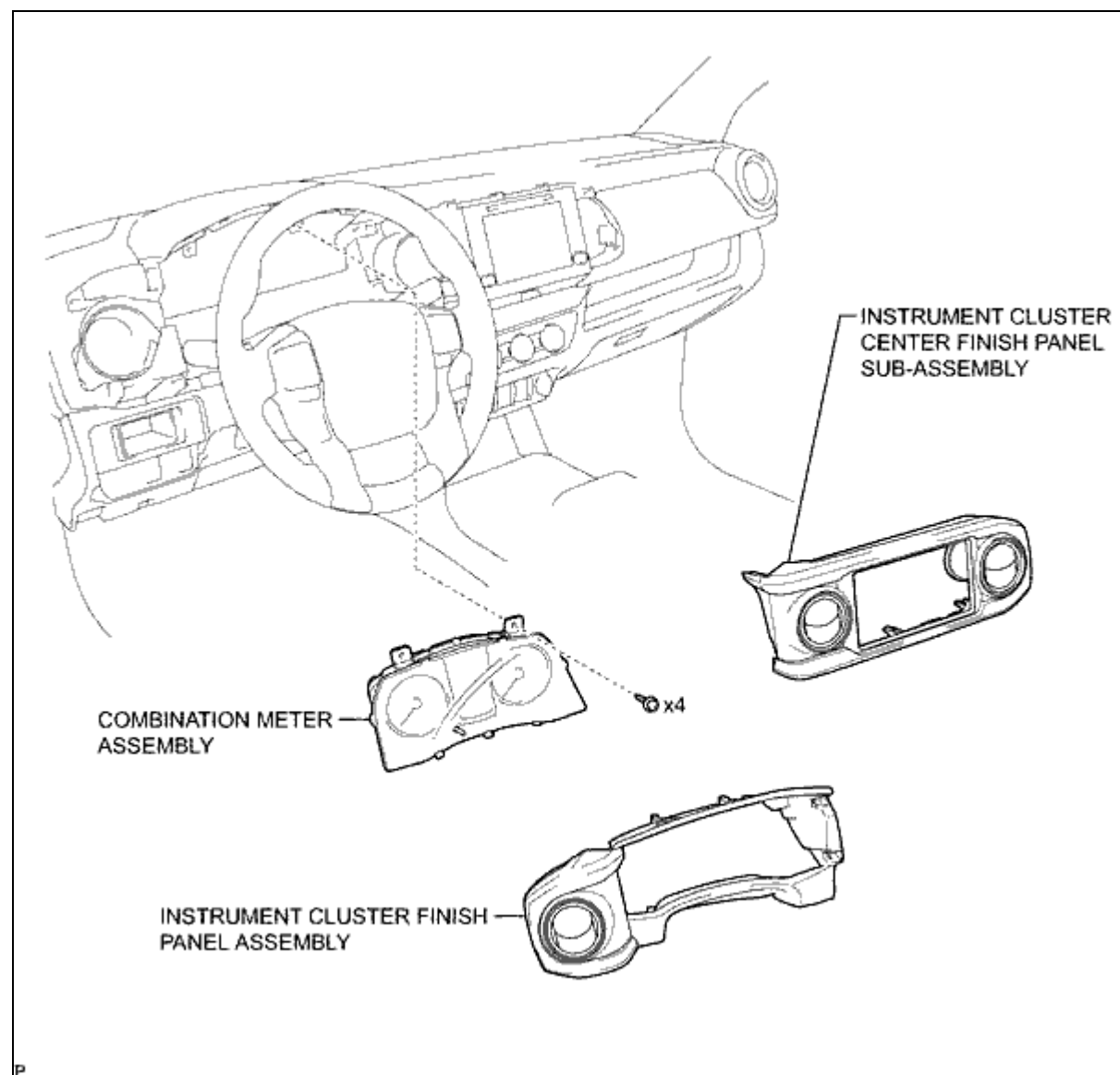


Last Modified: 11-13-2015	6.6 K	Doc ID: RM000002V5500LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: COMBINATION METER: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



P



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000002V5600QX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: COMBINATION METER: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL COMBINATION METER ASSEMBLY

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

2. INSTALL INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

3. INSTALL INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY INFO

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque:

5.4 N·m {55 kgf·cm, 48in·lbf}



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000002V5700QX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: COMBINATION METER: REMOVAL; 2016 MY Tacoma [08/2015 -]		

REMOVAL

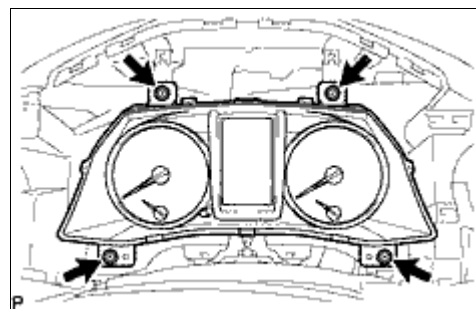
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

2. REMOVE INSTRUMENT CLUSTER CENTER FINISH PANEL SUB-ASSEMBLY [INFO](#)

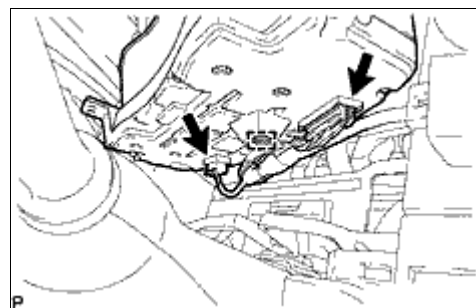
3. REMOVE INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY [INFO](#)

4. REMOVE COMBINATION METER ASSEMBLY

(a) Remove the 4 screws.



(b) Disengage the clamp.



(c) Disconnect the 2 connectors to remove the combination meter assembly.



Last Modified: 11-13-2015	6.6 C	Doc ID: RM0000032UZ01AX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: B1500; Fuel Sender Open Detected; 2016 MY Tacoma [08/2015 -]		

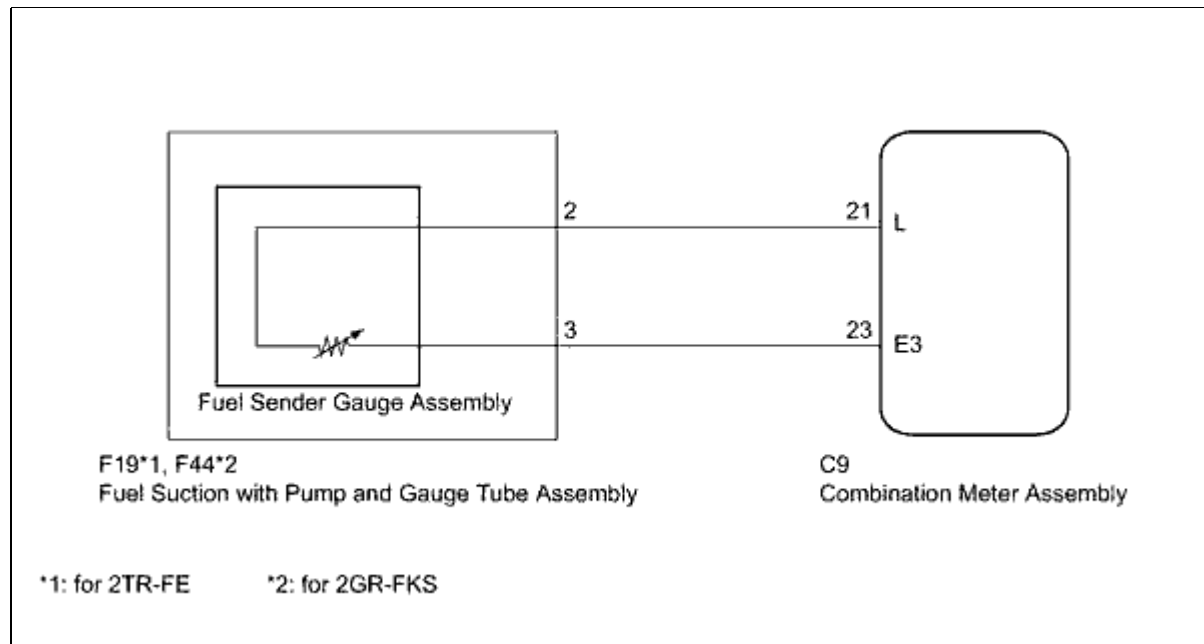
DTC	B1500	Fuel Sender Open Detected
------------	--------------	----------------------------------

DESCRIPTION

This DTC is output when the combination meter assembly detects a fuel sender gauge assembly malfunction.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1500	When either of the following conditions is detected: • IG voltage is 9.5 V or more • Fuel sender gauge operation malfunction	• Harness or connector • Combination meter assembly • Fuel sender gauge assembly • Fuel suction with pump and gauge tube assembly

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	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 the following menus: Body Electrical / Combination Meter / Data List.
- (e) According to the display on the Techstream, read the Data List.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Fuel Input	Fuel input signal/ Min.: 0, Max.: 127.5	Current fuel level displayed	Unit: Liter

Result

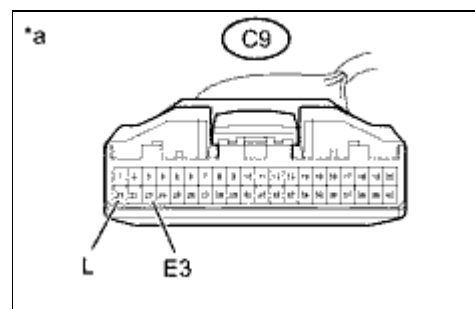
RESULT	PROCEED TO
Fuel level data can be displayed on the Techstream and DTC B1500 is output	A
Fuel level data cannot be displayed on the Techstream	B

B ► GO TO STEP 2

A ► REPLACE COMBINATION METER ASSEMBLY

2. INSPECT FUEL SENDER GAUGE ASSEMBLY
--

- (a) Disconnect the combination meter assembly connector.



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-21 (L) - C9-23 (E3)	Always	13.5 to 414.5 Ω

Text in Illustration

*a	Front view of wire harness connector (to Combination Meter Assembly)
----	---

NG  **GO TO STEP 3**

OK  **REPLACE COMBINATION METER ASSEMBLY**

3.

CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY)

- (a) Disconnect the C9 combination meter assembly connector.
- (b) Disconnect the F19 (for 2TR-FE) or F44 (2GR-FKS) fuel suction with pump and gauge tube assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance (for 2TR-FE):

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-21 (L) - F19-2	Always	Below 1 Ω
C9-21 (L) or F19-2 - Body ground	Always	10 k Ω or higher
C9-23 (E3) - F19-3	Always	Below 1 Ω
C9-23 (E3) or F19-3 - Body ground	Always	10 k Ω or higher

Standard Resistance (for 2GR-FKS):

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-21 (L) - F44-2	Always	Below 1 Ω
C9-21 (L) or F44-2 - Body ground	Always	10 k Ω or higher
C9-23 (E3) - F44-3	Always	Below 1 Ω
C9-23 (E3) or F44-3 - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



4.

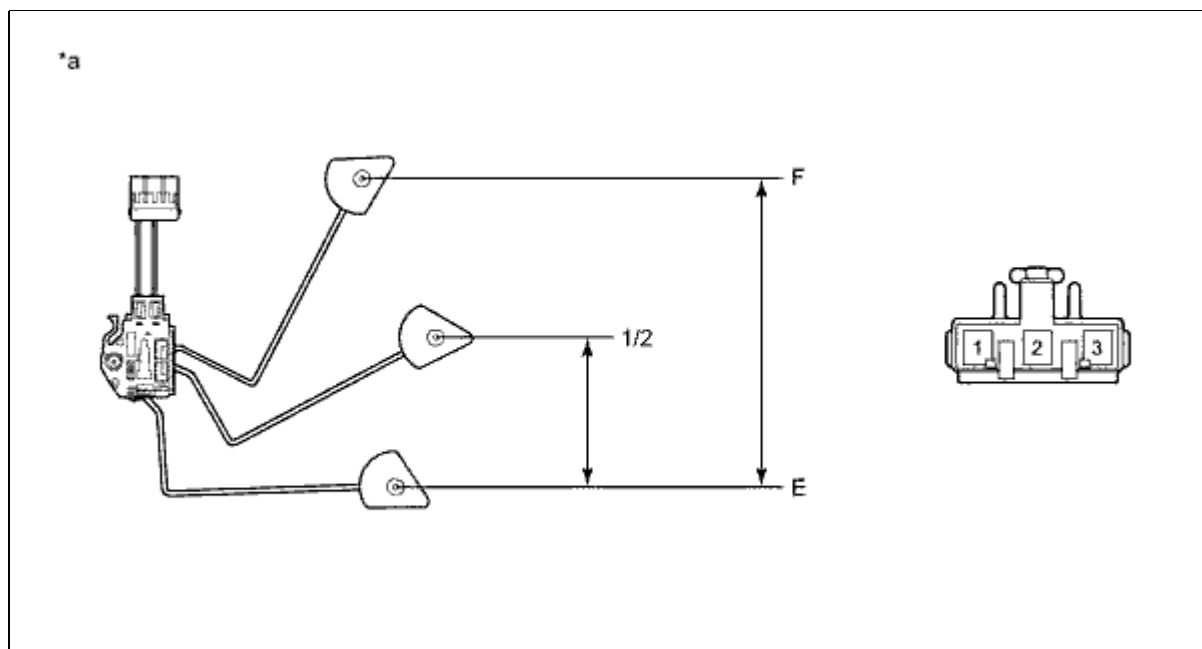
INSPECT FUEL SENDER GAUGE ASSEMBLY

- (a) Remove the fuel sender gauge assembly.

for 2TR-FE: 

for 2GR-FKS: 

(b) Inspect the fuel sender gauge assembly.



Text in Illustration

*a	Component without harness connected (Fuel Sender Gauge Assembly)	-	-
----	---	---	---

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

Standard Resistance:

for: **2TR-FE**

TESTER CONNECTION	FLOAT LEVEL	FLOAT POSITION (MM (IN.))	SPECIFIED CONDITION
1 - 2	F	181.9 to 193.9 (7.161 to 7.633)	3.0 to 5.0 Ω
	1/2	90.9 to 102.9 (3.578 to 4.051)	55.6 to 62.4 Ω
	E	0 (0)	109.0 to 111.0 Ω

for: **2GR-FKS**

TESTER CONNECTION	FLOAT LEVEL	FLOAT POSITION (MM (IN.))	SPECIFIED CONDITION
1 - 2	F	181.9 to 193.9 (7.161 to 7.633)	13.5 to 16.5 Ω
	1/2	90.9 to 102.9 (3.578 to 4.051)	201.0 to 224.0 Ω
	E	0 (0)	405.5 to 414.5 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for 2TR-FE)	B
NG (for 2GR-FKS)	C

- B

▶

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

▶

REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2GR-FKS)

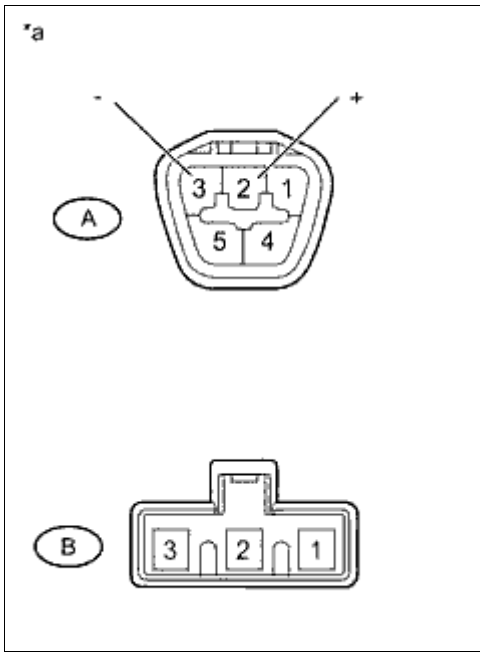
A

▼

5. INSPECT FUEL SUCTION PUMP AND GAUGE TUBE ASSEMBLY

(a) Remove the fuel suction pump and gauge tube assembly.

for 2TR-FE: [INFO](#)
for 2GR-FKS: [INFO](#)



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A-2 - B-2	Always	Below 1 Ω
A-3 - B-1		

Text in Illustration

*a	Component without harness connected (Fuel Suction with Pump and Gauge Tube Assembly)
----	---

Result

RESULT	PROCEED TO
--------	------------

RESULT	PROCEED TO
OK	A
NG (for 2TR-FE)	B
NG (for 2GR-FKS)	C

B ► REPLACE FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY (for 2TR-FE)

C ► REPLACE FUEL SUCTION W/PUMP & GAUGE TUBE ASSEMBLY (for 2GR-FKS)

A ► REPLACE COMBINATION METER ASSEMBLY



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000004N9402RX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: B1507,B1508; Open in Turn Signal Circuit; 2016 MY Tacoma [08/2015 -]		

DTC	B1507	Open in Turn Signal Circuit
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DTC	B1508	Short in Turn Signal / Hazard Flasher Circuit
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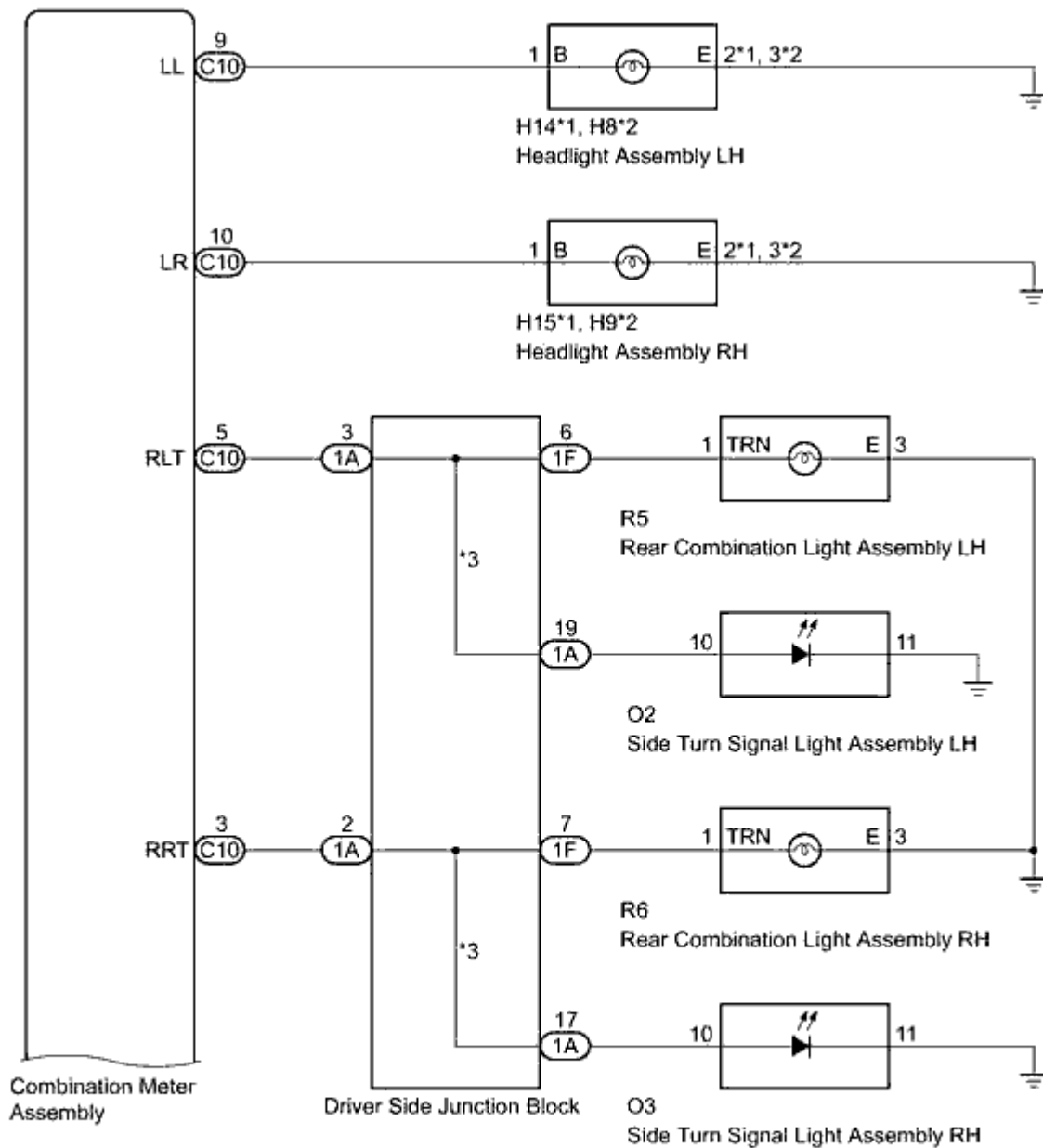
DESCRIPTION

This DTC is stored when the combination meter assembly detects an open in a turn signal light circuit, a short in a turn signal light circuit, or a short in the hazard warning light circuit.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B1507	When IG voltage is 9.5 V or more and the following condition is detected: 1. Open in turn signal light circuit*	• Harness or connector • Bulb • Instrument panel junction block assembly • Combination meter assembly
B1508	When IG voltage is more than 7 V and the following condition is detected: 1. Short in turn signal light circuit or hazard warning light circuit	• Harness or connector • Bulb • Instrument panel junction block assembly • Combination meter assembly

*: except Trailer Towing System

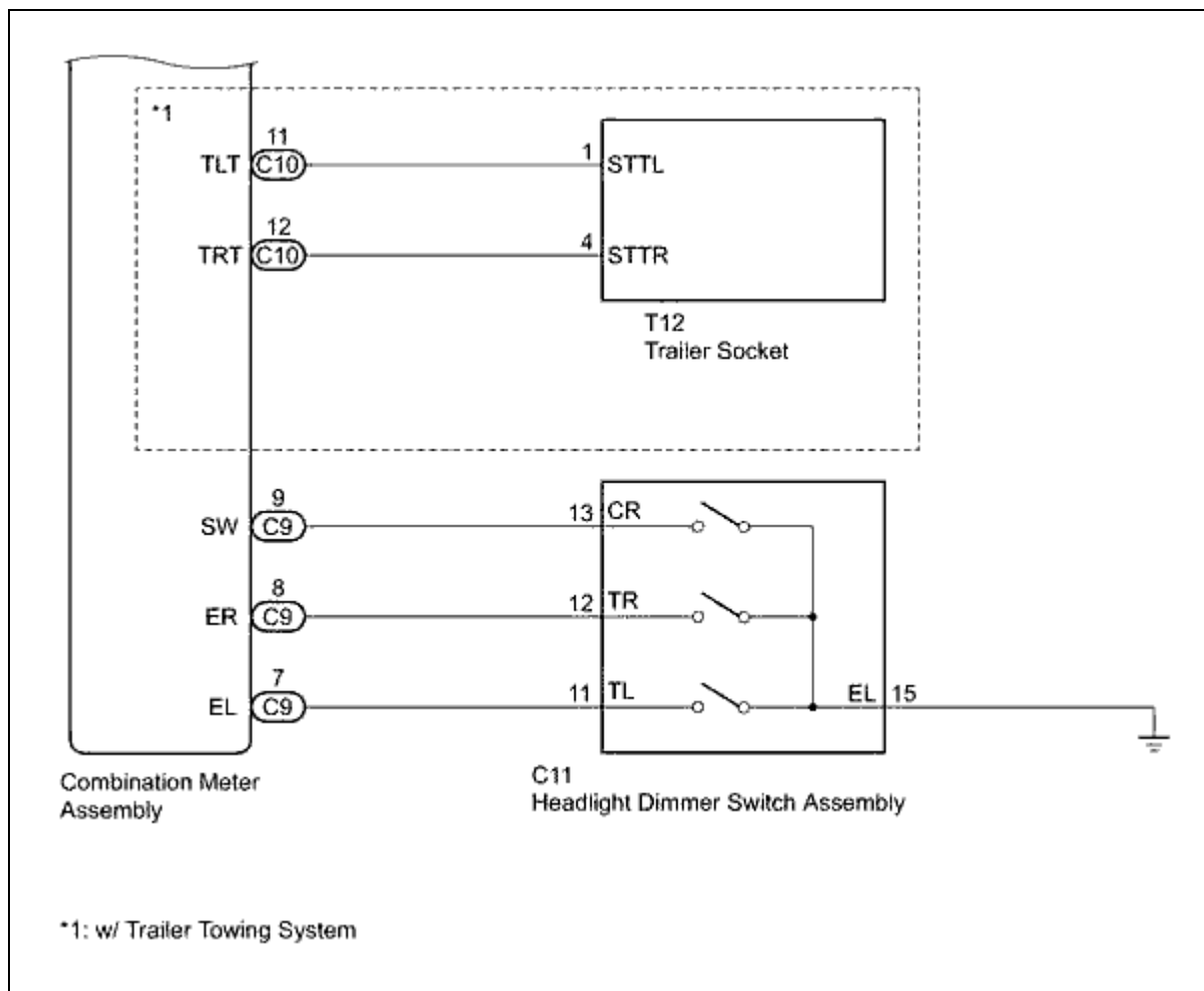
WIRING DIAGRAM



*1: for DRL LED Type

*2: for DRL Bulb Type

*3: for Outer Rear View Mirror Type Side Turn Signal Light



INSPECTION PROCEDURE

NOTICE:

Inspect the bulbs for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	INSPECT LIGHTS
----	-----------------------

(a) Inspect the illumination of each turn signal light.

Result

RESULT	PROCEED TO
Turn signal lights for one side do not illuminate (except Front Turn Signal Light)	A
Front turn signal light does not illuminate	B
Rear turn signal light does not illuminate	C
Side turn signal light does not illuminate (for Outer Rear View Mirror Type Side Turn Signal Light)	D
Trailer turn signal light does not illuminate (w/ Trail Towing System)	E

B ► **GO TO STEP 3**

C ► **GO TO STEP 4**

D ► **GO TO STEP 5**

E ► **GO TO STEP 6**

A



2.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - DRIVER SIDE JUNCTION BLOCK)
-----------	--

- (a) Disconnect the C10 combination meter assembly connector.
- (b) Disconnect the 1A driver side junction block connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C10-5 (RLT) - 1A-3	Always	Below 1 Ω
C10-5 (RLT) or 1A-3 - Body ground	Always	10 k Ω or higher
C10-3 (RRT) - 1A-2	Always	Below 1 Ω
C10-3 (RRT) or 1A-2 - Body ground	Always	10 k Ω or higher

Result

RESULT	PROCEED TO
NG	A
OK	B

B ► **GO TO STEP 7**

A ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

3.	CHECK HARNESS AND CONNECTOR (HEADLIGHT ASSEMBLY - COMBINATION METER ASSEMBLY)
-----------	--

- (a) for DRL LED Type:

- (1) Disconnect the H14 headlight assembly LH connectors.
- (2) Disconnect the H15 headlight assembly RH connectors.
- (3) Disconnect the C10 combination meter assembly connector.
- (4) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
H14-1 (B) - C10-9 (LL)	Always	Below 1 Ω
H14-2 (E) - Body ground	Always	Below 1 Ω
H14-1 (B) or C10-9 (LL) - Body ground	Always	10 k Ω or higher
H15-1 (B) - C10-10 (LR)	Always	Below 1 Ω
H15-2 (E) - Body ground	Always	Below 1 Ω
H15-1 (B) or C10-10 (LR) - Body ground	Always	10 k Ω or higher

(b) for DRL Bulb Type:

- (1) Disconnect the H8 headlight assembly LH connectors.
- (2) Disconnect the H9 headlight assembly RH connectors.
- (3) Disconnect the C10 combination meter assembly connector.
- (4) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
H8-1 (B) - C10-9 (LL)	Always	Below 1 Ω
H8-2 (E) - Body ground	Always	Below 1 Ω
H8-1 (B) or C10-9 (LL) - Body ground	Always	10 k Ω or higher
H9-1 (B) - C10-10 (LR)	Always	Below 1 Ω
H9-2 (E) - Body ground	Always	Below 1 Ω
H9-1 (B) or C10-10 (LR) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE COMBINATION METER ASSEMBLY**

4.	CHECK HARNESS AND CONNECTOR (REAR COMBINATION LIGHT ASSEMBLY - DRIVER SIDE JUNCTION BLOCK)
-----------	---

- (a) Disconnect the R5 rear combination light assembly LH connector.

- (b) Disconnect the R6 rear combination light assembly RH connector.
- (c) Disconnect the 1F driver side junction block connector.
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
R5-1 - 1F-6	Always	Below 1 Ω
R5-3 - Body ground	Always	Below 1 Ω
R5-1 or 1F-6 - Body ground	Always	10 k Ω or higher
R6-1 - 1F-7	Always	Below 1 Ω
R6-1 - Body ground	Always	Below 1 Ω
R6-1 or 1F-7 - Body ground	Always	10 k Ω or higher

Result

RESULT	PROCEED TO
NG	A
OK	B

B  **GO TO STEP 7**

A  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

5.	CHECK HARNESS AND CONNECTOR (OUTER REAR VIEW MIRROR ASSEMBLY - DRIVER SIDE JUNCTION BLOCK)
-----------	---

- (a) Disconnect the O2 outer rear view mirror assembly LH connector.
- (b) Disconnect the O3 outer rear view mirror assembly RH connector.
- (c) Disconnect the 1A driver side junction block connector.
- (d) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O2-10 - 1A-19	Always	Below 1 Ω
O2-11 - Body ground	Always	Below 1 Ω
O2-10 or 1A-19 - Body ground	Always	10 k Ω or higher
O3-10 - 1A-17	Always	Below 1 Ω
O3-11 - Body ground	Always	Below 1 Ω

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
O3-10 or 1A-17 - Body ground	Always	10 kΩ or higher

Result

RESULT	PROCEED TO
NG	A
OK	B

B ► **GO TO STEP 7**

A ► **REPAIR OR REPLACE HARNESS OR CONNECTOR**

6.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - TRAILER SOCKET)
-----------	--

- (a) Disconnect the C10 combination meter assembly connector.
- (b) Disconnect the T12 trailer socket connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

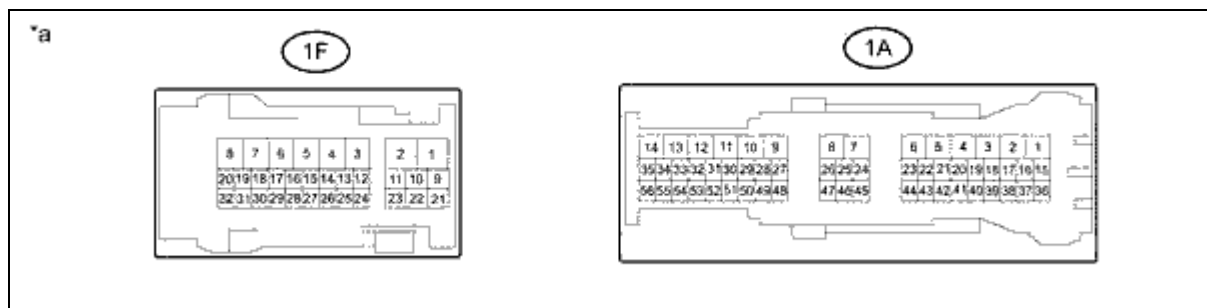
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C10-11(TLT) - T12-1(STTL)	Always	Below 1 Ω
C10-12(TRT) - T12-4(STTR)	Always	Below 1 Ω
C10-11(TLT) or T12-1(STTL) - Body ground	Always	10 kΩ or higher
C10-12(TRT) or T12-4(STTR) - Body ground	Always	10 kΩ or higher

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

OK ► **REPLACE COMBINATION METER ASSEMBLY**

7.	INSPECT DRIVER SIDE JUNCTION BLOCK
-----------	---

- (a) Remove the main body ECU (multiplex network body ECU) from the instrument panel junction block assembly  .



Text in Illustration

*a	Component without harness connected (Driver Side Junction Block)	-	-
----	---	---	---

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
1A-3 - 1F-6	Always	Below 1 Ω
1A-3 - 1A-19*1	Always	Below 1 Ω
1A-2 - 1F-7	Always	Below 1 Ω
1A-2 - 1A-17*1	Always	Below 1 Ω

*1: for Outer Rear View Mirror Type Side Turn Signal Light

NG ► **REPLACE DRIVER SIDE JUNCTION BLOCK**

OK ► **REPLACE COMBINATION METER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000005Q99001X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: B150A; Lost Communication with HMI-LAN; 2016 MY Tacoma [08/2015 -]		

DTC	B150A	Lost Communication with HMI-LAN
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DESCRIPTION

The combination meter assembly receives a text data signal from the navigation receiver assembly or radio and display receiver assembly via local bus communication.

Based on this signal, navigation system information is displayed on the multi-information display.

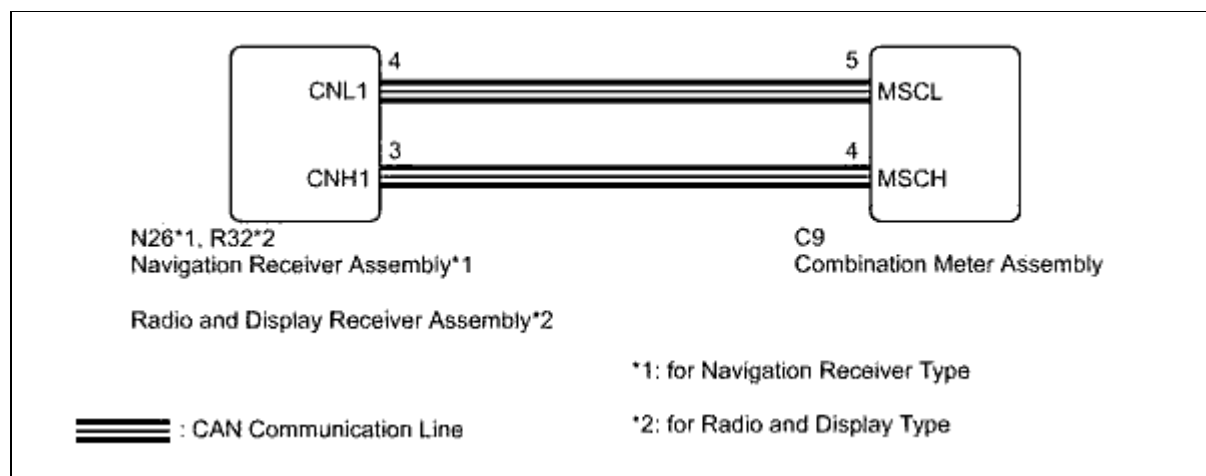
This DTC is stored when the combination meter assembly cannot receive the signal.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
B150A	After the combination meter assembly receives a registration information signal, which is sent by the navigation receiver assembly when the ignition switch is ACC, 1 or more times, the combination meter assembly cannot receive the signal for 30 seconds or more.	• Harness or connector • Navigation receiver assembly*1 • Radio and display receiver assembly*2 • Combination meter assembly

*1: for Navigation Receiver Type

*2: for Radio and Display Type

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK FOR DTC
----	----------------------

(a) Check if Navigation System or Audio and Visual System DTCs are output.

for Navigation Receiver type: INFO

for Radio and Display type: INFO

OK:

Navigation system DTCs are not output.

Result

RESULT	PROCEED TO
Navigation system DTCs are not output*1	A
Navigation system DTCs are output*1	B
Audio and visual system are not output*2	C
Audio and Visual System are output*2	D

*1: for Navigation Receiver Type

*2: for Radio and Display Type

B ► GO TO NAVIGATION SYSTEM

C ► GO TO STEP 4

D ► GO TO AUDIO AND VISUAL SYSTEM

A



2.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - NAVIGATION RECEIVER ASSEMBLY)
----	--

(a) Disconnect the C9 combination meter assembly connector.

(b) Disconnect the N26 navigation receiver assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
-------------------	-----------	---------------------

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-4 (MSCH) - N26-3 (CNH1)	Always	Below 1 Ω
C9-5 (MSCL) - N26-4 (CNL1)	Always	Below 1 Ω
C9-4 (MSCH) or N26-3 (CNH1) - Body ground	Always	10 k Ω or higher
C9-5 (MSCL) or N26-4 (CNL1) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



3.	REPLACE COMBINATION METER ASSEMBLY
-----------	---

(a) Replace the combination meter assembly with a new or known good one  .

(b) Turn the ignition switch to ON and wait 30 seconds.

NOTICE:

A maximum of 30 seconds is required to send/receive the registration information between the combination meter assembly and navigation receiver assembly.

(c) Operate the steering pad switch assembly and check that the audio tab illuminates.

(d) Check for DTCs  .

Result

RESULT	PROCEED TO
The audio tab illuminates and DTC B150A is not output	A
The audio tab does not illuminate and DTC B150A is output	B
The audio tab does not illuminate and DTC B150A is output	C

B  **REPLACE NAVIGATION RECEIVER ASSEMBLY**

C  **REPLACE RADIO AND DISPLAY RECEIVER ASSEMBLY**

A  **END (COMBINATION METER ASSEMBLY WAS DEFECTIVE)**

4.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - RADIO AND DISPLAY RECEIVER ASSEMBLY)
-----------	---

- (a) Disconnect the C9 combination meter assembly connector.
- (b) Disconnect the R32 radio and display receiver assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-4 (MSCH) - R32-3 (CNH1)	Always	Below 1 Ω
C9-5 (MSCL) - R32-4 (CNL1)	Always	Below 1 Ω
C9-4 (MSCH) or R32-3 (CNH1) - Body ground	Always	10 k Ω or higher
C9-5 (MSCL) or R32-4 (CNL1) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



5.	REPLACE COMBINATION METER ASSEMBLY
-----------	---

- (a) Replace the combination meter assembly with a new or known good one  .
- (b) Turn the ignition switch to ON and wait 30 seconds.

NOTICE:

A maximum of 30 seconds is required to send/receive the registration information between the combination meter assembly and navigation receiver assembly.

- (c) Operate the steering pad switch assembly and check that the audio tab illuminates.
- (d) Check for DTCs  .

Result

RESULT	PROCEED TO
The audio tab illuminates and DTC B150A is not output	A
The audio tab does not illuminate and DTC B150A is output	B

B  **REPLACE RADIO AND DISPLAY RECEIVER ASSEMBLY**

A  **END (COMBINATION METER ASSEMBLY WAS DEFECTIVE)**



Last Modified: 11-13-2015	6.6 D	Doc ID: RM0000012G8079X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: CUSTOMIZE PARAMETERS; 2016 MY Tacoma [08/2015 -]		

CUSTOMIZE PARAMETERS

1. CUSTOMIZE METER / GAUGE SYSTEM

(a) Customizing with the Techstream

- (1) Connect the Techstream to the DLC3.
- (2) Turn the ignition switch to ON.
- (3) Turn the Techstream on.
- (4) Enter the following menus: Customize Setting / Warning or Display.
- (5) Select the setting by referring to the table below.

NOTICE:

Record the current settings before customizing.

Warning

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
Key Remind Volume	Large	Function to change the volume of the key reminder buzzer.	Large,Medium,Small	Combination meter assembly
Key Remind Sound	Normal	Function to change the frequency of the key reminder buzzer.	Normal,Slow,Fast	Combination meter assembly

Display

DISPLAY	DEFAULT	CONTENT	SETTING	RELEVANT ECU
ODO Display Time After IG OFF Setting	30s	Function to change the ODO Display Time After IG OFF Setting.	30s,60s,600s,OFF	Combination meter assembly



Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000012G70KLX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: DATA LIST / ACTIVE TEST; 2016 MY Tacoma [08/2015 -]		

DATA LIST / ACTIVE TEST

1. DATA LIST

HINT:

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.

NOTICE:

In the table below, the values listed under "Normal Condition" are reference values. Do not depend solely on these reference values when deciding whether a part is faulty or not.

- Warm up the engine.
- Turn the ignition switch off.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Combination Meter / Data List.
- According to the display on the Techstream, read the Data List.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
ODO/TRIP Change SW	ODO/TRIP switch/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	-
Vehicle Speed Meter	Vehicle speed/ Min.: 0 km/h (0 mph), Max.: 255 km/h (158 mph)	Approximately same as actual vehicle speed (When vehicle is being driven)	-
Engine Rpm	Engine speed/ Min.: 0 rpm, Max.: 12750 rpm	600 to 700 rpm: Idling	-
Coolant Temperature	Engine coolant temperature/ Min.: 0°C (32°F), Max.: 127.5°C (261.5°F)	80 to 100°C (176 to 212°F): After warming up	-
Washer Switch*4	Washer level warning switch/ OFF or ON	OFF: Washer level warning switch off	-
		ON: Washer level warning switch on	

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Light Control Up Switch	Light control rheostat up switch / OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Light Control Down Switch	Light control rheostat down switch/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
+B Voltage Value	Battery voltage/ Min.: 0 V, Max.: 25.5 V	11 to 14 V	-
Integrated value for Maintenance*1	Maintenance required reminder value/ Min.: 0, Max.: 25500 (mile)	Driving distance after performing maintenance required reminder reset procedure displayed	If the value is 5000 (miles) or more, perform the maintenance required reminder reset procedure after performing maintenance.
Fuel Input	Fuel input signal/ Min.: 0, Max.: 127.5	Current fuel level displayed	Unit: Liter
Ambient Temperature	Outside temperature/ Min.: -40°C (-40°F), Max.: 87.5°C (189.5°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).
Multi Switch (Up)*2	Drive monitor switch (Up)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Multi Switch (Down)*2	Drive monitor switch (Down)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Multi Switch (Menu)*2	Steering pad switch (Menu)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Multi Switch (Enter)*2	Steering pad switch (Enter)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Multi Switch (Right)*2	Steering pad switch (Right)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Multi Switch (Left)*2	Steering pad switch (Left)/ OFF or ON	OFF: Switch released	-
		ON: Switch pushed	
Oil Pressure Switch	Engine oil pressure switch/ OFF or ON	OFF: Engine oil pressure low	-
		ON: Engine oil pressure except above	
Turn Signal	RH turn signal switch/	OFF: RH turn signal switch off	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Switch (Right)	OFF or ON	ON: RH turn signal switch on	
Turn Signal Switch (Left)	LH turn signal switch/ OFF or ON	OFF: LH turn signal switch off ON: LH turn signal switch on	
Hazard Flasher Switch	Hazard warning signal switch/ OFF or ON	OFF: Hazard warning signal switch off ON: Hazard warning signal switch on	-
Turn Switch Signal (Full Turn)	Turn switch signal/ OFF or ON	OFF: LH or RH turn switch off ON: LH or RH turn switch on	-
Multi Switch (Back)*2	Steering pad switch (Back)/	OFF: Switch released ON: Switch pushed	-
Key Remind Sound*3	Cycle of key reminder warning buzzer/ Normal, Slow or Fast	Cycle of key reminder warning buzzer is Fast, Normal or Slow	The current setting of the cycle of the key reminder warning buzzer is displayed.
Driver Side Seatbelt Warning Buzzer	Condition of the driver side seat belt warning buzzer/ OFF or ON	ON: Driver side seat belt warning buzzer sounds at a vehicle speed of 20 km/h (12 mph) or more when driver side seat belt unfastened OFF: Driver side seat belt warning buzzer does not sound at a vehicle speed of 20 km/h (12 mph) or more when driver side seat belt unfastened	The customized setting of the driver side seat belt warning buzzer is displayed.
P-Seatbelt Warning Buzzer	Condition of the front passenger side seat belt warning buzzer/ OFF or ON	ON: Front passenger side seat belt warning buzzer sounds at a vehicle speed of 20 km/h (12 mph) or more when front passenger side seat belt unfastened and passenger occupant detected OFF: Front passenger side seat belt warning buzzer does not sound at a vehicle speed of 20 km/h (12 mph) or more when front passenger side seat belt unfastened	The customized setting of the front passenger side seat belt warning buzzer is displayed.
ODO Display Time After IG OFF Setting	Condition of the ODO display time after the ignition switch is turned off/ 30s, 60s, 600s or OFF	Displays customize setting of ODO display time after IG off setting	-
Lane Change Flashing Times Setting	Condition of the lane change flashing times OFF, 3, 4, 5, 6 or 7	Displays customize setting of lane change flashing times setting	-
TPMS System	Existence of function/ With or Without	With: w/ Tire pressure warning system	-

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
		Without: w/o Tire pressure warning system	
VSC System	Existence of function/ With or Without	With: w/ Vehicle stability control Without: w/o Vehicle stability control	-
Number of Trouble Code	The number of the DTC which is currently output	0	-

*1: w/ Maintenance Required Reminder

*2: w/ Multi-information Display

*3: w/o Smart Key System

*4: w/ Washer Fluid Level Warning

2. ACTIVE TEST

HINT:

Using the Techstream to perform Active Tests allows 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 troubleshooting is one way to save diagnostic time. Data List information can be displayed while performing Active Tests.

- Warm up the engine.
- Turn the ignition switch off.
- 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.
- According to the display on the Techstream, perform the Active Test.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Speed Meter Operation	Speedometer	- OFF, 0, 40, 80, 120, 160, 200 mph*2 - OFF, 0, 40, 80, 120, 160, 200, 240, 280 km/h*3	Operate with IG ON and the vehicle is stopped.
			There is a deviation in the values displayed on the speedometer (Control range → Speedometer display) Reference mph*2: 40 → 39.4 to 42.2 80 → 80.0 to 83.2 120 → 120.9 to 124.1 Reference km/h*3: 40 → 38.6 to 43.1 80 → 79.1 to 84.1

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
			• 120 → 120.0 to 125.0 • 160 → 160.8 to 165.8
Tachometer Operation	Tachometer	OFF, 0, 1000, 2000, 3000, 4000, 5000, 6000, 7000	Operate with IG ON and the vehicle is stopped.
Fuel Meter Operation	Fuel receiver gauge	OFF, Sender E, Empty, Warning, 1/4, 1/2, 3/4, Full, Sender F	Operate with IG ON and the vehicle is stopped.
A/T Indicator Operation 1	A/T shift indicator light (D, P, N, R, 4, 3, 2, L)	OFF, L, 2, 3, 4, D, N, R, P	Operate with IG ON and the vehicle is stopped.
A/T Indicator Operation 2	A/T gear range indicator light (S, 8, 7, 6, 5)	OFF, 8, 5, 6, 7, S	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Airbag	SRS warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Doors All Open*4	Door indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Driver Side Seat Belt	Driver side seat belt warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp ABS	ABS warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Charge*4	Charge warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Slip	Slip indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Beam	High beam indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Head*2	Head indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Tail*3	Tail indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Fr FOG*5	Front fog indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Driver Side Door Open*4	Open door warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Front Passenger Side Door Open*4	Open door warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Rear Door RH Open*4	Open door warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Rear Door LH Open*4	Open door warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Washer*3*4	Low windshield washer fluid warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Indicat. Lamp Fuel	Fuel level warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Tire Pressure Warning System*8	Tire Pressure warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Oil Pressure	Oil pressure warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp ECT PWR*9	ECT PWR indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped
A/T Oil Temperature Operation*4*9	Automatic transmission fluid temperature warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. 4WD (Yellow)*4*10	Four-wheel drive indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Cruise*11	Cruise main indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Oil Level*4*6	Low engine oil level warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Lamp Brake	Brake warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Maintenance Indicator*2*4	Maintenance required reminder light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Master Warning*1	Master warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Auto LSD	Slip indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Park	Parking brake indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. Rr DIFF LOCK*1	Rear differential lock indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. 4LO*10	Low speed four-wheel drive indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. SET*11	Cruise set indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Indicat. VSC OFF	VSC OFF indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Turn Signal (Left) Indicator	LH turn indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Turn Signal (Right) Indicator	RH turn indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
4WD Indicator (Green)*10	Four-wheel drive indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Check Engine Indicator	Malfunction indicator light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Blind Spot Monitor Indicator*4*7	BSM warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Brake Override Indicator*4	Brake Override System warning light	OFF or ON	Operate with IG ON and the vehicle is stopped.
Water Temperature Meter Operation	Engine coolant temperature receiver gauge	OFF, LOW, NORMAL, HIGH	Operate with IG ON and the vehicle is stopped.
Meter Display 1	Multi-information display	OFF, 6, 5, 4, 3, 2, 1, 0, All	Operate with IG ON and the vehicle is stopped.

- *1: w/ Multi-information Display
- *2 for Speedometer with Imperial Units for Main Scale
- *3 for Speedometer with Metric Units for Main Scale
- *4 w/o Multi-information Display
- *5: w/ Fog Light
- *6: for 2GR-FKS
- *7: w/ Blind Spot Monitor System
- *8: w/ Tire Pressure Warning System
- *9: for Automatic Transmission
- *10: for 4WD
- *11: w/ Cruise Control System



Last Modified: 11-13-2015	6.6 D	Doc ID: RM0000012G608IX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: DIAGNOSIS SYSTEM; 2016 MY Tacoma [08/2015 -]		

DIAGNOSIS SYSTEM

1. CHECK DLC3

(a) Check the DLC3  .

2. INSPECT BATTERY VOLTAGE

(a) Measure the battery voltage.

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding to the next step.



Last Modified: 11-13-2015	6.6 S	Doc ID: RM0000029ZC09NX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: DIAGNOSTIC TROUBLE CODE CHART; 2016 MY Tacoma [08/2015 -]		

DIAGNOSTIC TROUBLE CODE CHART

HINT:

If a trouble code is output during the DTC check, inspect the trouble areas listed for that code. For details of the code, refer to the "See page".

DTC CODE	DETECTION ITEM	SEE PAGE
B1500	Fuel Sender Open Detected	INFO
B1507	Open in Turn Signal Circuit	INFO
B1508	Short in Turn Signal / Hazard Flasher Circuit	INFO
B150A*	Lost Communication with HMI-LAN	INFO
U0100	Lost Communication with ECM / PCM "A"	INFO
U0129	Lost Communication with Brake System Control Module	INFO
U0142	Lost Communication with Body Control Module "B"	INFO
U0151	Lost Communication with Airbag ECU	INFO
U0163	Lost Communication with Navigation Control Module	INFO

*: w/ Multi-information Display



Last Modified: 11-13-2015	6.6 D	Doc ID: RM0000029Z908DX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: DTC CHECK / CLEAR; 2016 MY Tacoma [08/2015 -]		

DTC CHECK / CLEAR

1. CHECK DTC

- (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 / Trouble Codes.
- (e) Check DTCs and then write them down.

HINT:

Refer to the Techstream operator's manual for further details.

- (f) Confirm the details of the DTCs.

2. CLEAR DTC

- (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 / Trouble Codes.

HINT:

Refer to the Techstream operator's manual for further details.

- (e) Clear DTCs.

HINT:

Refer to the Techstream operator's manual for further details.



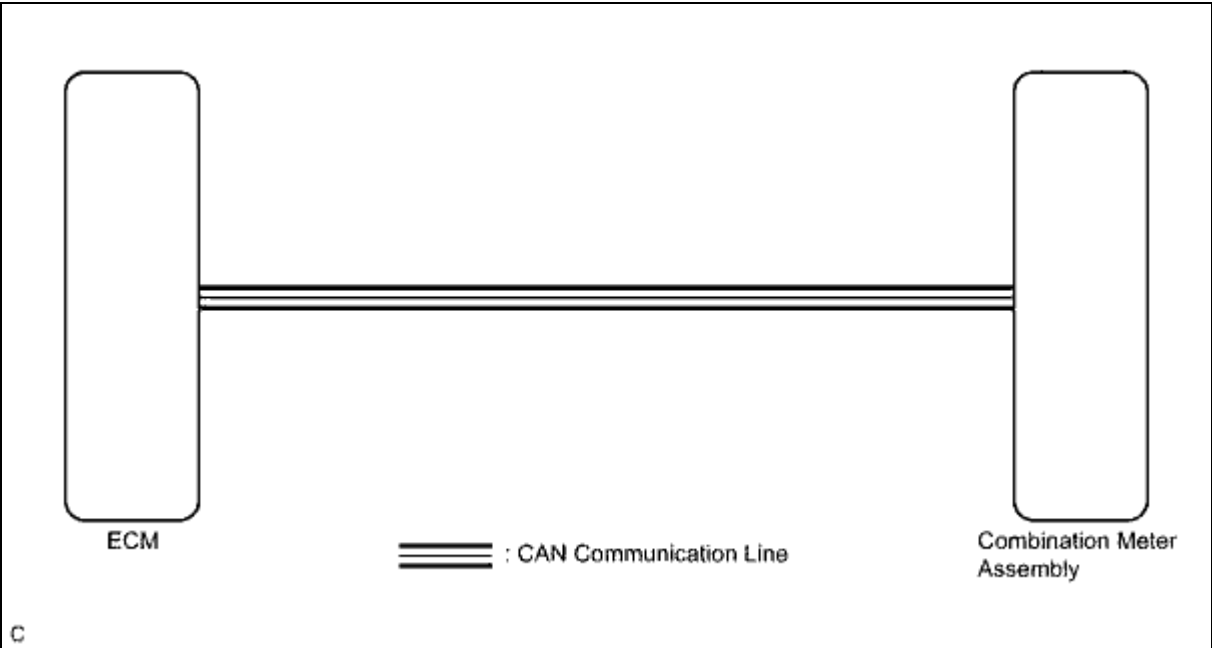
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001YO002WX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Engine Coolant Temperature Receiver Gauge Malfunction; 2016 MY Tacoma [08/2015 -]		

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 system (CAN V1 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 stores the DTCs. Troubleshoot the SFI System (for 2TR-FE) [INFO](#) or SFI System (for 2GR-FKS) [INFO](#) .

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
----	--------------------------------

(a) Check if a 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.	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) According to the display on the Techstream, read the Data List.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Coolant Temperature	Engine coolant temperature/ Min.: 0°C (32°F), Max.: 127.5°C (261.5°F)	80 to 100°C (176 to 212°F); After warming up	-

OK:

Engine coolant temperature value displayed on the Techstream is almost the same as the engine coolant temperature receiver gauge indication.

NG  **REPLACE COMBINATION METER ASSEMBLY**

OK



3.	CHECK ENGINE CONTROL SYSTEM
-----------	------------------------------------

- (a) Check if a engine control DTC is output.

for 2TR-FE: 

for 2GR-FKS: 

Result

RESULT	PROCEED TO
Engine control DTC is not output	A
Engine control (for 2TR-FE) DTC is output	B
Engine control (for 2GR-FKS) DTC is output	C

B ► **GO TO SFI SYSTEM (for 2TR-FE)**

C ► **GO TO SFI SYSTEM (for 2GR-FKS)**

A ► **REPLACE COMBINATION METER ASSEMBLY**



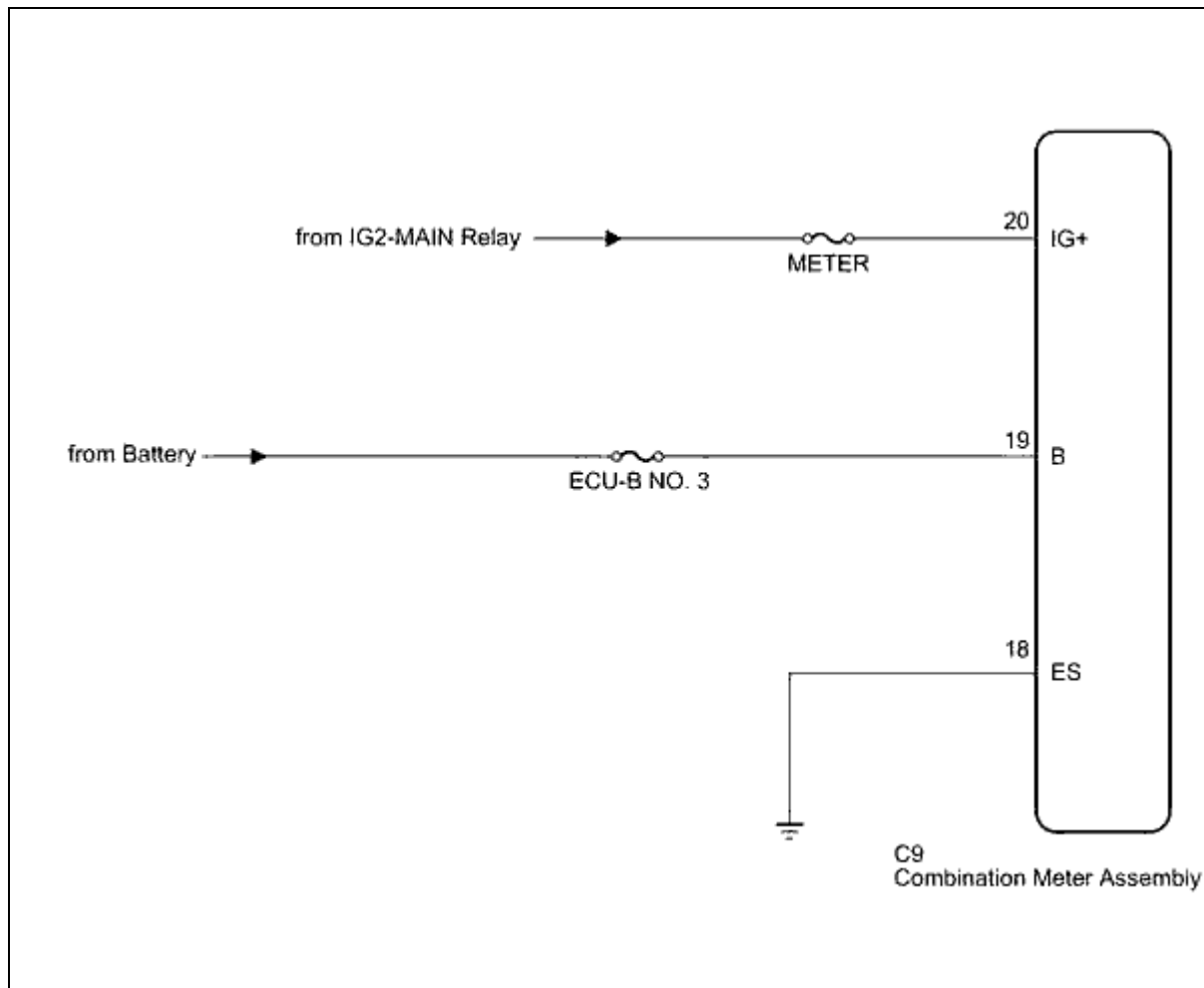
Last Modified: 11-13-2015	6.6 J	Doc ID: RM0000012GC0BLX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Entire Combination Meter does not Operate; 2016 MY Tacoma [08/2015 -]		

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 an IG power source mainly used for signal transmission. The constant power source is mainly used as a backup power source for the meter CPU, however, it is also used for CAN communication. If a voltage of 12 V is not applied to terminal IG+ when turning the ignition switch ON, the indicators will not operate.

WIRING DIAGRAM



INSPECTION PROCEDURE

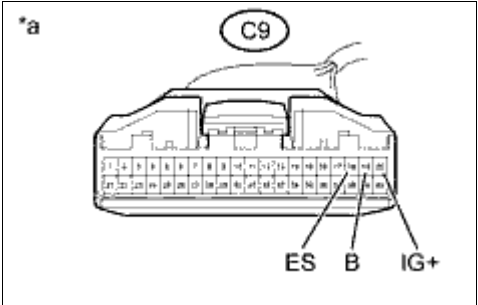
CAUTION:

Inspect the fuses for circuits related to this system before performing the following inspection procedure.

PROCEDURE

1.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - BATTERY AND BODY GROUND)
----	--

(a) Disconnect the combination meter assembly connector.



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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
C9-20 (IG+) - Body ground	Ignition switch ON	11 to 14 V
C9-19 (B) - Body ground	Always	11 to 14 V

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-18 (ES) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Combination Meter Assembly)
----	---

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK REPLACE COMBINATION METER ASSEMBLY



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000005PRX001X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: FREEZE FRAME DATA; 2016 MY Tacoma [08/2015 -]		

FREEZE FRAME DATA

1. FREEZE FRAME DATA

- (a) Whenever a meter DTC is detected, the combination meter assembly stores the current vehicle state as freeze frame data.

2. CHECK FREEZE FRAME DATA

- (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 / Trouble Codes.
(e) According to the Techstream display, select a DTC that stored freeze frame data.
(f) Read the freeze frame data recorded when the DTC was stored.

Combination Meter

TESTER DISPLAY	CONDITION	DISPLAYED ITEM
B1507	Open in Turn Signal Circuit	• Trip • Elapsed time after turning the ignition switch to ON
B1508	Short in Turn Signal / Hazard Flasher Circuit	
B150A*	Lost Communication with HMI-LAN	
U0100	Lost Communication with ECM / PCM "A"	
U0129	Lost Communication with Brake System Control Module	
U0142	Lost Communication with Body Control Module "B"	
U0151	Lost Communication with Restraints Control Module	
U0163	Lost Communication with Navigation Control Module	

*: w/ Multi-information Display

3. CLEAR FREEZE FRAME DATA

CAUTION:

Clearing the DTCs will also clear the freeze frame data.

- (a) Connect the Techstream to the DLC3.
(b) Turn the ignition switch to ON.
(c) Clear DTCs and freeze frame data.



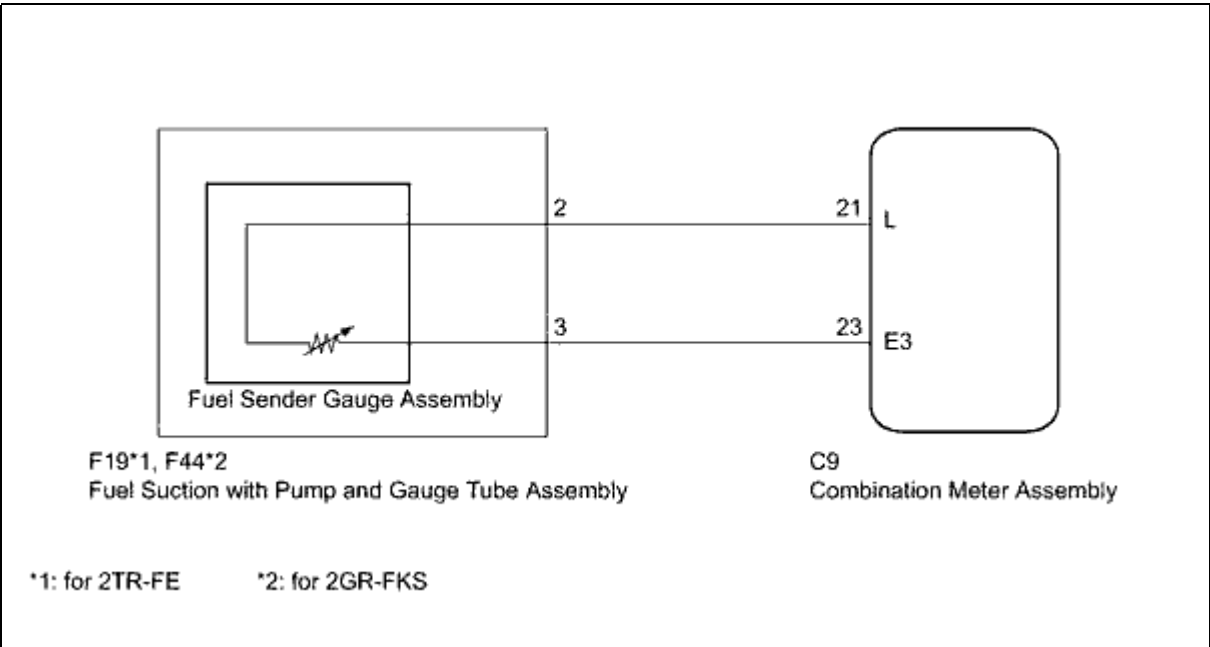
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001F8K026X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Fuel Receiver Gauge Malfunction; 2016 MY Tacoma [08/2015 -]		

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 13.5 Ω with the float at the full position, and 414.5 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 the battery voltage.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
----	--------------------------------

(a) Check if a CAN communication DTC is output INFO .

Result

RESULT	PROCEED TO
--------	------------

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 (FUEL 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) According to the display on the Techstream, perform the Active Test.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Fuel Meter Operation	Fuel receiver gauge	OFF, Sender E, Empty, Warning, 1/4, 1/2, 3/4, Full, Sender F	Operate with IG ON and the vehicle is stopped.

OK:

Fuel receiver gauge indication is normal.

NG ► **REPLACE COMBINATION METER ASSEMBLY**

OK
▼

3.	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 the following menus: Body Electrical / Combination Meter / Data List.

(e) According to the display on the Techstream, read the Data List.

Combination Meter

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Fuel Input	Fuel input signal/ Min.: 0, Max.: 127.5	Current fuel level displayed	Unit: Liter

OK:

Fuel level signal displayed on the Techstream is almost the same as fuel receiver gauge indication.

NG  **REPLACE COMBINATION METER ASSEMBLY**

OK



4.	CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - FUEL SUCTION WITH PUMP AND GAUGE TUBE ASSEMBLY)
----	--

(a) Disconnect the C9 combination meter assembly connector.

(b) Disconnect the F19*1 or F44*2 fuel suction with pump and gauge tube assembly connector.

*1: for 2TR-FE

*2: for 2GR-FKS

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

Standard Resistance:

for 2TR-FE

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-21 (L) - F19-2	Always	Below 1 Ω
C9-21 (L) or F19-2 - Body ground	Always	10 k Ω or higher
C9-23 (E3) - F19-3	Always	Below 1 Ω
C9-23 (E3) or F19-3 - Body ground	Always	10 k Ω or higher

for 2GR-FKS

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-21 (L) - F44-2	Always	Below 1 Ω
C9-21 (L) or F44-2 - Body ground	Always	10 k Ω or higher
C9-23 (E3) - F44-3	Always	Below 1 Ω
C9-23 (E3) or F44-3 - Body ground	Always	10 k Ω or higher

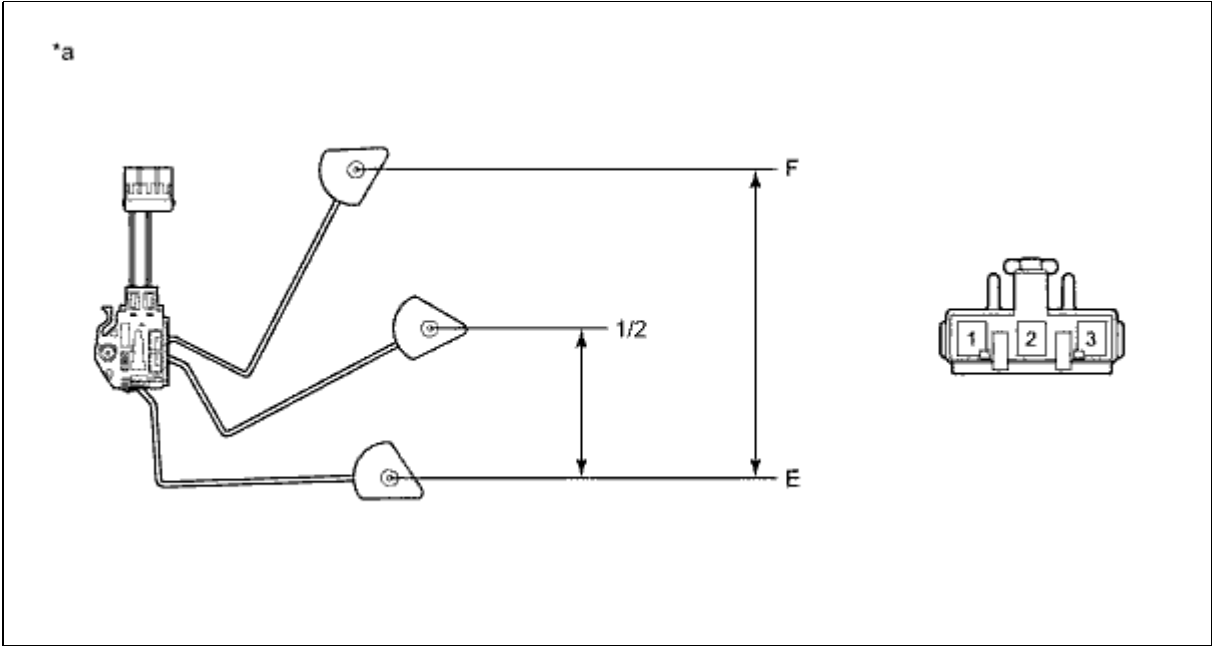
OK

5. INSPECT FUEL SENDER GAUGE ASSEMBLY

(a) Remove the fuel sender gauge assembly.

for 2TR-FE: INFO
for 2GR-FKS: INFO

(b) Inspect the fuel sender gauge assembly.



Text in Illustration

*a	Component without harness connected (Fuel Sender Gauge Assembly)	-	-
----	---	---	---

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

Standard Resistance:

for: 2TR-FE

TESTER CONNECTION	FLOAT LEVEL	FLOAT POSITION (MM (IN.))	SPECIFIED CONDITION
1 - 2	F	181.9 to 193.9 (7.161 to 7.633)	3.0 to 5.0 Ω
	1/2	90.9 to 102.9 (3.578 to 4.051)	55.6 to 62.4 Ω
	E	0 (0)	109.0 to 111.0 Ω

for: 2GR-FKS

TESTER CONNECTION	FLOAT LEVEL	FLOAT POSITION (MM (IN.))	SPECIFIED CONDITION
1 - 2	F	181.9 to 193.9 (7.161 to 7.633)	13.5 to 16.5 Ω
	1/2	90.9 to 102.9 (3.578 to 4.051)	201.0 to 224.0 Ω
	E	0 (0)	405.5 to 414.5 Ω

Result

RESULT	PROCEED TO
OK	A
NG (for 2TR-FE)	B
NG (for 2GR-FKS)	C

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

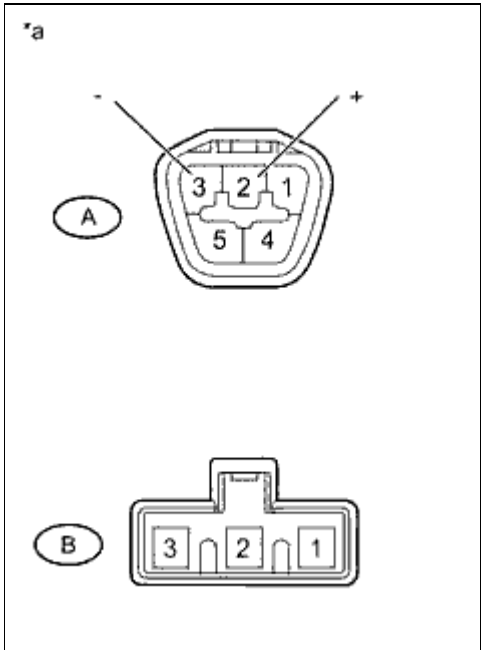
C ▶ REPLACE FUEL SENDER GAUGE ASSEMBLY (for 2GR-FKS)

A
▼

6.	INSPECT FUEL SUCTION PUMP AND GAUGE TUBE ASSEMBLY
----	---

(a) Remove the fuel suction pump and gauge tube assembly.

for 2TR-FE: [INFO](#)
for 2GR-FKS: [INFO](#)



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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A-2 - B-2	Always	Below 1 Ω
A-3 - B-1		

Text in Illustration

*a	Component without harness connected (Fuel Suction with Pump and Gauge Tube Assembly)
----	---

Result

RESULT	PROCEED TO
OK	A
NG (for 2TR-FE)	B
NG (for 2GR-FKS)	C

B ► REPLACE FUEL SUCTION PUMP AND GAUGE TUBE ASSEMBLY (for 2TR-FE)

C ► REPLACE FUEL SUCTION PUMP AND GAUGE TUBE ASSEMBLY (for 2GR-FKS)

A ► REPLACE COMBINATION METER ASSEMBLY



Last Modified: 11-13-2015	6.6 D	Doc ID: RM000001F8D02LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: HOW TO PROCEED WITH TROUBLESHOOTING; 2016 MY Tacoma [08/2015 -]		

HOW TO PROCEED WITH TROUBLESHOOTING

HINT:

- Use these procedures to troubleshoot the combination meter.
- *: Use the Techstream.

1.	VEHICLE BROUGHT TO WORKSHOP
-----------	------------------------------------

NEXT



2.	INSPECT BATTERY VOLTAGE
-----------	--------------------------------

Standard voltage:

11 to 14 V

If the voltage is below 11 V, recharge or replace the battery before proceeding.

NEXT



3.	CHECK CAN COMMUNICATION SYSTEM*
-----------	--

(a) Use the Techstream to check if the CAN communication system is functioning normally.

Result

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

B **GO TO CAN COMMUNICATION SYSTEM**

A



4.	REFER TO PROBLEM SYMPTOMS TABLE
-----------	--

Result

RESULT	PROCEED TO
Fault is not listed in Problem Symptoms Table	A
Fault is listed in Problem Symptoms Table	B

B  **Go to step 6**

A



5.	CONDUCT OVERALL ANALYSIS AND TROUBLESHOOTING*
-----------	--

(a) Data List/Active Test 

(b) Terminals of ECU 

(c) On-vehicle Inspection 

NEXT



6.	ADJUST, REPAIR OR REPLACE
-----------	----------------------------------

NEXT



7.	CONDUCT CONFIRMATION TEST*
-----------	-----------------------------------

NEXT  **END**





Last Modified: 11-13-2015	6.6 D	Doc ID: RM000000XCW071X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: INITIALIZATION; 2016 MY Tacoma [08/2015 -]		

INITIALIZATION

1. MAINTENANCE REQUIRED REMINDER RESET PROCEDURE

HINT:

Models with Maintenance Required Reminder Function.

(a) w/o Multi-information Display

- (1) Turn the ignition switch to ON.
- (2) Press the ODO/TRIP switch knob until the TRIP A meter appears.
- (3) Turn the ignition switch off.
- (4) Turn the ignition switch to ON while pressing and holding the ODO/TRIP switch knob. Hold the ODO/TRIP switch knob until the following conditions are met and 5 seconds have elapsed.
- (5) The TRIP A meter shows "000000".
- (6) The multi-information display shows that the reset is complete.

(b) w/ Multi-information Display

- (1) Turn the ignition switch to ON.
- (2) Using the steering pad switch assembly, display the setting display on the multi-information display.
- (3) Select "Maintenance System" from the setting display and perform initialization according to the multi-information display.



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001W8S05DX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Meter Illumination does not Dim at Night; 2016 MY Tacoma [08/2015 -]		

Meter Illumination does not Dim at Night

DESCRIPTION

In this circuit, the combination meter assembly auto dimmer signals from the main body ECU using the CAN communication system (CAN V1 Bus). When the combination meter assembly an auto dimmer signal, it dims the meter illumination (warning and indicator lights). The main body ECU (multiplex network body ECU) determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU (multiplex network body ECU) determines that it is nighttime and the light control switch is in the tail, head, or AUTO, the ECU sends an auto dimmer signal. According to the signal, the combination meter assembly dims the meter illumination.

HINT:

When the meter illumination does not dim at night, there may be a malfunction in the automatic light control sensor, main body ECU (multiplex network body ECU), CAN communication system, harness or connector, or combination meter assembly.

WIRING DIAGRAM

Refer to Meter Illumination is Always Dark [INFO](#) .

INSPECTION PROCEDURE

HINT:

- The automatic light control sensor sensitiveness can be customized [INFO](#) .
- Setting the meter illumination to maximum brightness prevents the meter display illumination from dimming when the light control switch is changed to the tail, head or AUTO position at night. Therefore, check the meter illumination setting before proceeding to the following steps.

NOTICE:

- Recognition code registration is necessary when replacing the main body ECU (multiplex network body ECU).
- If the main body ECU (multiplex network body ECU) is replaced, refer to Registration [INFO](#) *1
*1: w/ Smart Key System

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
-----------	---------------------------------------

(a) Check if a CAN communication DTC is output [INFO](#) .

Result

RESULT	PROCEED TO
--------	------------

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

B ► **GO TO CAN COMMUNICATION SYSTEM**

A

2.	CONFIRM DTC OUTPUT (LIGHT CONTROL SENSOR CIRCUIT)
-----------	--

(a) Check if DTC B1244 is output INFO.

Result

RESULT	PROCEED TO
B1244 is not output	A
B1244 is output	B

B ► **GO TO LIGHTING SYSTEM**

A

3.	CHECK OPERATION (AUTOMATIC LIGHT CONTROL SYSTEM)
-----------	---

(a) Turn the ignition switch to ON.

(b) Turn the light control switch to the AUTO position.

(c) Cover the automatic light control sensor.

(d) Check that the taillights and low beam headlights.

OK:

The taillights and low beam headlights come on.

(e) Uncover the automatic light control sensor.

(f) Check that the low beam headlights and taillights.

OK:

The low beam headlights and taillights go off.

Result

RESULT	PROCEED TO
Automatic light control system operates normally	A
Automatic light control system does not operate normally	B

B ► CHECK LIGHTING SETTING

A



4.	REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)
----	---

(a) Replace the main body ECU (multiplex network body ECU) with a new or a normal one  .

OK:

The operation of the combination meter assembly returns to normal.

HINT:

The combination meter assembly controls the meter illumination based on an auto dimmer signal from the main body ECU (multiplex network body ECU). If the meter does not dim when the light control switch is in the tail, head, or AUTO position at night, it may be for either of 2 reasons. The first reason is that the main body ECU (multiplex network body ECU) does not send an auto dimmer signal. The second is that the meter CPU does not dim the meter illumination even though the meter CPU receives an auto dimmer signal.

NG ► REPLACE COMBINATION METER ASSEMBLY

OK ► END (MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) WAS DEFECTIVE)



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001W8R09LX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Meter Illumination is Always Dark; 2016 MY Tacoma [08/2015 -]		

Meter Illumination is Always Dark

DESCRIPTION

In this circuit, the combination meter assembly receives auto dimmer signals from the main body ECU (multiplex network body ECU) using the CAN communication system (CAN V1 Bus). When the meter CPU receives an auto dimmer signal, it dims the meter illumination (warning and indicator lights). The main body ECU (multiplex network body ECU) determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU (multiplex network body ECU) determines that it is daytime, the ECU does not send an auto dimmer signal. Therefore, the meter illumination will not dim even if the driver accidentally turns the light control switch to the tail or head position in daytime.

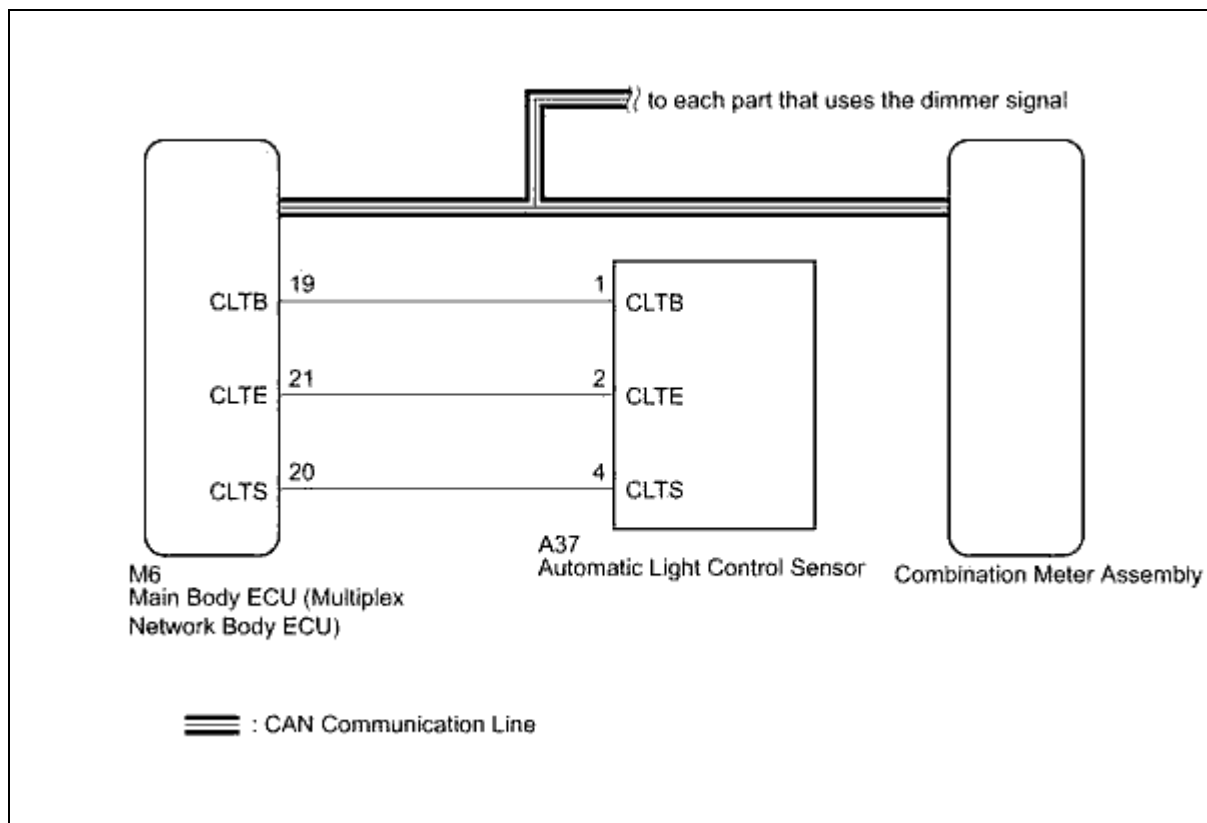
HINT:

When the meter illumination is always dark, there may be a malfunction in the automatic light control sensor, main body ECU (multiplex network body ECU), CAN communication system, harness or connector, or combination meter assembly.

NOTICE:

- Recognition code registration is necessary when replacing the main body ECU (multiplex network body ECU).
- If the main body ECU (multiplex network body ECU) is replaced, refer to Registration INFO *1
*1: w/ Smart Key System

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- The meter illumination can be customized by pressing the turning the light control rheostat knob in the combination meter assembly.
- If the light control rheostat knob is turned fully clockwise and the light control switch is turned to the tail, head or AUTO position at night, the meter illumination goes off.

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
----	--------------------------------

(a) Check if a 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.	CONFIRM DTC OUTPUT (LIGHT CONTROL SENSOR CIRCUIT)
-----------	--

(a) Check if DTC B1244 is output  .

Result

RESULT	PROCEED TO
B1244 is not output	A
B1244 is output	B

B  **GO TO LIGHTING SYSTEM**

A



3.	CHECK OPERATION (AUTOMATIC LIGHT CONTROL SYSTEM)
-----------	---

(a) Turn the ignition switch to ON.

(b) Turn the light control switch to the AUTO position.

(c) Cover the automatic light control sensor.

(d) Check the taillights and low beam headlights.

OK:

The taillights and low beam headlights come on.

(e) Uncover the automatic light control sensor.

(f) Check the low beam headlights and taillights.

OK:

The low beam headlights and taillights go off.

Result

RESULT	PROCEED TO
Automatic light control system operates normally	A
Automatic light control system does not operate normally	B

B  **CHECK LIGHTING SETTING**

A



4.	REPLACE MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU)
-----------	---

(a) Replace the main body ECU (multiplex network body ECU) with a new or a normal one  .

OK:

The operation of the combination meter assembly returns to normal.

HINT:

The meter CPU controls the meter illumination based on an auto dimmer signal from the main body ECU (multiplex network body ECU). When the meter illumination is always dark (very dim), it may be due to the main body ECU (multiplex network body ECU) sending an auto dimmer signal to the meter CPU because of a malfunction in the main body ECU (multiplex network body ECU).

NG  **REPLACE COMBINATION METER ASSEMBLY**

OK  **END (MAIN BODY ECU (MULTIPLEX NETWORK BODY ECU) WAS DEFECTIVE)**



Last Modified: 11-13-2015	6.6 G	Doc ID: RM0000014WB0BMX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: ON-VEHICLE INSPECTION; 2016 MY Tacoma [08/2015 -]		

ON-VEHICLE INSPECTION

1. INSPECT SPEEDOMETER

(a) Check speedometer operation.

NOTICE:

- The meter ECU receives the vehicle speed signal from the skid control ECU via CAN communication. Therefore, perform the following inspection referring to values on the Data List of the skid control ECU because it is the source of the vehicle speed signal.
- The Data List values of the skid control ECU are used for this inspection. Therefore, make sure to perform the inspection after confirming that no DTCs are output from the brake control system.
- If the tire size or tire inflation pressure is not within the specified range, or the tires are excessively worn, the speedometer indication error will increase. Therefore, make sure to perform the inspection after checking that the tire size, tire inflation pressure and tire wear are in the specified range.

(1) Before starting the following inspection, check if the Brake Control System outputs the DTCs.

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

ABS/VSC/TRAC

TESTER DISPLAY	MEASUREMENT ITEM/RANGE	NORMAL CONDITION	DIAGNOSTIC NOTE
Vehicle Speed	Maximum wheel speed sensor reading/ Min.: 0 km/h (0 mph), Max.: 326.4 km/h (202 mph)	Vehicle stopped: 0 km/h (0 mph)	When driving at constant speed: No large fluctuations

Reference (Indicator Type: mph)

TECHSTREAM INDICATION (MPH)	ACCEPTABLE RANGE (MPH)
20	19.2 to 21.7
40	39.4 to 42.2
60	59.8 to 62.6
80	80.0 to 83.2
100	100.5 to 103.7
120	120.9 to 124.1
140	141.3 to 144.5

Reference (Indicator Type: km/h)

TECHSTREAM INDICATION (KM/H)	ACCEPTABLE RANGE (KM/H)
20	18.4 to 22.4
40	38.6 to 43.1
60	59.0 to 63.5

TECHSTREAM INDICATION (KM/H)	ACCEPTABLE RANGE (KM/H)
80	79.1 to 84.1
100	99.6 to 104.6
120	120.0 to 125.0
140	140.4 to 145.4
160	160.8 to 165.8
180	181.2 to 186.2
200	201.6 to 206.6
220	222.0 to 227.0

2. INSPECT TACHOMETER

(a) Check the operation.

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

Reference

TECHSTREAM INDICATION (RPM)	ACCEPTABLE RANGE (RPM) DATA IN () IS FOR REFERENCE
700	630 to 770
1000	(900 to 1100)
2000	(1850 to 2150)
3000	2800 to 3200
4000	(3800 to 4200)
5000	4800 to 5200
6000	(5750 to 6250)
7000	6700 to 7300
8000	(7700 to 8300)

3. CHECK LED ILLUMINATION (LED CHECK)

WARNING OR INDICATOR LIGHT	SPECIFIED CONDITION
Brake warning light	Warning or indicator light comes on for about 3 seconds after turning the ignition switch to ON.
VSC OFF indicator light	
Slip indicator light	
ABS warning light	
Tire pressure warning light*5	
Low engine oil level warning light*1*2	

WARNING OR INDICATOR LIGHT	SPECIFIED CONDITION
Maintenance required reminder light*1	
Low windshield washer fluid warning light*3	
AUTO LSD indicator light	
BSM warning light*4	
Brake Override System warning light*1	
TRAC OFF indicator light	
Master warning light	
SRS warning light	Warning light comes on for about 6 seconds after turning the ignition switch to ON.
Charge warning light*1	Warning light comes on when turning the ignition switch to ON.
MIL (Check engine warning light)	
Engine oil pressure warning light*1	
A/T oil temperature indicator light*6	

*1:w/o Multi-information Display

*2: for 2GR-FKS

*3: for Speedometer with Metric Units for Main Scale

*4: w/ Blind Spot Monitor System

*5: w/ Tire Pressure Warning System

*6: for Automatic Transmission

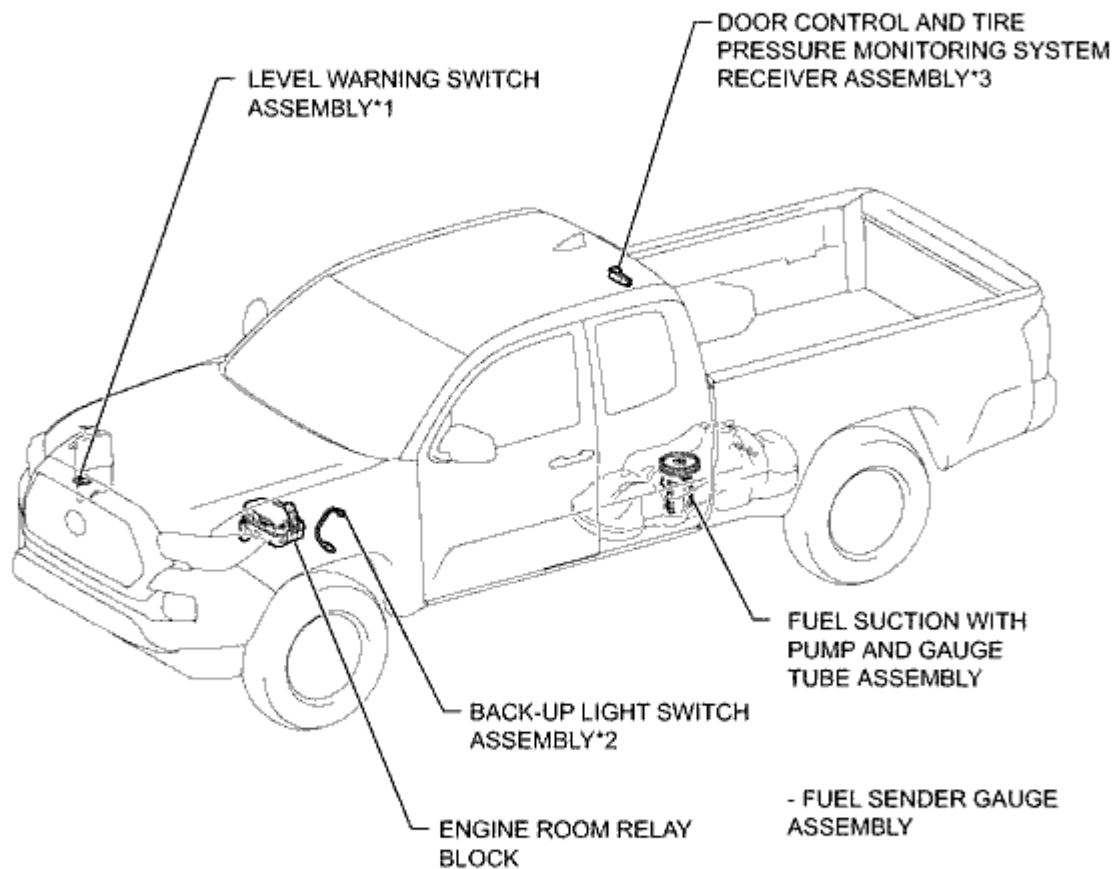


Last Modified: 11-13-2015	6.6 R	Doc ID: RM0000012G205SX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: PARTS LOCATION; 2016 MY Tacoma [08/2015 -]		

PARTS LOCATION

ILLUSTRATION

for Access Cab:



*1: w/ Washer Fluid Level Warning

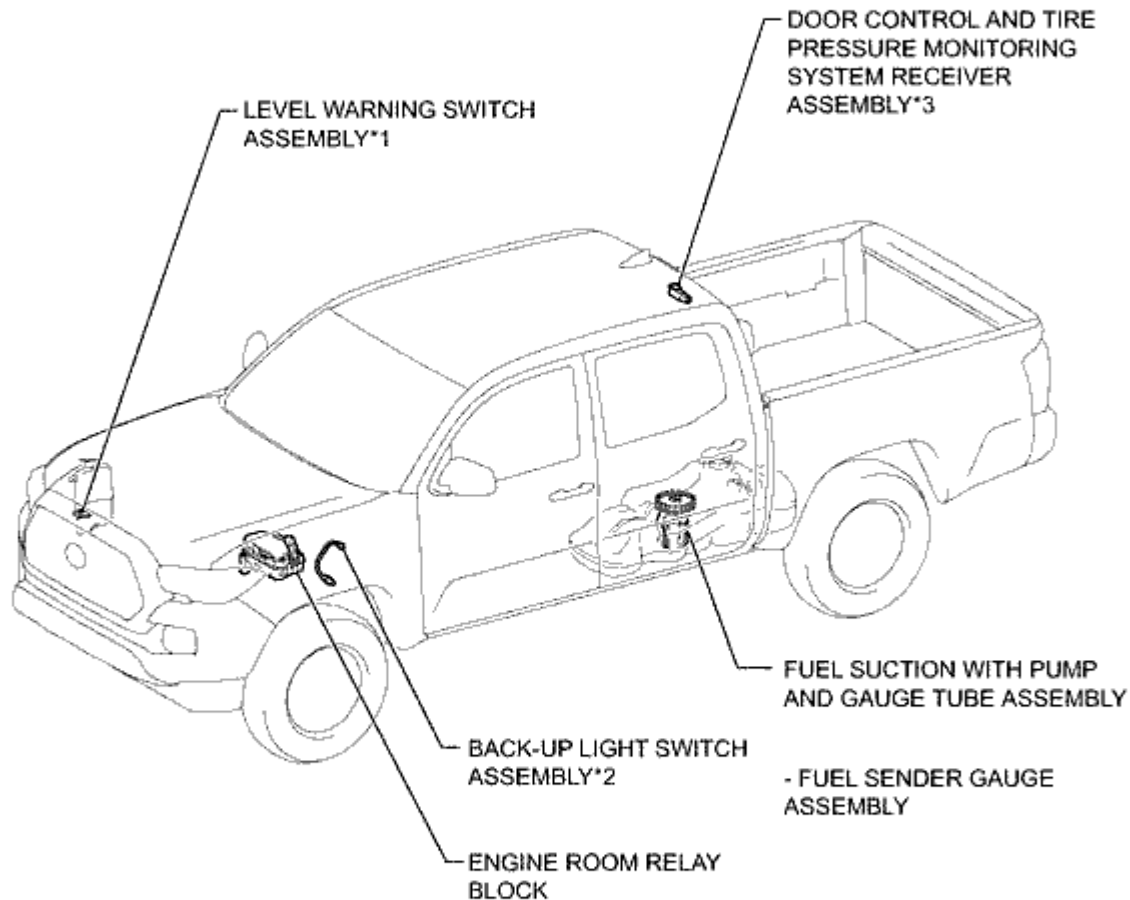
*2: for Manual Transmission

*3: w/ Tire Pressure Warning System

- STOP Relay
- TOWING fuse
- ECU-B NO. 3 fuse

ILLUSTRATION

for Double Cab:



- STOP Relay
- TOWING fuse
- ECU-B NO. 3 fuse

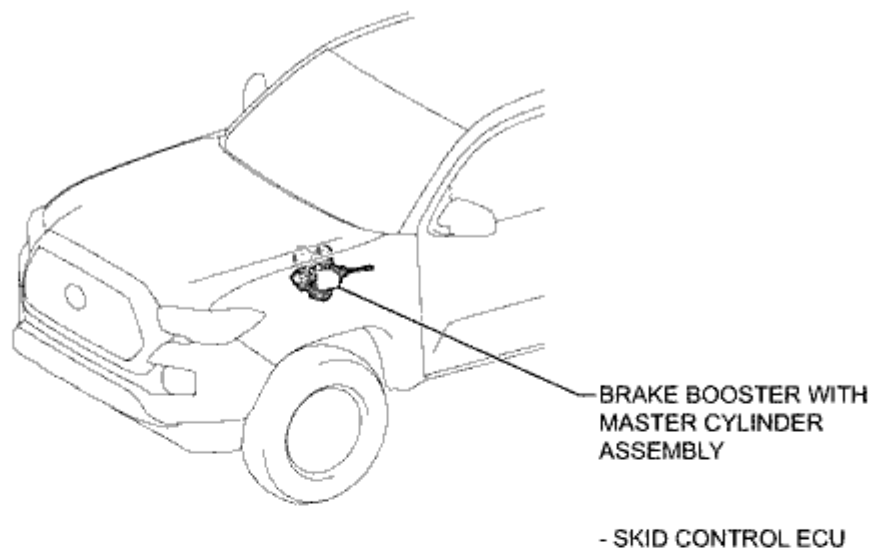
*1: w/ Washer Fluid Level Warning

*2: for Manual Transmission

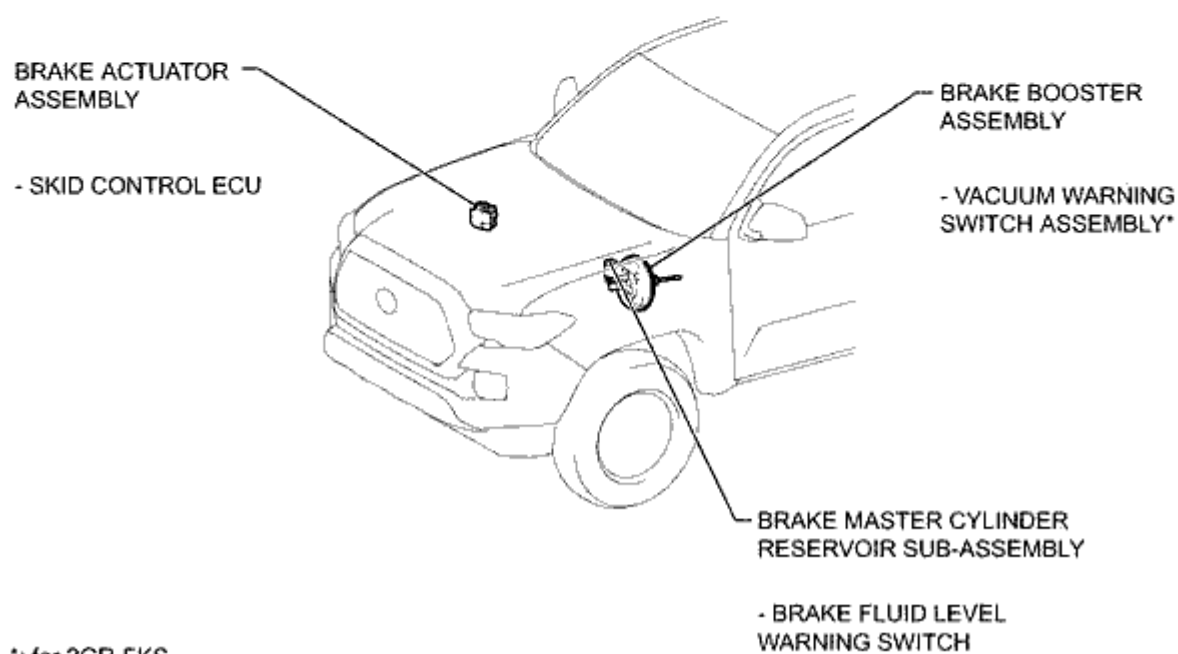
*3: w/ Tire Pressure Warning System

ILLUSTRATION

for Hydraulic Booster Type:

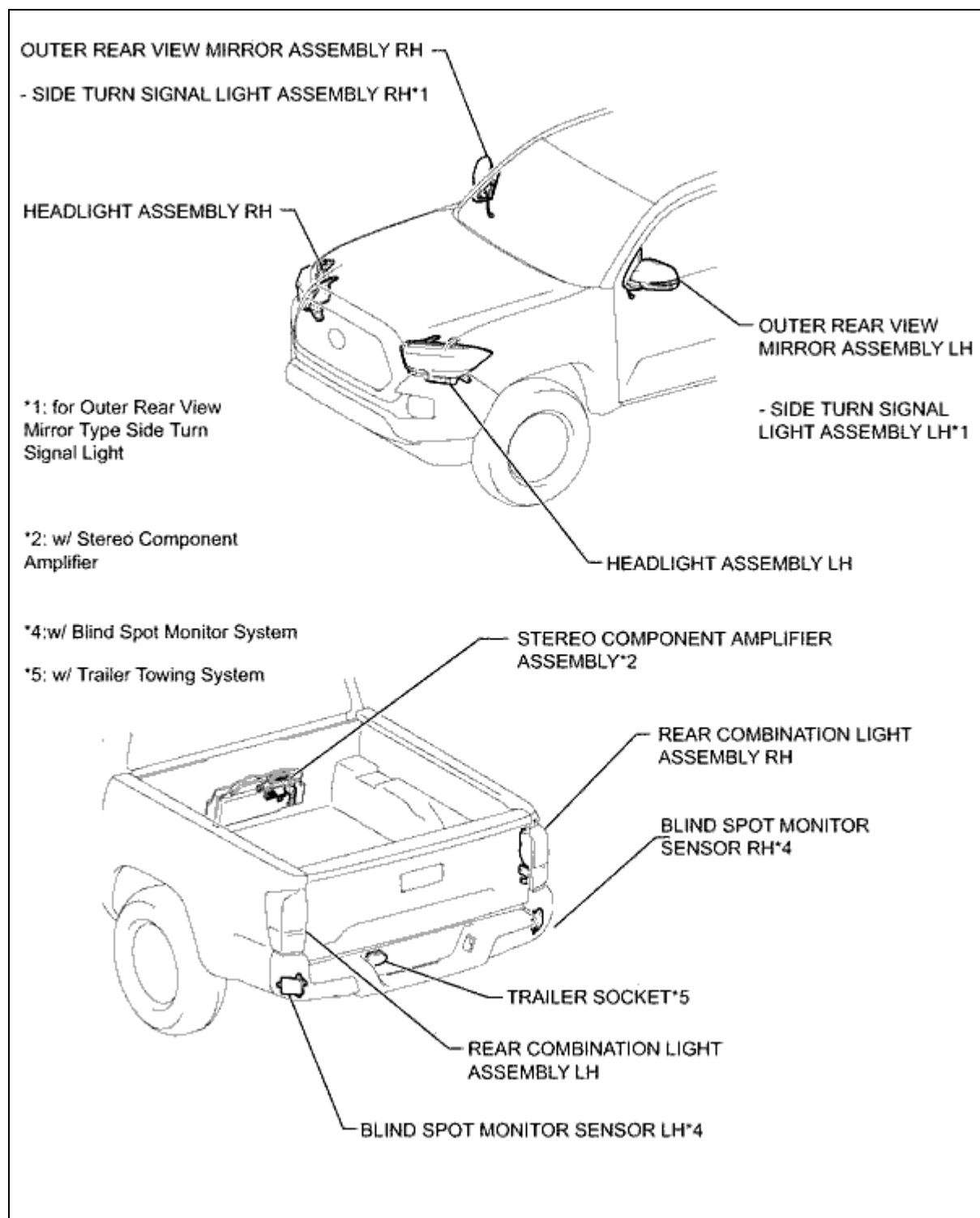


for Vacuum Booster Type:

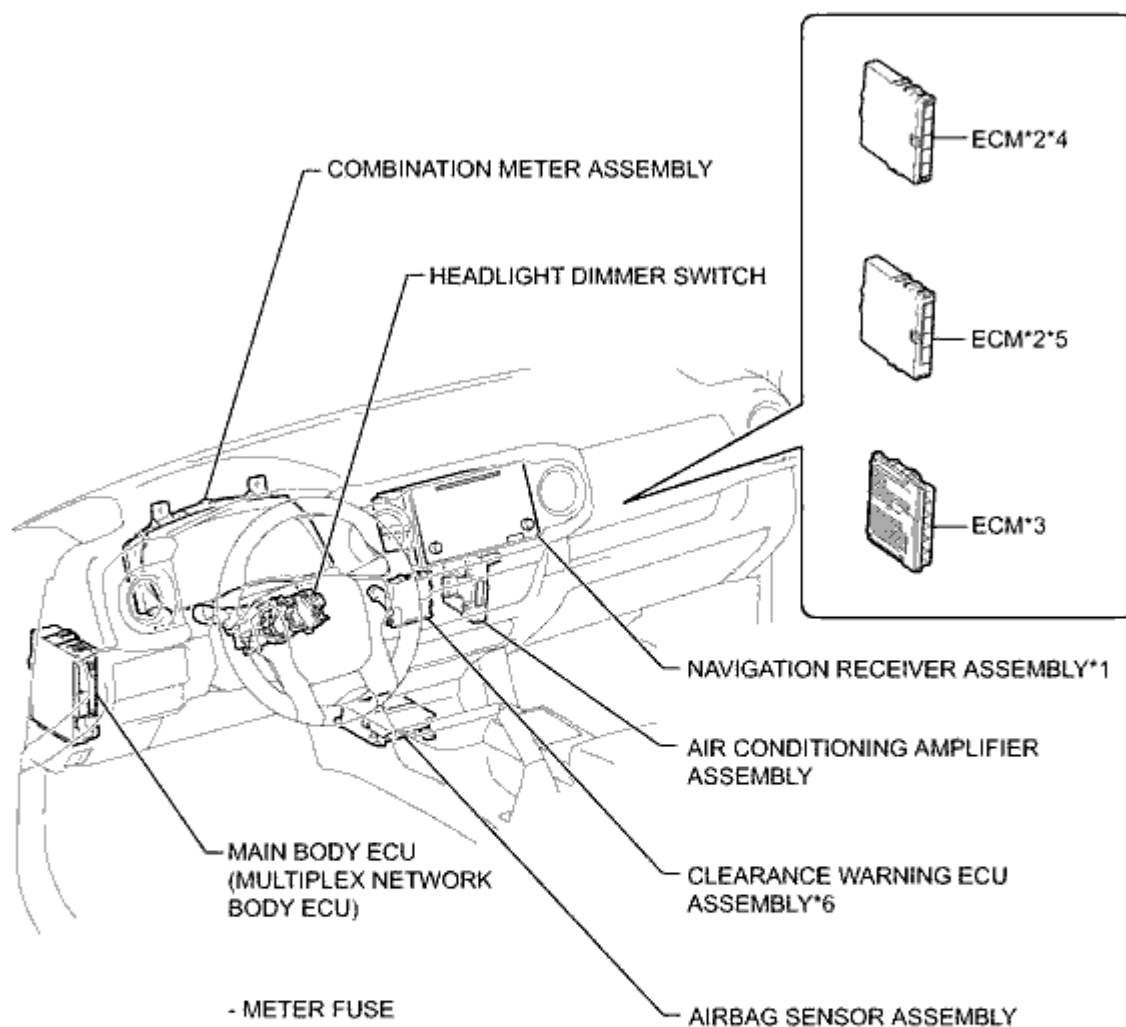


*: for 2GR-FKS

ILLUSTRATION



ILLUSTRATION



*1: for Navigation Receiver Type

*2: for 2TR-FE

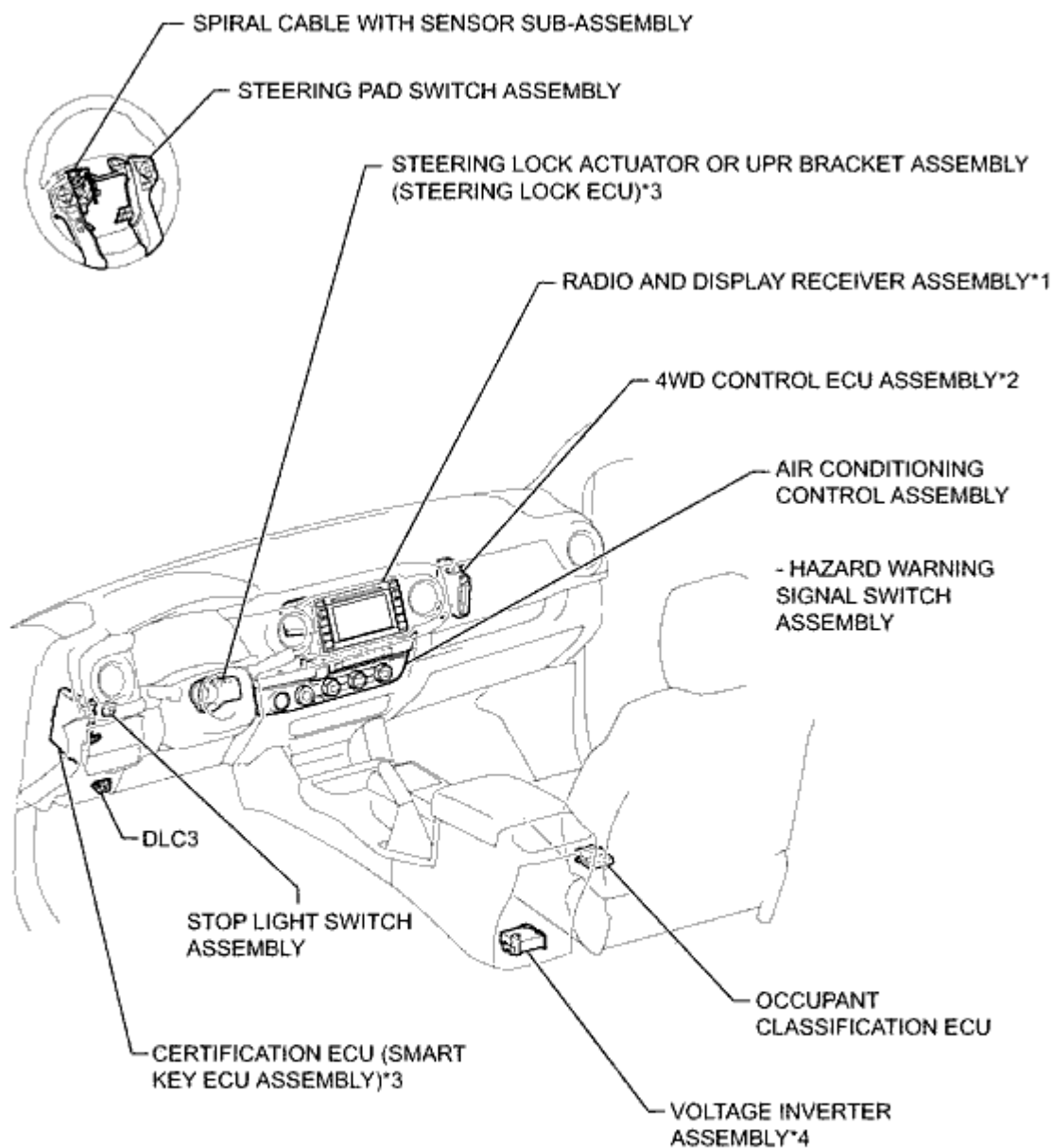
*3: for 2GR-FKS

*4: for Automatic Transmission

*5: for Manual Transmission

*6: w/ Intuitive Parking Assist System

ILLUSTRATION



*1: for Radio and Display Type

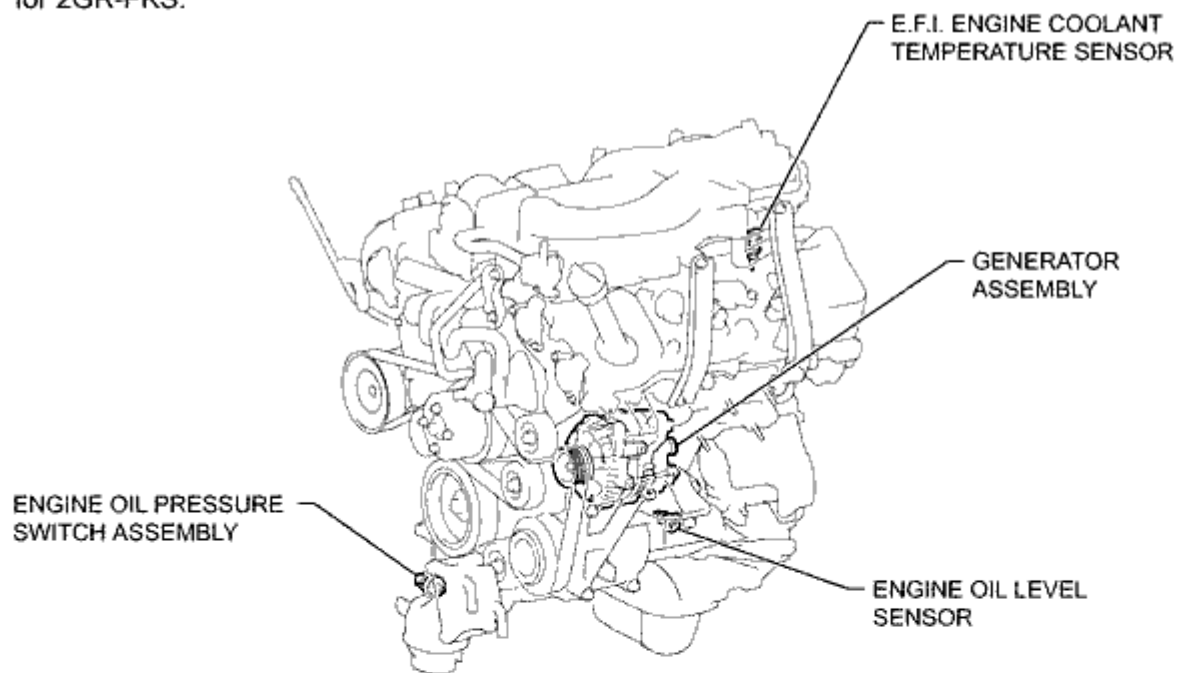
*3: w/ Smart Key System

*2: for 4WD

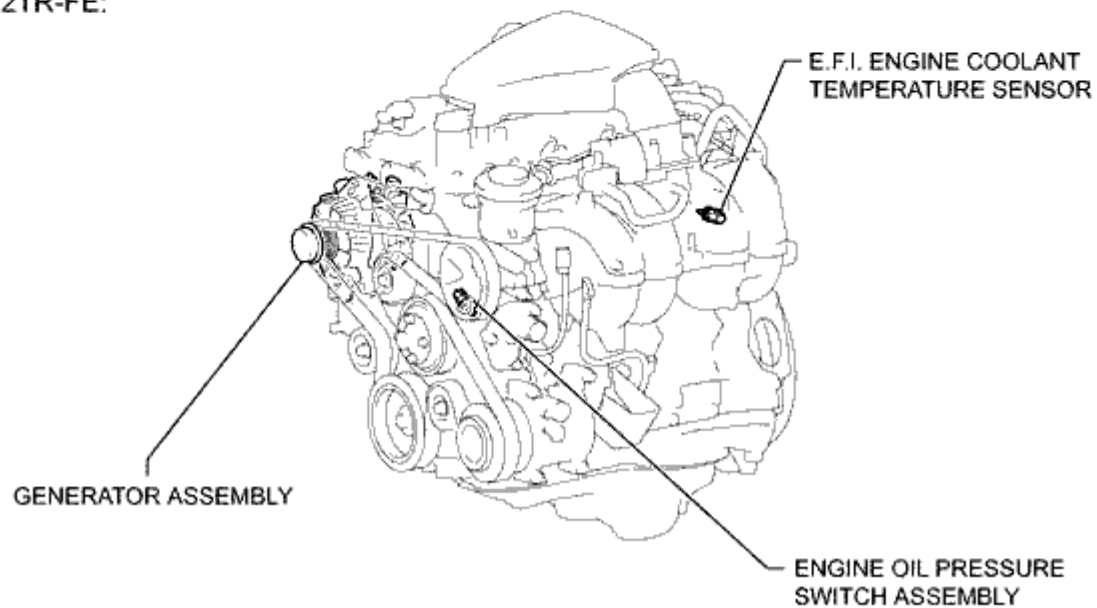
*4: w/ Voltage Inverter

ILLUSTRATION

for 2GR-FKS:



for 2TR-FE:



Last Modified: 11-13-2015	6.6 L	Doc ID: RM0000012G00A9X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: PRECAUTION; 2016 MY Tacoma [08/2015 -]		

PRECAUTION

1. IGNITION SWITCH EXPRESSIONS

(a) 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	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition switch off	LOCK	Off
Ignition switch ACC	ACC	On (ACC)
Ignition switch ON	ON	On (IG)
Engine start	START	Start



Last Modified: 11-13-2015	6.6 T	Doc ID: RM000005PUO001X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: PROBLEM SYMPTOMS TABLE; 2016 MY Tacoma [08/2015 -]		

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 symptom 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.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Meter or Gauge

SYMPTOM	SUSPECTED AREA	SEE PAGE
Entire combination meter assembly does not operate	Power source circuit	INFO
Speedometer malfunction	Speedometer circuit	INFO
Tachometer malfunction	Tachometer circuit	INFO
Fuel receiver gauge display malfunction (Fuel receiver gauge is currently malfunctioning, or was malfunctioning in the past)	Fuel receiver gauge display circuit	INFO
Engine coolant temperature receiver gauge malfunction	Engine coolant temperature receiver gauge circuit	INFO

Warning or Indicator

SYMPTOM	SUSPECTED AREA	SEE PAGE
Master warning light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Master Warning)	INFO
	Combination meter assembly	INFO
Door open warning light malfunction (Each door courtesy switch operation is normal)*1	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Doors All Open)	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Brake warning light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Brake)	INFO
	Brake warning light circuit (Brake warning light remains ON)*3	INFO
	Brake warning light circuit (Brake warning light remains ON)*4	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Brake warning light circuit (Brake warning light does not come ON)*3	INFO
	Brake warning light circuit (Brake warning light does not come ON)*4	INFO
	Brake master cylinder reservoir sub-assembly (Brake fluid level warning switch)	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*4	INFO
Driver or front passenger seat belt warning light malfunction	Combination meter assembly (LED): Perform Active Test (Driver Side Seat Belt)	INFO
	Driver seat belt warning light circuit	INFO
	Front passenger seat belt warning light circuit	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
	Airbag sensor assembly	INFO
SRS warning light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Airbag)	INFO
	SRS warning light circuit (SRS warning light remains ON)	INFO
	SRS warning light circuit (SRS warning light does not come ON)	INFO
	Combination meter assembly	INFO
	Airbag sensor assembly	INFO
Charge warning light malfunction*1	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Charge)	INFO
	SFI system*5	INFO
	SFI system*6	INFO
	Charging system*5	INFO
	Charging system*6	INFO
	Generator assembly*5	INFO
	Generator assembly*6	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Wire harness or connector (Combination meter assembly - Generator assembly)	-
	Combination meter assembly	INFO
	ECM*5	INFO
	ECM*6	INFO
Automatic transmission fluid temperature warning light malfunction*11	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (A/T Oil Temperature Operation)	INFO
	Combination meter assembly	INFO
	ECM*5	INFO
	ECM*6	INFO
Parking brake warning light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Park)	INFO
	Main body ECU (Multiplex network body ECU)	INFO
	Combination meter assembly	INFO
Rear differential lock warning light malfunction*2,*12	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Rr DIFF LOCK)	INFO
	Combination meter assembly	INFO
	4WD control ECU assembly	INFO
Engine oil pressure warning light malfunction*1	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Oil Pressure)	INFO
	Engine oil pressure switch assembly*6	INFO
	Wire harness or connector (Combination meter assembly - Engine oil pressure switch assembly)	-
	Combination meter assembly	INFO
MIL (Check engine warning light) malfunction	Combination meter assembly (LED): LED check	INFO
	MIL circuit*5	INFO
	MIL circuit*6	INFO
	Combination meter assembly	INFO
	ECM*5	INFO
	ECM*6	INFO
Slip indicator light malfunction	Combination meter assembly (LED): LED check	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Slip)	INFO
	Slip indicator light circuit (Slip indicator light remains ON)*3	INFO
	Slip indicator light circuit (Slip indicator light remains ON)*4	INFO
	Slip indicator light circuit (Slip indicator light does not come ON)*3	INFO
	Slip indicator light circuit (Slip indicator light does not come ON)*4	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*4	INFO
VSC OFF indicator light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. VSC OFF)	INFO
	VSC OFF switch circuit*3	INFO
	VSC OFF indicator light remains ON*4	INFO
	VSC OFF indicator light does not come ON*4	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*4	INFO
TRAC OFF indicator light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (VSC TRAC Indicator)	INFO
	TRAC OFF indicator light circuit (TRAC OFF indicator light remains on)*4	INFO
	TRAC OFF indicator light circuit (TRAC OFF indicator light does not come on)*4	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*4	INFO
ABS warning light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Light ABS)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	ABS warning light circuit (ABS warning light remains ON)*3	INFO
	ABS warning light circuit (ABS warning light remains ON)*4	INFO
	ABS warning light circuit (ABS warning light does not come ON)*3	INFO
	ABS warning light circuit (ABS warning light does not come ON)*4	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*4	INFO
Tire pressure warning light malfunction*7	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Tire Pressure Warning System)	INFO
	Tire pressure warning system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Fuel level warning light malfunction	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Fuel)	INFO
	Fuel sender gauge assembly*5	INFO
	Fuel sender gauge assembly*6	INFO
	Wire harness or connector (Combination meter assembly - Fuel sender gauge assembly)	-
	Combination meter assembly	INFO
Engine oil level warning light malfunction*1*6	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Light Oil Level)	INFO
	ECM*5	INFO
	ECM*6	INFO
	Engine oil level sensor	INFO
	Wire harness or connector (Combination meter assembly - Engine oil level sensor)	-
	Combination meter assembly	INFO
Oil maintenance warning light malfunction*9	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Maintenance Indicator)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	ECM*5	INFO
	ECM*6	INFO
	Combination meter assembly	INFO
Washer fluid level warning light malfunction*1*13	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Washer)	INFO
	Level warning switch assembly	INFO
	Wire harness or connector (Combination meter assembly - Level warning switch assembly)	-
	Combination meter assembly	INFO
Low speed four-wheel drive indicator light malfunction*12	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. 4LO)	INFO
	4WD control ECU assembly	INFO
	Combination meter assembly	INFO
Auto LSD indicator light malfunction	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Auto LSD)	INFO
	AUTO LSD Indicator Light Remains ON*3	INFO
	AUTO LSD Indicator Light Remains ON*4	INFO
	AUTO LSD Indicator Light does not Come ON*3	INFO
	AUTO LSD Indicator Light does not Come ON*4	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*3	INFO
BSM (Blind Spot Monitor) warning light malfunction*14	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Blind Spot Monitor Indicator)	INFO
	Blind spot monitor sensor	INFO
	Combination meter assembly	INFO
Brake override system warning light malfunction*1	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Brake Override Indicator)	INFO
	ECM*5	INFO
	ECM*6	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Four-wheel drive indicator light*12 / Four-wheel drive indicator light (Flashes rapidly)*1*12 malfunction	Combination meter assembly	INFO
	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. 4WD (Yellow))	INFO
	Combination meter assembly (LED): Perform Active Test (4WD Indicator (Green))	INFO
	4WD control ECU assembly	INFO
	Combination meter assembly	INFO
Cruise control indicator light malfunction*1*15	Combination meter assembly (LED): LED check	INFO
	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Cruise)	INFO
	Combination meter assembly (LED): Perform Active Test (Cruise Indicator)	INFO
	Cruise control indicator light circuit (Cruise Main Indicator Light Circuit)*5	INFO
	Cruise control indicator light circuit (Cruise Main Indicator Light Circuit)*6	INFO
	Combination meter assembly	INFO
	ECM*5	INFO
	ECM*6	INFO
High beam indicator light malfunction (High beam head light is normal)	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Beam)	INFO
	Lighting system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Tail indicator light malfunction (Taillight is normal)*8	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Tail)	INFO
	Lighting system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Head indicator light malfunction (Low beam head light is normal)*9	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Head)	INFO
	Lighting system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Front fog indicator light malfunction (Front fog light is normal)*10	Combination meter assembly (LED): Perform Active Test (Indicat. Lamp Fr FOG)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Lighting system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Turn indicator light malfunction (Turn signal light operation is normal)	Combination meter assembly (LED): Perform Active Test (Turn Signal (Left) Indicator, Turn Signal (Right) Indicator)	INFO
	Combination meter assembly	INFO
Cruise control SET indicator light malfunction*1	Combination meter assembly (LED): Perform Active Test (Indicat. SET)	INFO
	Combination meter assembly	INFO
	ECM*5	INFO
	ECM*6	INFO

- *1: w/o Multi-information Display
- *2: w/ Multi-information Display
- *3: for Vacuum Booster Type
- *4: for Hydraulic Booster Type
- *5: for 2TR-FE
- *6: for 2GR-FKS
- *7: w/ Tire Pressure Warning System
- *8: for Speedometer with Metric Units for Main Scale
- *9: for Speedometer with Imperial Units for Main Scale
- *10: w/ Fog Light
- *11: for Automatic Transmission
- *12: for 4WD
- *13: w/ Washer Fluid Level Warning
- *14: w/ Blind Spot Monitor System
- *15: w/ Cruise Control System

w/ Multi-information Display

SYMPTOM	SUSPECTED AREA	SEE PAGE
"Opening" display malfunction	Combination meter assembly	INFO
"Trip Summary(Ending)" display malfunction	Combination meter assembly	INFO
"Odometer" display malfunction	Check customize parameters (ODO Display Time After IG OFF Setting)	INFO
	Combination meter assembly	INFO
"TRIP A/TRIP B meter" display malfunction	Combination meter assembly	INFO
"Average Fuel Economy" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
"Distance to Empty" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Current Fuel Economy" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Average speed" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Tank Average Fuel Economy" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Trip Average Fuel Economy" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Average Speed" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Trip Average Speed" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Elapsed Time" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Trip Elapsed Time" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Distance" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Trip Distance" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
"Digital Speed" display malfunction	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Trip Computer Reset" display malfunction	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Drive information tab" display malfunction	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Navigation tab" display malfunction*1	Navigation system	INFO
	Combination meter assembly	INFO
	Navigation receiver assembly	INFO
"Audio tab" display malfunction	Navigation system	INFO
	Audio and visual system	INFO
	Combination meter assembly	INFO
	Navigation receiver assembly	INFO
	Radio and display receiver assembly	INFO
"Vehicle information tab" display malfunction	Combination meter assembly	INFO
"Message tab" display malfunction	Combination meter assembly	INFO
"Shift position" display malfunction	Automatic transaxle system (for 2TR-FE)	INFO
	Automatic transaxle system (for 2GR-FKS)	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Cruise control SET indicator light" display malfunction*2	Cruise control SET indicator light circuit*9	INFO
	Cruise control SET indicator light circuit*10	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Cruise control indicator light" display malfunction*2	Cruise control indicator light circuit (Cruise main indicator light circuit)*9	INFO
	Cruise control indicator light circuit (Cruise main indicator light circuit)*10	INFO
	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	ECM*9	INFO
	ECM*10	INFO
"Set Speed MPH/ km/h" display malfunction	Combination meter assembly	INFO
"Outside temp" display malfunction	Air conditioning system (for automatic air conditioning system)	INFO
	Air conditioning system (for manual air conditioning system)	INFO
	Combination meter assembly	INFO
	Air conditioning amplifier assembly	INFO
"Icy street warning light" display malfunction	Air conditioning system (for automatic air conditioning system)	INFO
	Air conditioning system (for manual air conditioning system)	INFO
	Combination meter assembly	INFO
	Air conditioning amplifier assembly	INFO
"Phone (Received Call)" display malfunction*1, *18	Navigation system	INFO
	Combination meter assembly	INFO
	Navigation receiver assembly	INFO
"Turn-by-turn Navigation" display malfunction*1	Navigation system	INFO
	Combination meter assembly	INFO
	Navigation receiver assembly	INFO
"No Messages" display malfunction	Combination meter assembly	INFO
"2WD-4WD Mode Change Failure" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	4WD control ECU assembly	INFO
"Differential Oil Temperature High Cool down" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	4WD control ECU assembly	INFO
"Differential Oil Temperature High Shift to 2WD mode and cool down" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
	4WD control ECU assembly	INFO
"Roll/Pitch Indicates Approximate Angles Please Operate Vehicle Safely" display malfunction (Other meter functions are normal)	Combination meter assembly	INFO
"Holding in Engine Switch Will Cause an Emergency Engine Stop." display malfunction (Other meter functions are normal)*12	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"To Restart Engine, Shift Lever to "N" and Press Engine	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Switch." display malfunction (Other meter functions are normal)*12	Certification ECU (Smart key ECU assembly)	INFO
"Crawl Has Been Deactivated" display malfunction (Other meter functions are normal)	Vehicle stability control system*7	INFO
	Vehicle stability control system*8	INFO
	Combination meter assembly	INFO
"Each door open" display malfunction (Door courtesy switch or hood courtesy switch is normal)	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
"Clearance sonar detection (image display)" display malfunction*6	Intuitive parking assist system	INFO
	Combination meter assembly	INFO
	Clearance warning ECU assembly	INFO
"Check Park Sonar System" display malfunction*16	Intuitive parking assist system	INFO
	Combination meter assembly	INFO
	Clearance warning ECU assembly	INFO
"Clean Park Sonar" display malfunction*16	Intuitive parking assist system	INFO
	Combination meter assembly	INFO
	Clearance warning ECU assembly	INFO
"Powering OFF to Conserve Battery" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Shift to P Position" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Release Parking Brake" display malfunction (Brake warning light is normal)	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
"Key Not Detected" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Check Anti-lock Brake System" display malfunction	Vehicle stability control system*7	INFO
	Vehicle stability control system*8	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*7	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Brake booster with master cylinder assembly (Skid control ECU)*8	INFO
"Check Vehicle Stability Control System" display malfunction	Vehicle stability control system*7	INFO
	Vehicle stability control system*8	INFO
	Combination meter assembly	INFO
	Brake actuator assembly (Skid control ECU)*7	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*8	INFO
"Check Tire Pressure Monitoring System" display malfunction*13	Tire pressure warning system	INFO
	Tire pressure warning ECU	INFO
	Combination meter assembly	INFO
"Check Brake System" display malfunction	Vehicle stability control system*7	INFO
	Vehicle stability control system*8	INFO
	Brake master cylinder reservoir sub-assembly (Brake fluid level warning switch)	INFO
	Combination meter assembly	INFO
"High Engine Coolant Temperature" display malfunction (Engine coolant temperature receiver gauge is normal)	SFI system*9	INFO
	SFI system*10	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
Check Charging System	SFI system*9	INFO
	SFI system*10	INFO
	Generator assembly*9	INFO
	Generator assembly*10	INFO
	Combination meter assembly	INFO
"Smart Entry & Start System Check" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Blind Spot Monitor Not Available" display malfunction*11	Blind spot monitor system	INFO
	Combination meter assembly	INFO
	Blind spot monitor sensor RH	INFO
"Check Cruise Control System" display malfunction*2	Cruise control system*9	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Cruise control system*10	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Check Blind Spot Monitor System" display malfunction*11	Blind spot monitor system	INFO
	Combination meter assembly	INFO
	Blind spot monitor sensor RH	INFO
"Check Steering Lock System" display malfunction*12	Smart key system (for Entry Function)	INFO
	Steering lock system	INFO
	Combination meter assembly	INFO
"Low Oil Pressure" display malfunction	Combination meter assembly: Read the Data List (Oil Pressure Switch)	INFO
	Engine oil pressure switch assembly	INFO
	Wire harness or connector (Combination meter assembly - Engine oil pressure switch assembly)	-
	Combination meter assembly	INFO
"High Transmission Fluid Temperature" display malfunction	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Turn Power OFF" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Key Detected in Vehicle" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Turn Headlights Off" display malfunction	Lighting system	INFO
	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
"Moon Roof Open" display malfunction*17	Main body ECU (Multiplex network body ECU)	INFO
	Combination meter assembly	INFO
Engine Start: Press Brake Pedal, Push Engine Switch with Key" display	Smart key system (for Entry Function)	INFO
	Smart key system (for Start Function)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
malfunction*12	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Key Battery Low Mode: Push Engine Switch" display malfunction*12	Smart key system (for Entry Function)	INFO
	Smart key system (for Start Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Engine Start: Press Brake Pedal and Push Engine Switch" display malfunction*12	Smart key system (for Entry Function)	INFO
	Smart key system (for Start Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Steering Lock ON" display malfunction*12	Steering lock system	INFO
	Smart key system (for Start Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Crawl Not Available Select L4 and Shift to D or R Position" display malfunction*5	Combination meter assembly	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*5	INFO
"Crawl Not Available Check System Operation Condition" display malfunction*5	Combination meter assembly	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*5	INFO
"Brake Override Malfunction Visit Your Dealer" display malfunction	SFI system*9	INFO
	SFI system*10	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Key Battery Low" display malfunction*12	Smart key system (for Entry Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Key Battery Low Engine Start: Press Brake Pedal, Push Engine Switch with Key" display malfunction*12	Smart key system (for Entry Function)	INFO
	Smart key system (for Start Function)	INFO
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Key Battery Low Accessory Mode: Push Engine Switch with Key" display malfunction*12	Smart key system (for Entry Function)	INFO
	Smart key system (for Start Function)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Combination meter assembly	INFO
	Certification ECU (Smart key ECU assembly)	INFO
"Low Engine Oil Level Add or Replace" display malfunction*10	Engine oil level sensor	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Accelerator and Brake Pedals Depressed Simultaneously" display malfunction	SFI system*9	INFO
	SFI system*10	INFO
	Combination meter assembly	INFO
	ECM*9	INFO
	ECM*10	INFO
"Low Tire Pressure (psi, kPa, bar)" display malfunction*13	Tire pressure monitor receiver assembly	INFO
	Combination meter assembly	INFO
"Low Washer Fluid" display malfunction*14	Combination meter assembly: Read the Data List (Washer Switch)	INFO
	Washer level warning switch assembly	INFO
	Wire harness or connector (Combination meter assembly - Washer level warning switch assembly)	-
	Combination meter assembly	INFO
"Power ON" display malfunction*12	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
"Low Fuel Distance to Empty Please Refuel" display malfunction (Fuel receiver gauge is normal)	Fuel sender gauge assembly	INFO
	Combination meter assembly	INFO
"Maintenance required soon" display malfunction*15	Maintenance required reminder reset procedure	INFO
	Combination meter assembly	INFO
"Maintenance required" display malfunction*15	Maintenance required reminder reset procedure	INFO
	Combination meter assembly	INFO
"Resetting Maintenance Data" display malfunction*15	Maintenance required reminder reset procedure	INFO
	Combination meter assembly	INFO
"Resetting Maintenance Data incomplete" display malfunction*15	Maintenance required reminder reset procedure	INFO
	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
"Engine Start: Press Brake Pedal and Push Engine Switch" display malfunction*12	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
"Operation Not Possible When Multi-Terrain Select Activated" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"Multi-Terrain Select Has Been Deactivated" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"Operation Not Possible When Crawl Control Activated" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"SHIFT TO 4L" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"MultiTerrain Select Not Available" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"Mud & Sand Loose Rock Mogul Rock & Dirt Rock" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO
"Low Low Medium Medium Medium High High" display malfunction*4, *5	Brake booster with master cylinder assembly*4*8	INFO
	Combination meter assembly	INFO

- *1: for Navigation Receiver Type
- *2: w/ Cruise Control System
- *3: w/ Trailer Towing System
- *4: w/ Multi Terrain Select System
- *5: w/ CRAWL Control System
- *6: w/ A-TRAC System
- *7: for Vacuum Booster Type
- *8: for Hydraulic Booster Type
- *9: for 2TR-FE
- *10: for 2GR-FKS
- *11: w/ Blind Spot Monitor System
- *12: w/ Smart Key System
- *13: w/ Tire Pressure Warning System
- *14: w/ Washer Fluid Level Warning
- *15: for Speedometer with Imperial Units for Main Scale
- *16: w/ Intuitive Parking Assist System
- *17: for Moon roof
- *18: for Radio and Display Type

Buzzer

SYMPTOM	SUSPECTED AREA	SEE PAGE
All buzzers do not operate normally	Combination meter assembly	INFO
Warning buzzer for door opening without shifting to P range (Smart Key Continuous)*1	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
Seat belt warning (for driver side) buzzer malfunction (Seat belt warning light operation is normal)	Check customize parameters (Driver Side Seat belt Warning Buzzer)	INFO
	Airbag sensor assembly	INFO
	Combination meter assembly	INFO
Seat belt warning (for front passenger side) buzzer malfunction (Seat belt warning light operation is normal)	Check customize parameters (Front Passenger Side Seat belt Warning Buzzer)	INFO
	Airbag sensor assembly	INFO
	Combination meter assembly	INFO
Key reminder buzzer malfunction (vehicles without smart system)	Main body ECU (Multiplex network body ECU)	INFO
	Combination meter assembly	INFO
Brake system low braking force warning buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Low brake fluid warning buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Brake oil level warning switch	INFO
	Combination meter assembly	INFO
Push operation warning during driving buzzer malfunction*1	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
PKB-ON while driving warning buzzer malfunction	Main body ECU (multiplex network body ECU)	INFO
	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
System temperature increase active test buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Hill-start Assist Control (step1) advance notice of ending buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Oil pressure warning buzzer malfunction	ECM*4	INFO
	ECM*5	INFO
	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Engine oil pressure switch	INFO
	Combination meter assembly	INFO
Alert buzzer for driving with door ajar buzzer malfunction	Main body ECU (multiplex network body ECU)	INFO
	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	ECM*4	INFO
	ECM*5	INFO
	Combination meter assembly	INFO
Smart key 2 buzzer malfunction (intermittent tone)*1	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
Hill-start Assist Control (step1) during regular control buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Start notification during driving buzzer malfunction*1	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Hill-start Assist Control (Step2) Reset buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Sport mode shift reject buzzer malfunction	ECM*4	INFO
	ECM*5	INFO
	Combination meter assembly	INFO
Engine high water temperature warning buzzer malfunction	ECM*4	INFO
	ECM*5	INFO
	Combination meter assembly	INFO
Multiple display warning buzzer malfunction*6	Combination meter assembly	INFO
VSC skid warning buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
4WD buzzer malfunction (intermittent tone)*7	4WD control ECU assembly	INFO
	Combination meter assembly	INFO
4WD buzzer malfunction (3 consecutive short tones)*7	4WD control ECU assembly	INFO
	Combination meter assembly	INFO
Temperature warning / CRAWL cancel warning buzzer malfunction*8	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Hill-start Assist Control (Step2) Set buzzer malfunction	Brake actuator assembly (Skid control ECU)*2	INFO
	Brake booster with master cylinder assembly (Skid control ECU)*3	INFO
	Combination meter assembly	INFO
Sliding roof buzzer malfunction	Main body ECU (Multiplex network body ECU)	INFO
	Combination meter assembly	INFO
Smart key buzzer malfunction (single short tone)*1	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Immobilizer key identification completion notification buzzer malfunction	Certification ECU (Smart key ECU assembly)	INFO
	Combination meter assembly	INFO
Flasher sound malfunction	Headlight dimmer switch assembly	INFO
	Combination meter assembly	INFO

- *1: w/ Smart Key System
- *2: w/o Smart Key System
- *3: w/ Cruise Control System
- *4: for 2TR-FE
- *5: for 2GR-FKS
- *6: w/ Multi-information Display
- *7: for 4WD
- *8: CRAWL Control System

Others

SYMPTOM	SUSPECTED AREA	SEE PAGE
"Diagnostic trouble code" display malfunction	Combination meter assembly	INFO
Operating ODO/TRIP switch knob does not change odometer/TRIP meter display	Combination meter assembly	INFO
Operating steering pad switch does not change multi-information display*	Combination meter assembly: Read the Data List (Multi Switch (UP), Multi Switch (Down), Multi Switch (Menu), Multi Switch (ENTER), Multi Switch (Right) or Multi Switch (Left))	INFO
	Steering pad switch assembly	INFO
	Spiral cable with sensor sub-assembly	INFO
	Wire harness or connector (Combination meter assembly - Spiral cable with sensor sub-assembly)	-
	Combination meter assembly	INFO
Operating light control switch knob does not change light brightness	Combination meter assembly	INFO
	Main body ECU (Multiplex network body ECU)	INFO
Meter illumination is off at day time	Illumination circuit (Meter illumination is always dark)	INFO
Meter illumination does not dim at night	Illumination circuit (Meter illumination does not dim at night)	INFO
Other systems that use the speed signal do not operate normally	Speed signal circuit	INFO

*: w/ Multi-information Display

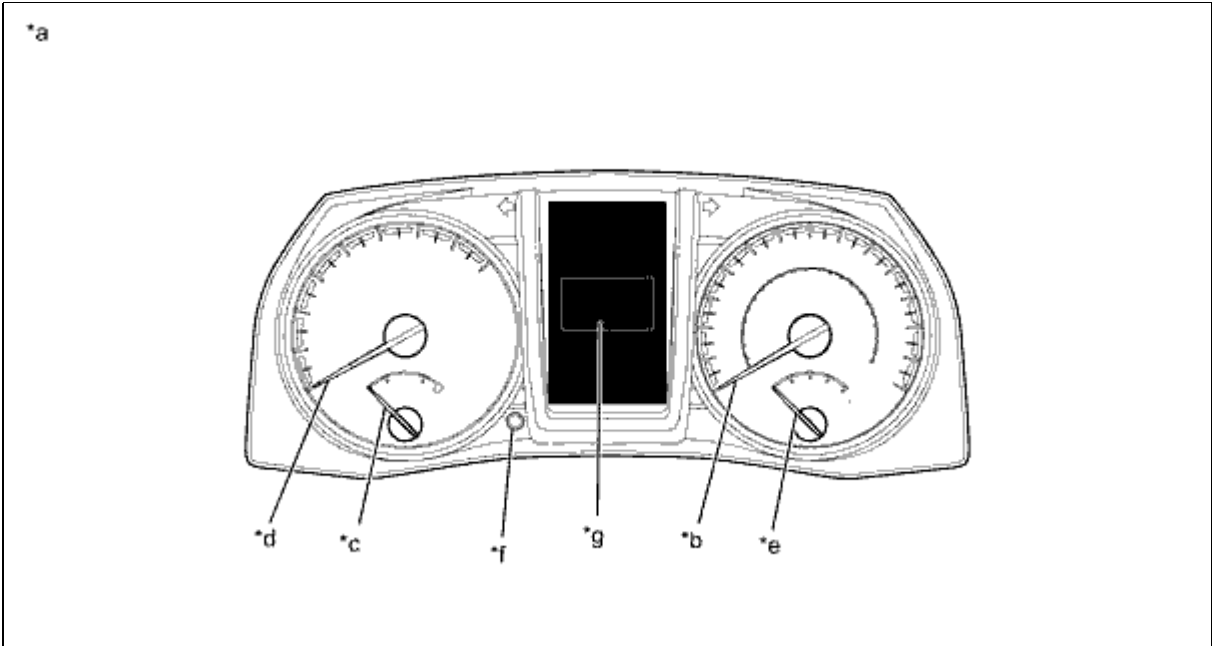


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Title: METER: METER / GAUGE SYSTEM: SYSTEM DESCRIPTION; 2016 MY Tacoma [08/2015 -]		

SYSTEM DESCRIPTION

1. OUTLINE OF COMBINATION METER ASSEMBLY

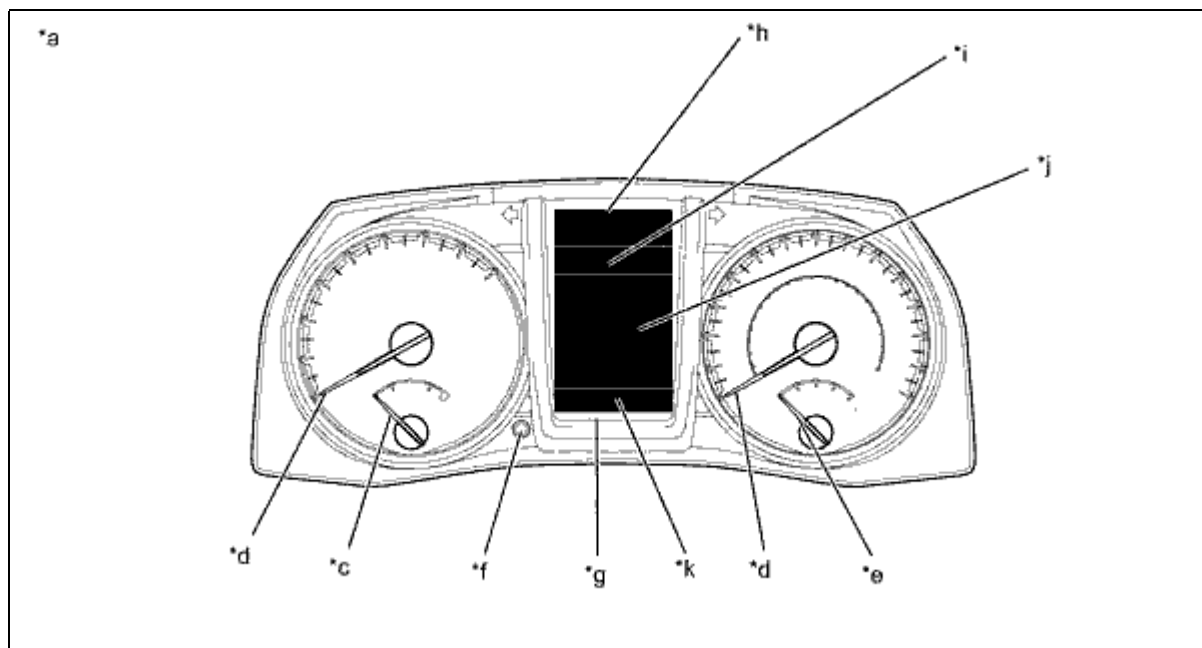
(a) w/o Multi-information Display



Text in Illustration

*a	Indication Example	*b	Speedometer
*c	Engine Coolant Temperature Receiver Gauge	*d	Tachometer
*e	Fuel Receiver Gauge	*f	ODO/TRIP Switch Knob and Light Control Switch Knob
*g	Multi-information Display (Segment LCD Type)	-	-

(b) w/ Multi-information Display



Text in Illustration

*a	Indication Example	*b	Tachometer
*c	Engine Coolant Temperature Receiver Gauge	*d	Speedometer
*e	Fuel Receiver Gauge	*f	ODO/TRIP Switch Knob and Light Control Switch Knob
*g	Multi-information Display (Color Type)	*h	Display Area A
*i	Display Area B	*j	Display Area C
*k	Display Area D	-	-

2. INPUT AND OUTPUT SIGNALS OF COMBINATION METER ASSEMBLY

(a) Meter or Gauge

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Speedometer	Gauge	Input	CAN	Vehicle speed (SP1) signal	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2
			Direct line	Vehicle speed pulse input signal	
	-	Output	CAN	Vehicle speed signal (meter to other)	Related ECUs
				Speed tolerance A	ECM

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Speed tolerance B	Related ECUs
				Vehicle speed pulse output signal	
Tachometer	Gauge	Input	CAN	Engine RPM data signal	ECM
Fuel receiver gauge	Gauge	Input	CAN	Starter signal	ECM
				Shift position P signal	
				Shift position N signal	
				Parking brake signal	Main body ECU (Multiplex network body ECU)
		Output	CAN	Vehicle speed (SP1) signal	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2
				Fuel level signal	Fuel sender gauge assembly
Engine coolant temperature receiver gauge	Gauge	Input	CAN	Engine coolant temperature signal	ECM

*1: for Vacuum Booster Type

*2: for Hydraulic Booster Type

*3: for Navigation Receiver Type

*4: for Radio and Display Type

(b) Warning or Indicator

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Master warning	Comes	Input	CAN/Direct line	Each warning	Related ECUs

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
light*1	on/Blinks			signal	
Door open warning light*2	Comes on	Input	CAN	Driver door courtesy switch signal	Main body ECU (Multiplex network body ECU)
				Front passenger door courtesy switch signal	
				Rear right door courtesy switch signal	
				Rear left door courtesy switch signal	
Brake warning light	Comes on	Input	CAN	Brake warning light signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
				Brake level warning light signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
			Direct line	Brake fluid level warning switch signal	Brake fluid level warning switch (Brake master cylinder reservoir assembly)*3
				Vacuum switch signal	Vacuum warning switch assembly*3*5
Driver or front passenger seat belt warning light	Comes on/Blinks	Input	CAN	Driver seat belt buckle switch signal	Main body ECU (Multiplex network body ECU)
				Parking brake switch signal	
				Shift position P signal	ECM

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Vehicle speed (SP1) signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
				Passenger seat occupant status signal	Airbag sensor assembly
				Passenger seat belt buckle switch status signal	
SRS warning light	Comes on	Input	CAN	Airbag warning light control request signal	Airbag sensor assembly
				Test mode signal	ECM
Charge warning light*2	Comes on	Input	CAN	Charge light indicator signal	ECM
Engine oil pressure warning light*2	Comes on	Input	CAN	Engine RPM data signal	ECM
			Direct line	Engine oil pressure signal	Engine oil pressure switch assembly
Automatic transmission fluid temperature warning light *2*6	Comes on	Input	CAN	AT oil temperature warning signal	ECM
				Engine RPM data signal	
Parking brake warning light	Comes on	Input	CAN	Parking brake signal	Main body ECU (Multiplex network body ECU)
Rear differential lock warning light*1	Comes on/blinks	Input	CAN	RDL indicator ON and flashing request signal	4WD control ECU assembly*9
MIL (Check engine warning light)	Comes on/Blinks	Input	Direct line	MIL (Malfunction indicator light)	ECM

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				request signal	
Slip indicator light	Comes on/Blinks	Input	CAN	Slip indicator signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
				VSC control existence flag signal	
VSC OFF indicator light	Comes on	Input	CAN	VSC OFF light signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
TRAC OFF indicator light	Comes on	Input	CAN	Starter signal	ECM
				VSC control existence flag signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
ABS warning light	Comes on/Blinks	Input	CAN	ABS warning light control flag signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
Tire pressure warning light*7	Comes on/Blinks	Input	CAN	TPMS warning light control flag 1	Main body ECU (Multiplex network body ECU)
Fuel level warning light	Comes on	Input	Direct line	Fuel level signal	Fuel sender gauge assembly
Engine oil level warning light*5	Comes on	Input	CAN	Engine coolant temperature signal	ECM

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Engine RPM data signal	Engine oil level sensor
				Direct line	
Oil maintenance warning light*2*13	Comes on/blinks	Input	CAN	Starter signal	ECM
		Output		OIL Maintenance Mileage signal	Navigation receiver assembly
				PREVIOUS OIL Maintenance FLAG signal	
Washer fluid level warning light*8	Comes on	Input	Direct line	Washer level sensor signal	Level warning switch assembly
Low speed four-wheel drive indicator light*9	Comes on/blinks	Input	CAN	L4 indicator ON and flashing request signal	4WD control ECU assembly
Auto LSD indicator light	Comes on	Input	CAN	Auto LSD Light Control Flag signal	• Brake actuator assembly (Skid control ECU)*3 • Brake booster with master cylinder assembly (Skid control ECU)*4
BSM (Blind Spot Monitor) warning light*10	Comes on	Input	CAN	BSD module status signal	Blind spot monitor sensor LH
Brake override system warning light*2	Comes on/blinks	Input	CAN	BOS light request signal	ECM
Four-wheel drive indicator light (Green)*9 / Four-wheel drive indicator light (Amber)*2*9	Comes on/blinks	Input	CAN	4WD indicator ON and flashing request signal	4WD control ECU assembly
Cruise control indicator light*2*11	Comes on (Green)	Input	CAN	Cruise main indicator signal	ECM
	Comes on (Amber)			Cruise control warning signal	

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Cruise control "SET" indicator light*2*11	Comes on (Green)	Input	CAN	Cruise set indicator signal	ECM
High beam indicator light	Comes on	Input	CAN	High beam headlight request signal	Main body ECU (Multiplex network body ECU)
Tail indicator light*12	Comes on	Input	CAN	Taillight request signal	Main body ECU (Multiplex network body ECU)
Head indicator light*13	Comes on	Input	CAN	Low beam headlight request signal	Main body ECU (Multiplex network body ECU)
Front fog indicator light*14	Comes on	Input	CAN	Front fog light request signal	Main body ECU (Multiplex network body ECU)
Turn indicator light	Blinks	Input	Direct line	LH turn switch signal	Headlight dimmer switch assembly
				RH turn switch signal	
				Turn signal switch position signal	
				Hazard warning switch signal	Air conditioning control assembly (Hazard warning signal switch)
		Output	CAN	Flasher request (body ECU request control) signal	Main body ECU (Multiplex network body ECU)
			CAN	Turn light state signal	Blind spot monitor sensor LH*9
				Hazard switch state signal	• Navigation receiver assembly*15 • Radio and display receiver assembly*16
			Direct line	LH turn switch signal	Each turn signal light
				RH turn switch signal	
				Hazard warning switch signal	

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
ECT power indicator light*6	Comes on	Input	CAN	ECT power indicator signal	ECM

- *1: w/ Multi-information Display
- *2: w/o Multi-information Display
- *3: for Vacuum Booster Type
- *4: for Hydraulic Booster Type
- *5: for 2GR-FKS
- *6: for Automatic Transmission
- *7: w/ Tire Pressure Warning System
- *8: w/ Washer Fluid Level Warning
- *9: for 4WD
- *10: w/ Blind Spot Monitor System
- *11: w/ Cruise Control System
- *12: for Speedometer with Metric Units for Main Scale
- *13: for Speedometer with Imperial Units for Main Scale
- *14: w/ Fog Light
- *15: for Navigation Receiver Type
- *16: for Radio and Display Type

(c) w/o Multi-information Display

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Odometer	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2
				Vehicle speed (SP1)	
	-	Output	CAN	ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)
				Odometer unit signal	Related ECUs
				Odometer signal	
TRIP A/TRIP B meter	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Vehicle speed (SP1)	master cylinder assembly (Skid control ECU)*2
				ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)

*1: for Vacuum Booster Type

*2: for Hydraulic Booster Type

(d) w/ Multi-information Display

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
Odometer	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	D
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
			-	ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)	
	-	Output	CAN	Odometer unit signal	Related ECUs	
				Odometer signal		
TRIP A/TRIP B meter	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	D
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
					ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
			Direct line	ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)	
Opening	Displayed	-	-	-	-	All
Trip Summary (Ending)	Displayed	-	-	-	-	C
Odometer	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	D
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
			-	ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)	
	-	Output	CAN	Odometer unit signal	Related ECUs	
				Odometer signal		
TRIP A/TRIP B meter	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	D
				Vehicle speed pulse signal integrated value	• Brake actuator	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
					assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
			Direct line	ODO/TRIP change switch	ODO/TRIP switch Knob (combination meter assembly)	
Average Fuel Economy	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Fuel consumption		
				Total average fuel consumption reset request signal	• Navigation receiver assembly*3 • Radio and display receiver assembly*4	
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
	Vehicle speed (SP1)					
	-	Output	CAN	Drive monitor unit signal 6	• Navigation receiver	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
				Drive monitor display signal (Total average fuel consumption)	assembly*3 • Radio and display receiver assembly*4	
Distance to Empty	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				ENG Display ID1	ECM	
				Engine type information 1		
				Engine type information 2		
				Engine type information 3		
				Engine type information 4		
				Engine RPM data signal		
				Fuel consumption		
				Transmission information		
				Gear information		
				Drive train information		
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
	-	Output	CAN	Drive monitor unit signal 4	• Navigation receiver assembly*3 • Radio and	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
					display receiver assembly*4	
Current Fuel Economy	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Fuel consumption		
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
	-	Output	CAN	Drive monitor unit signal 0	• Navigation receiver assembly*3 • Radio and display receiver assembly*4	
				Drive monitor display signal (instant fuel consumption)		
Tank Average Fuel Economy	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Fuel consumption		
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
					master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
Trip Average Fuel Economy	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Fuel consumption		
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
Average Speed	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
Trip Average Speed	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
	-	Output	CAN	Drive monitor unit signal 1	• Navigation receiver assembly*3 • Radio and display receiver assembly*4	
				Drive monitor display signal (after starting average speed)		
Elapsed Time	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
Trip Elapsed Time	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
	-	Output	CAN	Drive monitor display signal (after starting driving time)	• Navigation receiver assembly*3 • Radio and display receiver assembly*4	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
Distance	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
Trip Distance	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Engine RPM data signal	ECM	
				Vehicle speed pulse signal integrated value	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				Vehicle speed (SP1)		
Digital Speed	Displayed	Input	CAN	Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with	C
			Direct line	Vehicle speed pulse input signal		

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
					master cylinder assembly (Skid control ECU)*2	
	-	Output	CAN	Vehicle speed signal (meter to other)	Related ECUs	
			Direct line	Vehicle output pulse signal		
Trip Computer Reset	Displayed	-	-	-	-	C
Other (Blank)	Displayed	-	-	-	-	C
Drive information tab	Displayed	-	-	-	-	B
Navigation tab*3	Displayed	Input	CAN/Local bus	Navigation	Navigation receiver assembly	B
Audio tab*4	Displayed	Input	CAN/Local bus	Audio	- Navigation receiver assembly*3 - Radio and display receiver assembly*4	B
Vehicle information tab*5, *6, *13, *17	Displayed	Input	CAN	-	Radio and display receiver assembly*4	B
Message tab	Displayed	-	-	-	-	B
Setting tab	Displayed	-	-	-	-	B
Shift position*11	Displayed	Input	CAN	Shift position P signal	ECM	C, D
				Shift position R signal		
				Shift position N signal		
				Shift position D signal		
				Shift gear		
				Mode indicator signal		
				Sports mode enable signal		

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
				TM oil temperature range signal		
Cruise control "SET" indicator light*18	Displayed	Input	CAN	Cruise set indicator signal	ECM	A
Cruise control indicator light*18	Displayed	Input	CAN	Cruise main indicator signal	ECM	A
				Cruise control warning signal		
Outside temp	Displayed	Input	CAN	Temperature Unit Setting signal	-	A
				Unit Database 2 signal		
Icy street warning light	Displayed	Input	CAN	Ambient temperature display signal	Air conditioning amplifier assembly	A
				0 or 0.5°C below decimal point of ambient temperature display switch signal		
Active traction control system indicator	Displayed	Input	CAN	A-TRC Indicator Control Flag signal	Brake booster with master cylinder assembly (Skid control ECU)	A
Crawl control indicator*6	Displayed	Input	CAN	Crawl Control Indicator signal	Brake booster with master cylinder assembly (Skid control ECU)	A
Multi-terrain select indicator*6	Displayed	Input	CAN	Multi Terrain Select Indicator Control Flag signal	Brake booster with master cylinder assembly (Skid control ECU)	A
Ending Screen	Displayed	-	-	-	-	C
Phone (Received Call)*3, *4	Displayed	Input	CAN/Local bus	Phone (Received call) signal	• Navigation receiver assembly*3 • Radio and display receiver assembly*4	C
Turn-by-turn Navigation*3	Displayed	Input	CAN/Local bus	Turn-by-turn signal	Navigation receiver assembly*3	C
No Messages	Displayed	-	-	-	-	C

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
2WD - 4WD Mode Change Failure*14	Displayed	Input	CAN	4WD indicator ON and flashing request	4WD control ECU assembly	C
Differential Oil Temperature High Cool down*14	Displayed	Input	CAN	4WD indicator ON and flashing request	4WD control ECU assembly	C
Differential Oil Temperature High Shift to 2WD mode and cool down*14	Displayed	Input	CAN	4WD indicator ON and flashing request	4WD control ECU assembly	C
Roll/Pitch Indicates Approximate Angles Please Operate Vehicle Safely*5	Displayed	Input	CAN	GL1,GX sensor signal	Airbag sensor assembly	C
				GL2,GY sensor signal		
				Yaw rate sensor signal		
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
				GL 1 zero point value		
				GL 2 zero point value		
Holding in Engine Switch Will Cause an Emergency Engine Stop.*9	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Smart system warning 1 signal	Certification ECU (Smart key ECU assembly)	
To Restart Engine, Shift Lever to "N" and Press Engine Switch*9	Displayed	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)	C
				Smart system warning 2 signal ('Shift to N Position and Press Engine Switch to Restart' display request)	Certification ECU (Smart key ECU assembly)	

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
Crawl Has Been Deactivated*6	Displayed	Input	CAN	Crawl Control Indicator	Brake booster with master cylinder assembly (Skid control ECU)	C
				Crawl Control display request for Multi-display		
				Crawl Control display request for Multi-display 2		
Each door open (Vehicle being driven) (image display)	Displayed	Input	CAN	Driver seat courtesy SW signal	Main body ECU (Multiplex network body ECU)	C
				Passenger seat courtesy SW signal		
				Rear right side courtesy SW signal		
				Rear left side courtesy SW signal		
				Hood courtesy SW signal		
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
Each door open (Vehicle stopped) (image display)	Displayed	Input	CAN	Driver seat courtesy SW signal	Main body ECU (Multiplex network body ECU)	C
				Passenger seat courtesy SW signal		
				Rear right side courtesy SW signal		
				Rear left side courtesy SW signal		
				Hood courtesy SW signal		

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
Clearance sonar detection (image display)*8	Displayed	Input	CAN	CLSO MAIN SW INDICATOR TURN ON signal CLUSTER INDI TURN ON REQUEST signal REAR CENTER AREA INFORMATION signal REAR LEFT AREA INFORMATION signal REAR RIGHT AREA INFORMATION signal SENSOR DIAG REQUEST signal	Clearance warning ECU assembly	C
Check Park Sonar System*8	Displayed	Input	CAN	Sensor diag request signal	Clearance warning ECU assembly	C
Clean Park Sonar*8	Displayed	Input	CAN	Sensor diag request signal	Clearance warning ECU assembly	C
Powering OFF to Conserve Battery*9	Displayed	Input	CAN	Smart system warning 2 signal ('Automatic Power OFF to Protect Battery' display request)	Certification ECU (Smart key ECU assembly)	C
Shift to P Position*9	Displayed	Input	CAN	Smart system warning 2 signal (Shift position warning)	Certification ECU (Smart key ECU assembly)	C
Release Parking Brake	Displayed	Input	CAN	Parking brake switch signal	Main body ECU (Multiplex network body ECU)	C

ITEM	CONDITION	INPUT/ OUTPUT	COMMUNI CATION LINE	SIGNAL	COMPONENT	DISPLAY AREA
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	
Key not detected*9	Displayed	Input	CAN	Smart system warning 1 signal (No key inside cabin)	Certification ECU (Smart key ECU assembly)	C
Check Anti-lock Brake System	Displayed	Input	CAN	ABS Warning light Control Flag signal (Error status ON request)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	C
Check Vehicle Stability Control System	Displayed	Input	CAN	Slip Indicator signal (On request during system error)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2	C

- *1: for Vacuum Booster Type
- *2: for Hydraulic Booster Type
- *3: for Navigation Receiver Type
- *4: for Radio and Display Type
- *5: w/ Clinometer
- *6: w/ CRAWL Control
- *7: w/ Trailer Towing System
- *8: w/ Intuitive Parking Assist System
- *9: w/ Smart Key System
- *10:w/ Blind Spot Monitor System
- *11: for Automatic Transmission
- *12: for 2GR-FKS
- *13: w/ Tire Inflation Pressure Display Function

*14: for 4WD

*15: w/ Washer Fluid Level Warning

*16: for Speedometer with Imperial Units for Main Scale

*17: w/ Multi Terrain Select

*18: w/ Cruise Control System

(e) Buzzer

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Smart key buzzer (intermittent tone)*1	Sounds intermittently	Input	CAN	Meter Buzzer intermittence request signal	Certification ECU (Smart key ECU assembly)
Warning buzzer for door opening without shifting to P range (Smart Key Continuous)*1	Sounds continuously	Input	CAN	Meter buzzer continuation request signal	Certification ECU (Smart key ECU assembly)
Seat belt warning buzzer (for driver seat)	Sounds once/Sounds intermittently	Input	CAN	Driver seat belt buckle switch status signal	Main body ECU (Multiplex network body ECU)
				Parking brake SW signal	
				Shift position P signal	ECM
				Shift position R signal	
				Vehicle speed (SP1)	• Brake actuator assembly

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Seat belt warning buzzer (for passenger seat)	Sounds once/Sounds intermittently	Input	Direct line		(Skid control ECU)*2
				Vehicle speed pulse input signal	• Brake booster with master cylinder assembly (Skid control ECU)*3
			CAN	Passenger seat occupant status signal	Airbag sensor assembly
				Passenger seat belt buckle switch status signal	
				Parking brake SW signal	Main body ECU (multiplex network body ECU)
				Shift position P signal	ECM
				Shift position R signal	
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
			Direct line		
				Vehicle speed pulse input signal	
Key reminder buzzer (vehicles without smart system)	Sounds intermittently	Input	CAN	Key switch signal	Main body ECU (multiplex network body ECU)
				Driver seat courtesy switch signal	

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Brake system low braking force warning buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (Warning for lower braking force of the brake system)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
Low brake fluid warning buzzer*2	Sounds intermittently	Input	CAN	Brake Reservoir Level Warning Control Flag signal	Brake booster with master cylinder assembly (Skid control ECU)*3
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
			Direct line	Vehicle speed pulse input signal	
				Brake oil level warning switch signal	Brake actuator assembly (Skid control ECU)*2
Push operation warning during driving buzzer*1	Sounds intermittently	Input	CAN	Switch operation buzzer intermittence request signal	Certification ECU (Smart key ECU assembly)
PKB-ON while driving warning buzzer	Sounds intermittently	Input	CAN	Parking brake switch signal	Main body ECU (multiplex network body ECU)

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
System temperature increase active test buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (System temperature rise/active test)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
Hill-start Assist Control (step1) advance notice of ending buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (Hill-start Assist Control (Step1) advance notice of ending)	Brake booster with master cylinder assembly (Skid control ECU)*3
Oil pressure warning buzzer	Sounds intermittently	Input	CAN	Engine RPM data signal	ECM
				Vehicle speed (SP1)	• Brake actuator assembly (Skid control ECU)*2 • Brake

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
			Direct line	Vehicle speed pulse input signal	booster with master cylinder assembly (Skid control ECU)*3
				Engine oil pressure switch signal	Engine oil pressure switch
			CAN	Driver seat courtesy switch signal	Main body ECU (multiplex network body ECU)
				Passenger seat courtesy switch signal	
				Rear right side courtesy switch signal	
				Rear left side courtesy switch signal	
Alert buzzer for driving with door ajar buzzer	Sounds intermittently	Input	CAN	Hood courtesy switch signal*4	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
				Vehicle speed (SP1)	
Smart key 2 buzzer (intermittent tone)*1	Sounds intermittently (9 times at maximum)	Input	CAN	Meter Buzzer intermittence request signal (0.7 sec cycle)	Certification ECU (Smart key ECU assembly)

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Hill-start Assist Control (step1) during regular control buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (Hill-start Assist Control (Step1) regular control is being performed)	Brake booster with master cylinder assembly (Skid control ECU)*3
Start notification during driving buzzer*1	Sounds intermittently	Input	CAN	Smart system warning 2 signal (Display request "Position N range and press engine switch to restart") Smart system warning 2 signal (Display request "Step on clutch and press engine switch to restart")	Certification ECU (Smart key ECU assembly)
Hill-start Assist Control (Step2) Reset buzzer	Sounds 2 short consecutive tones	Input	CAN	Buzzer Control Flag signal (Hill-start Assist Control (Step2) Reset, 2 consecutive short tones)	Brake booster with master cylinder assembly (Skid control ECU)*3
Sport mode shift reject buzzer	Sounds 2 consecutive short tone	Input	CAN	Reject buzzer signal	ECM
Engine high water temperature warning buzzer	Sounds single tone	Input	CAN	Water temperature signal	ECM
Multiple display warning buzzer*4	Sounds single short tone	Input	-	-	-
VSC skid warning buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (Requested to drive the VSC buzzer)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
					assembly (Skid control ECU)*3
4WD buzzer (intermittent tone)*6	Sounds intermittently	Input	CAN	The demand which sounds a buzzer signal (1 second cycle time or 0.4 second cycle time)	4WD control ECU assembly
4WD buzzer (3 consecutive short tones)*6	Sounds 3 continuous times	Input	CAN	The demand which sounds a buzzer signal (3 times 1 second cycle time)	4WD control ECU assembly
Temperature warning / CRAWL cancel warning buzzer	Sounds intermittently	Input	CAN	Buzzer Control Flag signal (System temperature warning/CRAWL release warning)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3
Hill-start Assist Control (Step2) Set buzzer	Sounds single and short tone	Input	CAN	Buzzer Control Flag signal (Hill-start Assist Control (Step2) Set)	• Brake actuator assembly (Skid control ECU)*2 • Brake booster with master cylinder assembly (Skid control ECU)*3

- *1: w/ Smart Key System
- *2: for Vacuum Booster Type
- *3: for Hydraulic Booster Type
- *4: w/ Multi-information Display
- *5: w/o Multi-information Display
- *6: for 4WD

(f) Others

ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
Meter illumination	Illumination level	Input	CAN	ACC switch signal	Main body ECU (Multiplex network body ECU)
				Auto dimmer signal	
				Taillight request signal	
				Parked condition signal	
				Panel lighting request signal	
			Direct line	Built-in rheostat in the meter	ODO/TRIP switch Knob (combination meter assembly)
	-	Output	CAN	Rheostat duty signal	Certification ECU (Smart key ECU assembly)
				Lounge illumination off signal	Related ECUs
				Tail cancel signal	
			Direct line	Illumination level output signal	
Diagnostic trouble code	Display	Input	CAN	Diagnoses transmitting system No signal	Related ECUs
				Diagnoses code 1 signal	
				Diagnoses code 2 signal	
				Diagnoses code 3 signal	
				Diagnoses code 4 signal	

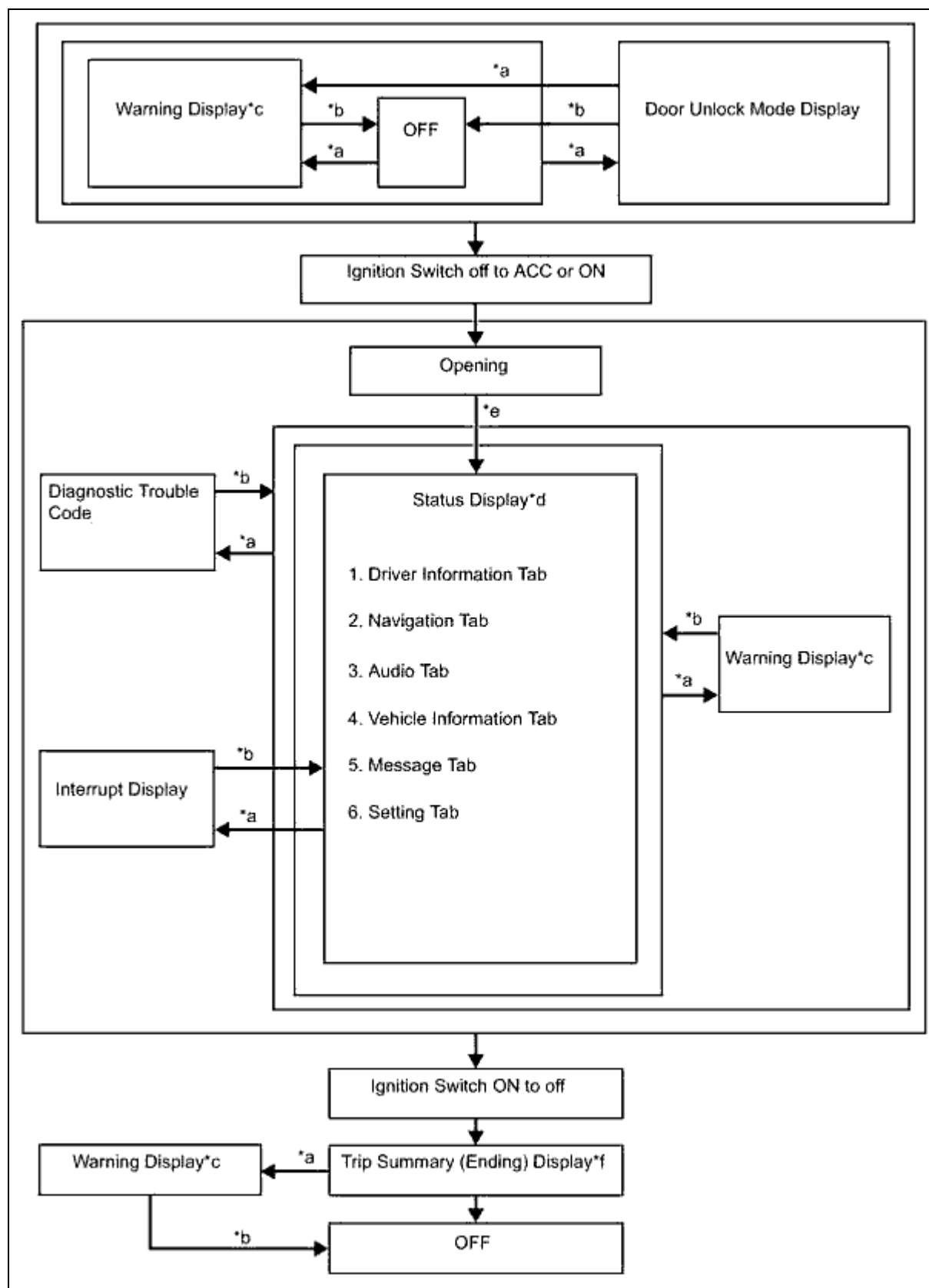
ITEM	CONDITION	INPUT/OUTPUT	COMMUNICATION LINE	SIGNAL	COMPONENT
				Diagnoses code 5 signal	
				Diagnoses code 6 signal	
				Diagnoses code 7 signal	
				ABS Warning Light Control Flag signal (Diagnoses code output is requested)	• Brake actuator assembly (Skid control ECU)*1 • Brake booster with master cylinder assembly (Skid control ECU)*2
				Slip Indicator signal (Diagnoses code output is requested)	
				Airbag warning Light control request signal (Diagnoses code output is requested)	Airbag sensor assembly

*1: for Vacuum Booster Type

*2: for Hydraulic Booster Type

3. MULTI-INFORMATION DISPLAY FLOW CHART

(a) w/ Multi-information Display



Display Change Condition

ITEM	DISPLAY CHANGE CONDITION
*a	Conditions are met.

ITEM	DISPLAY CHANGE CONDITION
*b	Conditions are not met.
*c	If there are multiple display requests, items will be displayed in sequence.
*d	Item or display is selected by operating the steering pad switch.
*e	After ignition switch ON.
*f	ODO display is displayed for a certain period of time after the ignition switch is turned off.

4. DESCRIPTION OF WARNING DISPLAYS

(a) w/ Multi-information Display

PRIORITY	SYSTEM NAME/(VEHICLE FUNCTION)	MASTER WARNING LIGHT ○: COMES ON ●: BLINKS	BUZZER (*1)	DISPLAY	LEVEL
1	Transfer system	●	-	2WD-4WD Mode Change Failure	Caution
	Differential system	●	-	Differential Oil Temperature High Cool down	Caution
		●	*2	Differential Oil Temperature High Shift to 2WD mode and cool down	Caution
	Vehicle stability control system (for Vacuum Brake Booster) Vehicle stability control system (for Hydraulic Brake Booster)	-	-	Roll/Pitch Indicates Approximate Angles Please Operate Vehicle Safely	Caution
	Wireless door lock control system (w/ Smart key system)	●	*2	Holding in Engine Switch Will Cause an Emergency Engine Stop.	Warning
		●	*2	To Restart Engine, Shift Lever to "N" and Press Engine Switch.	Caution
2	Vehicle stability control system (for Hydraulic Brake Booster)	○	○	Crawl has been Deactivated	Caution
3	(Each door warning (vehicle being driven))	●	*2	Each door warning (vehicle being driven)	Caution
	(Each door warning (vehicle being stop))	-	-	Each door warning (vehicle being stop)	Caution*2
	Intuitive parking assist system	○	-	Check Park Sonar System	Caution
		○	-	Clean Park Sonar	Caution
4	Wireless door lock control system (w/ Smart Key System)	●	*2	Shift to P position	Caution
		●	○	Shift to P position	Caution

PRIORITY	SYSTEM NAME/(VEHICLE FUNCTION)	MASTER WARNING LIGHT ○: COMES ON ●: BLINKS	BUZZER (*1)	DISPLAY	LEVEL
5	(Parking brake)	●	*2	Release Parking Brake	Caution
	Wireless door lock control system (w/ Smart Key System)	●	*2	Key not detected	Caution
6	Wireless door lock control system (w/ Smart Key System)	-	○	Check Anti-lock Brake System	Advisory
	Vehicle stability control system (for Vacuum Brake Booster) Vehicle stability control system for Hydraulic Brake Booster)	-	-	Check Vehicle Stability Control System	Advisory
	Tire pressure warning system	-	-	Check Tire Pressure Monitoring System	Advisory
	Brake system	-	-	Check Brake System	Advisory
	SFI system(2GR-FKS) SFI system(2TR-FE)	○	*2	High Engine Coolant Temperature	Caution
	Charging System	-	-	Check Charging System	Caution
	Wireless door lock control system (w/ Smart Key System)	●	*2	Smart Entry & Start System Check	Caution
		○	○	Blind Spot Monitor Not Available	Caution
	Cruise control system	○	○	Check Cruise Control System	Caution
	Blind spot monitor system	○	○	Check Blind Spot Monitor System	Caution
	Steering lock system	●	-	Check Steering Lock System	Caution
	(Engine oil pressure switch assembly)	○	*2	Low Oil Pressure	Caution
	Automatic transmission system (for 2GR-FKS for Automatic Transmission 2WD) Automatic transmission system (for 2GR-FKS for Automatic Transmission 4WD) Automatic transmission system (for 2TR-FE for Automatic Transmission 2WD) Automatic transmission system (for 2TR-FE for Automatic Transmission 4WD)	○	○	High Transmission Fluid Temperature	Caution
7	Wireless door lock control	●	*2	Turn Power OFF	Caution

PRIORITY	SYSTEM NAME/(VEHICLE FUNCTION)	MASTER WARNING LIGHT ○: COMES ON ●: BLINKS	BUZZER (*1)	DISPLAY	LEVEL
	system (w/ Smart Key System)	●	*2	Key Detected in Vehicle	Caution
		●	-	Turn Headlights OFF	Caution
	Sliding roof system	●	○	Moon Roof Open	Caution
	Wireless door lock control system (w/ Smart key system)	●	*2	Engine Start: Press Brake Pedal, Push Engine Switch with Key	Caution
		-	-	Engine Start: Press Brake Pedal, Push Engine Switch with Key	Opening
		-	-	Accessory Mode: Push Engine Switch with Key	Opening
		-	○*2	Engine Start: Press Brake Pedal and Push Engine Switch	Caution*2
		-	○*2	Engine Start: Press Brake Pedal and Push Engine Switch	Caution*2
		-	-	Engine Start: Press Brake Pedal and Push Engine Switch	Opening
		-	-	Accessory Mode Push Engine Switch	Opening
8	Steering lock system	●	*2	Steering Lock ON	Caution
	Vehicle stability control system (for Hydraulic Brake Booster)	-	-	Crawl not Available Select 4L and Shift to D or R Position	Caution
		-	-	Crawl not Available Check System Operation Condition	Caution
	Brake override system	○	○	Brake Override Malfunction Visit Your Dealer	Caution
9	Wireless door lock control system (w/ Smart Key System)	○	*2	Key Battery Low	Caution
		-	-	Key Battery Low Engine Start: Press Brake Pedal, Push Engine Switch with Key	Opening
		-	-	Key Battery Low Accessory Mode: Push Engine Switch with Key	Opening
	(Engine oil level sensor)	○	○	Engine Oil Level Low Add or Replace	Caution

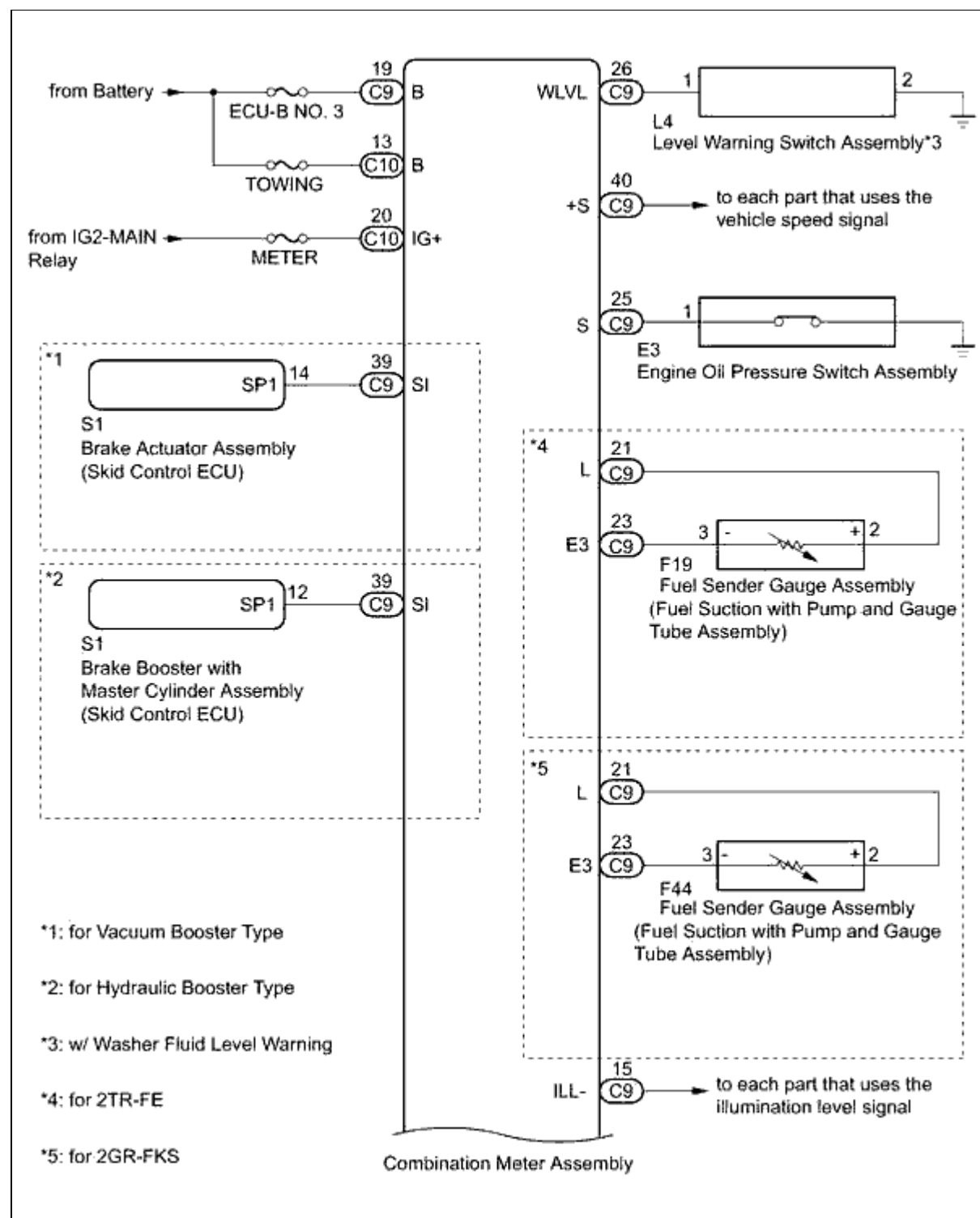
PRIORITY	SYSTEM NAME/(VEHICLE FUNCTION)	MASTER WARNING LIGHT ○: COMES ON ●: BLINKS	BUZZER (*1)	DISPLAY	LEVEL
	Brake override system	●	-	Accelerator and Brake Pedals Depressed Simultaneously	Advisory
	Tire pressure warning system	-	-	Low Tire Pressure (See MET-DISPLIST)	Advisory
		-	-	Low Tire Pressure (See MET-DISPLIST)	Advisory
10	(Level warning switch assembly)	-	-	Low Washer fluid	Advisory
	(Fuel sender gauge assembly)	-	-	Low Fuel Distance to Empty XXX [mi, km] Please Refuel	Advisory
	(Maintenance required reminder)	○	-	Maintenance Required Soon	Advisory
		○	-	Maintenance Required	Advisory
		-	-	Resetting Maintenance Data	Advisory
		-	○	Resetting Maintenance Data	Advisory
	Wireless door lock control system (w/ Smart key system)	-	-	Power ON	Caution*2
		-	-	Engine Start: Press Brake Pedal and Push Engine Switch	Caution*2
	Vehicle stability control system (for Hydraulic Brake Booster)	-	-	Shift to 4L	Caution
		-	-	Operation not Possible When Multi-Terrain Select Activated	Caution
		-	-	Multi-Terrain Select not Available	Caution
		-	○	Multi-Terrain Select Has Been Deactivated	Caution
		-	-	Operation not Possible When Crawl Control Activated	Caution
		-	-	Mud & Sand Loose Rock Mogul Rock & Dirt Rock	Caution *1, *2
		-	-	Low Low Medium Medium Medium High High	Caution *1, *2

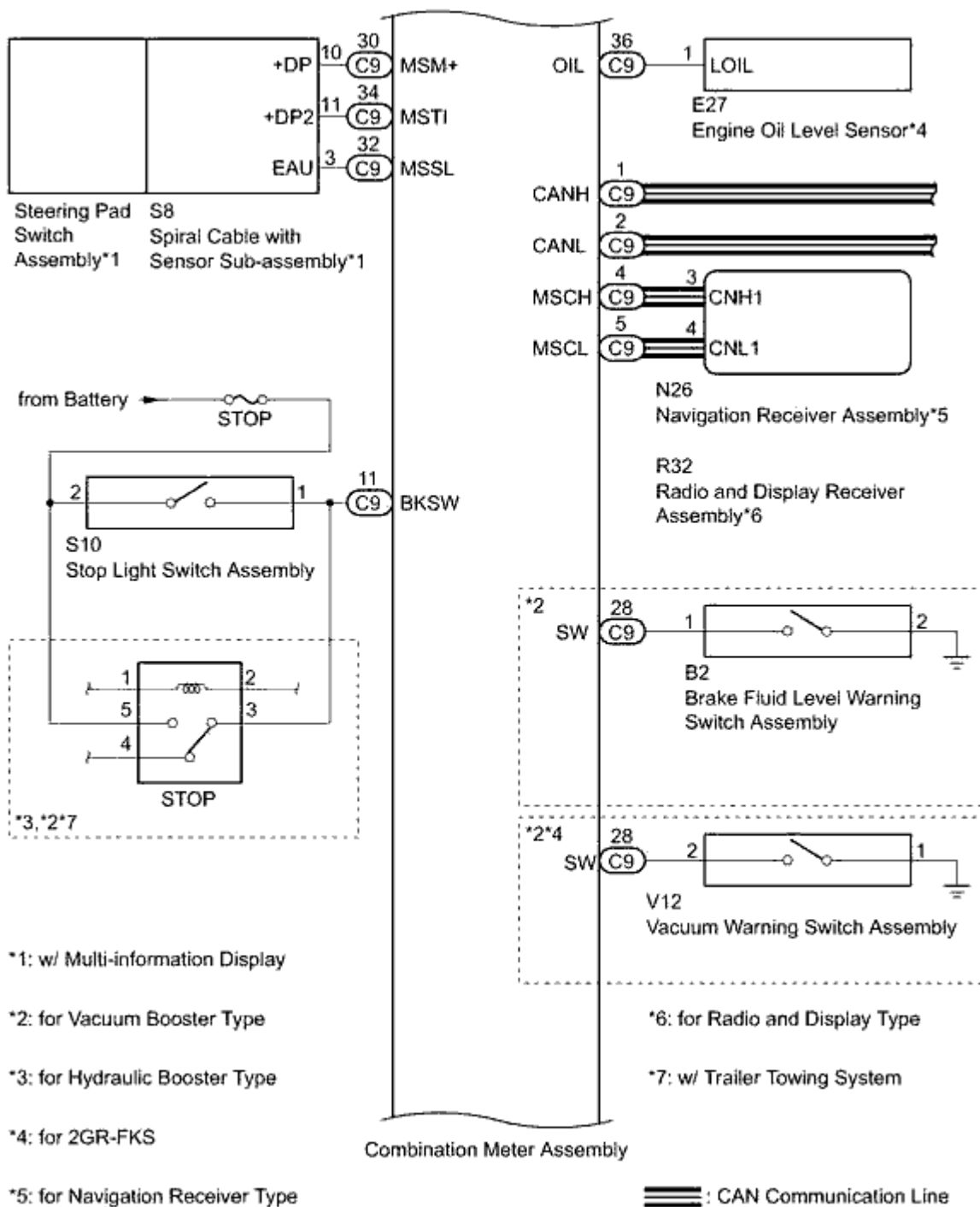
- *1: Buzzers that are linked with the master warning light.
- *2: An exclusive buzzer sounds depending on condition.

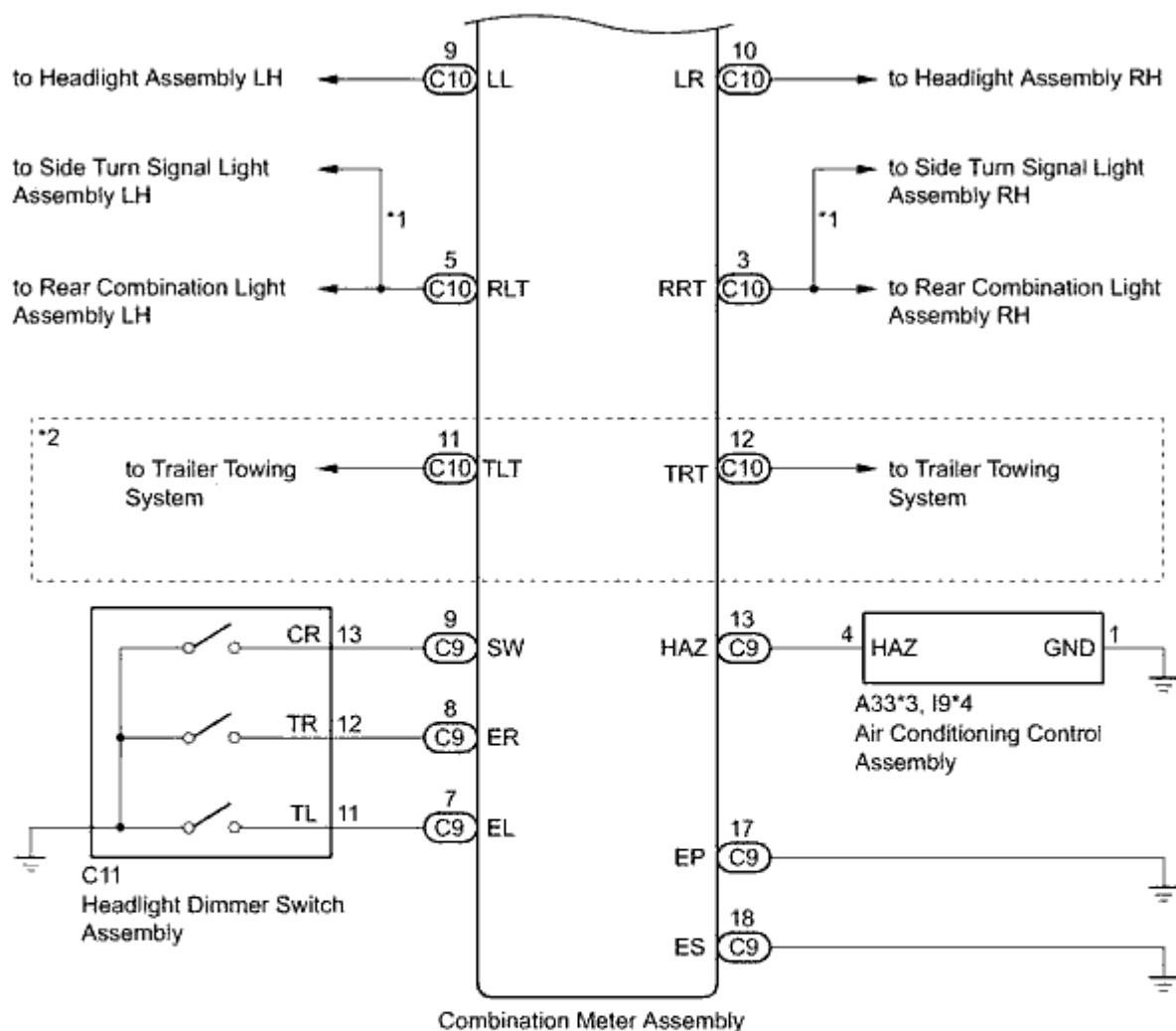


Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000012G40GGX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: SYSTEM DIAGRAM; 2016 MY Tacoma [08/2015 -]		

SYSTEM DIAGRAM







Last Modified: 11-13-2015	6.6 J	Doc ID: RM000002UD70EGX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Speed Signal Circuit; 2016 MY Tacoma [08/2015 -]		

Speed Signal Circuit

DESCRIPTION

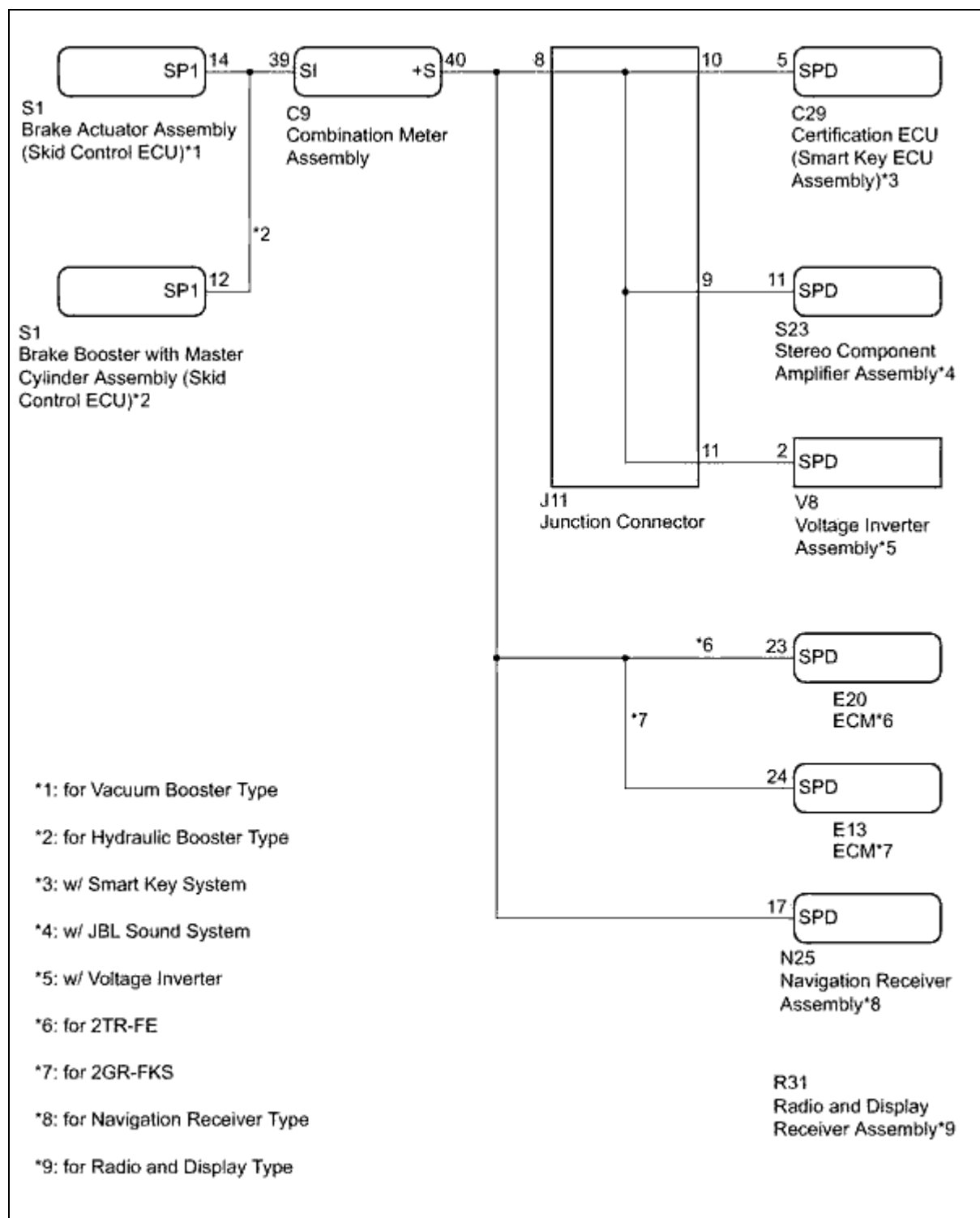
The combination meter assembly receives the vehicle speed signal from this circuit. The wheel speed sensors produce an output that varies according to the vehicle speed. The wheel speed sensor output is received by the skid control ECU, which uses this information to create the vehicle speed sensor signal*1. The vehicle speed sensor signal consists of pulses sent to the combination meter assembly from the skid control ECU. To create this signal, 12 V is output from IG2, which is behind a resistor in the combination meter assembly. 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 assembly 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 assembly 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 assembly controls its respective system based on the pulse signal.

- *1: 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 assembly operation. Combination meter assembly components such as the speedometer operate using data received via CAN communication.

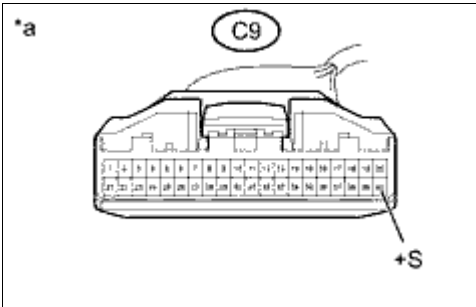
WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1. INSPECT COMBINATION METER ASSEMBLY (INPUT VOLTAGE)



(a) Disconnect the combination meter assembly connector.

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
C9-40 (+S) - Body ground	Ignition switch ON	4.5 to 14 V

Text in Illustration

*a	Front view of wire harness connector (to Combination Meter Assembly)
----	---

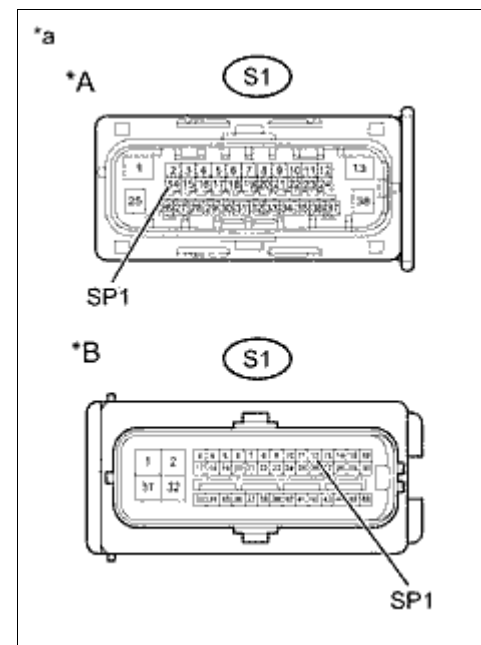
HINT:

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

NG  GO TO STEP 5

OK


2.	INSPECT COMBINATION METER ASSEMBLY (OUTPUT VOLTAGE)
----	---



(a) Disconnect the S1 brake actuator assembly (skid control ECU)*1 or brake booster with master cylinder assembly (skid control ECU)*2 connector.

- *1: for Vacuum Booster Type
- *2: for Hydraulic Booster Type

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

Standard Voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
A4-11 (SP1) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*A	for Vacuum Booster Type
*B	for Hydraulic Booster Type
*a	Front view of wire harness connector (to Brake Actuator Assembly)

NG **GO TO STEP 4**

OK

3.	INSPECT BRAKE ACTUATOR ASSEMBLY (INPUT WAVEFORM)
-----------	---

(a) Check the input waveform.

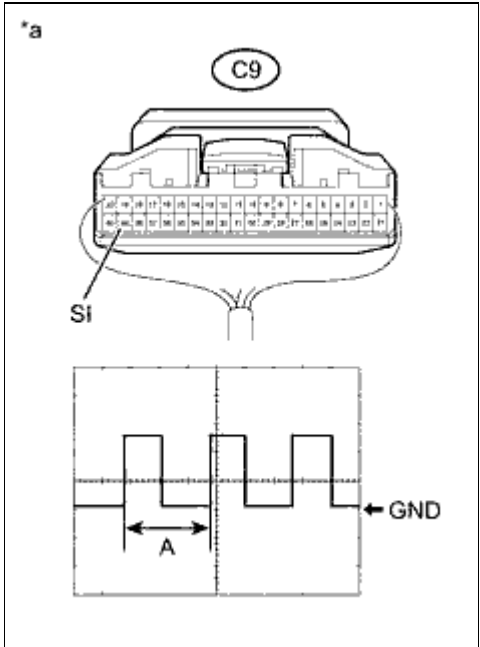
- (1) Remove the combination meter assembly with the connector(s) still connected.
- (2) Connect an oscilloscope to terminal C9-39 (SI) and body ground.
- (3) Turn the ignition switch to ON.
- (4) Turn the wheel slowly.
- (5) Check the signal waveform according to the condition(s) in the table below.

ITEM	CONDITION
Tool setting	5 V/DIV., 20 ms./DIV.
Vehicle Condition	Ignition switch ON, wheel being rotated

OK:
The waveform is similar to that shown in the illustration.

Text in Illustration

*a	Component with harness connected (Combination Meter Assembly)
----	--



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 (for Vacuum Booster Type)	B
NG (for Hydraulic Booster Type)	C

- B** ▶ REPLACE BRAKE ACTUATOR ASSEMBLY (SKID CONTROL ECU)
- C** ▶ REPLACE BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY (SKID CONTROL ECU)
- A** ▶ REPLACE COMBINATION METER ASSEMBLY

4.	CHECK HARNESS AND CONNECTOR (BRAKE ACTUATOR ASSEMBLY (SKID CONTROL
----	--

ECU) or BRAKE BOOSTER WITH MASTER CYLINDER ASSEMBLY (SKID CONTROL ECU) - COMBINATION METER ASSEMBLY)

(a) Disconnect the S1 brake actuator assembly (Skid control ECU)*1 or brake booster with master cylinder assembly (Skid control ECU)*2 connector.

*1: for Vacuum Booster Type

*2: for Hydraulic Booster Type

(b) Disconnect the C9 combination meter assembly connector.

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

Standard Resistance:

for Vacuum Booster Type

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-14 (SP1) - C9-39 (SI)	Always	Below 1 Ω
S1-14 (SP1) or C9-39 (SI) - Body ground	Always	10 k Ω or higher

for Hydraulic Booster Type

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
S1-12 (SP1) - C9-39 (SI)	Always	Below 1 Ω
S1-12 (SP1) or C9-39 (SI) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE COMBINATION METER ASSEMBLY**

5.

CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - JUNCTION CONNECTOR)

(a) Disconnect the C9 combination meter assembly connector.

(b) Disconnect the J11 junction connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-40 (+S) - J11-8	Always	Below 1 Ω
C9-40 (+S) or J11-8 - Body ground	Always	10 k Ω or higher

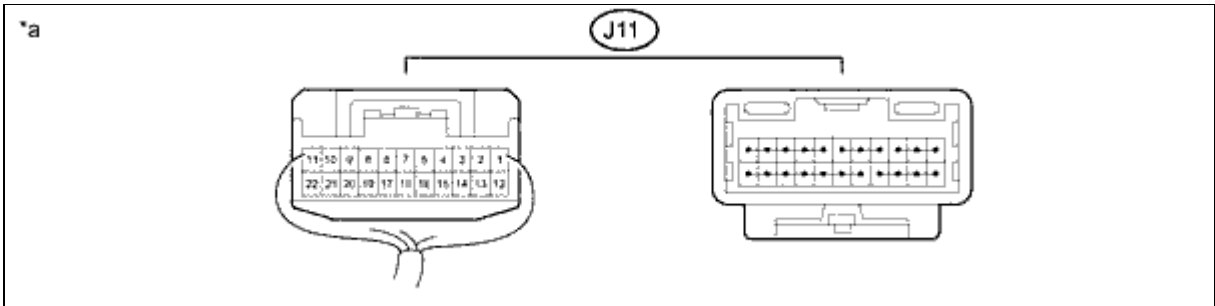
NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

6.	CHECK HARNESS AND CONNECTOR (JUNCTION CONNECTOR)
----	--

(a) Inspect for a short in the circuit that is connected to the instrument panel junction block assembly connector shown in the wiring diagram.

HINT:
If the voltage is not as specified, it is possible that an ECU or circuit has a malfunction. The malfunctioning ECU or circuit will be diagnosed in the following steps.

(1) Remove the junction connector with the connector(s) still connected.



Text in Illustration

*a	Component with harness connected (Junction Connector)	-	-
----	--	---	---

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

Standard Voltage:		
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
J11-9 - Body ground	Ignition switch ON	4.5 to 14 V
J11-10 - Body ground	Ignition switch ON	4.5 to 14 V
J11-11 - Body ground	Ignition switch ON	4.5 to 14 V

Result

RESULT	PROCEED TO
Voltage is not as specified in one circuit	A
Voltage is as specified in all circuits	B

A

7.	SYSTEM CHECK
-----------	---------------------

(a) Select the circuit for which voltage was not as specified in the previous step 6.

Result

TESTER CONNECTION	SYSTEM THAT USES THE CIRCUIT	PROCEED TO
J11-9 - Body ground	Navigation system	A
J11-10 - Body ground	Smart key system	B
J11-11 - Body ground	Other system (voltage inverter)	C
E20-23 (SPD)*1 or E13-24 (SPD)*2 - Body ground	2TR-FE Engine control system*1 2GR-FKS Engine control system*2	D
N25-17 (SPD)*3 or R31-17 (SPD)*4 - Body ground	Navigation system*3 Audio and visual system*4	E

*1: for 2TR-FE

*2: for 2GR-FKS

*3: for Navigation Receiver Type

*4: for Radio and Display Type

B ► **GO TO STEP 9**

C ► **GO TO STEP 10**

D ► **GO TO STEP 11**

E ► **GO TO STEP 12**

A

8.	CHECK HARNESS AND CONNECTOR (JUNCTION CONNECTOR - STEREO COMPONENT AMPLIFIER ASSEMBLY)
-----------	---

(a) Disconnect the J11 junction connector.

(b) Disconnect the S23 stereo component amplifier assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
J11-9 - S23-11 (SPD)	Always	Below 1 Ω
J11-9 or S23-11 (SPD) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE STEREO COMPONENT AMPLIFIER ASSEMBLY**

9.	CHECK HARNESS AND CONNECTOR (JUNCTION CONNECTOR - CERTIFICATION ECU (SMART KEY ECU ASSEMBLY))
-----------	--

- (a) Disconnect the J11 junction connector.
- (b) Disconnect the C29 certification ECU (smart key ECU assembly) connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
J11-10 - C29-5 (SPD)	Always	Below 1 Ω
J11-10 or C29-5 (SPD) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE CERTIFICATION ECU (SMART KEY ECU ASSEMBLY)**

10.	CHECK HARNESS AND CONNECTOR (JUNCTION CONNECTOR - VOLTAGE INVERTER ASSEMBLY)
------------	---

- (a) Disconnect the J11 junction connector.
- (b) Disconnect the V8 voltage inverter assembly connector.
- (c) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
J11-11 - V8-2 (SPD)	Always	Below 1 Ω
J11-11 or V8-2 (SPD) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK  **REPLACE VOLTAGE INVERTER ASSEMBLY**

11. CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - ECM)

(a) Disconnect the C9 combination meter assembly connector.

(b) Disconnect the E20*1 or E13*2 ECM connector.

*1: for 2TR-FE

*2: for 2GR-FKS

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

Standard Resistance:

for 2TR-FE

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-40 (+S) - E20-23 (SPD)	Always	Below 1 Ω
C9-40 (+S) or E20-23 (SPD) - Body ground	Always	10 k Ω or higher

for 2GR-FKS

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-40 (+S) - E13-24 (SPD)	Always	Below 1 Ω
C9-40 (+S) or E13-24 (SPD) - Body ground	Always	10 k Ω or higher

NG  **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK



12. CHECK HARNESS AND CONNECTOR (COMBINATION METER ASSEMBLY - NAVIGATION RECEIVER ASSEMBLY OR RADIO AND DISPLAY RECEIVER ASSEMBLY)

(a) for Navigation Receiver Type

(1) Disconnect the C9 combination meter assembly connector.

(2) Disconnect the N25 navigation receiver assembly connector.

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

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-40 (+S) - N25-17 (SPD)	Always	Below 1 Ω
C9-40 (+S) or N25-17 (SPD) - Body ground	Always	10 k Ω or higher

(b) for Radio and Display Type

- (1) Disconnect the C9 combination meter assembly connector.
- (2) Disconnect the R31 radio and display receiver assembly connector.
- (3) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
C9-40 (+S) - R31-17 (SPD)	Always	Below 1 Ω
C9-40 (+S) or R31-17 (SPD) - Body ground	Always	10 k Ω or higher

Result

RESULT	PROCEED TO
NG	A
OK (for Navigation Receiver Type)	B
OK (for Radio and Display Type)	C

B ► REPLACE NAVIGATION RECEIVER ASSEMBLY

C ► REPLACE RADIO AND DISPLAY RECEIVER ASSEMBLY

A ► REPAIR OR REPLACE HARNESS OR CONNECTOR



Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001YNX02JX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Speedometer Malfunction; 2016 MY Tacoma [08/2015 -]		

Speedometer Malfunction

DESCRIPTION

The meter CPU receives vehicle speed signals from the skid control ECU via the CAN communication system (CAN V1 Bus). The speed sensor detects the wheel speed and sends the appropriate signals to the skid control ECU. 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.

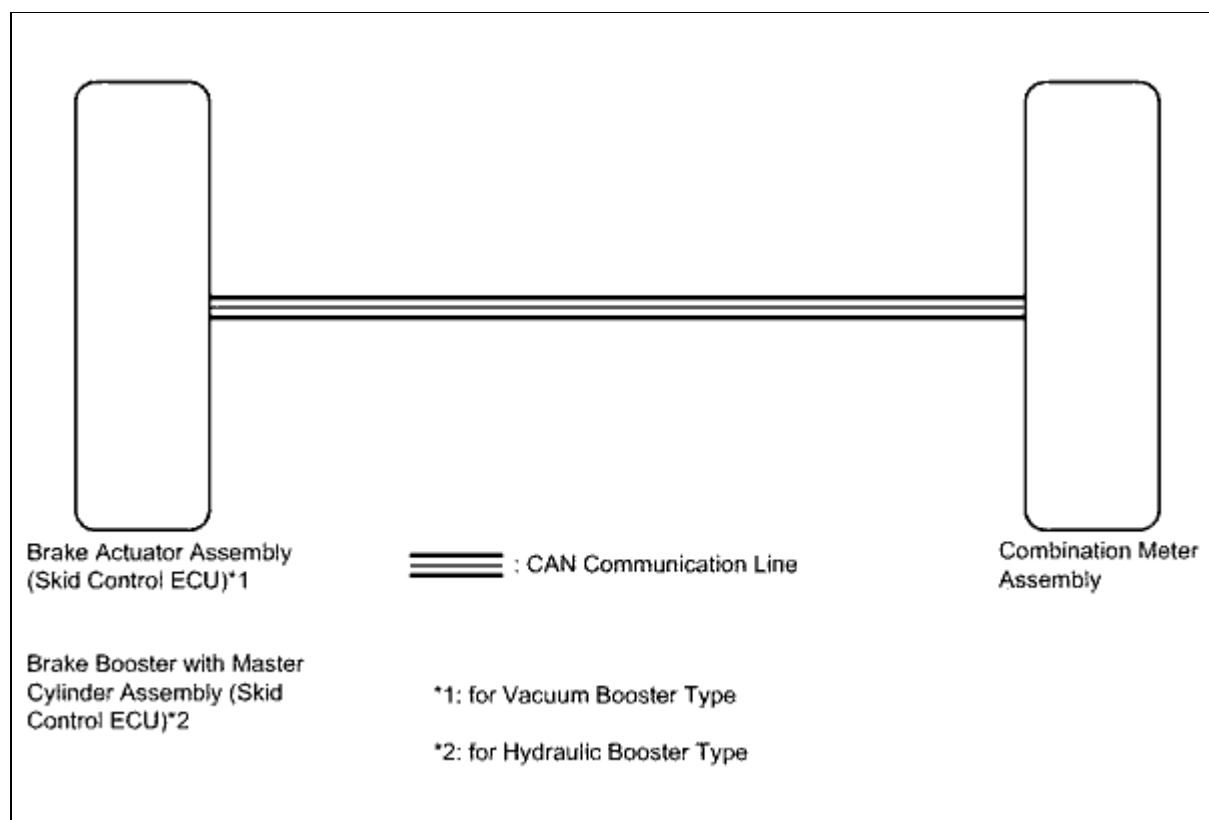
HINT:

- Factors that affect the indicated vehicle speed include tire size, tire inflation, and tire wear. The speed indicated on the speedometer has an allowable margin of error. This can be tested using a speedometer tester (calibrated chassis dynamometer). For details about testing and the margin of error, see the reference chart [INFO](#).
- If the vehicle speed sensor circuit has a malfunction, the skid control ECU stores the DTCs. Troubleshoot the Brake Control System.

for Vacuum Booster type: [INFO](#)

for Hydraulic Booster type: [INFO](#)

WIRING DIAGRAM



INSPECTION PROCEDURE

CAUTION:

If the vehicle speed is outside the allowable range when tested, perform the on-vehicle inspection  .

HINT:

Before starting the following inspection, check tire size and tire air pressure.

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
----	--------------------------------

(a) Check if a 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 (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) According to the display on the Techstream, perform the Active Test.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
Speed Meter Operation	Speedometer	• OFF, 0, 40, 80, 120, 160, 200 mph*1 • OFF, 0, 40, 80, 120, 160, 200, 240, 280 km/h*2	Operate with IG ON and the vehicle is stopped. There is a deviation in the values displayed on the speedometer (Control range → Speedometer display) Reference mph*2:

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
			• 40 → 39.4 to 42.2 • 80 → 80.0 to 83.2 • 120 → 120.9 to 124.1 Reference km/h*3: • 40 → 38.6 to 43.1 • 80 → 79.1 to 84.1 • 120 → 120.0 to 125.0 • 160 → 160.8 to 165.8

*1: for Speedometer with Imperial Units for Main Scale

*2: for Speedometer with Metric Units for Main Scale

*3: w/ Multi-information Display

OK:

Speedometer indication is normal.

NG  **REPLACE COMBINATION METER ASSEMBLY**

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) According to the display on the Techstream, read the Data List.

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)	Approximately same as actual vehicle speed (When vehicle is being driven)	-

OK:

Vehicle speed displayed on the Techstream is almost the same as the speedometer indication.

NG  **REPLACE COMBINATION METER ASSEMBLY**

OK



4.	CHECK VEHICLE STABILITY CONTROL SYSTEM
----	--

(a) Check if a vehicle stability control DTC is output.

for Vacuum Booster type: 

for Hydraulic Booster type: 

Result

RESULT	PROCEED TO
Vehicle stability control DTC is not output	A
Vehicle stability control (for Vacuum Booster type) DTC is output	B
Vehicle stability control (for Hydraulic Booster type) DTC is output	C

B ► **GO TO VEHICLE STABILITY CONTROL SYSTEM (for Vacuum Booster type)**

C ► **GO TO VEHICLE STABILITY CONTROL SYSTEM (for Hydraulic Booster type)**

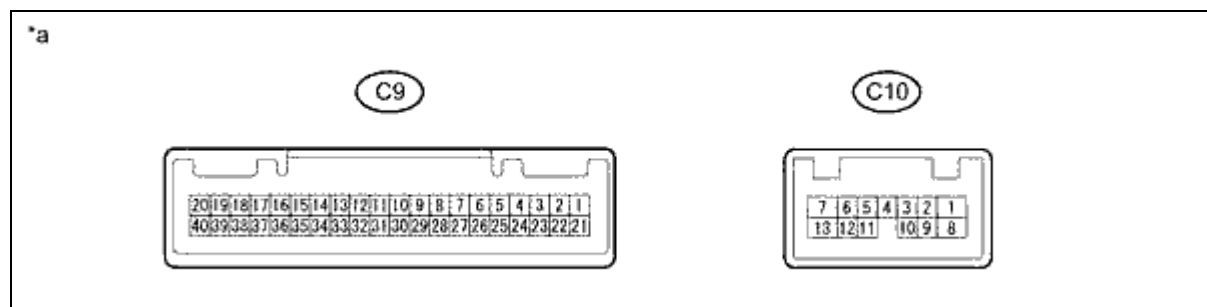
A ► **REPLACE COMBINATION METER ASSEMBLY**



Last Modified: 11-13-2015	6.6 U	Doc ID: RM0000012GA0CLX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: TERMINALS OF ECU; 2016 MY Tacoma [08/2015 -]		

TERMINALS OF ECU

1. COMBINATION METER ASSEMBLY



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

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C9-1 (CANH) - Body ground	G - Body ground	CAN communication line	-	-
C9-2 (CANL) - Body ground	W - Body ground	CAN communication line	-	-
C9-4 (MSCH) - Body ground	B - Body ground	Local bus communication line	-	-
C9- 5 (MSCL) - Body ground	W - Body ground	Local bus communication line	-	-
C9-7 (EL) - Body ground	V - Body ground	LH turn indicator light signal (Input)	Ignition switch ON, LH turn signal switch off	11 to 14 V
			Ignition switch ON, LH turn signal switch on	Below 1 V
C9-8 (ER) - Body ground	GR - Body ground	RH turn indicator light signal (Input)	Ignition switch ON, RH turn signal switch off	11 to 14 V
			Ignition switch ON, RH turn signal switch on	Below 1 V
C9-9 (SW) - Body ground	R - Body ground	Turn switch signal	Ignition switch ON, LH and RH turn signal switch off	11 to 14 V
			Ignition switch ON, LH or RH turn signal switch on	Below 1 V
C9-11 (BKSW) - Body ground	L - Body ground	Stop light switch signal	Stop light switch on	11 to 14 V
			Stop light switch off	Below 1 V
C9-13 (HAZ) - Body ground	Y - Body ground	Hazard warning signal switch signal	Ignition switch ON, hazard warning signal switch not pressed	11 to 14 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			Ignition switch ON, hazard warning signal switch pressed	Below 1 V
C9-15 (ILL-) - Body ground	BE - Body ground	Illumination signal	Headlight dimmer switch off	Below 1 V
			Headlight dimmer switch in tail or head position	Pulse generation
C9-17 (EP) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
C9-18 (ES) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
C9-19 (B) - Body ground	P - Body ground	Battery	Always	11 to 14 V
C9-20 (IG+) - Body ground	BE - Body ground	Ignition switch signal	Ignition switch off	Below 1 V
			Ignition switch ON	11 to 14 V
C9-21 (L) - C9-23 (E3)	BE - G	Fuel level signal	Ignition switch ON, fuel level full	Below 1 V
			Ignition switch ON, fuel level low (fuel level warning light on)	4.5 to 9 V
C9-25 (S) - Body ground	LG - Body ground	Oil pressure signal	Ignition switch ON, oil pressure warning OFF	11 to 14 V
			Ignition switch ON, oil pressure warning ON	Below 1 V
C9-26 (WLVL) - Body ground*6	B - Body ground	Washer fluid level signal	Ignition switch ON, washer fluid level not low	11 to 14 V
			Ignition switch ON, washer fluid level low	Below 1 V
C9-28 (SW) - Body ground	LG - Body ground	Brake fluid level signal*1	Ignition switch ON, brake fluid level not low	11 to 14 V
			Ignition switch ON, brake fluid level low	Below 1 V
C9-28 (SW) - Body ground	LG - Body ground	Vacuum switch signal*1*2	Ignition switch ON, vacuum pressure not low	11 to 14 V
			Ignition switch ON, vacuum pressure low	Below 1 V
C9-30 (MSM+) - Body ground*7	P - Body ground	Steering pad switch assembly signal	Ignition switch ON, enter, top and back switches on steering pad switch assembly not pushed	4.8 to 5.2 V
			Ignition switch ON, enter, top or back switches on steering pad switch assembly pushed	Below 1 V

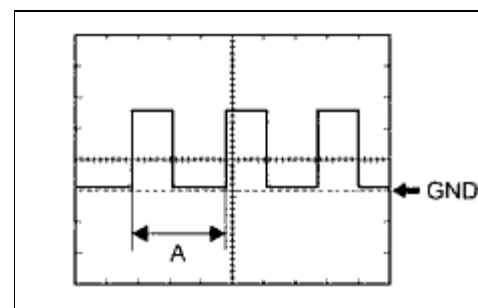
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C9-32 (MSSL) - Body ground*7	SB - Body ground	Steering pad switch assembly signal	Ignition switch ON, enter, top and back switches on steering pad switch assembly not pushed	4.8 to 5.2 V
			Ignition switch ON, enter, top or back switches on steering pad switch assembly pushed	Below 1 V
C9-34 (MSTI) - Body ground*7	L - Body ground	Steering pad switch assembly signal	Ignition switch ON, up, down, right, and left switches on steering pad switch assembly not pushed	4.8 to 5.2 V
			Ignition switch ON, up, down, right, or left switches on steering pad switch assembly pushed	Below 1 V
C9-36 (OIL) - Body ground*2	W - Body ground	Oil level switch signal	Ignition switch ON, oil level low	11 to 14 V
			Ignition switch ON, oil level not low	Below 1 V
C9-39 (SI) - Body ground	G - Body ground	Speed signal for other system (Input)	Ignition switch ON, wheel being rotated	Pulse generation (See waveform 1)
C9-40 (+S) - Body ground	V - Body ground	Speed signal for other system (Output)	Ignition switch ON, wheel being rotated	Pulse generation (See waveform 1)
C10-1 (B) - Body ground	V - Body ground	Battery	Always	11 to 14 V
C10-3 (RRT) - Body ground	L - Body ground	RH turn indicator light signal (Input)	Ignition switch ON, RH turn signal switch off	Below 1 V
			Ignition switch ON, RH turn signal switch on	11 to 14 V ↔ Below 1 V
C10-5 (RLT) - Body ground	Y - Body ground	LH turn indicator light signal (Output)	Ignition switch ON, LH turn indicator light off	Below 1 V
			Ignition switch ON, LH turn indicator light blinking	11 to 14 V ↔ Below 1 V
C10-9 (LL) - Body ground	BE - Body ground	LH turn indicator light signal (Output)	Ignition switch ON, LH turn indicator light off	Below 1 V
			Ignition switch ON, LH turn indicator light blinking	11 to 14 V ↔ Below 1 V
C10-11 (TLT) - Body ground*4	V - Body ground	LH turn indicator light signal (Output)	Ignition switch ON, LH turn indicator light off	Below 1 V
			Ignition switch ON, LH turn indicator light blinking	11 to 14 V ↔ Below 1 V
C10-12 (TRT) - Body ground*4	SB - Body ground	RH turn indicator light signal (Output)	Ignition switch ON, RH turn signal switch off	Below 1 V
			Ignition switch ON, RH turn signal switch on	11 to 14 V ↔ Below 1 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
C10-13 (B) - Body ground	W - Body ground	Battery	Always	11 to 14 V
C10-10 (LR) - Body ground	SB - Body ground	RH turn indicator light signal (Output)	Ignition switch ON, RH turn indicator light off	Below 1 V
			Ignition switch ON, RH turn indicator light blinking	11 to 14 V ↔ Below 1 V

- *1: for Vacuum Booster Type
- *2: for 2GR-FKS
- *3: w/ for Outer Mirror Type Side Turn Signal Light
- *4: w/ Trailer Towing System
- *5: for Hydraulic Booster Type
- *6: Washer Fluid Level Warning
- *7: w/ Multi-information Display

(1) Waveform 1 (Reference):

ITEM	CONDITION
Tool Setting	5 V/DIV., 20 ms./DIV.
Vehicle Condition	Ignition switch ON, wheel being rotated



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.



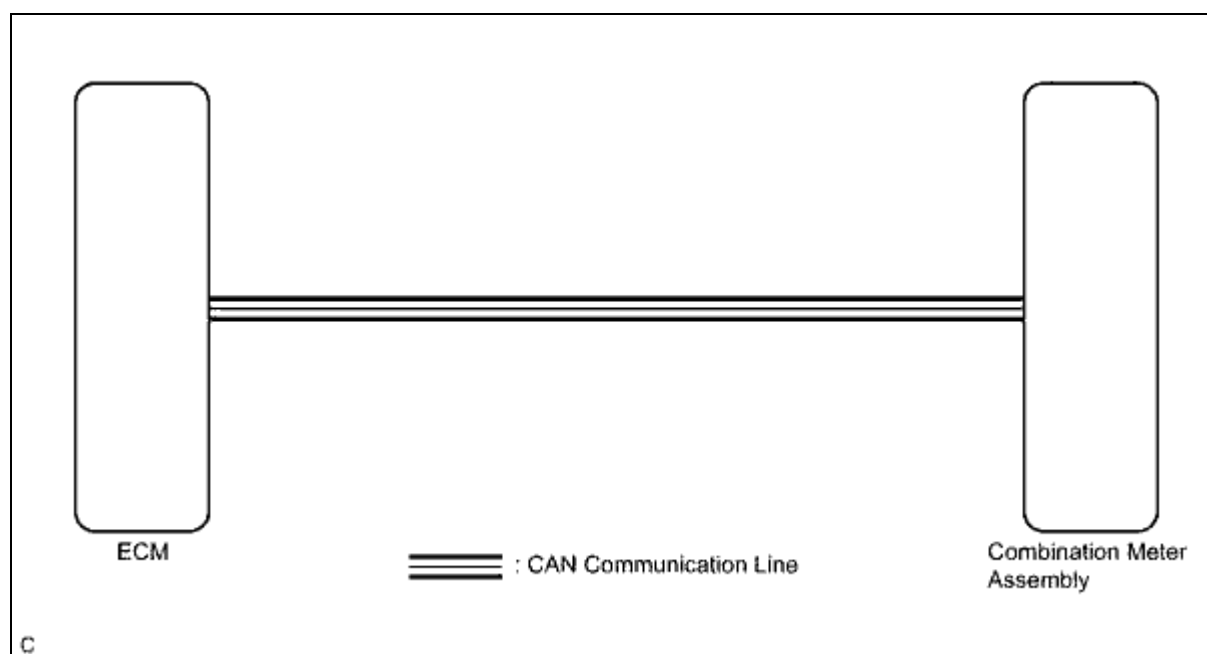
Last Modified: 11-13-2015	6.6 J	Doc ID: RM000001YNY02RX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: Tachometer Malfunction; 2016 MY Tacoma [08/2015 -]		

Tachometer Malfunction

DESCRIPTION

In this circuit, the meter CPU receives engine speed signals from the ECM using the CAN communication system (CAN V1 Bus). The meter CPU displays the engine speed calculated based on the data received from the ECM.

WIRING DIAGRAM



INSPECTION PROCEDURE

PROCEDURE

1.	CHECK CAN COMMUNICATION SYSTEM
-----------	---------------------------------------

(a) Check if a CAN communication DTC is output [INFO](#) .

Result

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

A



2. PERFORM ACTIVE TEST USING TECHSTREAM (TACHOMETER 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) According to the display on the Techstream, perform the Active Test.

Combination Meter

TESTER DISPLAY	TEST PART	CONTROL RANGE	DIAGNOSTIC NOTE
TachoMeter Operation	Tachometer	OFF, 0, 1000, 2000, 3000, 4000, 5000, 6000, 7000	Operate with IG ON and the vehicle is stopped.

OK:

Tachometer indication is normal.

NG  **REPLACE COMBINATION METER ASSEMBLY**

OK



3. READ VALUE USING TECHSTREAM (ENGINE RPM)

- (a) Connect the Techstream to the DLC3.
- (b) Start the engine.
- (c) Turn the Techstream on.
- (d) Enter the following menus: Body Electrical / Combination Meter / Data List.
- (e) According to the display on the Techstream, read the Data List.

Combination Meter

TESTER	MEASUREMENT	NORMAL CONDITION	DIAGNOSTIC
--------	-------------	------------------	------------

DISPLAY	ITEM/RANGE		NOTE
Engine Rpm	Engine speed/ Min.: 0 rpm, Max.: 12750 rpm	• 550 to 650 rpm: idling (for 2GR-FKS with Automatic Transmission) • 500 to 600 rpm: idling (for 2GR-FKS with Manual Transmission) • 700 to 800 rpm: Idling (for 2TR-FE with Automatic Transmission) • 600 to 700 rpm: idling (for 2TR-FE with Manual Transmission)	-

OK:

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

HINT:

Check the engine speed when the engine is fully warmed up, and the air conditioning and all electrical accessories are off.

NG ► **REPLACE COMBINATION METER ASSEMBLY**

OK



4.	CHECK ENGINE CONTROL SYSTEM
-----------	------------------------------------

(a) Check if a engine control DTC is output.

for 2TR-FE: 

for 2GR-FKS: 

Result

RESULT	PROCEED TO
Engine control DTC is not output	A
Engine control (for 2TR-FE) DTC is output	B
Engine control (for 2GR-FKS) DTC is output	C

B ► **GO TO SFI SYSTEM (for 2TR-FE)**

C ► **GO TO SFI SYSTEM (for 2GR-FKS)**

A ► **REPLACE COMBINATION METER ASSEMBLY**



Last Modified: 11-13-2015	6.6 C	Doc ID: RM000003UOJ01MX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: METER / GAUGE SYSTEM: U0100,U0129,U0142,U0151,U0163; Lost Communication with ECM / PCM "A"; 2016 MY Tacoma [08/2015 -]		

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

DTC	U0129	Lost Communication with Brake System Control Module
------------	--------------	--

DTC	U0142	Lost Communication with Body Control Module "B"
------------	--------------	--

DTC	U0151	Lost Communication with Airbag ECU
------------	--------------	---

DTC	U0163	Lost Communication with Navigation Control Module
------------	--------------	--

DESCRIPTION

The combination meter communicates with the ECM, skid control ECU, power steering ECU, main body ECU (multiplex network body ECU), airbag sensor assembly, radio and display receiver assembly*2 and navigation receiver assembly*1 via the CAN communication system.

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
U0100	When IG voltage is 9.5 V or more and the following condition is detected: No communication with ECM continues for 2 seconds or more	- ECM - CAN communication system - Combination meter assembly
U0129	When IG voltage is 9.5 V or more and the following condition is detected: No communication with skid control ECU continues for 3 seconds or more	- Brake actuator assembly (skid control ECU)*3 - Brake booster with master cylinder assembly*4 - CAN communication system - Combination meter assembly
U0142	When IG voltage is 9.5 V or more and the following condition is detected: No communication with power steering ECU continues for 3 seconds or more	- Main body ECU (multiplex network body ECU) - CAN communication system - Combination meter assembly

DTC NO.	DTC DETECTION CONDITION	TROUBLE AREA
U0151	When the following condition is detected: No communication with center airbag sensor assembly continues for 10 seconds or more	- Airbag sensor assembly - CAN communication system - Combination meter assembly
U0163	When IG voltage is 9.5 V or more and the following condition is detected: - No communication with navigation receiver assembly continues for 3 seconds or more*1 - No communication with radio and display receiver assembly continues for 3 seconds or more*2	- Navigation receiver assembly*1 - Radio and display receiver assembly*2 - CAN communication system - Combination meter assembly

*1: for Navigation Receiver Type

*2: for Radio and Display Type

*3: for Vacuum Booster Type

*4: for Hydraulic Booster Type

INSPECTION PROCEDURE

PROCEDURE

1.	CONFIRM DTC OUTPUT
-----------	---------------------------

- Connect the Techstream to the DLC3.
- Turn the ignition switch ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Combination Meter / Trouble Codes.
- Clear DTCs  .
- Drive the vehicle at more than 5 km/h (3.1 mph) for at least 60 seconds.
- Stop the vehicle.
- Check DTCs  .

Result

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

HINT:

If CAN communication system DTC U0100, U0129, U0142, U0151 or U0163 and another DTC are output at the same time, perform troubleshooting for CAN communication system DTC U0100, U0129, U0142, U0151 or U0163 first.

B ▶ USE SIMULATION METHOD TO CHECK

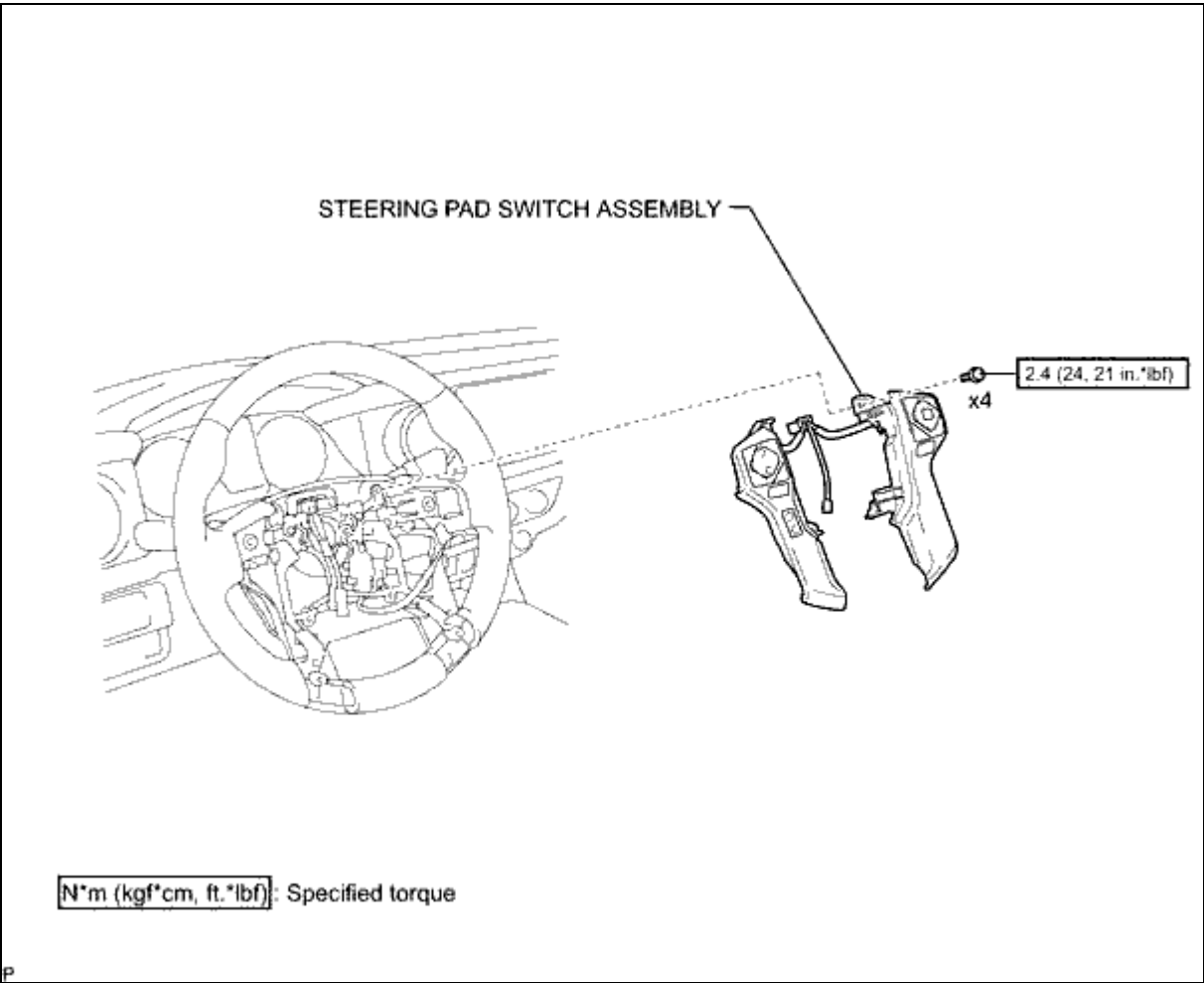
A ▶ GO TO CAN COMMUNICATION SYSTEM



Last Modified: 11-13-2015	6.6 K	Doc ID: RM000002ZV700MX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: STEERING PAD SWITCH: COMPONENTS; 2016 MY Tacoma [08/2015 -]		

COMPONENTS

ILLUSTRATION



P



Last Modified: 11-13-2015	6.6 G	Doc ID: RM000002ZV6000X
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: STEERING PAD SWITCH: INSPECTION; 2016 MY Tacoma [08/2015 -]		

INSPECTION

1. INSPECT STEERING PAD SWITCH ASSEMBLY

INFO



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000002ZV500RX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: STEERING PAD SWITCH: INSTALLATION; 2016 MY Tacoma [08/2015 -]		

INSTALLATION

1. INSTALL STEERING PAD SWITCH ASSEMBLY

- (a) Engage the 6 guides and 2 claws to install the steering pad switch assembly.
- (b) Install the 4 screws.

Torque:

2.4 N·m {24 kgf·cm, 21in·lbf}

- (c) Engage the 2 clamps.
- (d) Connect the 2 connectors.

2. INSTALL STEERING PAD



Last Modified: 11-13-2015	6.6 A	Doc ID: RM000002ZV800RX
Model Year Start: 2016	Model: Tacoma	Prod Date Range: [08/2015 -]
Title: METER: STEERING PAD SWITCH: REMOVAL; 2016 MY Tacoma [08/2015 -]		

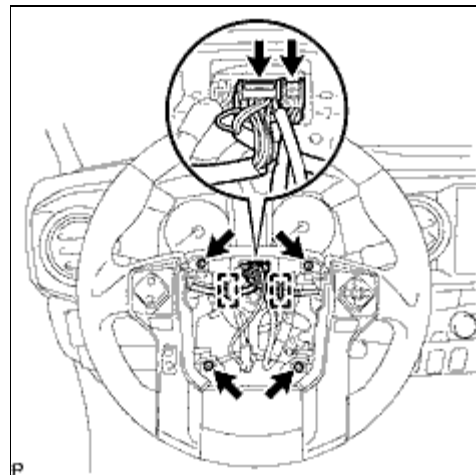
REMOVAL

1. REMOVE STEERING PAD

INFO

2. REMOVE STEERING PAD SWITCH ASSEMBLY

(a) Disconnect the 2 connectors.



(b) Disengage the 2 clamps.

(c) Remove the 4 screws.

(d) Disengage the 6 guides and 2 claws to remove the steering pad switch assembly.

NOTICE:

Disengage the 2 guides on the upper part of the steering pad switch assembly first.

