds after the ignition switch is turned to the ON position.
 - 5,000 miles after ODO/TRIP switch is set, the maintenance indicator comes on.
- (d) How to reset oil maintenance indicator (See page [ME-24](#)).

HOW TO PROCEED WITH TROUBLESHOOTING

1

VEHICLE BROUGHT TO WORKSHOP

NEXT

2

CUSTOMER PROBLEM ANALYSIS

NEXT

3

PROBLEM SYMPTOM CONFIRMATION

NEXT

4

CAN COMMUNICATION SYSTEM CHECK

Result

Result	Proceed to
CAN DTC is not output	A
CAN DTC is output	B

B

PROCEED TO BODY MULTIPLEX COMMUNICATION SYSTEM

A

5

CIRCUIT INSPECTION

NEXT

6

REPAIR OR REPLACE

NEXT

7

CONFIRMATION TEST

NEXT

END

PROBLEM SYMPTOMS TABLE

MALFUNCTION SYSTEM

Symptom	Suspected area	See page
Entire combination meter does not operate	Refer to troubleshooting	ME-26
Operating light control rheostat does not change light brightness	Refer to troubleshooting	ME-60
Warning buzzer does not sound	Refer to troubleshooting	ME-41

METER GAUGES

Symptom	Suspected area	See page
Malfunction in speedometer	Refer to troubleshooting	ME-28
Malfunction in tachometer	Refer to troubleshooting	ME-32
Malfunction in fuel receiver gauge	Refer to troubleshooting	ME-35
Malfunction in water temperature warning light	Refer to troubleshooting	ME-38

WARNING LIGHTS

Symptom	Suspected area	See page
MIL does not come on	ECM (2TR-FE)	ES-10
	ECM (1GR-FE)	ES-10
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Discharge warning light does not come on	ECM (2TR-FE)	ES-10
	ECM (1GR-FE)	ES-10
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Brake warning light does not come on	Brake Oil Level Switch	ME-21
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
ABS warning light does not come on	Brake Actuator Assembly (ABS)	BC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
SRS warning light does not come on	Center Airbag Sensor Assembly	RS-24
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Open door warning light does not come on	Refer to troubleshooting	DL-3
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Fuel level warning light does not come on	Refer to troubleshooting	-
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Low oil pressure warning light does not come on	Low Oil Pressure Warning Switch	-
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Driver side seat belt warning light dose not operate.	Refer to troubleshooting	ME-47
Passenger side seat belt warning light dose not flash.	Refer to troubleshooting	ME-51
A/T oil temperature warning light does not come on	ECM (2TR-FE)	ES-10
	ECM (1GR-FE)	ES-10
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64

Symptom	Suspected area	See page
Tail light warning light does not come on	Tail Light	-
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Headlight warning light does not come on	Headlight	-
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64

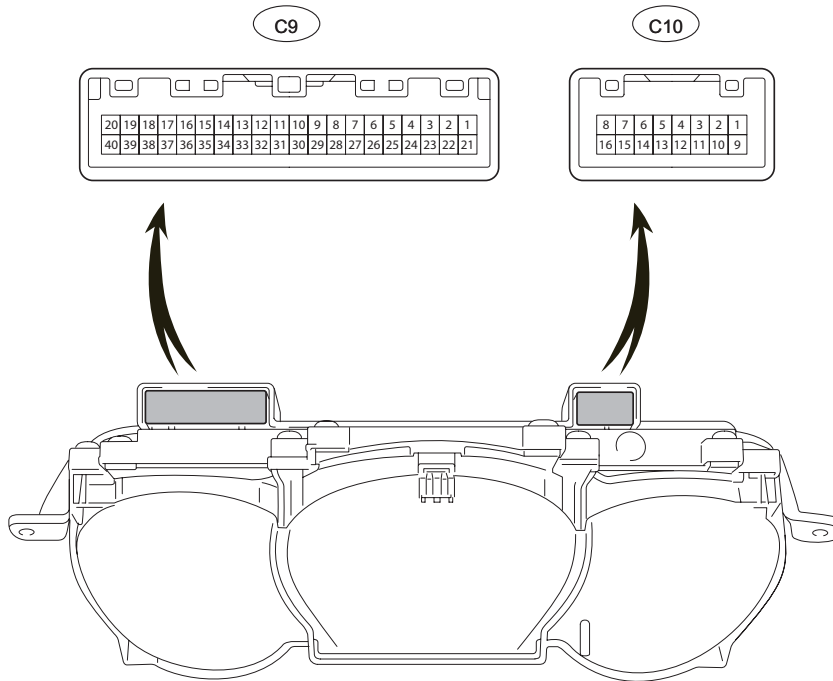
INDICATOR LIGHTS

Symptom	Suspected area	See page
Turn indicator light does not come on	Turn Signal Flasher Relay	LI-1
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
High beam indicator light does not come on	Headlight Dimmer Switch	LI-29
	Wire Harness or Connector	-
	Combination Meter Assembly	-
CRUISE indicator light does not come on	ECM (2TR-FE)	ES-10
	ECM (1GR-FE)	ES-10
	Cruise Control Main Switch	CC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Rear diff lock indicator light does not come on	4WD Control ECU	BC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
4LO indicator light does not come on	4WD Control ECU	BC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
4WD indicator light does not come on	4WD Control ECU	BC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
DAC indicator light does not come on	4WD Control ECU	BC-5
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
Oil maintenance indicator light does not come on	Combination Meter Assembly	ME-64
VSC TRAC indicator light does not come on	Skid Control ECU	BC-96
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
VSC OFF indicator light does not come on	Skid Control ECU	BC-96
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
SLIP indicator light does not come on	Skid Control ECU	BC-96
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
AUTO LSD indicator light does not come on	Skid Control ECU	BC-96
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64
All buzzers (key reminder, 6M/T, seat belt) do not operate	Refer to troubleshooting	ME-41
	Combination Meter Assembly	ME-64
Tire pressure indicator light does not come on	Tire Pressure Monitor ECU	TW-9
	Wire Harness or Connector	-
	Combination Meter Assembly	ME-64

TERMINALS OF ECU

1. COMBINATION METER ASSEMBLY

Combination Meter:



Y

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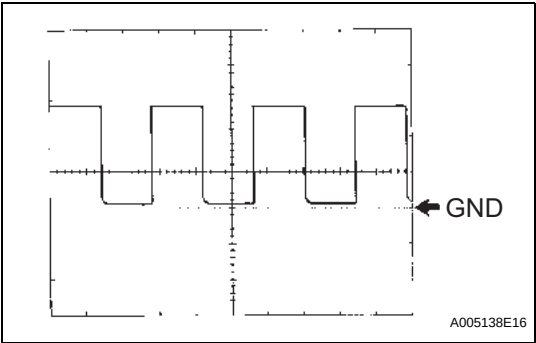
Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (C9-1) - Body ground	R - Body ground	Battery	Always	10 to 14 V
SIGNAL EARTH (C9-2) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
SPEED SIGNAL (C9-3) - Body ground	W - Body ground	Vehicle speed signal (input)	Ignition switch ON and wheel turning slowly	Pulse generation (See waveform 1)
FUEL EARTH (C9-4) - Body ground	Y-B - Body ground	Ground	Always	Below 1 Ω
SPEED SIGNAL (C9-6) - Body ground	R-Y - Body ground	Vehicle speed signal (input)	Ignition switch ON and wheel turning slowly	Pulse generation (See waveform 1)
TACHO (C9-7) - Body ground	B-W - Body ground	Tachometer signal	Idling	Pulse generation (See waveform 2)
FUEL SENDER (C9-8) - Body ground	O - Body ground	Fuel level signal	Ignition switch ON, fuel level FULL $\rightarrow$ EMPTY	Below 1 V $\rightarrow$ 4 to 7 V
TEMP INPUT (C9-9) - Body ground	GR-B - Body ground	Engine coolant temperature	Ignition switch ON, engine coolant temperature 90°C(194°F)	Pulse generation (See waveform 3)
D-BELT (C9-10) - Body ground	B-O - Body ground	Seat belt condition signal (Driver side)	D-BELT indicator light ON	Below 1 V
			D-BELT indicator light OFF	10 to 14 V
KEY UNLOCK (C9-11) - Body ground	G-B - Body ground	Key switch condition signal	Key inserted	Below 1 V
			Key removed	10 to 14 V
D DOOR INPUT (C9-12) - Body ground	G-Y - Body ground	Driver side door open	Driver side door open	Below 1 V
			Driver side door closed	10 to 14 V

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
CHG- (C9-16) - Body ground	GR - Body ground	Change signal	Ignition switch ON	10 to 14 V
			Ignition switch OFF	Below 1 V
MIL (C9-17) - Body ground	BR - Body ground	MIL signal	MIL ON	Below 1 V
			MIL OFF	10 to 14 V
ALL DOOR INPUT (C9-18) - Body ground	G-W - Body ground	All door condition signal	All doors open	Below 1 V
			All doors closed	10 to 14 V
4P OUT (C9-19) - Body ground	V-W - Body ground	Vehicle speed signal (Input)	Ignition switch ON and wheel turning slowly	Pulse generation (See waveform 1)
ILL- (C9-20) - Body ground	BR-W - Body ground	Ground	Always	Below 1 Ω
IGN+ (C9-21) - Body ground	V - Body ground	Ignition switch signal (ON)	Ignition switch OFF	Below 1 V
			Ignition switch ON	10 to 14 V
TIRE PRESSURE (C9-23) - Body ground	L - Body ground	Tire pressure signal	Tire pressure indicator light ON	6.7 to 12 V
			Tire pressure indicator light OFF	Below 1 V
CRUISE (C9-24) - Body ground	LG - Body ground	Cruise signal	Cruise indicator ON	Below 1 V
			Cruise indicator OFF	10 to 14 V
OIL PRESSURE (C9-25) - Body ground	LG-B - Body ground	Oil pressure signal	Oil pressure warning light ON	Below 1 V
			Oil pressure warning light OFF	10 to 14 V
TURN R (C9-27) - Body ground	L-Y - Body ground	Turn signal R	Ignition switch ON, turn signal RH indicator OFF	Below 1 V
			Ignition switch ON, turn signal RH indicator ON	10 to 14 V
TURN L (C9-28) - Body ground	L-B - Body ground	Turn signal L	Ignition switch ON, turn signal LH indicator OFF	Below 1 V
			Ignition switch ON, turn signal LH indicator ON	10 to 14 V
HEAD (C9-32) - Body ground	R-B - Body ground	HEAD light signal	HEAD warning light ON	Below 1 V
			HEAD warning light OFF	10 to 14 V
AIRBAG (C9-33) - Body ground	B-Y - Body ground	AIRBAG signal	AIRBAG warning light ON	Below 1 V
			AIRBAG warning light OFF	10 to 14 V
AUTO LSD (C9-35) - Body ground	LG-R - Body ground	AUTO LSD signal	AUTO LSD indicator light ON	Below 1 V
			AUTO LSD indicator light OFF	10 to 14 V
SLIP (C9-36) - Body ground	R-W - Body ground	SLIP signal	SLIP warning light ON	Below 1 V
			SLIP warning light OFF	10 to 14 V
VSC OFF (C9-37) - Body ground	L-W - Body ground	VSC OFF signal	VSC OFF indicator ON	Below 1 V
			VSC OFF indicator OFF	10 to 14 V
VSC TRAC (C9-38) - Body ground	Y - Body ground	VSC TRAC signal	VSC TRAC indicator ON	Below 1 V
			VSC TRAC indicator OFF	10 to 14 V
A/T OIL TEMP (C9-39) - Body ground	P - Body ground	A/T oil temperature signal	A/T OIL TEMP warning light ON	Below 1 V
			A/T OIL TEMP warning light OFF	10 to 14 V
ILL+ (C9-40) - Body ground	G - Body ground	Illumination signal	Illumination switch OFF, rheostat maximum	Below 1 V
			Illumination switch ON (wake up), rheostat maximum	10 to 14 V

Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specified Condition
A/T P (C10-1) - Body ground	G-B - Body ground	A/T sift position signal (P)	A/T P indicator OFF	Below 1 V
			A/T P indicator ON	10 to 14 V
A/T R (C10-2) - Body ground	R-W - Body ground	A/T sift position signal (R)	A/T R indicator OFF	Below 1 V
			A/T R indicator ON	10 to 14 V
A/T N (C10-3) - Body ground	L-W - Body ground	A/T sift position signal (N)	A/T N indicator OFF	Below 1 V
			A/T N indicator ON	10 to 14 V
A/T D (C10-4) - Body ground	W - Body ground	A/T sift position signal (D)	A/T D indicator OFF	Below 1 V
			A/T D indicator ON	10 to 14 V
A/T 4 (C10-5) - Body ground	B - Body ground *1 Y - Body ground *2	A/T sift position signal (4)	A/T 4 indicator OFF	Below 1 V
			A/T 4 indicator ON	10 to 14 V
A/T 3 (C10-6) - Body ground	Y - Body ground *1 R-Y - Body ground *2	A/T sift position signal (3)	A/T 3 indicator OFF	Below 1 V
			A/T 3 indicator ON	10 to 14 V
A/T 2 (C10-7) - Body ground	V - Body ground *1 G-Y - Body ground *2	A/T sift position signal (2)	A/T 2 indicator OFF	Below 1 V
			A/T 2 indicator ON	10 to 14 V
A/T L (C10-8) - Body ground	G-Y - Body ground	A/T sift position signal (L)	A/T L indicator OFF	Below 1 V
			A/T L indicator ON	10 to 14 V
ACTIVE ABS (C10-9) - Body ground	O - Body ground	ACTIVE ABS signal	ACTIVE ABS warning light ON	Below 1 V
			ACTIVE ABS warning light OFF	10 to 14 V
ACTIVE BRAKE (C10-10) - Body ground	B-W - Body ground	ACTIVE BRAKE signal	ACTIVE BRAKE warning light ON	Below 1 V
			ACTIVE BRAKE warning light OFF	10 to 14 V
BRAKE LEVEL (C10-11) - Body ground	LG - Body ground	BRAKE signal	BRAKE warning light ON	Below 1 V
			BRAKE warning light OFF	10 to 14 V
BEAM+ (C10-12) - Body ground	P - Body ground	Hi-Beam signal	Hi-Beam OFF	Below 1 V
			Hi-Beam ON	10 to 14 V
DAC (C10-13) - Body ground	L-B - Body ground	DAC TRAC signal	DAC TRAC warning light ON	Below 1 V
			DAC TRAC warning light OFF	10 to 14 V
RR DIFF LOCK (C10-14) - Body ground	L-Y - Body ground	RR DIFF LOCK signal	RR DIFF LOCK warning light ON	Below 1 V
			RR DIFF LOCK warning light OFF	10 to 14 V
4LO (C10-16) - Body ground	BR-W - Body ground	4LO TRAC signal	4LO indicator light ON	Below 1 V
			4LO indicator light OFF	10 to 14 V
4WD (C10-15) - Body ground	R - Body ground	4WD signal	4WD indicator OFF	Below 1 V
			4WD indicator ON	10 to 14 V

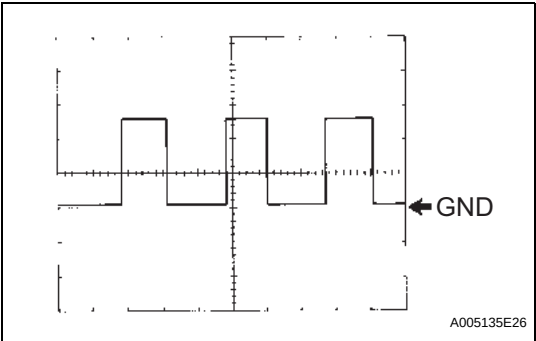
*1: 1GR-FE

*2: 2TR-FE



(a) Waveform 1: Using an oscilloscope

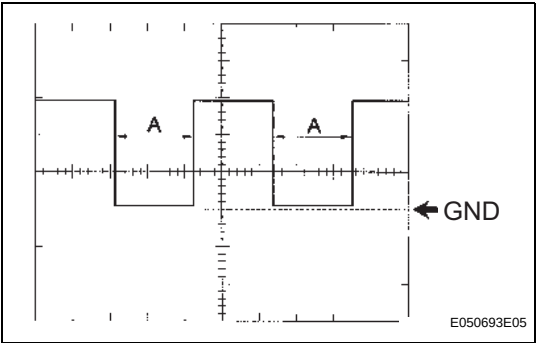
Item	Condition
Tool setting	5 V/DIV., 10 ms/DIV
Vehicle condition	Engine idle speed



(b) Waveform 2: Using an oscilloscope

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

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



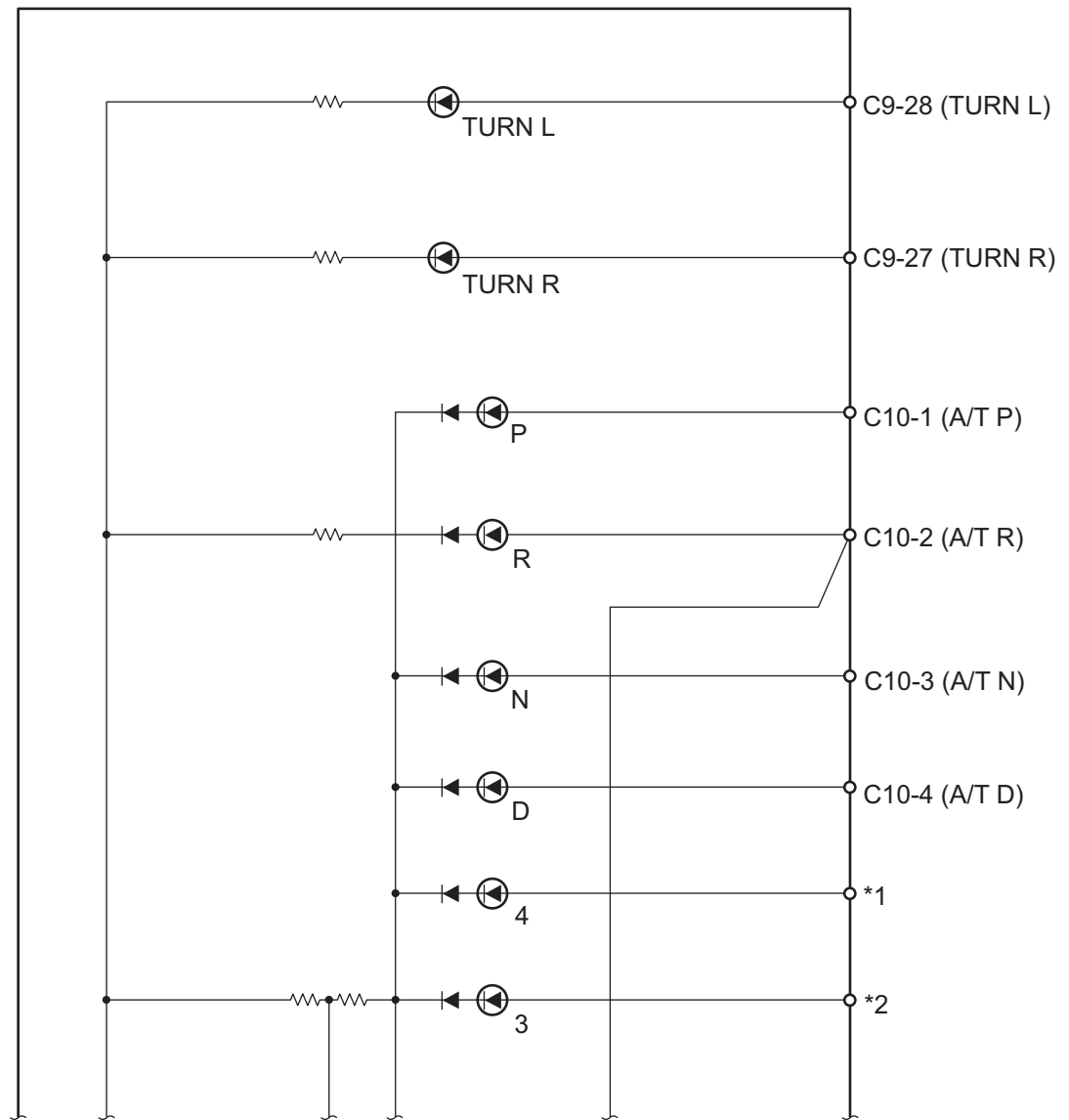
(c) Waveform 3: Using an oscilloscope

Item	Condition
Tool setting	5 V/DIV., 0.1 sec./DIV
Vehicle condition	Ignition switch ON

HINT:
A changes in accordance with the engine coolant temperature.

Coolant temperature	Below 30°	Approximately 75°C	Above 90°
A	Approximately 16 ms	Approximately 204 ms	Approximately 262 ms

2. COMBINATION METER INNER CIRCUIT

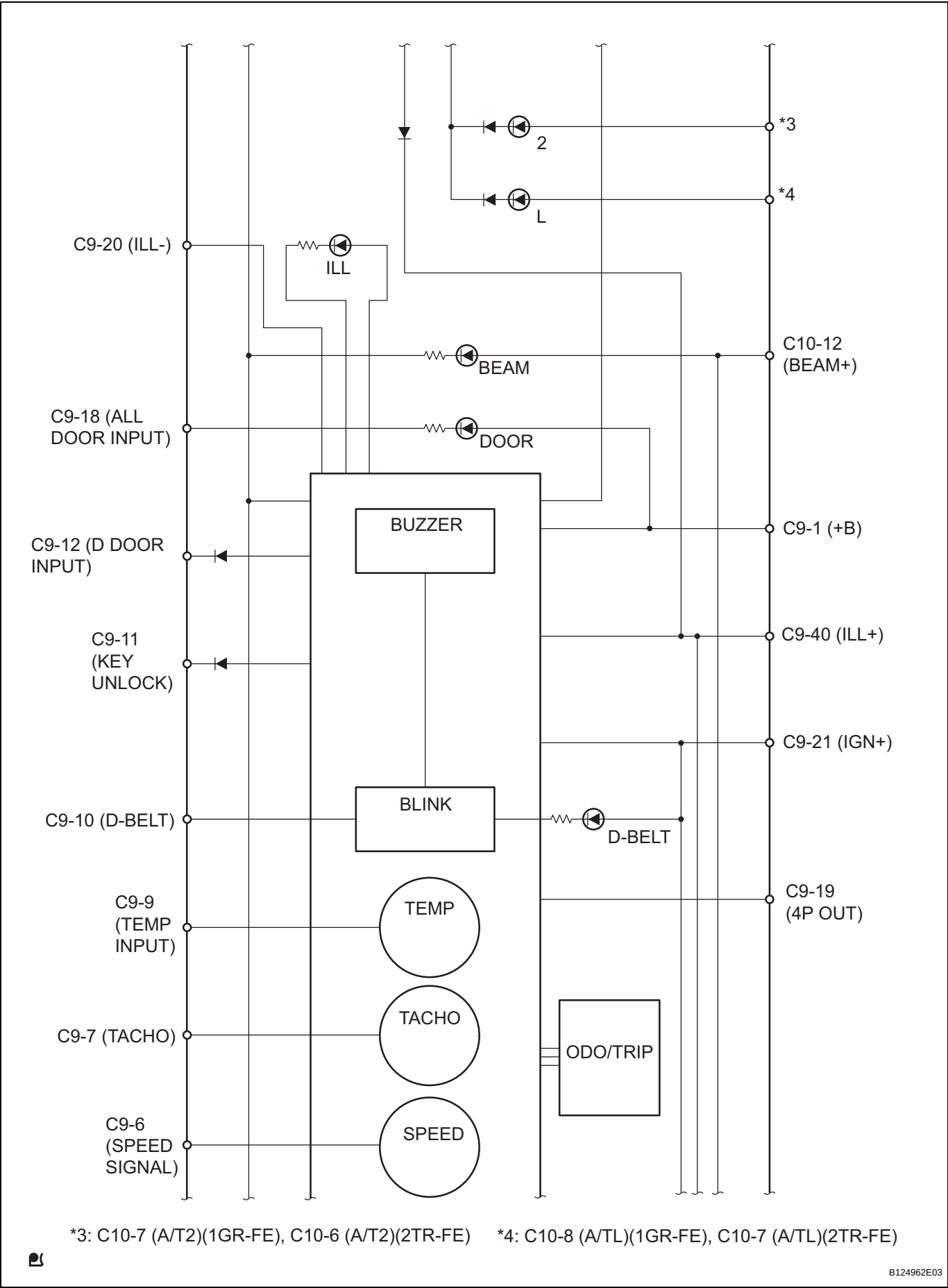


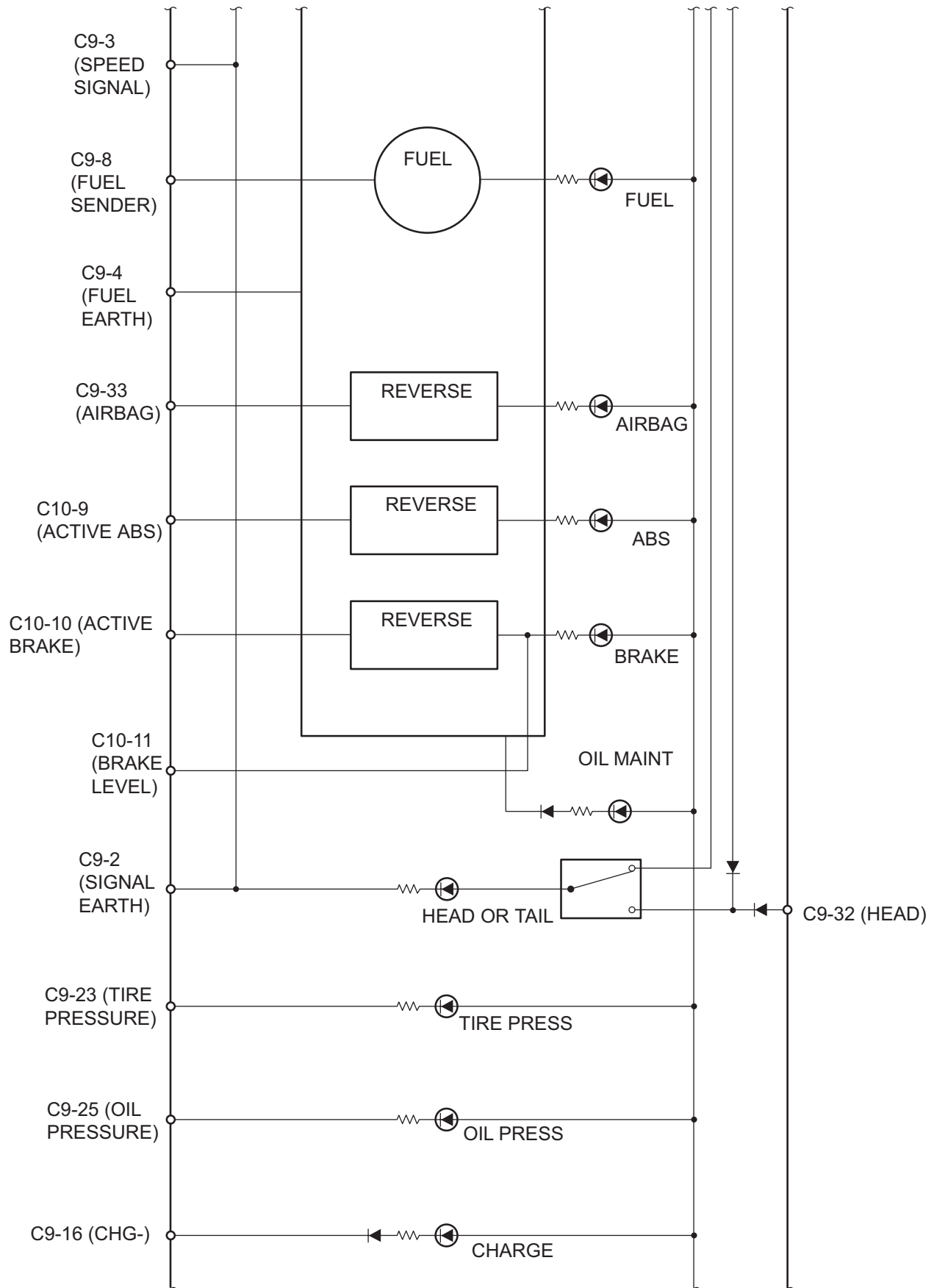
*1: C10-5 (A/T4)(1GR-FE)

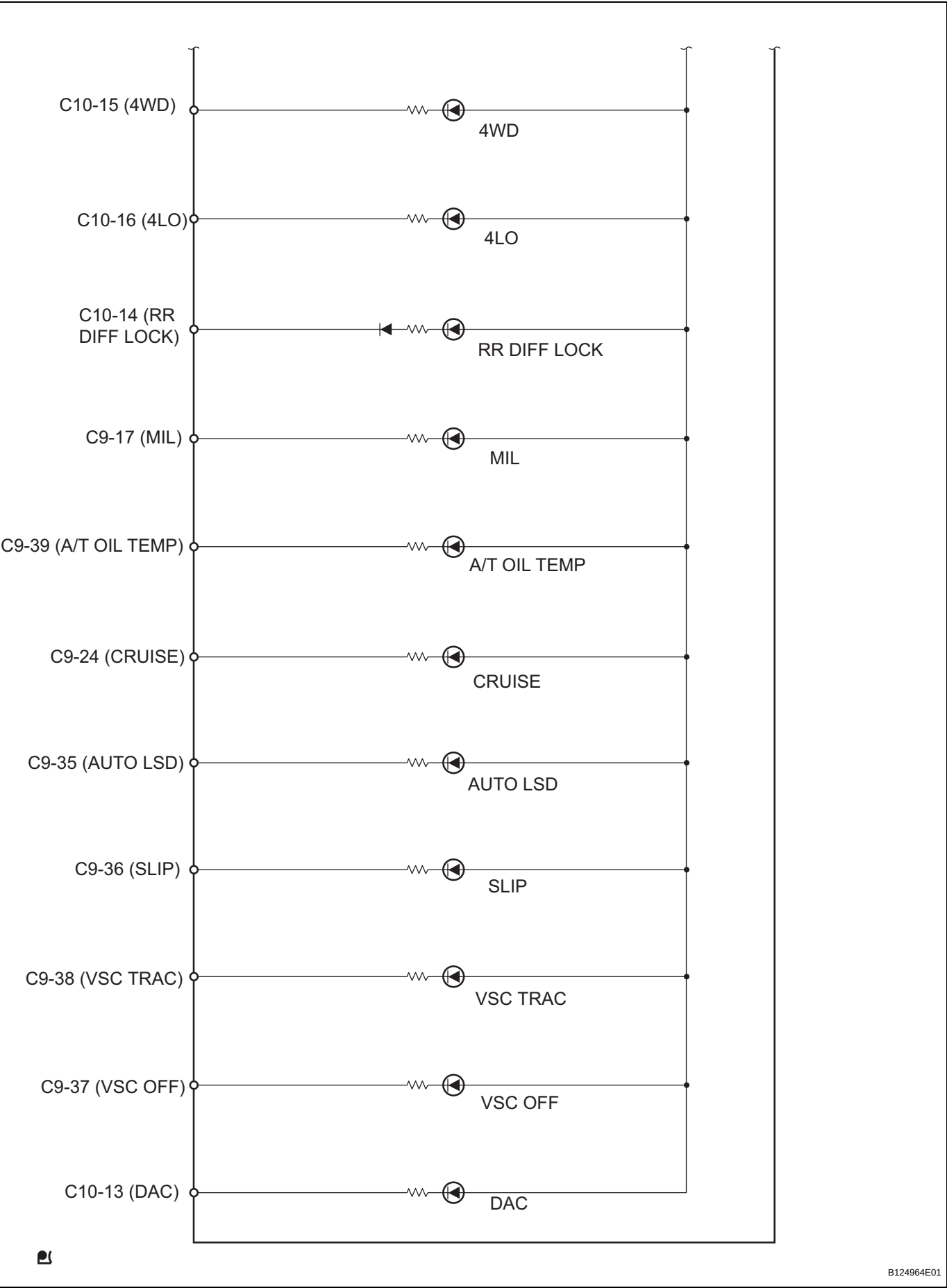
*2: C10-6 (A/T3)(1GR-FE), C10-5 (A/T3)(2TR-FE)



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Connectors:

Terminal No.		Wire Harness Side
C9	1	ECU-B Fuse
	2	GND
	3	Vehicle Speed Sensor *1
	4	GND
	6	Skid Control ECU *2
	7	ECM
	8	Fuel Sender Gauge
	9	ECM
	10	Driver Seat Buckle Switch
	11	Key Unlock Warning Switch
	12	Multiplex Network Body ECU
	16	Generator (Alternator)
	17	ECM
	18	Multiplex Network Body ECU
	19	4P-OUT (Other Parts)
	20	Light Control Rheostat
	21	Gauge Fuse
	23	Tire Pressure Monitor ECU
	24	ECM
	25	Low Oil Pressure Warning Switch
	27	Flasher Relay
	28	Flasher Relay
	32	HEAD Fuse
	33	Center Airbag Sensor Assembly
	35	Skid Control ECU *6
	36	Skid Control ECU *4
	37	Skid Control ECU *4
	38	Skid Control ECU *4
	39	ECM *2
	40	TAIL Fuse

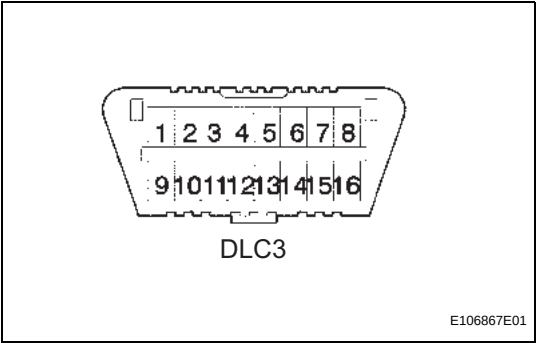
Terminal No.		Wire Harness Side
C10	1	Park/Neutral Start Switch *2
	2	Park/Neutral Start Switch *2
	3	Park/Neutral Start Switch *2
	4	Park/Neutral Start Switch *2
	5	Park/Neutral Start Switch *2
	6	Park/Neutral Start Switch *2
	7	Park/Neutral Start Switch *2
	8	Park/Neutral Start Switch *2
	9	Skid Control ECU
	10	Skid Control ECU
	11	Brake Fluid Level Warning Switch *3
	12	HEAD Fuse
	13	Skid Control ECU *5
	14	Rear Diff Lock Switch *7
	15	4WD Control ECU
	16	4WD Control ECU

- *1: M/T
- *2: A/T
- *3: w/o VSC
- *4: w/ VSC
- *5: w/ DAC
- *6: w/ AUTO LSD
- *7: w/ Rear Diff Lock

DIAGNOSIS SYSTEM

1. CHECK DLC3

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



Tester Connection	Condition	Specified Condition
7 (Bus "+" line) - 5 (Signal ground)	During transmission	Pulse generation
4 (Chassis ground) - Body ground	Always	Below 1 Ω
5 (Signal ground) - Body ground	Always	Below 1 Ω
16 (B+) - Body ground	Always	9 to 14 V

HINT:

If the display shows UNABLE TO CONNECT TO VEHICLE when you have connected the cable of the intelligent tester to the DLC3, turned the ignition switch to the ON position and operated the tester, a problem exists in either the vehicle or tester.

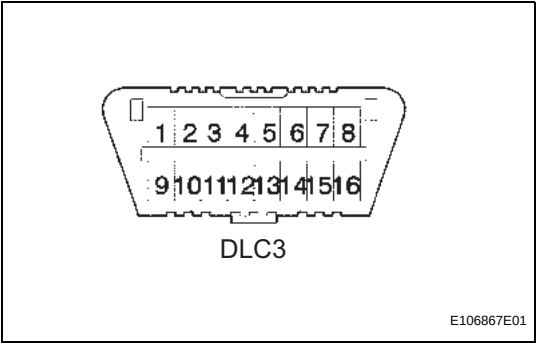
- If communication is normal when the tester is connected to another vehicle, inspect the DLC3 on the original vehicle.
- If communication is still impossible when the tester is connected to another vehicle, the problem is probably with the tester itself. Consult the Service Department listed in the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

- *1: M/T
- *2: A/T
- *3: w/o VSC
- *4: w/ VSC
- *5: w/ DAC
- *6: w/ AUTO LSD
- *7: w/ Rear Diff Lock

DIAGNOSIS SYSTEM

1. CHECK DLC3

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



Tester Connection	Condition	Specified Condition
7 (Bus "+" line) - 5 (Signal ground)	During transmission	Pulse generation
4 (Chassis ground) - Body ground	Always	Below 1 Ω
5 (Signal ground) - Body ground	Always	Below 1 Ω
16 (B+) - Body ground	Always	9 to 14 V

HINT:

If the display shows UNABLE TO CONNECT TO VEHICLE when you have connected the cable of the intelligent tester to the DLC3, turned the ignition switch to the ON position and operated the tester, a problem exists in either the vehicle or tester.

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

DATA LIST / ACTIVE TEST

1. DATA LIST

- (a) By reading the DATA LIST displayed on the intelligent tester, you can check values, including those of the switches, sensors, actuators without removing any parts. Reading the DATA LIST as the first step of troubleshooting is one method of shortening diagnostic time.

- (1) Warm up the engine.
- (2) Turn the ignition switch OFF.
- (3) Connect the intelligent tester to the DLC3.
- (4) Turn the ignition switch to the ON position.
- (5) Operate the intelligent tester according to the display and select "DATA LIST".

ECM :

Item	Measurement Item/ Range (Display)	Normal Condition	Diagnostic Note
VEHICLE SPEED	Vehicle speed/ Min.: 0 mph (0 km/h), Max.: 153 mph (255 km/h)	Almost same as actual vehicle speed (When driving)	-
ENGINE SPD	Engine speed/ Min.: 0 rpm, Max.: 16,383 rpm	Almost same as actual engine speed (When engine is running)	-
COOLANT TEMP	Engine coolant temperature / Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 95°C (176 to 203°F)	If value is -40°C (-40°F), sensor circuit is open. If value is 140°C (284°F), sensor circuit is shorted.

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check the operation.

- (1) Using a speedometer tester, inspect the speedometer for acceptable indication error and check the operation of the odometer.

Reference:

km/h (Canada)

Standard Indication	Acceptable Range
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

Reference:

mph (U.S.A.)

Standard 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

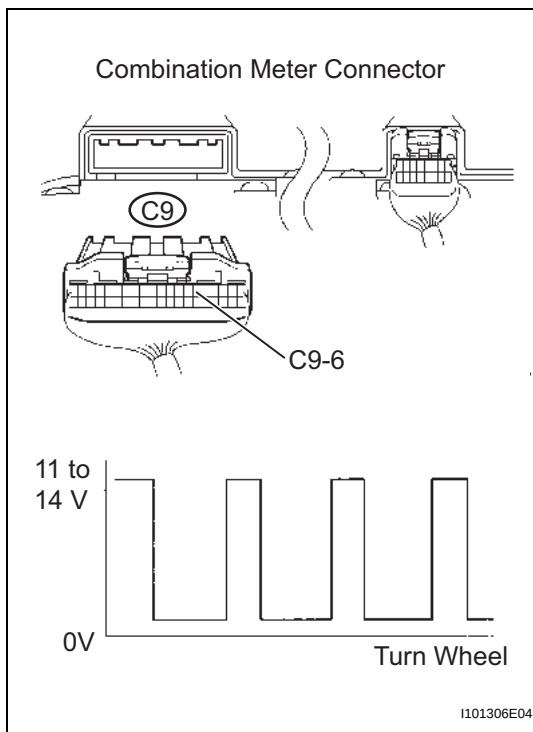
NOTICE:

Tire wear and excessively high or low tire pressure affect indication errors.

- (2) Check the deflection width of the speedometer indicator.

Reference:

Below 0.5 km/h (0.3 mph)



2. INSPECT OUTPUT OF VEHICLE SPEED

- Shift the transmission gear selector lever to the neutral position.
- Jack up the vehicle.
- Turn the ignition switch to ON.
- Check the voltage while the wheel is turning slowly.

Standard

Tester Connections	Specified Conditions
C9-6 - Body ground	Voltage generated intermittently

HINT:

The output voltage should fluctuate up and down as shown in the diagram on the left when the wheel is turning slowly.

3. INSPECT TACHOMETER

- Check the operation.
 - Connect the tune-up test tachometer and start the engine.

NOTICE:

- Reversing the connection of the tachometer will damage the transistors and the insides of the diodes.
- When removing or installing the tachometer, be careful not to drop or strike it.

- Compare the result of the test with the standard indication.

DC 13.5 V, at 25°C (77°F)

Reference

Standard Indication (USA) (RPM) Standard Indication (CANADA) (r/min)	1GR-FE: Acceptable Range (USA) (RPM) Acceptable Range (CANADA) (r/min) Data in () are for reference	2TR-FE Acceptable Range (USA) (RPM) Acceptable Range (CANADA) (r/min) Data in () are for reference
700	630 to 770	630 to 770
1,000	(900 to 1,100)	(900 to 1,100)
2,000	(1,850 to 2,150)	(1,850 to 2,150)
3,000	2,800 to 3,200	2,800 to 3,200
4,000	(3,800 to 4,200)	(3,800 to 4,200)
5,000	4,800 to 5,100	4,800 to 5,200
6,000	(5,750 to 6,250)	(5,750 to 6,250)

Wire Harness Side:

Fuel Sender Gauge Connector



4. INSPECT FUEL RECEIVER GAUGE

- Disconnect the fuel sender gauge connector.
- Turn the ignition switch to the ON position, then check the position of the receiver gauge needle.

OK:

Needle position is on (EMPTY).

- Connect terminals 2 and 3 on the wire harness side connector of the fuel sender gauge.
- Turn the ignition switch to the ON position, then check the position of the receiver gauge needle.

OK:

Needle position is on (FULL).

- Reconnect the fuel sender gauge connector.

5. INSPECT FUEL LEVEL WARNING LIGHT

- (a) Disconnect the fuel sender gauge connector.
- (b) Turn the ignition switch to the ON position, then check that the fuel level needle indicates EMPTY and the fuel level warning light comes on.

OK:

Fuel level warning light comes on.

- (c) Reconnect the fuel sender gauge connector.

6. INSPECT LOW ENGINE OIL PRESSURE WARNING LIGHT

- (a) Disconnect the low oil pressure switch connector.
- (b) Turn the ignition switch to the ON position.
- (c) Ground the terminal of the wire harness side connector, then check the low oil pressure warning light.

OK:

Low oil pressure warning light comes on.

- (d) Reconnect the low oil pressure switch connector.

7. INSPECT BRAKE WARNING LIGHT

- (a) Inspect the parking brake warning light.
 - (1) Disconnect the parking brake switch connector.
 - (2) Turn the ignition switch to the ON position.
 - (3) Ground the terminal of the wire harness side connector, then check the parking brake warning light.

OK:

Brake warning light comes on.

- (4) Reconnect the parking brake switch connector.
- (b) Inspect the brake fluid level warning light.
 - (1) Disconnect the brake fluid level warning switch connector.
 - (2) Turn the ignition switch to the ON position.
 - (3) Connect a terminal to the other terminal of the wire harness side connector, then check the brake fluid level warning switch.

OK:

Brake warning light comes on.

- (4) Reconnect the brake fluid level warning switch connector.

8. INSPECT BRAKE FLUID LEVEL WARNING SWITCH

- (a) Remove the reservoir tank cap and strainer.
- (b) Disconnect the brake fluid level warning switch connector.
- (c) Measure the resistance between the terminals.
- (d) Use a syphon or a similar tool, to take fluid out of the reservoir tank.
- (e) Measure the resistance between the terminals.

Standard Resistance:

Float up (switch off): 10 k Ω or higher

Standard Resistance:

Float down (switch on): Below 1 Ω

- (f) Pour the fluid back in the reservoir tank.

- (g) Reconnect the brake fluid level warning switch connector.
- (h) Reinstall the reservoir tank cap and strainer.

9. INSPECT WASHER FLUID LEVEL WARNING SWITCH

- (a) Disconnect the washer level warning switch connector.
- (b) Turn the ignition switch to the ON position.
- (c) Ground the terminal of the wire harness side connector, then check the washer level warning light.

OK:

Washer level warning light comes on.

- (d) Reconnect the washer level warning switch connector.

10. MAINTENANCE LIQUID RESETTING PROCEDURE

Indicator Condition

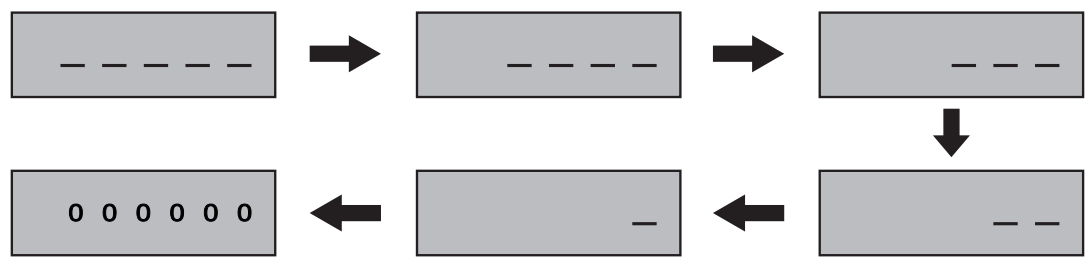
State	Condition	Specified State
Blinking	The vehicle has run 4,500 miles since the previous setting	The indicator blinks for 15 seconds after the ignition switch is turned to the ON position (including 3 seconds for a valve check).
Continuously Illuminated	The vehicle has run 5,000 miles since the previous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

- (a) Turn the ignition switch to the ON position.
- (b) Set the ODO/TRIP indication to ODO.
- (c) While pressing the reset switch, turn the ignition switch OFF and ON again.
- (d) Press the reset switch for more than 5 seconds. (The oil maintenance indicator illuminates for 3 seconds, and then flashes in accordance with the distance run*.)

HINT:

- *: If the distance run is less than 4,500 mile, the indicator turns off. If the distance run is between 4,500 mile and 4999 miles, the indicator flashes for 2 seconds.
- If the distance run is more than 5,000 mile, the indicator turns off. If the reset switch is not pressed for at least 5 seconds, the reset procedure fails.
- The ODO/TRIP indicator indicates as follows while the reset switch is pressed for 5 seconds.

ODO/TRIP Indication:

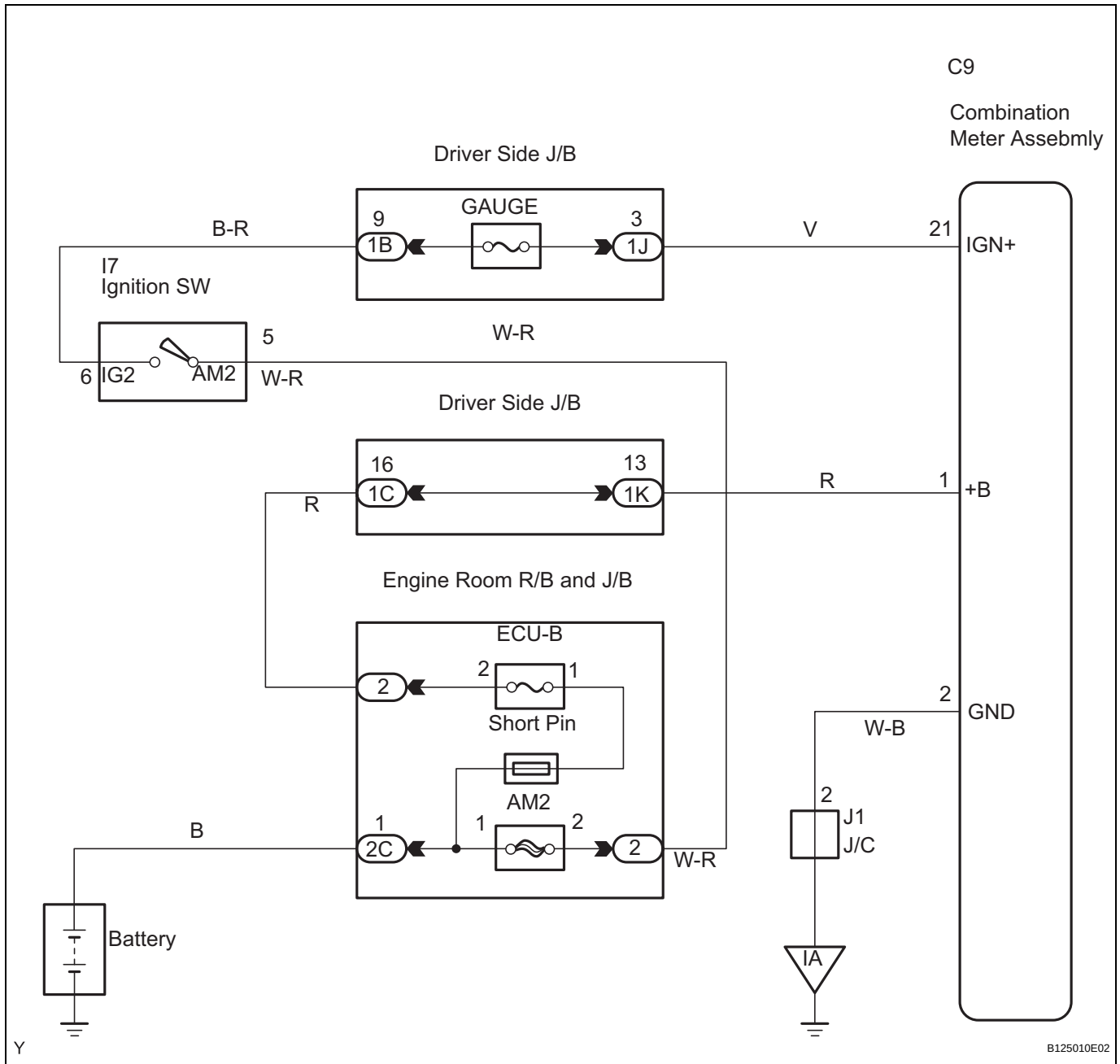


Y

B125032E01

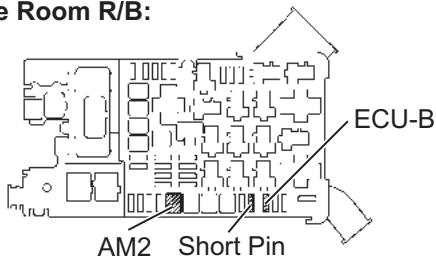
Entire Combination Meter does not Operate

WIRING DIAGRAM

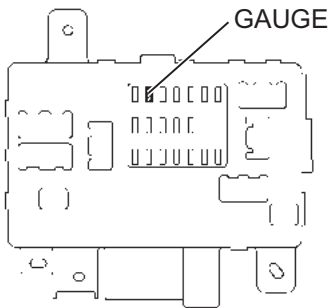


1 CHECK FUSE

Engine Room R/B:



Driver Side J/B:



I101305E02

- Remove the ECU-B fuse, AM2 fuse and short pin from the engine room R/B.
- Remove the GAUGE fuse from the driver side J/B.
- Measure the resistance.

Standard Resistance:

Below 1 Ω

- Reinstall the fuses and short pin.

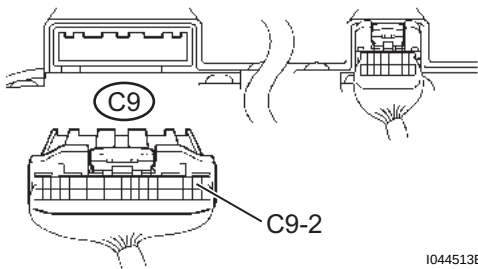
NG

INSPECT FOR SHORT CIRCUIT IN HARNESS AND ALL COMPONENTS CONNECTED TO FUSE

OK

2 INSPECT COMBINATION METER ASSEMBLY

Combination Meter Connector



Y

I044513E12

- Disconnect the C9 combination meter connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Condition	Specified Condition
C9-2 - Body ground	Always	Below 1 Ω

- Measure the voltage.

Standard Voltage

Tester Connection	Condition	Specified Condition
C9-1 - Body ground	Always	10 to 14 V
C9-21 - Body ground	Ignition switch ON	10 to 14 V

- Reconnect the combination meter connector.

NG

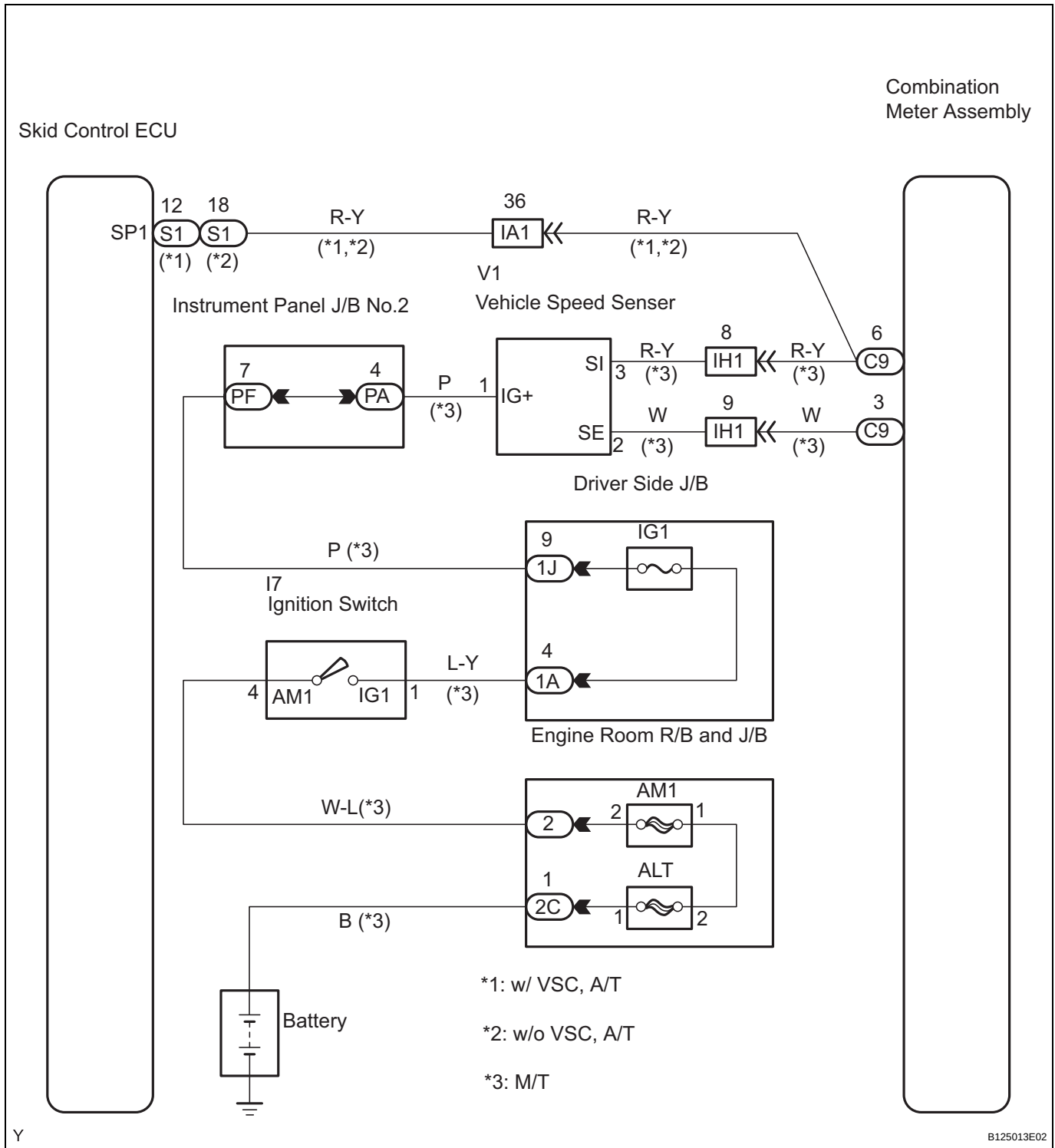
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Speedometer Malfunction

WIRING DIAGRAM



1

READ VALUE OF INTELLIGENT TESTER (VEHICLE SPEED)

- Connect an intelligent tester to the DLC3.
- Turn the ignition switch to ON.

ME

- (c) Turn the tester ON.
- (d) On the tester, select the following menu items:
DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL /
VEHICLE SPD.
- (e) Read the value displayed on the tester.

OK:

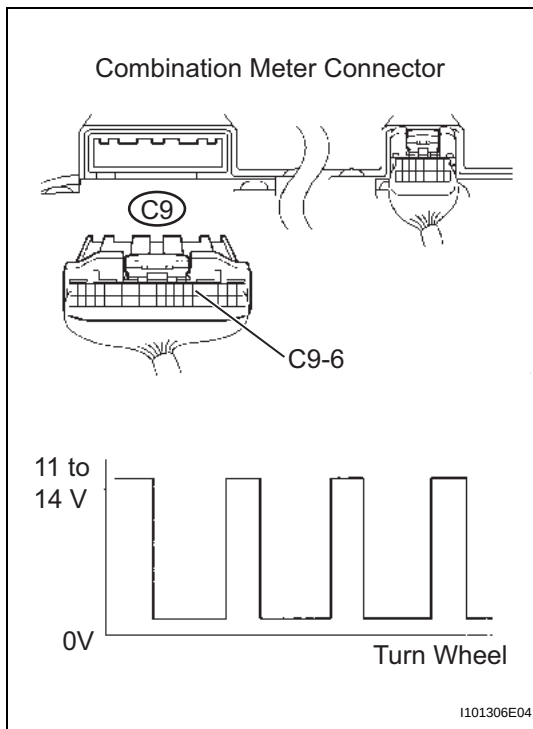
Vehicle speed displayed on the tester is almost the same as the actual vehicle speed.

NG

GO TO BRAKE CONTROL SYSTEM

OK

2 INSPECT COMBINATION METER ASSEMBLY



- (a) Shift the transmission gear selector lever to the neutral position.
- (b) Jack up the vehicle.
- (c) Turn the ignition switch to ON.
- (d) Check the voltage while the wheel is turning slowly.

Standard Voltage

Tester Connection	Specified Condition
C9-6 - Body ground	Voltage generated intermittently

HINT:

The output voltage should fluctuate up and down as shown in the diagram on the left when the wheel is turning slowly.

Result

Result	Proceed to
As shown in the illustration	A
Different from the illustration (A/T)	B
Different from the illustration (M/T)	C

A

REPLACE COMBINATION METER ASSEMBLY

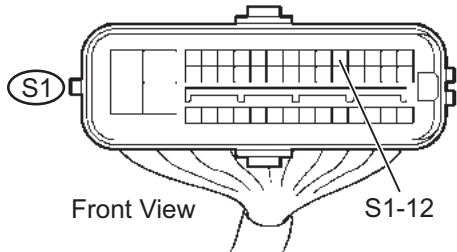
C

Go to step 4

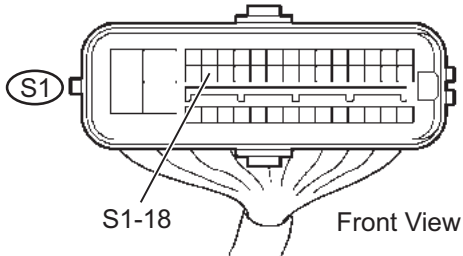
B

3**CHECK HARNESS AND CONNECTOR (SKID CONTROL ECU - COMBINATION METER ASSEMBLY)****Wire Harness Side (w/ VSC):**

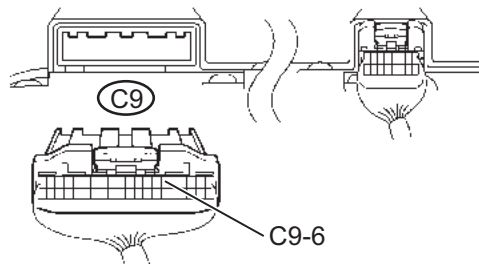
Skid Control ECU Connector

**Wire Harness Side (w/o VSC):**

Skid Control ECU Connector



Combination Meter Connector



I101307E01

- (a) Disconnect the C9 combination meter connector.
- (b) With VSC: Disconnect the S1 skid control ECU connector.
- (c) Without VSC: Disconnect the S1 combination meter connector.
- (d) Measure the resistance.

Standard Resistance:**With VSC**

Tester Connection	Specified Condition
S1-12 - C9-6	Below 1 Ω
S1-12 or C9-6 - Body ground	10 k Ω or higher

Without VSC

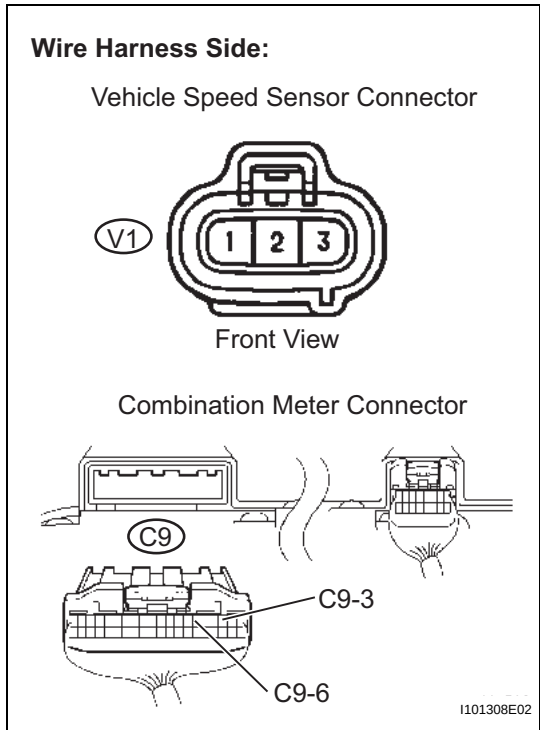
Tester Connection	Specified Condition
S1-18 - C9-6	Below 1 Ω
S1-18 or C9-6 - Body ground	10 k Ω or higher

- (e) Reconnect the skid control ECU connector.
- (f) Reconnect the combination meter connector.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****GO TO BRAKE CONTROL SYSTEM**

4

CHECK HARNESS AND CONNECTOR (VEHICLE SPEED SENSOR - COMBINATION METER ASSEMBLY)



- (a) Disconnect the C9 combination meter connector.
- (b) Disconnect the V1 vehicle speed sensor connector.
- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-6 - V1-3	Below 1 Ω
C9-3 - V1-2	Below 1 Ω
C9-6 or V1-3 - Body ground	10 kΩ or higher
C9-6 or V1-3 - Body ground	10 kΩ or higher

- (d) Measure the voltage.

Standard Voltage

Tester Connection	Condition	Specified Condition
V1-1 - Body ground	Ignition switch OFF → ON	Below 1 V → 10 to 14 V

- (e) Reconnect the vehicle speed sensor connector.
- (f) Reconnect the combination meter connector.

NG

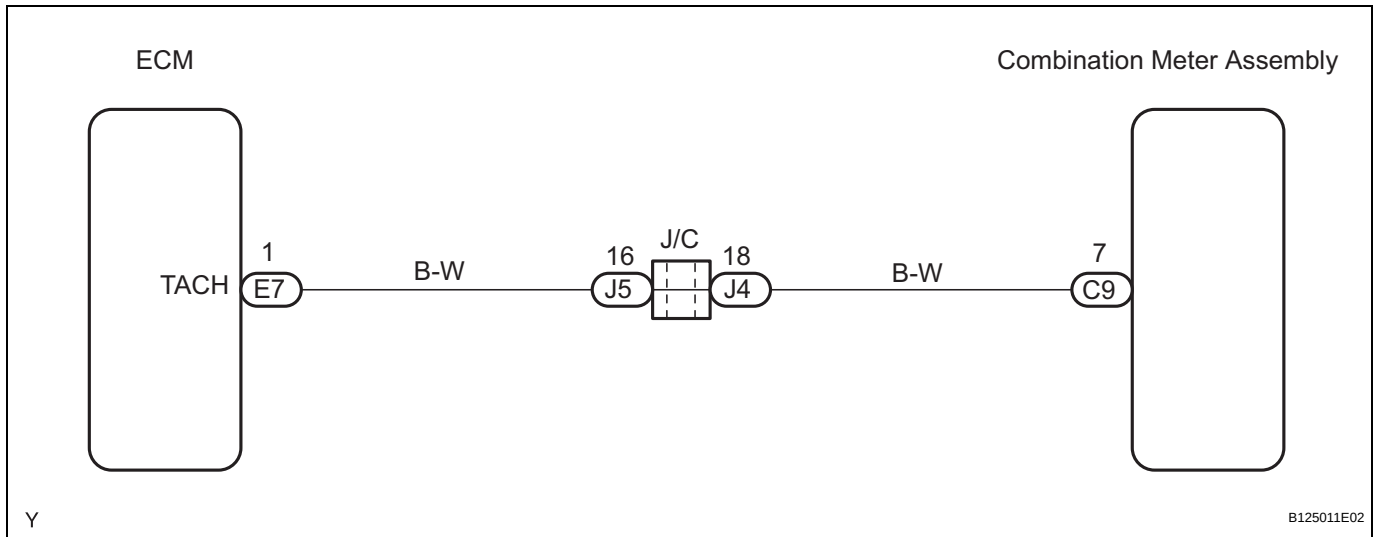
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Tachometer Malfunction

WIRING DIAGRAM


1

READ VALUE OF INTELLIGENT TESTER (ENGINE SPEED)

- Connect an intelligent tester to the DLC3.
- Turn the ignition switch to ON.
- Turn the tester ON.
- On the tester, select the following menu items:
DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / ENGINE SPD.
- Read the value displayed on the tester.

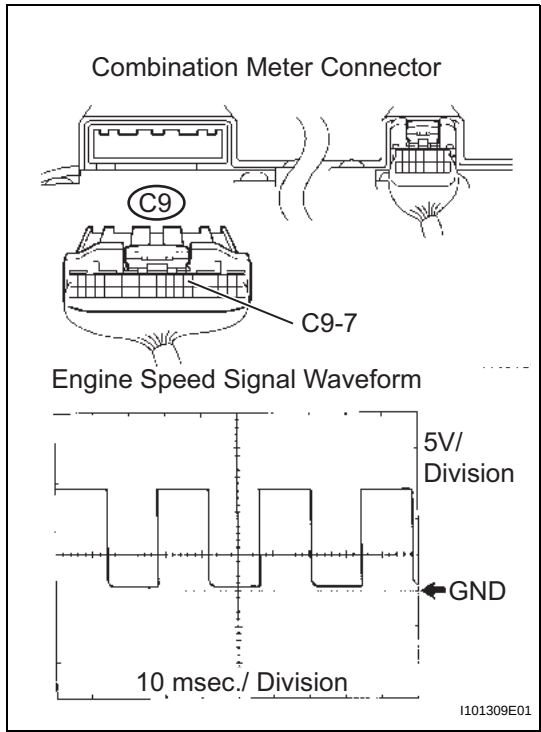
OK:

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

NG
GO TO ENGINE CONTROL SYSTEM
OK

2

INSPECT COMBINATION METER ASSEMBLY



NG

- (a) Inspect the combination meter using an oscilloscope.
- (b) While the engine is running, check the waveform between the terminals of the C9 combination meter connector and body ground.

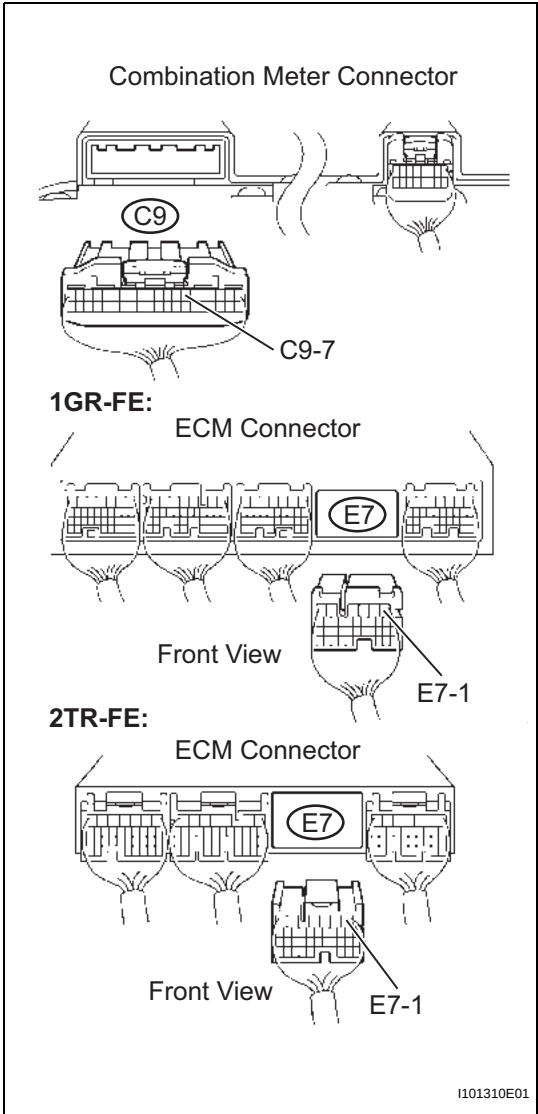
Standard

Tester Connection	Specified Condition
C9-7 - Body ground	Correct waveform shown

OK

REPLACE COMBINATION METER ASSEMBLY

3 CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - ECM)



- (a) Disconnect the C9 combination meter connector.
- (b) Disconnect the E7 ECM connector.
- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-7 - E7-1	Below 1 Ω
C9-7 or E7-1 - Body ground	10 kΩ or higher

- (d) Reconnect the ECM connector.
- (e) Reconnect the combination meter connector.

NG

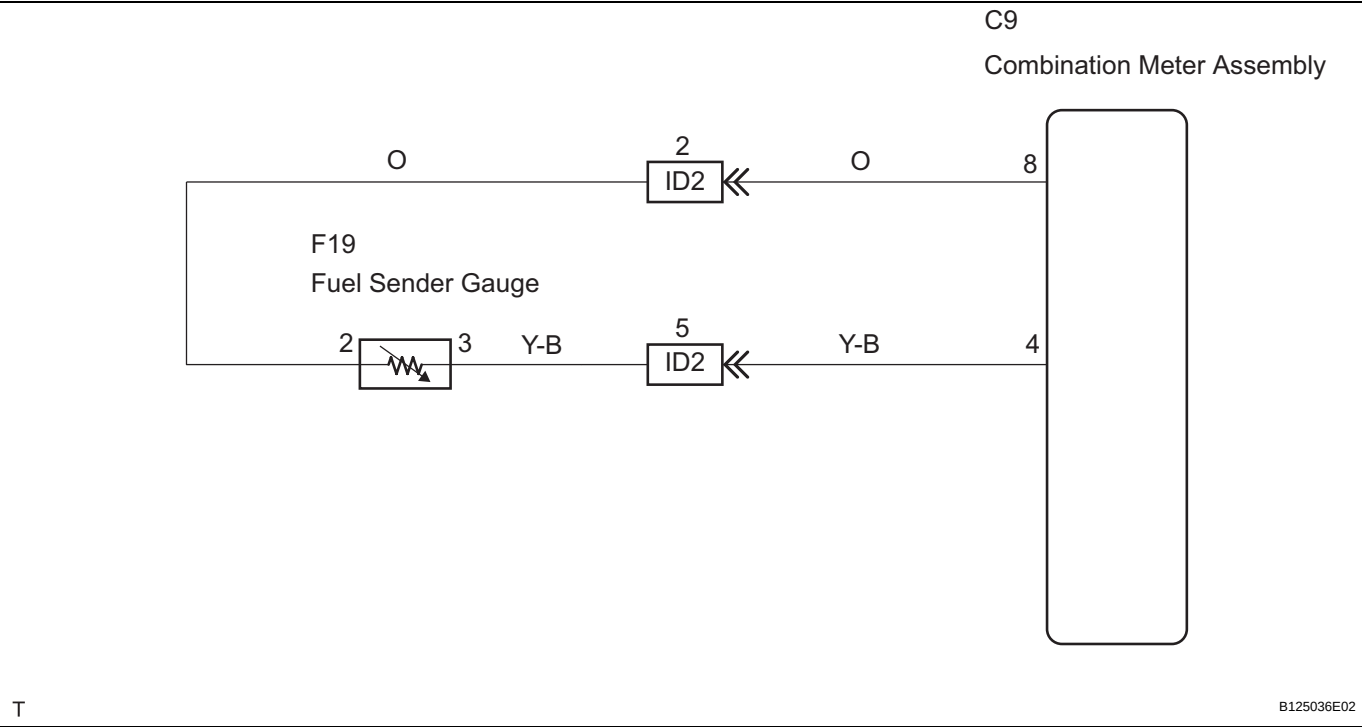
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

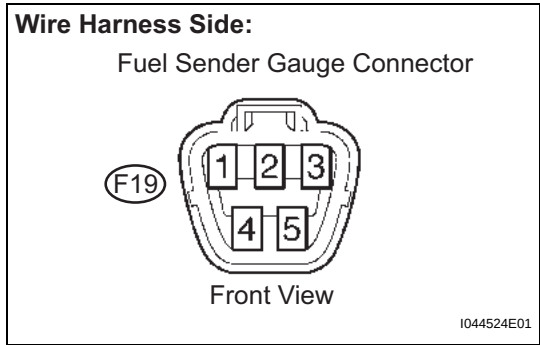
REPLACE ECM

Fuel Gauge Malfunction

WIRING DIAGRAM



1 CHECK HARNESS AND CONNECTOR



- (a) Disconnect the F19 fuel sender gauge connector.
- (b) Check the meter indicator conditions.

Standard

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

- (c) Measure the voltage.
- Standard Voltage

Tester Connection	Condition	Specified Condition
2 - Body ground	Ignition switch ON	4 to 7 V

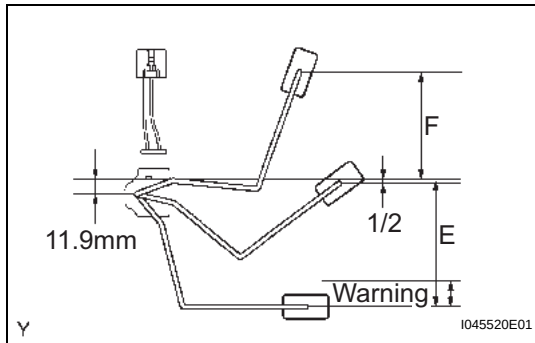
NOTICE:

- Perform the check quickly (shorter than 10 seconds).
 - Keep the battery as far away from the fuel pump as possible.
 - Always do the switching at the battery side.
- (d) Reconnect the fuel sender gauge connector.

NG

Go to step 3

2 INSPECT FUEL SENDER GAUGE ASSEMBLY



- Remove the fuel sender gauge assembly.
- Check that the float position is between E and F.
- Measure the resistance between terminals 2 and 3 of the fuel sender gauge connector.

Standard Resistance

Float Level	Float Position (mm (in.))	Specified Condition
F	81.5 (3.21) to 86.5 (3.41)	5.0 to 6.0 Ω
1/2	3.4 (0.13)	59.0 Ω
Warning	80.4 (3.17)	98.8 Ω
E	97.9 (3.85) to 102.9 (4.05)	107.5 to 112.5 Ω

- Reinstall the fuel sender gauge assembly.

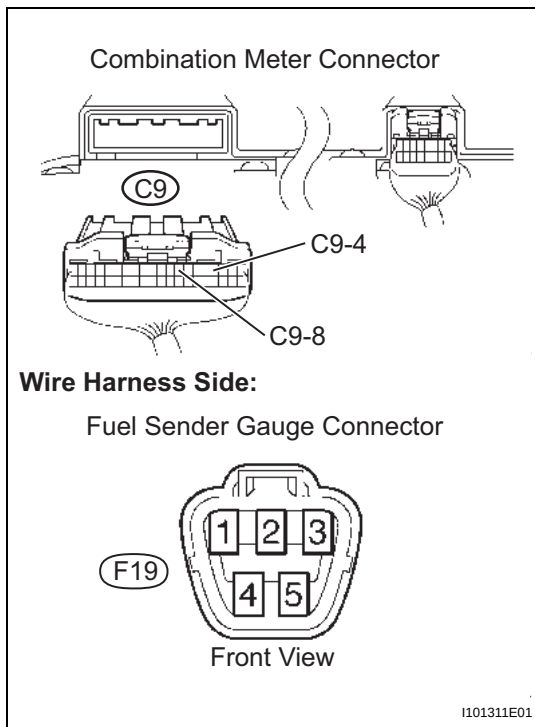
NG

REPLACE FUEL SENDER GAUGE ASSEMBLY

OK

REPLACE COMBINATION METER ASSEMBLY

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



- Disconnect the C9 combination meter connector.
- Disconnect the F19 fuel sender gauge connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-4 - F19-3	Below 1 Ω
C9-8 - F19-2	Below 1 Ω
C9-4 or F19-3 - Body ground	10 k Ω or higher
C9-8 or F19-2 - Body ground	10 k Ω or higher

- Reconnect the fuel sender gauge connector.
- Reconnect the combination meter connector.

NG

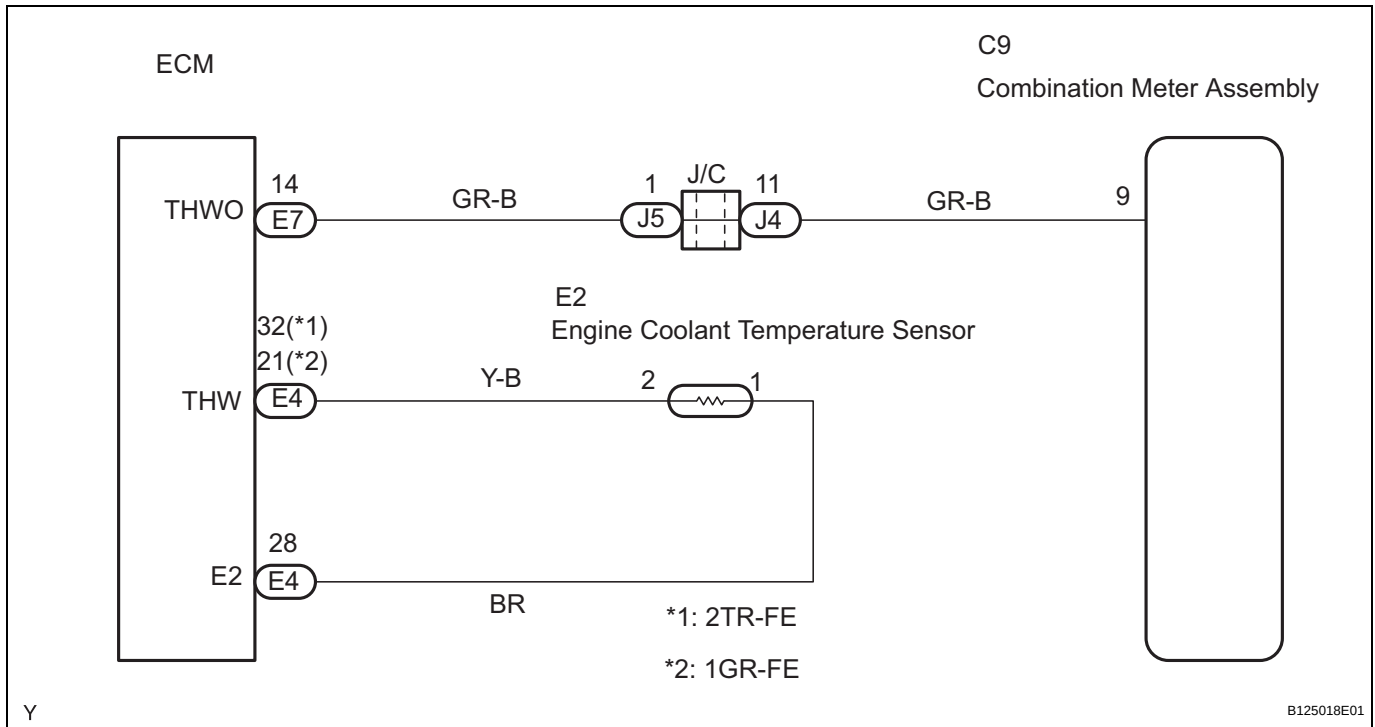
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Malfunction in Water Temperature Warning Light

WIRING DIAGRAM



HINT:

- Start the inspection from step 1 when using an intelligent tester and start from step 2 when not using an intelligent tester.
- If there is an open or short in the engine coolant temperature sensor circuit, the ECM outputs DTCs. Troubleshoot those DTCs by following the SFI System.
2TR-FE: (See page [ES-10](#))
1GR-FE: (See page [ES-10](#))

1

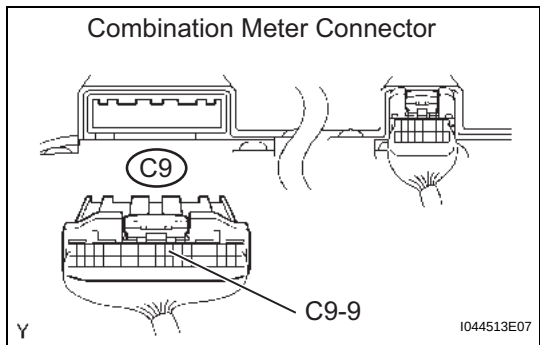
READ VALUE OF INTELLIGENT TESTER (ENGINE COOLANT TEMPERATURE)

- Connect an intelligent tester to the DLC3.
 - Turn the ignition switch to ON.
 - Turn the tester ON.
 - On the tester, select the following menu items:
DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / COOLANT TEMP.
 - Read the value displayed on the tester.
- Standard:**
Between 80°C and 97°C (176°F and 207°F) with the engine warmed up.

NG
GO TO ENGINE CONTROL SYSTEM
OK

2

INSPECT COMBINATION METER ASSEMBLY



- (a) Disconnect the C9 combination meter connector.
- (b) Measure the voltage.

Standard Voltage

Tester Condition	Condition	Specified Condition
C9-9 - Body ground	Ignition switch ON, Coolant temperature is 90°C (194°F)	10 to 14 V

- (c) Reconnect the combination meter connector.

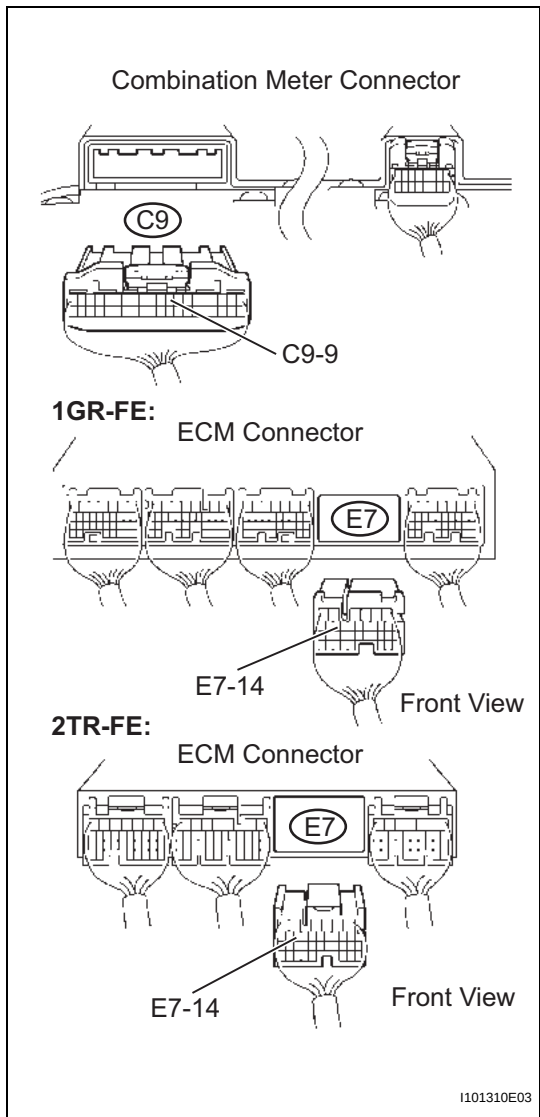
OK

REPLACE COMBINATION METER ASSEMBLY

NG

3

CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - ECM)



- (a) Disconnect the C9 combination meter connector.
- (b) Disconnect the E7 ECM connector.
- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-9 - E7-14	Below 1 Ω
C9-9 or E7-14 - Body ground	10 k Ω or higher

- (d) Reconnect the ECM connector.
- (e) Reconnect the combination meter connector.

NG

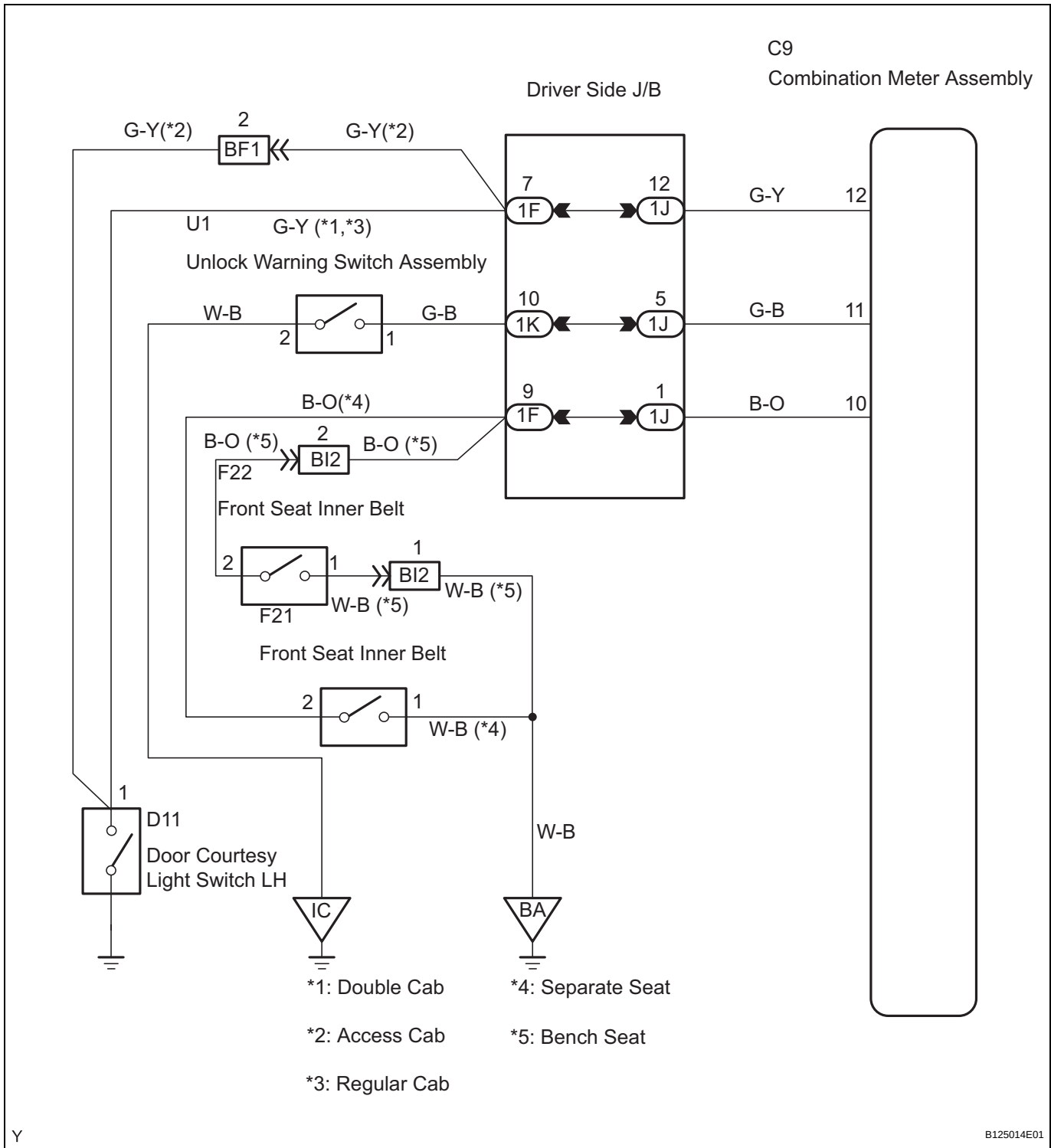
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE ECM

Warning Buzzer does not Sound

WIRING DIAGRAM



1 CHECK BUZZER

- (a) Operate the buzzers and check that the buzzers for seat belt warning, key reminder warning and light reminder warning sound normally.

No warning buzzers sound.	A
Seat belt warning does not sound. (Bench seat)	B
Seat belt warning does not sound. (Separate seat)	C
Key reminder warning does not sound.	D

HINT:

Key reminder buzzer: Ignition switch is off, key is inserted, door is open.

Seat belt buzzer: Ignition switch is on, seat belt is unfastened.

A

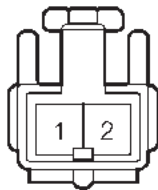
REPLACE COMBINATION METER ASSEMBLY

C

Go to step 4

D

Go to step 6

B**2 INSPECT FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)****Component Side:**

Front Seat Inner Belt Assembly (Driver Side)

I045519E01

- (a) Disconnect the F22 front seat inner belt assembly (driver side) connector.
 (b) Measure the resistance.

Standard Resistance

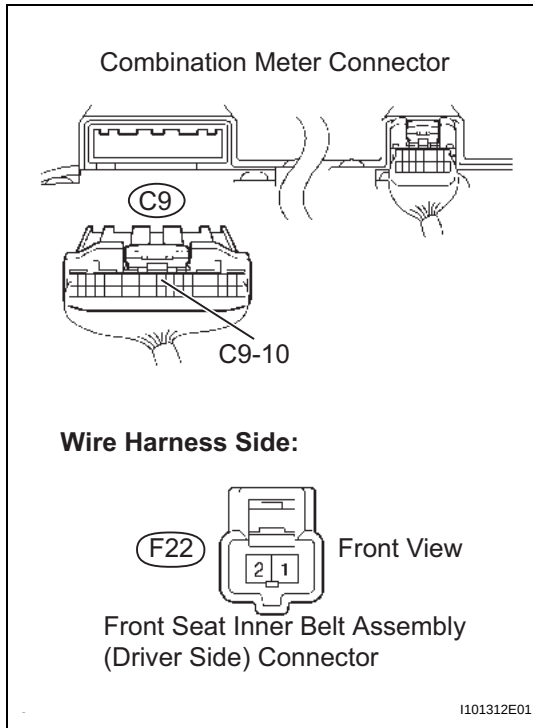
Tester Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

- (c) Reconnect the front seat inner belt assembly (driver side) connector.

NG

REPLACE FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)

OK

3**CHECK HARNESS AND CONNECTOR (FRONT SEAT INNER BELT (DRIVER SIDE) - COMBINATION METER)**

- Disconnect the C9 combination meter connector.
- Disconnect the F22 front seat inner belt assembly (driver side) connector.

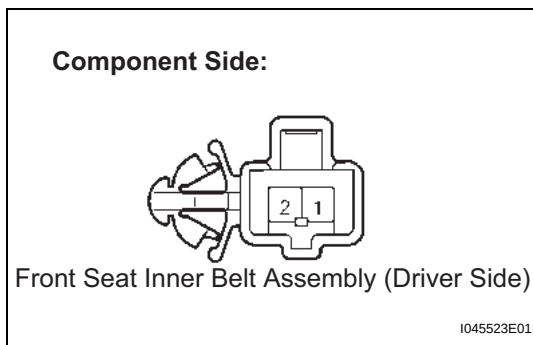
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-10 - F22-2	Below 1 Ω
C9-10 or F22-2 - Body ground	10 k Ω or higher

- Reconnect the front seat inner belt assembly (driver side) connector.

- Reconnect the combination meter connector.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE COMBINATION METER ASSEMBLY****4****INSPECT FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)**

- Disconnect the F21 front seat inner belt assembly (driver side) connector.

- Measure the resistance.

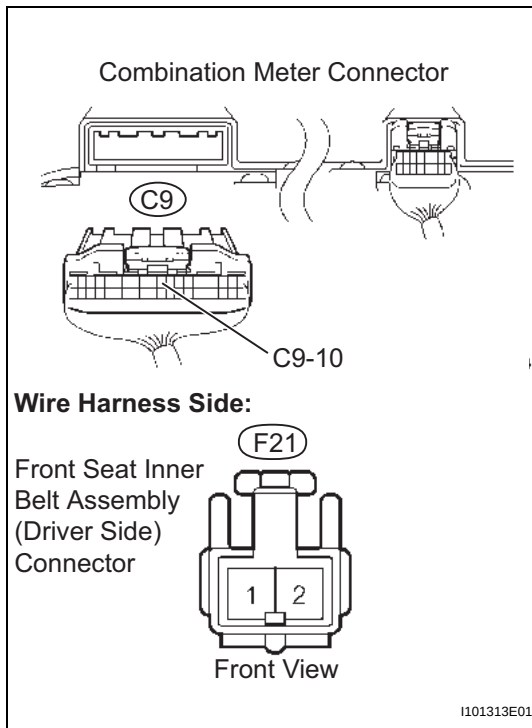
Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

- Reconnect the front seat inner belt assembly (driver side) connector.

NG**REPLACE FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)****OK**

5 CHECK HARNESS AND CONNECTOR (FRONT SEAT INNER BELT (DRIVER SIDE) - COMBINATION METER)



- Disconnect the C9 combination meter connector.
- Disconnect the F21 front seat inner belt assembly (driver side) connector.

- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-10 - F21-2	Below 1 Ω
C9-10 or F21-2 - Body ground	10 k Ω or higher

- Reconnect the front seat inner belt assembly (driver side) connector.

- Reconnect the combination meter connector.

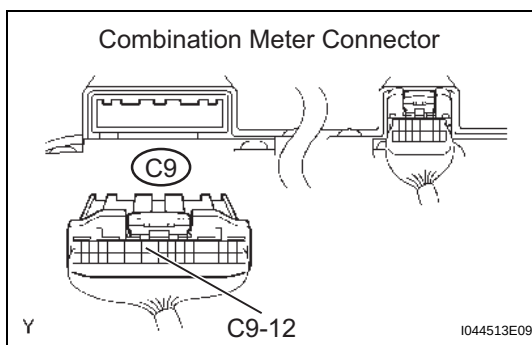
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

6 INSPECT COMBINATION METER ASSEMBLY



- Disconnect the C9 combination meter connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Condition	Specified Condition
C9-12 - Body ground	Driver side door closed	10 k Ω or higher
C9-12 - Body ground	Driver side door open	Below 1 Ω

- Reconnect the combination meter connector.

OK

REPLACE COMBINATION METER ASSEMBLY

NG

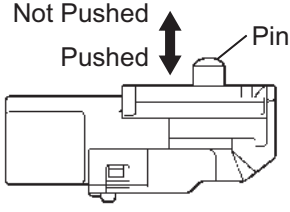
7

INSPECT UNLOCK WARNING SWITCH ASSEMBLY

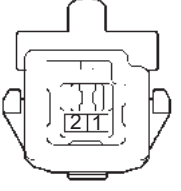
Component Side:

Not Pushed
Pushed

Pin



Unlock Warning Switch Assembly
(Driver Side)



Y

I044492E01

- (a) Remove the U1 unlock warning switch assembly.
- (b) Measure the resistance.

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	10 kΩ or higher
1 - 2	Pushed	Below 1 Ω

- (c) Reinstall the unlock warning switch assembly.

NG

REPLACE UNLOCK WARNING SWITCH ASSEMBLY

OK

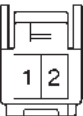
8

CHECK HARNESS AND CONNECTOR (SWITCH (DRIVER SIDE) - J/B (BODY ECU) AND BODY GROUND)

Wire Harness Side:

Unlock Warning Switch Connector
(Driver Side)

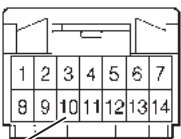
U1



Front View

Driver Side J/B Connector

1K



Front View

KSW

Y

I044490E01

- (a) Disconnect the U1 unlock warning switch assembly connector.
- (b) Disconnect the 1K driver side J/B connector.
- (c) Measure the resistance.

Standard Resistance

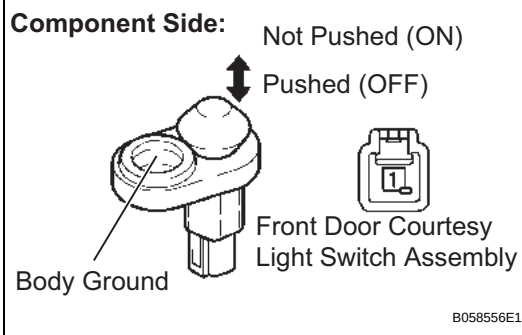
Tester Connection	Specified Condition
(U1-1) - KSW (1K-10)	Below 1 Ω
(U1-2) - Body ground	Below 1 Ω

- (d) Reconnect the unlock warning switch assembly connector.
- (e) Reconnect the driver side J/B connector.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

9 INSPECT FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY (DRIVER SIDE)

- (a) Remove the front door courtesy light switch assembly.
(b) Measure the resistance.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - Body ground	Not pushed (ON)	Below 1 Ω
1 - Body ground	Pushed (OFF)	10 k Ω or higher

- (c) Reinstall the front door courtesy light switch assembly.

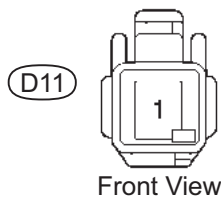
NG

REPLACE FRONT DOOR COURTESY LIGHT SWITCH ASSEMBLY

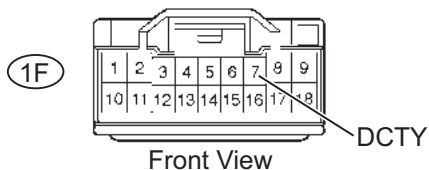
OK

10 CHECK HARNESS AND CONNECTOR (FRONT DOOR COURTESY LIGHT SWITCH LH - BODY ECU)**Wire Harness Side:**

Front Door Courtesy Light Switch Connector (Driver Side)



Driver Side J/B Connector



- (a) Disconnect the D11 front door courtesy light switch assembly connector.
(b) Disconnect the 1F driver side J/B connector.
(c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
(D11-1) - DCTY (1F-7)	Below 1 Ω

- (d) Reconnect the front door courtesy light switch assembly connector.
(e) Reconnect the driver side J/B connector.

NG

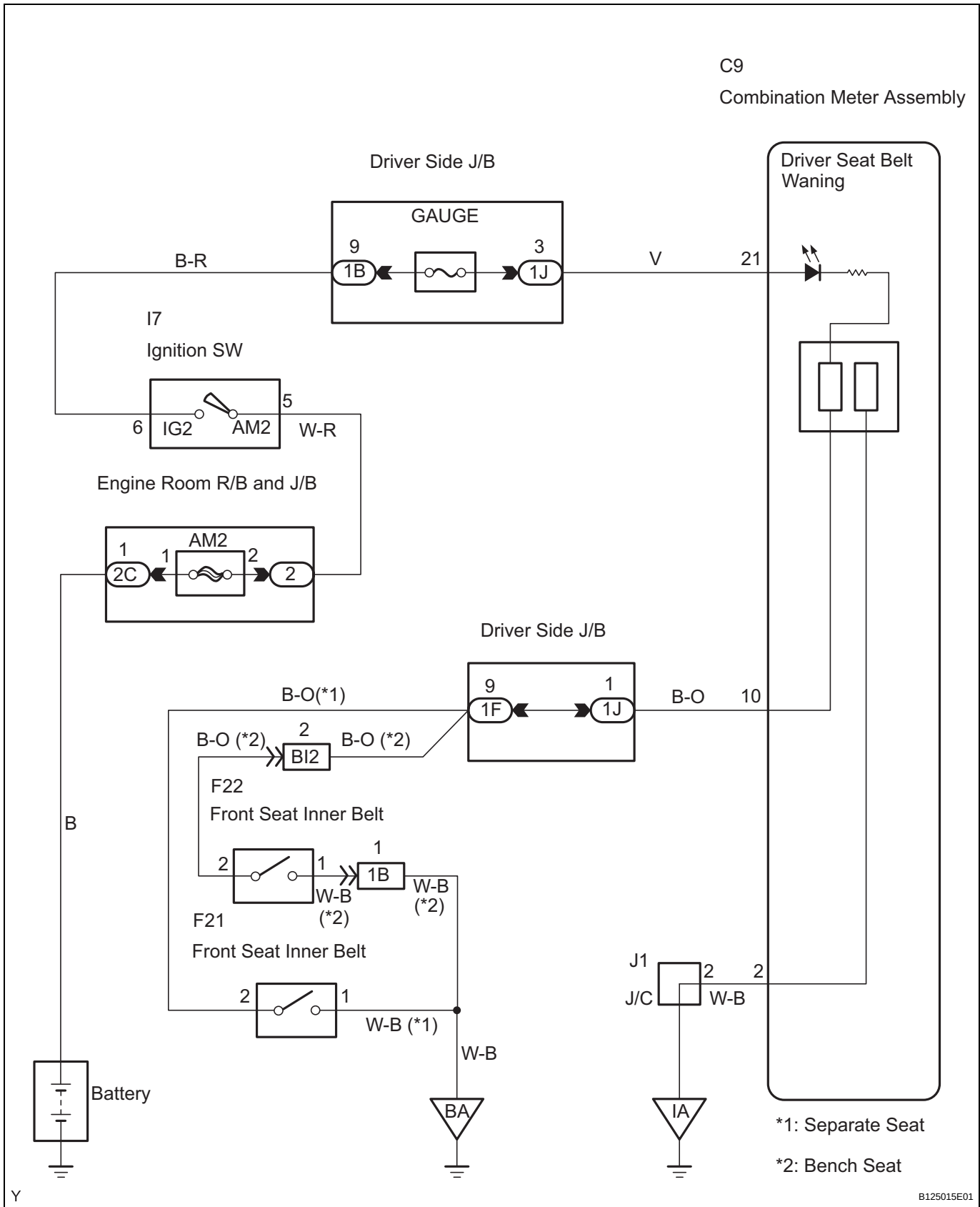
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

Driver Side Seat Belt Warning Light does not Operate

WIRING DIAGRAM



HINT:

Confirm that other components such as indicators and meter gauges function normally before performing the following procedure.

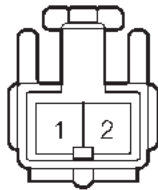
1 CONFIRM SEAT TYPE

(a) Confirm the seat type.

Seat Type	Proceed To
Bench seat	A
Separate seat	B

B**Go to step 4****A****2 INSPECT FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)**

Component Side:



Front Seat Inner Belt Assembly (Driver Side)

I045519E01

(a) Disconnect the F22 front seat inner belt assembly (driver side) connector.

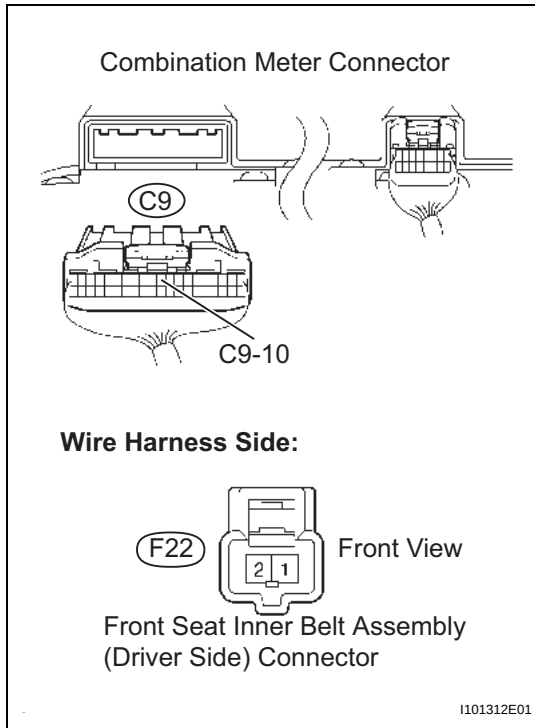
(b) Measure the resistance.

Standard Resistance

Terminal Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

(c) Reconnect the front seat inner belt assembly (driver side) connector.

NG**REPLACE FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)****OK**

3**CHECK HARNESS AND CONNECTOR (FRONT SEAT INNER BELT (DRIVER SIDE) - COMBINATION METER)**

- Disconnect the C9 combination meter connector.
- Disconnect the F22 front seat inner belt assembly (driver side) connector.

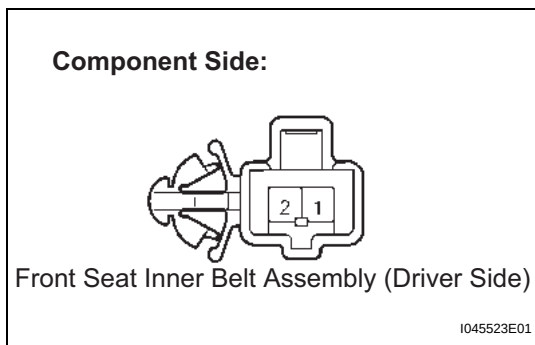
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-10 - F22-2	Below 1 Ω
C9-10 or F22-2 - Body ground	10 k Ω or higher

- Reconnect the front seat inner belt assembly (driver side) connector.

- Reconnect the combination meter connector.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE COMBINATION METER ASSEMBLY****4****INSPECT FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)**

- Disconnect the F21 front seat inner belt assembly (driver side) connector.

- Measure the resistance.

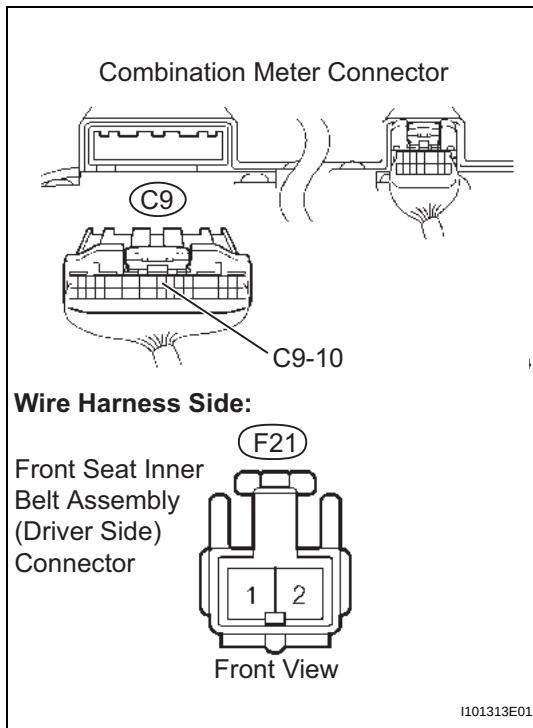
Standard Resistance

Terminal Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

- Reconnect the front seat inner belt assembly (driver side) connector.

NG**REPLACE FRONT SEAT INNER BELT ASSEMBLY (DRIVER SIDE)****OK**

5

CHECK HARNESS AND CONNECTOR (FRONT SEAT INNER BELT (DRIVER SIDE) - COMBINATION METER)

- (a) Disconnect the C9 combination meter connector.
- (b) Disconnect the F21 front seat inner belt assembly (driver side) connector.

- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
C9-10 - F21-2	Below 1 Ω
C9-10 or F21-2 - Body ground	10 k Ω or higher

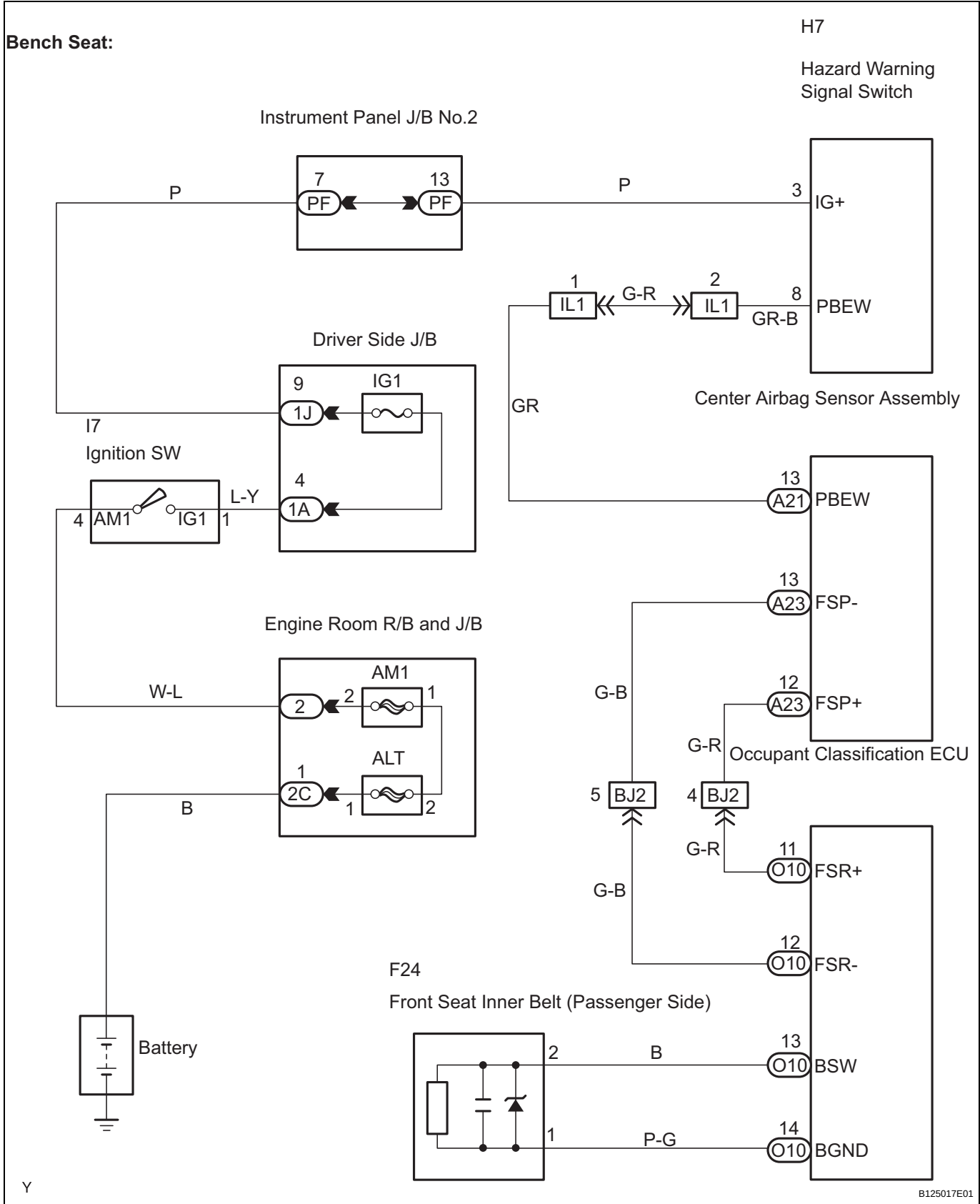
- (d) Reconnect the front seat inner belt assembly (driver side) connector.

- (e) Reconnect the combination meter connector.

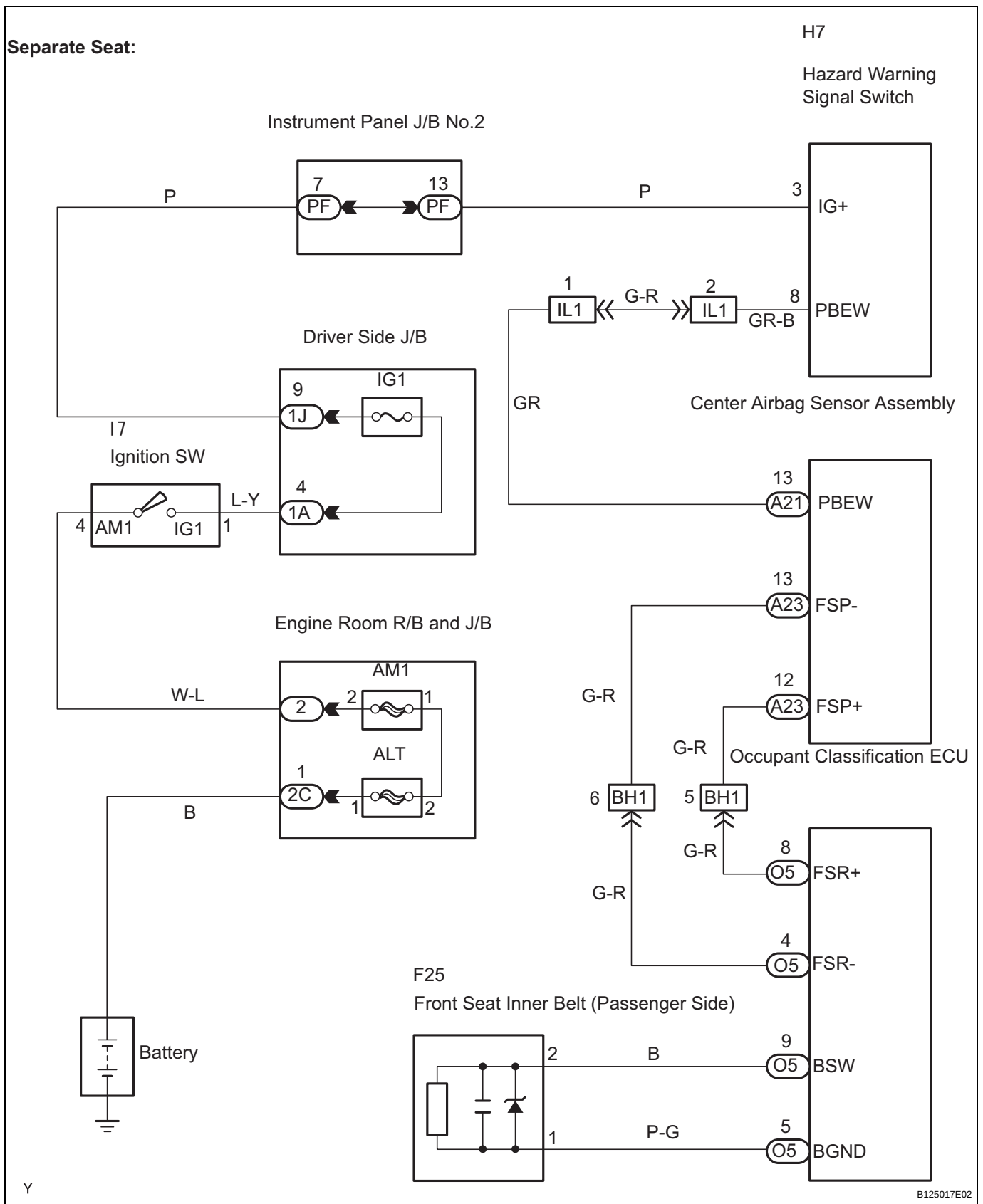
NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****REPLACE COMBINATION METER ASSEMBLY**

Seat Belt Warning Light for Passenger Seat does not Flash

WIRING DIAGRAM



Separate Seat:



HINT:

If there is an open in the ground circuit (center airbag sensor assembly), the center airbag sensor assembly outputs DTCs. Troubleshoot those DTCs by following the Supplemental Restraint System (See page [RS-24](#)).

1 CONFIRM SEAT TYPE

(a) Confirm the seat type.

Seat Type	Proceed To
Bench seat	A
Separate seat	B

B**Go to step 9****A****2 CHECK SUPPLEMENTAL RESTRAINT SYSTEM**

- (a) Connect the intelligent tester to the DLC3.
 (b) Turn the ignition switch ON and turn the tester ON.
 (c) Enter the following menus: DIAGNOSIS / SRS AIRBAG / DTC INFO

Result

Result	Proceed to
No SRS DTCs are output	A
SRS DTCs are output	B

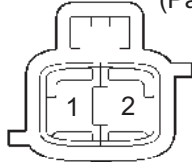
B**GO TO SUPPLEMENTAL RESTRAINT SYSTEM****A****3 CHECK OCCUPANT CLASSIFICATION SYSTEM**

- (a) Connect the intelligent tester to the DLC3.
 (b) Turn the ignition switch ON position and turn the tester ON.
 (c) Enter the following menus: DIAGNOSIS / OCCUPANT DETECT / DTC INFO

Result

Result	Proceed to
No occupant classification system DTCs are output	A
Occupant classification system DTCs are output	B

B**GO TO OCCUPANT CLASSIFICATION SYSTEM****A**

4 INSPECT FRONT SEAT INNER BELT ASSEMBLY (PASSENGER SIDE)**Component Side:**Front Seat Inner
Belt Assembly
(Passenger Side)

I102255E01

- (a) Disconnect the F24 front seat inner belt assembly (passenger side) connector.
- (b) Measure the resistance.

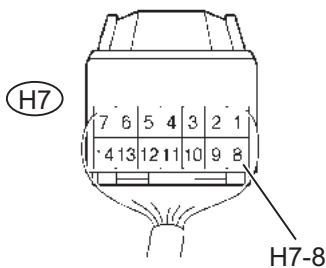
Standard Resistance

Terminal Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

- (c) Reconnect the front seat inner belt assembly (passenger side) connector.

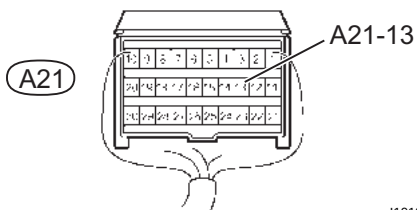
NG**REPLACE FRONT SEAT INNER BELT ASSEMBLY (PASSENGER SIDE)****OK****5 CHECK HARNESS AND CONNECTOR (CENTER AIRBAG SENSOR ASSEMBLY - HAZARD WARNING SIGNAL SWITCH)****Wire Harness Side:**

Hazard Warning Signal Switch Connector



H7-8

Center Airbag Sensor Assembly Connector



I101316E02

- (a) Disconnect the H7 hazard warning signal switch connector.
- (b) Disconnect the A21 center airbag sensor assembly connector.
- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
H7-8 - A21-13	Below 1 Ω
H7-8 or A21-13 - Body ground	10 k Ω or higher

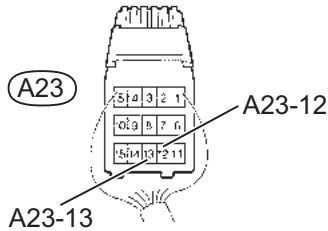
- (d) Reconnect the center airbag sensor assembly connector.
- (e) Reconnect the hazard warning signal switch connector.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK**

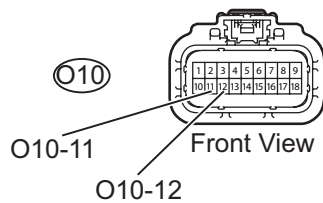
6 CHECK HARNESS AND CONNECTOR (CENTER AIRBAG SENSOR ASSEMBLY - OCCUPANT CLASSIFICATION ECU)

Wire Harness Side:

Center Airbag Sensor Assembly Connector



Occupant Classification ECU



I102251E01

- Disconnect the O10 occupant classification ECU connector.
- Disconnect the A23 center airbag sensor assembly connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
A23-13 - O10-12	Below 1 Ω
A23-12 - O10-11	Below 1 Ω
A23-13 or O10-12 - Body ground	10 k Ω or higher
A23-12 or O10-11 - Body ground	10 k Ω or higher

- Reconnect the center airbag sensor assembly connector.
- Reconnect the occupant classification ECU connector.

NG

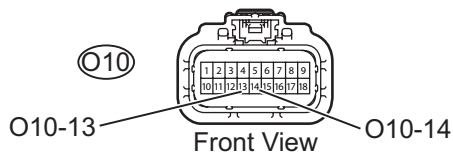
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

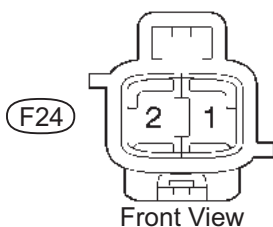
7 CHECK HARNESS AND CONNECTOR (OCCUPANT CLASSIFICATION ECU - FRONT SEAT INNER BELT ASSEMBLY)

Wire Harness Side:

Occupant Classification ECU



Front Seat Inner Belt Assembly
(Passenger Side) Connector



I102252E01

- Disconnect the F24 front seat inner belt assembly (passenger side) connector.
- Disconnect the O10 occupant classification ECU connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
O10-13 - F24-2	Below 1 Ω
O10-14 - F24-1	Below 1 Ω
O10-13 or F24-2 - Body ground	10 k Ω or higher
O10-14 or F24-1 - Body ground	10 k Ω or higher

- Reconnect the occupant classification ECU connector.
- Reconnect the front seat inner belt assembly (passenger side) connector.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

8 INSPECT HAZARD WARNING SIGNAL SWITCH

- (a) Remove the hazard warning signal switch.
- (b) Disconnect the H7 hazard warning signal switch connector.
- (c) Measure the voltage.

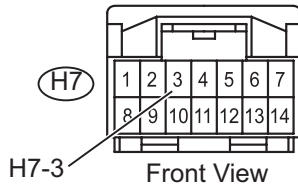
Standard Voltage

Tester Connection	Condition	Specified Condition
H7-3 - Body ground	Ignition switch ON	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR**Wire Harness Side:**

Hazard Warning Signal Switch Connector



I102257E01

OK

REPLACE HAZARD WARNING SIGNAL SWITCH**9 CHECK SUPPLEMENTAL RESTRAINT SYSTEM**

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch ON and turn the tester ON.
- (c) Enter the following menus: DIAGNOSIS / SRS AIRBAG / DTC INFO

Result

Result	Proceed to
No SRS DTCs are output	A
SRS DTCs are output	B

B

GO TO SUPPLEMENTAL RESTRAINT SYSTEM

A

10 CHECK OCCUPANT CLASSIFICATION SYSTEM

- (a) Connect the intelligent tester to the DLC3.
- (b) Turn the ignition switch ON position and turn the tester ON.
- (c) Enter the following menus: DIAGNOSIS / OCCUPANT DETECT / DTC INFO

Result

Result	Proceed to
No occupant classification system DTCs are output	A

ME

Result	Proceed to
Occupant classification system DTCs are output	B

B

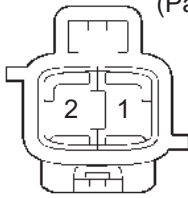
**GO TO OCCUPANT CLASSIFICATION
SYSTEM**

A

11 INSPECT FRONT SEAT INNER BELT ASSEMBLY (PASSENGER SIDE)

Component Side:

Front Seat Inner
Belt Assembly
(Passenger Side)



I102254E01

- Disconnect the F25 front seat inner belt assembly (passenger side) connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	Seat belt fastened	10 k Ω or higher
1 - 2	Seat belt unfastened	Below 1 Ω

- Reconnect the front seat inner belt assembly (passenger side) connector.

NG

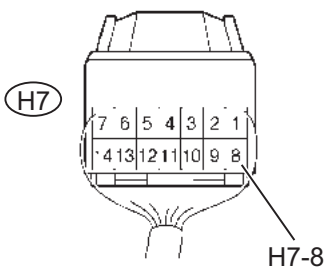
**REPLACE FRONT SEAT INNER BELT
ASSEMBLY (PASSENGER SIDE)**

OK

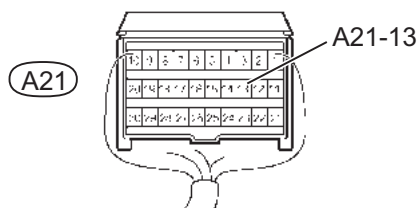
12 CHECK HARNESS AND CONNECTOR (CENTER AIRBAG SENSOR ASSEMBLY - HAZARD WARNING SIGNAL SWITCH)

Wire Harness Side:

Hazard Warning Signal Switch Connector



Center Airbag Sensor Assembly Connector



I101316E01

- Disconnect the H7 hazard warning signal switch connector.
- Disconnect the A21 center airbag sensor assembly connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
H7-8 - A21-13	Below 1 Ω
H7-8 or A21-13 - Body ground	10 k Ω or higher

- Reconnect the center airbag sensor assembly connector.
- Reconnect the hazard warning signal switch connector.

NG

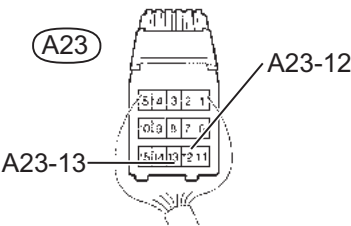
**REPAIR OR REPLACE HARNESS OR
CONNECTOR**

OK

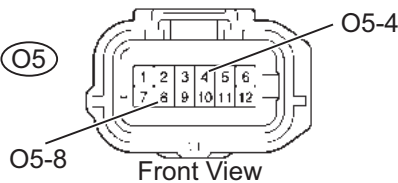
13 CHECK HARNESS AND CONNECTOR (CENTER AIRBAG SENSOR ASSEMBLY - OCCUPANT CLASSIFICATION ECU)

Wire Harness Side:

Center Airbag Sensor Assembly Connector



Occupant Classification ECU



1101317E01

- (a) Disconnect the O5 occupant classification ECU connector.
- (b) Disconnect the A23 center airbag sensor assembly connector.
- (c) Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
A23-13 - O5-4	Below 1 Ω
A23-12 - O5-8	Below 1 Ω
A23-13 or O5-4 - Body ground	10 kΩ or higher
A23-12 or O5-8 - Body ground	10 kΩ or higher

- (d) Reconnect the center airbag sensor assembly connector.
- (e) Reconnect the occupant classification ECU connector.

NG

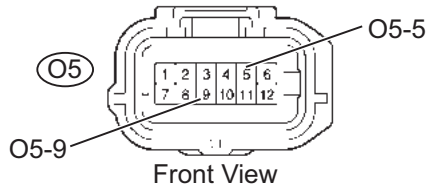
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

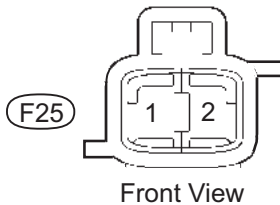
14 CHECK HARNESS AND CONNECTOR (OCCUPANT CLASSIFICATION ECU - FRONT SEAT INNER BELT ASSEMBLY)

Wire Harness Side:

Occupant Classification ECU



Front Seat Inner Belt Assembly
(Passenger Side) Connector



I102253E01

- Disconnect the F25 front seat inner belt assembly (passenger side) connector.
- Disconnect the O5 occupant classification ECU connector.
- Measure the resistance.

Standard Resistance

Tester Connection	Specified Condition
O5-9 - F25-2	Below 1 Ω
O5-5 - F25-1	Below 1 Ω
O5-9 or F25-2 - Body ground	10 k Ω or higher
O5-5 or F25-1 - Body ground	10 k Ω or higher

- Reconnect the occupant classification ECU connector.
- Reconnect the front seat inner belt assembly (passenger side) connector.

NG

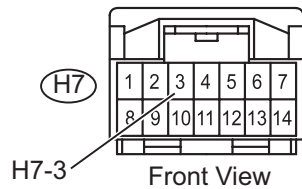
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

15 INSPECT HAZARD WARNING SIGNAL SWITCH

Wire Harness Side:

Hazard Warning Signal Switch Connector



I102257E01

- Remove the hazard warning signal switch.
- Disconnect the H7 hazard warning signal switch connector.
- Measure the voltage.

Standard Voltage

Tester Connection	Condition	Specified Condition
H7-3 - Body ground	Ignition switch ON	10 to 14 V

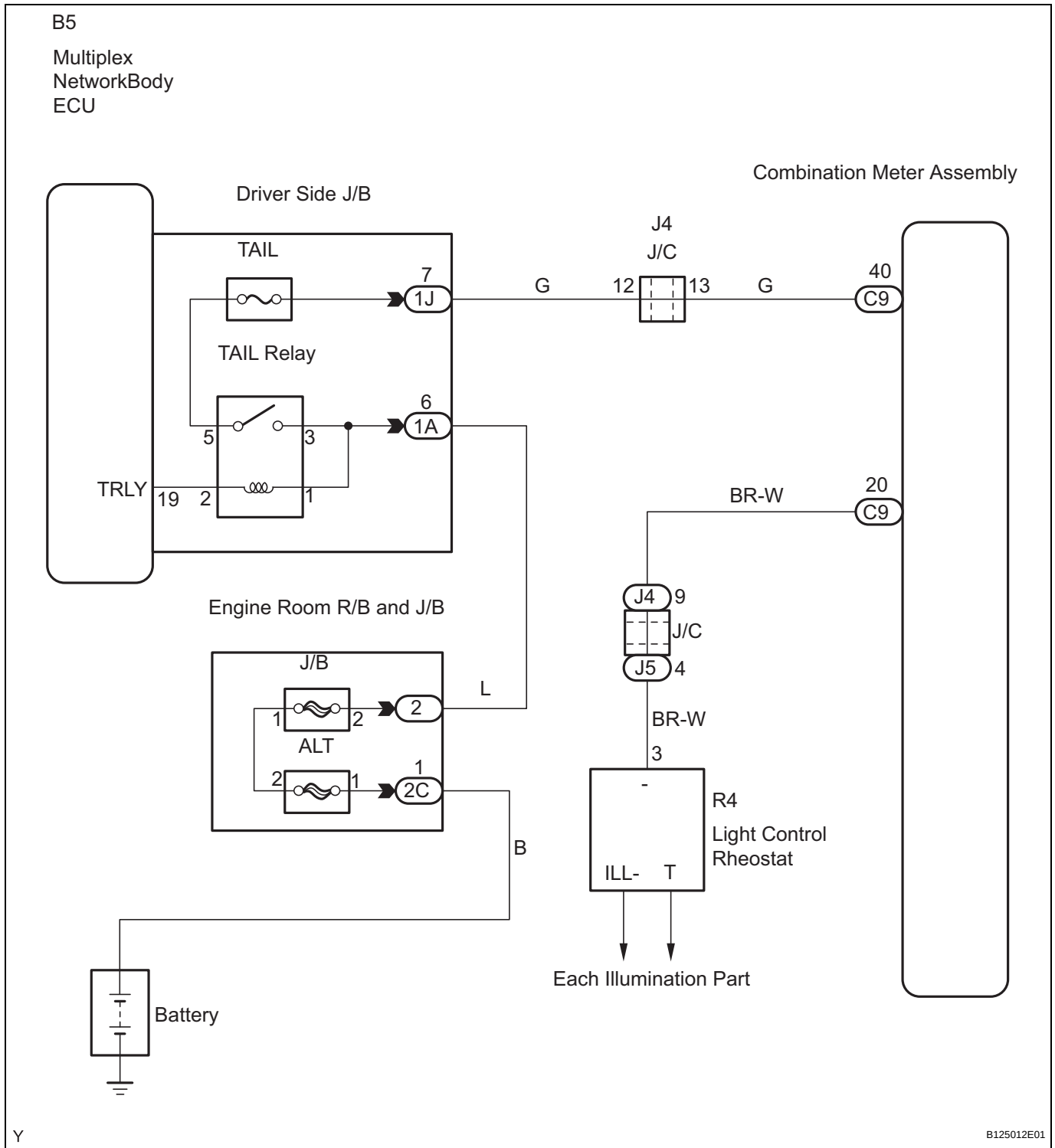
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

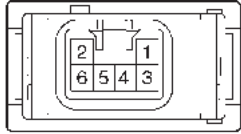
REPLACE HAZARD WARNING SIGNAL SWITCH

WIRING DIAGRAM



1 INSPECT LIGHT CONTROL RHEOSTAT

Component Side:



Light Control Rheostat

Y

I045521E01

- (a) Disconnect the R4 light control rheostat connector.
- (b) Check the voltage and resistance.

Standard

Tester Connection	Switch Condition	Specified Condition
4 (T) - Body ground	Ignition switch ON, Taillight switch OFF	Below 1 V
4 (T) - Body ground	Ignition switch ON, Taillight switch ON	10 to 14 V
1 (IG) - Body ground	Ignition switch ON	10 to 14 V
1 (IG) - Body ground	Ignition switch OFF	Below 1 V
3 (-) - Body ground	Always	Below 1 Ω

- (c) Reconnect the light control rheostat connector.

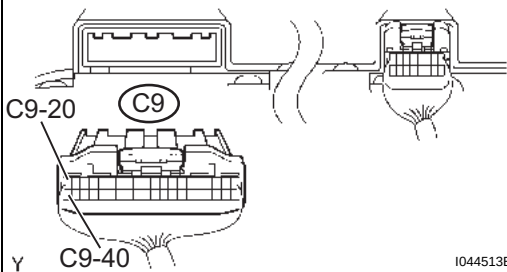
NG

REPLACE LIGHT CONTROL RHEOSTAT

OK

2 INSPECT COMBINATION METER ASSEMBLY

Combination Meter Connector



Y

I044513E08

- (a) Disconnect the C9 combination meter connector.
- (b) Measure the voltage.

Standard voltage

Tester Connection	Condition	Specified Condition
C9-20 - C9-40	Ignition switch ON	10 to 14 V

- (c) Reconnect the combination meter connector.

NG

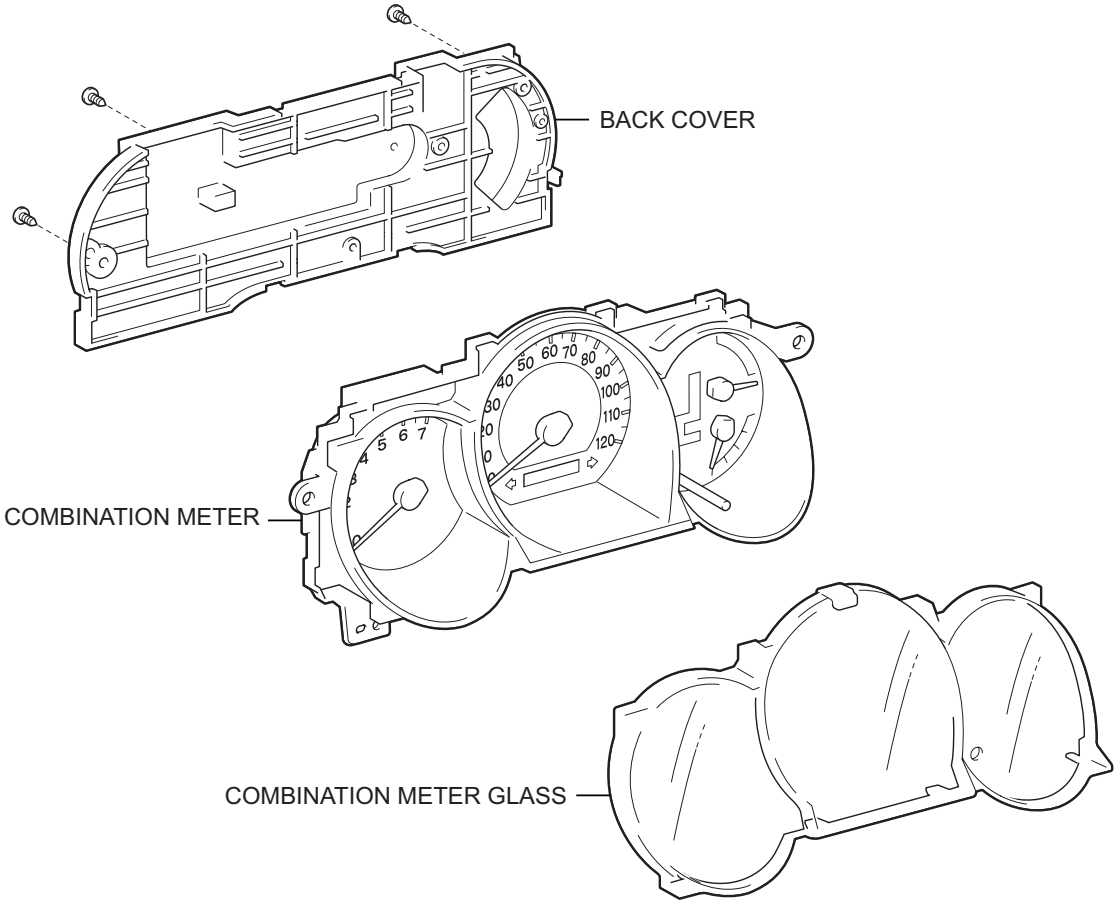
REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

REPLACE COMBINATION METER ASSEMBLY

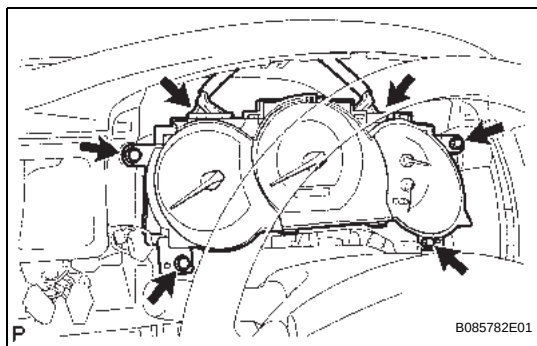
COMBINATION METER

COMPONENTS



REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
2. REMOVE FRONT FLOOR FOOTREST (See page [IR-1](#))
3. REMOVE FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-40](#))
4. REMOVE FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-61](#))
5. REMOVE FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-12](#))
6. REMOVE COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-40](#))
7. REMOVE COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-61](#))
8. REMOVE COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-12](#))
9. REMOVE INSTRUMENT PANEL UNDER TRAY (for Pedal Type Parking Brake) (See page [IP-9](#))
10. REMOVE INSTRUMENT PANEL HOLE COVER (for Lever Type Parking Brake) (See page [IP-9](#))
11. SEPARATE HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [ED-3](#))
12. REMOVE LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL (See page [IP-12](#))
13. REMOVE INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See page [IP-12](#))
14. REMOVE COMBINATION METER ASSEMBLY
 - (a) Remove the 4 screws and the combination meter assembly.
 - (b) Disconnect the 2 connectors.



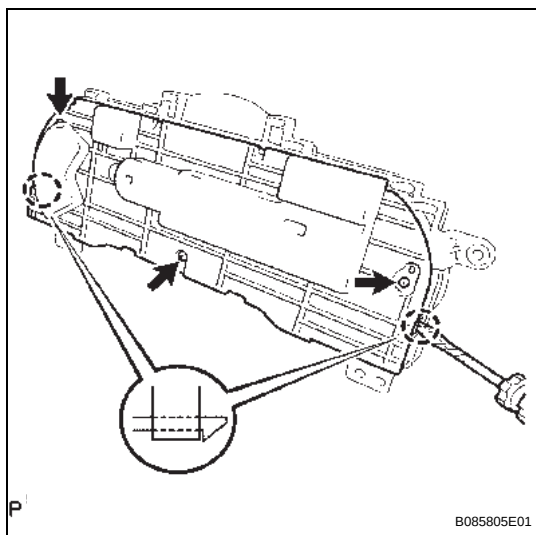
DISASSEMBLY

1. REMOVE BACK COVER

- Remove the 3 screws.
- Using a screwdriver, disengage the 2 claws and remove the back cover.

HINT:

Tape up the screwdriver tip before use.

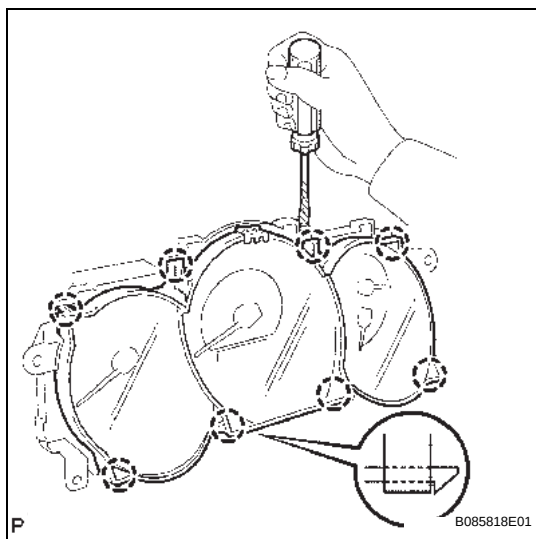


2. REMOVE COMBINATION METER GLASS

- Using a screwdriver, disengage the 8 claws and remove the combination meter glass.

HINT:

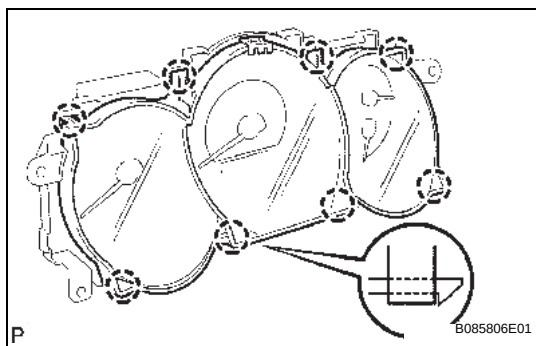
Tape up the screwdriver tip before use.

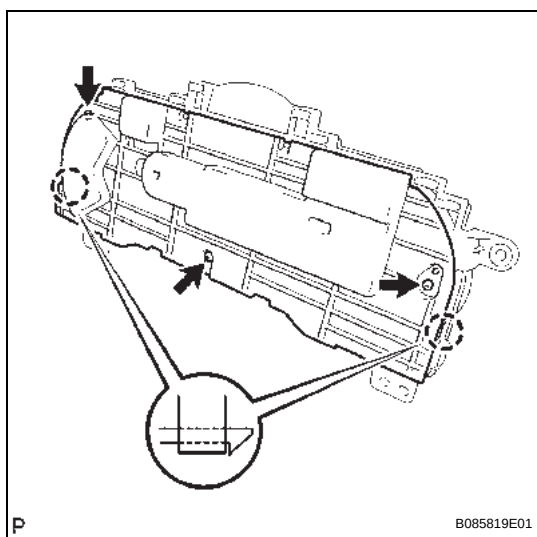


REASSEMBLY

1. INSTALL COMBINATION METER GLASS

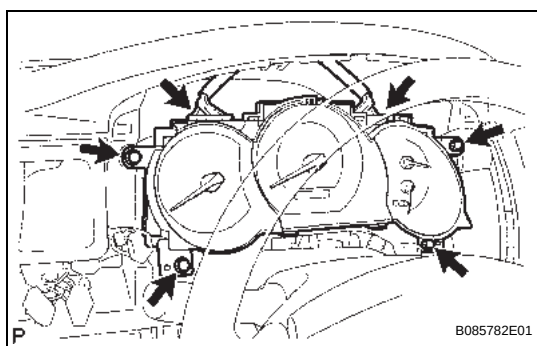
- Engage the 8 claws and install the combination meter glass.





2. REMOVE BACK COVER

- (a) Engage the 2 claws and install the back cover.
- (b) Install the 3 screws.



INSTALLATION

1. INSTALL COMBINATION METER ASSEMBLY

- (a) Connect the 2 connectors.
- (b) Install the combination meter assembly with the 4 screws.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See page [IP-21](#))

3. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL (See page [IP-22](#))

4. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [ED-8](#))

5. INSTALL INSTRUMENT PANEL HOLE COVER (for Lever Type Parking Brake) (See page [IP-25](#))

6. INSTALL INSTRUMENT PANEL UNDER TRAY (for Pedal Type Parking Brake) (See page [IP-25](#))

7. INSTALL COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-52](#))

8. INSTALL COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-75](#))

9. INSTALL COWL SIDE TRIM BOARD LH (for Double Cab) (See page [IR-29](#))

10. INSTALL FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-52](#))

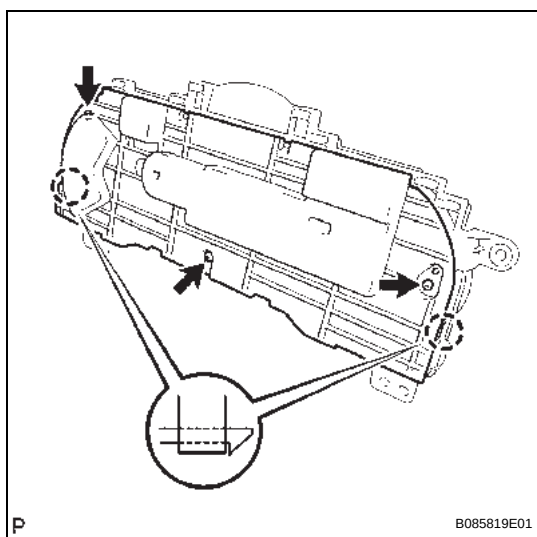
11. INSTALL FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-75](#))

12. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-29](#))

13. INSTALL FRONT FLOOR FOOTREST (See page [IR-1](#))

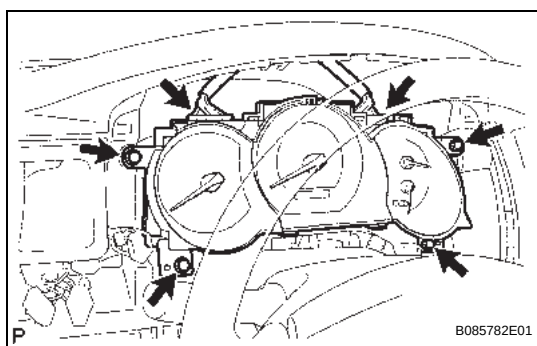
14. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)



2. REMOVE BACK COVER

- (a) Engage the 2 claws and install the back cover.
- (b) Install the 3 screws.



INSTALLATION

1. INSTALL COMBINATION METER ASSEMBLY

- (a) Connect the 2 connectors.
- (b) Install the combination meter assembly with the 4 screws.

Torque: 7.0 N*m (71 kgf*cm, 62 in.*lbf)

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL SUB-ASSEMBLY (See page [IP-21](#))

3. INSTALL LOWER NO. 1 INSTRUMENT PANEL FINISH PANEL (See page [IP-22](#))

4. CONNECT HOOD LOCK CONTROL LEVER SUB-ASSEMBLY (See page [ED-8](#))

5. INSTALL INSTRUMENT PANEL HOLE COVER (for Lever Type Parking Brake) (See page [IP-25](#))

6. INSTALL INSTRUMENT PANEL UNDER TRAY (for Pedal Type Parking Brake) (See page [IP-25](#))

7. INSTALL COWL SIDE TRIM BOARD LH (for Regular Cab) (See page [IR-52](#))

8. INSTALL COWL SIDE TRIM BOARD LH (for Access Cab) (See page [IR-75](#))

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10. INSTALL FRONT DOOR SCUFF PLATE LH (for Regular Cab) (See page [IR-52](#))

11. INSTALL FRONT DOOR SCUFF PLATE LH (for Access Cab) (See page [IR-75](#))

12. INSTALL FRONT DOOR SCUFF PLATE LH (for Double Cab) (See page [IR-29](#))

13. INSTALL FRONT FLOOR FOOTREST (See page [IR-1](#))

14. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 3.9 N*m (40 kgf*cm, 35 in.*lbf)