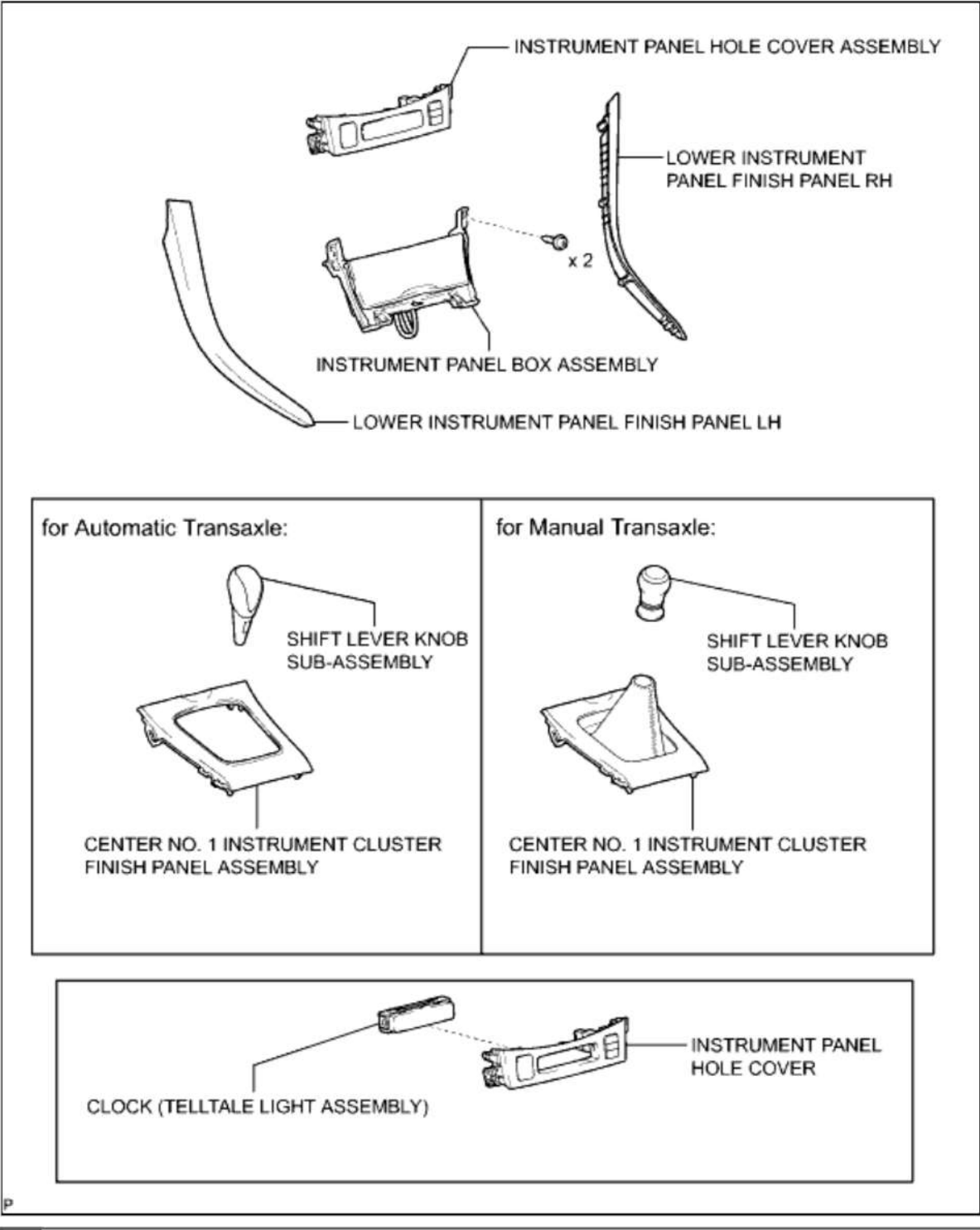


Last Modified: 3-10-2010	6.4 K	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002XFO00IX
Title: METER / GAUGE / DISPLAY: CLOCK: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION



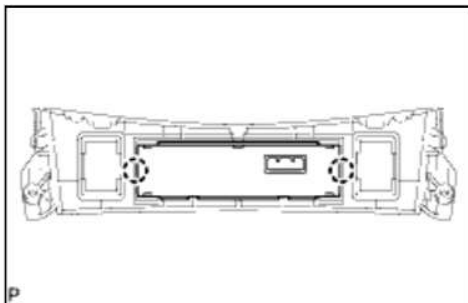


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Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002XFP00IX
Title: METER / GAUGE / DISPLAY: CLOCK: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH [INFO](#)
2. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH [INFO](#)
3. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) [INFO](#)
4. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) [INFO](#)
5. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) [INFO](#)
6. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) [INFO](#)
7. REMOVE INSTRUMENT PANEL BOX ASSEMBLY [INFO](#)
8. REMOVE INSTRUMENT PANEL HOLE COVER ASSEMBLY [INFO](#)
9. REMOVE CLOCK (TELLTALE LIGHT ASSEMBLY)

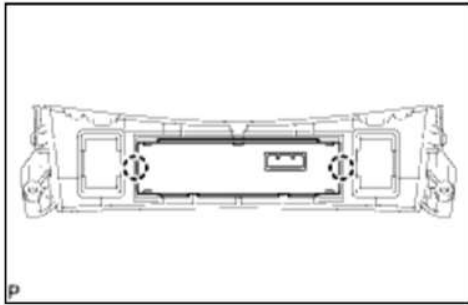


(a) Disengage the 2 claws and remove the clock (telltale light assembly).

Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002XFM00IX
Title: METER / GAUGE / DISPLAY: CLOCK: INSTALLATION (2010 Corolla)		

INSTALLATION

1. INSTALL CLOCK (TELLTALE LIGHT ASSEMBLY)



(a) Engage the 2 claws to install the clock (telltale light assembly).

2. INSTALL INSTRUMENT PANEL HOLE COVER ASSEMBLY [INFO](#)

3. INSTALL INSTRUMENT PANEL BOX ASSEMBLY [INFO](#)

4. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Manual Transaxle) [INFO](#)

5. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (for Automatic Transaxle) [INFO](#)

6. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Manual Transaxle) [INFO](#)

7. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY (for Automatic Transaxle) [INFO](#)

8. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH [INFO](#)

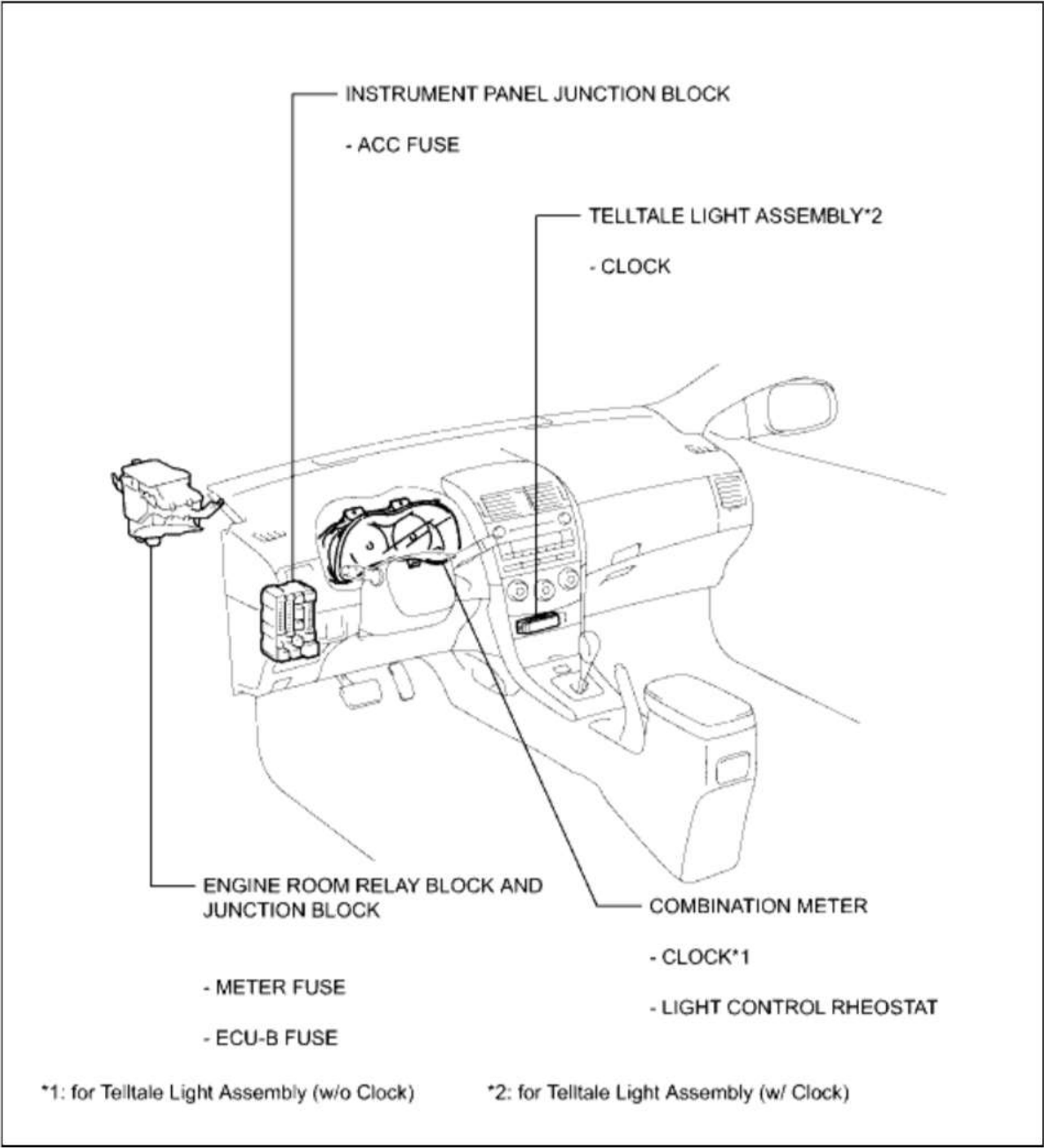
9. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH [INFO](#)



Last Modified: 3-10-2010	6.4 R	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002HC200JX
Title: METER / GAUGE / DISPLAY: CLOCK SYSTEM: PARTS LOCATION (2010 Corolla)		

PARTS LOCATION

ILLUSTRATION



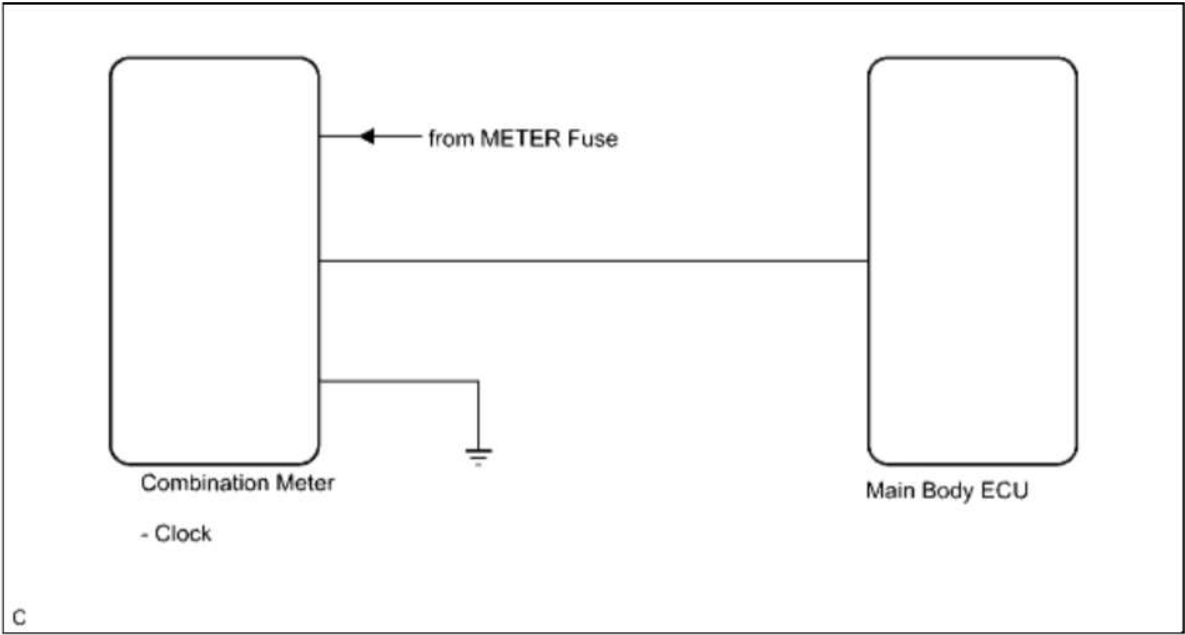
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Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G402VX
Title: METER / GAUGE / DISPLAY: CLOCK SYSTEM: SYSTEM DIAGRAM (2010 Corolla)		

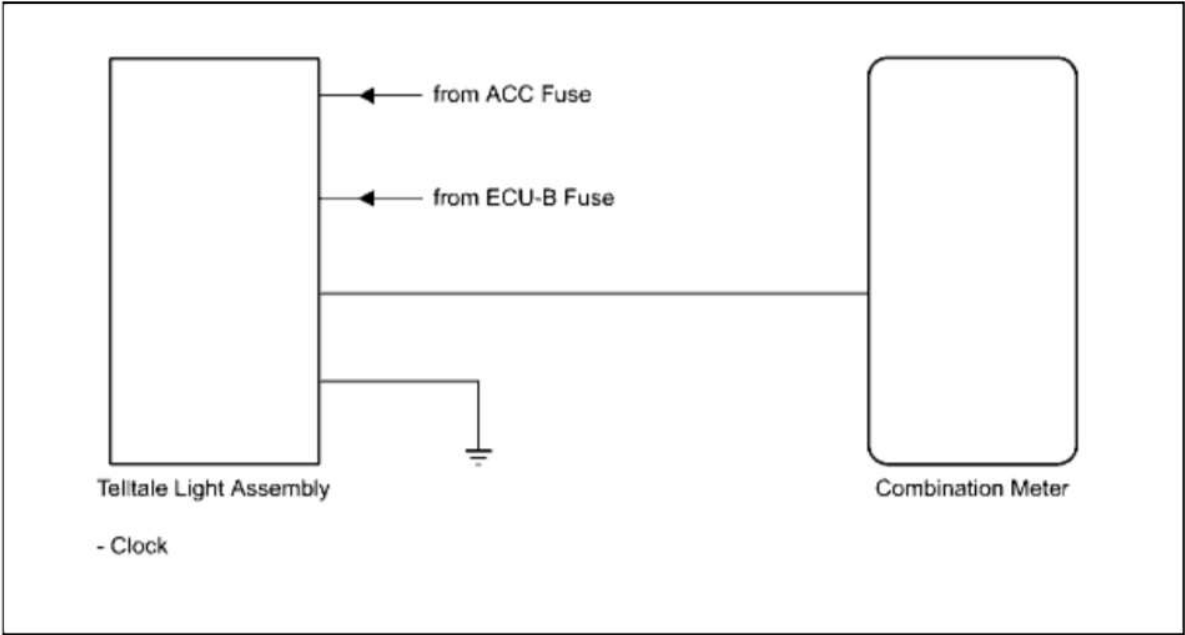
SYSTEM DIAGRAM

1. DIRECT LINE SIGNAL

(a) Clock (for Telltale Light Assembly (w/o Clock))



(b) Clock (for Telltale Light Assembly (w/ Clock))



2. INPUT AND OUTPUT SIGNALS OF THE CLOCK

COMMUNICATION SIGNAL	SENDER	RECEIVER	COMMUNICATION LINE
Illumination*1	Main Body ECU	Combination Meter (Clock)	Direct Line
Illumination*2	Combination Meter	Telltale Light Assembly (Clock)	Direct Line

- *1 : for Telltale Light Assembly (w/o Clock)
- *2 : for Telltale Light Assembly (w/ Clock)



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G3032X
Title: METER / GAUGE / DISPLAY: CLOCK SYSTEM: SYSTEM DESCRIPTION (2010 Corolla)		

SYSTEM DESCRIPTION

1. COMBINATION METER (CLOCK)*1

ITEM	DETAIL
Clock display	The time is always displayed. In addition, the combination meter dims according to the signal from the main body ECU.

- *1: for Telltale Light Assembly (w/o Clock)

2. TELLTALE LIGHT ASSEMBLY (CLOCK)*2

ITEM	DETAIL
Clock display	The time is displayed. In addition, the telltale light assembly dims according to the signal from the combination meter.

- *2: for Telltale Light Assembly (w/ Clock)



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Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G1049X
Title: METER / GAUGE / DISPLAY: CLOCK SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

1. VEHICLE BROUGHT TO WORKSHOP

NEXT



2. CUSTOMER PROBLEM ANALYSIS

NEXT



3. PROBLEM SYMPTOM CONFIRMATION

NEXT



4. PROBLEM SIMULATION

NEXT



5.

PROBLEM SYMPTOMS TABLE

(a) Refer to Problem Symptoms Table  .

NEXT
▼

6.

CIRCUIT INSPECTION

NEXT
▼

7.

REPAIR OR REPLACE

NEXT
▼

8.

CONFIRMATION TEST

NEXT ► END

Last Modified: 3-10-2010	6.4 T	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000001R3A01TX
Title: METER / GAUGE / DISPLAY: CLOCK SYSTEM: PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

HINT:

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

Clock (for Telltale Light Assembly (w/o Clock))

SYMPTOM	SUSPECTED AREA	SEE PAGE
Clock does not operate at all.	Fuse (METER)	-
	Power Source Circuit	INFO
Clock display illumination malfunction	Combination Meter (Clock)	INFO
Clock loses or gains time.	Combination Meter (Clock)	INFO

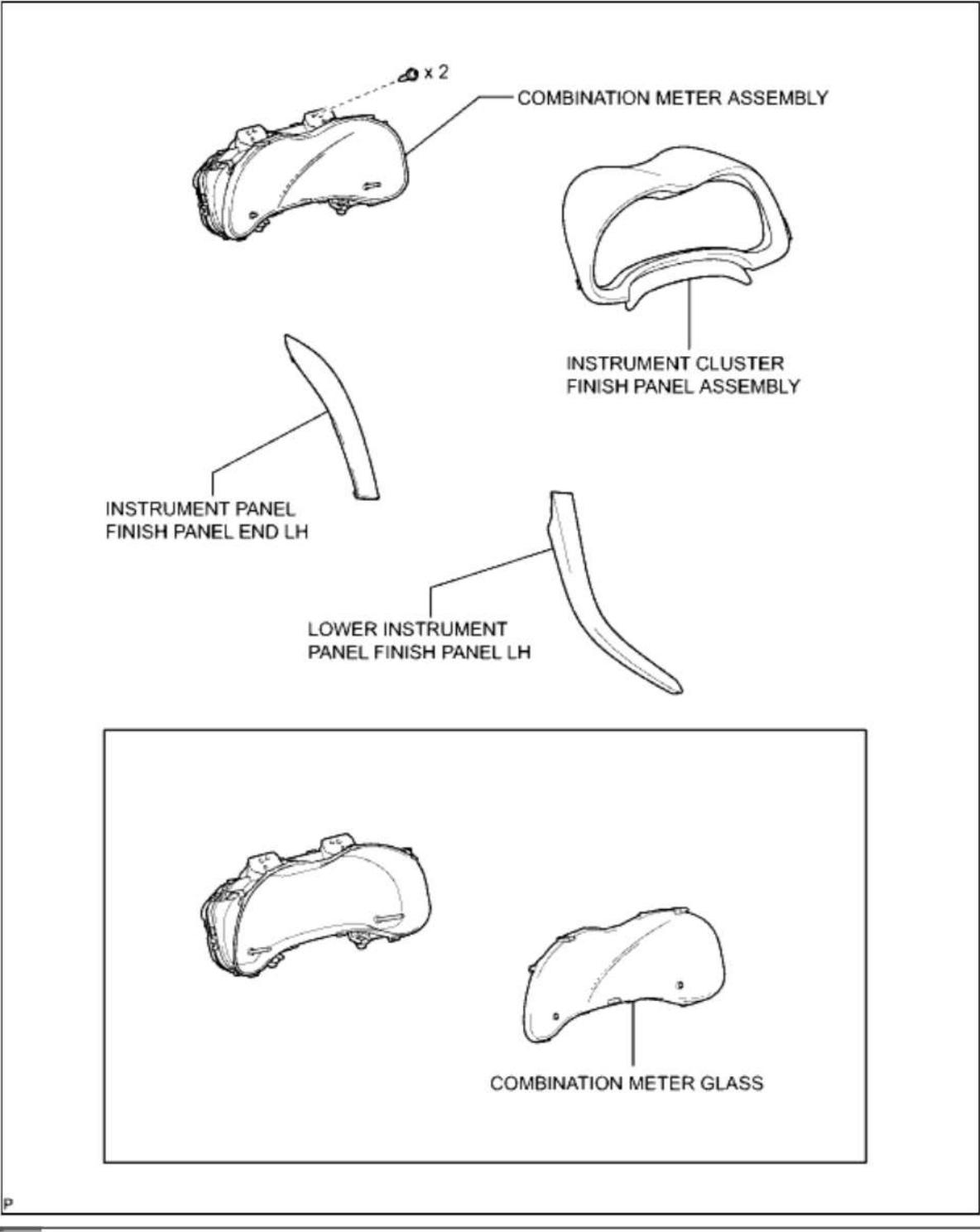
Clock (for Telltale Light Assembly (w/ Clock))

SYMPTOM	SUSPECTED AREA	SEE PAGE
Clock does not operate at all.	Fuse (ACC, ECU-B)	-
	Telltale Light Assembly (w/ Clock)	INFO
Clock display illumination malfunction	Wire Harness or Connector	-
	Combination Meter	INFO
	Telltale Light Assembly (w/ Clock)	INFO
Clock loses or gains time.	Telltale Light Assembly (w/ Clock)	INFO

Last Modified: 3-10-2010	6.4 K	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000024D6018X
Title: METER / GAUGE / DISPLAY: COMBINATION METER: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION





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Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000024D701HX
Title: METER / GAUGE / DISPLAY: COMBINATION METER: REMOVAL (2010 Corolla)		

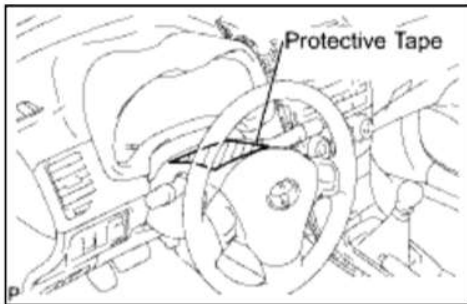
REMOVAL

1. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH

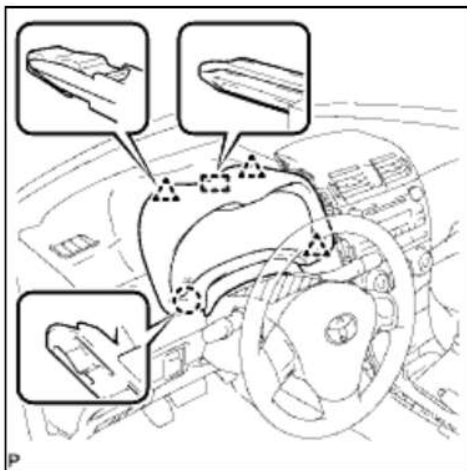
2. REMOVE INSTRUMENT PANEL FINISH PANEL END LH

3. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY

- (a) Operate the tilt lever to lower the steering wheel assembly.



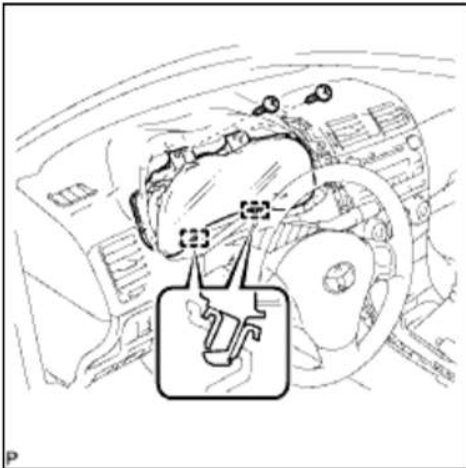
- (b) Apply protective tape to the area shown in the illustration.



- (c) Disengage the guide, claw and 3 clips, and then remove the instrument cluster finish panel assembly.

4. REMOVE COMBINATION METER ASSEMBLY

- (a) Remove the 2 screws.



(b) Disengage the 2 guides.

NOTICE:

When removing the combination meter assembly, be careful not to break the guide.



(c) Pull the combination meter assembly, disconnect the connector, and remove the combination meter assembly.

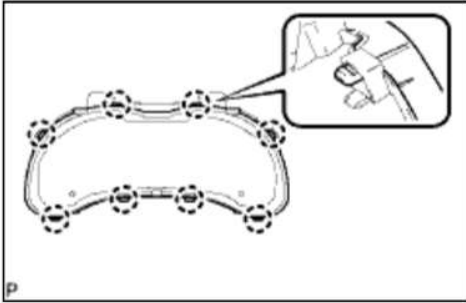
NOTICE:

When removing the combination meter assembly, do not damage the upper instrument panel sub-assembly or combination meter assembly.

Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000024D8018X
Title: METER / GAUGE / DISPLAY: COMBINATION METER: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. REMOVE COMBINATION METER GLASS



(a) Disengage the 8 claws and remove the combination meter glass.

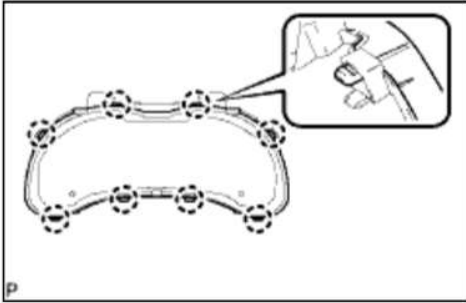


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Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000024D9018X
Title: METER / GAUGE / DISPLAY: COMBINATION METER: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL COMBINATION METER GLASS



(a) Engage the 8 claws and install the combination meter glass.

NOTICE:

When installing the combination meter glass, be careful of invasion of dust or a foreign substance.



TOYOTA

Last Modified: 3-10-2010	6.4 A	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000024D501HX
Title: METER / GAUGE / DISPLAY: COMBINATION METER: INSTALLATION (2010 Corolla)		

INSTALLATION

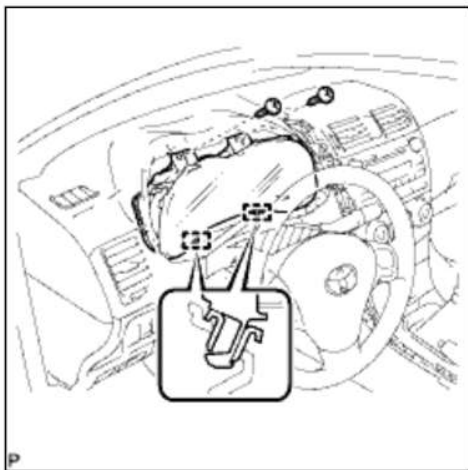
1. INSTALL COMBINATION METER ASSEMBLY



- (a) Connect the connector and temporarily install the combination meter assembly.

NOTICE:

When installing the combination meter assembly, do not damage the upper instrument panel sub-assembly or combination meter assembly.



- (b) Engage the 2 guides.

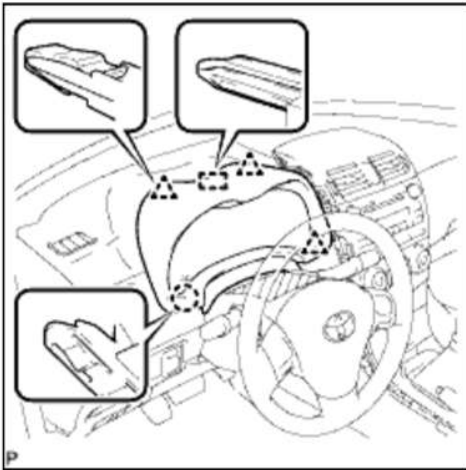
NOTICE:

- When installing the combination meter assembly, be careful not to break the guide.
- When installing the combination meter assembly, insert the guides securely into the holes on the upper instrument panel sub-assembly.

- (c) Install the combination meter assembly with the 2 screws.

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY

- (a) Engage the guide, claw and 3 clips, and install the instrument cluster finish panel assembly.



(b) Remove the applied protective tape on the steering column cover.

3. INSTALL INSTRUMENT PANEL FINISH PANEL END LH INFO

4. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO



Last Modified: 3-10-2010	6.4 L	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000000XFT04MX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: PRECAUTION (2010 Corolla)		

PRECAUTION

1. EXPRESSIONS OF IGNITION SWITCH

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

EXPRESSION	SWITCH TYPE	
	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	LOCK	Off
Ignition Switch ON	ON	On (IG)
Ignition Switch ACC	ACC	On (ACC)
Engine Start	START	Start

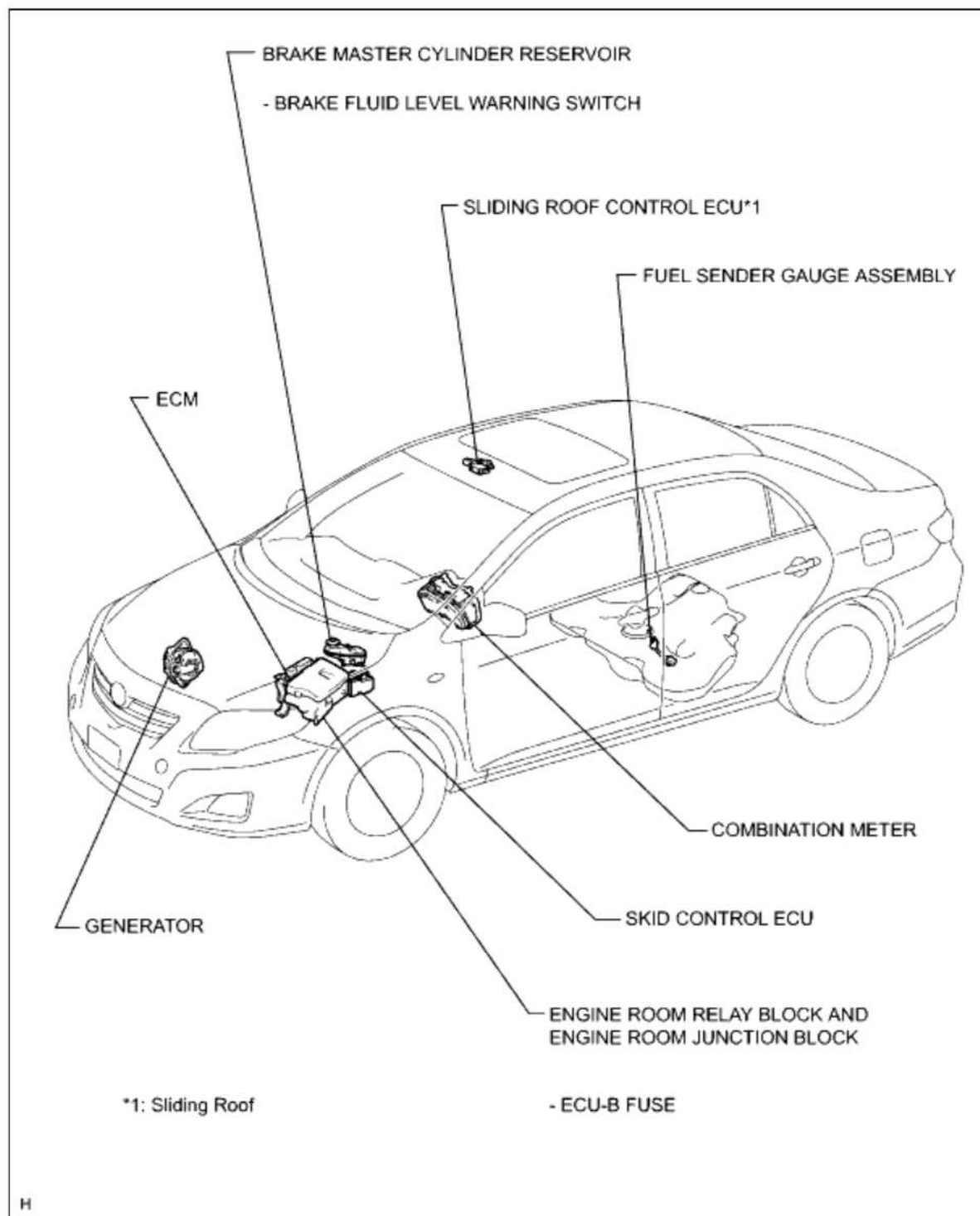


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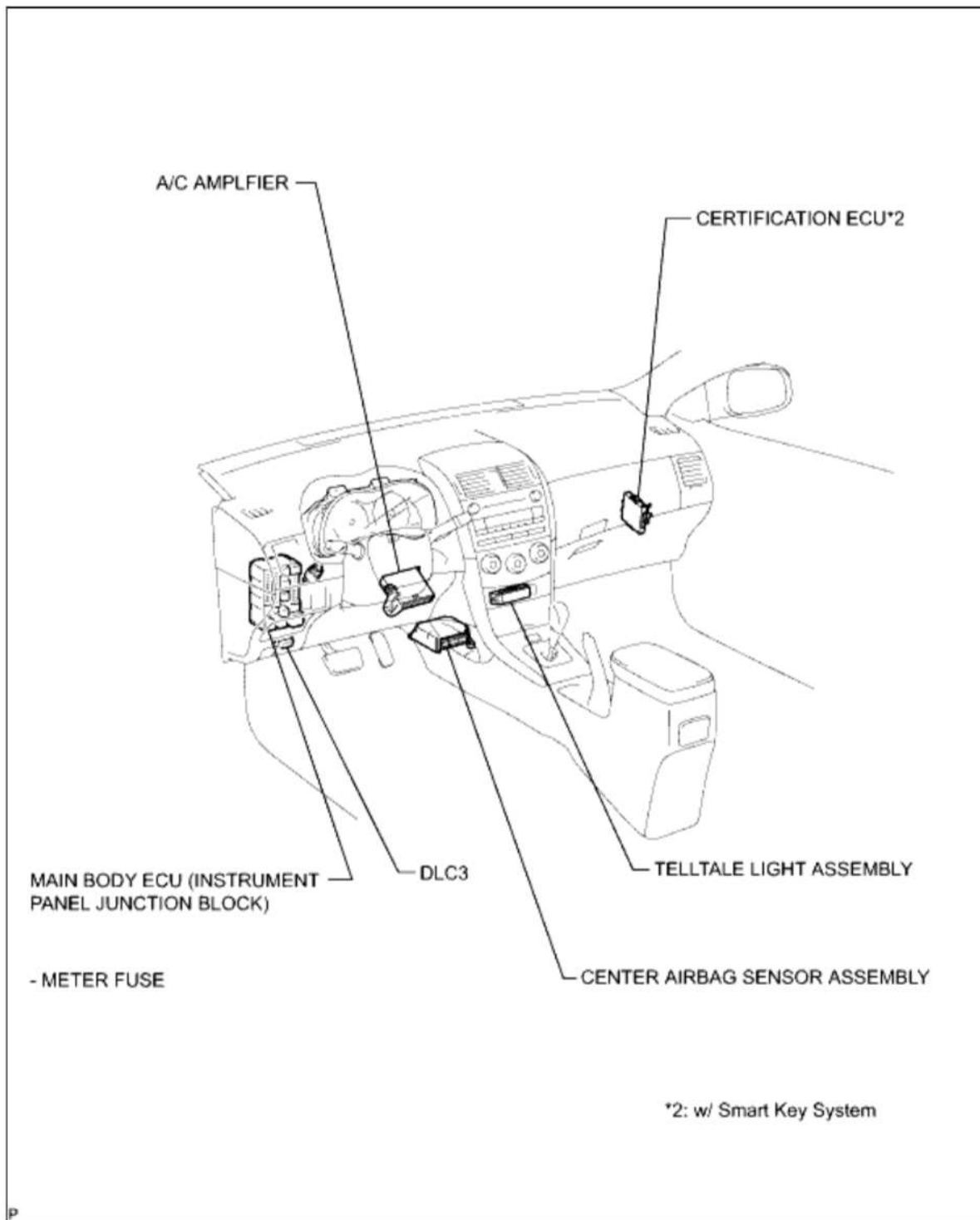
Last Modified: 3-10-2010	6.4 R	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G201XX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: PARTS LOCATION (2010 Corolla)		

PARTS LOCATION

ILLUSTRATION

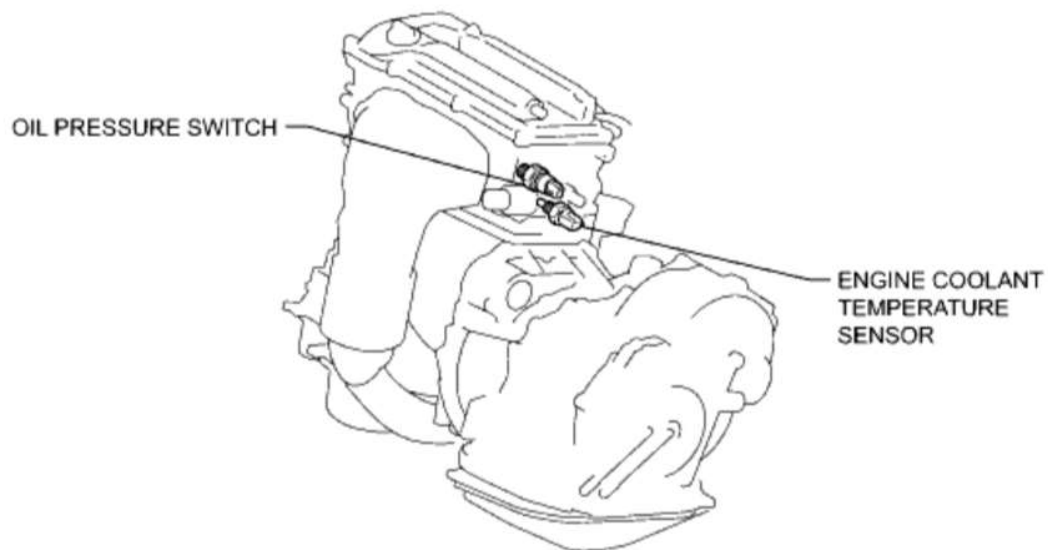


ILLUSTRATION

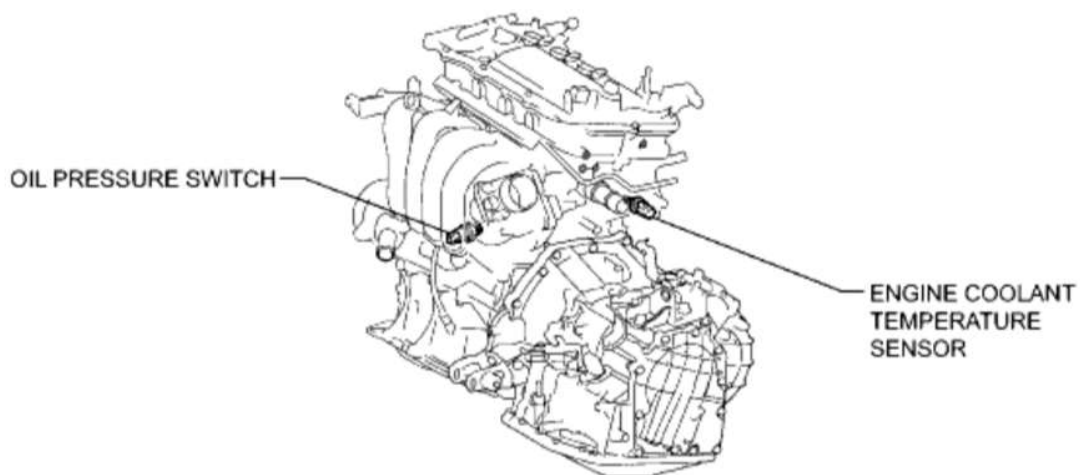


ILLUSTRATION

for 2AZ-FE:



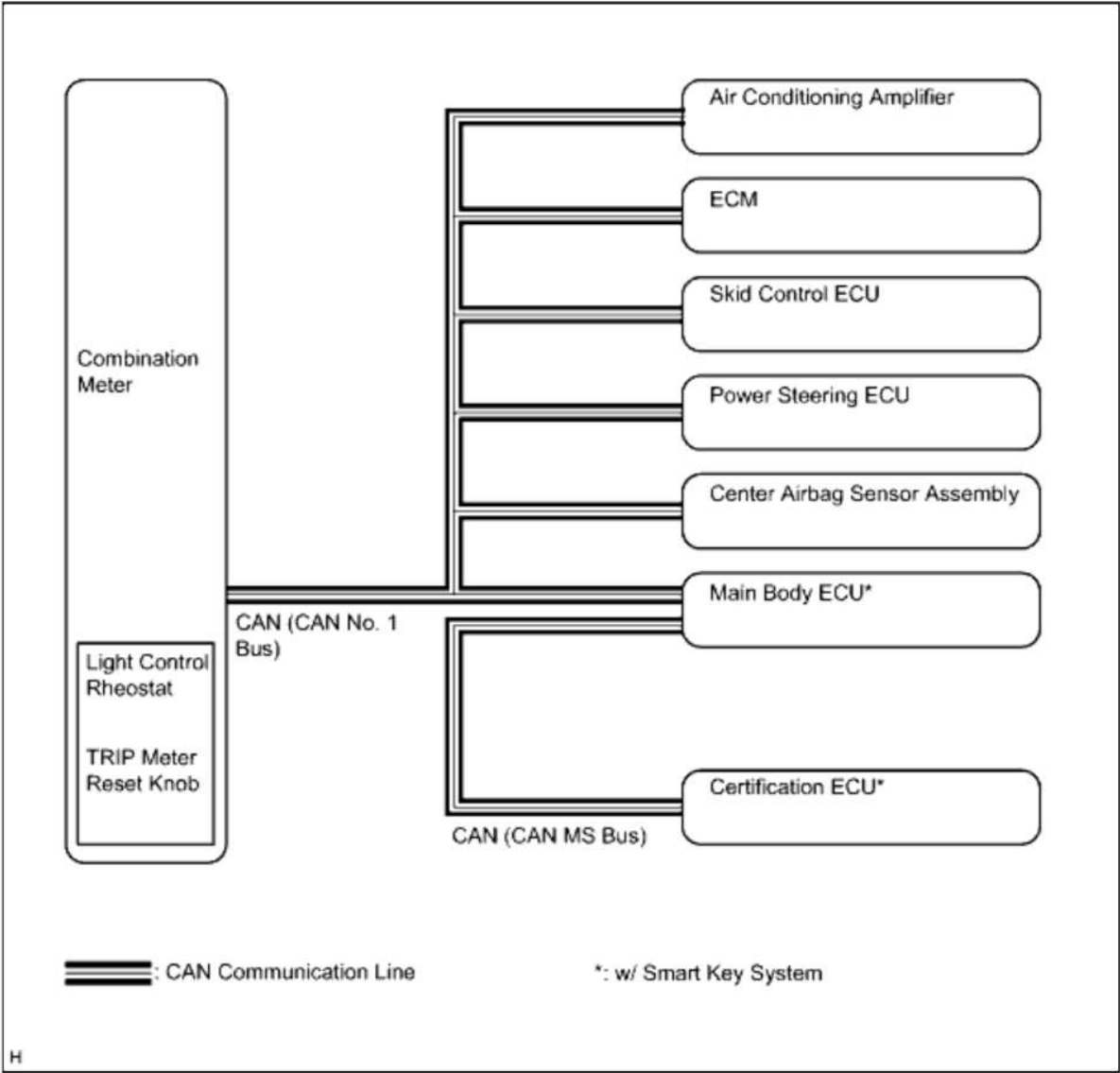
for 2ZR-FE:



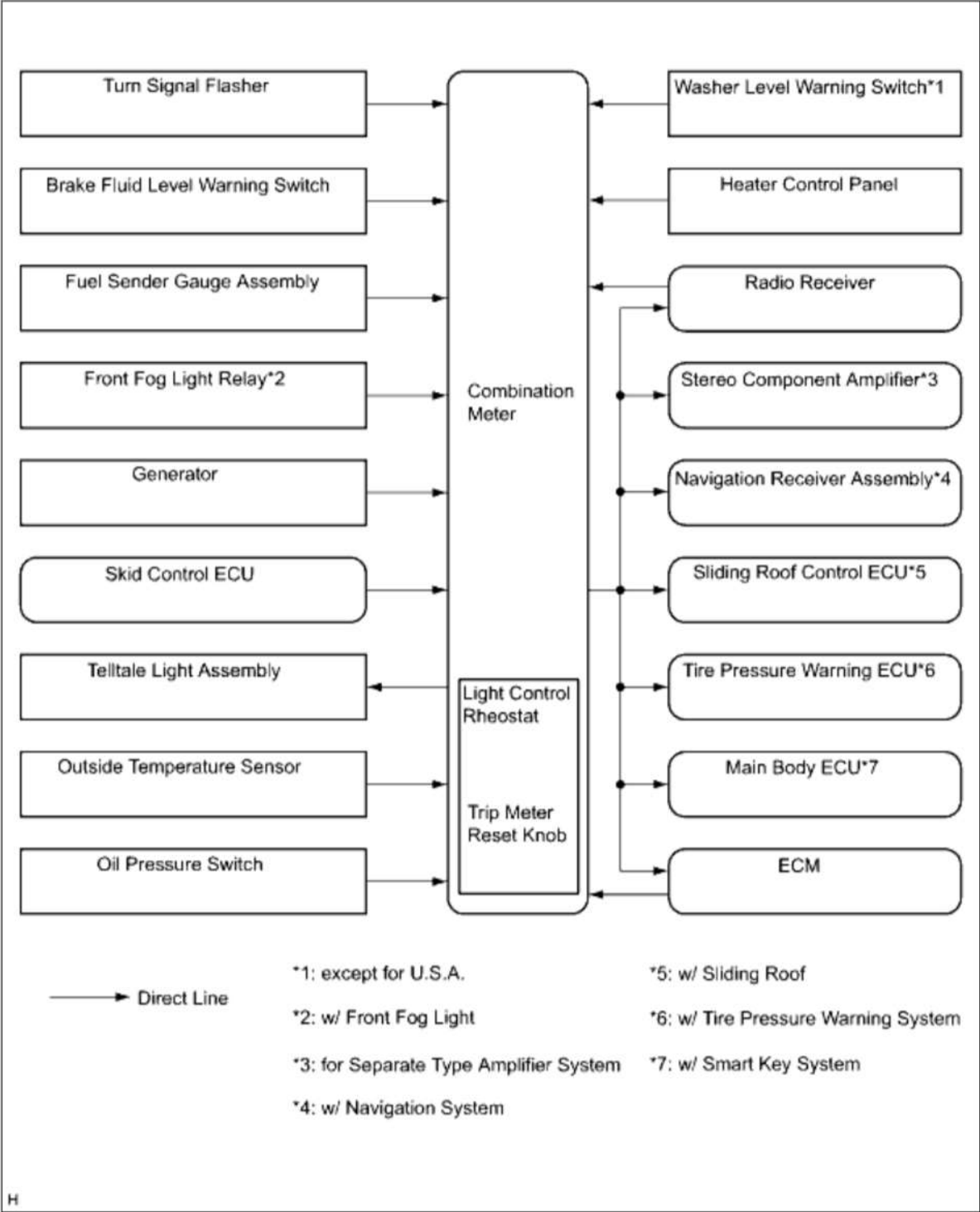
Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G402UX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: SYSTEM DIAGRAM (2010 Corolla)		

SYSTEM DIAGRAM

1. CAN SIGNAL



2. DIRECT LINE SIGNAL



3. INPUT AND OUTPUT SIGNALS OF THE COMBINATION METER

COMMUNICATION SIGNAL	SENDER	RECEIVER	COMMUNICATION LINE
MIL (Check engine warning light)	ECM	Combination Meter	Direct Line
Starter			CAN (CAN No. 1 Bus)

COMMUNICATION SIGNAL	SENDER	RECEIVER	COMMUNICATION LINE
Test mode			
Tachometer			
Engine coolant temperature			
Cruise indicator light			
Cruise control warning			
Sports shift reject buzzer request			
A/T shift position			
Engine type information			
Vehicle speed	Skid Control ECU	Combination Meter	Direct Line and CAN (CAN No. 1 Bus)
ABS warning light			CAN (CAN No. 1 Bus)
Brake warning light			
Slip indicator light* 1			
VSC off indicator light* 1			
Parking brake			
Each door courtesy switch	Main Body ECU	Combination Meter	CAN (CAN No. 1 Bus)
Driver side seat belt buckle switch			
Parking brake switch			
Wireless buzzer			
Sliding roof* 4			
Sliding roof warning buzzer request* 4			
Front passenger side seat belt buckle switch	Center Airbag Sensor Assembly	Combination Meter	CAN (CAN No. 1 Bus)
SRS warning light			
Front passenger side seat condition			
Diagnosis information	Center Airbag Sensor Assembly	Combination Meter	CAN (CAN No. 1 Bus)
	ECM		
	Skid Control ECU		
	Power Steering ECU		
EPS warning light	Power Steering ECU	Combination Meter	CAN (CAN No. 1 Bus)

COMMUNICATION SIGNAL	SENDER	RECEIVER	COMMUNICATION LINE
Vehicle speed	Combination Meter	Air Conditioning Amplifier	CAN (CAN No. 1 Bus)
		Certification ECU	
		Power Steering ECU	
		Center Airbag Sensor Assembly	
		ECM	Direct Line
		Radio Receiver	
		Sliding Roof Control ECU*4	
		Tire Pressure Warning ECU*6	
		Main Body ECU*7	
		Navigation Receiver Assembly*8	
		Stereo Component Amplifier*9	
Illumination	Combination Meter	Main Body ECU	CAN (CAN No. 1 Bus)
Vehicle specification	Combination Meter	Air Conditioning Amplifier	CAN (CAN No. 1 Bus)
Smart key indicator light*7	Certification ECU	Combination Meter	
Fuel level	Fuel Sender Gauge Assembly	Combination Meter	Direct Line
Turn indicator light	Turn Signal Flasher	Combination Meter	Direct Line
High beam indicator light	H-LP HI Fuse	Combination Meter	Direct Line
Head indicator light*2	DRL Relay	Combination Meter	Direct Line
Tail indicator light*3	TAIL Relay	Combination Meter	Direct Line
Front fog indicator light*5	FR Fog Relay	Combination Meter	Direct Line
Outside temperature	Outside Temperature Sensor	Combination Meter	Direct Line
Brake fluid level	Brake Fluid Level Warning Switch	Combination Meter	Direct Line
Charge warning light	Generator	Combination Meter	Direct Line
Oil pressure warning light	Oil Pressure Switch	Combination Meter	Direct Line
Washer level warning light*3	Washer Level Warning Switch	Combination Meter	Direct Line

COMMUNICATION SIGNAL	SENDER	RECEIVER	COMMUNICATION LINE
Tire pressure warning light*6	Tire Pressure Warning ECU	Combination Meter	Direct Line
Front passenger side seat belt warning light	Combination Meter	Telltale Light Assembly	Direct Line

- *1: w/ VSC
- *2: for U.S.A.
- *3: except for U.S.A.
- *4: w/ Sliding Roof
- *5: w/ Front Fog Light
- *6: w/ Tire Pressure Warning System
- *7: w/ Smart Key System
- *8: w/ Navigation System
- *9: for Separate Type Amplifier System



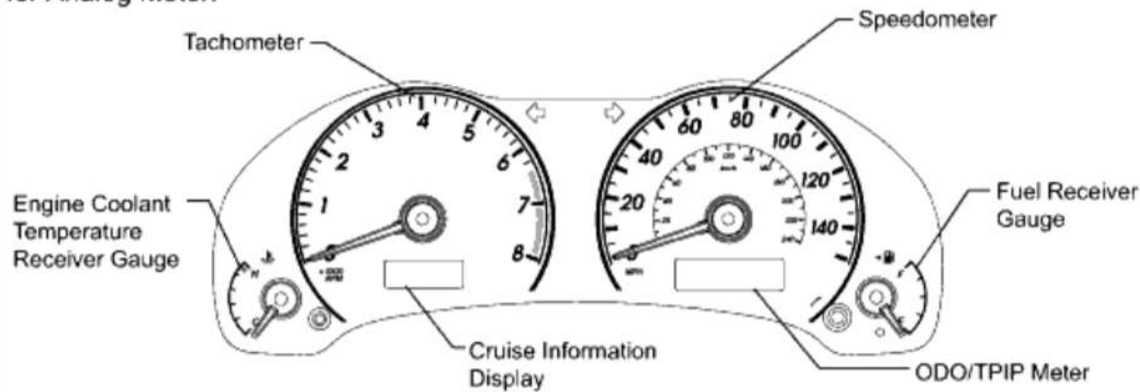
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Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G3031X
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: SYSTEM DESCRIPTION (2010 Corolla)		

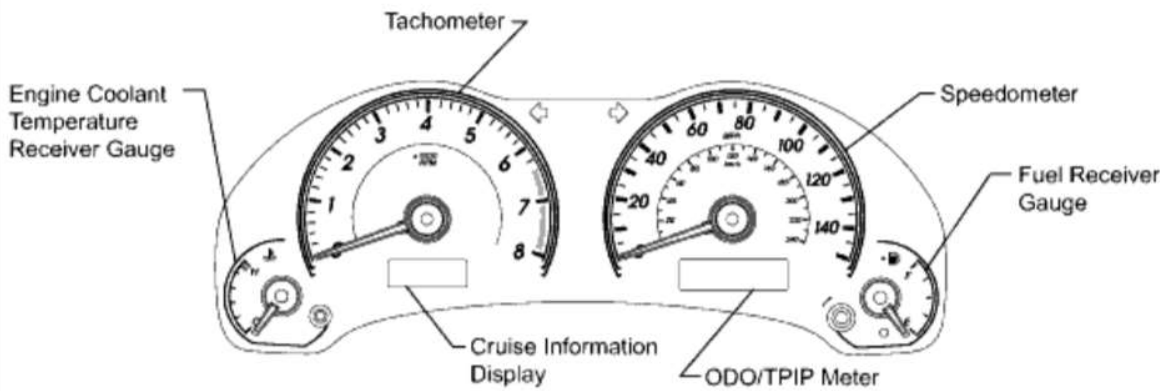
SYSTEM DESCRIPTION

1. OUTLINE OF THE COMBINATION METER

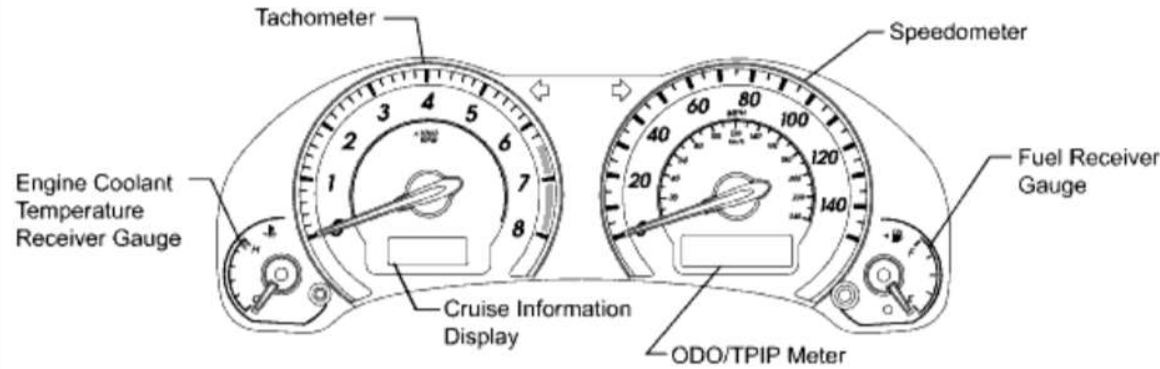
for Analog Meter:



for Optitron Meter:



for Optitron Meter:



H

(a) Meter/Gauge

ITEM	DETAIL
Speedometer	Indicates the vehicle speed based on a signal from the skid control ECU. (CAN (CAN No. 1 Bus))
Tachometer	Indicates the engine speed based on a signal received from the ECM. (CAN (CAN No. 1 Bus))

ITEM	DETAIL
Engine Coolant Temperature Receiver Gauge	Indicates the engine coolant temperature based on a signal received from the ECM. (CAN (CAN No. 1 Bus))
Fuel Receiver Gauge	Indicates the fuel level based on a fuel level signal received from the fuel sender gauge (Direct Line)

(b) Warning/Indicator

ITEM	DETAIL
Turn	Receives a turn signal from the turn signal flasher. (Direct Line)
High beam	Receives a high beam indicator light signal from the H-LP RH HI Fuse. (Direct Line)
Charge	Receives a charge indicator light signal from the generator. (Direct Line)
MIL (Check engine)	Receives a check engine warning light signal from the ECM. (Direct Line)
Door	Open door warning light comes on receiving a door condition signal from the main body ECU. (CAN (CAN MS Bus))
Driver side seat belt	Receives a driver side seat belt signal from the center airbag sensor assembly. (CAN (CAN No. 1 Bus))
Front passenger side seat belt	Receives a front passenger side seat belt signal from the center airbag sensor assembly (CAN (CAN No. 1 Bus)) and transmits a passenger side seat belt condition signal to the telltale light assembly. (Direct Line)
Head*2	Receives a head*2 indicator light signal from the DRL relay. (Direct Line)
Tail*3	Receives a tail*3 indicator light signal from TAIL fuse. (Direct Line)
Front fog*4	Receives a front fog indicator light signal from the FR FOG relay. (Direct Line)
A/T shift	Receives an A/T shift condition signal from park/neutral switch and the ECM. (CAN (CAN No. 1 Bus))
Fuel	Receives a fuel signal from the fuel sender gauge. (Direct Line)
ABS	Receives an ABS signal from the skid control ECU. (CAN (CAN No. 1 Bus))
Slip*1	Receives a slip signal from the skid control ECU. (CAN (CAN No. 1 Bus))
Brake	Receives a brake signal from the brake fluid level warning switch (Direct Line) and the skid control ECU. (CAN (CAN No. 1 Bus))
Cruise	Receives a cruise signal from the ECM. (CAN (CAN No. 1 Bus))
SRS	Receives an SRS signal from the center airbag sensor assembly. (CAN (CAN No. 1 Bus))
VSC OFF*1	Receives an VSC off signal from the skid control ECU. (CAN (CAN No. 1 Bus))
EPS	Receives an EPS signal from the power steering ECU. (CAN (CAN No. 1 Bus))
Oil pressure	Receives an oil pressure signal from the oil pressure switch. (Direct Line)

ITEM	DETAIL
Washer*3	Receives an washer signal from the washer level warning switch. (Direct Line)
Tire pressure*5	Receives a tire pressure signal from the tire pressure warning ECU. (Direct Line)
Smart key indicator*6	Receives a smart key indicator light signal from the certification ECU. (CAN (CAN No. 1 Bus))
Oil maintenance reminder*2	An oil change reminder light comes on/blinks to remind the driver to change the engine oil depending on the vehicle driving distance.

- *1: w/ VSC
- *2: for U.S.A.
- *3: except for U.S.A.
- *4: w/ Front Fog Light
- *5 w/ Tire Pressure Warning System
- *6 w/ Smart Key System

(c) Cruise Information Display

ITEM	DETAIL	
Cruise information display	Outside temperature	Seven types of information (outside temperature, average fuel consumption, instantaneous fuel consumption, average vehicle speed, driving distance, driving time, and clock) can be displayed.
	Average fuel consumption	
	Instantaneous fuel consumption	
	Average vehicle speed	
	Driving distance	
	Driving time	
	Clock*	

*: for Telltale Light Assembly w/o Clock.

2. LED INITIAL CHECK

(a) The illumination function of the warning, indicator, or reminder light listed below can be confirmed when turning the ignition switch to ON.

OK:

INDICATOR/WARNING LIGHT	SPECIFIED CONDITION
Brake, ABS, Slip*1, EPS, VSC OFF*1, Tire pressure warning*2	Indicator/Warning light comes on for about 3 seconds after turning the ignition switch to ON.

INDICATOR/WARNING LIGHT	SPECIFIED CONDITION
Airbag	Warning light comes on for about 6 seconds after turning the ignition switch to ON.
Charge, Oil pressure	Indicator/Warning light comes on after turning the ignition switch to ON.
MIL (Check engine)	Warning light comes on while turning the ignition switch to ON and engine does not start.
Oil maintenance reminder* 3	Indicator light comes on for about 3 seconds after turning the ignition switch to ON.

- * 1 : w/ VSC
- * 2 : w/ Tire Pressure Warning System
- * 3 : for U.S.A .



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G1048X
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING (2010 Corolla)		

HOW TO PROCEED WITH TROUBLESHOOTING

1. VEHICLE BROUGHT TO WORKSHOP

NEXT



2. CUSTOMER PROBLEM ANALYSIS

NEXT



3. CHECK CAN COMMUNICATION SYSTEM

(a) Check for DTC output .

Result:

RESULT	PROCEED TO
No CAN DTC output	A
CAN DTC output	B

B   **GO TO CAN COMMUNICATION SYSTEM**

A



4.	PROBLEM SYMPTOM CONFIRMATION
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NEXT
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5.	SYMPTOM SIMULATION
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6.	PROBLEM SYMPTOMS TABLE
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(a) Refer to Problem Symptoms Table  .

NEXT
▼

7.	CIRCUIT INSPECTION
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NEXT
▼

8.	REPAIR OR REPLACE
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NEXT



9.	CONFIRMATION TEST
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NEXT ► END

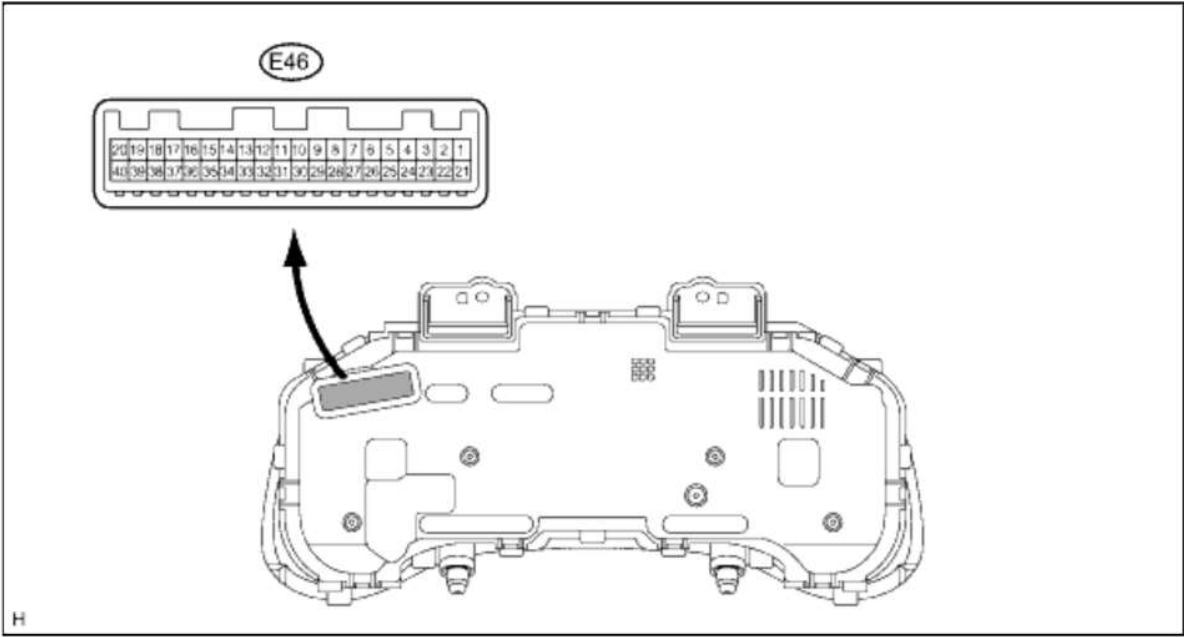


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Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GA03UX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: TERMINALS OF ECU (2010 Corolla)		

TERMINALS OF ECU

1. COMBINATION METER



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

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E46-1 (WRNP) - Body ground	O*1 or W*2 - Body ground	Front passenger side seat belt warning light signal	Front passenger seat occupied, ignition switch ON, front passenger side seat belt warning light OFF	11 to 14 V
			Front passenger seat occupied, ignition switch ON, front passenger side seat belt warning light is blinking	Below 1 V ↔ 11 to 14 V
E46-2 (WLVL)*3 - Body ground	BE - Body ground	Washer level warning light signal	Ignition switch ON, washer level warning light OFF	11 to 14 V
			Ignition switch ON, washer level warning light ON	Below 1 V
E46-3 (-) - Body ground	L - Body ground	Headlight Hi-beam indicator light signal	Always	Below 1 V
E46-4 (+) -	R - Body	Headlight Hi-beam	Hi-beam switch OFF	11 to 14 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
Body ground	ground	indicator light signal	Hi-beam switch ON	Below 1 V
E46-5 (B) - Body ground	L - Body ground	Turn indicator light signal	Ignition switch ON, turn signal RH indicator light OFF	Below 1 V
			Ignition switch ON, turn signal RH indicator light ON	11 to 14 V
E46-6 (B) - Body ground	Y - Body ground	Turn indicator light signal	Ignition switch ON, turn signal LH indicator light OFF	Below 1 V
			Ignition switch ON, turn signal LH indicator light ON	11 to 14 V
E46-7 (TIRE) - Body ground	P - Body ground	Tire pressure warning light signal	Ignition switch ON, tire pressure warning light OFF	3.2 V or more
			Ignition switch ON, tire pressure warning light ON	0.9 to 3.2 V
E46-9 (TX1+) - Body ground	G*1 or LG*2 - Body ground	Outside temperature signal	Ignition switch ON	5 V or less
E46-10 (E) - Body ground	BR - Body ground	Ground (Fuel ground)	Always	Below 1 V
E46-11 (EP) - Body ground	W-B - Body ground	Ground (Illumination ground)	Always	Below 1 V
E46-13 (TX-) - Body ground	W - Body ground	CAN communication signal	Ignition switch ON	Pulse generation
E46-14 (TX1-) - Body ground	G - Body ground	CAN communication signal	Ignition switch ON	Pulse generation
E46-16 (FOG)*4 - Body ground	P - Body ground	Front fog indicator light signal	Front fog light switch off, front fog indicator light OFF	Below 1 V
			Front fog light switch on, front fog indicator light ON	11 to 14 V
E46-17 (HEAD)*5 - Body ground	GR - Body ground	Head indicator light signal	Ignition switch ON, head indicator light OFF	11 to 14 V
			Ignition switch ON, head indicator light ON	Below 1 V
E46-20 (EFI) - Body ground	P*1 or R*2 - Body ground	MIL (Check engine warning light) signal	Ignition switch ON, MIL OFF	11 to 14 V
			Ignition switch ON, MIL ON	Below 3 V
E46-23 (TEMP) - Body ground	W*1 or GR*2 - Body	Outside temperature signal	Ignition switch ON, outside temperature 25°C (77°F)	Approximately 1.3 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
	ground			
E46-24 (ILL+) - Body ground	V*1 or G*2 - Body ground	Tail indicator light signal	Headlight dimmer switch off, tail indicator light OFF	Below 1 V
			Headlight dimmer switch is at the TAIL position, tail indicator light ON	11 to 14 V
E46-25 (L) - Body ground	Y*1 or P*2 - Body ground	Fuel signal	Ignition switch ON, fuel level is EMPTY	3 to 7 V
			Ignition switch ON, fuel level is FULL	Below 1 V
E46-26 (ILL-) - Body ground	V*1 or W*2 - Body ground	Illumination signal	Ignition switch ON, headlight dimmer switch OFF	Below 1 V
			Ignition switch ON, headlight dimmer switch is at the TAIL or HEAD position	Below 1 V ↔ 11 to 14 V
E46-27 (CANH) - E46-28 (CANL)	G - W	CAN communication signal	Ignition switch ON	Pulse generation
E46-28 (CANL) - E46-27 (CANH)	W - G	CAN communication signal	Ignition switch ON	Pulse generation
E46-29 (ILL-) - Body ground	O*1 or W*2 - Body ground	Illumination signal	Ignition switch ON, headlight dimmer switch OFF	Below 1 V
			Ignition switch ON, headlight dimmer switch TAIL or HEAD position	Below 1 V ↔ 11 to 14 V
E46-30 (ET) - Body ground	BR - Body ground	Ground (Signal ground)	Always	Below 1 V
E46-32 (B) - Body ground	W*1 or R*2 - Body ground	Battery	Always	11 to 14 V
E46-33 (IG+) - Body ground	P*1 or B*2 - Body ground	Ignition switch signal	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
E46-35 (SI) - Body ground	V*1 or LG*2 - Body ground	Speed signal for other systems (Input)	Ignition switch ON, wheel turned slowly	Pulse generation (See waveform)

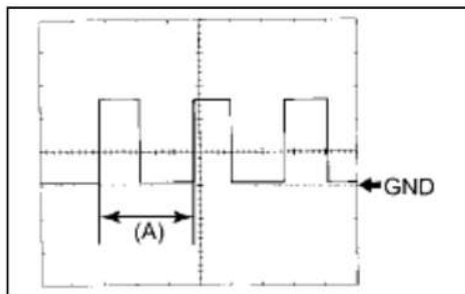
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E46-36 (+S) - Body ground	V - Body ground	Speed signal for other systems (Output)	Wheel turned slowly	Pulse generation (See waveform)
E46-38 (S) - Body ground	Y*1 or G*2 - Body ground	Engine oil pressure warning light signal	Ignition switch ON, engine oil pressure warning light OFF	11 to 14 V
			Ignition switch ON, engine oil pressure warning light ON	Below 1 V
E46-39 (CHG-) - Body ground	Y - Body ground	Charge warning light signal	Ignition switch ON, charge warning light OFF	11 to 14 V
			Ignition switch ON, charge warning light ON	Below 1 V
E46-40 (SW) - Body ground	O*1 or BE*2 - Body ground	Brake fluid level warning light signal	Ignition switch ON, brake warning light OFF	11 to 14 V
			Ignition switch ON, brake warning light ON	Below 1 V

- *1: for TMC Made
- *2: except TMC Made
- *3: except for U.S.A.
- *4: w/ Front Fog Light
- *5: for U.S.A.

2. COMBINATION METER INNER CIRCUIT ^{(b) Waveform (Reference): Using oscilloscope:}

(a) Combination Meter Inner Circuit

ITEM	CONDITION
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approximately 12 mph (20 km/h)

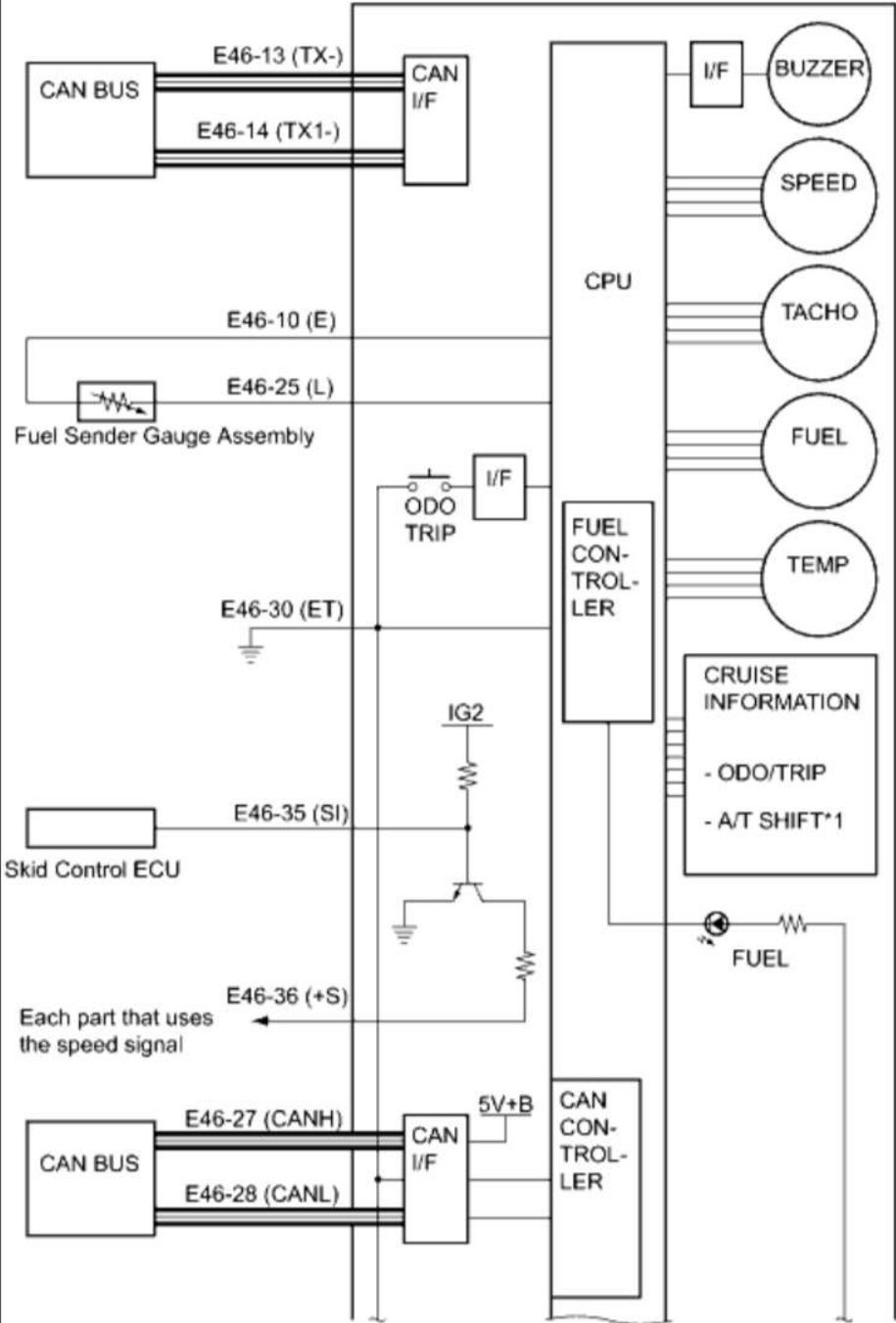


HINT:

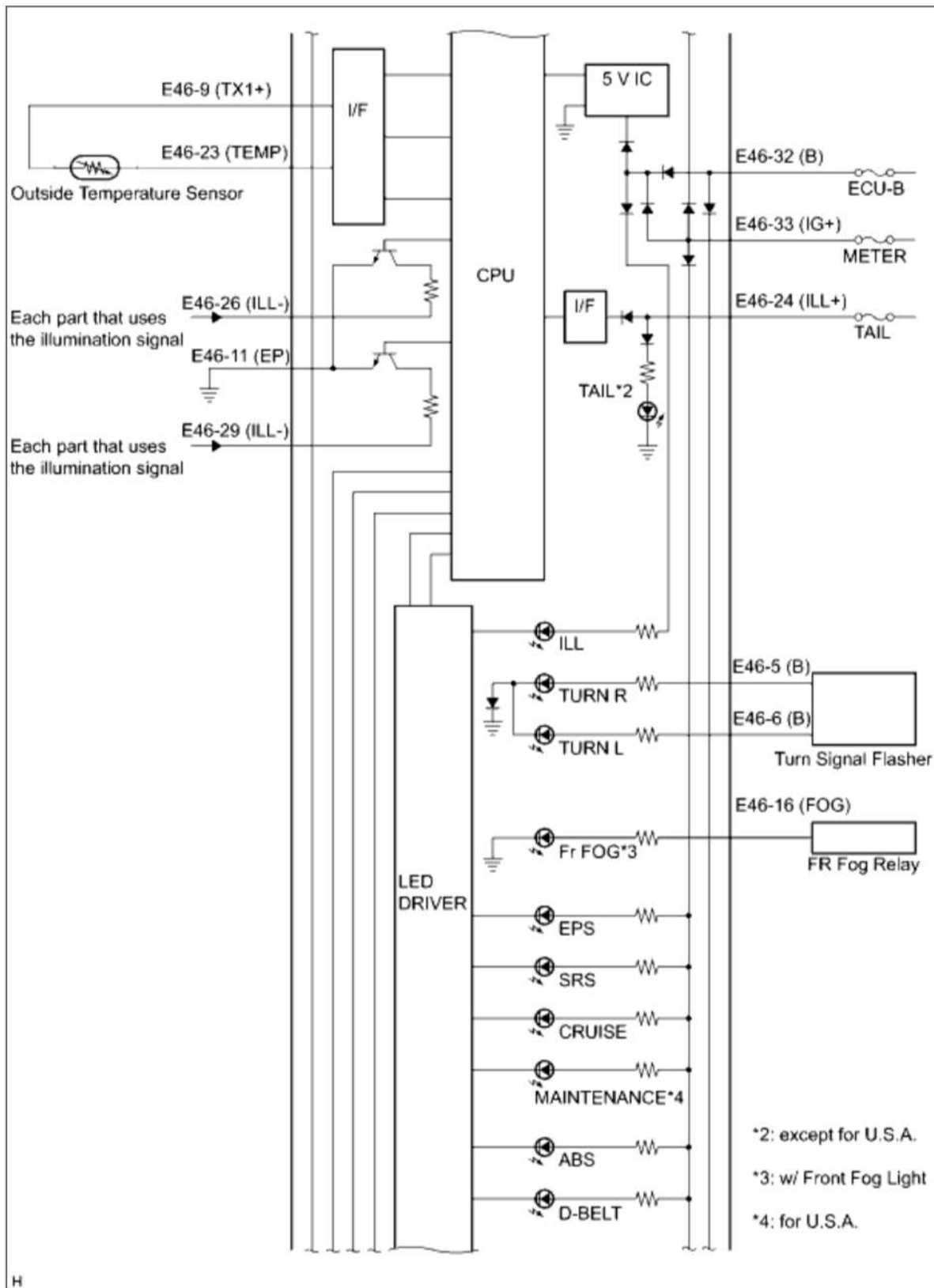
- Vehicle speed signal that has been received and transmitted via the direct line is used for another system, and is not used for combination meter operation.
- When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

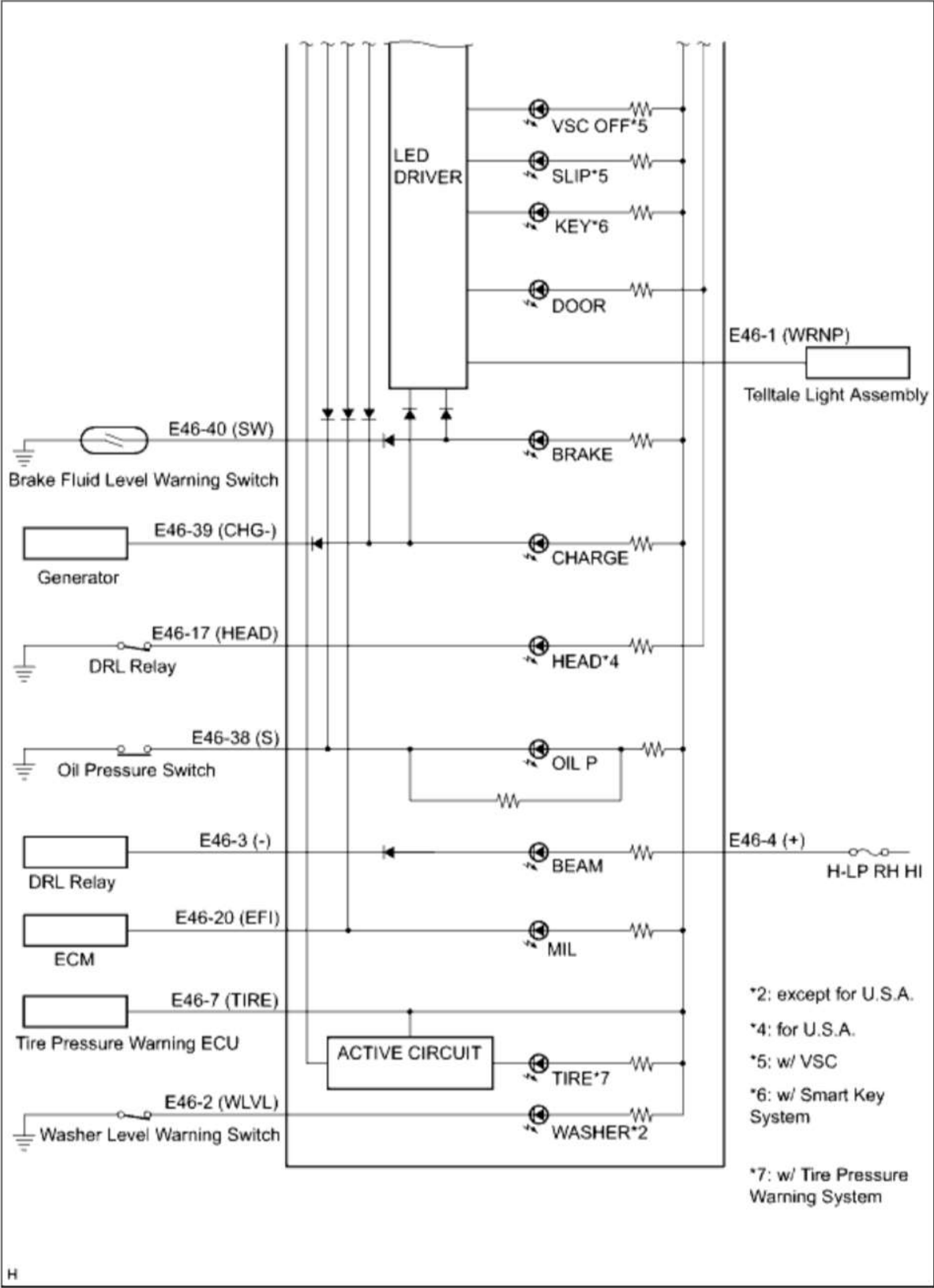
HINT:

When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.



H





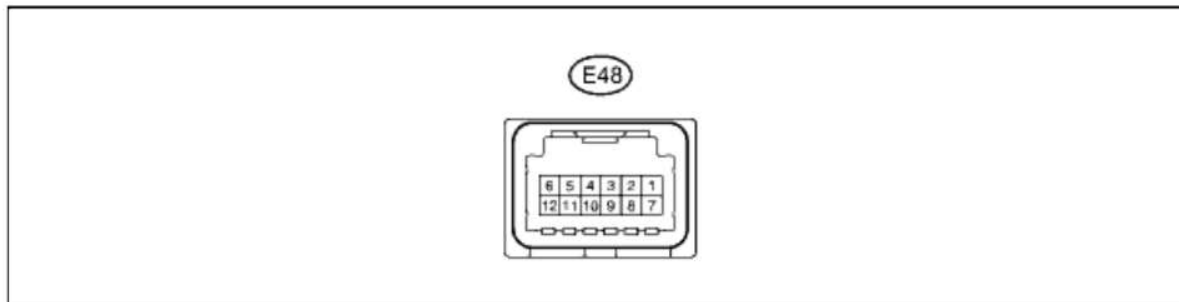
TERMINAL NO.		WIRE HARNESS SIDE (SYMBOL)
E46	1	Front Passenger Seat Belt Warning Light (WRNP)

TERMINAL NO.	WIRE HARNESS SIDE (SYMBOL)
2	Washer Level Warning Switch (WLV L)* 1
3	DRL Relay
4	H-LP RH HI Fuse (+)
5	Turn Signal Flasher (B)
6	Turn Signal Flasher (B)
7	Tire Pressure Warning ECU (TIRE)
8	-
9	Outside Temperature Sensor (TX1 +)
10	Fuel Sender Gauge Assembly (E)
11	Ground (EP)
12	-
13	CAN Communication Line (TX-)
14	CAN Communication Line (TX1-)
15	-
16	FR FOG Relay (FOG)* 2
17	DRL Relay (HEAD)
18	-
19	-
20	ECM (EFI)
21	-
22	-
23	Outside Temperature Sensor (TEMP)
24	TAIL Fuse (ILL+)
25	Fuel Sender Gauge Assembly (L)
26	Each part that uses the illumination signal (ILL-)
27	CAN Communication Line (CANH)
28	CAN Communication Line (CANL)
29	Each part that uses the illumination signal (ILL-)
30	Ground (ET)
31	-
32	ECU-B Fuse (B)
33	METER Fuse (IG+)

TERMINAL NO.	WIRE HARNESS SIDE (SYMBOL)
34	-
35	Skid Control ECU (SI)
36	Each part that uses the speed signal (+S)
37	-
38	Oil Pressure Switch (S)
39	Alternator L Terminal (CHG-)
40	Brake Fluid Level Warning Switch (SW)

- *1: except for U.S.A.
- *2: w/ Front Fog Light

3. TELLTALE LIGHT ASSEMBLY (w/ Clock)



(a) Measure the voltage and resistance according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
E48-1 (B) - Body ground	W - Body ground	Battery	Ignition switch OFF	11 to 14 V
E48-2 (ACC) - Body ground	B - Body ground	Ignition switch (ACC) signal	Ignition switch OFF	Below 1 V
			Ignition switch ON (ACC)	11 to 14 V
E48-4 (ILL+) - Body ground	G - Body ground	Illumination signal	Ignition switch ON and light control switch off	Below 1 V
			Ignition switch ON and light control switch tail or head position	4 to 6 V
E48-12 (E) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G802UX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: CUSTOMIZE PARAMETERS (2010 Corolla)		

CUSTOMIZE PARAMETERS

1. COMBINATION METER

NOTICE:

Be sure to record the current value before customizing.

HINT:

The following items can be customized using the Techstream.

Combination Meter

TESTER DISPLAY	DEFAULT	CONTENT	SETTING
Driver Side Seatbelt Warning Buzzer*	On	Function to change the setting of the seat belt warning buzzer.	On, Off
Front Passenger Side Seatbelt Warning Buzzer*	On	Function to change the setting of the seat belt warning buzzer.	On, Off

- *: This setting is only valid for the buzzer which sounds at 20 km/h (12 mph) or more.



Last Modified: 3-10-2010	6.4 T	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GB036X
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

HINT:

- Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptoms by checking the suspected areas in the order they are listed. Replace parts as necessary.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Entire System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Entire combination meter does not operate.	Power Source Circuit	INFO

Meter/Gauge

SYMPTOM	SUSPECTED AREA	SEE PAGE
Speedometer malfunction	Speedometer Circuit	INFO
Tachometer malfunction	Tachometer Circuit	INFO
Fuel receiver gauge malfunction	Fuel Receiver Gauge Circuit	INFO
Engine coolant temperature malfunction	Engine Coolant Temperature Receiver Gauge Circuit	INFO

Warning Lights

SYMPTOM	SUSPECTED AREA	SEE PAGE
MIL (Check engine warning light) malfunction	MIL Circuit (for 2AZ-FE)	INFO
	MIL Circuit (for 2ZR-FE)	INFO
	Combination Meter	INFO
Charge warning light does not come on.	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Generator (for 2AZ-FE)	INFO
	Generator (for 2ZR-FE)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Brake warning light does not come on.	Combination Meter	INFO
	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Brake Warning Light Circuit (w/o VSC)	INFO
	Brake Warning Light Circuit (w/ VSC)	INFO
	Combination Meter	INFO
Brake warning light does not go off.	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Brake Warning Light Circuit (w/o VSC)	INFO
	Brake Warning Light Circuit (w/ VSC)	INFO
	Combination Meter	INFO
ABS warning light does not come on.	Combination Meter (LED)	INFO
	ABS Warning Light Circuit (w/o VSC)	INFO
	ABS Warning Light Circuit (w/ VSC)	INFO
	Combination Meter	INFO
ABS warning light does not go off.	Combination Meter (LED)	INFO
	ABS Warning Light Circuit (w/o VSC)	INFO
	ABS Warning Light Circuit (w/ VSC)	INFO
	Combination Meter	INFO
SRS warning light does not come on.	Combination Meter (LED)	INFO
	SRS Warning Light Circuit	INFO
	Combination Meter	INFO
SRS warning light does not go off.	Combination Meter (LED)	INFO
	SRS Warning Light Circuit	INFO
	Combination Meter	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Open door warning light does not come on.	Combination Meter (LED)	INFO
	Front Door Courtesy Switch	INFO
	Main Body ECU	-
	Combination Meter	INFO
Fuel level warning light does not come on.	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Fuel Sender Gauge Assembly (for 2AZ-FE)	INFO
	Fuel Sender Gauge Assembly (for 2ZR-FE)	INFO
	Combination Meter	INFO
Driver side seat belt warning light does not come on.	Combination Meter (LED)	INFO
	Driver Seat Belt Warning Light Circuit	INFO
	Combination Meter	INFO
Tire pressure warning light does not come on. (w/ Tire Pressure Warning System)	Combination Meter (LED)	INFO
	Tire Pressure Warning System	-
	Combination Meter	INFO
EPS warning light malfunction	Combination Meter (LED)	INFO
	EPS Warning Light Circuit	-
	Combination Meter	INFO
Washer level warning light malfunction (except for U.S.A.)	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Washer Level Warning Switch	INFO
	Combination Meter	INFO
Low oil pressure warning light malfunction	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Oil Pressure Switch (for 2AZ-FE)	INFO
	Oil Pressure Switch (for 2ZR-FE)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Combination Meter	INFO

Indicator Lights

SYMPTOM	SUSPECTED AREA	SEE PAGE
Shift indicator light does not come on. (for Automatic transaxle)	Combination Meter (LED)	INFO
	Park/Neutral Position Switch (for U341E)	INFO
	Park/Neutral Position Switch (for U250E)	INFO
	Transmission Control Switch Circuit (for U341E)	INFO
	Transmission Control Switch Circuit (for U250E)	INFO
	ECM (for 2AZ-FE)	INFO
	ECM (for 2ZR-FE)	INFO
	Combination Meter	INFO
Turn indicator light malfunction	Headlight Dimmer Switch	INFO
	Wire Harness or Connector	-
	Combination Meter	INFO
Slip indicator light does not come on. (w/ VSC)	Combination Meter (LED)	INFO
	Slip Indicator Light Circuit	INFO
	Combination Meter	INFO
Slip indicator light does not go off. (w/ VSC)	Combination Meter (LED)	INFO
	Slip Indicator Light Circuit	INFO
	Combination Meter	INFO
VSC OFF indicator light does not come on. (w/ VSC)	Combination Meter (LED)	INFO
	VSC OFF Indicator Light Circuit	INFO
	Combination Meter	INFO
VSC OFF indicator light does not go off. (w/ VSC)	Combination Meter (LED)	INFO
	VSC OFF Indicator Light Circuit	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Combination Meter	INFO
Cruise indicator light does not come on.	Combination Meter (LED)	INFO
	Cruise Main Indicator Light Circuit	INFO
	Combination Meter	INFO
High beam indicator light does not come on.	Wire Harness or Connector	-
	High Beam Indicator Light Circuit	INFO
	Combination Meter	INFO
Head indicator light does not come on. (for U.S.A.)	Combination Meter (LED)	INFO
	Headlight Circuit	INFO
	Combination Meter	INFO
Tail indicator light does not come on. (except for U.S.A.)	Combination Meter (LED)	INFO
	Taillight Relay Circuit	INFO
	Combination Meter	INFO
Front fog indicator light does not come on. (w/ Front Fog Light)	Combination Meter (LED)	INFO
	Wire Harness or Connector	-
	Front Fog Light Circuit	INFO
	Combination Meter	INFO
Smart key indicator light malfunction (w/ Smart Key System)	Combination Meter (LED)	INFO
	Smart Key System	INFO
	Combination Meter	INFO
Oil maintenance reminder light malfunction	Combination Meter (LED)	INFO
	Oil Maintenance Reminder Reset Procedure Undone	INFO
	Combination Meter	INFO

Cruise Information Display

SYMPTOM	SUSPECTED AREA	SEE PAGE
Outside temperature display malfunction	Outside Temperature Sensor Circuit (for Manual Air Conditioning System)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Outside Temperature Sensor Circuit (for Automatic Air Conditioning System)	INFO
	Combination Meter	INFO
Instantaneous fuel consumption display malfunction	ECM (for 2AZ-FE)	-
	ECM (for 2GR-FE)	-
	Combination Meter	INFO
Average fuel consumption display malfunction	ECM (for 2AZ-FE)	-
	ECM (for 2GR-FE)	-
	Combination Meter	INFO
Clock display malfunction (for Telltale Light Assembly w/o Clock)	Combination Meter	INFO
Average vehicle speed display malfunction	Skid Control ECU (w/o VSC)	-
	Skid Control ECU (w/ VSC)	-
	Combination Meter	INFO
Driving distance display malfunction	ECM (for 2AZ-FE)	-
	ECM (for 2ZR-FE)	-
	Combination Meter	INFO
Driving time display malfunction	Combination Meter	INFO

Others

SYMPTOM	SUSPECTED AREA	SEE PAGE
Front passenger side seat belt warning light does not come on.	Combination Meter (LED)	INFO
	Front Passenger Side Seat Belt Warning Light Circuit	INFO
	Combination Meter	INFO
	Telltale Light Assembly	INFO
Other system that uses speed signal does not operate normally.	Speed Signal Circuit	INFO



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000000XCW01WX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: INITIALIZATION (2010 Corolla)		

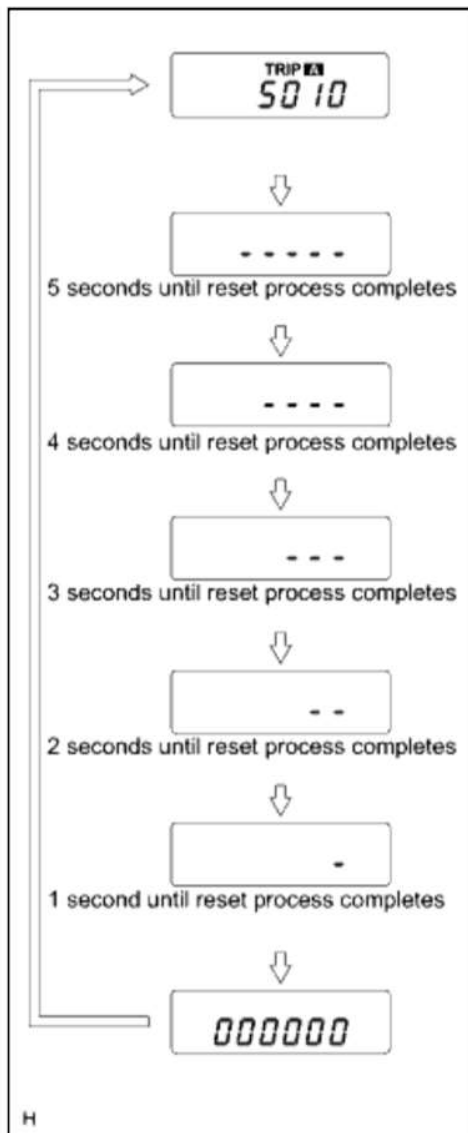
INITIALIZATION

1. OIL MAINTENANCE REMINDER RESET PROCEDURE

HINT:

- The TRIP meter reset knob is located below the speedometer.
- This reset operation is required only for U.S.A..

- Turn the ignition switch to ON.
- Press the ODO/TRIP switch until the TRIP A meter appears.
- Turn the ignition switch off.



- Turn the ignition switch to ON while pressing and holding the TRIP meter reset knob. Hold the TRIP meter reset knob until the following conditions are met and 5 seconds have passed.

HINT:

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



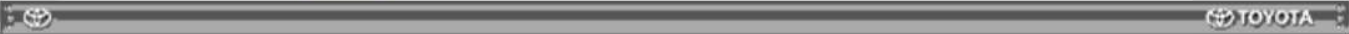
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Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G6028X
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: DIAGNOSIS SYSTEM (2010 Corolla)		

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3  .



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Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G704EX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: DATA LIST / ACTIVE TEST (2010 Corolla)		

DATA LIST / ACTIVE TEST

1. DATA LIST

Using the Techstream to read the Data List allows the values or states of switches, sensors, actuators and other items to be read without removing any parts. This non-intrusive inspection can be very useful because intermittent conditions or signals may be discovered before parts or wiring is disturbed. Reading the Data List information early in troubleshooting is one way to save diagnostic time.

- (a) Warm up the engine.
- (b) Turn the ignition switch off.
- (c) Connect the Techstream to the DLC3.
- (d) Turn the ignition switch to ON.
- (e) Turn the Techstream on.
- (f) Enter the following menus:
 - (1) for Combination Meter: Body Electrical / Combination Meter / Data List.
 - (2) for ABS/TRAC/VSC: Chassis / ABS/VSC/TRAC / Data List.
 - (3) for Engine and ECT: Powertrain / Engine and ECT / Data List.
- (g) Check values by referring to the table below.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Tail Relay SW	Headlight dimmer switch is OFF or ON	OFF: Headlight dimmer switch is off	-
		ON: Headlight dimmer switch is TAIL	
Tail Cancel SW	Tail cancel switch / OFF or ON	OFF: Turn the light control rheostat knob is not fully clockwise	-
		ON: Turn the light control rheostat knob fully clockwise	-
ODO/TRIP Change SW	ODO/TRIP switch / OFF or ON	OFF: Switch is released	-
		ON: Switch is pushed	-
Vehicle Speed Meter	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost the same as actual vehicle speed (When driving)	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Engine Rpm	Engine speed/Min.: 0 rpm, Max.: 12750 rpm	Almost the same as actual engine speed (When engine is running)	-
Coolant Temperature	Engine coolant temperature: 0°C (32°F) to 127.5°C (261.5°F)	After warming up: 80 to 100°C (176 to 212°F)	-
+B Voltage Value	Battery voltage/Min.: 0 V, Max.: 25.5 V	11 to 14 V	-
Integrated value for Oil Maintenance*1	Oil maintenance warning value / Min.: 0, Max.: 25500 (mile)	The driving distance after performing oil maintenance resetting procedure is displayed	If the value is 5000 (miles) or more, perform the oil maintenance resetting procedure after changing the oil
Fuel Input	Fuel input signal / Min.: 0, Max.: 127.5	Fuel gauge indicates (E): 5.5 (L)	-
		Fuel gauge indicates (1/2): 27.5 (L)	-
		Fuel gauge indicates (F): 49.5 (L)	-
Ambient Temperature	Outside temperature / Min.: -40°C (-40°F) to 50°C (122°F)	Almost the same as actual outside temperature	The temperature displayed on the multi-information display is -40 to 50°C (-40 to 122°F)
Rheostat value	Light Control Rheostat/Min.: 0%, Max.: 100%	Light control rheostat switch is Dark (0%) → Bright (100%)	-
Quantity of Outside Light	Quantity of outside light/Min.: 0%, Max.: 100%	Outside light is Dark (0%) → Bright (100%)	-
TPMS Operation State*2	The condition of the tire pressure initial switch	OFF: Switch is not pressed	-
		ON: Switch is pressed	-
Communication ECM/Meter DTC 1	Communication error history	Unrecorded: No error has occurred	-
		Recorded: The output DTC has detected	
ECM ODO (History 1)	Distance when DTC is output / Min.: 0, Max.:	Unrecorded: No error has occurred	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	999999	Recorded: The value when the DTC has detected is displayed by 0 to 999999	
Communication ECM/Meter DTC 2	Communication error history	Unrecorded: No error has occurred Recorded: The output DTC has detected	-
ECM ODO (History 2)	Distance when DTC is output / Min.: 0, Max.: 999999	Unrecorded: No error has occurred Recorded: The value when the DTC has detected is displayed by 0 to 999999	-
Communication ECM/Meter DTC 3	Communication error history	Unrecorded: No error has occurred Recorded: The output DTC has detected	-
ECM ODO (History 3)	Distance when DTC is output / Min.: 0, Max.: 999999	Unrecorded: No error has occurred Recorded: The value when the DTC has detected is displayed by 0 to 999999	-
Communication ABS/Meter DTC 1	Communication error / not occurred/occurred	Unrecorded: No error has occurred Recorded: The output DTC has detected	-
ABS/VSC ODO (History 1)	Distance when DTC is output / Min.: 0, Max.: 999999	Unrecorded: No error has occurred Recorded: The value when the DTC has detected is displayed by 0 to 999999	-
Communication ABS/Meter DTC 2	Communication error / not occurred/occurred	Unrecorded: No error has occurred Recorded: The output DTC has detected	-
ABS/VSC ODO (History 2)	Distance when DTC is output / Min.: 0, Max.: 999999	Unrecorded: No error has occurred Recorded: The value when the DTC has detected is displayed by 0 to 999999	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Communication ABS/Meter DTC 3	Communication error / not occurred/occurred	Unrecorded: No error has occurred	-
		Recorded: The output DTC has detected	
ABS/VSC ODO (History 3)	Distance when DTC is output / Min.: 0, Max.: 999999	Unrecorded: No error has occurred	-
		Recorded: The value when the DTC has detected is displayed by 0 to 999999	
Driver Side Seatbelt Warning Buzzer	The condition of the driver side seat belt warning buzzer / OFF or ON	ON: The driver side seat belt warning buzzer sounds at the vehicle speed is 12 mph (20 km/h) or more when the driver side seat belt is unfastened	The current setting of the driver side seat belt warning buzzer is displayed.
		OFF: The driver side seat belt warning buzzer does not sound at the vehicle speed is 12 mph (20 km/h) or more when the driver side seat belt is unfastened	
Front Passenger Side Seatbelt Warning Buzzer	The condition of the front passenger side seat belt warning buzzer / OFF or ON	ON: The front passenger side seat belt warning buzzer sounds at the vehicle speed is 12 mph (20 km/h) or more when the front passenger side seat belt is unfastened	The current setting of the front passenger side seat belt warning buzzer is displayed.
		OFF: The front passenger side seat belt warning buzzer does not sound at the vehicle speed is 12 mph (20 km/h) or more when the front passenger side seat belt is unfastened	
Number of Trouble Code	The number of the DTC which is currently output	0	-

- *1: for U.S.A.
- *2: w/ Tire Pressure Warning System

ABS/VSC/TRAC

TESTER	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC
--------	------------------------	------------------	------------

DISPLAY			NOTE
FR Wheel Speed	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 202 mph (326 km/h)	Almost the same as actual vehicle speed (When driving)	-
FL Wheel Speed	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 202 mph (326 km/h)	Almost the same as actual vehicle speed (When driving)	-
RR Wheel Speed	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 202 mph (326 km/h)	Almost the same as actual vehicle speed (When driving)	-
RL Wheel Speed	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 202 mph (326 km/h)	Almost the same as actual vehicle speed (When driving)	-
Vehicle Speed	Vehicle speed/Min.: 0 mph (0 km/h), Max.: 202 mph (326 km/h)	Almost the same as actual vehicle speed (When driving)	-

Engine and ECT

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Engine Speed	Vehicle speed/Min.: 0 rpm, Max.: 16383.75 rpm	Almost the same as actual engine speed (When engine running)	-
Coolant Temp	Engine coolant temperature: Min.: -40°F (-40°C), Max: 284°F (140°C)	176 to 212°F (80 to 100°C): After warming up	• If -40°F (-40°C): sensor circuit open • If 284°F (140°C) or more: sensor circuit shorted

2. ACTIVE TEST

Using the Techstream to perform Active Tests allows the relays, VSVs, actuators and other items to be operated without removing any parts. This non-intrusive functional inspection can be very useful because intermittent operation may be discovered before parts or wiring is disturbed. Performing Active Tests early in trouble shooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Combination Meter / Active Test.
- Check the operation by referring to the table below.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Speed Meter	Speedometer	0, 40, 80, 120 mph*1	Confirm that the vehicle

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Operation		0, 40, 80, 120, 160, 200, 240 km/h*2	is stopped, engine idling
Tacho Meter Operation	Tachometer	0, 1000, 2000, 3000, 4000, 5000, 6000, 7000 (rpm)	Confirm that the vehicle is stopped, engine idling
Fuel Meter Operation	Fuel receiver gauge	EMPTY, 1/2, FULL	Confirm that the vehicle is stopped, engine idling
Water Temperature Meter Operation	Engine coolant temperature receiver gauge	Low, Normal, High	Confirm that the vehicle is stopped, engine idling
A/T Indicator Operation*1	A/T shift indicator S, 5	OFF or ON	Confirm that the vehicle is stopped, engine idling
Meter Display 1	All the dots in the multi-information display	OFF or ON	Confirm that the vehicle is stopped, engine idling
Meter Display 2	The segments in the A/T shift indicator display	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Airbag	Airbag warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Doors All Open	Open door indicator light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Front Passenger Side Seat Belt	Front passenger side seat belt warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Driver Side Seat Belt	Driver side seat belt warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp ABS	ABS warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Charge	Charge warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp VSC*2	VSC off indicator light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Slip*2	Slip indicator light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Fuel	Low fuel warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Tire Pressure Warning System	Tire pressure warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Lamp Cruise	Cruise indicator light	OFF or ON	Confirm that the vehicle is stopped, engine idling

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Indicat. Lamp Brake	Brake warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. EPS	EPS warning light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. KEY*3	Key indicator light	OFF or ON	Confirm that the vehicle is stopped, engine idling
Indicat. Oil Maintenance*4	Oil maintenance reminder light	OFF or ON	Confirm that the vehicle is stopped, engine idling

- *1: for Automatic Transaxle
- *2: w/ VSC
- *3: w/ Smart Key System
- *4: for U.S.A.



Last Modified: 3-10-2010	6.4 D	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000029Z901LX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: DTC CHECK / CLEAR (2010 Corolla)		

DTC CHECK / CLEAR

1. CHECK DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON and turn the Techstream on.
- (c) Enter the following menus: Body Electrical / Trouble Codes.
- (d) Check for DTCs.

2. CLEAR DTC

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON and turn the Techstream on.
- (c) Enter the following menus: Body Electrical / Combination Meter / Trouble Codes.
- (d) Clear the DTCs.



Last Modified: 3-10-2010	6.4 U	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012G902BX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: FAIL-SAFE CHART (2010 Corolla)		

FAIL-SAFE CHART

Engine Coolant Temperature Receiver Gauge

CONDITION	RESPONSE	RECOVERY
Engine coolant temperature data is interrupted for 3.1 seconds.	The gauge needle indicates below C.	Normal data is received.

Shift Indicator*1

CONDITION	RESPONSE	RECOVERY
Shift position data is interrupted for 3.1 seconds.	All indicator lights go off.	Normal data is received.

ABS, EBD, BA, TRAC, and VSC

CONDITION	RESPONSE	RECOVERY
ABS, brake, or slip*2 data are interrupted for 1 second.	The warning light comes on.	Normal data is received.

Door

CONDITION	RESPONSE	RECOVERY
Each door condition data is interrupted for 10 seconds.	The data received most recently remains indicated.	Normal data is received.

Driver Side Seat Belt

CONDITION	RESPONSE	RECOVERY
Driver side front seat inner belt assembly data is interrupted for 6 seconds.	The data received most recently remains indicated.	Normal data is received.

Tire Pressure*3

CONDITION	RESPONSE	RECOVERY
Tire pressure data is interrupted for 6 seconds.	The tire pressure indicator light blinks for 60 to 64 seconds, then comes on.	Ignition switch to ON, the terminal voltage is 0.9 V or more for 3 seconds or more.

Maintenance*4

CONDITION	RESPONSE	RECOVERY
The meter CPU is unable to verify at what mileage the oil maintenance reminder light resetting procedure was last performed, resulting in the CPU assuming the mileage to be 0.	Oil maintenance reminder light comes on/blinks.	The meter CPU is able to verify at what mileage the oil maintenance reminder light resetting procedure was last performed.
The meter ECU is unable to verify the current driving distance.	Oil maintenance reminder light comes on/blinks.	The meter ECU is able to verify the current driving distance.

Airbag

CONDITION	RESPONSE	RECOVERY
Airbag data is interrupted for 10 seconds or there is a malfunction in the combination meter (meter CPU).	The warning light comes on.	Normal data is received.

Front Passenger Side Seat Belt

CONDITION	RESPONSE	RECOVERY
Regular data is interrupted.	The data received most recently remains indicated.	Normal data is received.

EPS

CONDITION	RESPONSE	RECOVERY
Regular data is interrupted for 1 second.	The warning light comes on.	Normal data is received.

- *1: for Automatic Transaxle
- *2: w/ VSC
- *3: w/ Tire Pressure Warning System
- *4: for U.S.A.



Last Modified: 3-10-2010	6.4 S	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000029ZC01WX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: DIAGNOSTIC TROUBLE CODE CHART (2010 Corolla)		

DIAGNOSTIC TROUBLE CODE CHART

Meter/Gauge System

DTC CODE	DETECTION ITEM	TROUBLE AREA	SEE PAGE
U0129	Lost Communication with Skid Control ECU	1. Skid control ECU 2. CAN communication system	INFO
U0100	Lost Communication with ECM / PCM "A"	1. ECM 2. CAN communication system	INFO
B1500	Fuel Sender Open Detected	1. Harness or connector 2. Combination meter 3. Fuel sender gauge assembly	INFO



Last Modified: 3-10-2010	6.4 C	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002S2T01AX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: B1500: Fuel Sender Open Detected (2010 Corolla)		

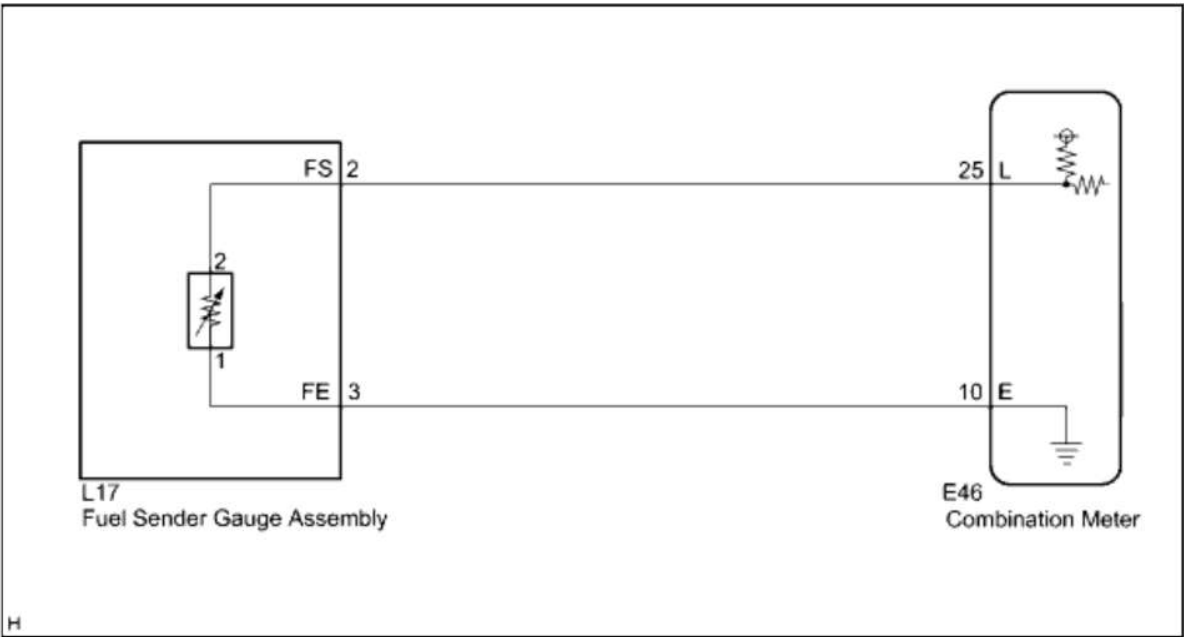
DTC	B1500	Fuel Sender Open Detected
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DESCRIPTION

This DTC is output when the combination meter detects the fuel sender gauge malfunction via the direct line.

DTC CODE	DTC DETECTION CONDITION	TROUBLE AREA
B1500	When either of the following conditions is detected: • 10 seconds have elapsed since the engine started and IG voltage is 10.5 V or more • Fuel sender gauge operation malfunction	• Harness or connector • Combination meter • Fuel sender gauge assembly

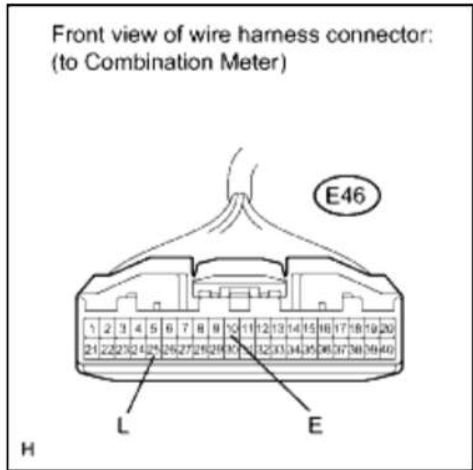
WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. INSPECT COMBINATION METER



(a) Disconnect the E46 connector.

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

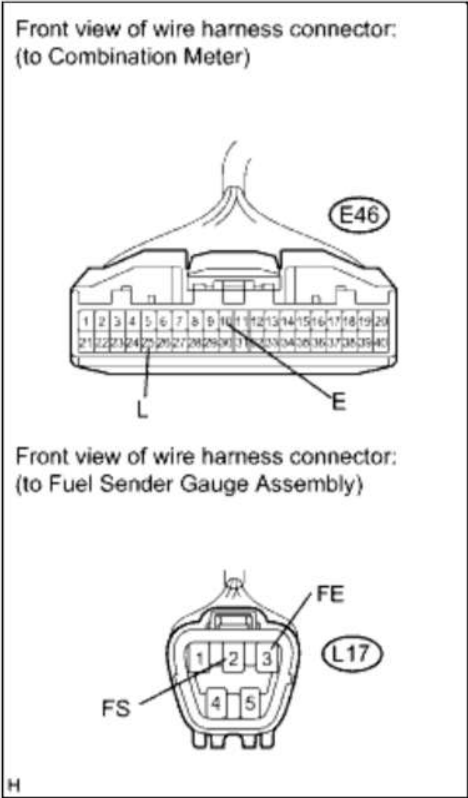
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-10 (E) - E46-25 (L)	Always	13.5 to 414.5 Ω

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

OK ► REPLACE COMBINATION METER

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

(a) Disconnect the L17 connector.



- (b) Measure the resistance according to the value(s) in the table below.
- Standard Resistance:

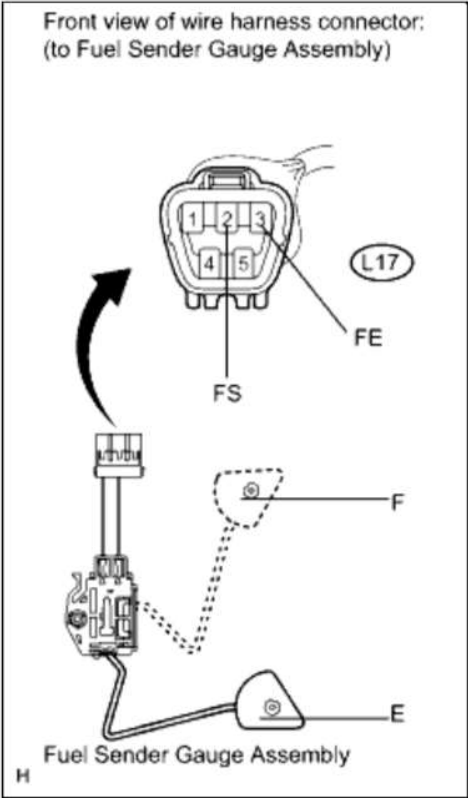
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-10 (E) - L17-3 (FE)	Always	Below 1 Ω
L17-3 (FE) - Body ground	Always	10 k Ω or higher
E46-25 (L) - L17-2 (FS)	Always	Below 1 Ω
E46-25 (L) - Body ground	Always	10 k Ω or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

3.	INSPECT FUEL SENDER GAUGE ASSEMBLY
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- (a) Remove the fuel sender gauge assembly.



- (b) Check that the float moves smoothly between E and F.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
L17-2 (FS) - L17-3 (FE)	Float level is F (upper)	13.5 to 16.5 Ω
L17-2 (FS) - L17-3 (FE)	Float level is between F (upper) and E (lower)	13.5 to 414.5 Ω (Gradually changes)
L17-2 (FS) - L17-3 (FE)	Float level is E (lower)	405.5 to 414.5 Ω

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ► **REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2ZR-FE)**

B ▶ REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2AZ-FE)

A ▶ REPLACE COMBINATION METER



Last Modified: 3-10-2010	6.4 G	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000014WB031X
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check the operation.

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

Reference: mph (for U.S.A.)

CHASSIS DYNAMOMETER INDICATION (MPH)	ACCEPTABLE RANGE (MPH)
20	20.0 to 23.0
40	40.0 to 43.5
60	60.0 to 64.0
80	80.0 to 84.5
100	100.0 to 105.0
120	120.0 to 125.5
140	140.0 to 146.0

Reference: km/h (except for U.S.A.)

CHASSIS DYNAMOMETER INDICATION (KM/H)	ACCEPTABLE RANGE (KM/H) DATA IN () IS FOR REFERENCE
20	(17.5 to 21.5)
40	38.0 to 42.0
60	58.0 to 63.0
80	78.0 to 84.0
100	98.5 to 104.5
120	119.0 to 125.0
140	139.0 to 146.0
160	159.0 to 167.0
180	179.0 to 188.0
200	199.0 to 209.0
220	219.0 to 230.0
240	239.0 to 251.0

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

- (2) Check the deviation of the speedometer indication from the acceptable range.
- Reference:
Less than 0.5 km/h (0.3 mph)

HINT:
If the indication is not as specified, go to Problem Symptoms Table  .

2. INSPECT TACHOMETER

- (a) Connect the Techstream, and start the engine.
- (b) Compare the test results with the tachometer indications.

DC 13.5 V, at 25°C (77°F)

TECHSTREAM INDICATION (RPM)	ACCEPTABLE RANGE (RPM) DATA IN () IS FOR REFERENCE
700	630 to 770
1,000	(900 to 1100)
2,000	(1850 to 2150)
3,000	2800 to 3200
4,000	(3800 to 4200)
5,000	4800 to 5200
6,000	(5750 to 6250)
7,000	6700 to 7300
8,000	(7700 to 8300)

HINT:
If the indication is not as specified, go to Problem Symptoms Table  .



Last Modified: 3-10-2010	6.4 C	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000029ZA01QX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: U0100: Lost Communication with ECM / PCM "A" (2010 Corolla)		

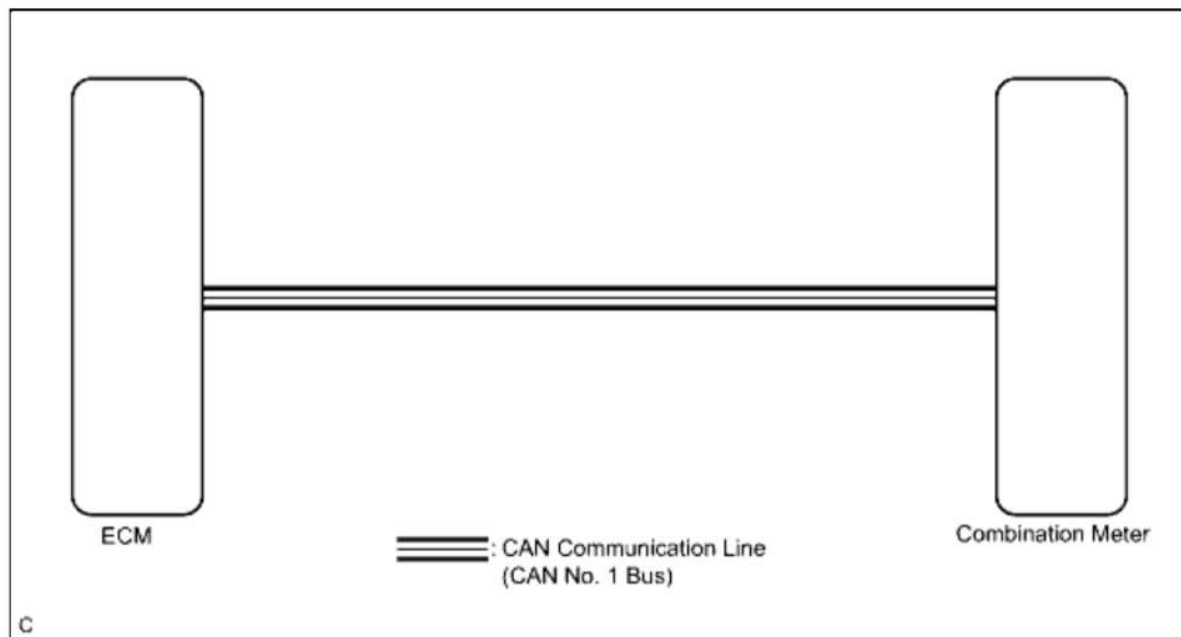
DTC	U0100	Lost Communication with ECM / PCM "A"
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DESCRIPTION

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

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

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. CONFIRM DTC OUTPUT

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the tester on.
- (d) Clear the stored DTCs by entering the following menus on the Techstream: Body Electrical / Trouble Codes.
- (e) Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.
- (f) Stop the vehicle.
- (g) Check for DTCs  .

Result:

RESULT	PROCEED TO
DTC is output.	A
DTC is not output.	B

HINT:

If the CAN communication system DTC U0100 and another DTC are output at the same time, perform troubleshooting for the CAN communication system DTC U0100 first.

B ► USE SIMULATION METHOD TO CHECK

A ► GO TO CAN COMMUNICATION SYSTEM



Last Modified: 3-10-2010	6.4 C	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000029ZB01CX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: U0129: Lost Communication with Skid Control ECU (2010 Corolla)		

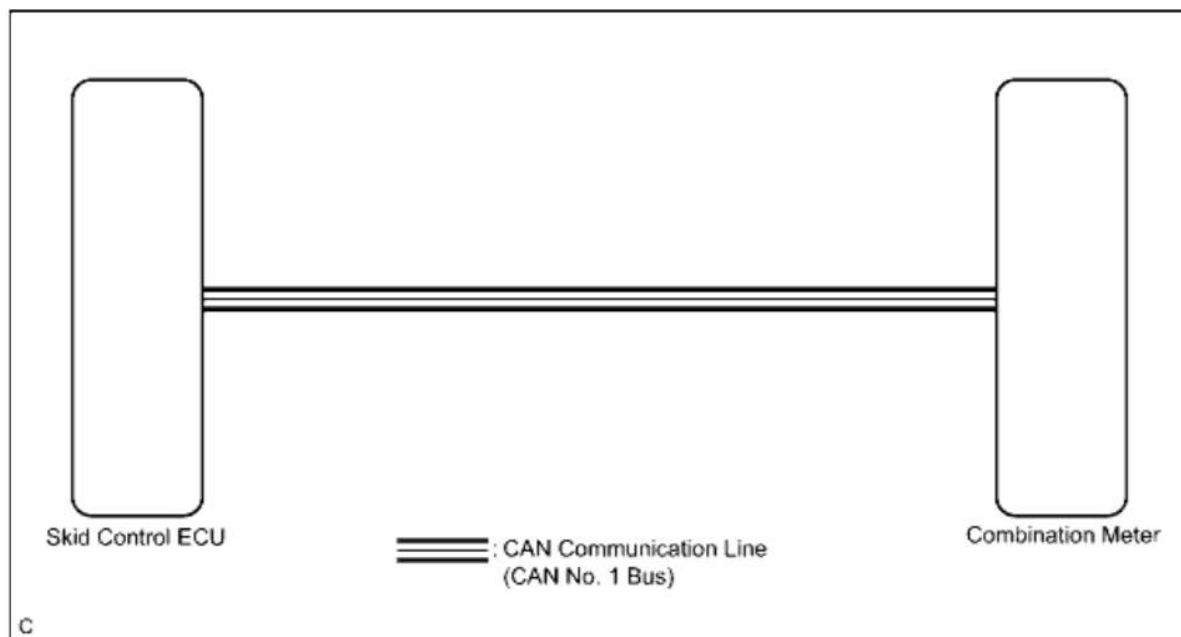
DTC	U0129	Lost Communication with Skid Control ECU
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DESCRIPTION

The combination meter communicates with the skid control ECU via the CAN communication system (CAN No. 1 Bus).

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
U0129	When either of the following conditions is detected: 1. 15 seconds have elapsed since engine started and IG voltage 10.5 V or more 2. No communication with skid control ECU continues for 3 seconds or more (No communication with ECM and skid control ECU continues for 60 seconds or more)	• Skid control ECU • CAN communication system

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. CONFIRM DTC OUTPUT

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Clear the stored DTCs by entering the following menus on the Techstream: Body Electrical / Trouble Codes.
- (e) Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.
- (f) Stop the vehicle.
- (g) Check for DTCs  .

Result:

RESULT	PROCEED TO
DTC is output.	A
DTC is not output.	B

HINT:

If the CAN communication system DTC U0129 and another DTC are output at the same time, perform troubleshooting for the CAN communication system DTC U0129 first.

B ► USE SIMULATION METHOD TO CHECK

A ► GO TO CAN COMMUNICATION SYSTEM



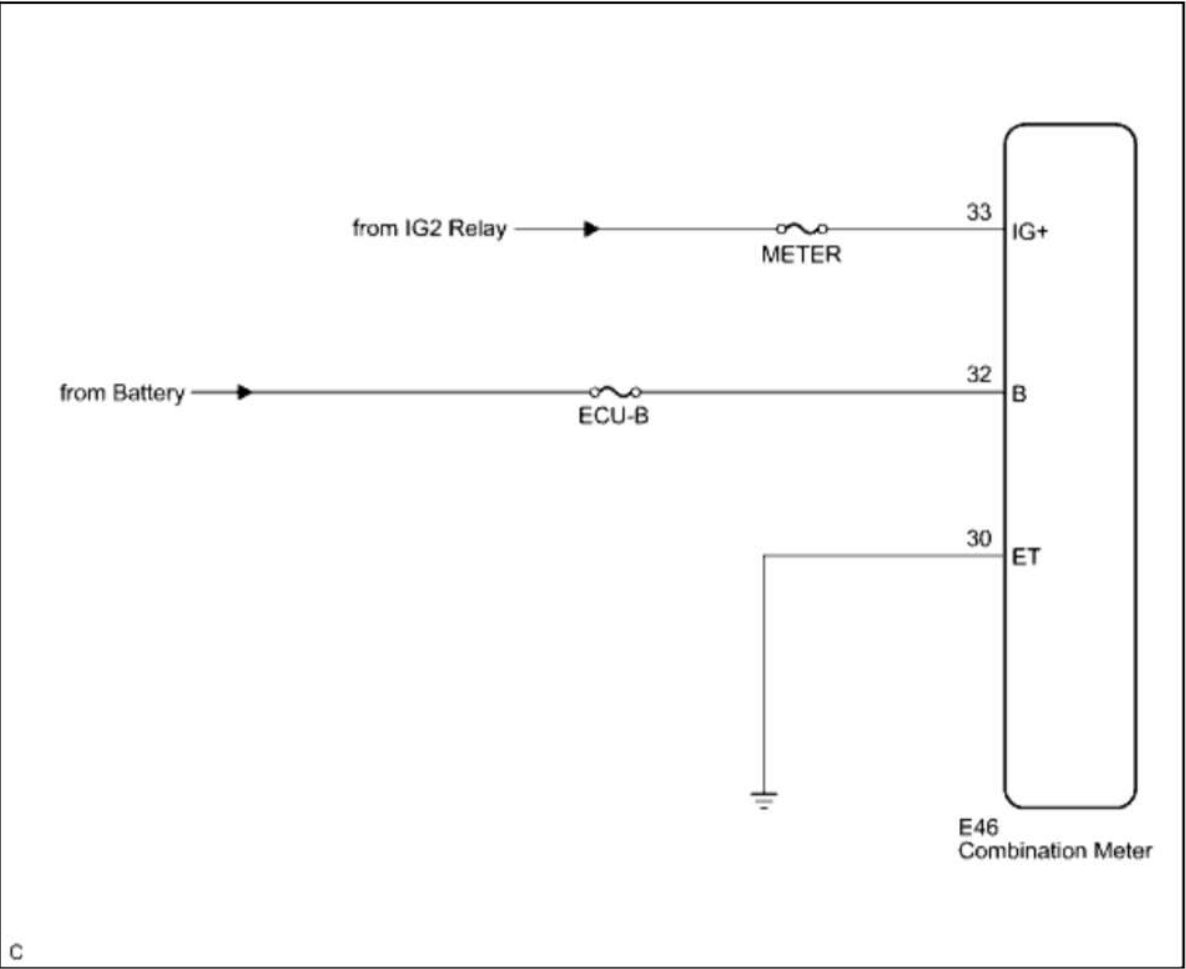
Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GC02NX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Entire Combination Meter does not Operate (2010 Corolla)		

Entire Combination Meter does not Operate

DESCRIPTION

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

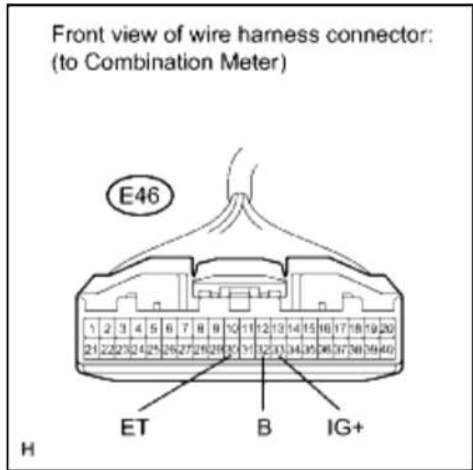
WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. INSPECT COMBINATION METER



(a) Disconnect the E46 connector.

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-30 (ET) - Body ground	Always	Below 1 Ω

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-32 (B) - Body ground	Always	11 to 14 V
E46-33 (IG+) - Body ground	Ignition switch ON	11 to 14 V

- NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
- OK ► REPLACE COMBINATION METER

Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GD02TX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Speedometer Malfunction (2010 Corolla)		

Speedometer Malfunction

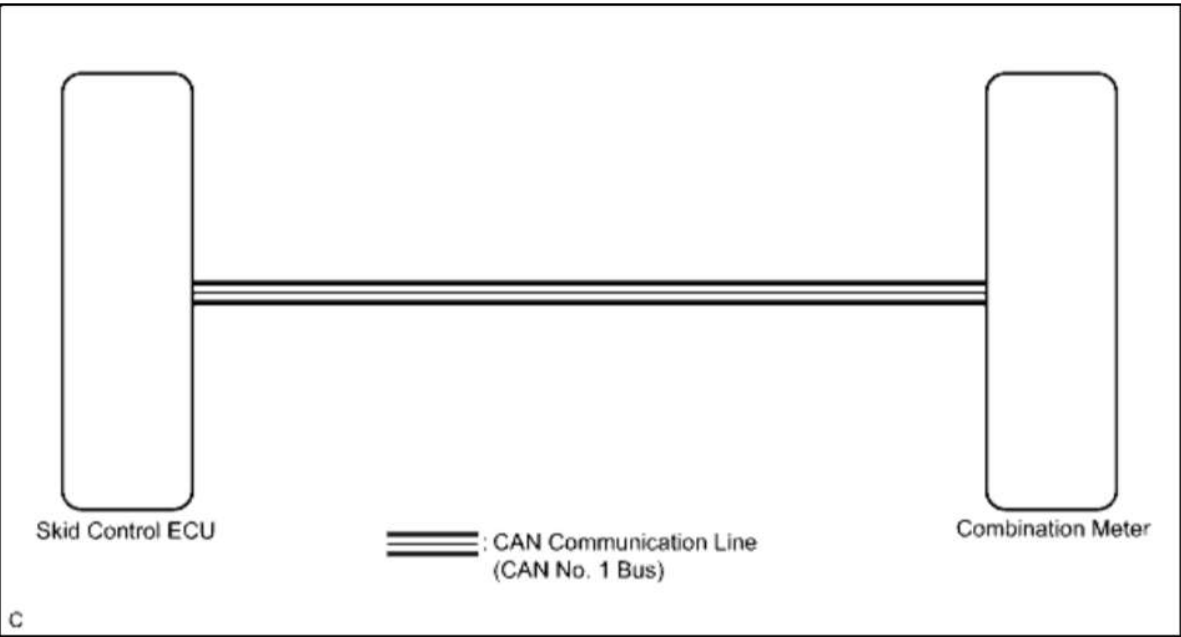
DESCRIPTION

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

HINT:

If the vehicle speed sensor circuit has a malfunction, the skid control ECU outputs the DTCs. Perform troubleshooting with the Brake Control System INFO (w/o VSC), INFO (w/ VSC)).

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
(a) Check if CAN communication DTC is output INFO .	

Result:

RESULT	PROCEED TO
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ► GO TO CAN COMMUNICATION SYSTEM

A



2. PERFORM ACTIVE TEST USING TECHSTREAM (SPEED METER OPERATION)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Active Test.
- (e) Check the operation by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Speed Meter Operation	Speedometer	0, 40, 80, 120 mph*1	Confirm that the vehicle is stopped, engine idling
		0, 40, 80, 120, 160, 200, 240 km/h*2	

- *1: for U.S.A.
- *2: except for U.S.A.

OK:

Speedometer indication is normal.

NG ► REPLACE COMBINATION METER

OK



3. READ VALUE USING TECHSTREAM (VEHICLE SPEED METER)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Data List.
- (e) Check the values by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Vehicle Speed Meter	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Almost same as actual speed (When driving)	-

OK:

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

NG ► **READ VALUE USING TECHSTREAM (FR/FL/RR/RL WHEEL SPEED)**

OK ► **REPLACE COMBINATION METER**

4. READ VALUE USING TECHSTREAM (FR/FL/RR/RL WHEEL SPEED)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Chassis / ABS/VSC/TRAC / Data List.
- (e) Check the values by referring to the table below.

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
FL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-
RR Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-
RL Wheel Speed	Vehicle speed/Min.: 0 km/h (0 mph), Max.: 326 km/h (202 mph)	Almost same as actual speed (When driving)	-

OK:

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

Result:

RESULT	PROCEED TO
OK	A
NG (w/o VSC)	B
NG (w/ VSC)	C

C ► GO TO BRAKE CONTROL SYSTEM (w/ VSC)

B ► GO TO BRAKE CONTROL SYSTEM (w/o VSC)

A



5. REPLACE SKID CONTROL ECU

(a) Replace the skid control ECU with a new or a known good one  (w/o VSC),  (w/ VSC)).

OK:

The operation of the speedometer returns to normal.

NG ► REPLACE COMBINATION METER

OK ► END



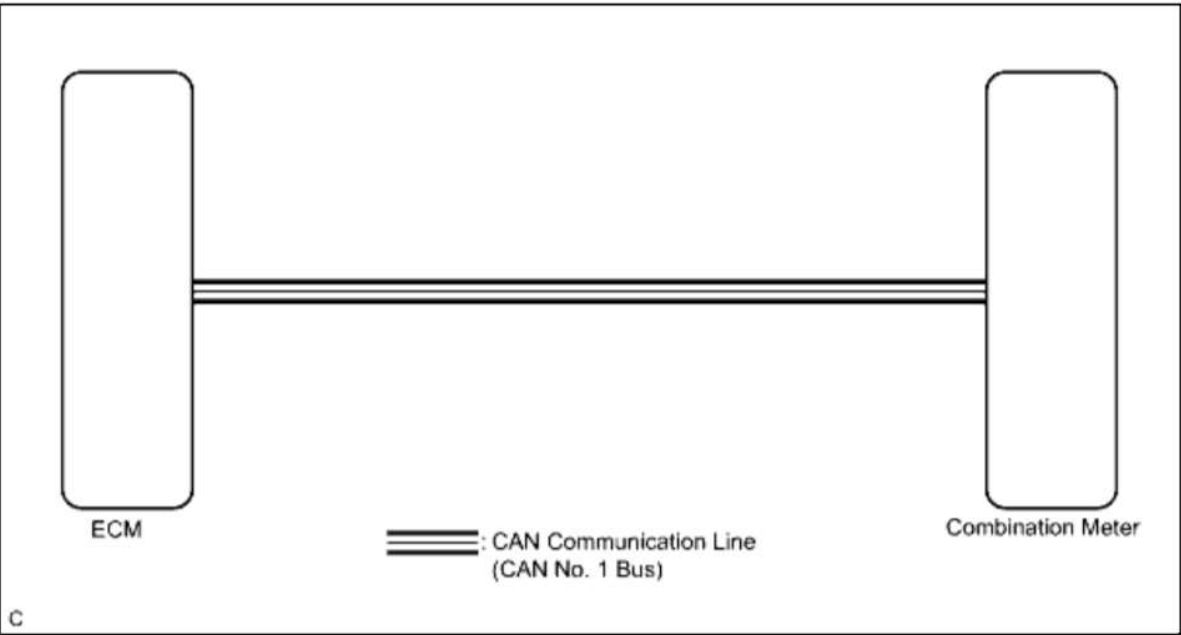
Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000000V7U03CX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Tachometer Malfunction (2010 Corolla)		

Tachometer Malfunction

DESCRIPTION

In this circuit, the meter CPU receives engine revolution signals from the ECM using the CAN communication line (CAN No. 1 Bus). The meter CPU displays engine revolution data that is calculated based on the data received from the ECM.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
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(a) Check if CAN communication DTC is output .

Result:

RESULT	PROCEED TO
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ► GO TO CAN COMMUNICATION SYSTEM

A



2. PERFORM ACTIVE TEST USING TECHSTREAM (TACHO METER OPERATION)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Active Test.
- (e) Check the operation by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Tacho Meter Operation	Tachometer	0, 1000, 2000, 3000, 4000, 5000, 6000, 7000 (rpm)	Confirm that the vehicle is stopped, engine idling

OK:

Tachometer indication is normal.

NG ► REPLACE COMBINATION METER

OK



3. READ VALUE USING TECHSTREAM (ENGINE RPM)

- (a) Connect the Techstream to the DLC3.

- (b) Turn the ignition switch on.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Data List.
- (e) Check the values by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Engine Rpm	Engine speed/Min.: 0 rpm, Max.: 12750 rpm	Almost same as actual engine speed (Tachometer indication)	If data received from the ECM exceeds the range that can be displayed on the meter, the meter continues to display the maximum value of the range.

Result:

RESULT	PROCEED TO
Tachometer indication is differ from the Techstream indication.	A
Tachometer indication is the same as the Techstream indication.	B

B ► READ VALUE USING TECHSTREAM (ENGINE SPEED)**A ► REPLACE COMBINATION METER**

4.	READ VALUE USING TECHSTREAM (ENGINE SPEED)
-----------	---

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream ON.
- (d) Enter the following menus: Powertrain / Engine and ECT / Data List.
- (e) Check the values by referring to the table below.

Engine and ECT

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Engine Speed	Engine speed/Min.: 0 rpm, Max.: 16383.75 rpm	Almost same as actual engine speed (Tachometer indication)	-

OK:

Engine speed displayed on the Techstream is almost the same as the tachometer indication.
Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ► GO TO SFI SYSTEM (for 2ZR-FE)

B ► GO TO SFI SYSTEM (for 2AZ-FE)

A
▼

5.

REPLACE ECM

(a) Replace the ECM with a new or a known good one  for 2AZ-FE,  for 2ZR-FE).
OK:
The operation of the tachometer returns to normal.

NG ► REPLACE COMBINATION METER

OK ► END

Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GE02WX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Fuel Receiver Gauge Malfunction (2010 Corolla)		

Fuel Receiver Gauge Malfunction

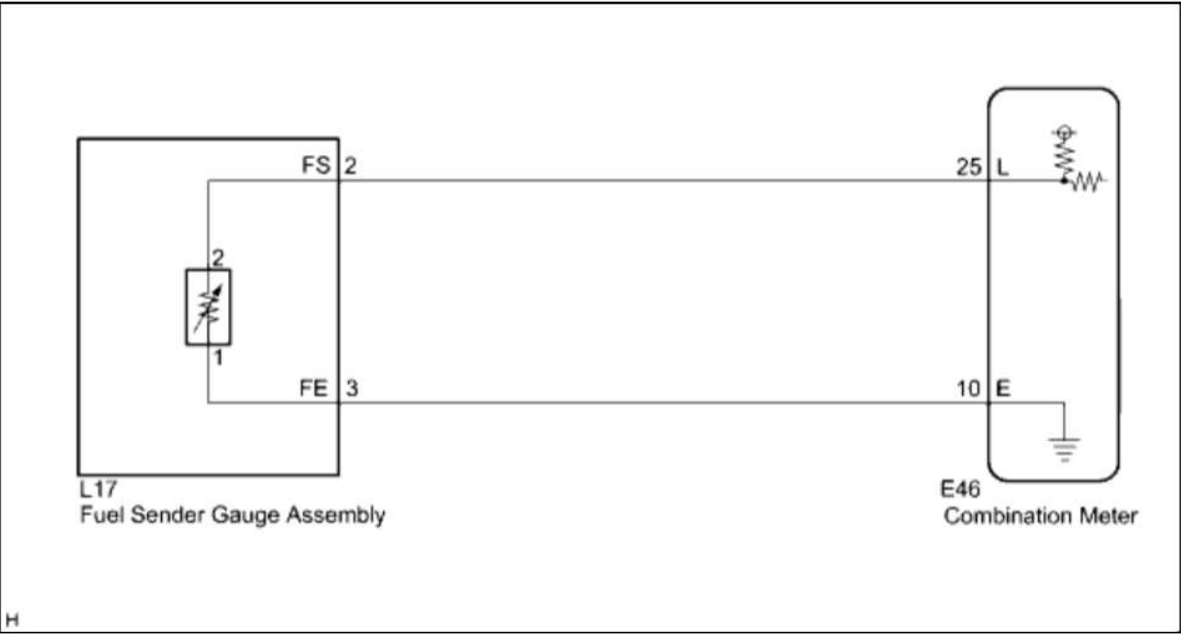
DESCRIPTION

The meter CPU uses the fuel sender gauge assembly to determine the level of the fuel in the fuel tank. The resistance of the fuel sender gauge will vary between approximately 15.0 Ω with the float at the full position, and 410.0 Ω with the float at the empty position. The meter outputs battery voltage through two 820 Ω resistors that are mounted in parallel inside the meter CPU. The meter CPU measures the voltage between the variable resistor in the fuel sender gauge and the two resistors mounted in parallel in the meter. Voltage measured at this point will vary as the float of the fuel sender gauge is moved. The highest voltage observed should be approximately half of battery voltage.

HINT:

The fuel level warning light will come on when the fuel level is below 7.5 liters (2.0 gallons).

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM (FUEL METER OPERATION)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter following menus: Body Electrical / Combination Meter / Active Test.
- (e) Check the operation by referring to the table below.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Fuel Meter Operation	Fuel receiver gauge	EMPTY, 1/2, FULL	Confirm that the vehicle is stopped, engine idling

OK:

Gauge indication is normal.

NG ► **REPLACE COMBINATION METER**

OK
▼

2. READ VALUE USING TECHSTREAM (FUEL INPUT)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter following menus: Body Electrical / Combination Meter / Data List.
- (e) Check the values by referring to the table below.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Fuel Input	Fuel input signal Min.: 0, Max.:	Fuel gauge indicates (E): 5.5	-

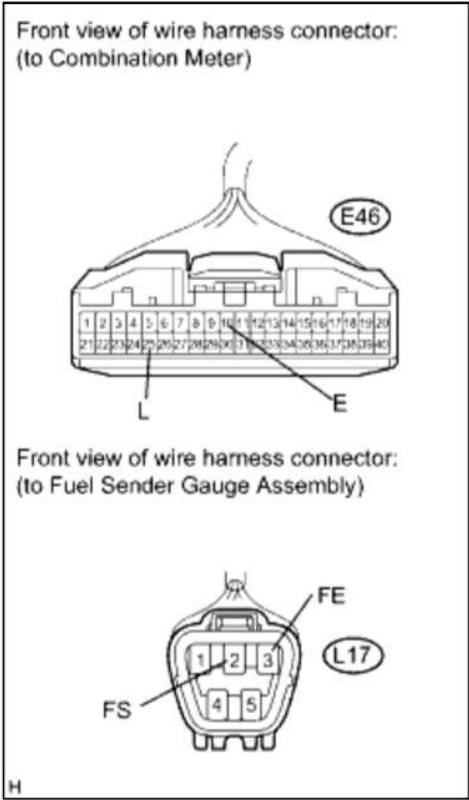
TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
	127.5	(L)	
		Fuel gauge indicates (1/2): 27.5 (L)	
		Fuel gauge indicates (F): 49.5 (L)	

OK:
Fuel value signal displayed on the Techstream is almost the same as fuel receiver gauge indication.

NG ► REPLACE COMBINATION METER

OK
▼

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



(a) Disconnect the E46 and L17 connectors.

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

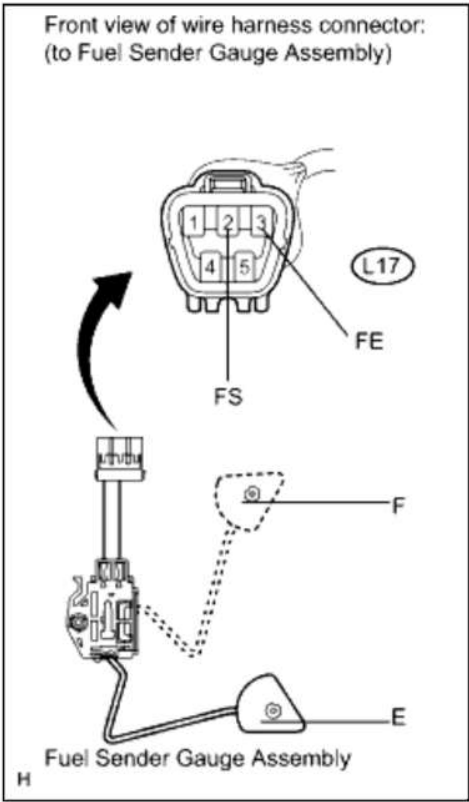
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-10 (E) - L17-3 (FE)	Always	Below 1 Ω
L17-3 (FE) - Body ground	Always	10 k Ω or higher
E46-25 (L) - L17-2 (FS)	Always	Below 1 Ω
E46-25 (L) - Body ground	Always	10 k Ω or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4. INSPECT FUEL SENDER GAUGE ASSEMBLY



(a) Remove the fuel sender gauge assembly.

(b) Check that the float moves smoothly between E and F.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
L17-2 (FE) - L17-3 (FE)	Float level is F (upper)	13.5 to 16.5 Ω
L17-2 (FE) - L17-3 (FE)	Float level is between F (upper) and E (lower)	13.5 to 414.5 Ω (Gradually changes)
L17-2 (FE) - L17-3 (FE)	Float level is E (lower)	405.5 to 414.5 Ω

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ► REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2ZR-FE)

B ► REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2AZ-FE)

A ► REPLACE COMBINATION METER



Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM000002UD701MX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Speed Signal Circuit (2010 Corolla)		

Speed Signal Circuit

DESCRIPTION

The combination meter receives the vehicle speed signal from this circuit. The wheel speed sensors produce an output that varies according to the vehicle speed. The wheel speed sensor output is received by the skid control ECU which uses this information to create the vehicle speed sensor signal*. The vehicle speed sensor signal consists of pulses sent to the combination meter from the skid control ECU. To create this signal, 12 V is output from IG2 which is behind a resistor in the combination meter. This voltage is sent to the skid control ECU. The pulse signal is created by switching the transistor in the skid control ECU on and off, making the voltage on the wire drop to 0 V. A similar system is used for the output of this signal from the combination meter via terminal +S. A voltage of 12 V or 5 V is applied to terminal +S from each ECU or relay that is connected to this terminal. The transistor in the combination meter is controlled by the signal from the skid control ECU. When this transistor is turned on, this transistor makes the voltage supplied by the various ECUs (via their respective internal resistors) drop to 0 V. Each ECU connected to terminal +S of the combination meter controls its respective system based on the pulse signal.

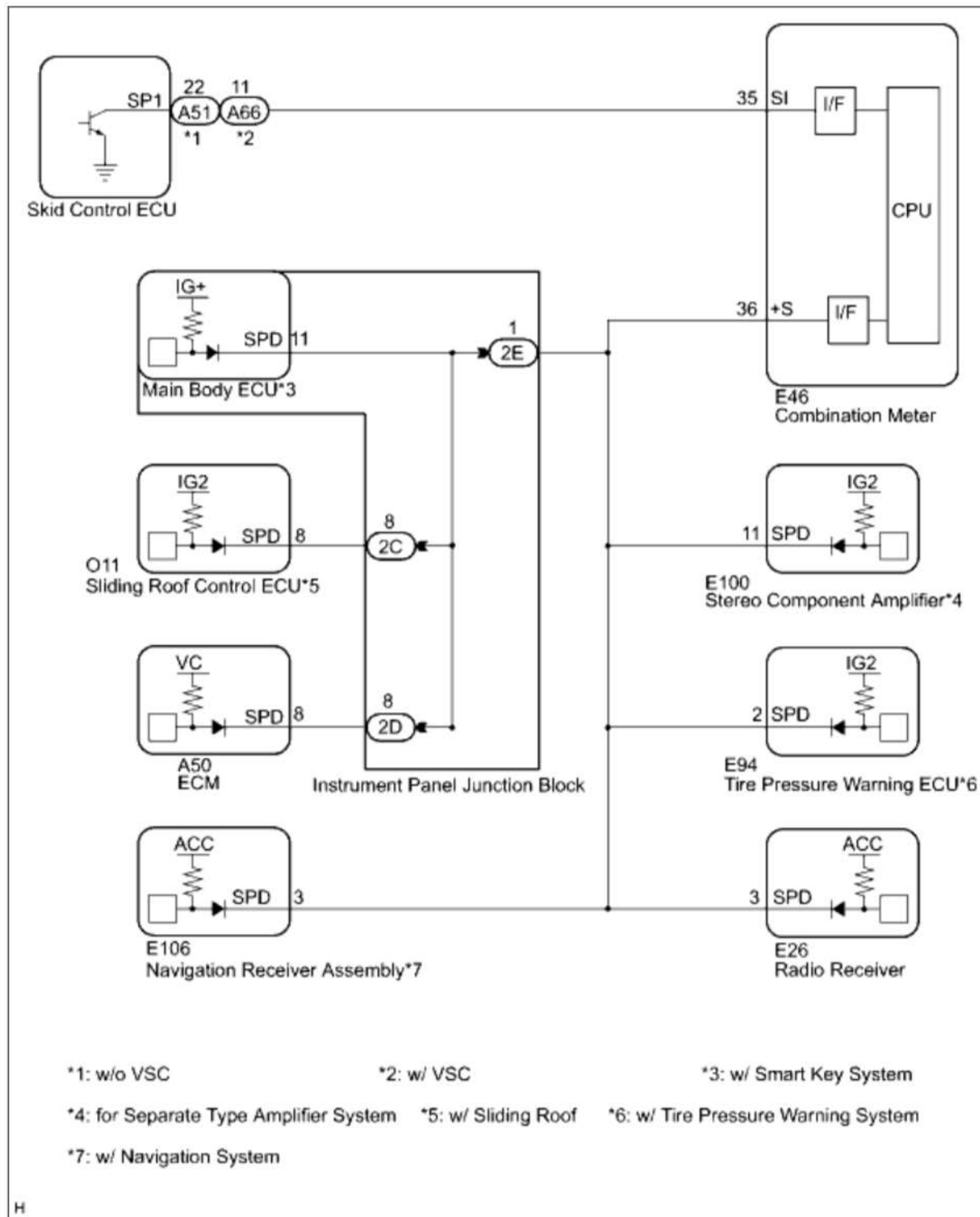
- *: This vehicle speed sensor signal is created by the skid control ECU. There is no actual component that is referred to as the vehicle speed sensor. In addition, for some other systems, vehicle speed information may be exchanged using CAN communication.

HINT:

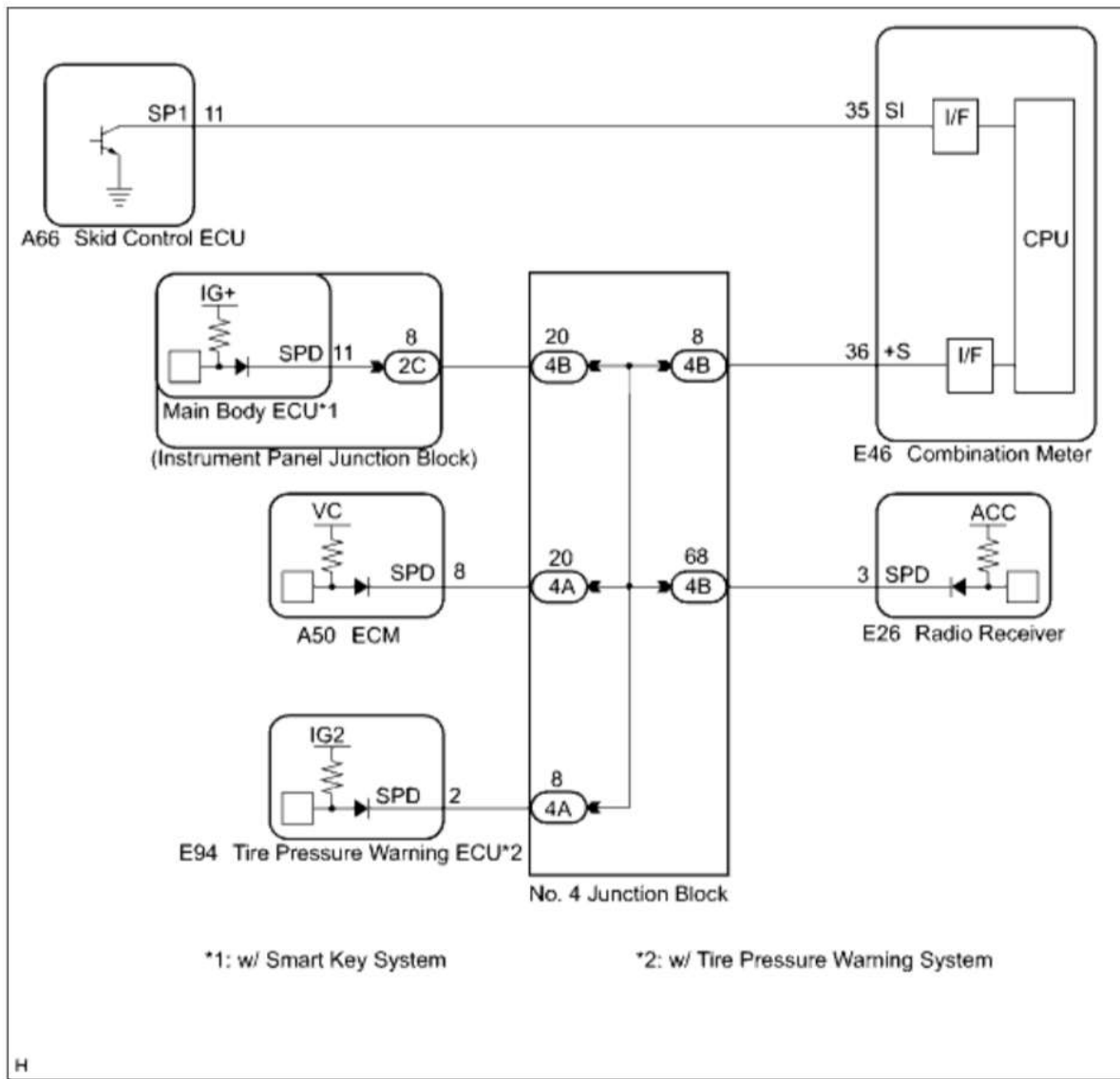
This circuit is used for the systems connected to terminal +S. This signal is not used for combination meter operation. Combination meter components such as the speedometer operate using data received via CAN communication.

WIRING DIAGRAM

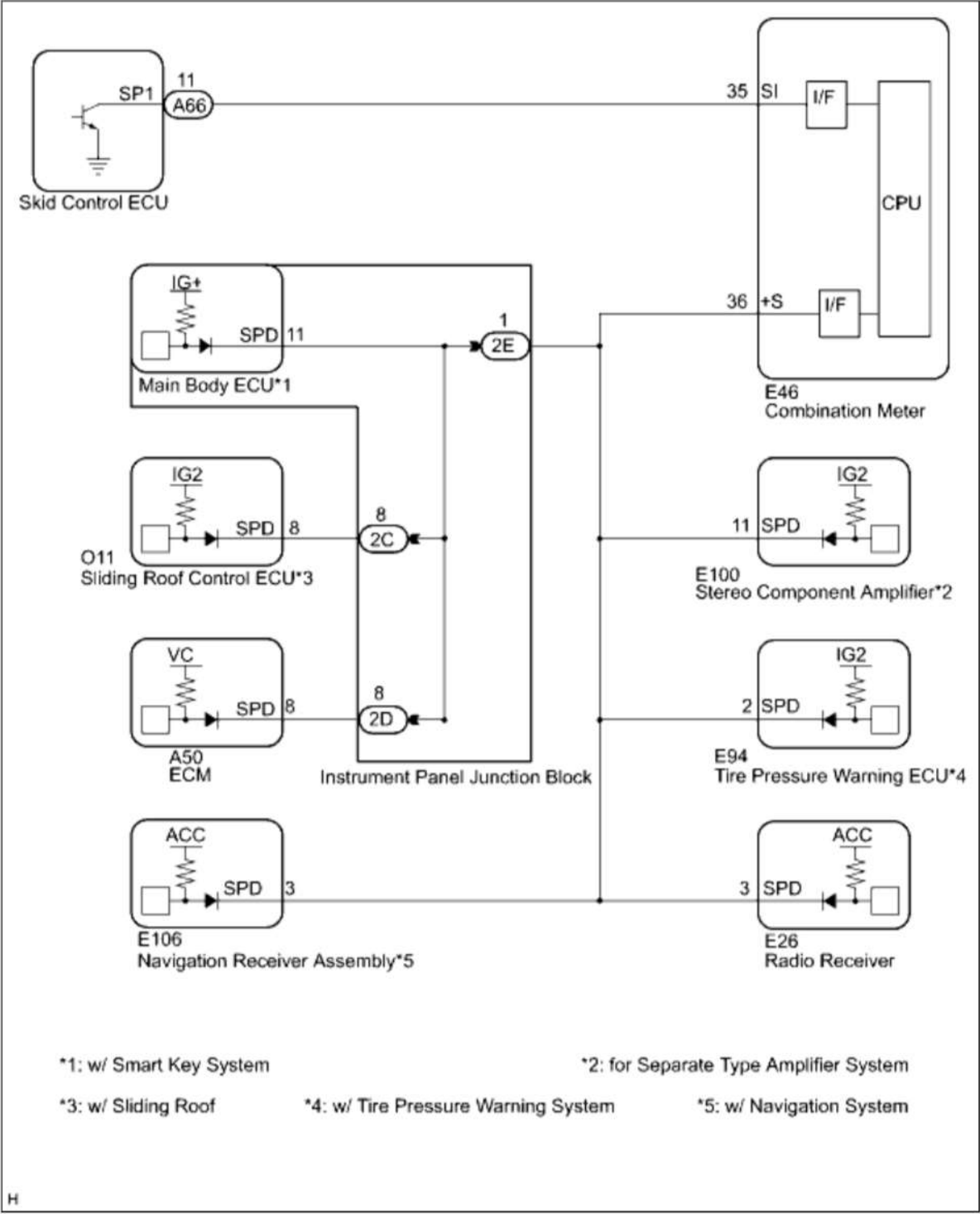
1. except TMC Made 2ZR-FE



2. for TMC Made 2ZR-FE



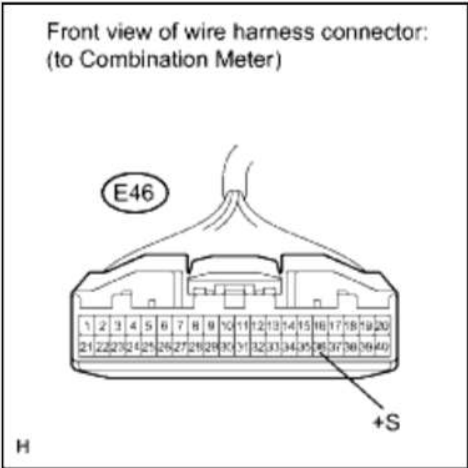
3. except TMC Made 2AZ-FE



INSPECTION PROCEDURE

PROCEDURE

1.	INSPECT ECU TERMINAL VOLTAGE (INPUT VOLTAGE)
----	--



(a) Disconnect the E46 connector.

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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-36 (+S) - Body ground	Ignition switch ON	4.5 to 14 V

HINT:

If any of the ECUs specified in the wiring diagram supplied power to the combination meter, the combination meter will output a waveform.

Result:

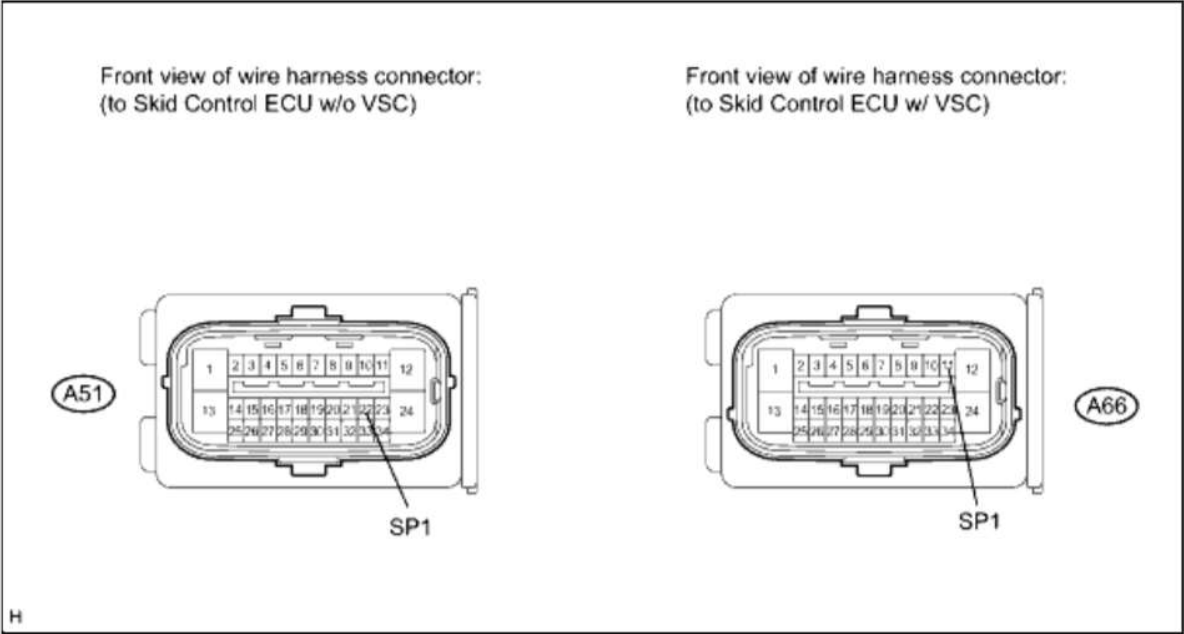
RESULT	PROCEED TO
OK	A
NG (for TMC Made)	B
NG (except for TMC Made)	C

C ► CHECK HARNESS AND CONNECTOR

B ► CHECK HARNESS AND CONNECTOR (COMBINATION METER - NO. 4 JUNCTION BLOCK)

A ▼

2. INSPECT COMBINATION METER (OUTPUT VOLTAGE)
(a) Reconnect the E46 connector.



- (b) Disconnect the A51*1 or A66*2 connector.
 - (c) Measure the voltage according to the value(s) in the table below.
- Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A 51-22 (SP1)*1 - Body ground	Ignition switch ON	11 to 14 V
A 66-11 (SP1)*2 - Body ground	Ignition switch ON	11 to 14 V

- *1: w/o VSC
- *2: w/ VSC

NG ► **CHECK HARNESS AND CONNECTOR (COMBINATION METER - SKID CONTROL ECU)**

OK
▼

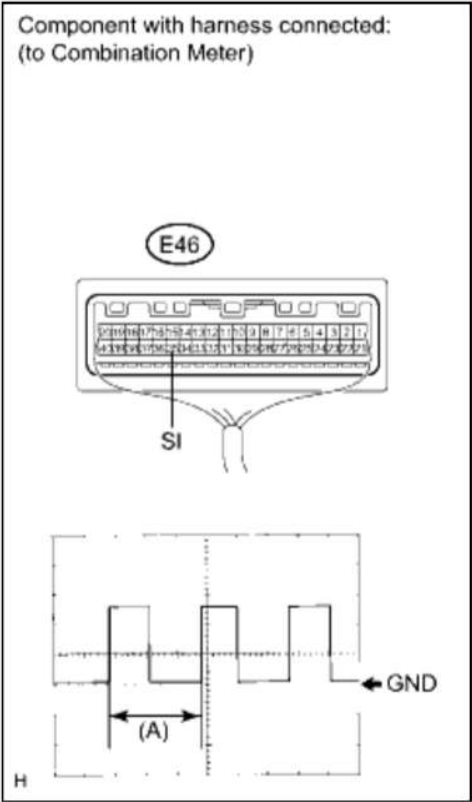
3.

INSPECT SKID CONTROL ECU (INPUT WAVEFORM)

- (a) Check the input waveform.
- (1) Reconnect the A51*1 or A66*2 connector.

- *1 : w/o VSC
- *2 : w/ VSC

- (2) Remove the combination meter with the connector(s) still connected.
- (3) Connect the oscilloscope to terminals E46-35 (SI) and body ground.
- (4) Turn the ignition switch to ON.
- (5) Turn the wheel slowly.
- (6) Check the signal waveform according to the condition(s) in the table below.



ITEM	CONDITION
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle condition	Driving at approximately 12 mph (20 km/h)

OK:
The waveform is displayed as shown in the illustration.

HINT:
When the system is functioning normally, one wheel revolution generates 4 pulses. As the vehicle speed increases, the width indicated by (A) in the illustration narrows.

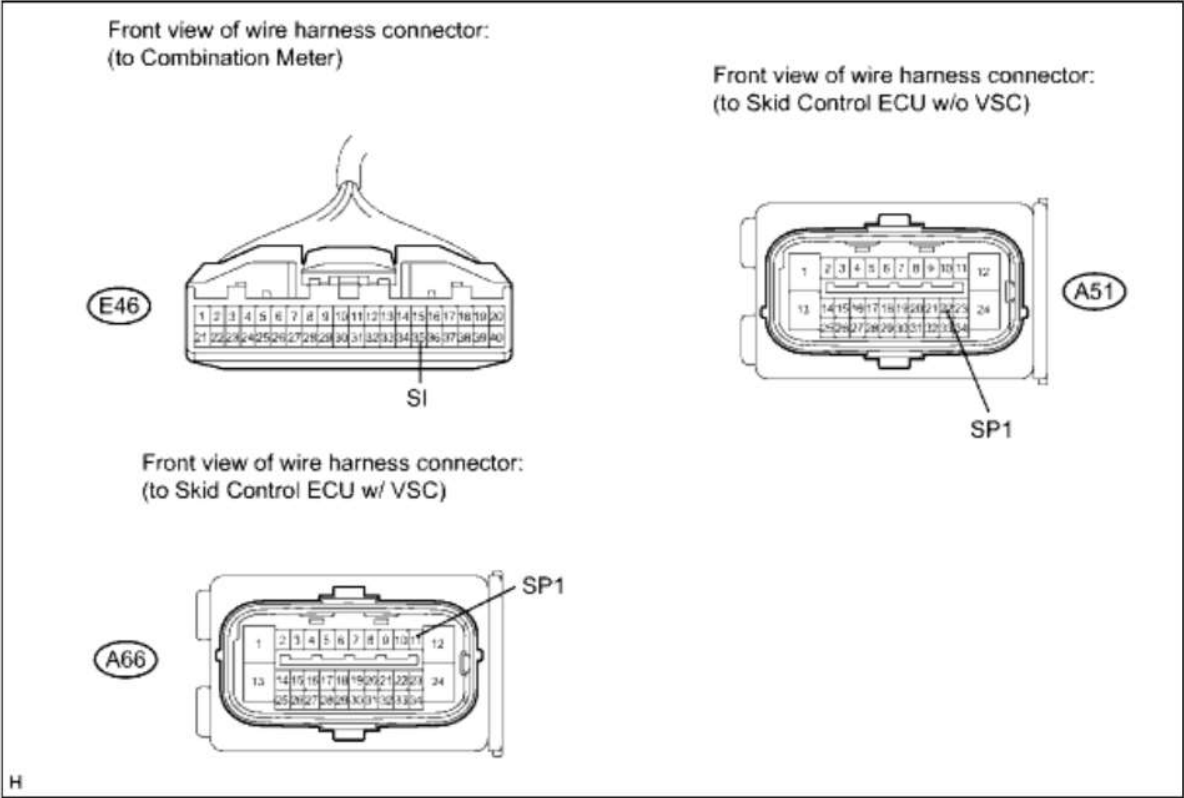
Result:

RESULT	PROCEED TO
OK	A
NG (w/o VSC)	B
NG (w/ VSC)	C

- C ► REPLACE SKID CONTROL ECU (w/ VSC)**
- B ► REPLACE SKID CONTROL ECU (w/o VSC)**
- A ► REPLACE COMBINATION METER**

4.	CHECK HARNESS AND CONNECTOR (COMBINATION METER - SKID CONTROL ECU)
----	--

- (a) Disconnect the E46 connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A 51-22 (SP1)*1 - E46-35 (SI)	Always	Below 1 Ω
A 51-22 (SP1)*1 - Body ground	Always	10 kΩ or higher
A 66-11 (SP1)*2 - E46-35 (SI)	Always	Below 1 Ω
A 66-11 (SP1)*2 - Body ground	Always	10 kΩ or higher

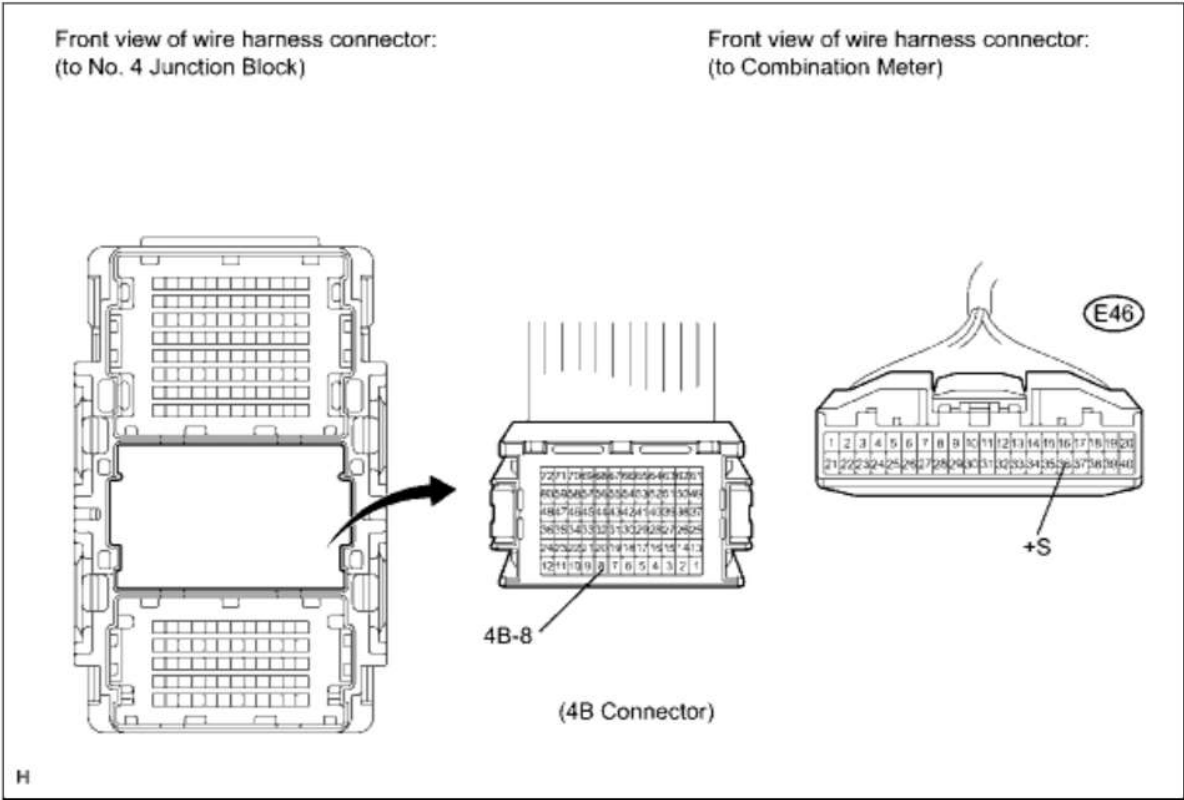
- *1: w/o VSC
- *2: w/ VSC

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE COMBINATION METER

5.	CHECK HARNESS AND CONNECTOR (COMBINATION METER - NO. 4 JUNCTION BLOCK)
----	--

(a) Disconnect the 4B connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-36 (+S) - 4B-8	Always	Below 1 Ω
4B-8 - Body ground	Always	10 kΩ or higher

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK
▼

6.

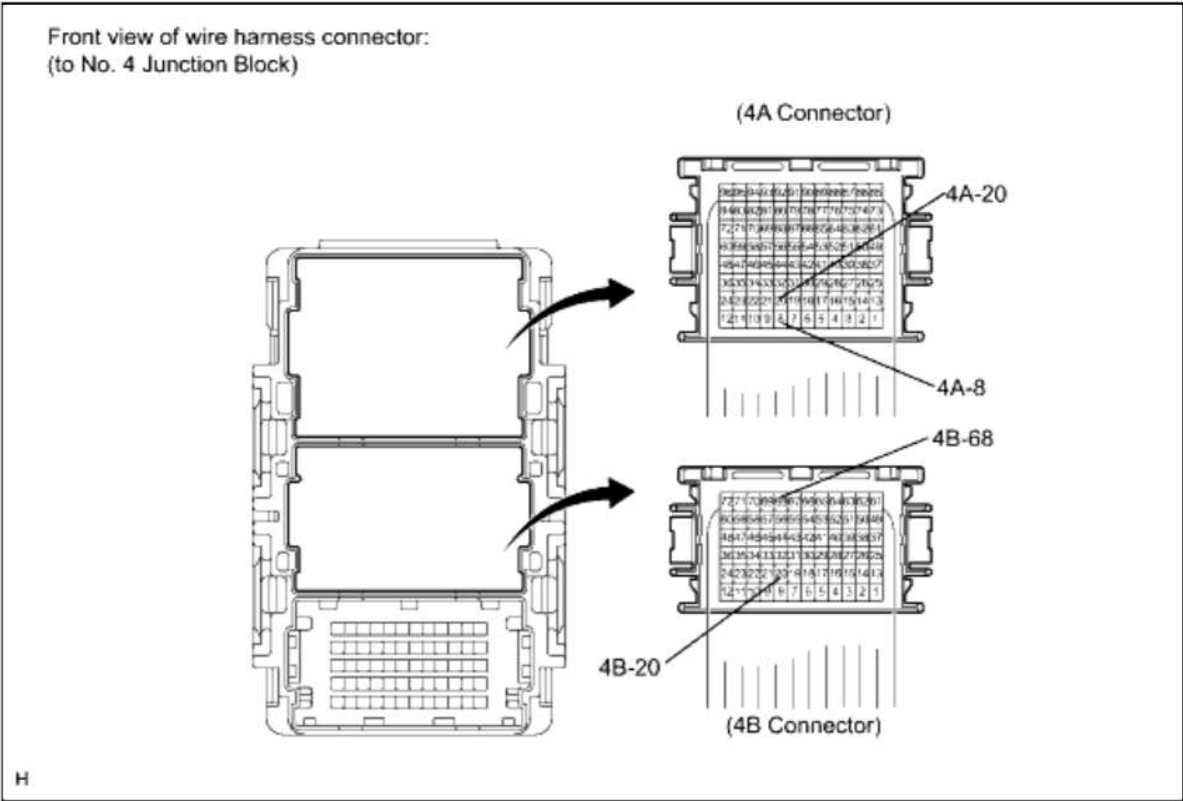
CHECK HARNESS AND CONNECTOR (NO. 4 JUNCTION BLOCK)

(a) Inspect for a short in the circuit that is connected to the combination meter shown in the wiring diagram.

HINT:

If voltage is not present, the circuit (ECU) was possibly the malfunctioning circuit. This is the circuit that will be diagnosed by following the A step that follows.

(1) Disconnect 4A connector.



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

Standard Voltage:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
4A-8*1 - Body ground	Ignition switch ON	4.5 to 14 V
4A-20 - Body ground	Ignition switch ON	4.5 to 14 V
4B-20*2 - Body ground	Ignition switch ON	4.5 to 14 V
4B-68 - Body ground	Ignition switch ON	4.5 to 14 V

- *1: w/ Tire Pressure Warning System
- *2: w/ Smart Key System

Result:

RESULT	PROCEED TO
Voltage is not present in one circuit.	A
Voltage is present in all the circuits.	B

NG ► **REPAIR OR REPLACE HARNESS OR CONNECTOR
(NO. 4 JUNCTION BLOCK)**

OK
▼

7.	SYSTEM CHECK
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(a) Select the circuit that did not present the voltage in the step 6.

Result:

TESTER CONNECTION	SYSTEM THAT USES THE CIRCUIT	PROCEED TO
4A-8*1 - Body ground	Tire pressure warning System	A
4A-20 - Body ground	SFI System	B
4B-20*2 - Body ground	Starting System	C
4B-68 - Body ground	Audio/visual System	D

- *1: w/ Tire Pressure Warning System
- *2: w/ Smart Key System

D ► CHECK HARNESS AND CONNECTOR (RADIO RECEIVER CIRCUIT)

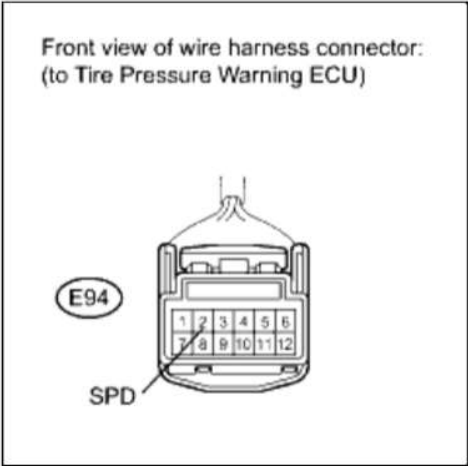
C ► CHECK HARNESS AND CONNECTOR (MAIN BODY ECU CIRCUIT)

B ► CHECK HARNESS AND CONNECTOR (ECM CIRCUIT)

A
▼

8.	CHECK HARNESS AND CONNECTOR (TIRE PRESSURE WARNING ECU CIRCUIT)
-----------	--

(a) Disconnect the E94 connector.



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

Standard Resistance:

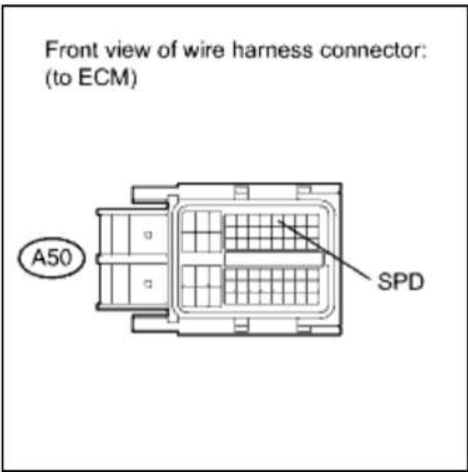
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E94-2 (SPD)* - Body ground	Always	10 kΩ or higher

- *: w/ Tire Pressure Warning System

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE TIRE PRESSURE WARNING ECU

9. CHECK HARNESS AND CONNECTOR (ECM CIRCUIT)



(a) Disconnect the A50 connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A 50-8 (SPD) - Body ground	Always	10 kΩ or higher

Result:

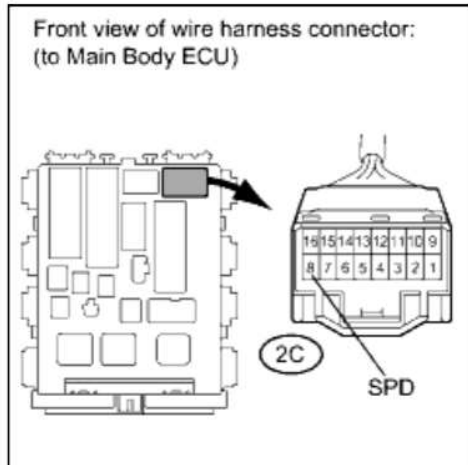
RESULT	PROCEED TO
OK (for 2AZ-FE)	A
OK (for 2ZR-FE)	B
NG	C

C ► REPAIR OR REPLACE HARNESS OR CONNECTOR

B ► REPLACE ECM (for 2ZR-FE)

A ► REPLACE ECM (for 2AZ-FE)

10. CHECK HARNESS AND CONNECTOR (MAIN BODY ECU CIRCUIT)



(a) Disconnect the 2C connector.

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

Standard Resistance:

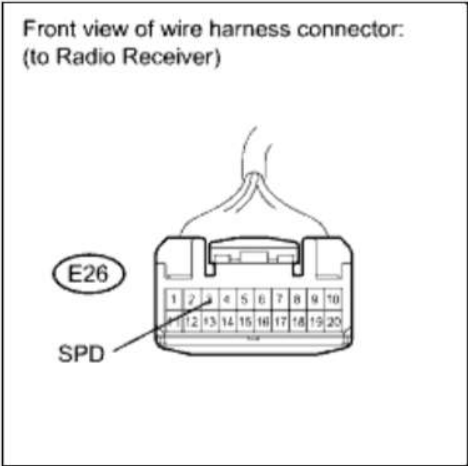
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2C-8 (SPD)* - Body ground	Always	10 kΩ or higher

• *: w/ Smart Key System

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE MAIN BODY ECU

11. CHECK HARNESS AND CONNECTOR (RADIO RECEIVER CIRCUIT)



(a) Disconnect the E26 connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E26-3 (SPD) - Body ground	Always	10 kΩ or higher

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE RADIO RECEIVER

12. CHECK HARNESS AND CONNECTOR

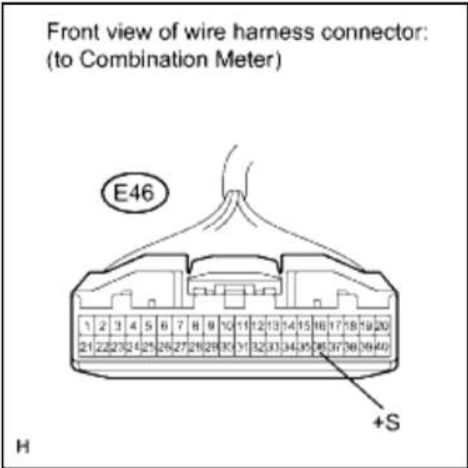
(a) Inspect for a short in the circuit that is connected to the combination meter shown in the wiring diagram.

HINT:

If voltage is not present, the circuit (ECU) was possibly the malfunctioning circuit.

(1) Disconnect the E26, E94*1, E100*2, E106*3, and 2E connectors.

- *1: w/ Tire Pressure Warning System
- *2: for Separate Type Amplifier System
- *3: w/ Navigation System



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

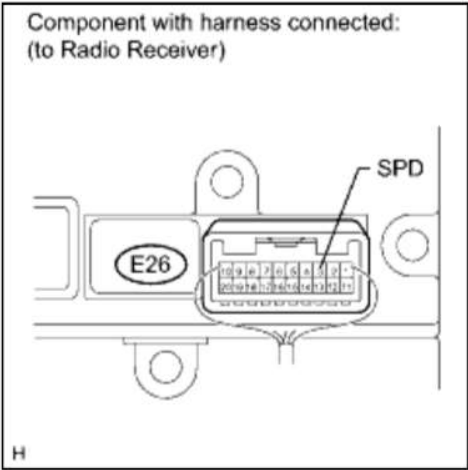
Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E46-36 (+S) - Body ground	Always	10 kΩ or higher

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK
▼

13. INSPECT RADIO RECEIVER (CHECK FOR A SHORT)



(a) Disconnect the E26 connector.

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

Standard Resistance:

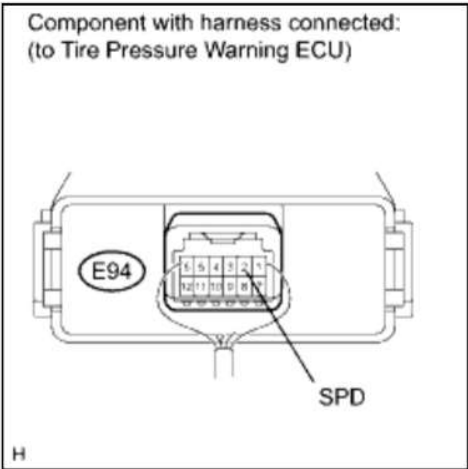
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E26-3 (SPD) - Body ground	Always	10 kΩ or higher

NG ► REPLACE RADIO RECEIVER

OK

14. INSPECT TIRE PRESSURE WARNING ECU (CHECK FOR A SHORT)

HINT:
If the vehicle does not equipped with the tire pressure warning system, proceed to the next step.



(a) Disconnect the E94 connector.

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

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E94-2 (SPD)* - Body ground	Always	10 kΩ or higher

- *: w/ Tire Pressure Warning System

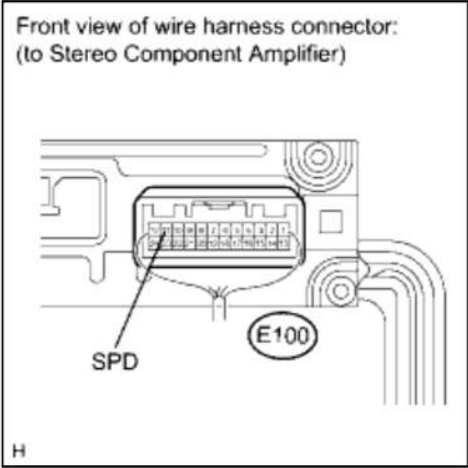
NG ► REPLACE TIRE PRESSURE WARNING ECU

OK

15. INSPECT STEREO COMPONENT AMPLIFIER (CHECK FOR A SHORT)

HINT:

If the vehicle does not equipped with the stereo component amplifier, proceed to the next step.



(a) Disconnect the E100 connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E100-11 (SPD)* - Body ground	Always	10 kΩ or higher

- *: for Separate Type Amplifier System

NG ► **REPLACE STEREO COMPONENT AMPLIFIER**

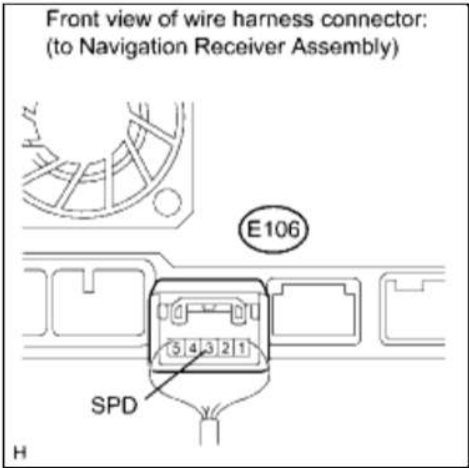
OK
▼

16.	INSPECT NAVIGATION RECEIVER ASSEMBLY (CHECK FOR A SHORT)
-----	---

HINT:

If the vehicle does not equipped with the navigation system, proceed to the next step.

(a) Disconnect the E106 connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
E106-3 (SPD)* - Body ground	Always	10 kΩ or higher

- *: w/ Navigation System

NG ► **REPLACE NAVIGATION RECEIVER ASSEMBLY**

OK
▼

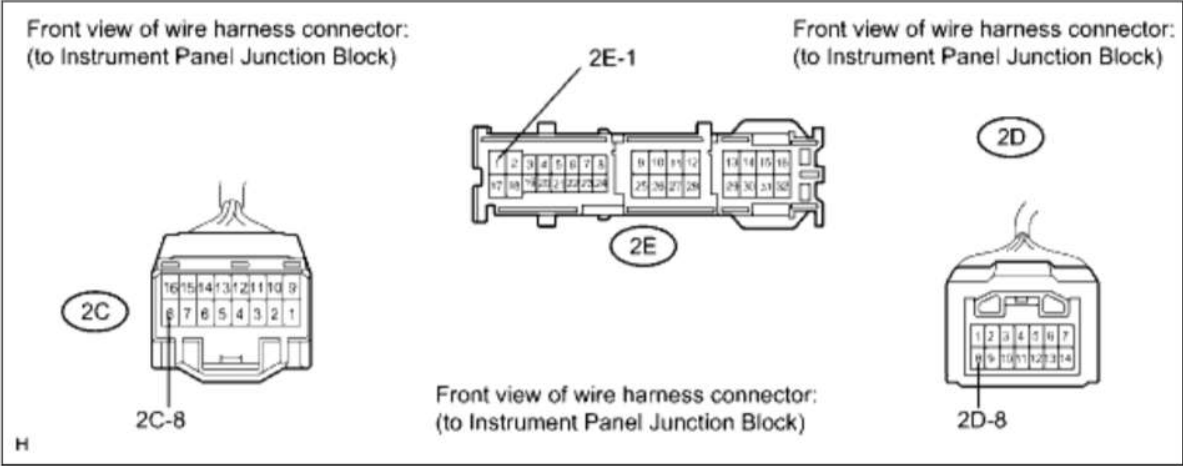
17. CHECK HARNESS AND CONNECTOR (INSTRUMENT PANEL JUNCTION BLOCK)

(a) Inspect for a short in the circuit that is connected to the combination meter shown in the wiring diagram.

HINT:

If voltage is not present, the circuit (ECU) was possibly the malfunctioning circuit. This is the circuit that will be diagnosed by following the A step that follows.

- (1) Disconnect 2C, 2D, and 2Econnector.



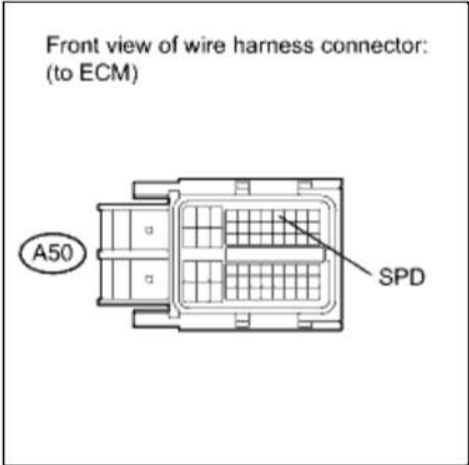
TESTER CONNECTION	SYSTEM THAT USES THE CIRCUIT	PROCEED TO
2D-8 - Body ground	SFI System	A
2E-1*1 - Body ground	Starting System	B
2C-8*2 - Body ground	Sliding Roof Control System	C

- *1: w/ Smart Key System
- *2: w/ Sliding Roof

- C ► CHECK HARNESS AND CONNECTOR (SLIDING ROOF CONTROL ECU CIRCUIT)
- B ► CHECK HARNESS AND CONNECTOR (MAIN BODY ECU CIRCUIT)

A
▼

19. CHECK HARNESS AND CONNECTOR (ECM CIRCUIT)



(a) Disconnect the A50 connector.

- (b) Measure the resistance according to the value(s) in the table below.
- Standard Resistance:

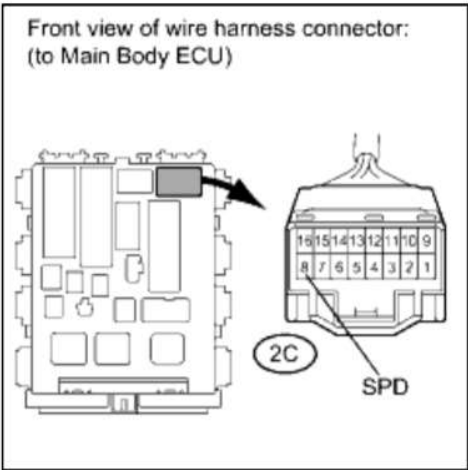
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A 50-8 (SPD) - Body ground	Always	10 kΩ or higher

Result:

RESULT	PROCEED TO
OK (for 2AZ-FE)	A
OK (for 2ZR-FE)	B
NG	C

- C ► REPAIR OR REPLACE HARNESS OR CONNECTOR
- B ► REPLACE ECM (for 2ZR-FE)
- A ► REPLACE ECM (for 2AZ-FE)

20. CHECK HARNESS AND CONNECTOR (MAIN BODY ECU CIRCUIT)



(a) Disconnect the 2C connector.

- (b) Measure the resistance according to the value(s) in the table below.
- Standard Resistance:

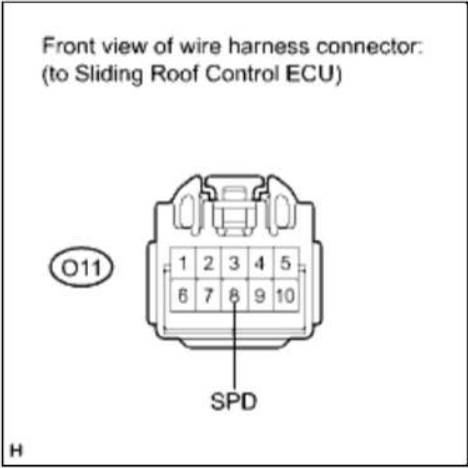
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
2C-8 (SPD)* - Body ground	Always	10 kΩ or higher

- *: w/ Smart Key System

- NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR
- OK ► REPLACE MAIN BODY ECU

21. CHECK HARNESS AND CONNECTOR (SLIDING ROOF CONTROL ECU CIRCUIT)

(a) Disconnect the O11 connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O 11-8 (SPD)* - Body ground	Always	10 kΩ or higher

- *: w/ Sliding Roof

NG ► REPAIR OR REPLACE HARNESS OR CONNECTOR

OK ► REPLACE SLIDING ROOF CONTROL ECU



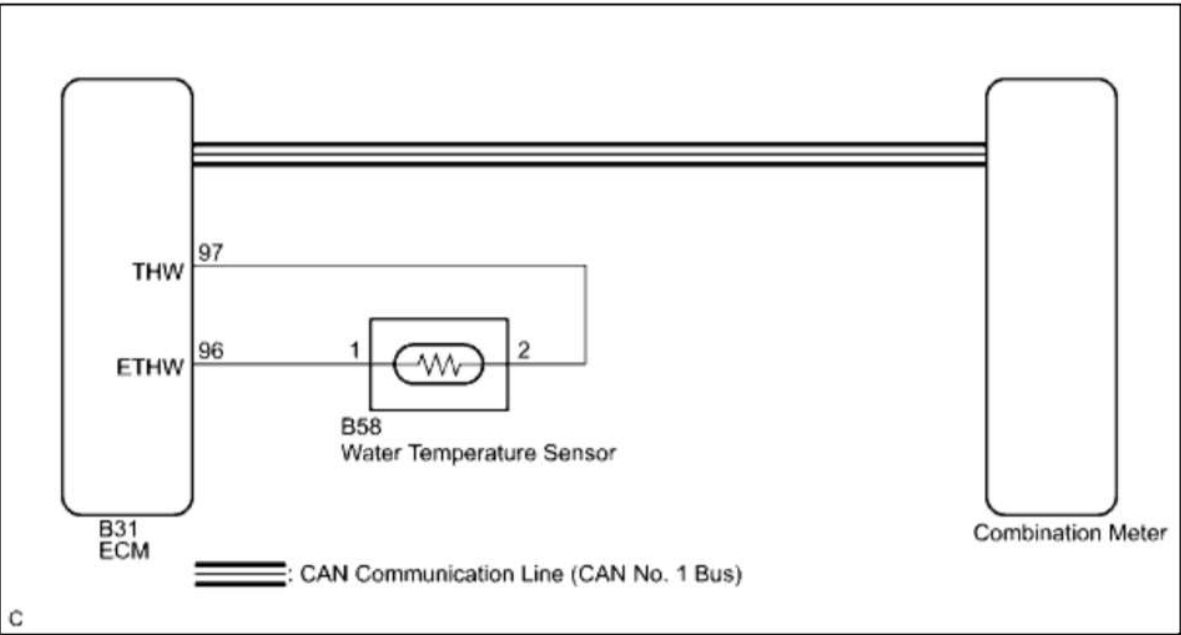
Last Modified: 3-10-2010	6.4 J	From: 200901
Model Year: 2010	Model: Corolla	Doc ID: RM0000012GF02YX
Title: METER / GAUGE / DISPLAY: METER / GAUGE SYSTEM: Engine Coolant Temperature Receiver Gauge Malfunction (2010 Corolla)		

Engine Coolant Temperature Receiver Gauge Malfunction

DESCRIPTION

In this circuit, the meter CPU receives engine coolant temperature signals from the ECM using the CAN communication line (CAN No. 1 Bus). The meter CPU displays engine coolant temperature that is calculated based on the data received from the ECM.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

If there is an open or short in the engine coolant temperature sensor circuit, the ECM outputs the DTCs. Perform troubleshooting with the SFI System INFO (for 2AZ-FE), INFO (for 2ZR-FE)).

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
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(a) Check if CAN communication DTC is output .

Result:

RESULT	PROCEED TO
CAN communication DTC is not output.	A
CAN communication DTC is output.	B

B ► **GO TO CAN COMMUNICATION SYSTEM**

A
▼

2. PERFORM ACTIVE TEST USING TECHSTREAM (WATER TEMPERATURE METER OPERATION)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Active Test.
- (e) Check the operation by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Water Temperature Meter Operation	Engine coolant temperature receiver gauge	Low, Normal, Hi	Confirm that the vehicle is stopped, engine idling

OK:

Gauge indication is normal.

NG ► **REPLACE COMBINATION METER**

OK
▼

3. READ VALUE USING TECHSTREAM (COOLANT TEMPERATURE)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Data List.
- (e) Check the values by referring to the values in the table below.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Coolant Temp	Engine coolant temperature/Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 100°C (176 to 212°F)	-

Result:

RESULT	PROCEED TO
The engine coolant temperature receiver gauge indication is almost the same as the Techstream indication.	A
The engine coolant temperature receiver indication is differ from the Techstream indication.	B

B ► REPLACE COMBINATION METER

A



4. READ VALUE USING TECHSTREAM (COOLANT TEMP)

- (a) Connect the Techstream to the DLC3.
- (b) Turn the ignition switch to ON.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Powertrain / Engine and ECT / Data List.

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

Engine and ECT

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Coolant Temp	Engine coolant temperature/Min.: -40°C (-40°F), Max.: 140°C (284°F)	After warming up: 80 to 100°C (176 to 212°F)	-

Result:

RESULT	PROCEED TO
The engine coolant temperature receiver gauge indication is almost the same as the actual engine coolant temperature.	A
The engine coolant temperature receiver gauge indication is differ from the actual engine coolant temperature. (for 2AZ-FE)	B
The engine coolant temperature receiver gauge indication is differ from the actual engine coolant temperature. (for 2ZR-FE)	C

C ► **GO TO SFI SYSTEM (for 2ZR-FE)**

B ► **GO TO SFI SYSTEM (for 2AZ-FE)**

A



5.	REPLACE COMBINATION METER
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(a) Replace the combination meter with a new or a known good one .

OK:

The operation of the combination meter returns to normal.

Result:

RESULT	PROCEED TO
OK	A
NG (for 2AZ-FE)	B
NG (for 2ZR-FE)	C

C ► REPLACE ECM (for 2ZR-FE)

B ► REPLACE ECM (for 2AZ-FE)

A ► END

