

2009 Toyota Highlander Limited

2009 ELECTRICAL Other System - Highlander

2009 ELECTRICAL

Other System - Highlander

CLOCK SYSTEM

PRECAUTION

1. PRECAUTION FOR DISCONNECTING THE BATTERY CABLE

NOTE: When disconnecting the cable from the negative(-) battery terminal, initialize the following system after the cable is reconnected:

SYSTEM REFERENCE

System Name	See Procedure
Power back door system	<u>INITIALIZATION</u>

2. EXPRESSIONS OF IGNITION SWITCH

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

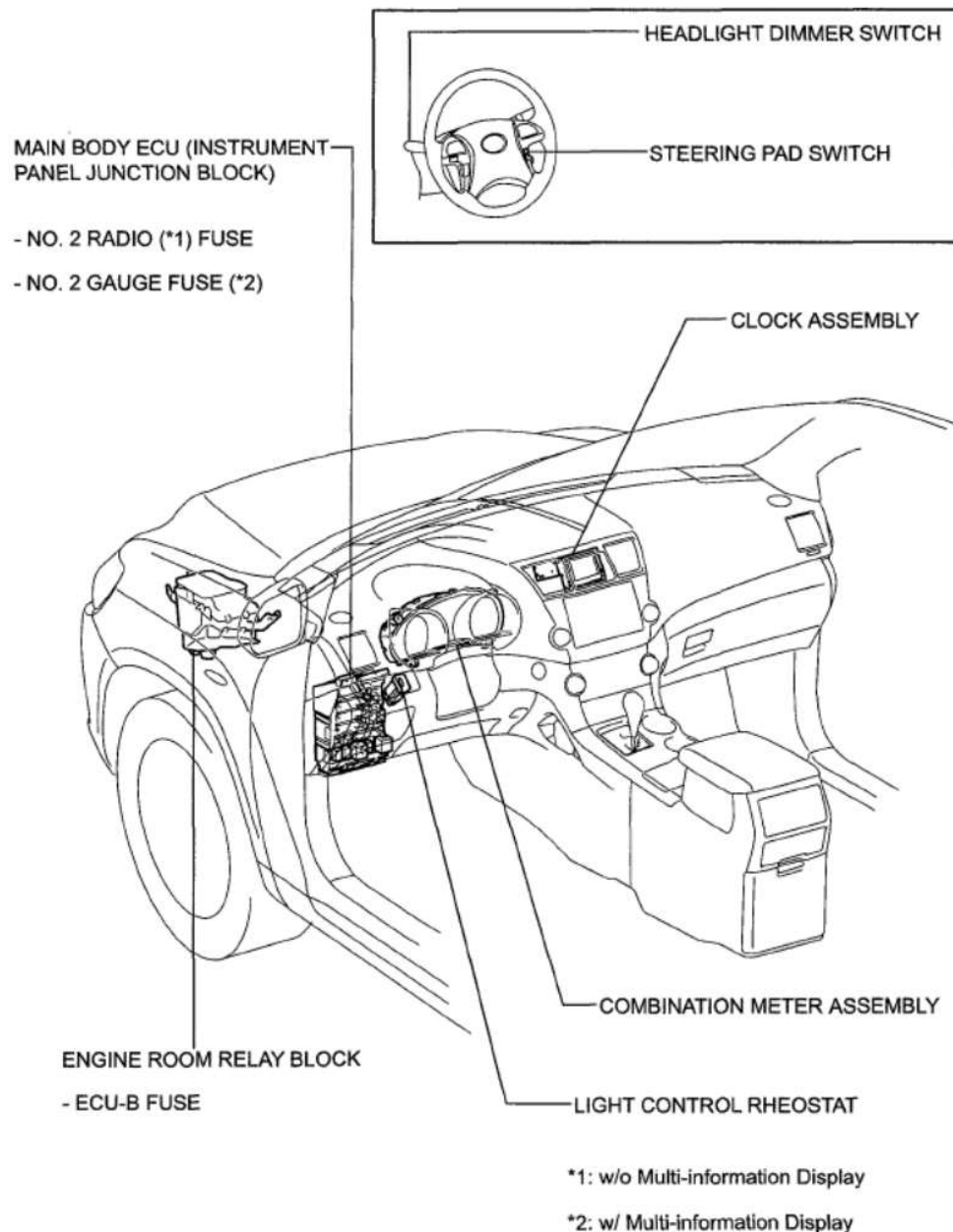
IGNITION SWITCH POSITION CHART

Expression	Switch Type	
	Ignition Switch (Position)	Engine Switch (Condition)
Ignition Switch off	LOCK	Off
Ignition Switch ON	ON	On (IG)
Ignition Switch ACC	ACC	On (ACC)
Engine Start	START	Start

PARTS LOCATION

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Fig. 1: Identifying Clock System Parts Location

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

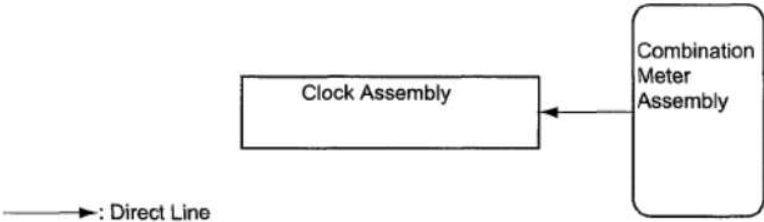
SYSTEM DIAGRAM

1. CAN and direct line signals

- a. w/o Multi-information Display:

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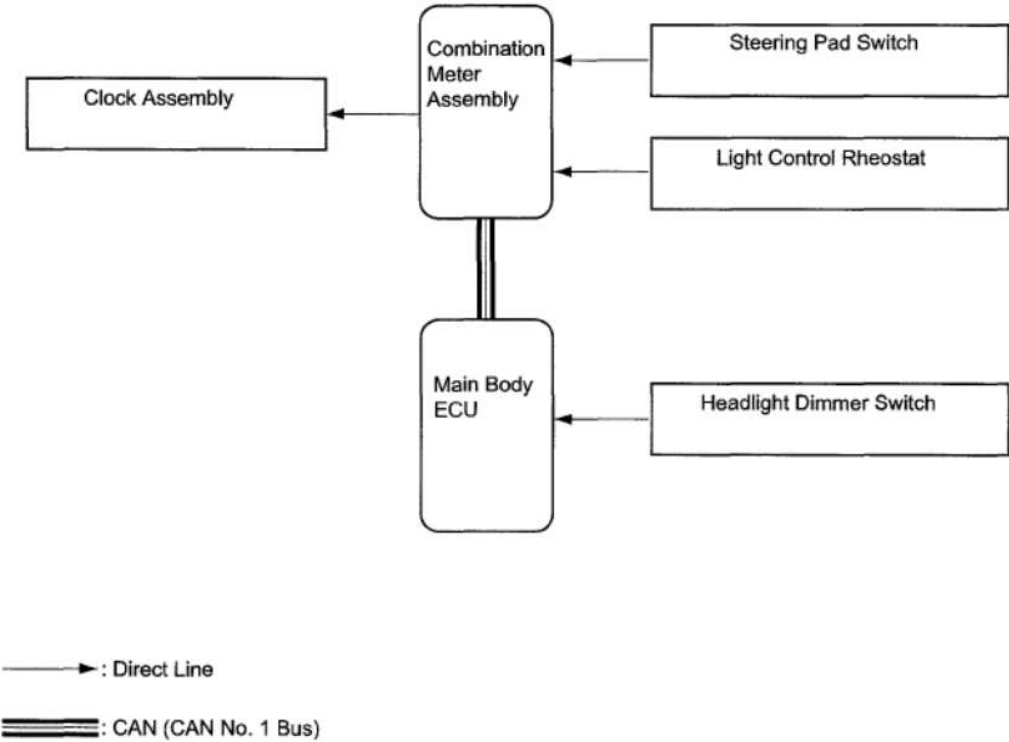


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Fig. 2: Clock System Diagram (w/o Multi-Information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

b. w/ Multi-information Display:



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Fig. 3: Clock System Diagram (w/ Multi-information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. Input and output signals of the clock assembly
- a. w/o Multi-information Display:

COMMUNICATION SIGNAL CHART

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Communication Signal	Sender	Receiver	Communication Line
Illumination signal	Combination Meter Assembly	Clock Assembly	Direct Line

- b. w/ Multi information Display:

COMMUNICATION SIGNAL CHART

Communication Signal	Sender	Receiver	Communication Line
Rheostat duty signal	Combination Meter Assembly	- Main Body ECU - A/C Control Amplifier	CAN (CAN No. 1 Bus)
Tail cancel signal			

SYSTEM DESCRIPTION

1. CLOCK ASSEMBLY

- a. w/o Multi-information Display:

ITEM DETAIL CHART

Item	Detail
Clock display	The time is always displayed. In addition, the clock display dims according to the signal from the combination meter assembly.
Adjustment display	Keep DISP switch pressed for 1 second or more to enter the clock adjustment mode.

- b. w/ Multi information Display:

ITEM DETAIL CHART

Item	Detail
Clock and outside temperature display	The clock and outside temperature are always displayed.
Adjustment display	Keep DISP switch pressed for 1 second or more to enter the clock adjustment and display adjustment modes.
Cruise information display	Five types of information can be displayed. For detail, refer to the meter/gauge system (See SYSTEM DESCRIPTION).
Warning display	Interrupts the multi-information display immediately when a warning occurs. For detail, refer to the meter/gauge system (See SYSTEM DESCRIPTION).
Air conditioning display	Interrupts the multi-information display immediately when air conditioning is operated. For detail, refer to the air conditioning system (See CHECK MODE PROCEDURE).
DTC (Diagnostic Trouble Code) display	Displays the DTCs pertaining to the VSC function. For detail, refer to the vehicle stability control system (See SYSTEM DESCRIPTION).

2. DISPLAY FLOW CHART (w/ Multi-information Display)

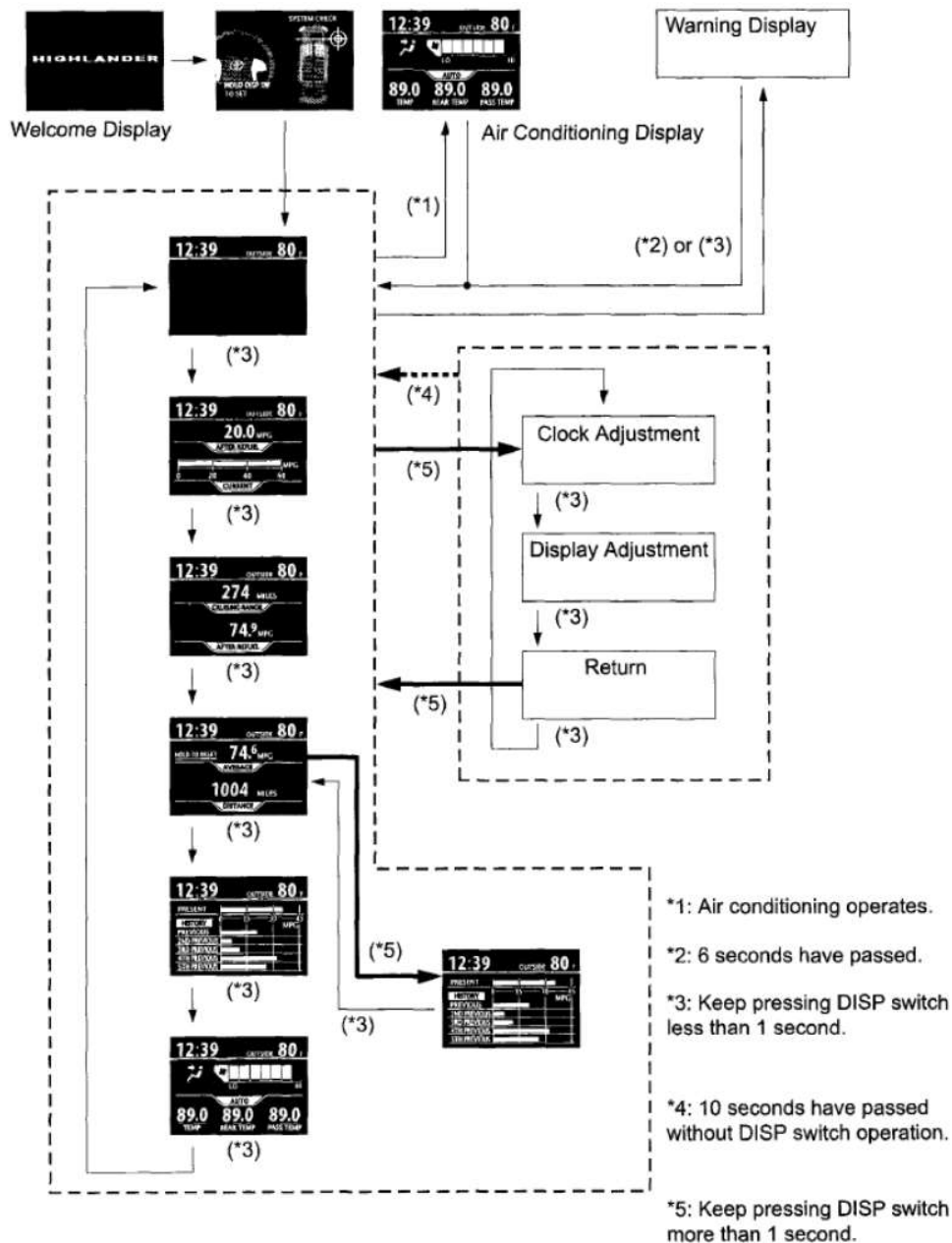
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- a. Display flow chart:

HINT:

Illustrations may differ from the actual screen displayed depending on the specifications of the vehicle and customized settings.



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Fig. 4: Clock System Flow Chart (w/ Multi-Information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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HOW TO PROCEED WITH TROUBLESHOOTING

1. **VEHICLE BROUGHT TO WORKSHOP**
2. **CUSTOMER PROBLEM ANALYSIS**

- a. Confirm the vehicle type.

Result

RESULT CHART

Result	Proceed to
w/ Multi-information Display	A
w/o Multi-information Display	B

B: GO TO STEP 4

A: Go to next step

3. **CHECK CAN COMMUNICATION SYSTEM**

- a. Check for DTC output.

HINT:

See **DIAGNOSIS SYSTEM** .

Result

RESULT CHART

Result	Proceed to
No CAN DTC output	A
CAN DTC output	B

B: GO TO CAN COMMUNICATION SYSTEM (See **DIAGNOSTIC TROUBLE CODE CHART)**

A: Go to next step

4. **PROBLEM SYMPTOM CONFIRMATION**
5. **PROBLEM SIMULATION**
6. **PROBLEM SYMPTOMS TABLE**

HINT:

See **PROBLEM SYMPTOMS TABLE** .

7. **CIRCUIT INSPECTION**

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8. REPAIR OR REPLACE
9. CONFIRMATION TEST

NEXT: END

PROBLEM SYMPTOMS TABLE

CLOCK ASSEMBLY (w/o MULTI-INFORMATION DISPLAY):

PROBLEM SYMPTOMS REFERENCE

Symptom	Suspected Area	Refer to
Clock does not operate at all.	Fuse (No. 2 RADIO, ECU-B)	-
	Power Source Circuit	<u>POWER SOURCE CIRCUIT</u>
Clock display illumination malfunction	Illumination Circuit	<u>ILLUMINATION CIRCUIT</u>
Clock loses or gains time.	Clock Assembly	<u>CLOCK (W/O MULTI-INFORMATION DISPLAY)</u>

CLOCK ASSEMBLY (w/ MULTI-INFORMATION DISPLAY):

PROBLEM SYMPTOMS REFERENCE

Symptom	Suspected Area	Refer to
Multi-information display does not operate at all.	Fuse (No. 2 GAUGE, ECU-B)	-
	Clock Assembly	<u>PROBLEM SYMPTOMS TABLE</u>
	Power Source Circuit	<u>POWER SOURCE CIRCUIT</u>
Clock display illumination malfunction.	Illumination Circuit	<u>ILLUMINATION CIRCUIT</u>
	Combination Meter Assembly	<u>REMOVAL</u>
	Clock Assembly	<u>CLOCK (W/ MULTI-INFORMATION DISPLAY)</u>
Clock loses or gains time.	Clock Assembly	<u>CLOCK (W/ MULTI-INFORMATION DISPLAY)</u>

TERMINALS OF ECU

1. CLOCK ASSEMBLY (w/o Multi-information Display)

HINT:

Measure the voltage with the connector still connected.

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Fig. 5: Identifying E20 Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

CLOCK ASSEMBLY E20 TERMINAL REFERENCE

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
E20-1 (B) - Body ground	Y - Body ground	Battery	Always	11 to 14 V
E20-2 (E) - Body ground	BR - Body ground	Ground	Always	Below 1 V
E20-3 (ILL+) - Body ground	GR - Body ground	Illumination signal	Ignition switch on (IG), light control switch OFF	Below 1 V
			Ignition switch on (IG), light control switch TAIL/ HEAD	11 to 14 V
E20-4 (ACC) - Body ground	L - Body ground	Ignition switch signal (Accessory)	Ignition switch off	Below 1 V
			Ignition switch on (ACC)	11 to 14 V

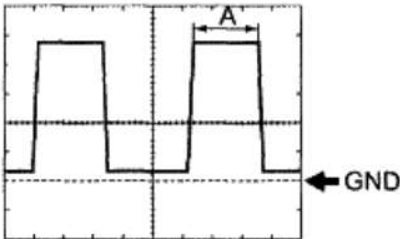
- a. Waveform (Reference): Using oscilloscope:

WAVEFORM REFERENCE

Item	Condition
Tool setting	2 V/DIV., 1 ms./DIV.
Vehicle condition	Ignition switch on (IG), light control switch TAIL or HEAD

HINT:

Duty ratio changes as the illumination becomes darker (the period "A" shown in the illustration becomes longer).



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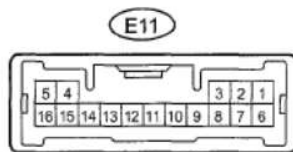
Fig. 6: Identifying Waveform 1

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. CLOCK ASSEMBLY (w/ Multi-information Display)

HINT:

Measure the voltage with the connector still connected.



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Fig. 7: Identifying E11 Clock Assembly Connector Terminal

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

CLOCK ASSEMBLY E11 TERMINAL REFERENCE

Terminal No. (Symbols)	Wiring Color	Terminal Description	Condition	Specified Condition
E11-1 (IG) - Body ground	P - Body ground	Ignition switch signal	Ignition switch off	Below 1 V
			Ignition switch on (IG)	11 to 14 V
E11-5 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
E11-6 (+B) - Body ground	Y - Body ground	Battery	Always	11 to 14 V
E11-9 (CLK) - Body ground	R - Body ground	Multi-information display signal	Ignition switch on (IG)	Pulse generation
E11-10 (DATA) - Body ground	Y - Body ground	Multi-information display signal	Ignition switch on (IG)	Pulse generation
E11-11 (SYNC) - Body ground	L - Body ground	Multi-information display signal	Ignition switch on (IG)	Pulse generation
E11-16 (SGND) - Body ground	BR - Body ground	Ground (Signal Ground)	Always	Always

ON-VEHICLE INSPECTION

1. INSPECT CLOCK ASSEMBLY (w/o Multi-information Display)

- Disconnect the E20 connector.
- Measure the voltage according to the value(s) in the table below.

Standard voltage

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CLOCK ASSEMBLY E20 TERMINAL REFERENCE

Tester Connection	Condition	Specified Condition
E20-1 (B) - Body ground	Always	11 to 14 V
E20-3 (ILL+) - Body ground	Ignition switch on (IG), light control switch OFF	Below 1 V
	Ignition switch on (IG), light control switch TAIL or HEAD	11 to 14 V
E20-4 (ACC) - Body ground	Ignition switch off	Below 1 V
	Ignition switch on (ACC)	11 to 14 V

Front view of wire harness connector:
(to Clock Assembly)

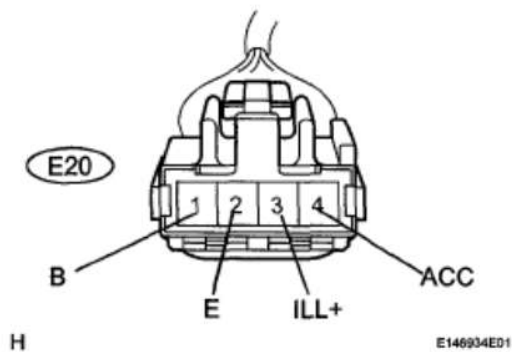


Fig. 8: Identifying E20 Clock Assembly Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Waveform (Reference): Using oscilloscope:

WAVEFORM REFERENCE

Item	Condition
Tool setting	2 V/DIV., 1 ms./DIV.
Vehicle condition	Ignition switch on (IG), light control switch TAIL/HEAD

HINT:

- Duty ratio changes as the illumination becomes darker (the period "A" shown in the illustration becomes longer).
- If the value is not as specified, repair or replace the wire harness or connector.

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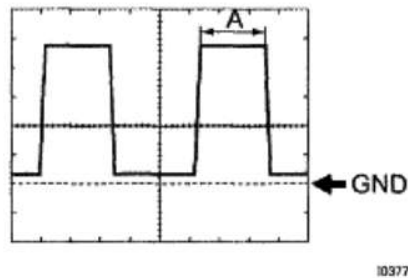


Fig. 9: Identifying Waveform

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E20-2 (E) - Body ground	Always	Below 1 ohms

HINT:

If the value is not as specified, repair or replace the wire harness or connector.

2. INSPECT CLOCK ASSEMBLY (w/ Multi-information Display)

- a. Disconnect the E11 connector.
- b. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E11-1 (IG) - Body ground	Ignition switch off	Below 1 V
	Ignition switch on (IG)	11 to 14 V
E11-6 (+B) - Body ground	Always	11 to 14 V

HINT:

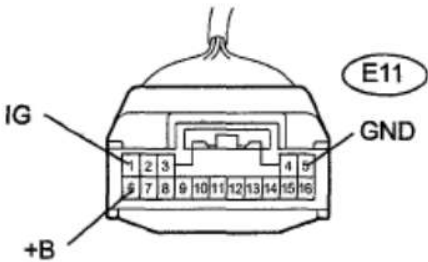
If the value is not as specified, repair or replace the wire harness or connector.

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

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Front view of wire harness connector:
(to Clock Assembly)



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Fig. 10: Identifying E11 Clock Assembly Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E11-5 (GND) - Body ground	Always	Below 1 ohms

HINT:

If the value is not as specified, repair or replace the wire harness or connector.

3. INSPECT CLOCK ASSEMBLY (w/ Multi-information Display)

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

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

HINT:

This test is also available on "Active Test" (See DATA LIST/ACTIVE TEST).

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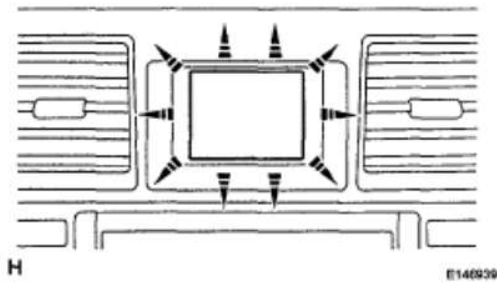


Fig. 11: Blinking DISP Button

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- d. Ignition switch off to finish this test mode.

HINT:

If the result is not as specified, replace the clock assembly (See **REMOVAL**).

ADJUSTMENT

1. ADJUST CLOCK ASSEMBLY (w/o Multi-information Display)

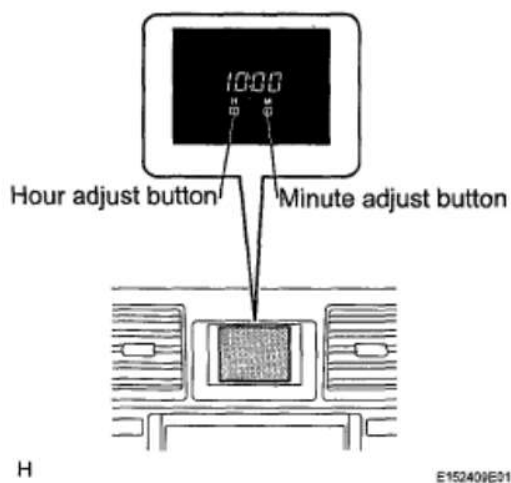
- a. Ignition switch on (IG).
- b. Adjust the time by pressing the hour adjust button or minute adjust button.

2. ADJUST CLOCK ASSEMBLY (w/ Multi-information Display)

HINT:

Illustrations may differ from the actual screen displayed depending on the specifications of the vehicle and customized settings.

- a. Ignition switch on (IG).



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Fig. 12: Screen Display - Hour Adjuster Button

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Keep pressing the DISP switch more than 1 second to display the set up screen.

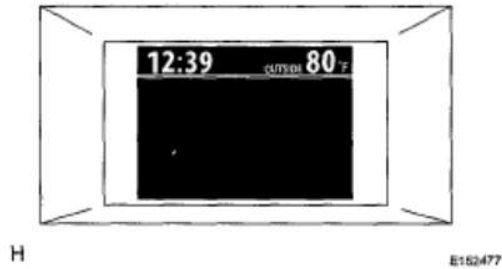


Fig. 13: Screen Display - DISP Switch

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Select the "CLOCK" to adjust time.
d. Keep pressing the DISP switch more than 1 second to enter the adjustment mode.



Fig. 14: Screen Display - CLOCK

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. After adjusting the hours, wait 5 seconds or more to allow the hours to be automatically input.

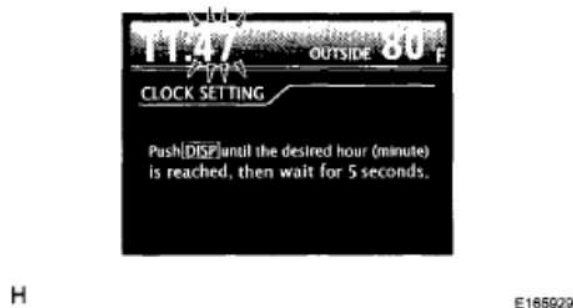


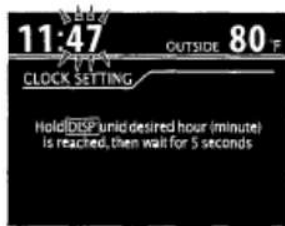
Fig. 15: Screen Display - Clock Setting

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- f. After adjusting the minutes, wait 5 seconds or more to allow the minutes to be automatically input.

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Fig. 16: Screen Display - Adjusting Minutes
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUMINATION CIRCUIT

DESCRIPTION

1. w/o Multi-information Display:

The clock assembly uses this circuit to receive the illumination signal via the direct line. The combination meter assembly controls illumination through the ILL+ terminal.

2. w/ Multi-information Display:

The clock assembly uses this circuit to receive the auto dimmer signal and tail cancel signal. When the clock assembly receives an auto dimmer signal from the main body ECU through the combination meter assembly via the direct line, the combination meter assembly causes the clock display to be dimmed. When the meter CPU receives an auto dimmer signal, it dims the meter illumination and clock illumination. The main body ECU determines whether it is daytime, twilight, or nighttime based on the waveform transmitted from the automatic light control sensor. If the main body ECU determines that it is daytime, the ECU does not send auto dimmer signals. Therefore, the clock illumination (multi-information display) will not dim even if the driver accidentally turns the light control switch to the TAIL or HEAD position in daytime.

HINT:

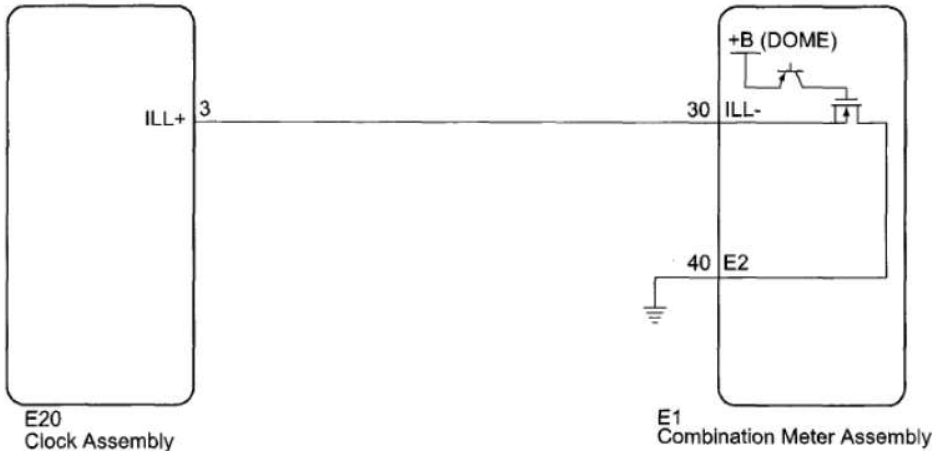
If the automatic light control sensor has a malfunction, DTC B1244 is output. (See **DTC B1244 LIGHT SENSOR CIRCUIT MALFUNCTION**)

WIRING DIAGRAM

1. w/o Multi-information Display:

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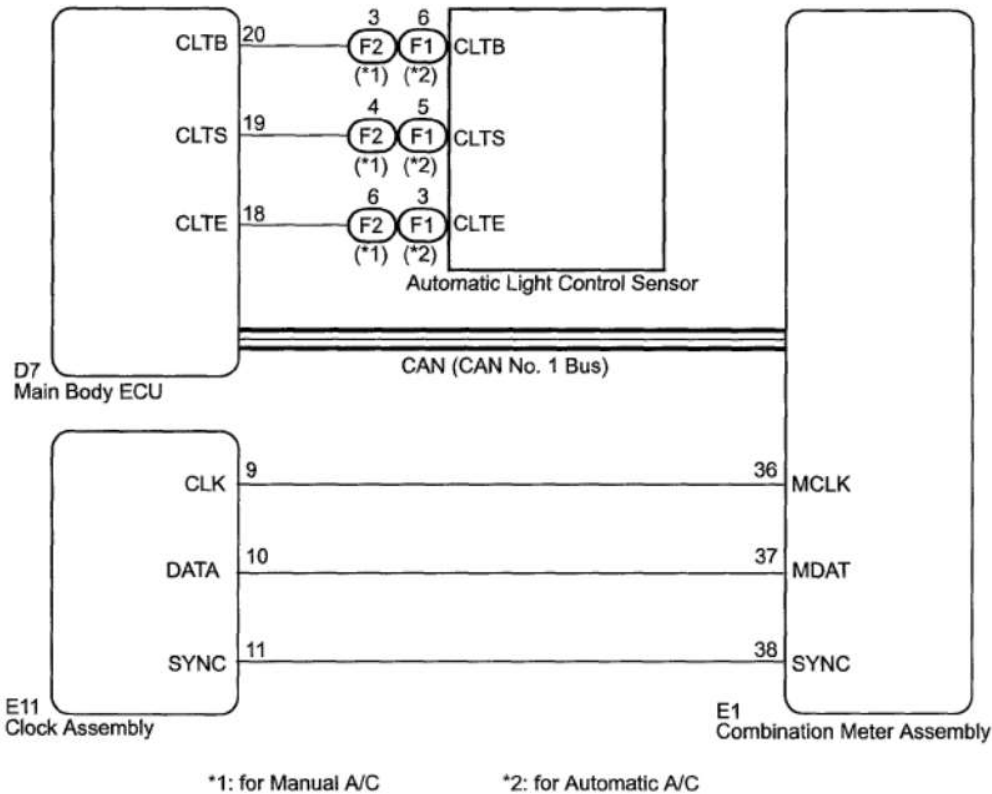


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Fig. 17: Combination Meter Assembly - Wiring Diagram (w/o Multi-information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. w/ Multi-information Display:



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Fig. 18: Combination Meter Assembly - Wiring Diagram (w/ Multi-information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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INSPECTION PROCEDURE

1. CONFIRM SYMPTOMS

- a. Confirm the symptom.

Result

RESULT CHART

Result	Proceed to
Only clock illumination has a malfunction.	A
Clock illumination, combination meter assembly illumination, and heater control panel illumination have a malfunction.	B

B: GO TO METER/GAUGE SYSTEM (See CLOCK DISPLAY CIRCUIT)

A: Go to next step

2. SYSTEM CHECK

- a. Confirm the vehicle model.

Result

RESULT CHART

Result	Proceed to
w/o Multi-information Display	A
w/ Multi-information Display	B

B: Go to step 5

A: Go to next step

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

- a. Disconnect E1 and E20 connectors.
- b. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

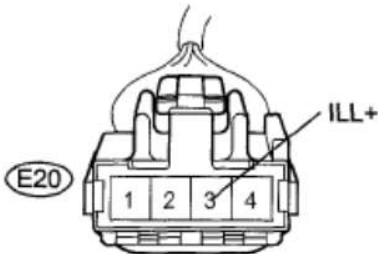
Tester Connection	Condition	Specified Condition
E20-3 (ILL+) - E1-30 (ILL-)	Always	Below 1 ohms
E1-30 (ILL-) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Clock Assembly)



Front view of wire harness connector:
(to Combination Meter Assembly)

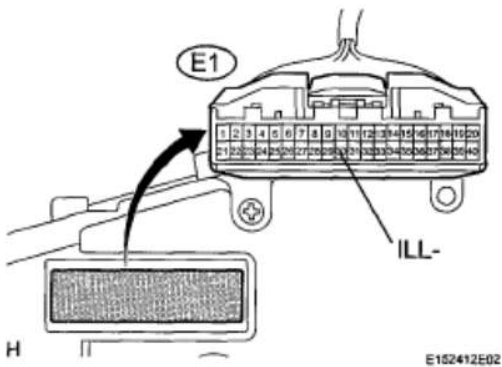


Fig. 19: Identifying E1 And E20 Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step

4. INSPECT CLOCK ASSEMBLY

- a. Reconnect the E20 connector.
- b. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E1-30 (ILL-) - Body ground	Ignition switch on (IG), headlight dimmer switch TAIL or HEAD	11 to 14 V
E1-30 (ILL-) - Body ground	Ignition switch on (IG), headlight dimmer switch OFF	Below 1 V

NG: REPLACE CLOCK ASSEMBLY (See REMOVAL)

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Front view of wire harness connector:
(to Combination Meter Assembly)

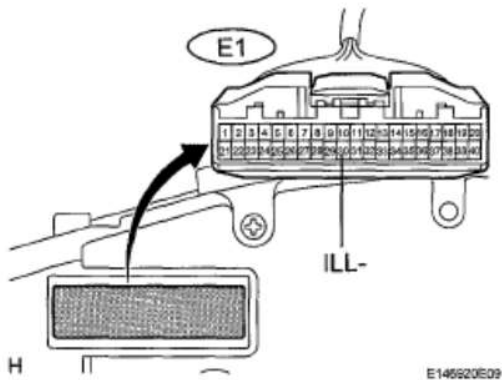


Fig. 20: Identifying E1 Combination Meter Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: REPLACE COMBINATION METER ASSEMBLY (See **REMOVAL**)

5. **CHECK CAN COMMUNICATION SYSTEM**
- a. Check if any DTC is output (See **DIAGNOSIS SYSTEM**).

Result

RESULT CHART

Result	Proceed to
CAN communication DTC is not output.	A
CAN Communication DTC is output.	B

B: GO TO CAN COMMUNICATION SYSTEM (See **DIAGNOSTIC TROUBLE CODE CHART**)

A: Go to next step

6. **PERFORM ACTIVE TEST USING TECHSTREAM**
- a. Connect Techstream to the DLC3.
- b. Ignition switch on (IG).
- c. Turn the tester ON.
- d. Enter the following menus: Body Electrical/Main Body/Data List.
- e. Check the clock illumination.

Main Body

MAIN BODY REFERENCE CHART

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Tester Display	Test Part	Control Range	Diagnostic Note
Illumination Rate Info	Illumination rate information/0 ms. to 99 ms.	0.8 to 22.0 ms to (Value is output according to outside illuminance)	Confirm that the vehicle is stopped, engine idling

OK: The value changes according to the illuminance.

HINT:

Refer to the sensitivity setting in the customization table of the lighting system (See **CUSTOMIZE PARAMETERS**).

NG: Go to step 7

OK: GO TO LIGHTING SYSTEM (See **HOW TO PROCEED WITH TROUBLESHOOTING**)

7. CHECK HARNESS AND CONNECTOR (CLOCK ASSEMBLY - COMBINATION METER)

- a. Disconnect the E1 and E11 connectors.
- b. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

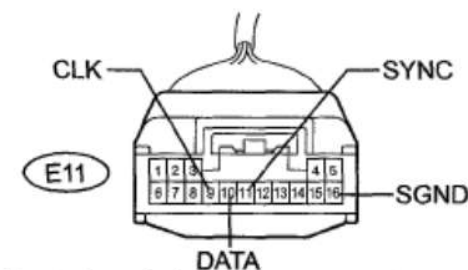
Tester Connection	Condition	Specified Condition
E11-9 (CLK) - E1-36 (MCLK)	Always	Below 1 ohms
E11-10 (DATA) - E1-37 (MDAT)	Always	Below 1 ohms
E11-11 (SYNC) - E1-38 (SYNC)	Always	Below 1 ohms
E1-36 (MCLK) - Body ground	Always	10 kohms or higher
E1-37 (MDAT) - Body ground	Always	10 kohms or higher
E1-38 (SYNC) - Body ground	Always	10 kohms or higher

NG: REPAIR OR REPLACE HARNESS OR CONNECTOR

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Front view of wire harness connector:
(to Clock Assembly)



Front view of wire harness connector:
(to Combination Meter Assembly)

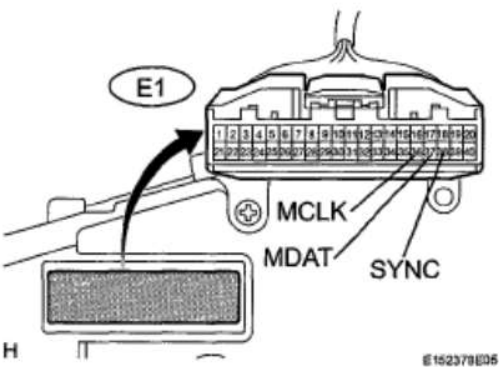


Fig. 21: Identifying E1 And E11 Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

OK: Go to next step

8. INSPECT COMBINATION METER ASSEMBLY

- a. Reconnect the E1 connector.
- b. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E11-9 (CLK) - Body ground	Ignition switch on (IG), headlight dimmer switch TAIL or HEAD	Pulse generation
E11-10 (DATA) -Body ground	Ignition switch on (IG), headlight dimmer switch TAIL or HEAD	Pulse generation
E11-11 (SYNC) - Body ground	Ignition switch on (IG), headlight dimmer switch TAIL or HEAD	Pulse generation

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E11-9 (CLK) -Body ground	Ignition switch on (IG), headlight dimmer switch OFF	Below 1 V
E11-10 (DATA) -Body ground	Ignition switch on (IG), headlight dimmer switch OFF	Below 1 V
E11-11 (SYNC) - Body ground	Ignition switch on (IG), headlight dimmer switch OFF	Below 1 V

Front view of wire harness connector:
(to Clock Assembly)

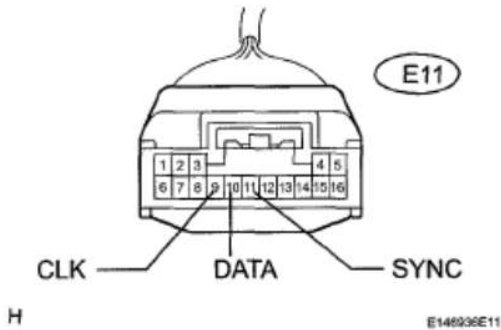


Fig. 22: Identifying E11 Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NG: REPLACE COMBINATION METER ASSEMBLY (See **REMOVAL**)

OK: REPLACE CLOCK ASSEMBLY (See **REMOVAL**)

POWER SOURCE CIRCUIT

DESCRIPTION

This circuit is the power source for the clock assembly. This circuit provides two types of power sources; one is a constant power source mainly used as a backup power source, and the other is a power source mainly used for signal transmission.

HINT:

If the clock assembly displays "1:00" when the ignition switch off, then on (IG) again, the B (*1) or +B (*2) terminal has a malfunction.

The maximum clock assembly margin of error is -4 to 4 seconds per day when the temperature is between -20° C (-4°F) and 60°C (140°F).

- *1: w/o Multi-information Display

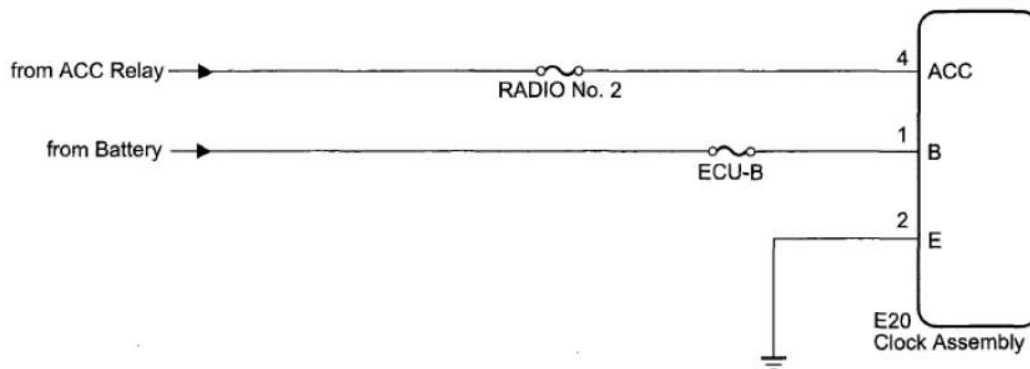
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2009 ELECTRICAL Other System - Highlander

- *2: w/ Multi-information Display

WIRING DIAGRAM

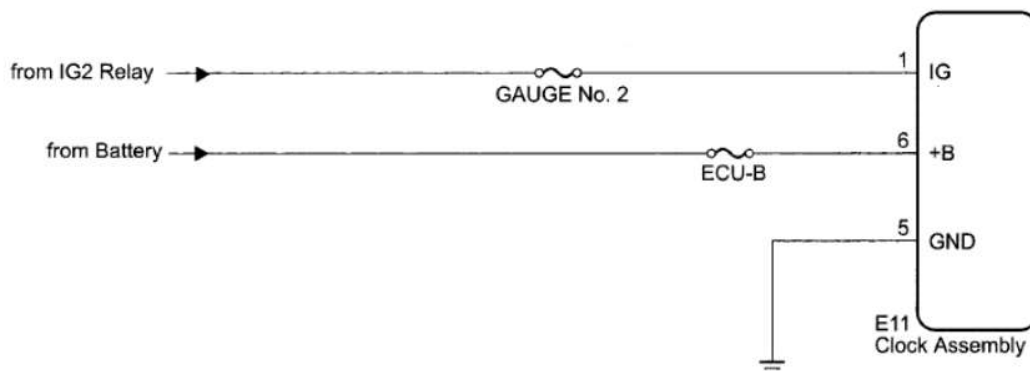
1. w/o Multi-information Display



E162379E06

Fig. 23: Clock Assembly - Wiring Diagram (w/o Multi-Information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. w/ Multi-information Display



E162379E06

Fig. 24: Clock Assembly - Wiring Diagram (w/ Multi-information Display)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

1. CHECK HARNESS AND CONNECTOR

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- a. Disconnect the E20 (*1) or E11 (*2) connector.
- b. Measure the voltage according to the value(s) in the table below.

Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E20-1 (B) ⁽¹⁾ - Body ground	Always	11 to 14 V
E11-6 (+B) ⁽²⁾ - Body ground	Always	11 to 14 V
E20-4 (ACC) ⁽¹⁾ - Body ground	Ignition switch on (ACC)	11 to 14 V
E11-1 (IG) ⁽²⁾ - Body ground	Ignition switch on (IG)	11 to 14 V
(1) w/o Multi-information Display		
(2) w/ Multi-information Display		

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

Standard resistance

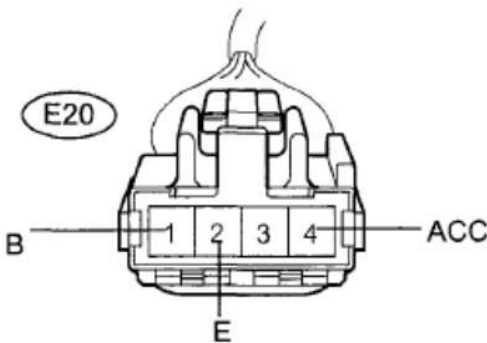
TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
E20-2 (E) ⁽¹⁾ - Body ground	Always	Below 1 ohms
E11-5 (GND) ⁽²⁾ - Body ground	Always	Below 1 ohms
(1) w/o Multi-information Display		
(2) w/ Multi-information Display		

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Front view of wire harness connector:
(to Clock Assembly (*1))



Front view of wire harness connector:
(to Clock Assembly (*2))

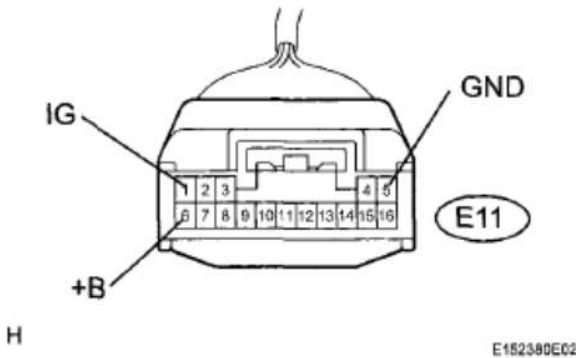


Fig. 25: Identifying E20 And E11 Connector Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Result

RESULT CHART

Result	Proceed to
OK (w/o Multi-information Display)	A
OK (w/ Multi-information Display)	B
NG	C

B: REPLACE CLOCK ASSEMBLY (w/ Multi-information Display) (See REMOVAL)

C: REPAIR OR REPLACE HARNESS OR CONNECTOR

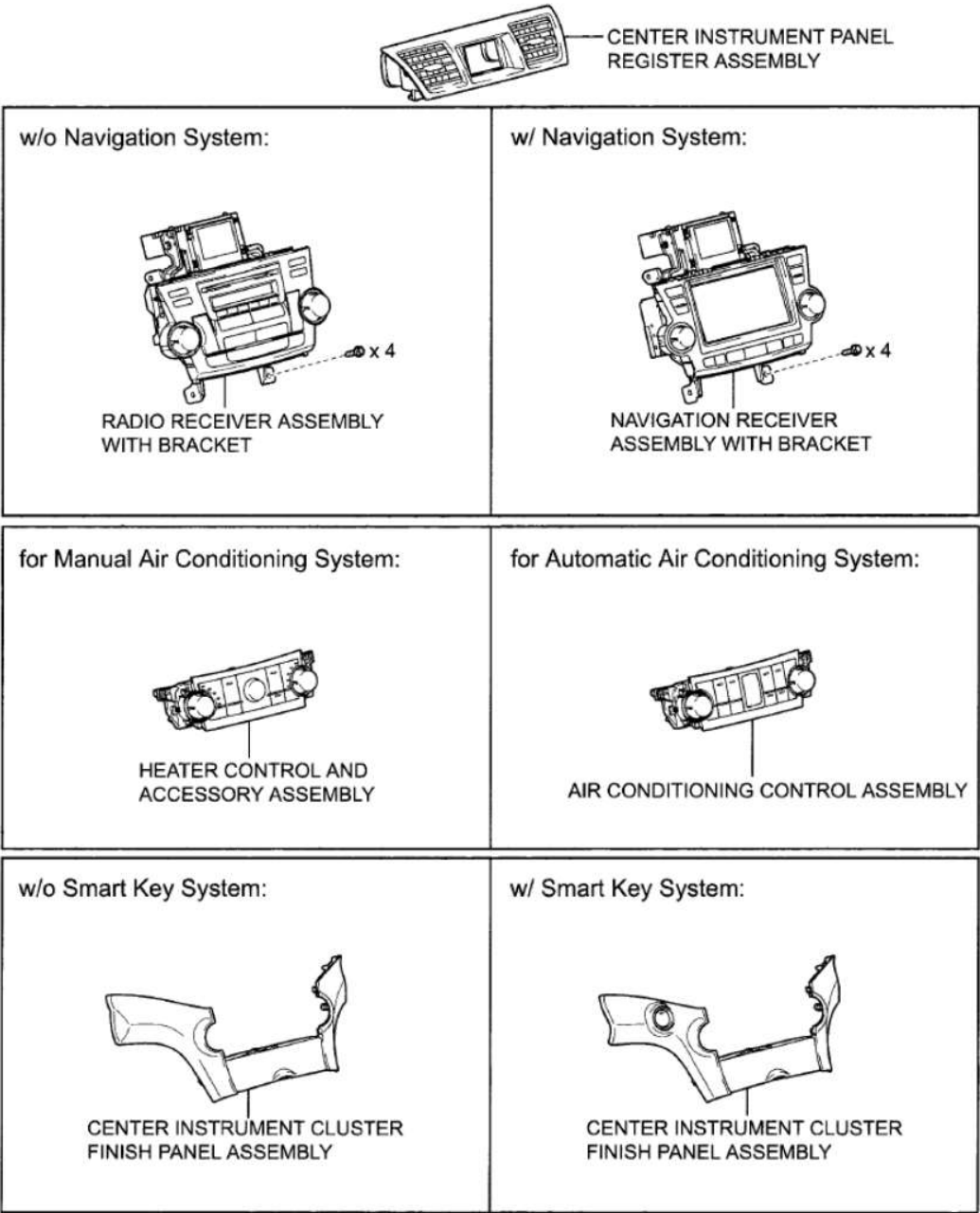
A: REPLACE CLOCK ASSEMBLY (w/o Multi-information Display) (See REMOVAL)

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CLOCK (W/ MULTI-INFORMATION DISPLAY)

COMPONENTS



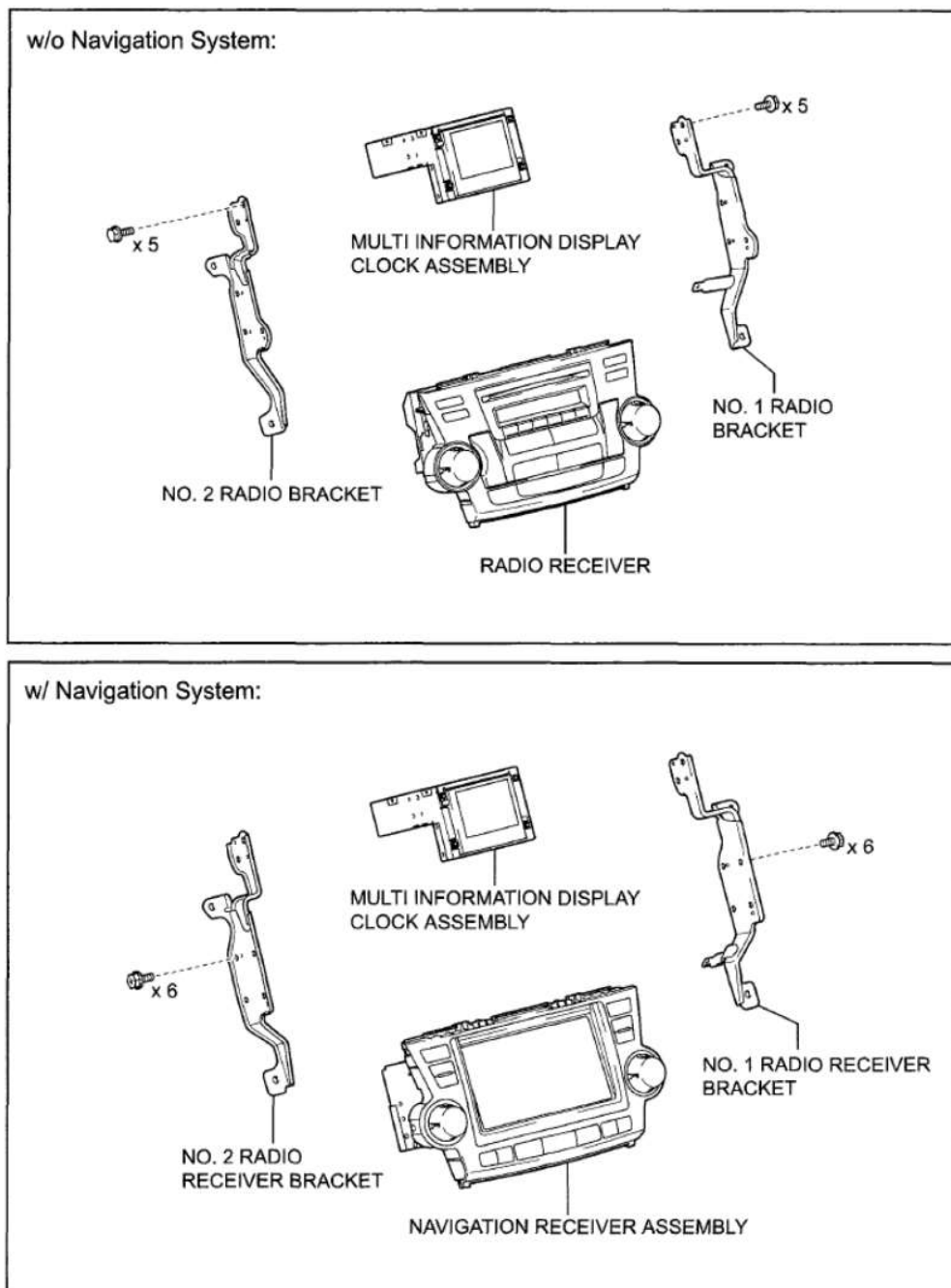
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Fig. 26: Identifying Clock Components (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Fig. 27: Identifying Clock Components (2 Of 2)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY (See **REMOVAL**)

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2. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System)** (See **REMOVAL**)
3. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System)** (See **REMOVAL**)
4. **REMOVE HEATER CONTROL AND ACCESSORY ASSEMBLY (for Manual Air Conditioning System)** (See **AIR CONDITIONING PANEL (FOR MANUAL AIR CONDITIONING SYSTEM)**)
5. **REMOVE AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** (See **REMOVAL**)
6. **REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System)** (See **REMOVAL**)
7. **REMOVE NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System)** (See **REMOVAL**)
8. **REMOVE NO. 1 RADIO BRACKET (w/o Navigation System)**
 - a. Disengage the claw and remove the connector.

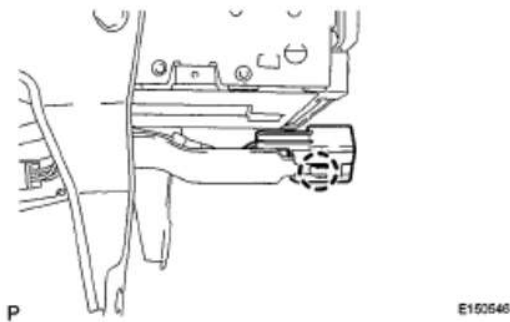


Fig. 28: Identifying No. 1 Radio Bracket Connector And Claw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 5 screws and No. 1 radio bracket.

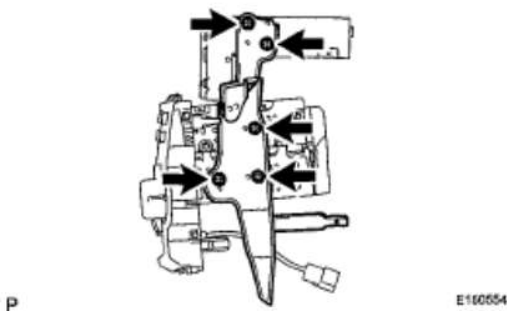


Fig. 29: Locating No. 1 Radio Bracket Screws
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

9. **REMOVE NO. 1 RADIO RECEIVER BRACKET (w/ Navigation System)**
 - a. Disengage the claw and disconnect the connector.

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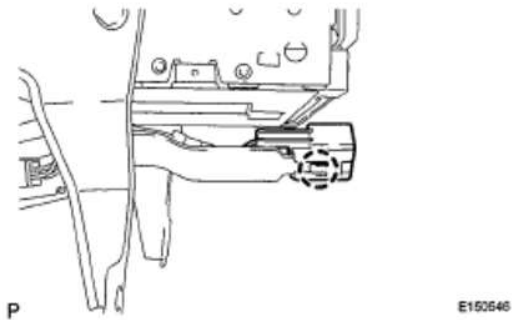


Fig. 30: Identifying No. 1 Radio Bracket Connector And Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 6 screws and No. 1 radio receiver bracket.

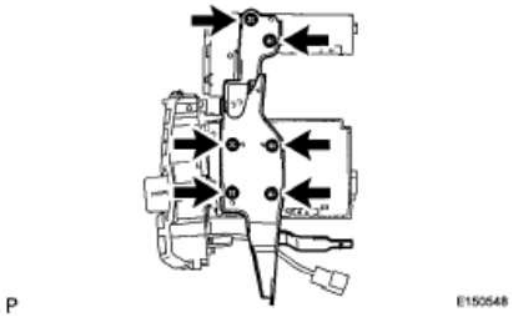


Fig. 31: Locating No. 1 Radio Receiver Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

10. REMOVE NO. 2 RADIO BRACKET (w/o Navigation System)

- a. Remove the 5 screws and No. 2 radio bracket.

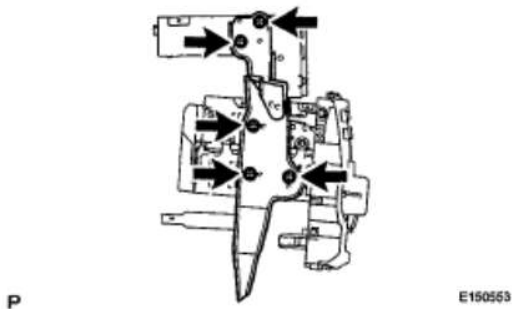


Fig. 32: Locating No. 2 Radio Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

11. REMOVE NO. 2 RADIO RECEIVER BRACKET (w/ Navigation System)

- a. Remove the 6 screws and No. 2 radio receiver bracket.

12. REMOVE MULTI INFORMATION DISPLAY CLOCK ASSEMBLY

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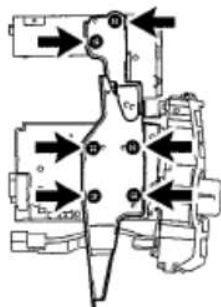
INSTALLATION**1. INSTALL MULTI INFORMATION DISPLAY CLOCK ASSEMBLY**

Fig. 33: Locating No. 2 Radio Receiver Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL NO. 2 RADIO BRACKET (w/o Navigation System)

- a. Install the No. 2 radio bracket with the 5 screws.

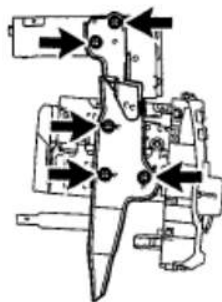


Fig. 34: Locating No. 2 Radio Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSTALL NO. 2 RADIO RECEIVER BRACKET (w/ Navigation System)

- a. Install the No. 2 radio receiver bracket with the 6 screws.

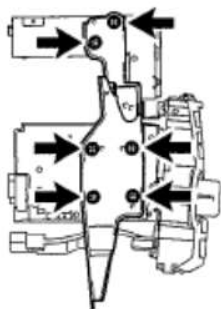


Fig. 35: Locating No. 2 Radio Receiver Bracket Screws

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. INSTALL NO. 1 RADIO BRACKET (w/o Navigation System)

- a. Install the No. 1 radio bracket with the 5 screws.

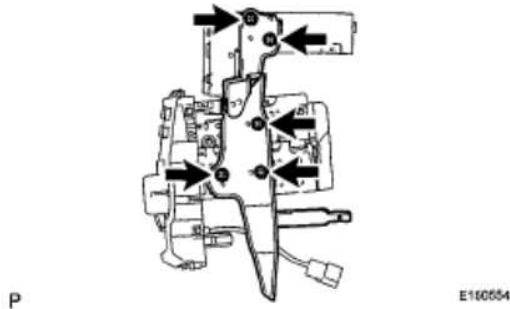


Fig. 36: Locating No. 1 Radio Bracket Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Engage the claw and install the connector.

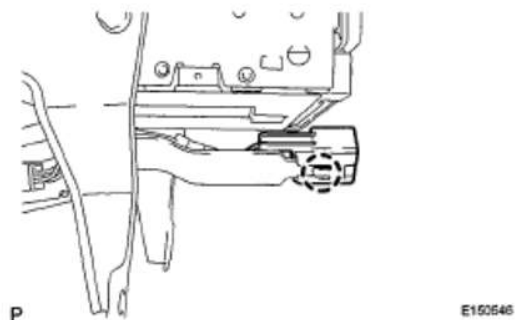


Fig. 37: Identifying No. 1 Radio Bracket Connector And Claw

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. INSTALL NO. 1 RADIO RECEIVER BRACKET (w/ Navigation System)

- a. Install the No. 1 radio receiver bracket with the 6 screws.

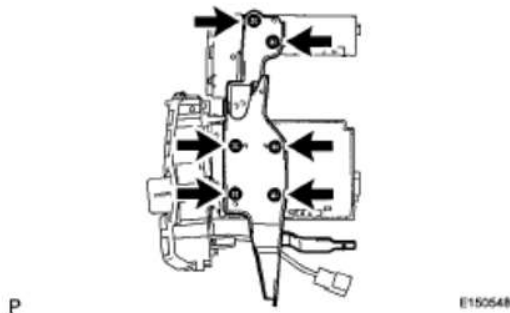


Fig. 38: Locating No. 1 Radio Receiver Bracket Screws

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Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Engage the claw and connect the connector.
6. **INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET (w/o Navigation System)** (See INSTALLATION)
7. **INSTALL NAVIGATION RECEIVER ASSEMBLY WITH BRACKET (w/ Navigation System)** (See INSTALLATION)
8. **INSTALL HEATER CONTROL AND ACCESSORY ASSEMBLY (for Manual Air Conditioning System)** (See AIR CONDITIONING PANEL (FOR MANUAL AIR CONDITIONING SYSTEM))

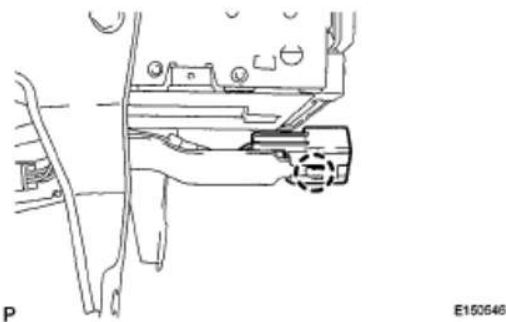


Fig. 39: Identifying No. 1 Radio Bracket Connector And Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

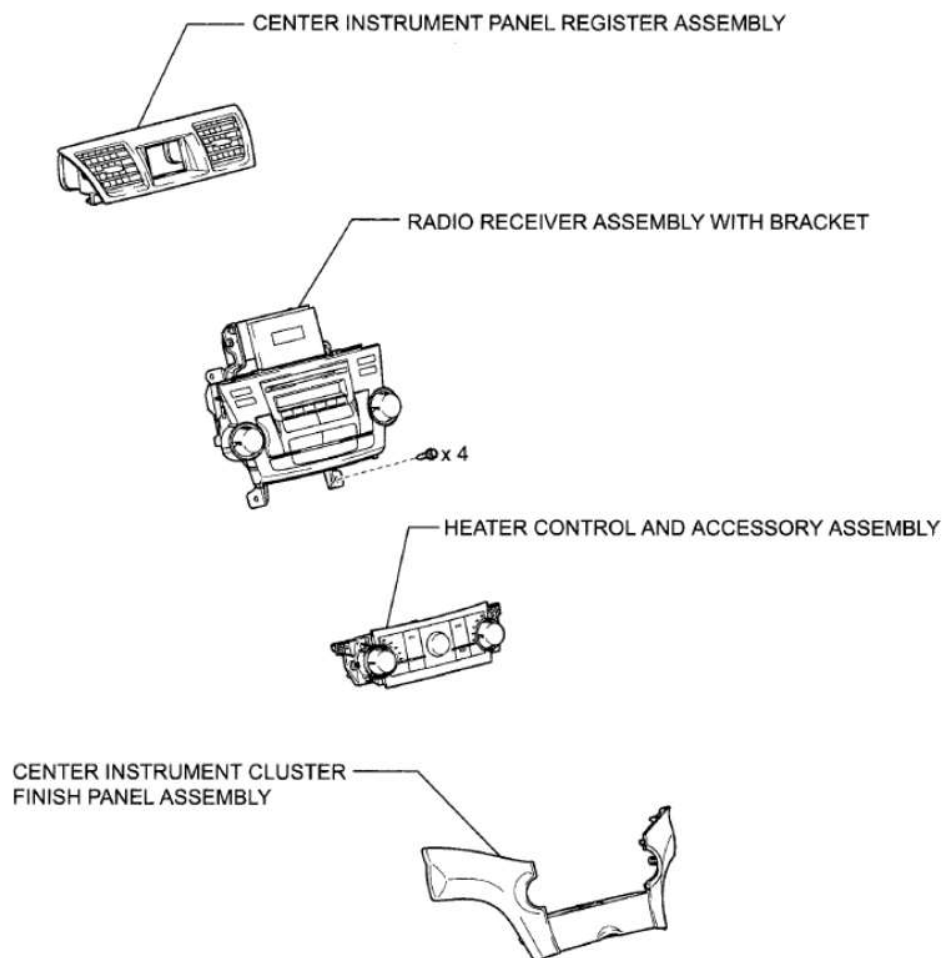
9. **INSTALL AIR CONDITIONING CONTROL ASSEMBLY (for Automatic Air Conditioning System)** (See REMOVAL)
10. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System)** (See INSTALLATION)
11. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System)** (See INSTALLATION)
12. **INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY** (See INSTALLATION)

CLOCK (W/O MULTI-INFORMATION DISPLAY)

COMPONENTS

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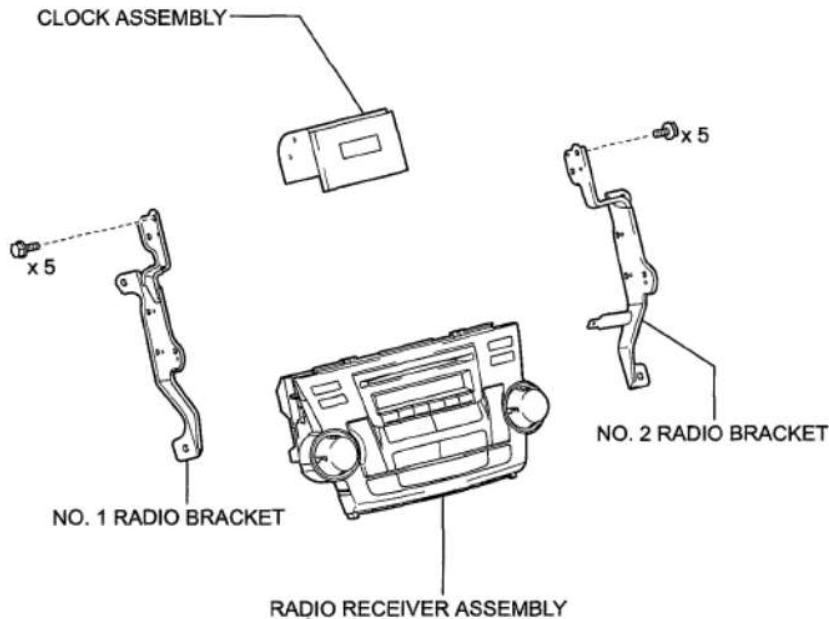
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Fig. 40: Identifying Clock Components - W/O Multi-Information Display (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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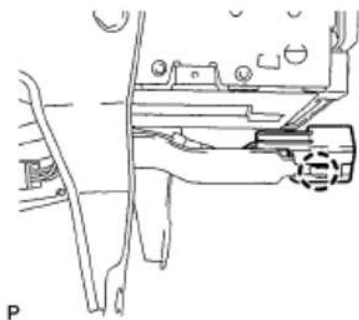
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E151486E01

Fig. 41: Identifying Clock Components - W/O Multi-Information Display (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE CENTER INSTRUMENT PANEL REGISTER ASSEMBLY** (See **REMOVAL**)
2. **REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (See **REMOVAL**)
3. **REMOVE HEATER CONTROL AND ACCESSORY ASSEMBLY** (See **AIR CONDITIONING PANEL (FOR MANUAL AIR CONDITIONING SYSTEM)**)
4. **REMOVE RADIO RECEIVER ASSEMBLY WITH BRACKET** (See **REMOVAL**)
5. **REMOVE NO. 1 RADIO BRACKET**
 - a. Disengage the claw and remove the connector.



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Fig. 42: Identifying No. 1 Radio Bracket Connector And Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 4 screws and No. 1 radio bracket.

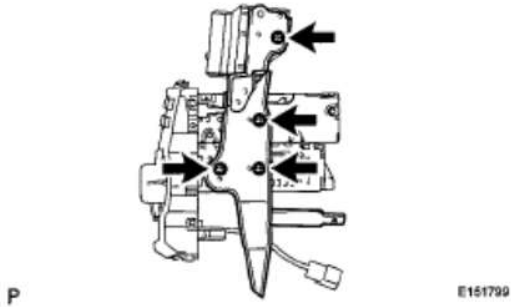


Fig. 43: Locating No. 1 Radio Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

6. REMOVE NO. 2 RADIO BRACKET

- a. Remove the 4 screws and No. 1 radio bracket.

7. REMOVE CLOCK ASSEMBLY

INSTALLATION

1. INSTALL CLOCK ASSEMBLY

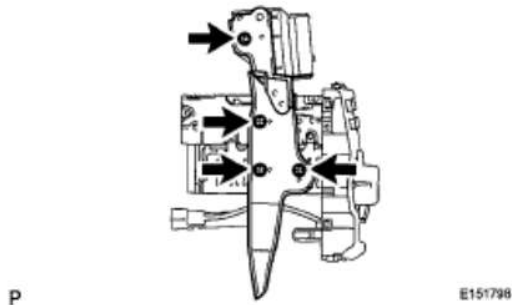


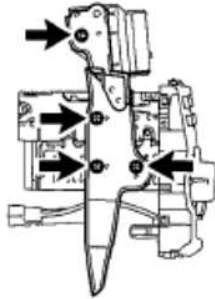
Fig. 44: Locating No. 2 Radio Bracket Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL NO. 2 RADIO BRACKET

- a. Install the No. 2 radio bracket with the 4 screws.

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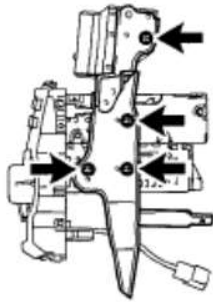
E151798

Fig. 45: Locating No. 2 Radio Bracket Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. INSTALL NO. 1 RADIO BRACKET

- a. Install the No. 1 radio bracket with the 4 screws.



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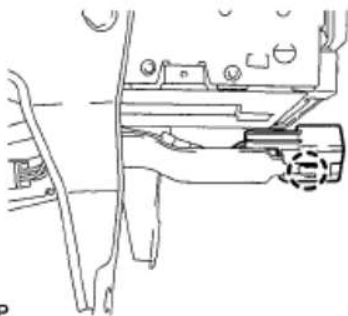
E151799

Fig. 46: Locating No. 1 Radio Bracket Screws

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Engage the claw and install the connector.

4. **INSTALL RADIO RECEIVER ASSEMBLY WITH BRACKET** (See INSTALLATION)
5. **INSTALL HEATER CONTROL AND ACCESSORY ASSEMBLY** (See AIR CONDITIONING PANEL (FOR MANUAL AIR CONDITIONING SYSTEM))
6. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (See INSTALLATION)
7. **INSTALL CENTER INSTRUMENT PANEL REGISTER ASSEMBLY** (See INSTALLATION)



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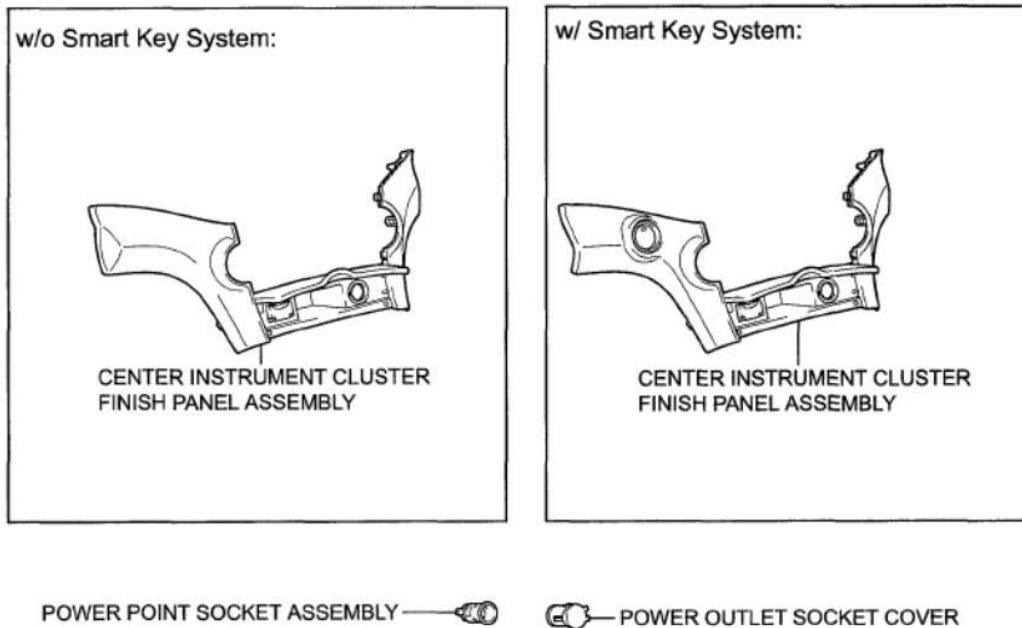
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2009 ELECTRICAL Other System - Highlander

Fig. 47: Identifying No. 1 Radio Bracket Connector And Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

CIGARETTE LIGHTER

COMPONENTS



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Fig. 48: Identifying Cigarette Lighter Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System) (See **REMOVAL**)
2. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System) (See **REMOVAL**)
3. REMOVE POWER POINT SOCKET ASSEMBLY
 - a. Disengage the claw and remove the power point socket assembly.

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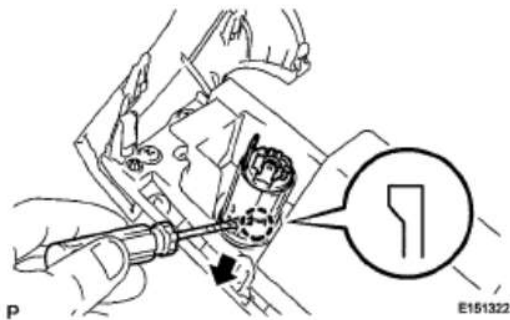


Fig. 49: Disengaging Power Point Socket Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

4. REMOVE POWER OUTLET SOCKET COVER

- a. Disengage the 2 claws and remove the power outlet socket cover.



Fig. 50: Identifying Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION**1. INSTALL POWER OUTLET SOCKET COVER**

- a. Engage the 2 claws and install the power outlet socket cover.



Fig. 51: Identifying Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2. INSTALL POWER POINT SOCKET ASSEMBLY

- a. Engage the claw and install the power point socket assembly.

3. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System) (See INSTALLATION)**4. INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System) (See INSTALLATION)**

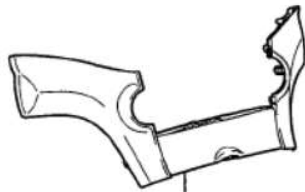
Fig. 52: Identifying Power Point Socket Assembly And Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

VOLTAGE INVERTER**COMPONENTS**

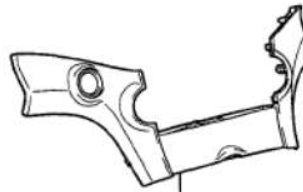
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2009 ELECTRICAL Other System - Highlander

w/o Smart Key System:

CENTER INSTRUMENT CLUSTER
FINISH PANEL ASSEMBLY

w/ Smart Key System:

CENTER INSTRUMENT CLUSTER
FINISH PANEL ASSEMBLY

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Fig. 53: Identifying Voltage Inverter Components (1 Of 2)

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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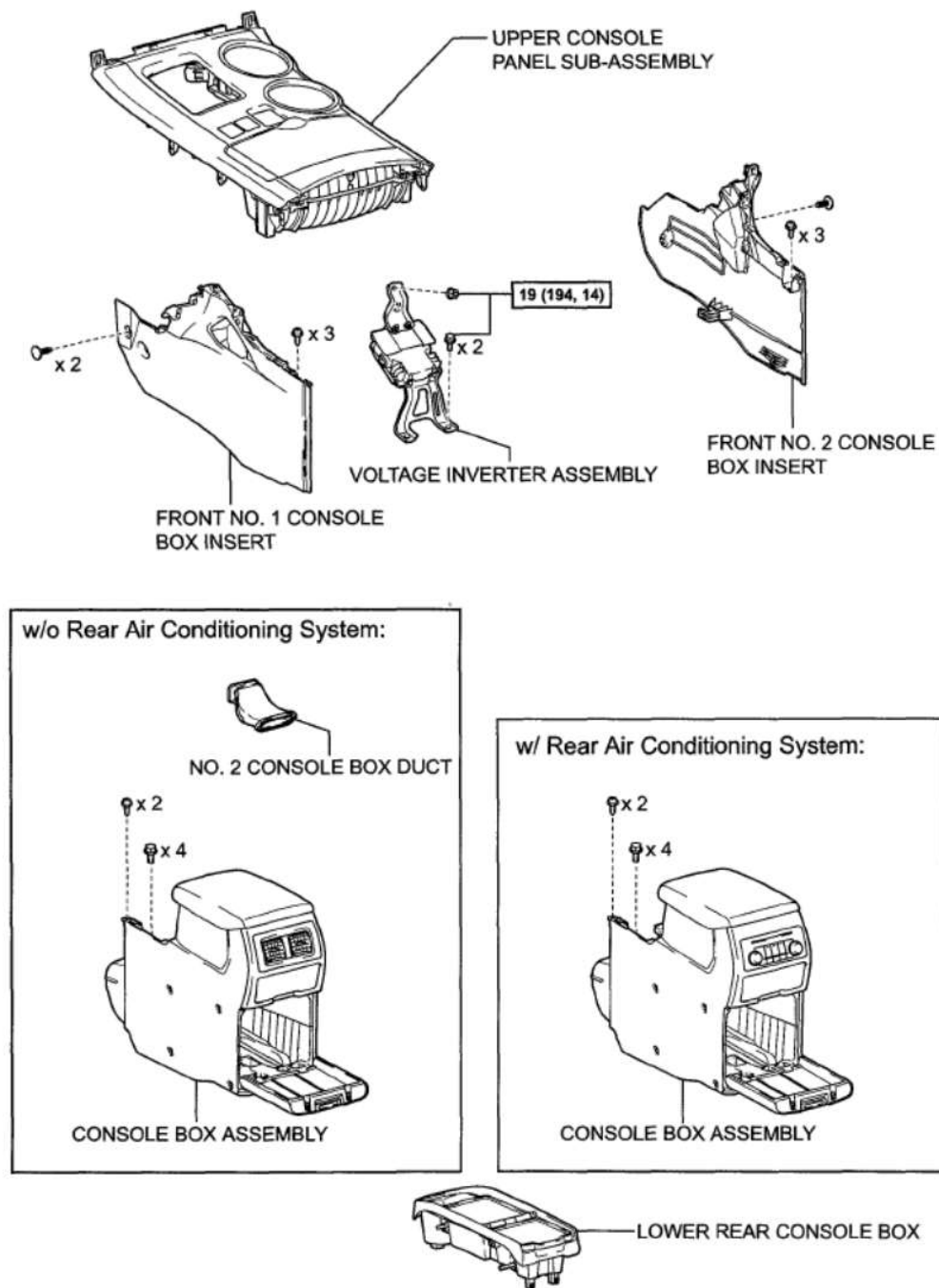


Fig. 54: Identifying Voltage Inverter Components (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

1. INSPECT VOLTAGE INVERTER ASSEMBLY

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HINT:

Remove interior parts so that the voltage inverter can be seen.

- a. Disconnect the voltage inverter connector.
- b. Measure the voltage according to the value(s) in the table below.

Front view of wire harness connector:
(to Voltage Inverter Assembly)

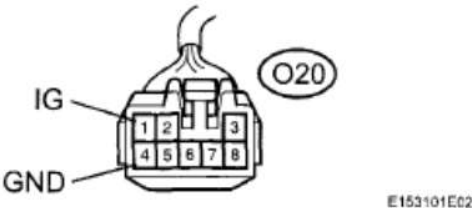


Fig. 55: Identifying O20 Voltage Inverter Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester connection	Condition	Specified condition
O20-1 (IG) - O20-4 (GND)	Ignition switch on (IG)	10 to 16 V
O20-4 (GND) - Body ground	Always	Below 1 V

If the result is not as specified, repair or replace the harness or connector.

- c. Reconnect the voltage inverter connector.
- d. Measure the voltage according to the value(s) in the table below.

Component without harness connected:
(Voltage Inverter Assembly)

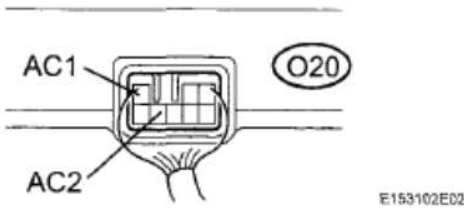


Fig. 56: Identifying O20 Voltage Inverter Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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Standard voltage

TESTER CONNECTION SPECIFIED CONDITION

Tester connection	Condition	Specified condition
O20-3 (AC1) - O20-7 (AC2)	Ignition switch on (IG) Main switch ON	Approximately AC 115 V

If the result is not as specified, replace the voltage inverter.

REMOVAL

1. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System) (See REMOVAL)
2. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System) (See REMOVAL)
3. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See REMOVAL)
4. REMOVE NO. 2 CONSOLE BOX DUCT (w/o Rear Air Conditioning System) (See REMOVAL)
5. REMOVE LOWER REAR CONSOLE BOX (See REMOVAL)
6. REMOVE CONSOLE BOX ASSEMBLY (w/o Rear Air Conditioning System) (See REMOVAL)
7. REMOVE CONSOLE BOX ASSEMBLY (w/ Rear Air Conditioning System) (See DISASSEMBLY)
8. REMOVE FRONT NO. 1 CONSOLE BOX INSERT (See REMOVAL)
9. REMOVE FRONT NO. 2 CONSOLE BOX INSERT (See REMOVAL)
10. REMOVE VOLTAGE INVERTER ASSEMBLY
 - a. Disconnect the connector.
 - b. Remove the 2 bolts, nut and the voltage inverter assembly.

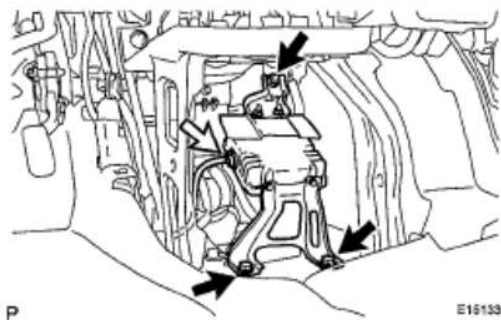


Fig. 57: Locating Voltage Inverter Assembly Bolts And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. INSTALL VOLTAGE INVERTER ASSEMBLY
 - a. Install the voltage inverter assembly with the 2 bolts and nut.

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Torque: 19 N*m (194 kgf*cm, 14 ft.*lbf)

b. Connect the connector.

2. **INSTALL FRONT NO. 2 CONSOLE BOX INSERT** (See INSTALLATION)
3. **INSTALL FRONT NO. 1 CONSOLE BOX INSERT** (See INSTALLATION)

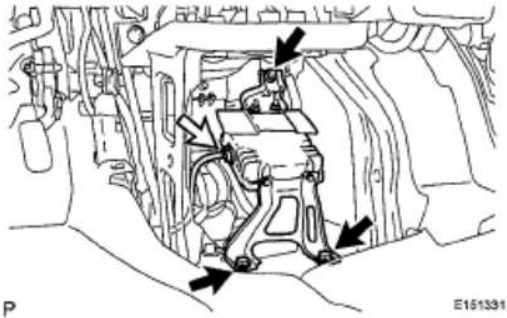


Fig. 58: Locating Voltage Inverter Assembly Bolts And Nut
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

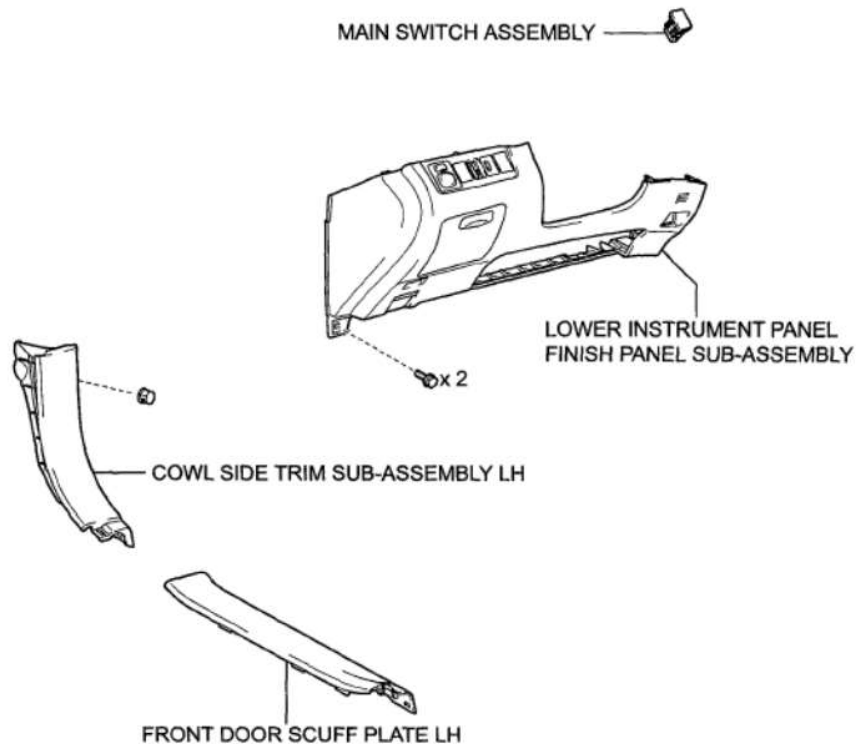
4. **INSTALL CONSOLE BOX ASSEMBLY (w/o Rear Air Conditioning System)** (See INSTALLATION)
5. **INSTALL CONSOLE BOX ASSEMBLY (w/ Rear Air Conditioning System)** (See INSTALLATION)
6. **INSTALL LOWER REAR CONSOLE BOX** (See INSTALLATION)
7. **INSTALL NO. 2 CONSOLE BOX DUCT (w/o Rear Air Conditioning System)** (See INSTALLATION)
8. **INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY** (See INSTALLATION)
9. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System)** (See INSTALLATION)
10. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System)** (See INSTALLATION)

INVERTER MAIN SWITCH

COMPONENTS

2009 Toyota Highlander Limited

2009 ELECTRICAL Other System - Highlander



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#101330E01

Fig. 59: Identifying Inverter Main Switch Components

Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE FRONT DOOR SCUFF PLATE LH** (See **REMOVAL**)
2. **REMOVE COWL SIDE TRIM SUB-ASSEMBLY LH** (See **REMOVAL**)
3. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY** (for Manual Air Conditioning System) (See **REMOVAL**)
4. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY** (for Automatic Air Conditioning System) (See **REMOVAL**)
5. **REMOVE MAIN SWITCH ASSEMBLY**
 - a. Disengage the 2 claws and remove the main switch assembly.

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2009 ELECTRICAL Other System - Highlander

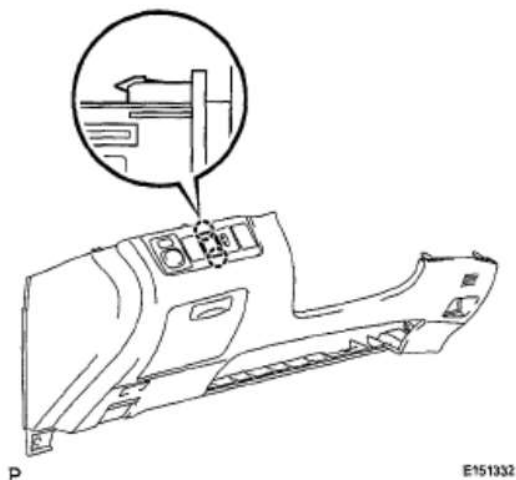


Fig. 60: Identifying Main Switch Assembly Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

1. INSPECT MAIN SWITCH ASSEMBLY

- a. LED illumination inspection
 - 1. Connect the (+) lead from the battery to terminal 5 (ILL+) and the (-) lead to terminal 4 (ILL-).
 - 2. Check that the illumination of the switch comes on.

OK

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Specified Condition
5 (ILL+) - 4 (ILL-)	Night illumination comes on

Component without harness connected:
(Main Switch Assembly)

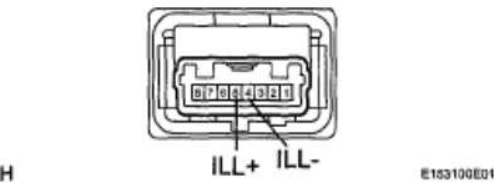


Fig. 61: Identifying Main Switch Assembly Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

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Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Switch Condition	Specified Condition
3 (IND) - 7 (LFG)	Main switch OFF	10 kohms or higher
6 (IG) - 7 (LFG)	Main switch OFF	10 kohms or higher
3 (IND) - 7 (LFG)	Main switch ON	Below 1 ohms
6 (IG) - 7 (LFG)	Main switch ON	Below 1 ohms

If the result is not as specified, replace the main switch assembly.

Component without harness connected:
(Main Switch Assembly)

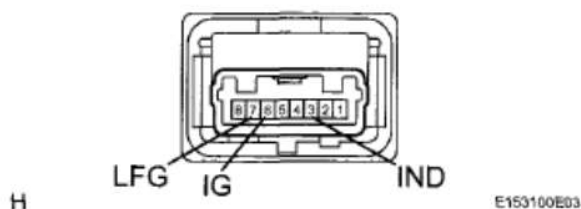


Fig. 62: Identifying Main Switch Assembly Connector Terminal
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL MAIN SWITCH ASSEMBLY**
 - a. Engage the 2 claws to install the main switch assembly.
2. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Manual Air Conditioning System)** (See INSTALLATION)
3. **INSTALL LOWER INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY (for Automatic Air Conditioning System)** (See INSTALLATION)
4. **INSTALL COWL SIDE TRIM SUB-ASSEMBLY LH** (See INSTALLATION)
5. **INSTALL FRONT DOOR SCUFF PLATE LH** (See INSTALLATION)

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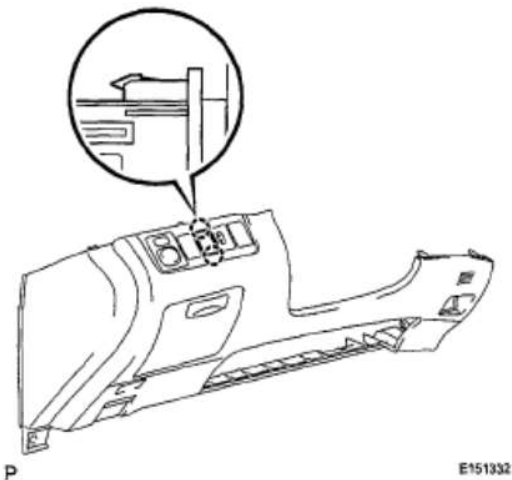


Fig. 63: Identifying Main Switch Assembly Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INVERTER RELAY

INSPECTION

- 1. INSPECT INVERTER RELAY
 - a. Remove the inverter relay.
 - b. Measure the resistance according to the value(s) in the table below.

Standard resistance

TESTER CONNECTION SPECIFIED CONDITION

Tester Connection	Condition	Specified Condition
3 - 5	Always	10 kohms or higher
3 - 5	Battery voltage is applied to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the inverter relay.

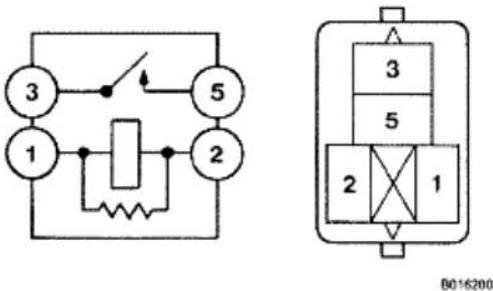
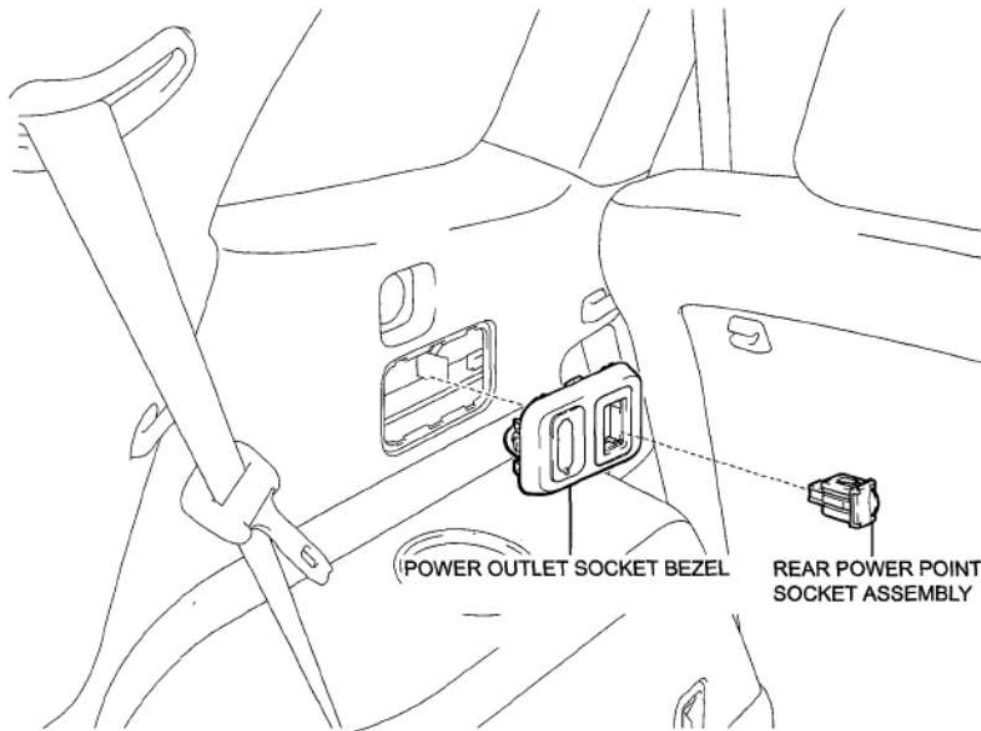


Fig. 64: Identifying Inverter Relay Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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2009 ELECTRICAL Other System - Highlander

POWER OUTLET SOCKET**COMPONENTS**

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Fig. 65: Identifying Power Outlet Socket Components

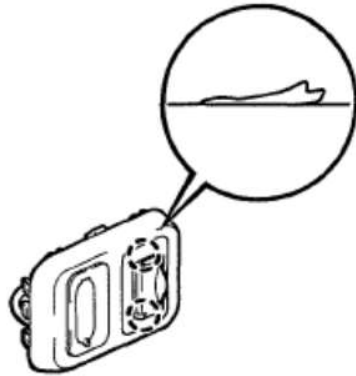
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. **REMOVE POWER OUTLET SOCKET BEZEL** (See **REMOVAL**)
2. **REMOVE REAR POWER POINT SOCKET ASSEMBLY**
 - a. Disengage the 2 claws and remove the rear power point socket assembly.

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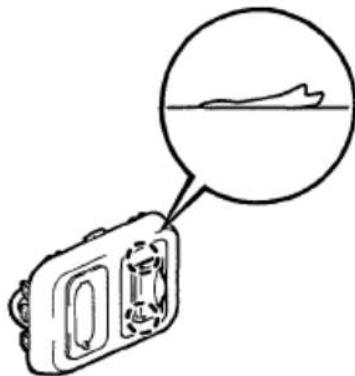
P

E152196

Fig. 66: Identifying Rear Power Point Socket Assembly Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL REAR POWER POINT SOCKET ASSEMBLY**
 - a. Engage the 2 claws and install the rear power point socket assembly.
2. **INSTALL POWER OUTLET SOCKET BEZEL** (See **INSTALLATION**)



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E152196

Fig. 67: Identifying Rear Power Point Socket Assembly Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

CENTER POWER OUTLET SOCKET**COMPONENTS**

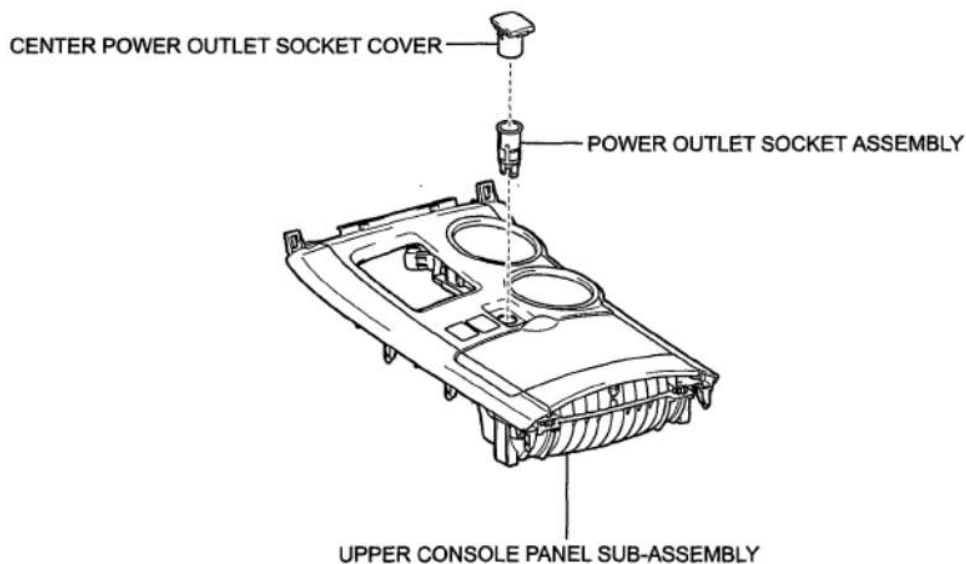
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2009 ELECTRICAL Other System - Highlander

w/o Smart Key System:



w/ Smart Key System:



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E1B0248E01

Fig. 68: Identifying Center Power Outlet Socket Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

1. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/o Smart Key System) (See REMOVAL)
2. REMOVE CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY (w/ Smart Key System) (See REMOVAL)
3. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY (See REMOVAL)

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4. REMOVE POWER OUTLET SOCKET ASSEMBLY

- a. Disconnect the connector.

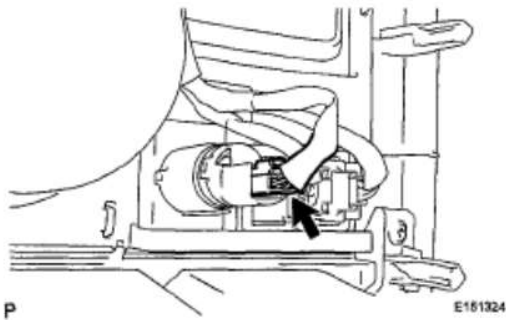


Fig. 69: Locating Power Outlet Socket Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the claw and remove the power outlet socket assembly.

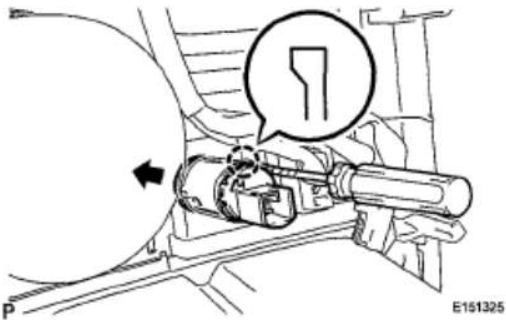


Fig. 70: Disengaging Power Outlet Socket Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

5. REMOVE CENTER POWER OUTLET SOCKET COVER

- a. Disengage the 2 claws and remove the center power outlet socket cover.

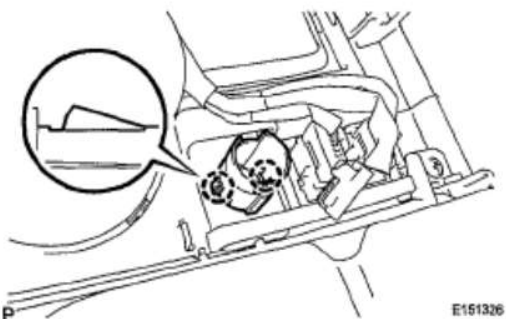


Fig. 71: Identifying Center Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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INSTALLATION**1. INSTALL CENTER POWER OUTLET SOCKET COVER**

- a. Engage the 2 claws and install the center power outlet socket cover.

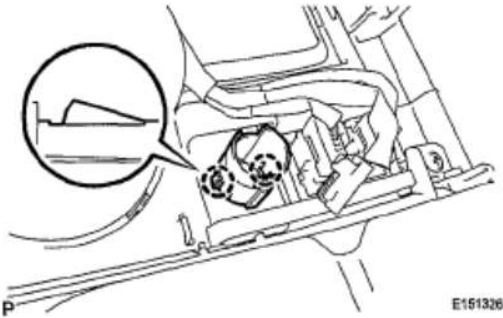


Fig. 72: Identifying Center Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL POWER OUTLET SOCKET ASSEMBLY

- a. Engage the claw and install the power outlet socket assembly.

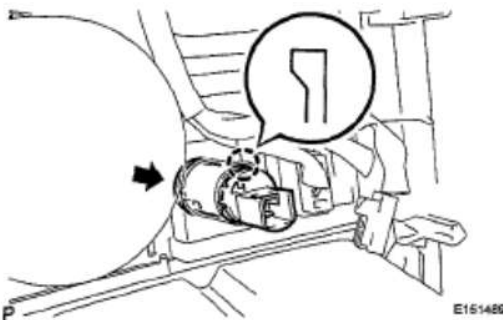


Fig. 73: Engaging Power Outlet Socket Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect the connector.

3. **INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY** (See **INSTALLATION**)
4. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (w/o Smart Key System) (See **INSTALLATION**)
5. **INSTALL CENTER INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** (w/ Smart Key System) (See **INSTALLATION**)

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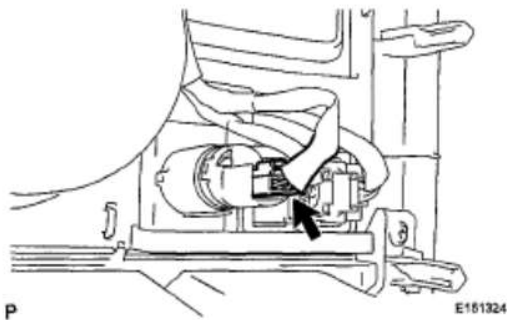


Fig. 74: Locating Power Outlet Socket Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REAR POWER OUTLET SOCKET

COMPONENTS

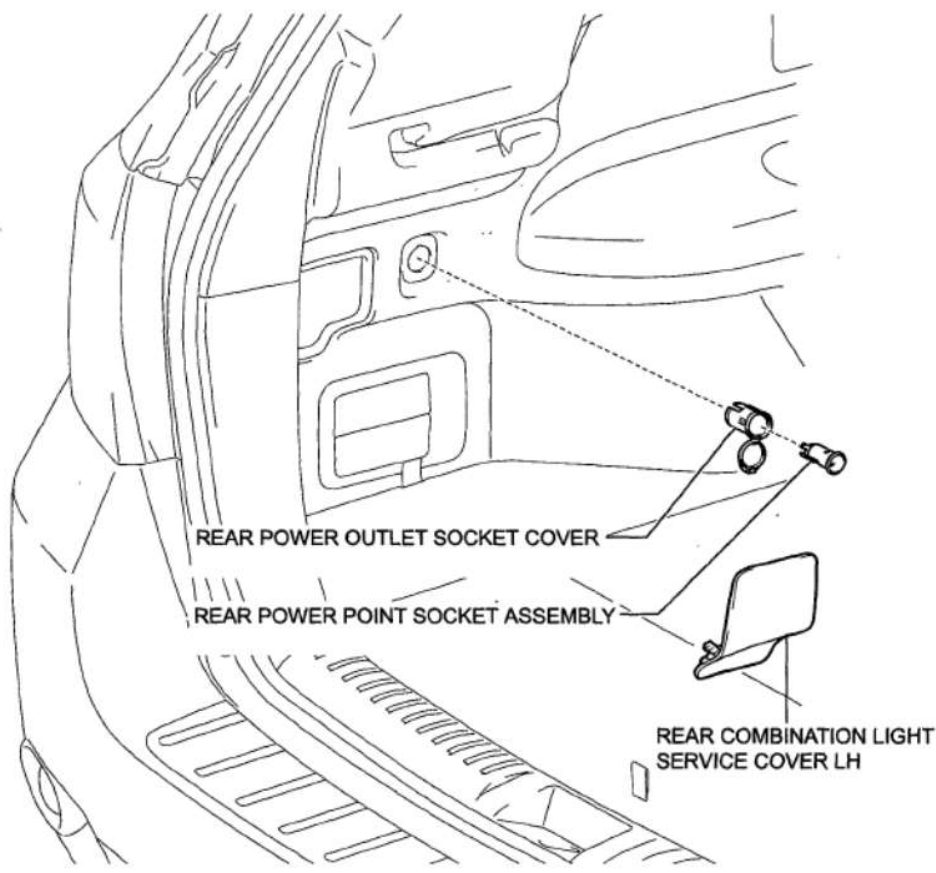


Fig. 75: Identifying Rear Power Outlet Socket Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

2009 Toyota Highlander Limited

2009 ELECTRICAL Other System - Highlander

1. **REMOVE REAR COMBINATION LIGHT SERVICE COVER LH (See REMOVAL)**
2. **REMOVE REAR POWER POINT SOCKET ASSEMBLY**
 - a. Disconnect the connector.
 - b. Disengage the claw and remove the rear power point socket assembly.

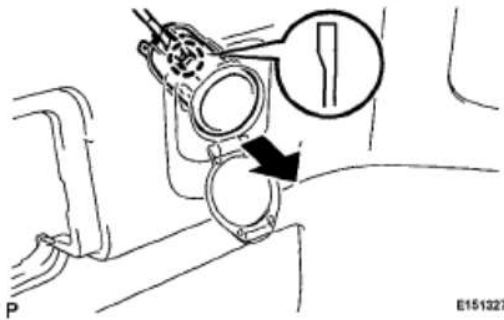


Fig. 76: Disengaging Rear Power Point Socket Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

3. **REMOVE REAR POWER OUTLET SOCKET COVER**
 - a. Disengage the 2 claws and remove the rear power outlet socket cover.

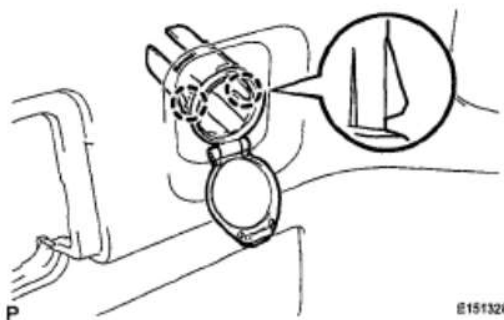


Fig. 77: Identifying Rear Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSTALLATION

1. **INSTALL REAR POWER OUTLET SOCKET COVER**
 - a. Engage the 2 claws and install the rear power outlet socket cover.

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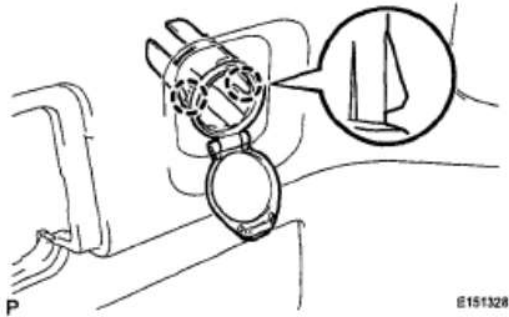


Fig. 78: Identifying Rear Power Outlet Socket Cover Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **INSTALL REAR POWER POINT SOCKET ASSEMBLY**
 - a. Engage the claw and install the rear power point socket assembly.
 - b. Connect the connector.
3. **INSTALL REAR COMBINATION LIGHT SERVICE COVER LH** (See **INSTALLATION**)

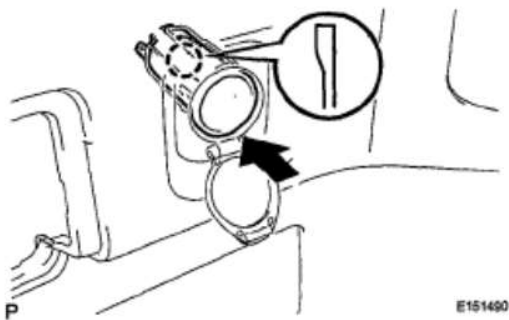


Fig. 79: Engaging Rear Power Point Socket Assembly Claw
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.