

ACCESSORIES & EQUIPMENT

Lighting System (Exterior) (Diagnostic Codes & Circuit Tests) - Sienna

LIGHTING SYSTEM

DTC B1244: LIGHT SENSOR CIRCUIT MALFUNCTION

DESCRIPTION

The automatic light control sensor detects ambient light, converts it into an electrical signal, and outputs it to the main body ECU. The main body ECU turns on or off the headlights and taillights according to the signal.

DTC No.	DTC Detecting Condition	Trouble Area
B1244	- Malfunction in automatic light control sensor - Open or short in automatic light control sensor circuit	- Automatic light control sensor - Harness or connector - Main body ECU

WIRING DIAGRAM

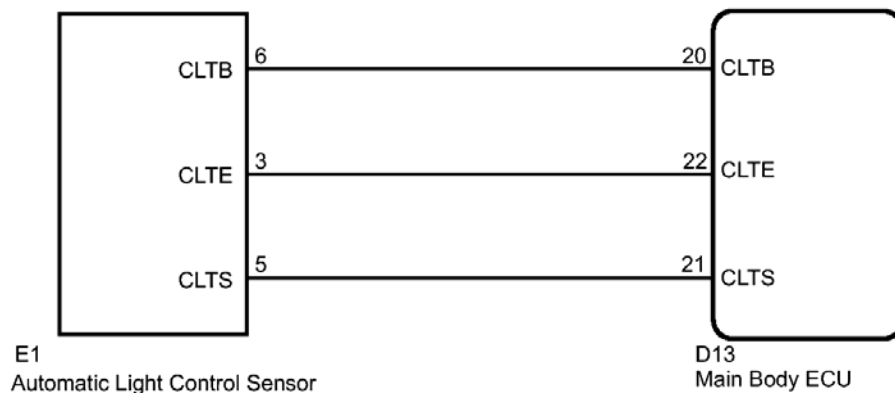


Fig. 1: Light Sensor Circuit Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- 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 / Main Body / Data List.
- e. Read the display on the Techstream.

MAIN BODY

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Illumination Rate Info	Illumination rate information/0 ms to 99.99 ms	Value is output according to ambient light levels	-

OK

Normal condition listed above is displayed.

NG --> See step 2

OK --> See step 5

2. CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - AUTOMATIC LIGHT CONTROL SENSOR)

- a. Disconnect the E1 automatic light control sensor connector.
- b. Disconnect the D13 main body ECU connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
D13-22 (CLTE) - E1-3 (CLTE)	Always	Below 1 ohms
D13-21 (CLTS) - E1-5 (CLTS)	Always	Below 1 ohms
D13-20 (CLTB) -	Always	Below 1

E1-6 (CLTB)		ohms
D13-22 (CLTE) - Body ground	Always	10 kohms or higher
D13-21 (CLTS) - Body ground	Always	10 kohms or higher
D13-20 (CLTB) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

3. INSPECT MAIN BODY ECU

- a. Reconnect the D13 main body ECU connector.
- b. Measure the voltage and resistance according to the value(s) in the table below.

*a

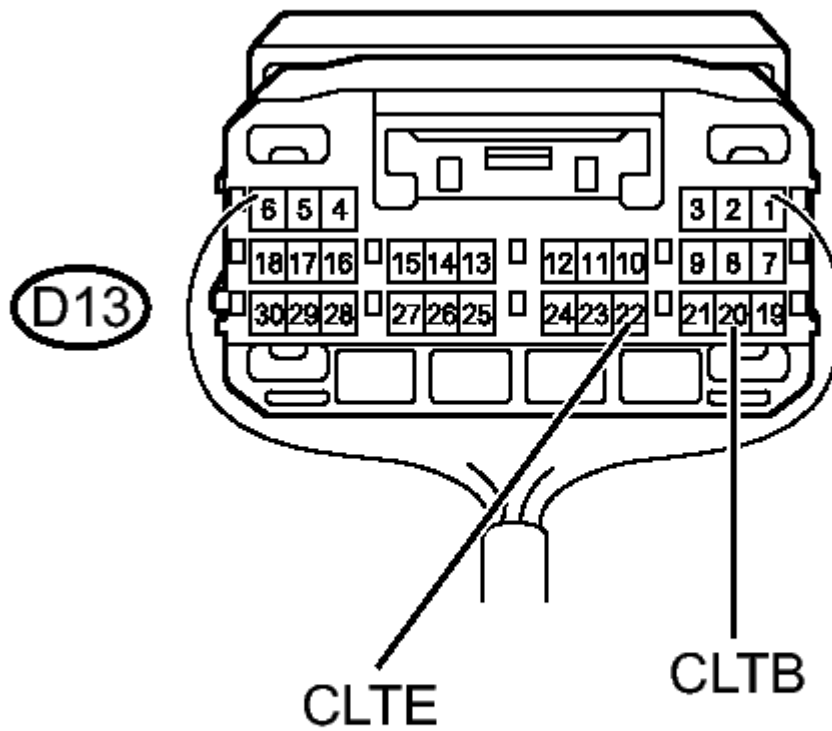


Fig. 2: Inspecting Main Body ECU

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
D13-20 (CLTB) - D13-22 (CLTE)	Ignition switch off	Below 1 V
	Ignition switch ON	11 to 14 V

Standard Resistance

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Tester Connection	Condition	Specified Condition
D13-22 (CLTE) - Body ground	Always	Below 1 ohms

TEXT IN ILLUSTRATION

*a	Component with harness connected (Main Body ECU)
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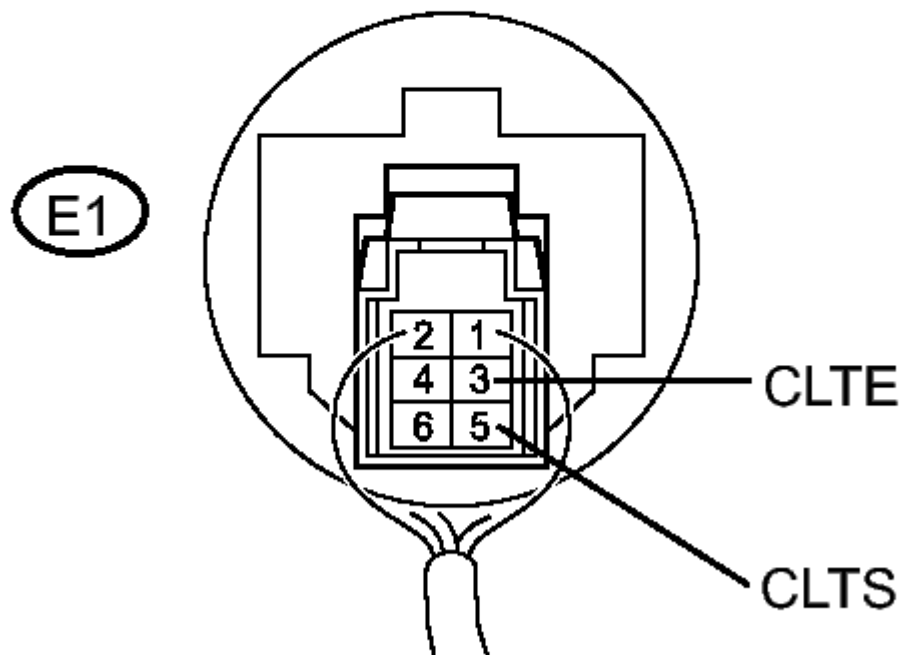
NG --> See step 5

OK: Go to next step

4. INSPECT AUTOMATIC LIGHT CONTROL SENSOR

- a. Reconnect the E1 automatic light control sensor connector.

*a



H

Fig. 3: Inspecting Automatic Light Control Sensor
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component with harness connected (Automatic Light Control Sensor)
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- b. Connect an oscilloscope to the automatic light control sensor connector.
- c. Check the waveform.

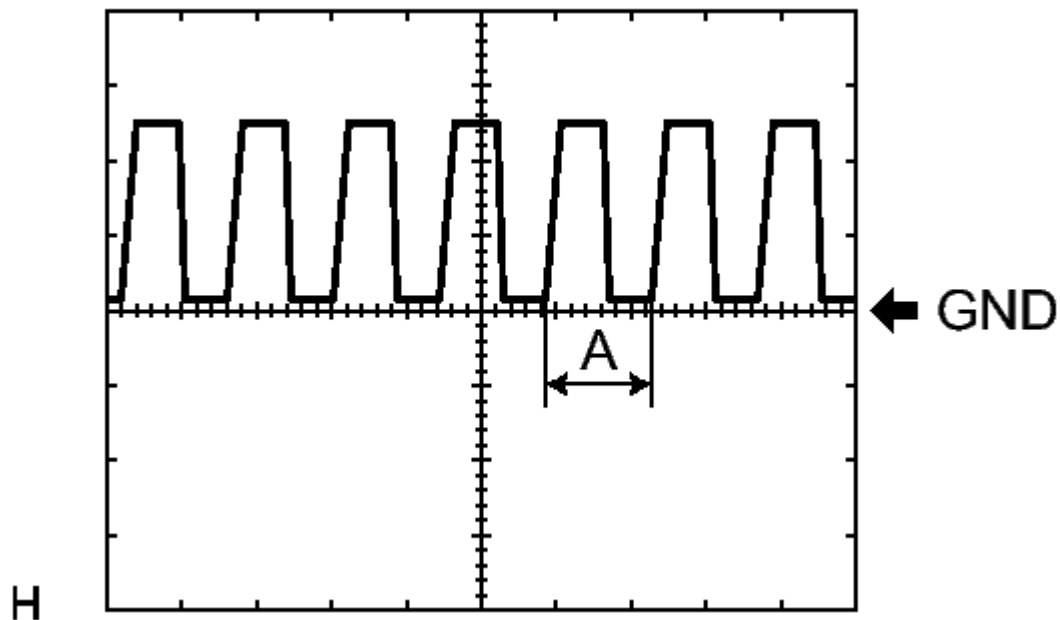


Fig. 4: Identifying Waveform Graph

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

OK

Tester Connection	Tool Setting	Switch Condition	Specified Condition
E1-3 (CLTE) - E1-5 (CLTS)	5 V/DIV., 5 ms./DIV.	Ignition switch ON, light control switch in AUTO position	Correct waveform is as shown

HINT:

If the ambient light becomes brighter, width A becomes narrower.

NG --> See step 6

OK --> See step 5

5. **REPLACE MAIN BODY ECU.** Refer to REMOVAL

6. **REPLACE AUTOMATIC LIGHT CONTROL SENSOR.** Refer to REMOVAL

DTC B124A: AUTOMATIC HIGH BEAM MIRROR

DESCRIPTION

The DTC is stored when the main body ECU detects malfunctions in the inner rear view mirror assembly.

DTC No.	DTC Detection Condition	Trouble Area
B124A	Malfunction in inner rear view mirror assembly	Inner rear view mirror assembly

WIRING DIAGRAM

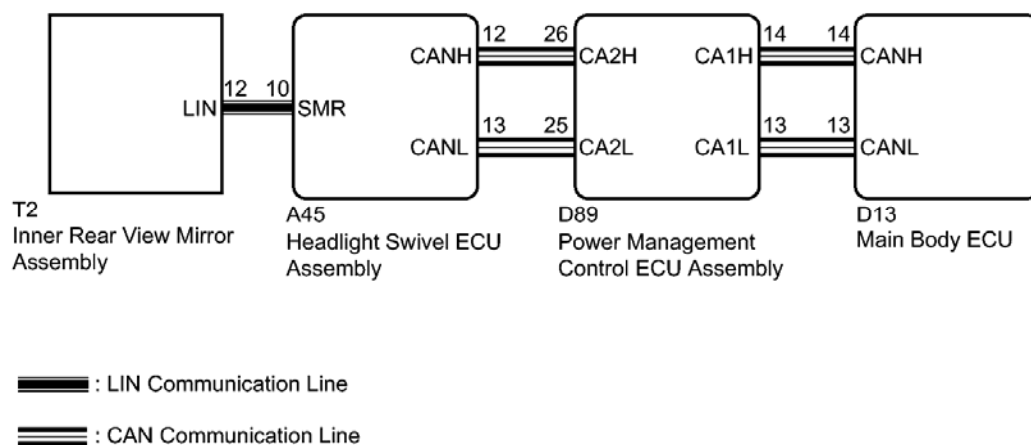


Fig. 5: Inner Rear View Mirror Assembly Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: First perform the communication function inspections in How to Proceed with Troubleshooting to confirm that there are no CAN communication malfunctions before troubleshooting this symptom.

PROCEDURE

1. CHECK FOR DTC

- Clear the DTCs. Refer to **DTC CHECK / CLEAR**.
- Check for DTCs. Refer to **DTC CHECK / CLEAR**.

OK

DTC B124A is not output.

NG --> See step 2

OK --> See step 3

2. **REPLACE INNER REAR VIEW MIRROR ASSEMBLY.** Refer to REMOVAL
3. **USE SIMULATION METHOD TO CHECK.** Refer to HOW TO PROCEED WITH TROUBLESHOOTING

DTC B124B: AUTOMATIC HIGH BEAM SYSTEM

DESCRIPTION

The DTC is stored when the main body ECU detects malfunctions in the automatic high beam system.

DTC No.	DTC Detection Condition	Trouble Area
B124B	Malfunction in automatic high beam system	- Steering angle sensor, VSC system or SFI system - Inner rear view mirror assembly

INSPECTION PROCEDURE

NOTE: First perform the communication function inspections in How to Proceed with Troubleshooting to confirm that there are no CAN communication malfunctions before troubleshooting this symptom.

PROCEDURE

1. **CHECK FOR DTC**
 - a. Clear the DTCs. Refer to DTC CHECK / CLEAR .
 - b. Check for DTCs. Refer to DTC CHECK / CLEAR .

OK

DTC B124B is not output.

NG --> See step 2

OK --> See step 3

2. **CHECK FOR DTC**
 - a. Check for DTCs. Refer to DTC CHECK / CLEAR .

RESULT

Result	Proceed to
DTC B2414	

is output	A
DTC B2415 is output	B
DTC U0126, DTC U0129 or DTC U0101 is output	C
Other DTC is not output	D

B --> See step 5

C --> See step 6

D --> See step 7

A --> See step 4

3. **USE SIMULATION METHOD TO CHECK.** Refer to HOW TO PROCEED WITH TROUBLESHOOTING
4. **GO TO DTC CHART (DTC B2414).** Refer to DTC B2414: Steering Position Sensor Malfunction
5. **GO TO DTC CHART (DTC B2415).** Refer to DTC B2415: Vehicle Speed Sensor Malfunction
6. **GO TO DTC CHART (DTC U0101, U0126 or U0129).** Refer to DTC U0101: Lost Communication with ECM; DTC U0126: Lost Communication with Steering Angle Sensor Module; DTC U0129: Lost Communication with Skid Control ECU; DTC U0142: Lost Communication with Main Body ECU; DTC U0182: Lost Communication with AFS ECU
7. **REPLACE INNER REAR VIEW MIRROR ASSEMBLY.** Refer to REMOVAL

DTC B124C: AUTOMATIC HIGH BEAM CAMERA

DESCRIPTION

The DTC is stored when the main body ECU detects malfunctions in the camera (inner rear view mirror assembly).

DTC No.	DTC Detection Condition	Trouble Area
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B124C

Malfunction in camera (inner rear view mirror assembly)

Inner rear view mirror assembly

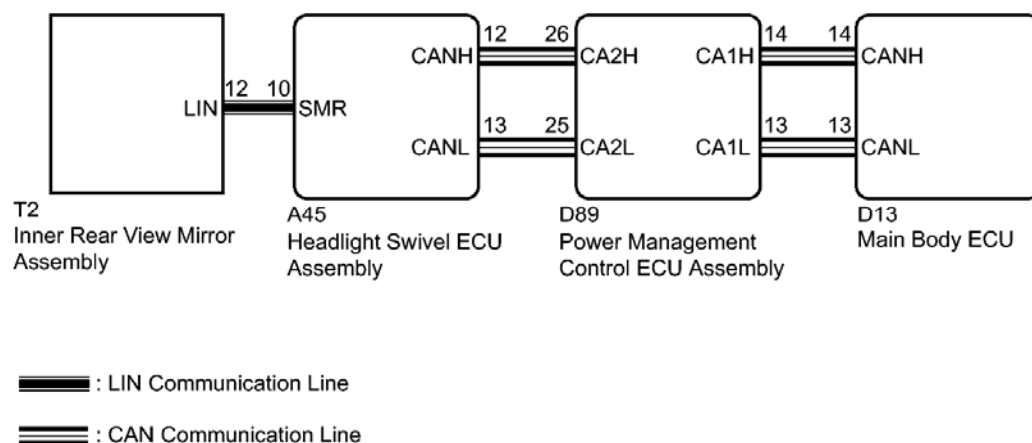
WIRING DIAGRAM

Fig. 6: Inner Rear View Mirror Assembly Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: First perform the communication function inspections in How to Proceed with Troubleshooting to confirm that there are no CAN communication malfunctions before troubleshooting this symptom.

PROCEDURE**1. CHECK FOR DTC**

- Clear the DTCs. Refer to **DTC CHECK / CLEAR**.
- Check for DTCs. Refer to **DTC CHECK / CLEAR**.

OK

DTC B124C is not output.

NG --> See step 2

OK --> See step 3

2. REPLACE INNER REAR VIEW MIRROR ASSEMBLY. Refer to REMOVAL

3. USE SIMULATION METHOD TO CHECK. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

DTC B2414: STEERING POSITION SENSOR MALFUNCTION

DESCRIPTION

The headlight swivel ECU assembly receives signals indicating the swerve-angle from the steering angle sensor using CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
B2414	Malfunction in steering angle sensor	- Steering angle sensor - Headlight swivel ECU assembly

WIRING DIAGRAM

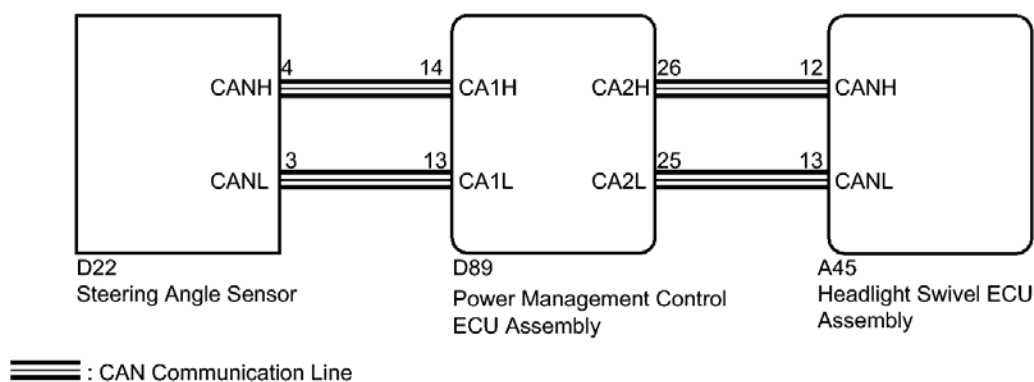


Fig. 7: Steering Position Sensor Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

NOTE: First perform the communication function inspections in How to Proceed with Troubleshooting to confirm that there are no CAN communication malfunctions before troubleshooting this symptom.

PROCEDURE

1. **CHECK FOR DTC**
 - a. Clear the DTCs. Refer to DTC CHECK / CLEAR .
 - b. Check for DTCs. Refer to DTC CHECK / CLEAR .

OK

DTC B2414 is not output.

NG --> See step 2

OK --> See step 4

2. REPLACE STEERING ANGLE SENSOR

- a. Temporarily replace the steering angle sensor with a new or normally functioning one. Refer to **REMOVAL** .

NEXT: Go to next step

3. CHECK FOR DTC

- a. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
- b. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTC B2414 is not output.

NG --> See step 5

OK --> END

4. USE SIMULATION METHOD TO CHECK. Refer to HOW TO PROCEED WITH TROUBLESHOOTING

5. REPLACE HEADLIGHT SWIVEL ECU ASSEMBLY. Refer to REMOVAL

DTC B2415: VEHICLE SPEED SENSOR MALFUNCTION

DESCRIPTION

The headlight swivel ECU assembly receives signals indicating the front right wheel speed from the skid control ECU using CAN communication.

DTC No.	DTC Detection Condition	Trouble Area
B2415	Malfunction in vehicle speed sensor	• Skid control ECU • Headlight swivel ECU assembly

WIRING DIAGRAM

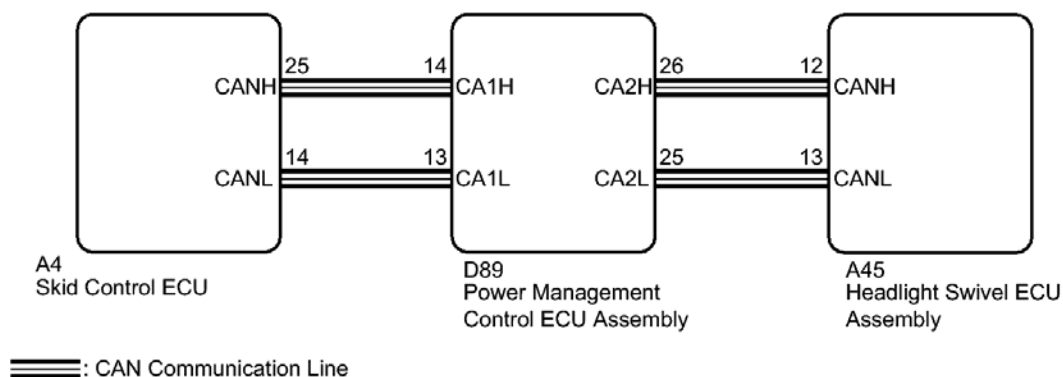


Fig. 8: Skid Control ECU Wiring Diagram

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

INSPECTION PROCEDURE

NOTE: First perform the communication function inspections in How to Proceed with Troubleshooting to confirm that there are no CAN communication malfunctions before troubleshooting this symptom.

PROCEDURE

1. CHECK FOR DTC

- Clear the DTCs. Refer to **DTC CHECK / CLEAR**.
- Check for DTCs. Refer to **DTC CHECK / CLEAR**.

OK

DTC B2415 is not output.

NG --> See step 2

OK --> See step 3

2. CHECK FOR DTC (VEHICLE STABILITY CONTROL SYSTEM)

- Check for DTCs. Refer to **DTC CHECK / CLEAR**.

OK

Vehicle stability control system DTCs are not output.

NG --> See step 4

OK --> See step 5

3. **USE SIMULATION METHOD TO CHECK. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
4. **GO TO VEHICLE STABILITY CONTROL SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**
5. **REPLACE HEADLIGHT SWIVEL ECU ASSEMBLY. Refer to REMOVAL**

DTC U0101: LOST COMMUNICATION WITH ECM; DTC U0126: LOST COMMUNICATION WITH STEERING ANGLE SENSOR MODULE; DTC U0129: LOST COMMUNICATION WITH SKID CONTROL ECU; DTC U0142: LOST COMMUNICATION WITH MAIN BODY ECU; DTC U0182: LOST COMMUNICATION WITH AFS ECU

DESCRIPTION

The DTCs are stored when the CAN communication system is malfunctioning.

DTC No.	DTC Detection Condition	Trouble Area
U0101	Lost communication with ECM	CAN communication system
U0126	Lost communication with steering angle sensor	CAN communication system
U0129	Lost communication with skid control ECU	CAN communication system
U0142	Lost communication with main body ECU	CAN communication system
U0182	Lost communication with AFS ECU (headlight swivel ECU assembly)	CAN communication system

INSPECTION PROCEDURE

PROCEDURE

1. **CHECK FOR DTC**
 - a. Clear the DTCs. Refer to **DTC CHECK / CLEAR** .
 - b. Check for DTCs. Refer to **DTC CHECK / CLEAR** .

OK

DTCs are not output.

NG --> See step 3

OK --> See step 2

2. **USE SIMULATION METHOD TO CHECK. Refer to HOW TO PROCEED WITH TROUBLESHOOTING**
3. **GO TO CAN COMMUNICATION SYSTEM. Refer to DIAGNOSTIC TROUBLE CODE CHART**

CIRCUIT TESTS

Headlight Relay Circuit

DESCRIPTION

The main body ECU controls the integration relay*1 or headlight relay*2.

*1: w/o HID Headlight System

*2: w/ HID Headlight System

WIRING DIAGRAM

w/o HID Headlight System:

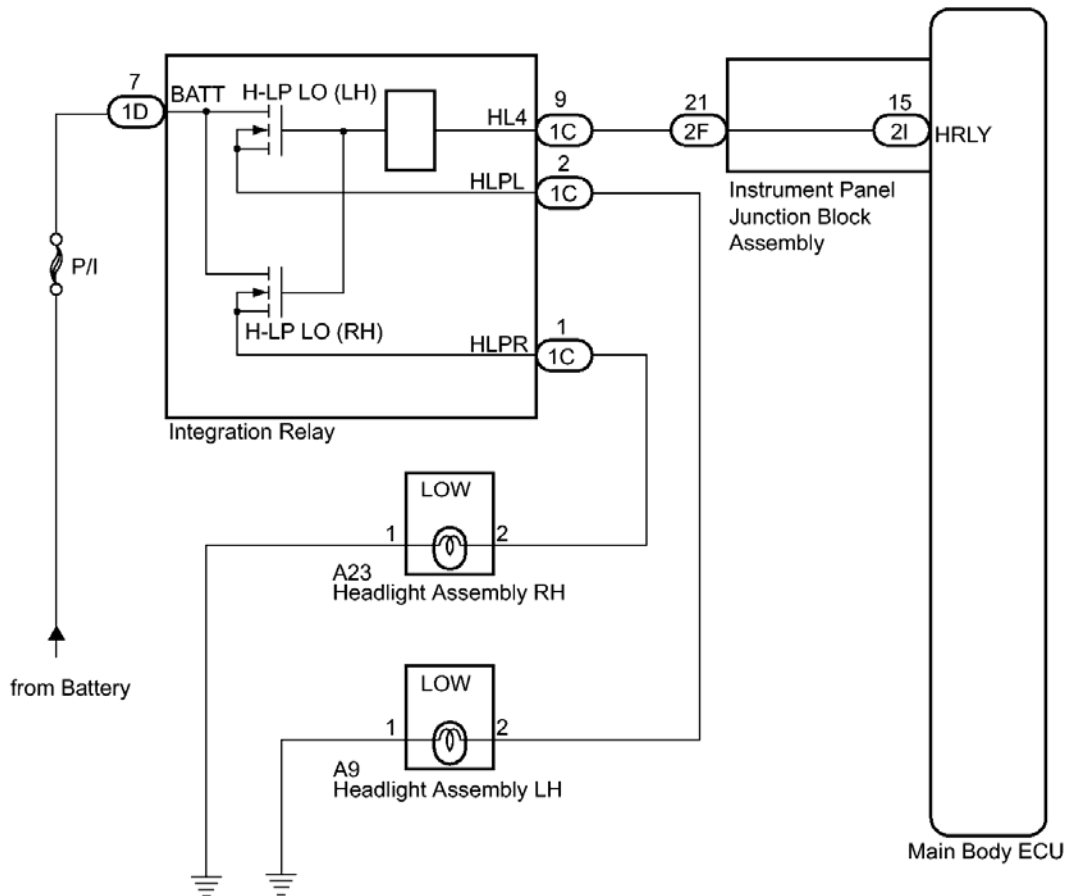


Fig. 9: Headlight Relay Circuit Wiring Diagram (w/o HID)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/ HID Headlight System:

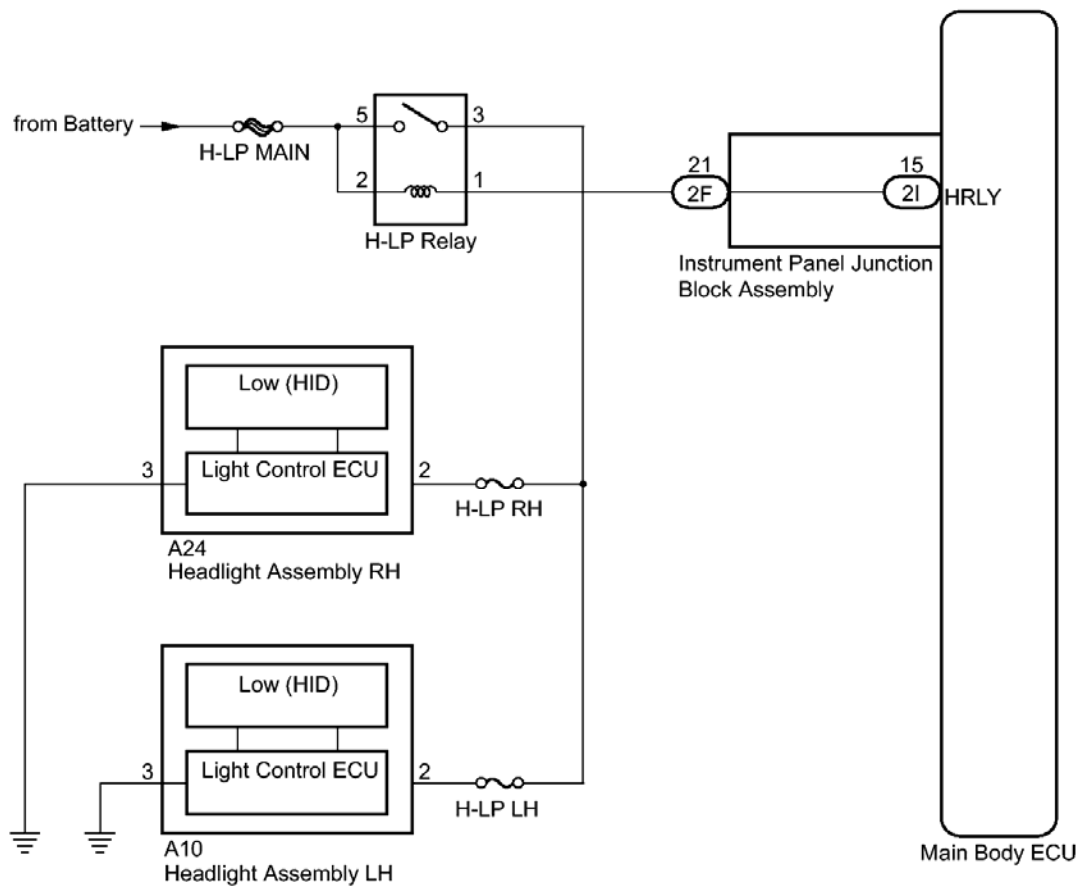


Fig. 10: Headlight Relay Circuit Wiring Diagram (w/ HID)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- Check that the relays operate.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Headlight Relay	Low beam headlight relay	ON/OFF	-

OK

Headlight relays operate. (Low beam headlights illuminate.)

NG --> See step 2

OK --> See step 12

2. SYSTEM CHECK

- Check the vehicle specifications.

RESULT

Result	Proceed to
w/o HID Headlight System	A
w/ HID Headlight System	B

B --> See step 8

A: Go to next step

3. REPLACE INTEGRATION RELAY

- Temporarily replace the integration relay with a new or normally functioning one.

NEXT: Go to next step

4. PERFORM ACTIVE TEST USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- Check that the relays operate.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Headlight Relay	Low beam headlight relay	ON/OFF	-

OK

Headlight relays operate. (Low beam headlights illuminate.)

NG --> See step 5

OK --> END (INTEGRATION RELAY WAS DEFECTIVE)

5. CHECK HARNESS AND CONNECTOR (BATTERY - INTEGRATION RELAY)

- Disconnect the 1D integration relay connector.

*a

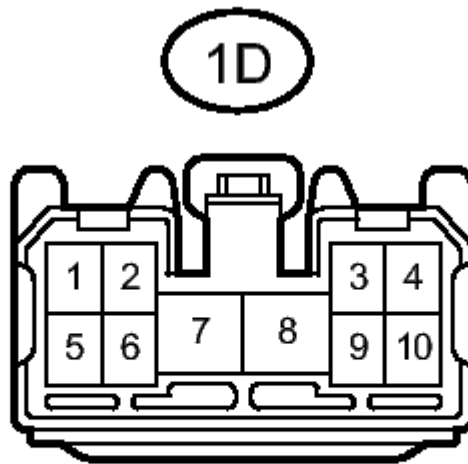


Fig. 11: Checking Harness And Connector (Battery - Integration Relay)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

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Tester Connector	Condition	Specified Condition
1D-7 - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Integration Relay)
----	---

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

6. CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY - INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY)

- Disconnect the 1C integration relay connector.
- Disconnect the 2F instrument panel junction block assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
1C-9 - 2F-21	Always	Below 1 ohms
1C-9 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

7. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- Remove the instrument panel junction block assembly.

*a

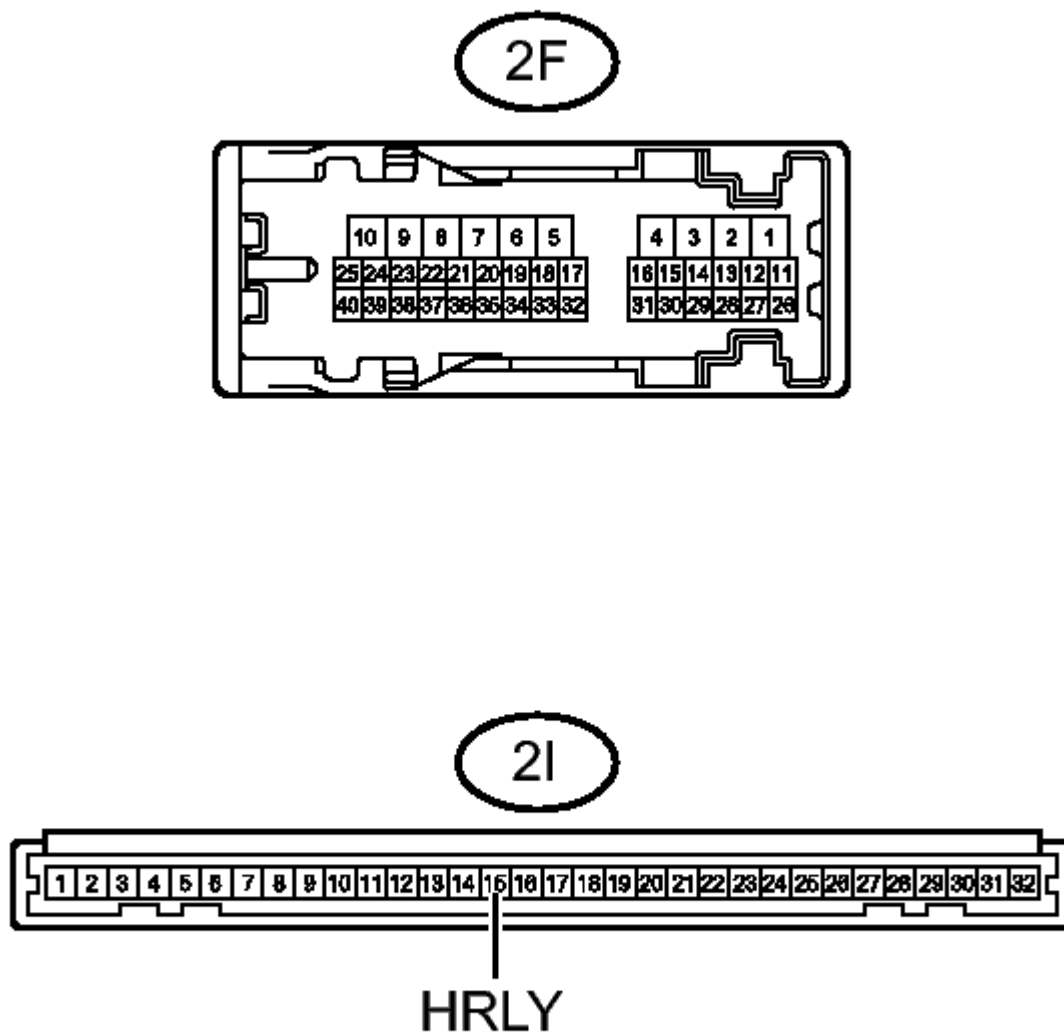


Fig. 12: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-21 - 2I-15 (HRLY)	Always	Below 1 ohms
2F-21 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK --> See step 13

8. INSPECT HEADLIGHT RELAY (H-LP RELAY)

- a. Inspect the headlight relay. Refer to **ON-VEHICLE INSPECTION** .

NG --> REPLACE HEADLIGHT RELAY

OK: Go to next step

9. CHECK HARNESS AND CONNECTOR (BATTERY - HEADLIGHT RELAY)

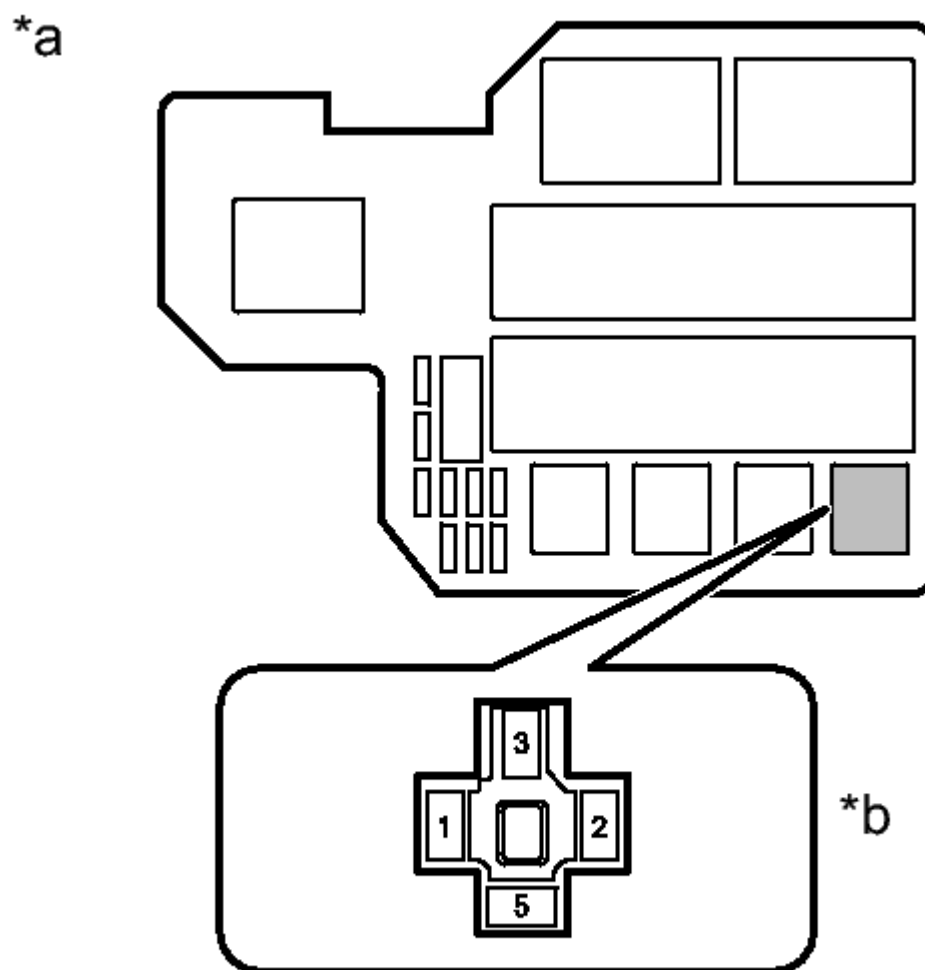


Fig. 13: Checking Harness And Connector (Battery - Headlight Relay)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Remove the headlight relay.
- Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Condition	Specified Condition
2 - Body ground	Always	11 to 14 V
5 - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

*a	Engine Room Relay Block
*b	Headlight Relay Holder

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

10. CHECK HARNESS AND CONNECTOR (HEADLIGHT RELAY - INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY)

- a. Disconnect the 2F instrument panel junction block assembly connector.
- b. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2F-21	Always	Below 1 ohms
1 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

11. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly.

*a

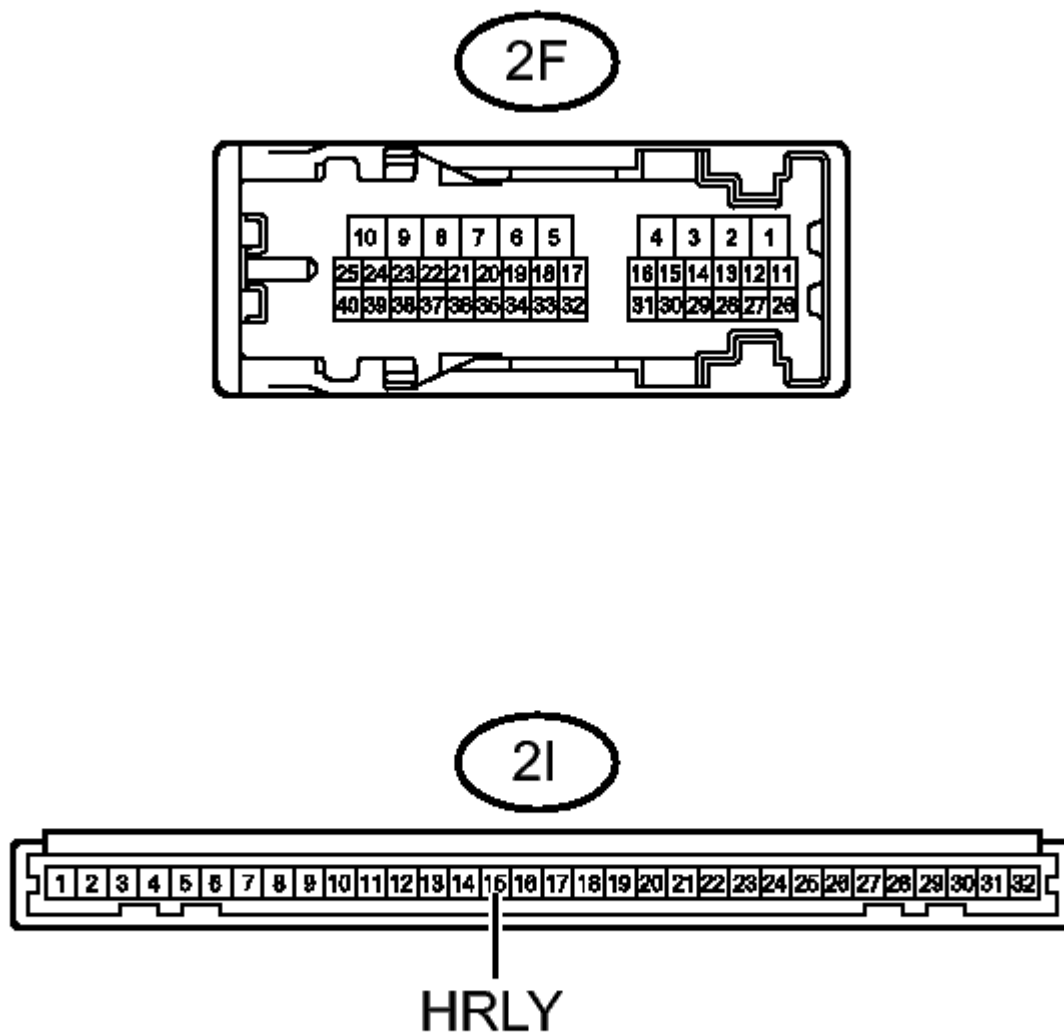


Fig. 14: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-21 - 2I-15 (HRLY)	Always	Below 1 ohms
2F-21 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY**

OK --> See step 13

12. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
13. **REPLACE MAIN BODY ECU. Refer to REMOVAL**

Daytime Running Light Relay Circuit

DESCRIPTION

The main body ECU controls the daytime running lights (dimmed high beam headlights).

HINT:

- The running light relay has a headlight control function. This function dims the high beam headlights in accordance with operation signals from the main body ECU while the daytime running light system is operating.
- The running light relay dims the high beam headlights using a duty control.

WIRING DIAGRAM

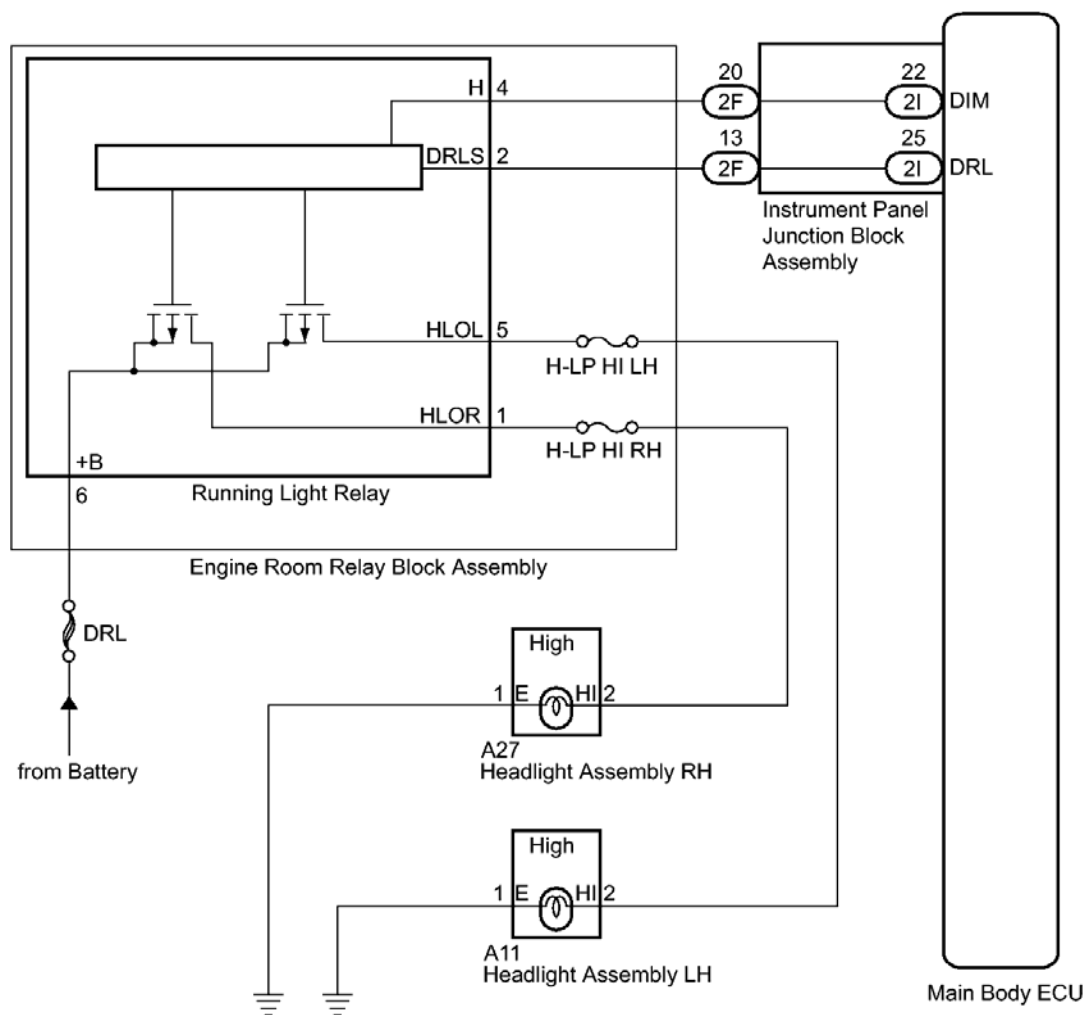


Fig. 15: Daytime Running Light Relay Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- 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 / Main Body / Active Test.
- e. Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Daytime Running Light	Daytime running light relay	ON/OFF	-

OK

Relay operates. (Daytime running lights illuminate.)

NG --> See step 2

OK --> See step 8

2. CHECK HEADLIGHT

- a. Check the operation of the high beam headlights.

OK

High beam headlights operate normally.

NG --> See step 6

OK: Go to next step

3. INSPECT RUNNING LIGHT RELAY

- a. Remove the running light relay from the engine room relay block.

*a

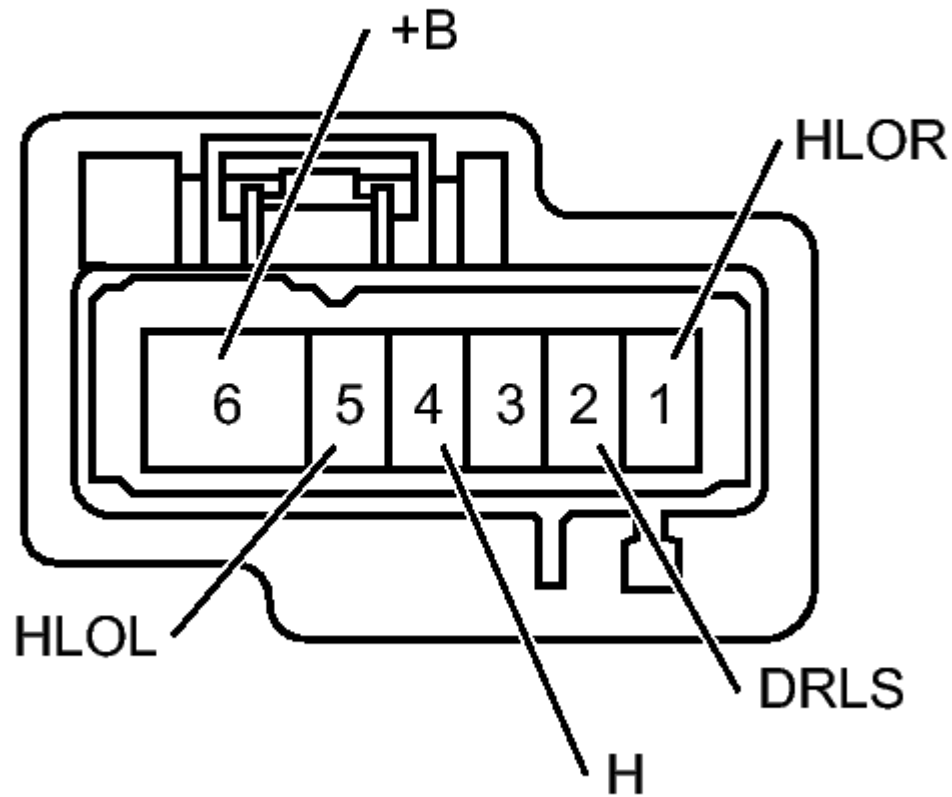


Fig. 16: Inspecting Running Light Relay
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Connect a positive (+) lead from the battery to terminal 6(+B).
- c. Connect a negative (-) lead from the battery to terminal 2(DRLS).
- d. Check for pulses according to the value(s) in the table below.

OK

Tester Connection	Condition	Specified Condition
1 (HLOR) - Battery negative	Always	Pulse generation
5 (HLOL) -		Pulse

Battery negative	Always	generation
---------------------	--------	------------

TEXT IN ILLUSTRATION

*a	Component without harness connected (Running Light Relay)
----	---

NG --> See step 7

OK: Go to next step

4. CHECK HARNESS AND CONNECTOR (RUNNING LIGHT RELAY - INSTRUMENT PANEL JUNCTION BLOCK)

- Remove the running light relay from the engine room relay block assembly.
- Disconnect the 2F instrument panel junction block assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
2 (DRLS) - 2F-13	Always	Below 1 ohms
2F-13 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

5. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- Remove the instrument panel junction block assembly.

*a

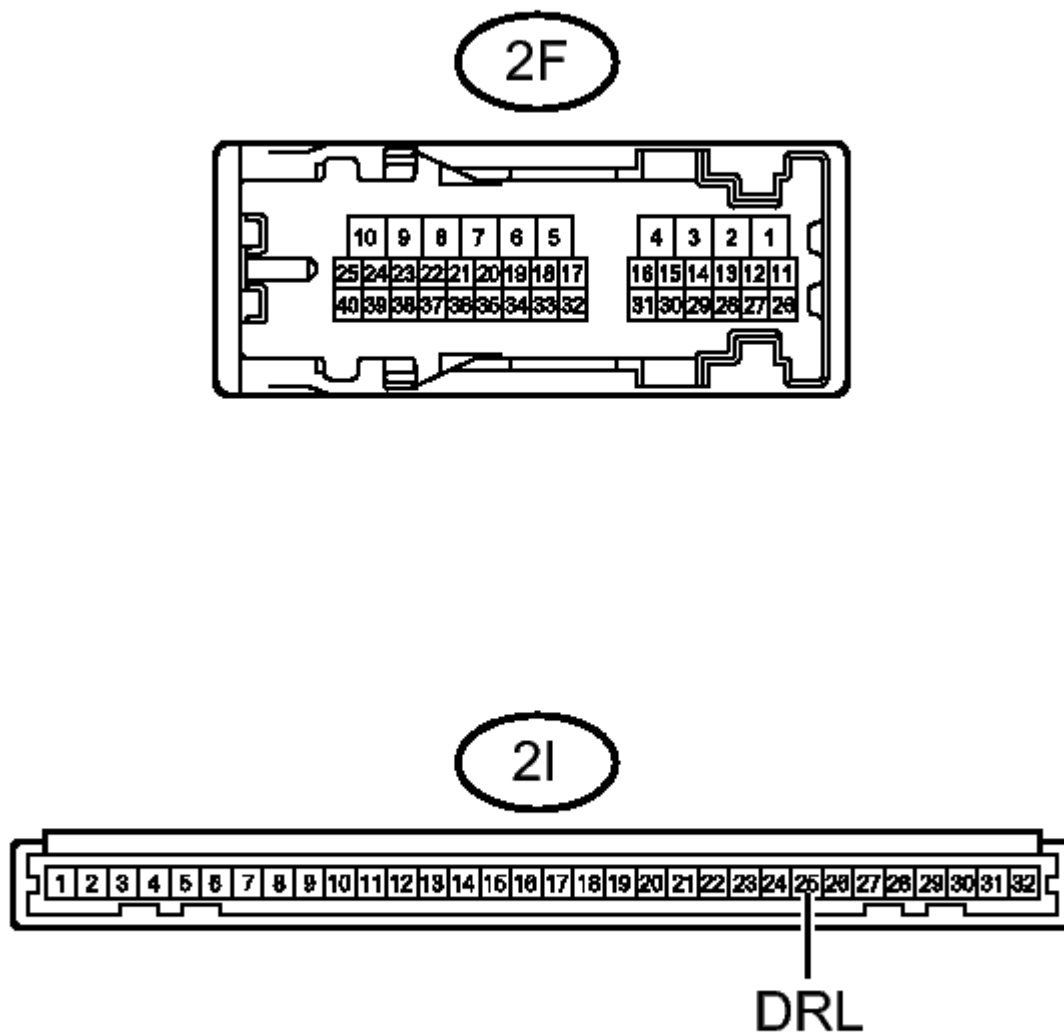


Fig. 17: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-13 - 2I-25 (DRL)	Always	Below 1 ohms
2F-13 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

	Component without harness connected
*a	(Instrument Panel Junction Block Assembly)

NG --> REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK --> See step 9

6. GO TO PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE
7. REPLACE RUNNING LIGHT RELAY. Refer to REMOVAL
8. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE
9. REPLACE MAIN BODY ECU. Refer to REMOVAL

Headlight (HI-BEAM) Circuit

DESCRIPTION

The main body ECU controls the high beam headlights.

WIRING DIAGRAM

w/ Daytime Running Light System:

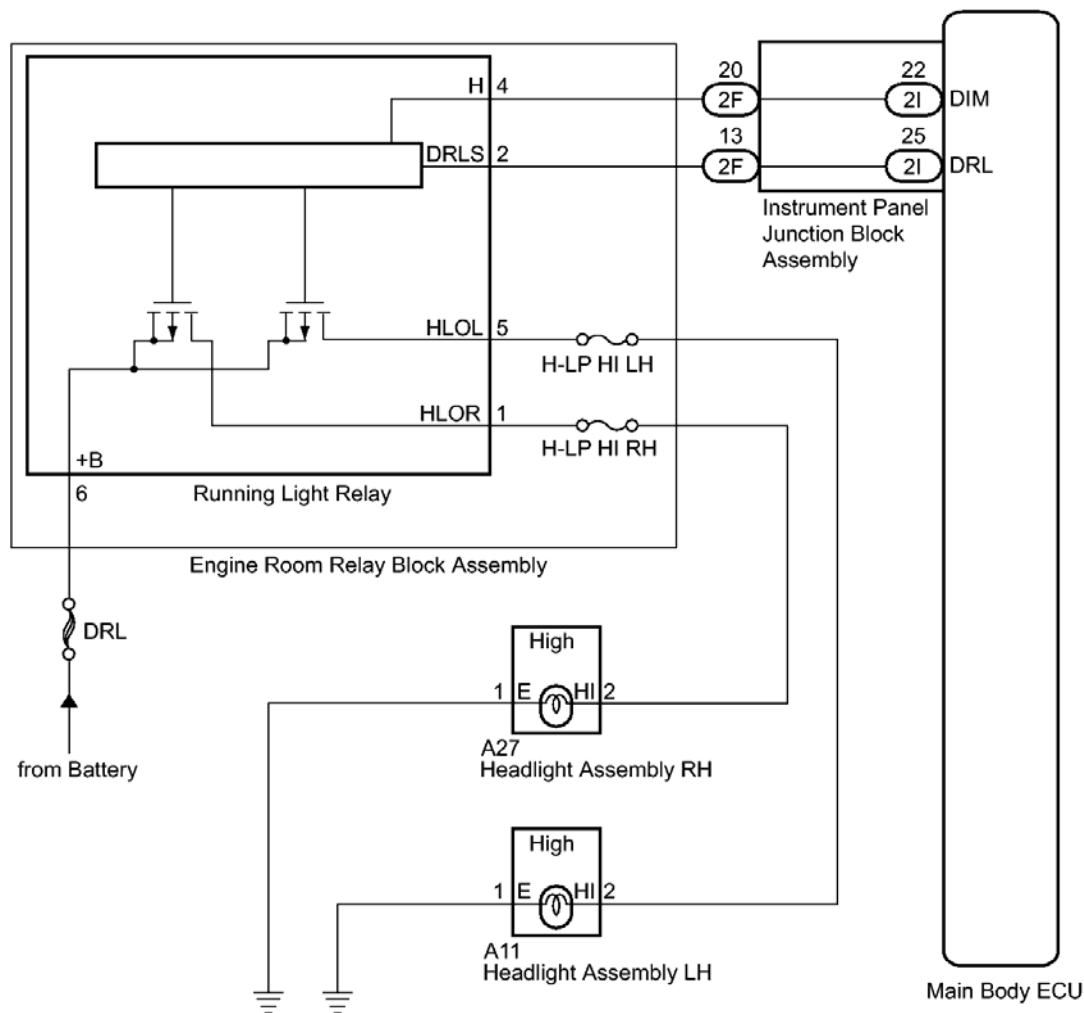


Fig. 18: Headlight (HI-BEAM) Circuit (w/ Daytime Running Light System) - Wiring Diagram (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

w/o Daytime Running Light System:

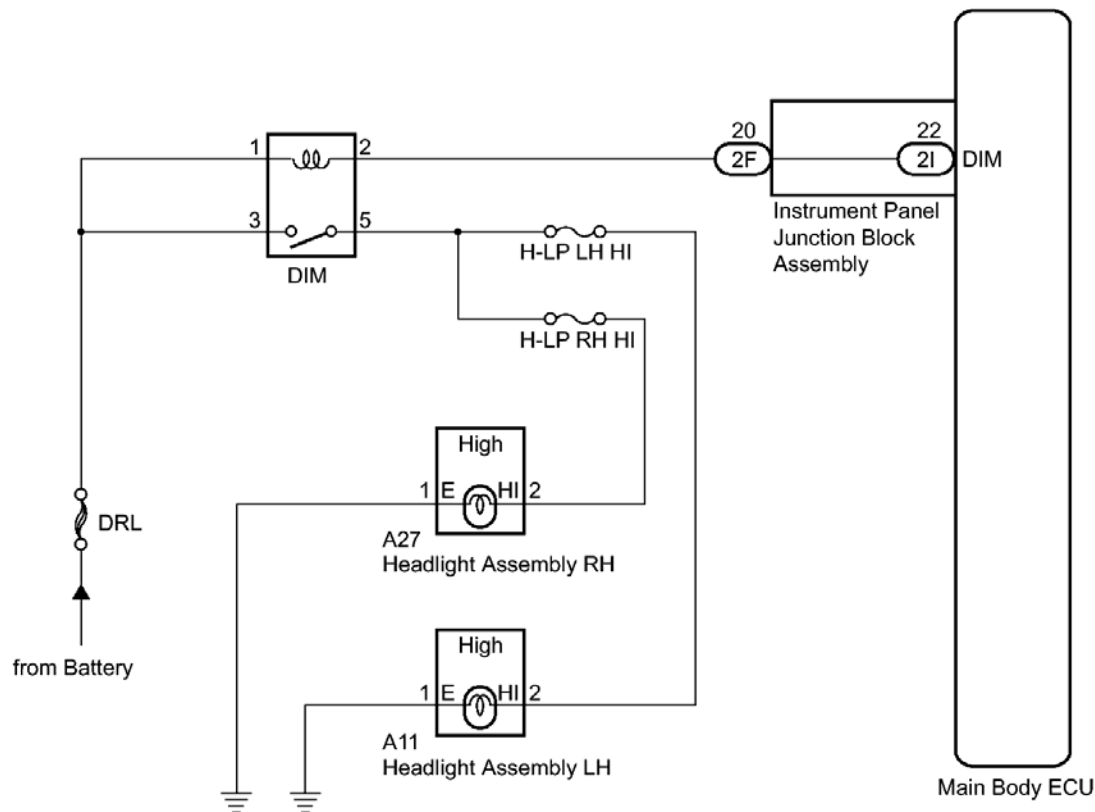


Fig. 19: Headlight (HI-BEAM) Circuit (w/o Daytime Running Light System) - Wiring Diagram (2 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. CHECK HEADLIGHT

- Check the operation of low beam headlights.

OK

Low beam headlights operate normally.

NG --> See step 11

OK: Go to next step

2. PERFORM ACTIVE TEST USING TECHSTREAM

- 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 / Main Body / Active Test.
- e. Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Head Light HI	High beam headlight relay	ON/OFF	-

OK

Relay operates. (High beam headlights illuminate.)

RESULT

Result	Proceed to
OK	A
NG (w/ Daytime running light system)	B
NG (w/o Daytime running light system)	C

B --> See step 3

C --> See step 6

A --> See step 9

3. INSPECT RUNNING LIGHT RELAY

- a. Remove the running light relay from the engine room relay block assembly.
- b. Connect the positive (+) lead from the battery to terminal 6 (+B).

*a

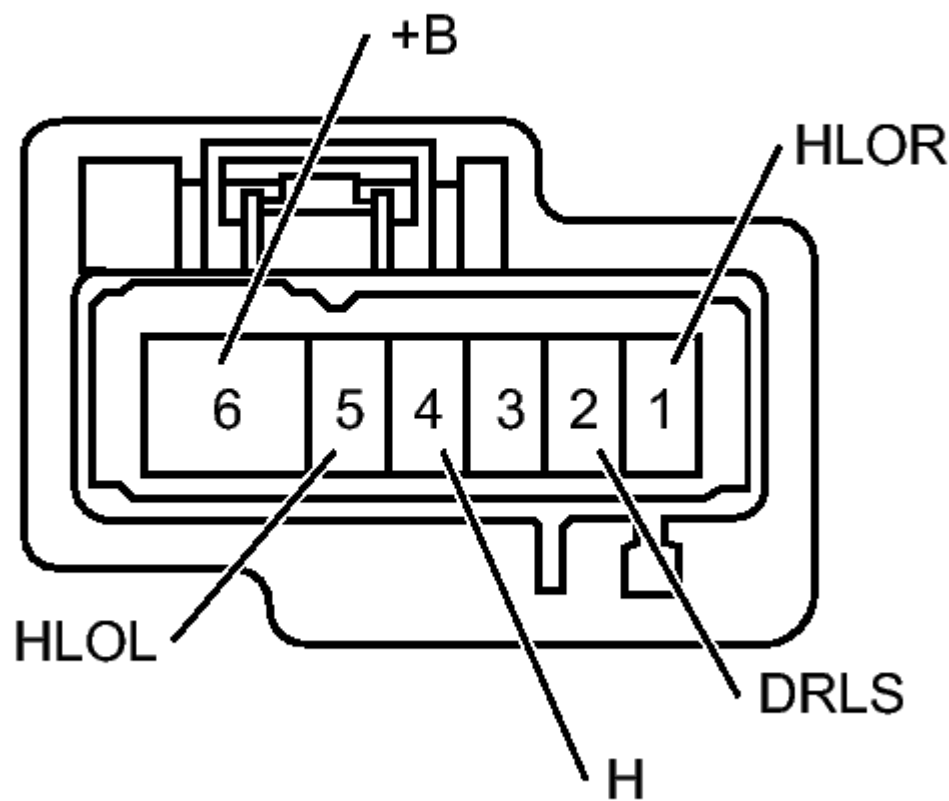


Fig. 20: Inspecting Running Light Relay
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Connect the negative (-) lead from the battery to terminal 4 (H).
- d. Measure the voltage according to the value(s) in the table below.

Standard Voltage

Tester Connection	Condition	Specified Condition
1 (HLOR) -		

Body ground	Battery voltage not applied	Below 1 V
5 (HLOL) - Body ground		Below 1 V
1 (HLOR) - Body ground	Battery voltage applied to terminal 6 (+B) and 4 (H)	11 to 14 V
5 (HLOL) - Body ground		11 to 14 V

TEXT IN ILLUSTRATION

*a	Component without harness connected (Running Light Relay)
----	---

NG --> See step 10

OK: Go to next step

4. CHECK HARNESS AND CONNECTOR (RUNNING LIGHT RELAY - INSTRUMENT PANEL JUNCTION BLOCK)

- Remove the running light relay from the engine room relay block assembly.
- Disconnect the 2F instrument panel junction block assembly connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
4 (H) - 2F-20	Always	Below 1 ohms
2F-20 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

5. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly.

*a

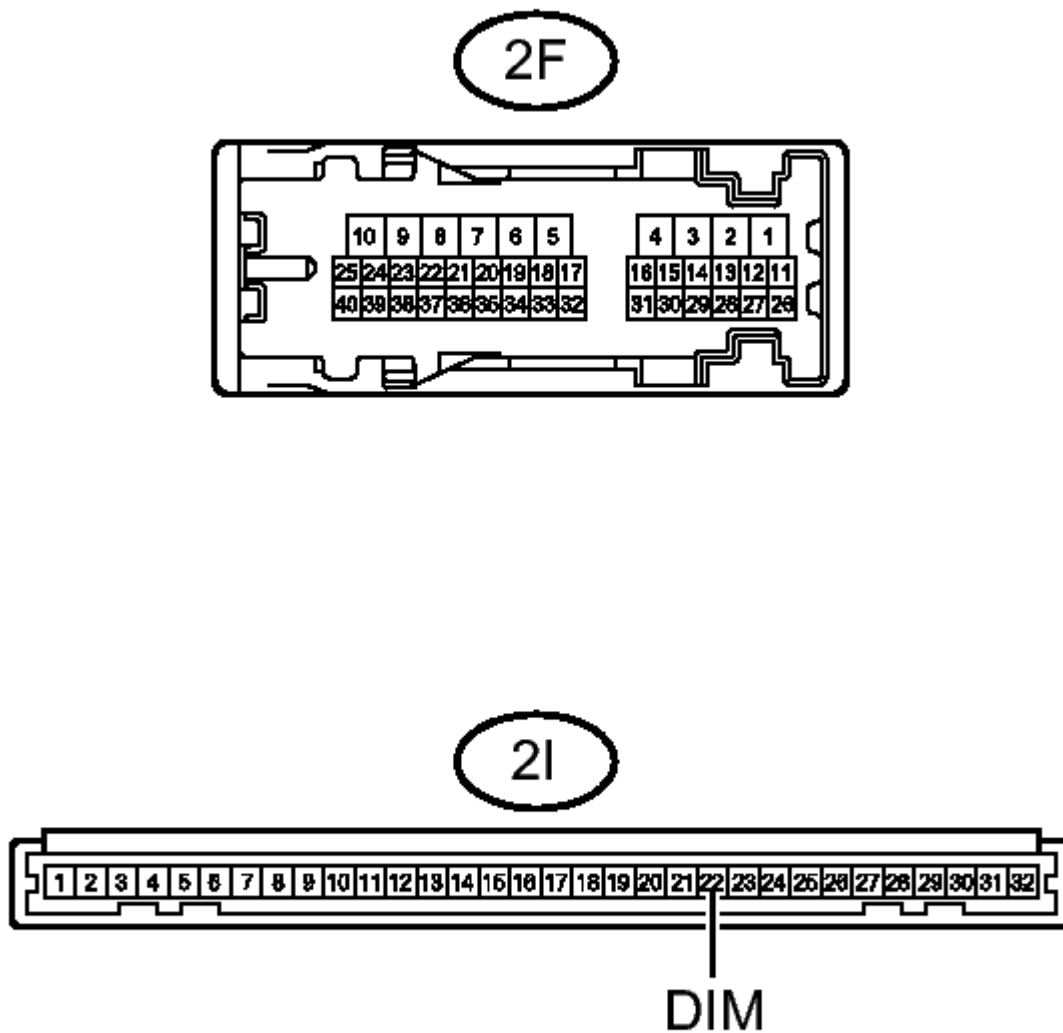


Fig. 21: Inspecting Instrument Panel Junction Block Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-20 - 2I-22 (DIM)	Always	Below 1 ohms
2F-20 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK --> See step 9

6. INSPECT HEADLIGHT DIMMER RELAY

- a. Remove the DIM (headlight dimmer) relay from the engine room relay block assembly.

*a

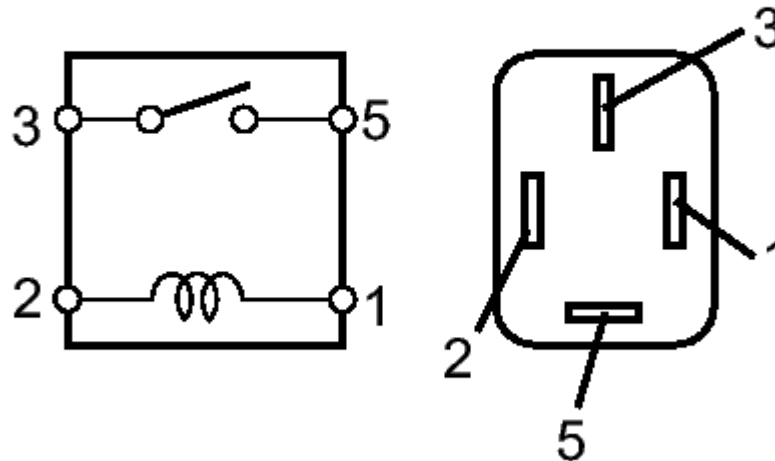


Fig. 22: Identifying Headlight Dimmer Relay Terminals
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	Battery voltage not applied	10 kohms or higher
	Battery voltage applied between terminals 1 and 2	Below 1 ohms

TEXT IN ILLUSTRATION

*a	Component without harness connected (Headlight Dimmer)
----	--

Relay)

NG --> REPLACE HEADLIGHT DIMMER RELAY

OK: Go to next step

7. CHECK HARNESS AND CONNECTOR (HEADLIGHT DIMMER RELAY - INSTRUMENT PANEL JUNCTION BLOCK)

- a. Remove the headlight dimmer relay from the engine room relay block assembly.
- b. Disconnect the 2F instrument panel junction block assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
2 (Headlight dimmer relay terminal) - 2F-20	Always	Below 1 ohms
2F-20 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

8. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly.

*a

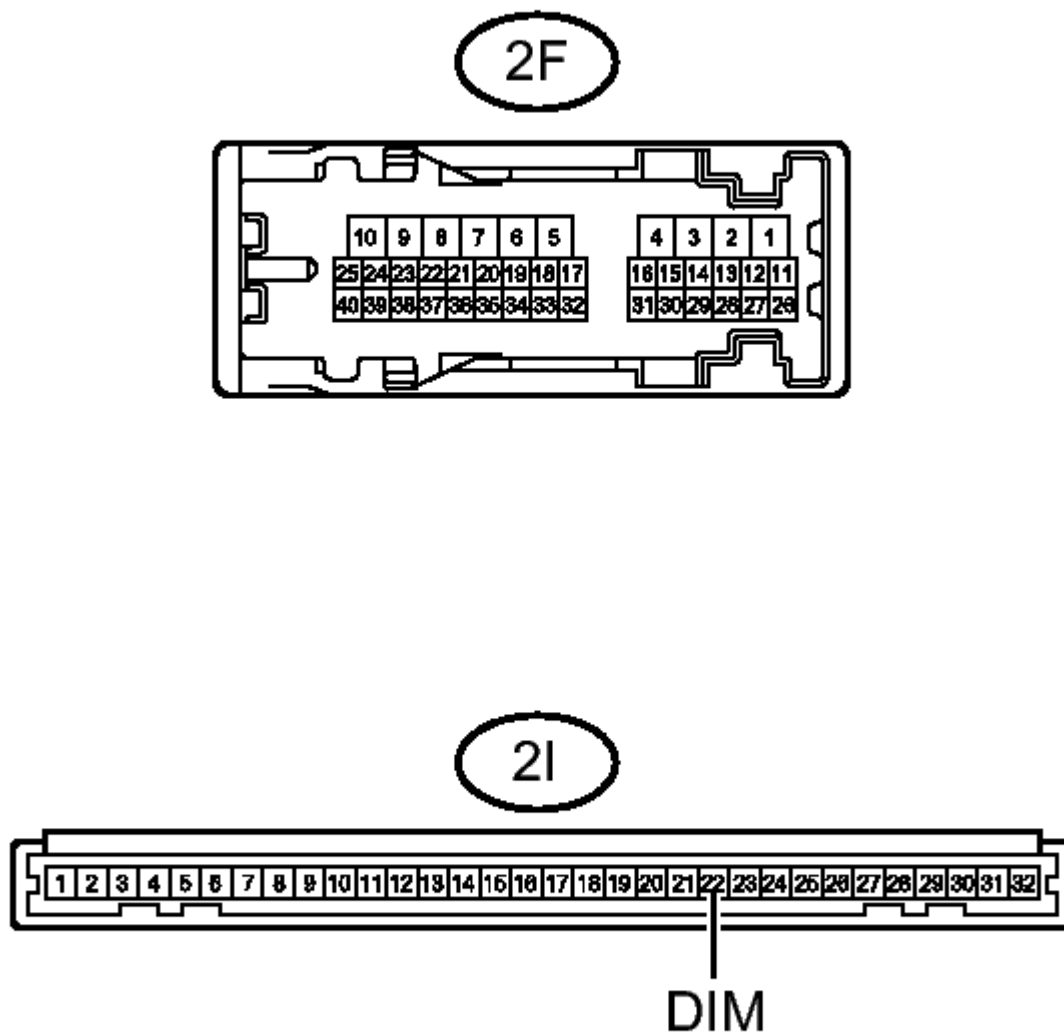


Fig. 23: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-20 - 2I-22 (DIM)	Always	Below 1 ohms
2F-20 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK --> See step 9

9. REPLACE MAIN BODY ECU. Refer to REMOVAL
10. REPLACE RUNNING LIGHT RELAY. Refer to REMOVAL
11. GO TO PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE

Front Fog Light Circuit

DESCRIPTION

The main body ECU controls the fog light relay.

WIRING DIAGRAM

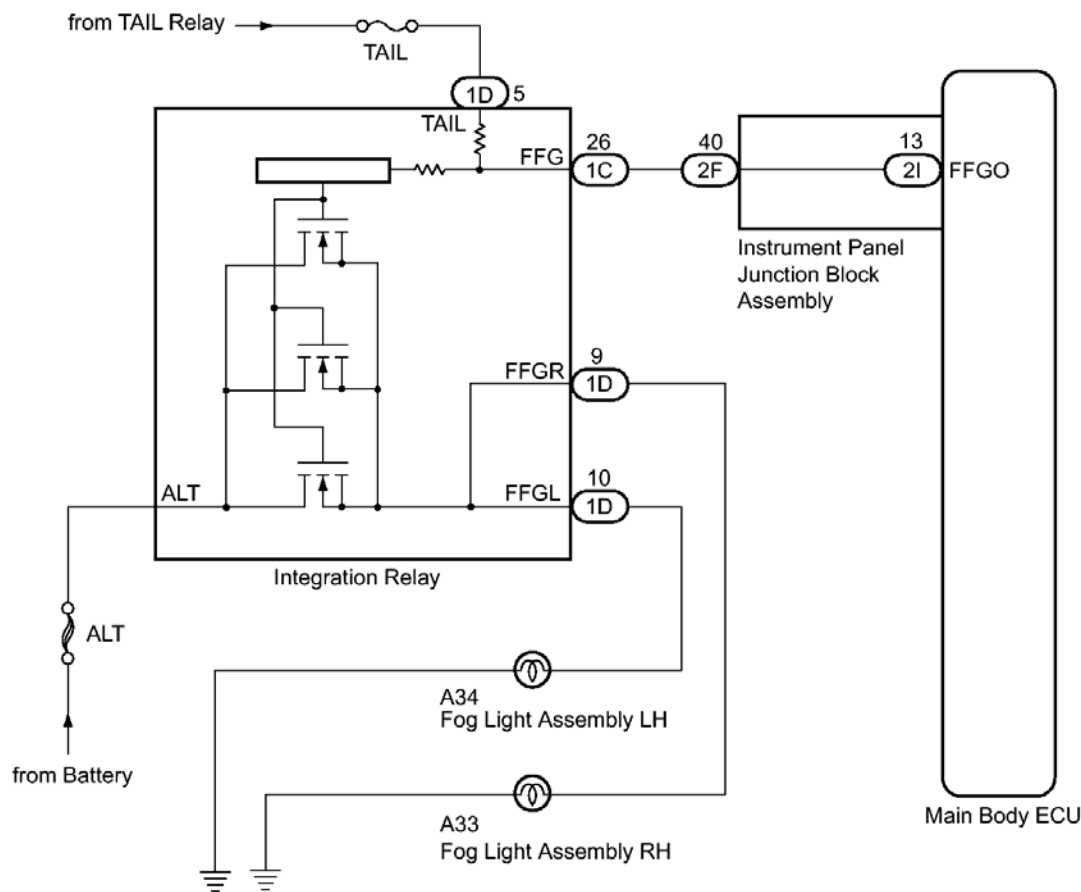


Fig. 24: Front Fog Light Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Front Fog Light Relay	Front fog light relay	ON/OFF	-

OK

Front fog light relay operates. (Front fog lights come on.)

NG --> **See step 2**

OK --> **See step 6**

2. REPLACE INTEGRATION RELAY

- Temporarily replace the integration relay with a new or normally functioning one.

NEXT: Go to next step

3. PERFORM ACTIVE TEST USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Front Fog Light Relay	Front fog light relay	ON/OFF	-

OK

Front fog light relay operates. (Front fog lights come on.)

NG --> **See step 4**

OK --> **END (INTEGRATION RELAY WAS DEFECTIVE)**

4. CHECK HARNESS AND CONNECTOR (INTEGRATION RELAY - INSTRUMENT PANEL

JUNCTION BLOCK ASSEMBLY)

- a. Remove the integration relay from the engine room relay block.
- b. Disconnect the 2F instrument panel junction block assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
1C-26 (FFG) - 2F-40	Always	Below 1 ohms
2F-40 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

5. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly.

*a

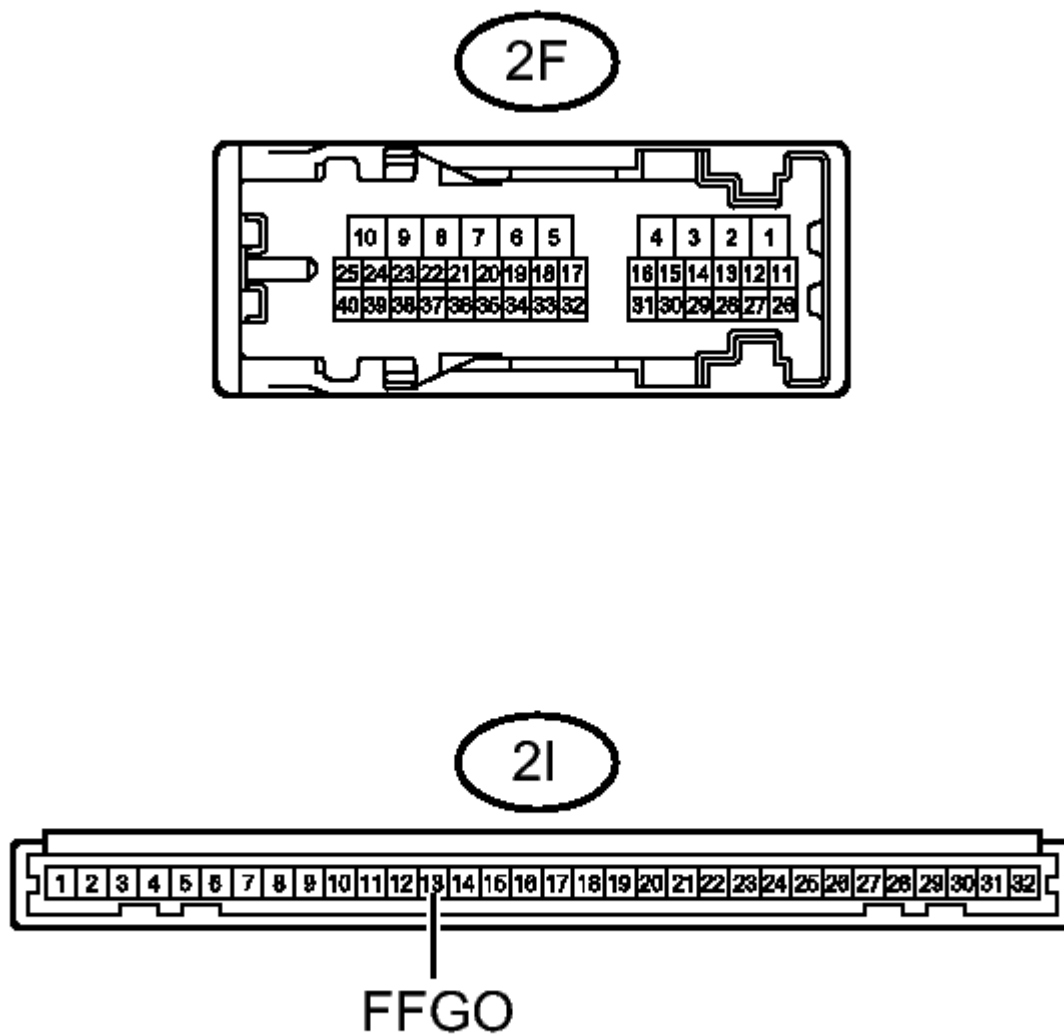


Fig. 25: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-40 - 2I-13 (FFGO)	Always	Below 1 ohms
2F-40 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> **REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY**

OK --> See step 7

6. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
7. **REPLACE MAIN BODY ECU. Refer to REMOVAL**

Light Control Switch Circuit

DESCRIPTION

The main body ECU receives the following switch information:

- Light control switch position off, tail, head or AUTO
- Dimmer switch position high, low or high flash (pass)
- Fog light switch position on or off

WIRING DIAGRAM

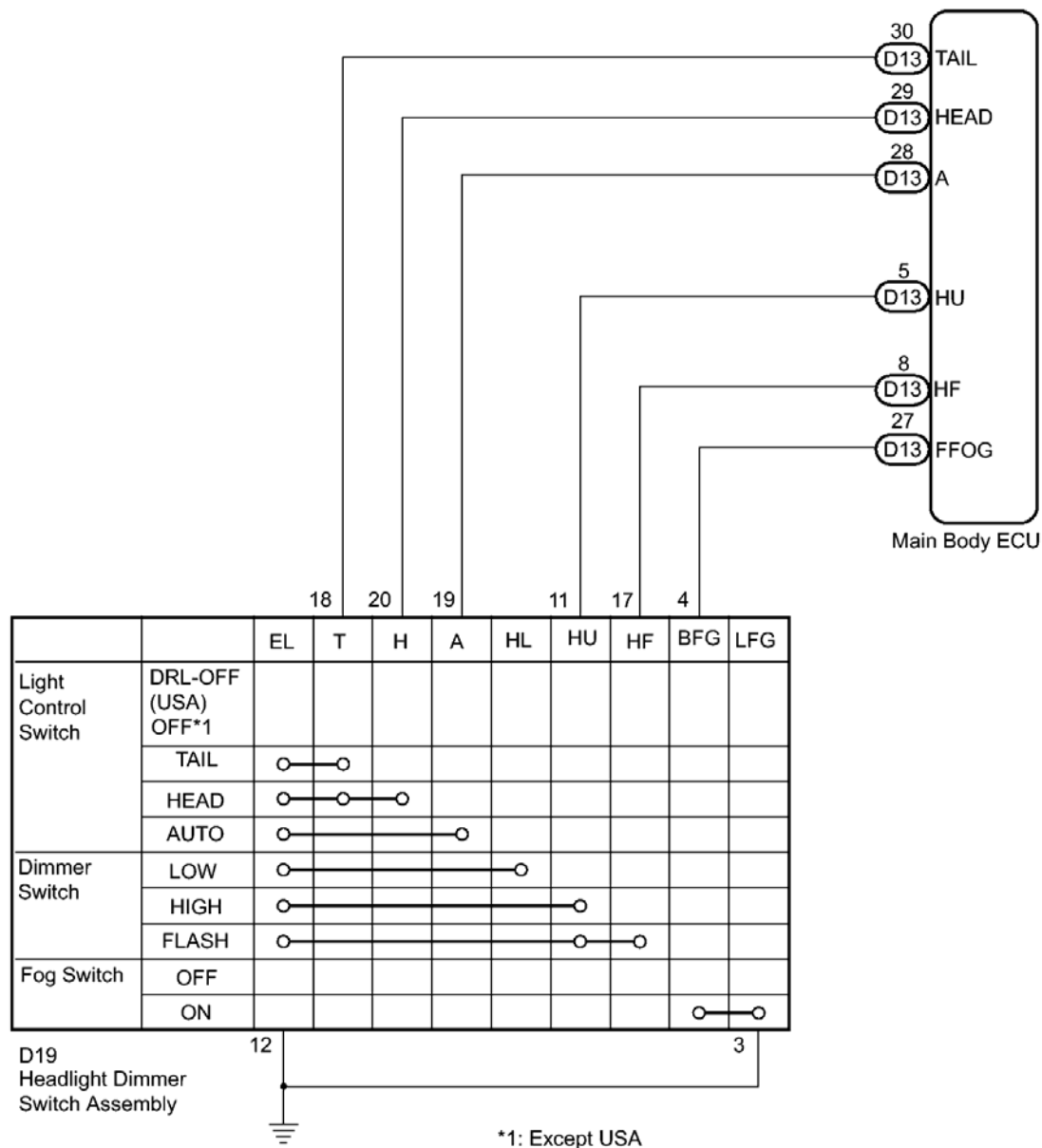


Fig. 26: Light Control Switch Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. **READ VALUE USING TECHSTREAM**
 - 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 / Main Body / Data List.
- e. Read the display on the Techstream.

MAIN BODY

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Dimmer SW	Dimmer switch high position signal/ON or OFF	ON: Dimmer switch in high or high flash (pass) position OFF: Dimmer switch in low position	-
Passing Light SW	Dimmer switch high flash (pass) position signal/ON or OFF	ON: Dimmer switch in high flash (pass) position OFF: Dimmer switch not in high flash (pass) position	-
Front Fog Light SW	Front fog light switch signal/ON or OFF	ON: Front fog light switch on OFF: Front fog light switch off	-
Auto Light	Light control switch AUTO position	ON: Light control switch in AUTO position OFF:	-

SW	signal/ON or OFF	Light control switch not in AUTO position	
Head Light SW (Head)	Light control switch head position signal/ON or OFF	ON: Light control switch in head position OFF: Light control switch not in head position	-
Head Light SW (Tail)	Light control switch tail position signal/ON or OFF	ON: Light control switch in tail or head position OFF: Light control switch in neither tail nor head position	-

OK

Normal conditions listed above are displayed.

NG --> See step 2

OK --> See step 4

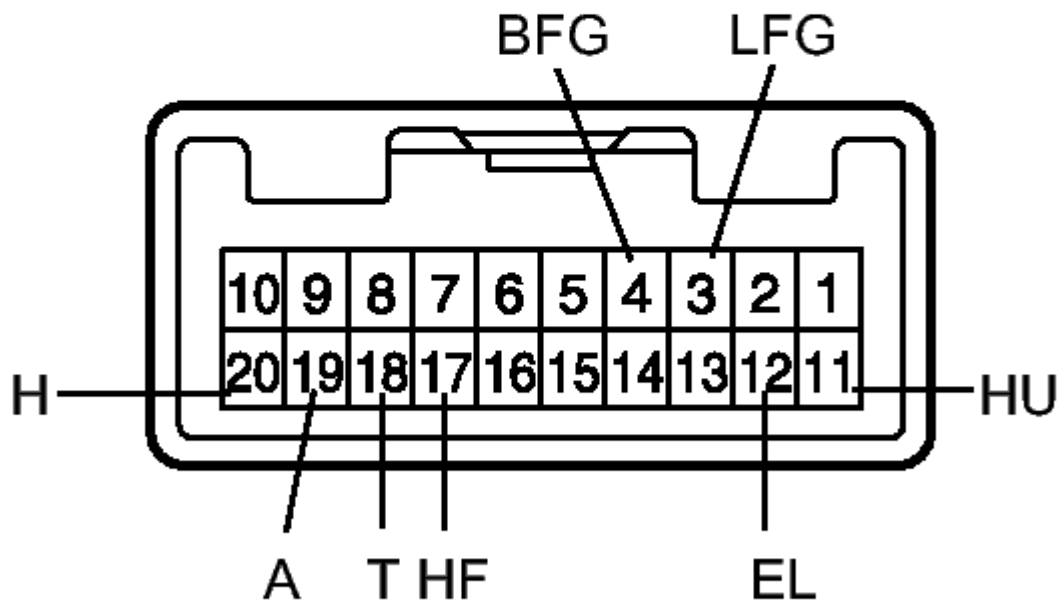
2. INSPECT HEADLIGHT DIMMER SWITCH ASSEMBLY

HINT:

Inspect the items that did not change as a result of monitoring the Data List.

- Remove the headlight dimmer switch assembly. Refer to **REMOVAL** .

*a



P

Fig. 27: Inspecting Headlight Dimmer Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

LIGHT CONTROL SWITCH

Tester Connection	Switch Condition	Specified Condition
12 (EL) - 18 (T)	OFF	10 kohms or higher
18 (T) - 19 (A)	OFF	10 kohms or higher
19 (A) - 20 (H)	OFF	10 kohms or higher

12 (EL) - 18 (T)	TAIL	Below 1 ohms
12 (EL) - 18 (T)	HEAD	Below 1 ohms
18 (T) - 20 (H)	HEAD	Below 1 ohms
12 (EL) - 19 (A)	AUTO	Below 1 ohms

DIMMER SWITCH

Tester Connection	Switch Condition	Specified Condition
11 (HU) - 12 (EL)	LOW	10 kohms or higher
11 (HU) - 12 (EL)	HIGH	Below 1 ohms
12 (EL) - 17 (HF)	HIGH FLASH	Below 1 ohms

FOG LIGHT SWITCH

Tester Connection	Switch Condition	Specified Condition
3 (LFG) - 4 (BFG)	OFF	10 kohms or higher
3 (LFG) - 4 (BFG)	ON	Below 1 ohms

TEXT IN ILLUSTRATION

*a	Component without harness connected: (Headlight Dimmer Switch Assembly)
----	--

NG --> See step 5

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (MAIN BODY ECU - HEADLIGHT DIMMER SWITCH ASSEMBLY)

- a. Disconnect the D19 headlight dimmer switch assembly connector.
- b. Disconnect the D13 main body ECU connector.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
D19-4 (BFG) - D13-27 (FFOG)	Always	Below 1 ohms
D19-11 (HU) - D13-5 (HU)	Always	Below 1 ohms
D19-17 (HF) - D13-8 (HF)	Always	Below 1 ohms
D19-18 (T) - D13-30 (TAIL)	Always	Below 1 ohms
D19-19 (A) - D13-28 (A)	Always	Below 1 ohms
D19-20 (H) - D13-29 (HEAD)	Always	Below 1 ohms
D19-3 (LFG) - Body ground	Always	Below 1 ohms
D19-4 (BFG) - Body ground	Always	10 kohms or higher
D19-11 (HU) - Body ground	Always	10 kohms or higher
D19-17 (HF) - Body ground	Always	10 kohms or higher
D19-18 (T) - Body ground	Always	10 kohms or higher
D19-19 (A)		

- Body ground	Always	10 kohms or higher
D19-20 (H) - Body ground	Always	10 kohms or higher
D19-12 (EL) - Body ground	Always	Below 1 ohms

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 6

4. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
5. **REPLACE HEADLIGHT DIMMER SWITCH ASSEMBLY. Refer to REMOVAL**
6. **REPLACE MAIN BODY ECU. Refer to REMOVAL**

Door Mirror Foot Light Circuit

DESCRIPTION

The outer mirror control ECU receives the signal from the main body ECU to control the door mirror foot light.

WIRING DIAGRAM

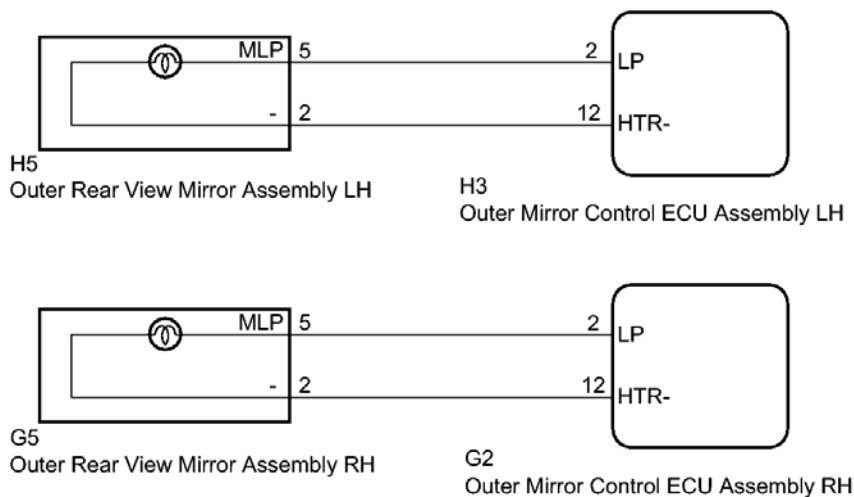


Fig. 28: Door Mirror Foot Light Circuit Wiring Diagram
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- 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 / Mirror L or Mirror R / Active Test.
- e. Check that the door mirror foot lights operate.

MIRROR L

Tester Display	Test Part	Control Range	Diagnostic Note
Foot Light	Door mirror foot light LH	ON/OFF	-

MIRROR R

Tester Display	Test Part	Control Range	Diagnostic Note
Foot Light	Door mirror foot light RH	ON/OFF	-

RESULT

Result	Proceed to
OK	A
NG (Door mirror foot light LH does not come on)	B
NG (Door mirror foot	

light RH does not come on)	C
---	---

B --> See step 2

C --> See step 4

A --> See step 10

2. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY LH

- Temporarily replace the outer rear view mirror assembly LH with a new or normally functioning one.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Mirror L / Active Test.
- Check that the door mirror foot lights operate.

MIRROR L

Tester Display	Test Part	Control Range	Diagnostic Note
Foot Light	Door mirror foot light LH	ON/OFF	-

OK

Door mirror foot light LH comes on.

NG --> See step 3

OK --> See step 8

3. CHECK HARNESS AND CONNECTOR (OUTER MIRROR CONTROL ECU LH - OUTER REAR VIEW MIRROR LH)

- Disconnect the H3 outer mirror control ECU assembly LH connector.
- Disconnect the H5 outer rear view mirror assembly LH connector.
- Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
H3-2 (LP) - H5-5 (MLP)	Always	Below 1 ohms
H3-12 (HTR-) - H5-2 (-)	Always	Below 1 ohms
H3-2 (LP) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 6

4. INSPECT OUTER REAR VIEW MIRROR ASSEMBLY RH

- Temporarily replace the outer rear view mirror assembly RH with a new or normally functioning one.
- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Mirror R / Active Test.
- Check that the door mirror foot lights operate.

MIRROR R

Tester Display	Test Part	Control Range	Diagnostic Note
Foot Light	Door mirror foot light RH	ON/OFF	-

OK

Door mirror foot light RH comes on.

NG --> See step 5

OK --> See step 9

5. CHECK HARNESS AND CONNECTOR (OUTER MIRROR CONTROL ECU RH - OUTER

REAR VIEW MIRROR RH)

- a. Disconnect the G2 outer mirror control ECU assembly RH connector.
- b. Disconnect the G5 outer rear view mirror assembly RH connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
G2-2 (LP) - G5-5 (MLP)	Always	Below 1 ohms
G2-12 (HTR-) - G5-2 (-)	Always	Below 1 ohms
G2-2 (LP) - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK --> See step 7

6. REPLACE OUTER REAR VIEW MIRROR ASSEMBLY LH. Refer to REMOVAL
7. REPLACE OUTER REAR VIEW MIRROR ASSEMBLY RH. Refer to REMOVAL
8. REPLACE OUTER MIRROR CONTROL ECU ASSEMBLY (LH). Refer to REMOVAL
9. REPLACE OUTER MIRROR CONTROL ECU ASSEMBLY (RH). Refer to REMOVAL
10. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE

Parking Brake Switch Circuit

DESCRIPTION

The main body ECU detects the condition of the parking brake switch.

WIRING DIAGRAM

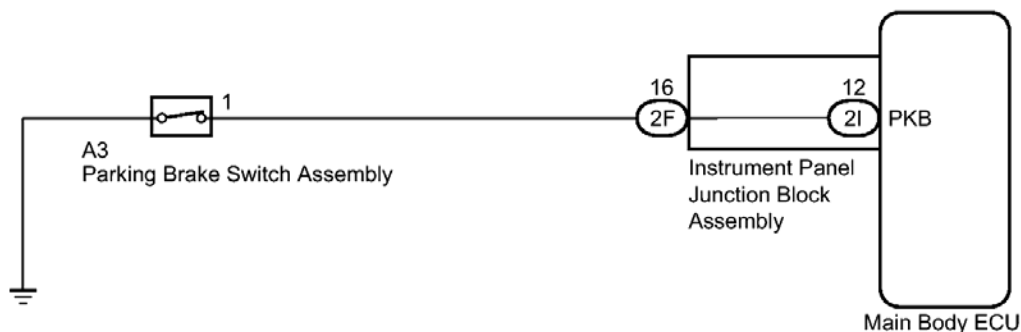


Fig. 29: Parking Brake Switch Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

PROCEDURE

1. READ VALUE USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Data List.
- Read the display on the Techstream.

MAIN BODY

Tester Display	Measurement Item/Range	Normal Condition	Diagnostic Note
Parking Brake SW	Parking brake SW signal/ON or OFF	ON: Parking brake switch on OFF: Parking brake switch off	-

OK

Normal conditions listed above are displayed.

NG --> See step 2

OK --> See step 5

2. INSPECT PARKING BRAKE SWITCH ASSEMBLY

- a. Remove the parking brake switch assembly. Refer to **REMOVAL** .

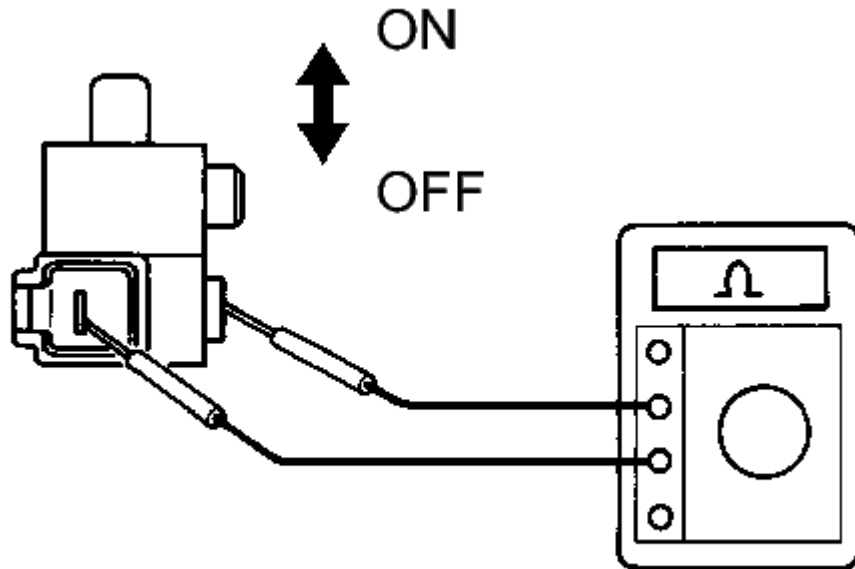


Fig. 30: Inspecting Parking Brake Switch Assembly
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
1 - Switch body	Shaft pushed in (OFF)	10 kohms or higher
1 - Switch body	Shaft not pushed in (ON)	Below 1 ohms

NG --> See step 6

OK: Go to next step

3. CHECK HARNESS AND CONNECTOR (PARKING BRAKE SWITCH - INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY)

- a. Disconnect the 2F instrument panel junction block assembly connector.

- b. Disconnect the A3 parking brake switch assembly connector.
- c. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-16 - A3-1	Always	Below 1 ohms
2F-16 - Body ground	Always	10 kohms or higher

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

4. INSPECT INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Remove the instrument panel junction block assembly.

*a

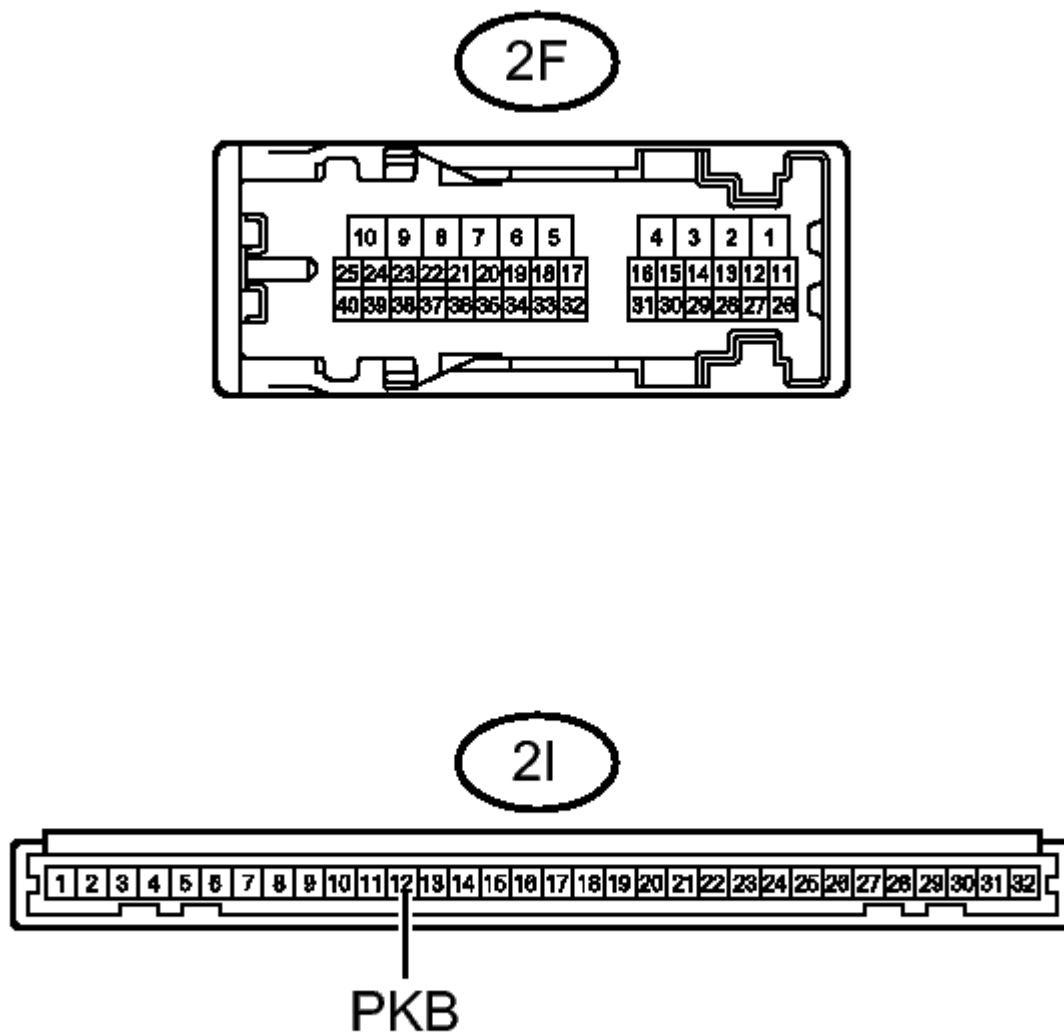


Fig. 31: Inspecting Instrument Panel Junction Block Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
2F-16 - 2I-12 (PKB)	Always	Below 1 ohms
2F-16 - Body ground	Always	10 kohms or higher

TEXT IN ILLUSTRATION

*a	Component without harness connected (Instrument Panel Junction Block Assembly)
----	--

NG --> REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

OK --> See step 7

5. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE
6. REPLACE PARKING BRAKE SWITCH ASSEMBLY. Refer to REMOVAL
7. REPLACE MAIN BODY ECU. Refer to REMOVAL

Taillight Relay Circuit

DESCRIPTION

The main body ECU controls the operation of the TAIL relay.

WIRING DIAGRAM

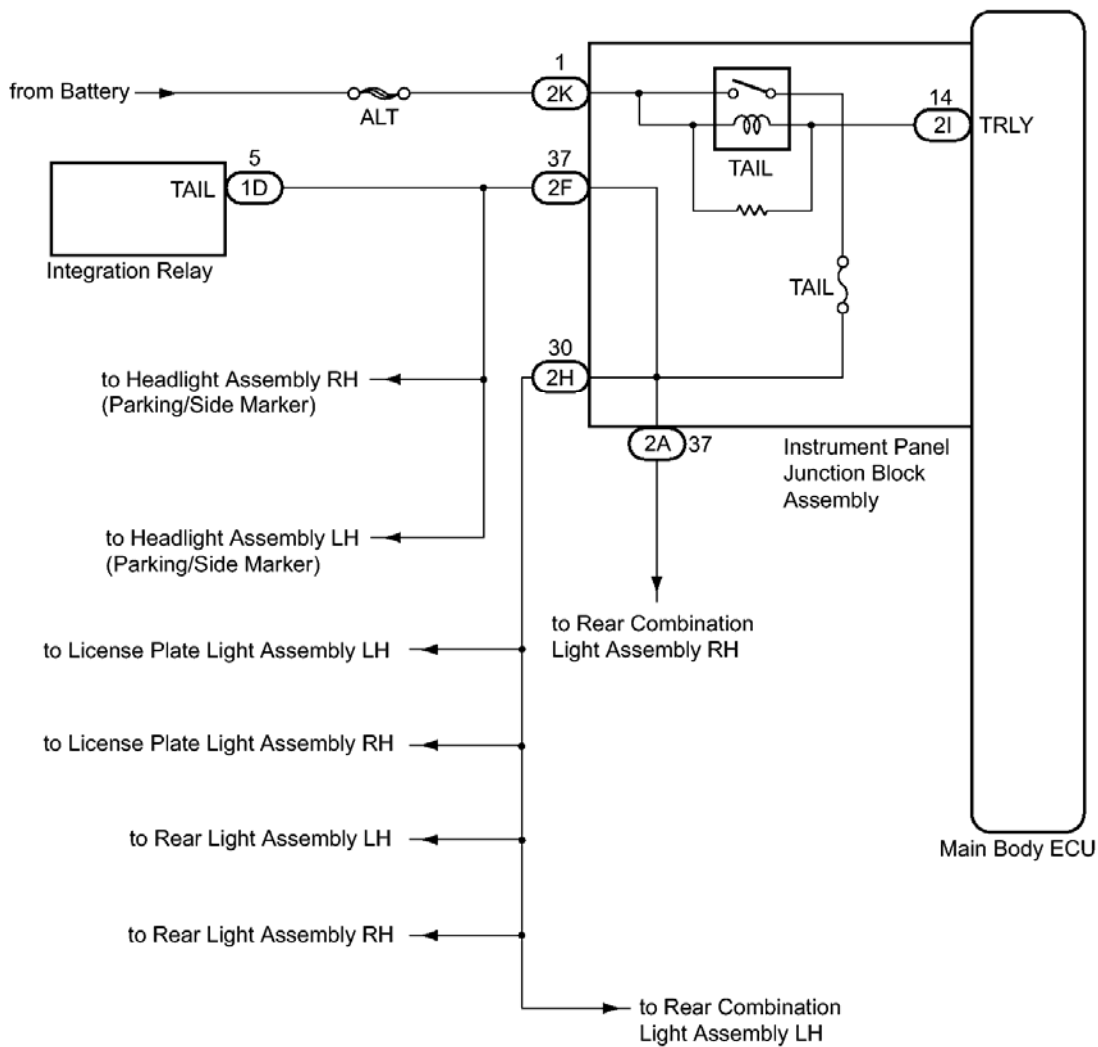


Fig. 32: Taillight Relay Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. PERFORM ACTIVE TEST USING TECHSTREAM

- 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 / Main Body / Active Test.
- e. Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Taillight Relay	Taillight relay	ON/OFF	-

OK

Taillight relay operates. (Taillights illuminate.)

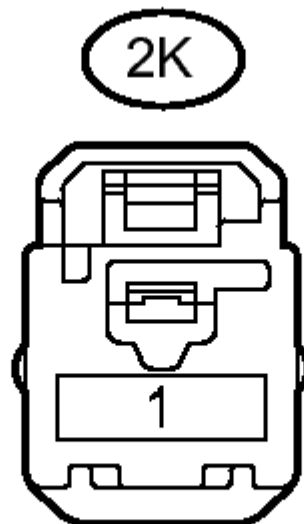
NG --> See step 2

OK --> See step 5

2. CHECK HARNESS AND CONNECTOR (BATTERY - INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY)

- a. Disconnect the 2K instrument panel junction block assembly connector.

*a



H

Fig. 33: Checking Harness And Connector (Battery - Instrument Panel Junction Block Assembly)

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

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

Standard Voltage

Tester Connection	Condition	Specified Condition
2K-1 - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Instrument Panel Junction Block Assembly)
----	--

NG --> REPAIR OR REPLACE HARNESS OR CONNECTOR

OK: Go to next step

3. REPLACE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

- a. Temporarily replace the instrument panel junction block assembly with a new or normally functioning one.

NEXT: Go to next step

4. PERFORM ACTIVE TEST USING TECHSTREAM

- Connect the Techstream to the DLC3.
- Turn the ignition switch to ON.
- Turn the Techstream on.
- Enter the following menus: Body Electrical / Main Body / Active Test.
- Check that the relay operates.

MAIN BODY

Tester Display	Test Part	Control Range	Diagnostic Note
Taillight	Taillight	ON/OFF	-

Relay	relay		
-------	-------	--	--

OK

Taillight relay operates. (Taillights illuminate.)

NG --> See step 6

OK --> END (INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY WAS DEFECTIVE)

5. **PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE**
6. **REPLACE MAIN BODY ECU. Refer to REMOVAL**

Inner Rear View Mirror Power Source Circuit

DESCRIPTION

This circuit detects the state of the ignition switch, and sends it to the inner rear view mirror assembly.

WIRING DIAGRAM

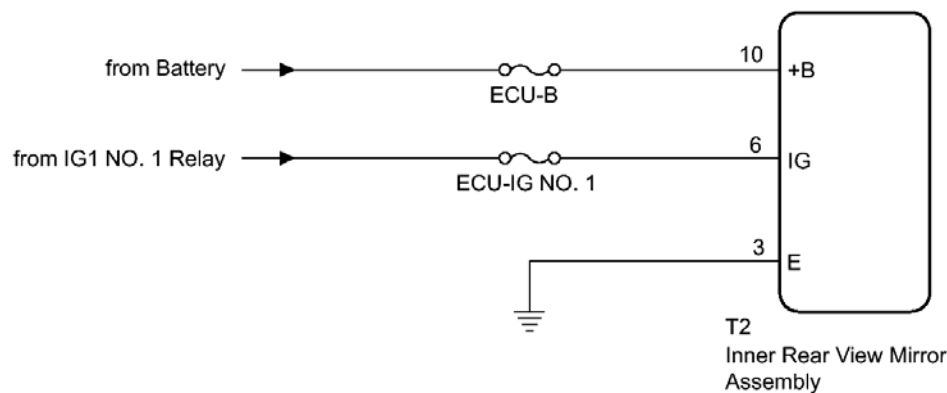


Fig. 34: Inner Rear View Mirror Power Source Circuit Wiring Diagram
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION PROCEDURE

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

PROCEDURE

1. CHECK HARNESS AND CONNECTOR (POWER SOURCE CIRCUIT - INNER REAR VIEW MIRROR ASSEMBLY)
- a. Disconnect the T2 inner rear view mirror assembly connector.

*a

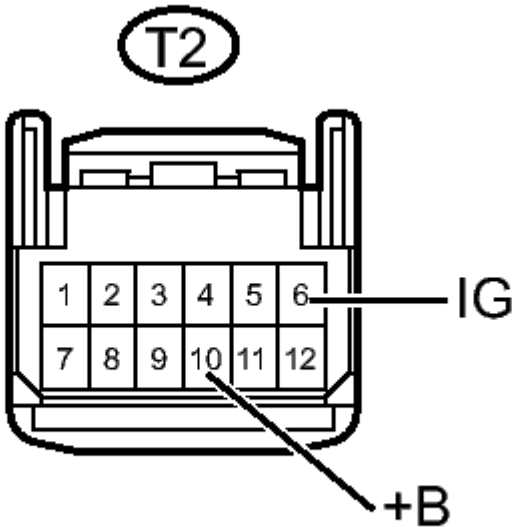


Fig. 35: Checking Harness And Connector (Power Source Circuit - Inner Rear View Mirror Assembly)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
T2-6 (IG) - Body ground	Ignition switch ON	11 to 14 V
	Ignition switch off	Below 1 V
T2-10 (+B) - Body ground	Always	11 to 14 V

TEXT IN ILLUSTRATION



*a	Front view of wire harness connector (to Inner Rear View Mirror Assembly)
----	---

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK: Go to next step

2. CHECK HARNESS AND CONNECTOR (INNER REAR VIEW MIRROR ASSEMBLY - BODY GROUND)

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

Standard Resistance

Tester Connection	Condition	Specified Condition
T2-3 (E) - Body ground	Always	Below 1 ohms

NG --> **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK --> See step 3

3. PROCEED TO NEXT SUSPECTED AREA SHOWN IN PROBLEM SYMPTOMS TABLE. Refer to PROBLEM SYMPTOMS TABLE

ACCESSORIES & EQUIPMENT

Lighting System (Exterior) (Preparation) - Sienna

LIGHTING (EXT)

RECOMMENDED TOOLS

RECOMMENDED TOOLS

	09061-1C300	Set, Moulding Remover	
	(09061-1C340)	Remover D, Moulding	
	09080-1C110	Toyota Electrical Tester Set	
	09080-2C100	Test Lead Set	

EQUIPMENT

EQUIPMENT

Torque wrench	
Protective Tape	
Battery	
Service wire harness	
Ohmmeter	
Voltmeter	

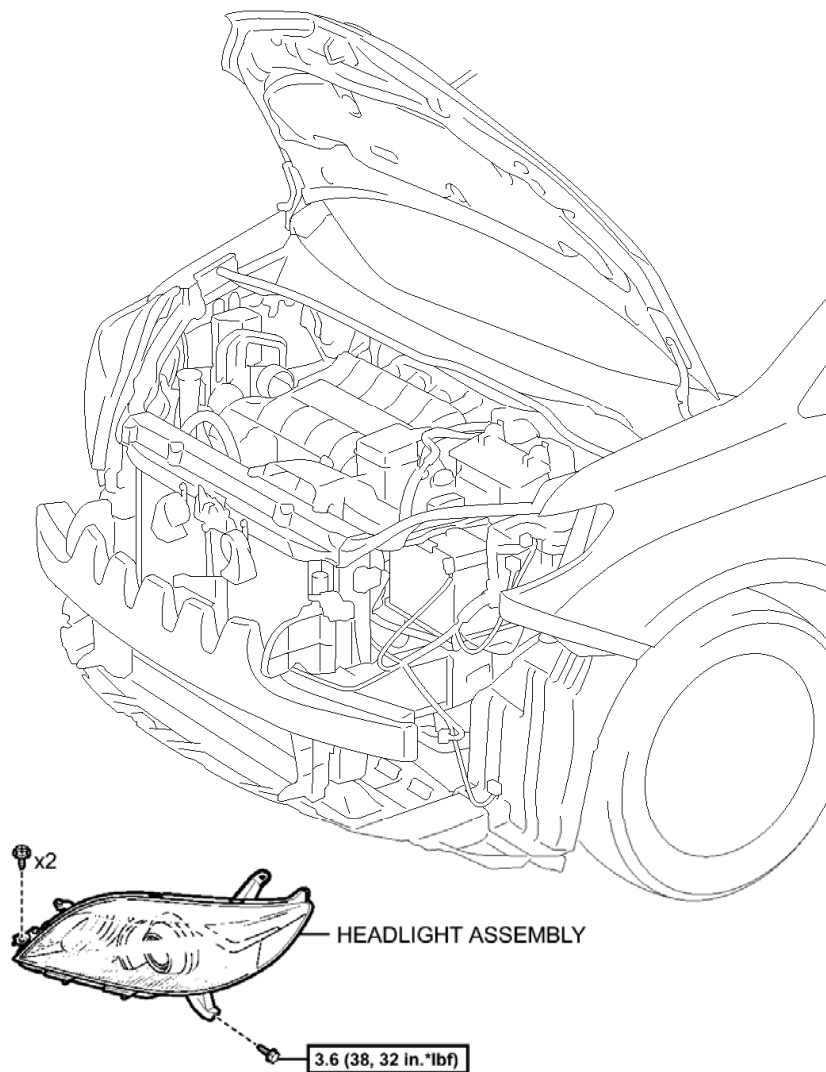
ACCESSORIES & EQUIPMENT

Lighting System (Exterior) (Service Information) - Sienna

HEADLIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



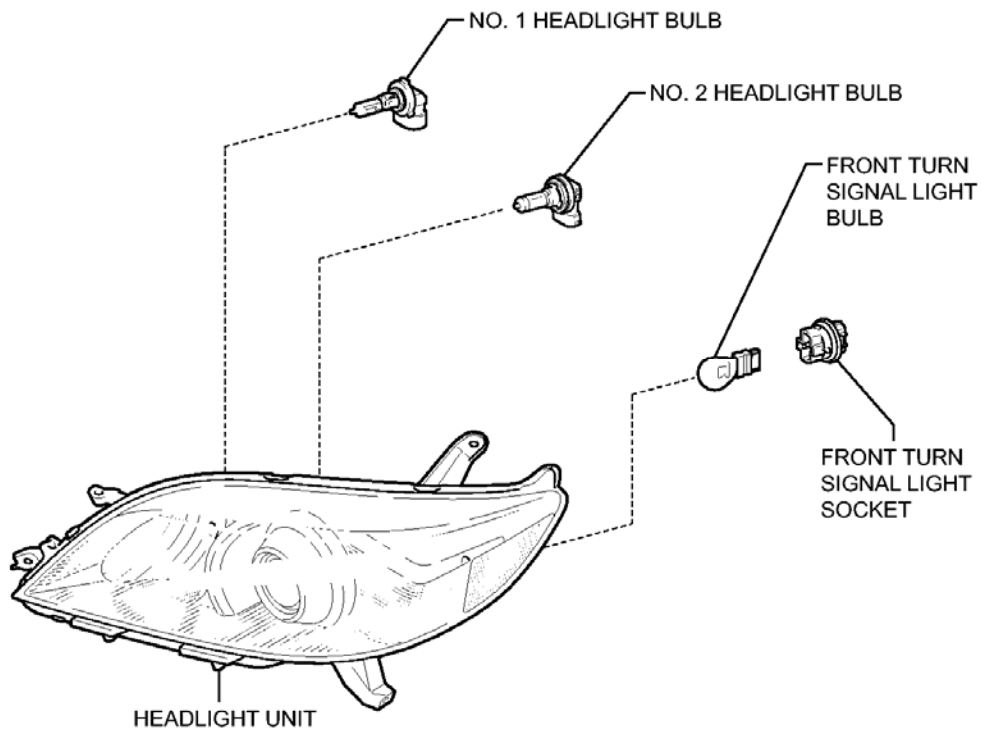
N*m (kgf*cm, ft.*lbf): Specified torque

P

Fig. 1: Headlight Assembly Replacement Components With Torque Specifications (1 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for Halogen Headlight:

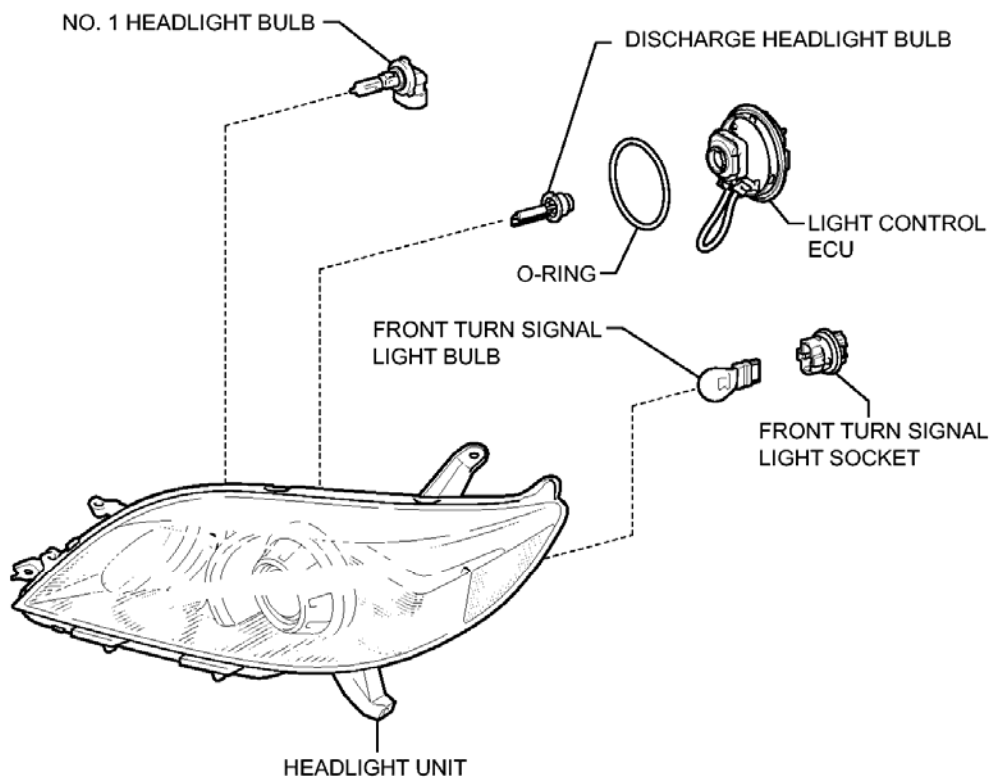


P

Fig. 2: Headlight Assembly Replacement Components (2 Of 3)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

for HID Headlight:



P

Fig. 3: Headlight Assembly Replacement Components (3 Of 3)

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

REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. PRECAUTION

Refer to **PRECAUTION**

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .

3. REMOVE FRONT BUMPER COVER

Refer to **REMOVAL**

4. REMOVE HEADLIGHT ASSEMBLY

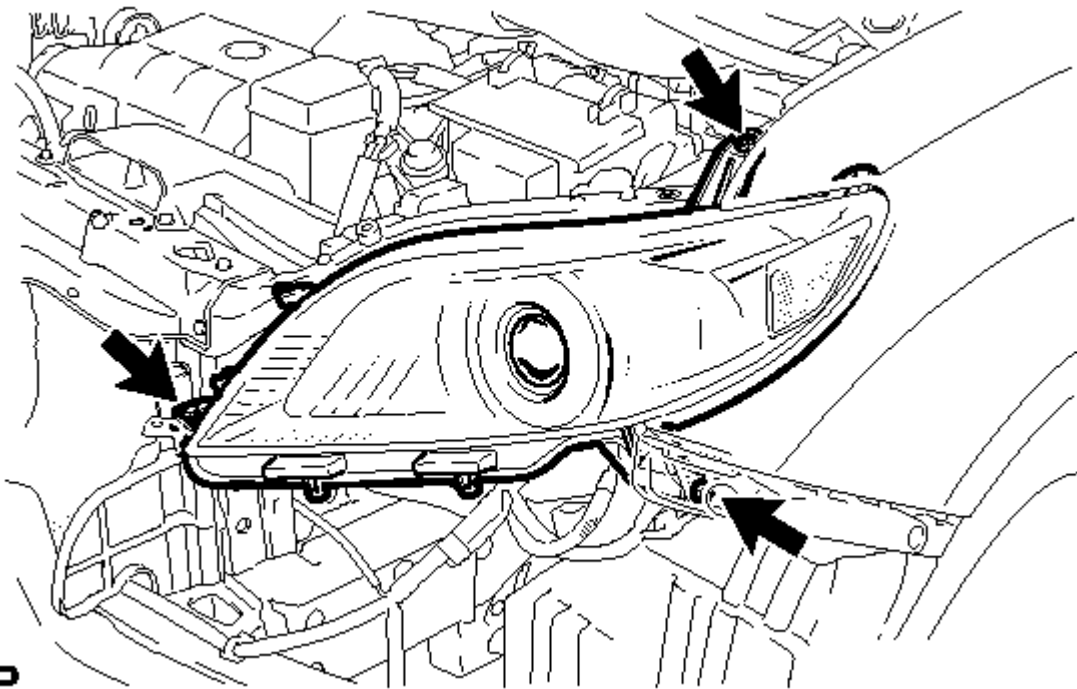


Fig. 4: Identifying Headlight Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

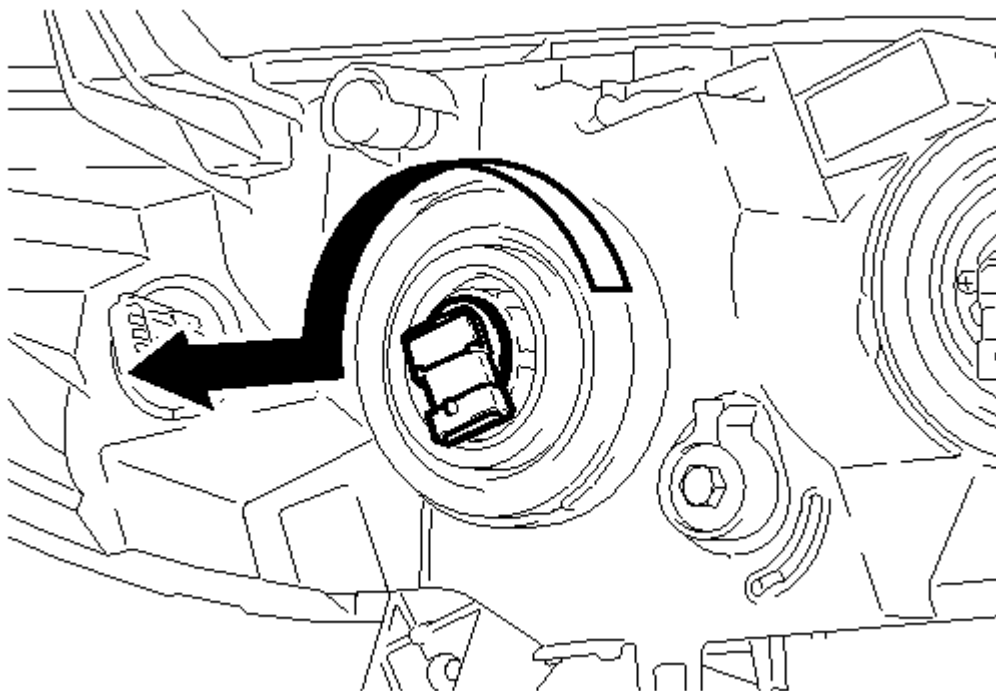
WARNING: For HID-equipped vehicles, when the light control switch is set to HEAD or has recently been set to OFF, the light control ECU can be extremely hot, so make sure that components have cooled down before beginning work.

- a. Remove the bolt and 2 screws.
- b. Disconnect the connectors and then remove the headlight.

DISASSEMBLY

DISASSEMBLY

1. REMOVE NO. 2 HEADLIGHT BULB (for Halogen Headlight)



P

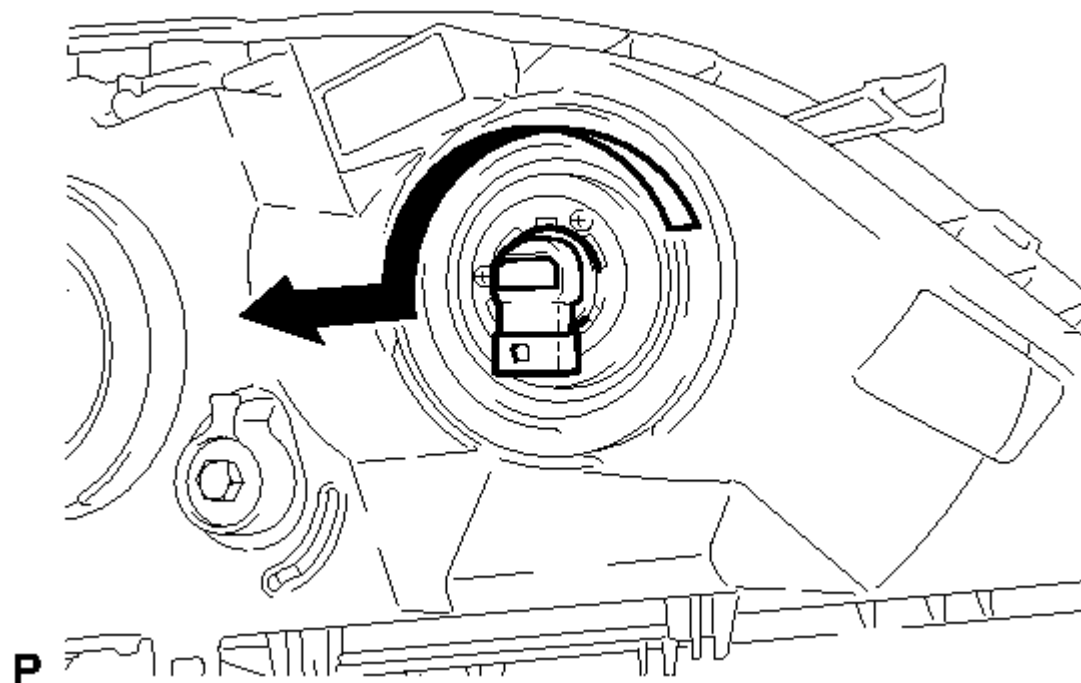
Fig. 5: Removing No. 2 Headlight Bulb

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

- a. Turn the No. 2 headlight bulb, in the direction indicated by the arrow in the illustration, to remove it.

NOTE: **Do not touch the bulb glass with your fingers.**

2. REMOVE NO. 1 HEADLIGHT BULB (for Halogen Headlight)

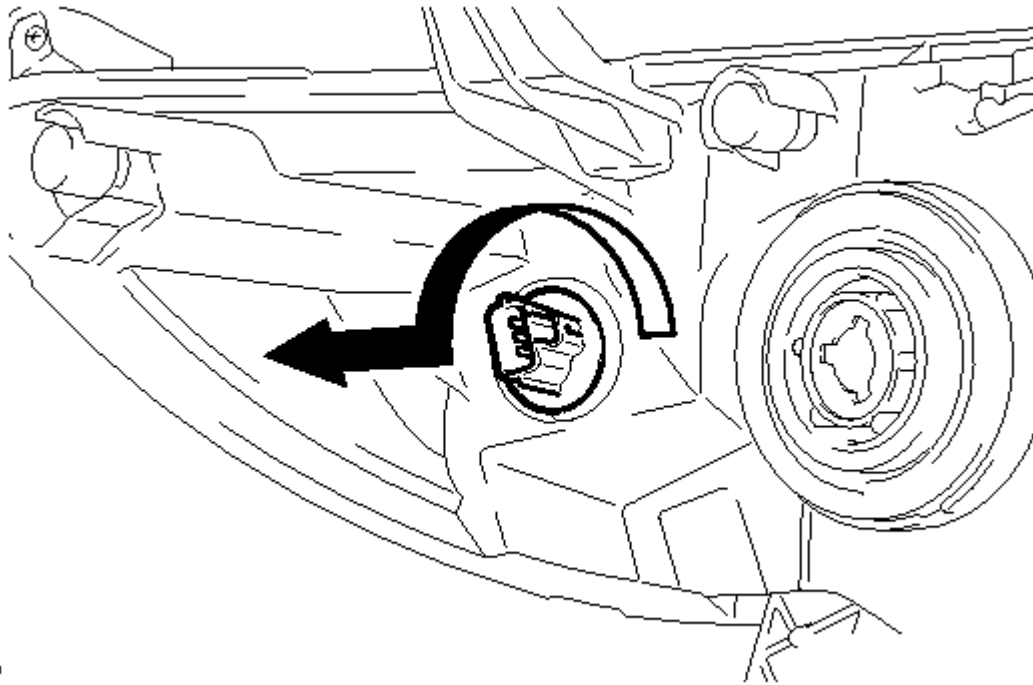


P **Fig. 6: Removing No. 1 Headlight Bulb**
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the No. 1 headlight bulb, in the direction indicated by the arrow in the illustration, to remove it.

NOTE: **Do not touch the bulb glass with your fingers.**

3. REMOVE FRONT TURN SIGNAL LIGHT BULB (for Halogen Headlight)

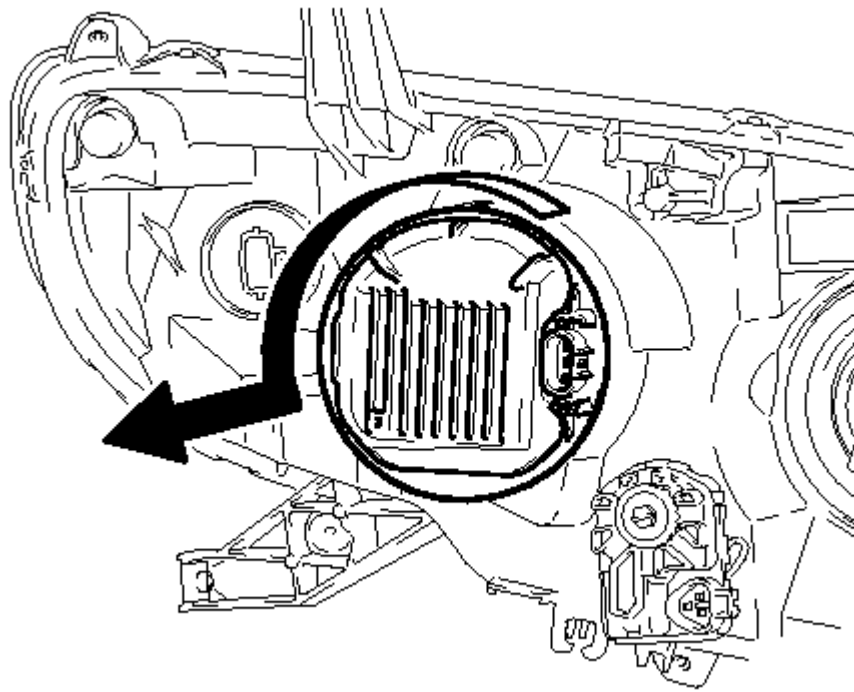


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Fig. 7: Removing Front Turn Signal Light Bulb

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

- a. Turn the front turn signal light bulb socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
 - b. Remove the front turn signal light bulb from the light socket.
4. **REMOVE LIGHT CONTROL ECU (for HID Headlight)**
 - a. Turn the light control ECU, in the direction indicated by the arrow in the illustration, to remove it.



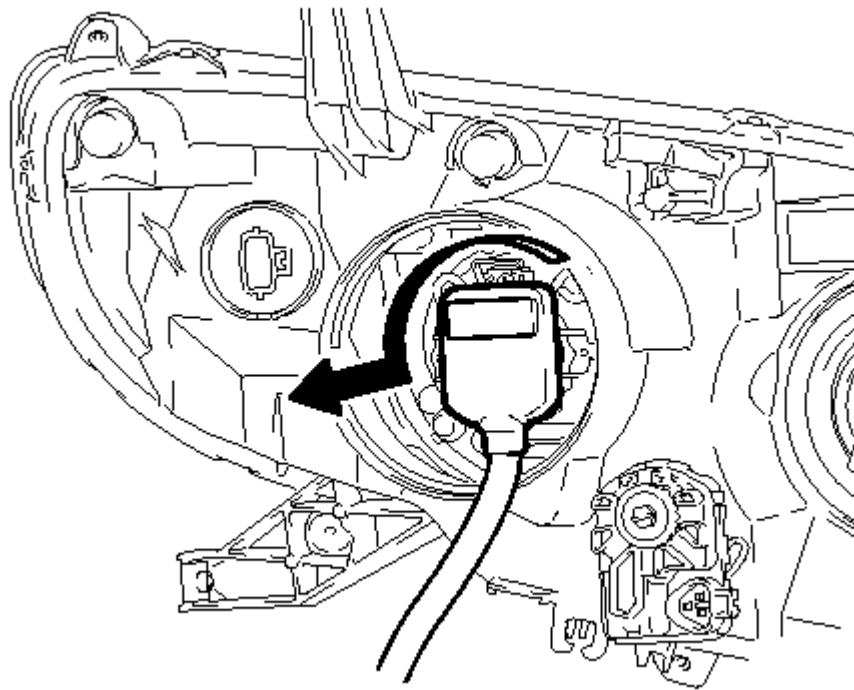
P

Fig. 8: Removing Light Control ECU

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

NOTE:

- Do not apply excessive force using tools, etc.
 - Make sure that the o-ring is not damaged and is free of dirt and foreign matter. If the o-ring is damaged, water can leak into the headlight assembly, which can damage the light control ECU.
- b. Turn the light control ECU socket, in the direction indicated by the arrow in the illustration, to disconnect it.



P

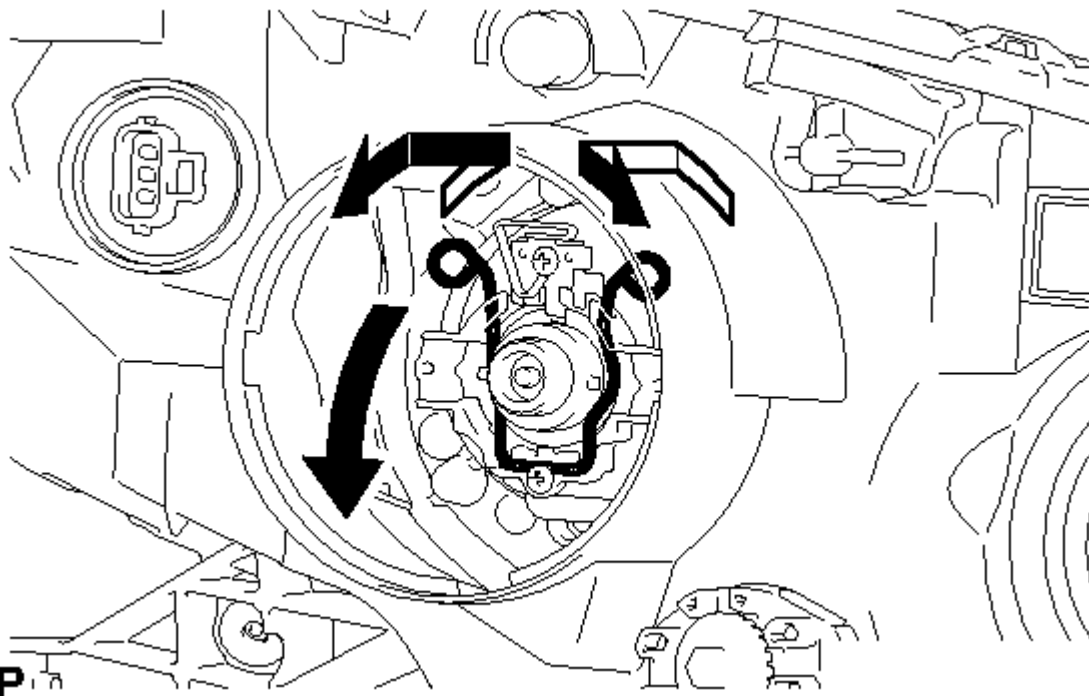
Fig. 9: Removing Light Control ECU Socket

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

NOTE: Do not pull on the light control ECU while its socket is connected to the discharge headlight bulb.

5. REMOVE DISCHARGE HEADLIGHT BULB (for HID Headlight)

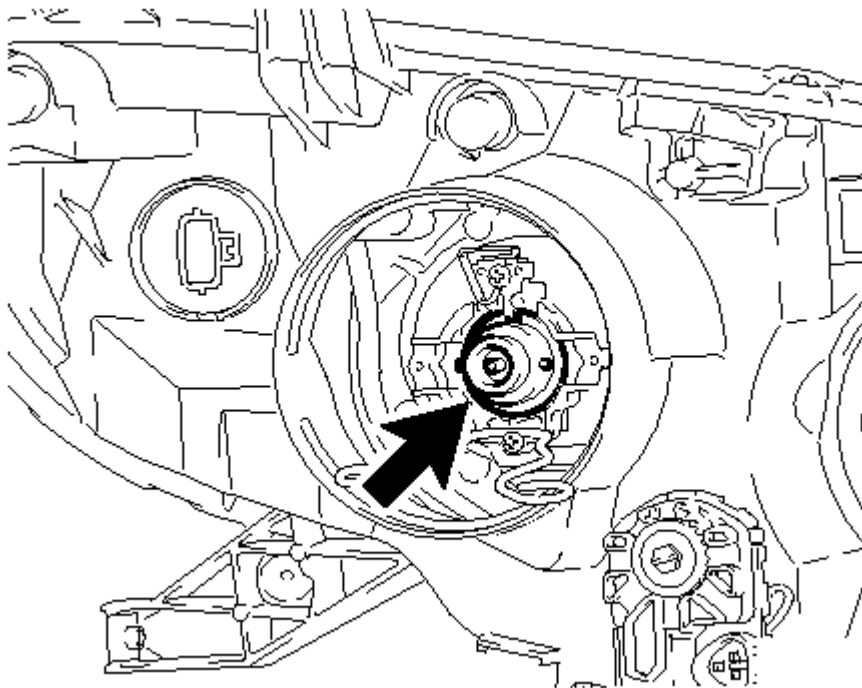
- a. Release the set spring in the direction indicated by the arrow in the illustration.



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Fig. 10: Releasing Discharge Headlight Bulb Set Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the discharge headlight bulb.

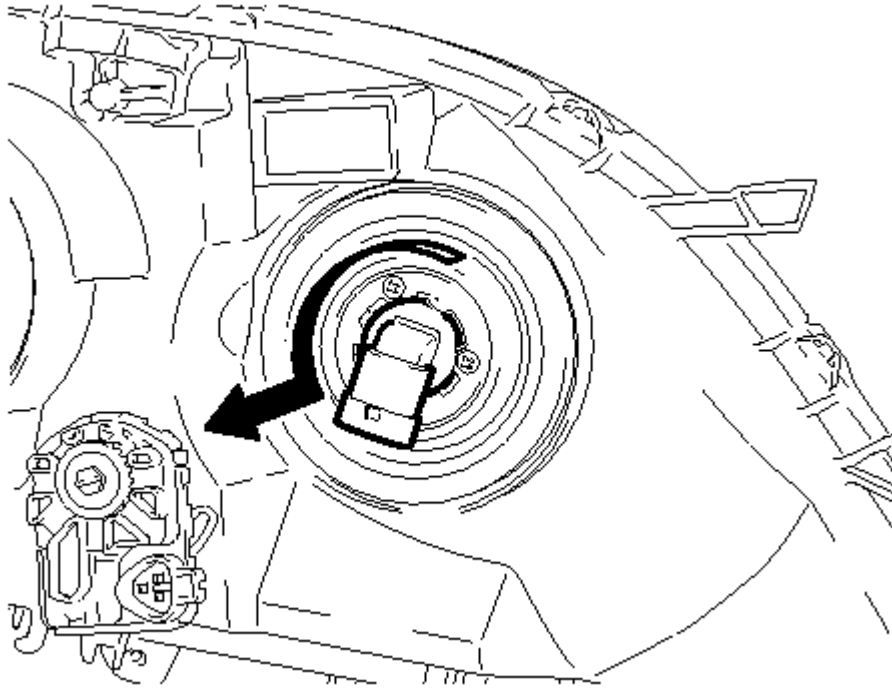


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Fig. 11: Identifying Discharge Headlight Bulb
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not touch the bulb glass with your fingers.

6. REMOVE NO. 1 HEADLIGHT BULB (for HID Headlight)



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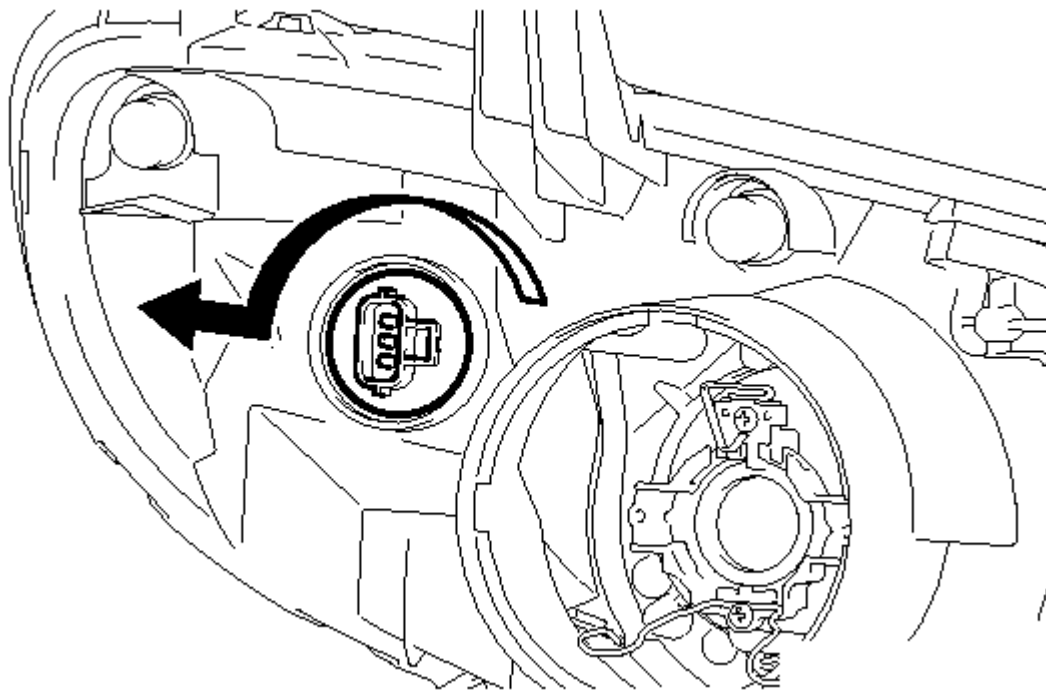
Fig. 12: Removing No. 1 Headlight Bulb

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

- a. Turn the No. 1 headlight bulb, in the direction indicated by the arrow in the illustration, to remove it.

NOTE: Do not touch the bulb glass with your fingers.

7. REMOVE FRONT TURN SIGNAL LIGHT BULB (for HID Headlight)



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Fig. 13: Removing Front Turn Signal Light Bulb

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

- a. Turn the front turn signal light bulb socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
- b. Remove the front turn signal light bulb from the light socket.

ADJUSTMENT

ADJUSTMENT

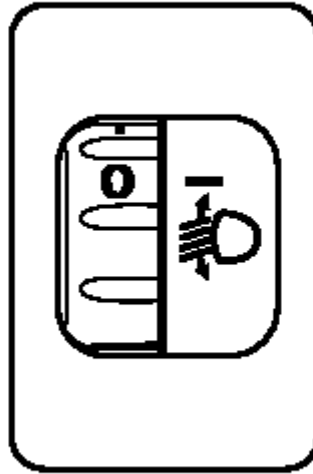
HINT:

It is possible that a bulb is incorrectly installed, affecting headlight aim. Bulb installation should be considered prior to performing the adjustment procedure.

1. PREPARE VEHICLE FOR HEADLIGHT AIM ADJUSTMENT

- a. Prepare the vehicle:
 - Ensure there is no damage or deformation to the body around the headlights.
 - Fill the fuel tank.
 - Make sure that the oil is filled to the specified level.
 - Make sure that the coolant is filled to the specified level.
 - Inflate the tires to the appropriate pressure.
 - Unload the trunk and vehicle, ensuring that the spare tire, tools and jack are in their original positions.

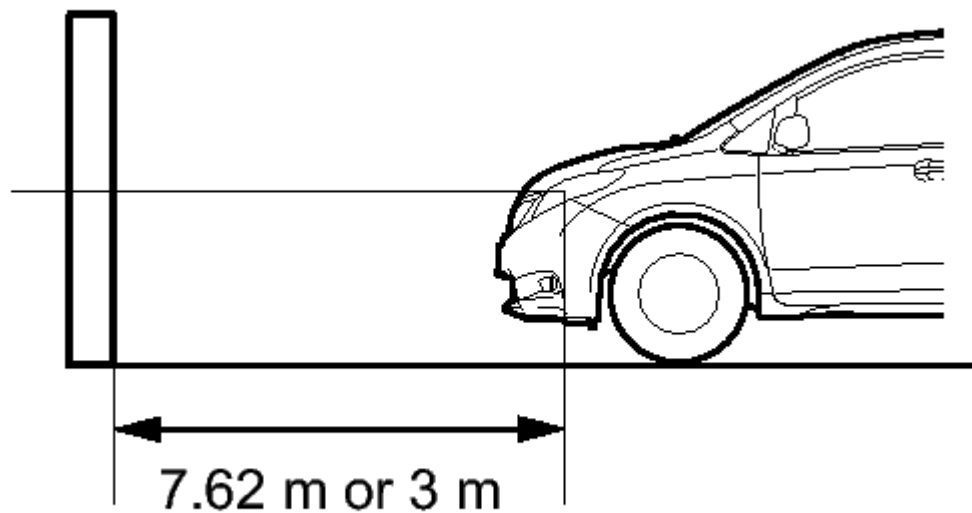
- Sit a person of average weight (68 kg, 150 lb) in the driver's seat.
- Vehicles with manually adjustable headlights should be adjusted to "0" (for HID headlight).



Y

Fig. 14: Adjusting Halogen Headlight To "0" For Headlight Aim Adjustment
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. **PREPARE FOR HEADLIGHT AIMING (Using a headlight aim test machine)**
 - a. Adjust the headlight aim in accordance with the headlight aim test machine instructions.
3. **PREPARE FOR HEADLIGHT AIMING (Using a screen)**
 - a. Prepare the vehicle:



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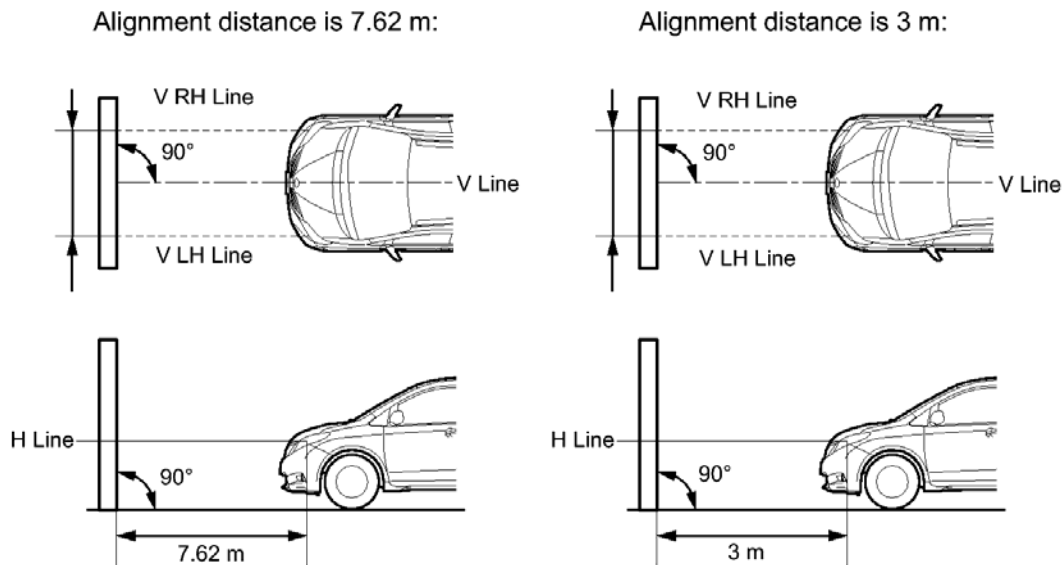
Fig. 15: Identifying Vehicle To Wall Distance

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

- Place the vehicle in a location that is dark enough to clearly observe the cutoff line. The cutoff line is a distinct line, below which light from the headlights can be observed and above which it cannot.
- Place the vehicle at a 90° angle to the wall.
- Create a 7.62 m (25 ft.) distance between the vehicle (headlight bulb center) and the wall.
- Make sure that the vehicle is on a level surface.
- Position the front wheels straight ahead.
- Bounce the vehicle up and down to settle the suspension.

NOTE: A distance of 7.62 m (25 ft.) between the vehicle (headlight bulb center) and the wall is necessary for proper aim adjustment. If sufficient space is not available, secure a distance of exactly 3 m (9.84 ft.) to allow for checking and adjustment of headlight aim. (The size of the target zone will change with the distance, so follow the instructions in the illustration.)

- Prepare a piece of thick white paper (approximately 2 m (6.6 ft.) (height) x 4 m (13.1 ft.) (width)) to use as a screen.
- Draw a vertical line down the center of the screen (V line).
- Set the screen as shown in the illustration.

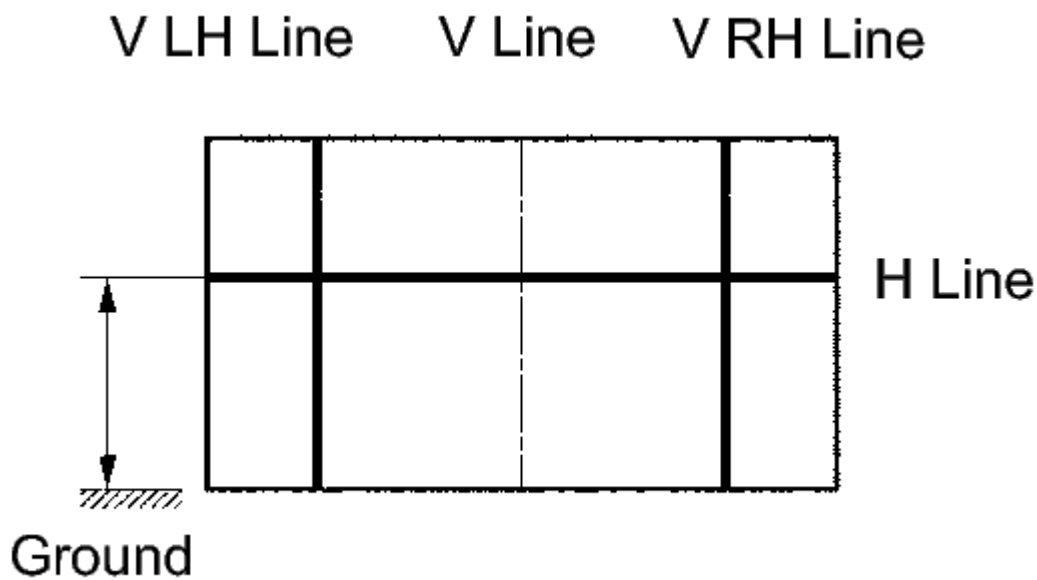


P

Fig. 16: Identifying Center Of Vehicle & V Line Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- Stand the screen perpendicular to the ground.
 - Align the V line on the screen with the center of the vehicle.
- e. Draw base lines (H, V LH, and V RH lines) on the screen as shown in the illustration.



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Fig. 17: Identifying V LH Line, V RH Line Graph

I33423

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

HINT:

- The base lines differ for "low beam inspection" and "high beam inspection".
- Mark the headlight bulb center marks on the screen. If the center mark cannot be observed on the headlight, use the center of the headlight bulb.

1. H Line (Headlight height):

Draw a horizontal line across the screen so that it passes through the center marks. The H line should be at the same height as the headlight bulb center marks of the low beam headlights. It is possible that LH and RH center marks will be at different heights. In this case, two H lines should be drawn (one LH, one RH).

2. V LH Line, V RH Line (Center mark position of left-hand (LH) and right-hand (RH) headlights):

Draw two vertical lines so that they intersect the H line at each center mark (aligned with the center of the low beam headlight bulbs).

4. INSPECT HEADLIGHT AIMING

- a. Cover the headlight or disconnect the connector of the headlight/headlight ECU on the opposite side to prevent light from the headlight that is not being inspected from affecting the headlight aiming inspection.

WARNING: Do not disconnect the HID high voltage connector for the bulb when performing this aiming inspection (for HID headlight).

NOTE: Do not keep the headlight covered for more than 3 minutes. The headlight lens is made of synthetic resin, which may melt or be damaged due to excessive heat.

HINT:

When checking the aim of the high beam, cover the low beam or disconnect the connector.

- b. Start the engine.
- c. Turn the headlights on and check the aiming of each beam.

HINT:

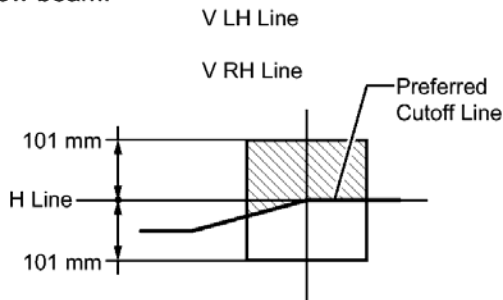
Preferred position for the low beam: Matches preferred cutoff line shown in the illustration

Preferred position for the high beam: Matches center of intensity shown in the illustration

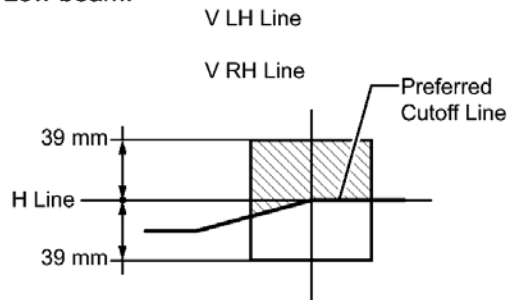
Alignment distance is 7.62 m:

Alignment distance is 3 m:

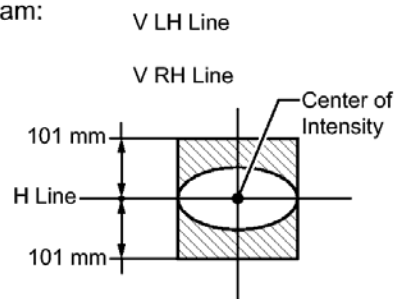
Low beam:



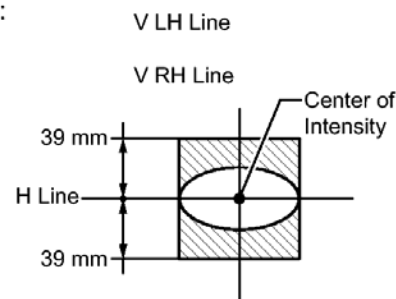
Low beam:



High beam:



High beam:



P

Fig. 18: Identifying Preferred Cutoff Line & Center Of Intensity For High/Low Beam
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- Since the low beam light and the high beam light are a unit, if the aim on the low beam is correct, the high beam should also be correct. However, check both beams just to make sure.
- If the alignment distance is 7.62 m (25 ft.):

The right half of the low beam cutoff line should be within 101 mm (3.97 in.) above or below the H line (SAE J599).

- If the alignment distance is 3 m (9.84 ft.):

The right half of the low beam cutoff line should be within 39 mm (1.56 in.) above or below the H line (SAE J599).

- If the alignment distance is 7.62 m (25 ft.):

The high beam center of intensity should be within 101 mm (3.97 in.) above or below the H line (SAE J599).

- If the alignment distance is 3 m (9.84 ft.):

The high beam center of intensity should be within 39 mm (1.56 in.) above or below the H line (SAE J599).

- If the alignment distance is 7.62 m (25 ft.):

The right half of the low beam cutoff line should be on the H line (preferred cutoff line target).

- If the alignment distance is 3 m (9.84 ft.):

The right half of the low beam cutoff line should be on the H line (preferred cutoff line target).

- If the alignment distance is 7.62 m (25 ft.):

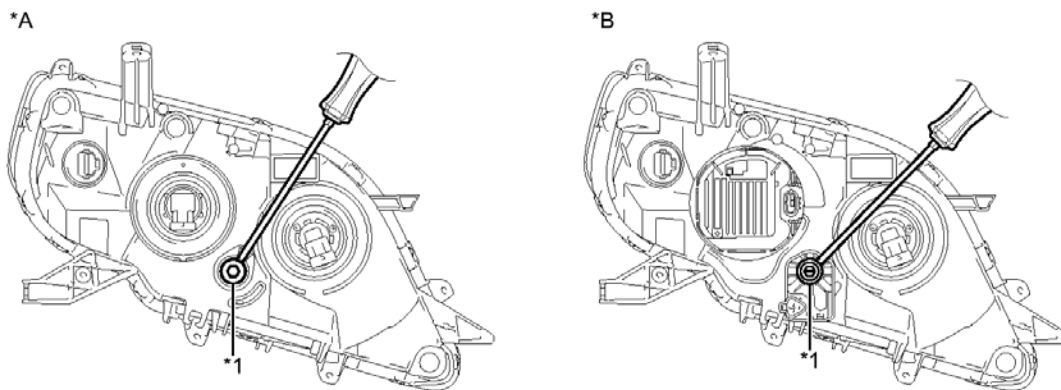
The high beam center of intensity should be on the H line (preferred center of intensity).

- If the alignment distance is 3 m (9.84 ft.):

The high beam center of intensity should be on the H line (preferred center of intensity).

5. ADJUST HEADLIGHT AIMING

- Remove any covers necessary to access the headlight adjusters.
- Adjust the aim vertically:



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Fig. 19: Adjusting Headlight Aiming Screw Using A Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*A	for Halogen Headlight	*B	for HID Headlight
----	-----------------------------	----	----------------------

*1	Aiming Screw	-	-
----	-----------------	---	---

Adjust the aim of each headlight to the specified range by turning each aiming screw with a screwdriver.

NOTE: **The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then retighten it, so that the final turn of the screw is in the clockwise direction.**

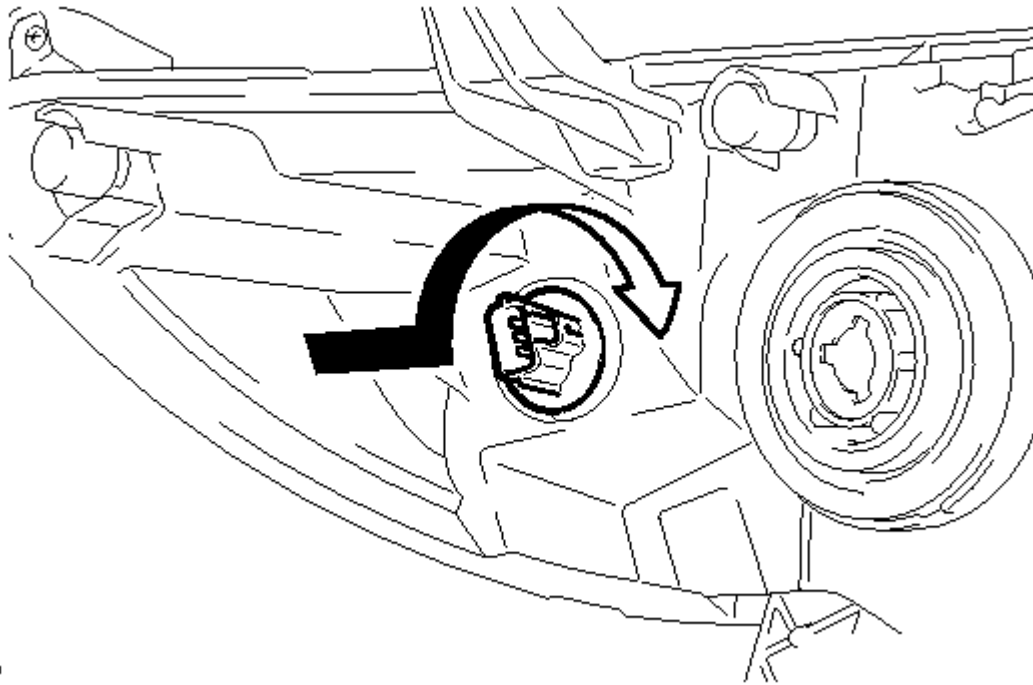
HINT:

- Since the low beam light and the high beam light are a unit, if the aim on the low beam is correct, the high beam should also be correct. However, check both beams just to make sure.
 - If it is not possible to correctly adjust headlight aim, check bulb, headlight unit and headlight unit reflector installation.
 - The headlight aim moves down when turning the aiming screw clockwise, and moves up when turning the aiming screw counterclockwise.
 - Confirm the direction of rotation of the aiming screw by observing it while it is being adjusted. Due to the position of the screwdriver, the direction of rotation of the adjusting screw can be different than the direction of rotation of the screwdriver being used to adjust it.
- c. Install any covers that were removed to access the headlight adjusters.

REASSEMBLY

REASSEMBLY

1. INSTALL FRONT TURN SIGNAL LIGHT BULB (for Halogen Headlight)

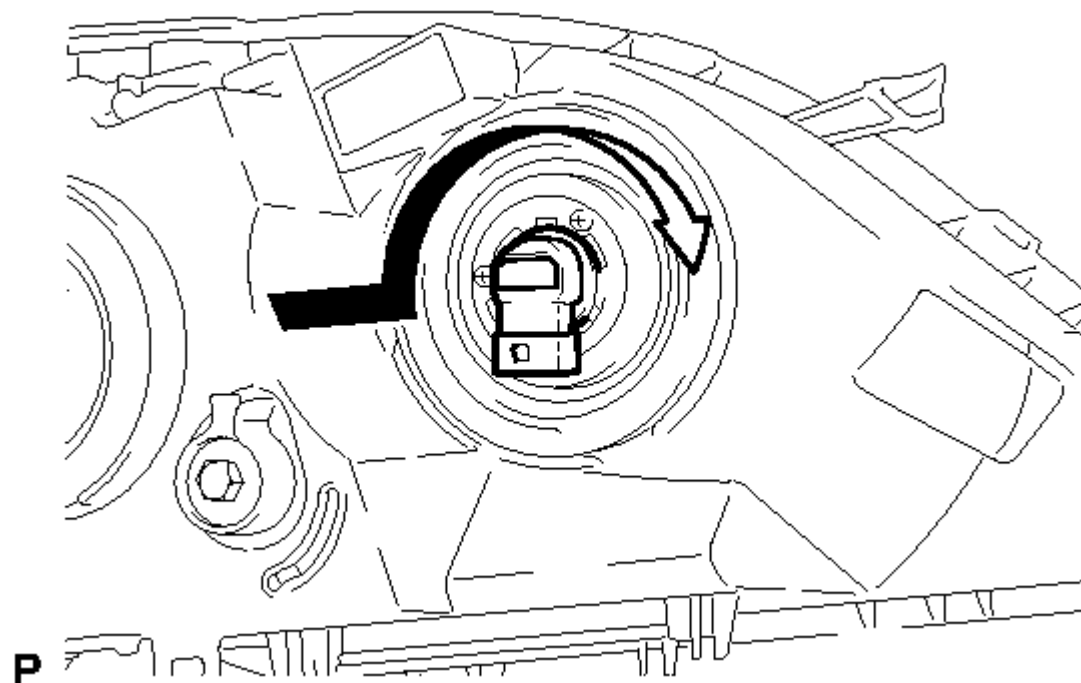


P

Fig. 20: Installing Front Turn Signal Light Bulb

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

- a. Install the front turn signal light bulb into the light socket.
 - b. Turn the front turn signal light bulb socket and bulb, in the direction indicated by the arrow in the illustration, to install them.
2. **INSTALL NO. 1 HEADLIGHT BULB (for Halogen Headlight)**

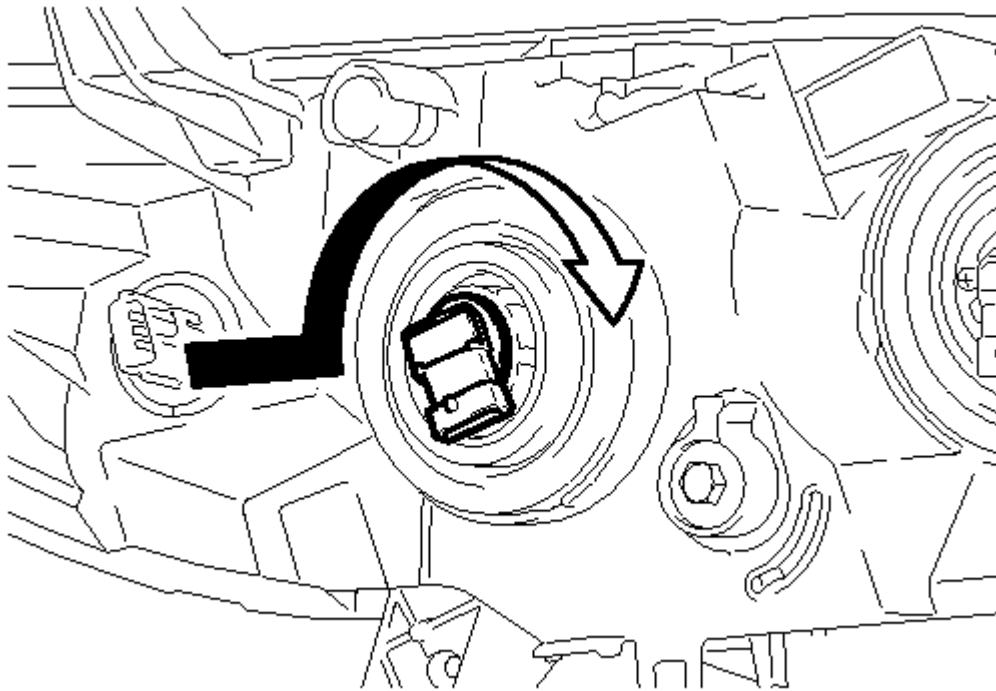


P
Fig. 21: Installing No. 1 Headlight Bulb
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the No. 1 headlight bulb, in the direction indicated by the arrow in the illustration, to install it.

NOTE: **Do not touch the bulb glass with your fingers.**

3. INSTALL NO. 2 HEADLIGHT BULB (for Halogen Headlight)



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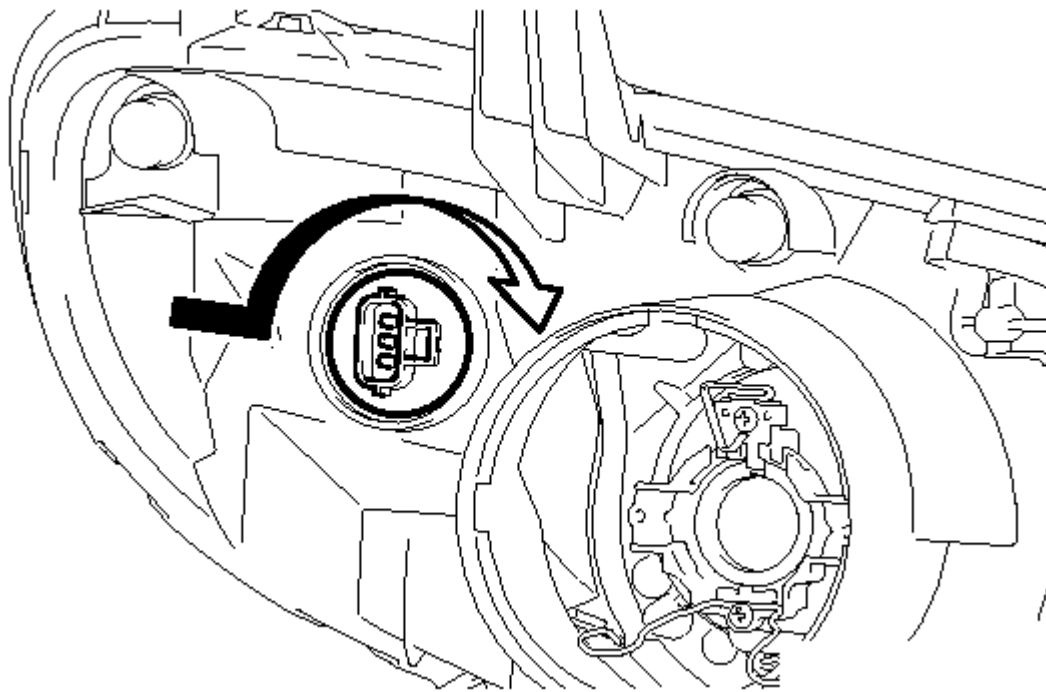
Fig. 22: Installing No. 2 Headlight Bulb

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

- a. Turn the No. 2 headlight bulb, in the direction indicated by the arrow in the illustration, to install it.

NOTE: **Do not touch the bulb glass with your fingers.**

4. INSTALL FRONT TURN SIGNAL LIGHT BULB (for HID Headlight)

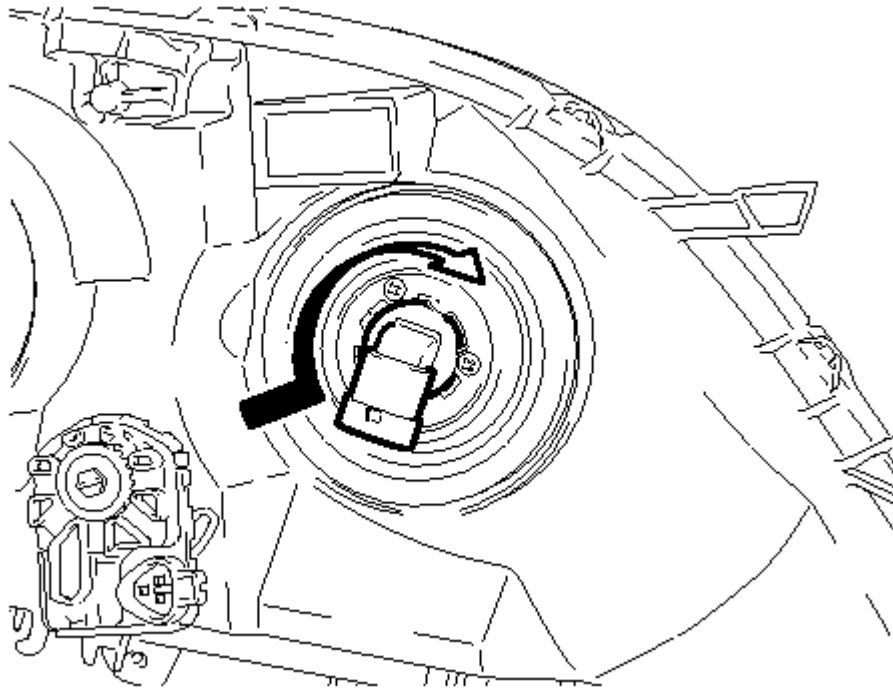


P

Fig. 23: Installing Front Turn Signal Light Bulb

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

- a. Install the front turn signal light bulb into the light socket.
 - b. Turn the front turn signal light bulb socket and bulb, in the direction indicated by the arrow in the illustration, to install them.
5. **INSTALL NO. 1 HEADLIGHT BULB (for HID Headlight)**



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Fig. 24: Installing No. 1 Headlight Bulb

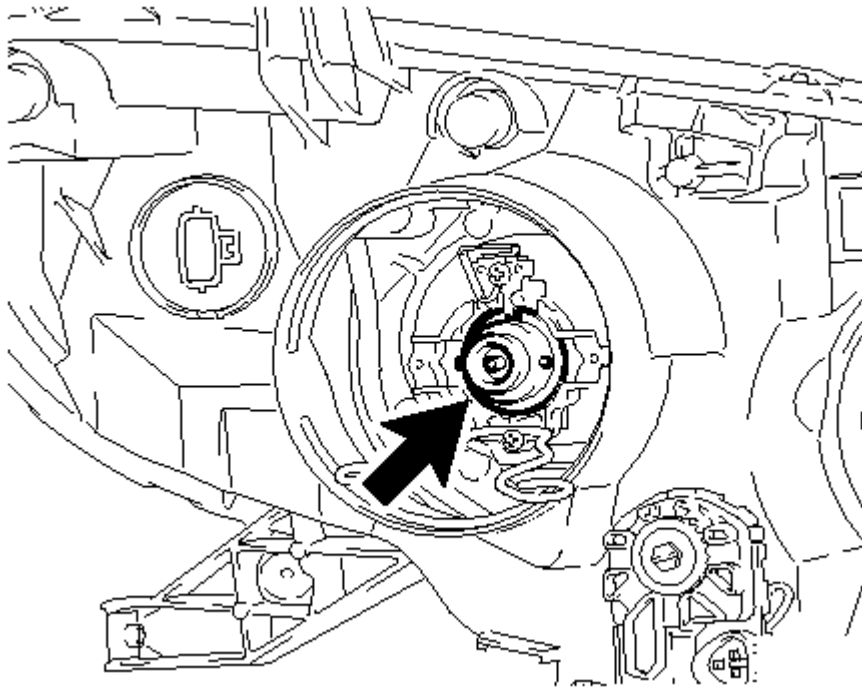
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the No. 1 headlight bulb, in the direction indicated by the arrow in the illustration to install it.

NOTE: **Do not touch the bulb glass with your fingers.**

6. INSTALL DISCHARGE HEADLIGHT BULB (for HID Headlight)

- a. Install the discharge headlight bulb.



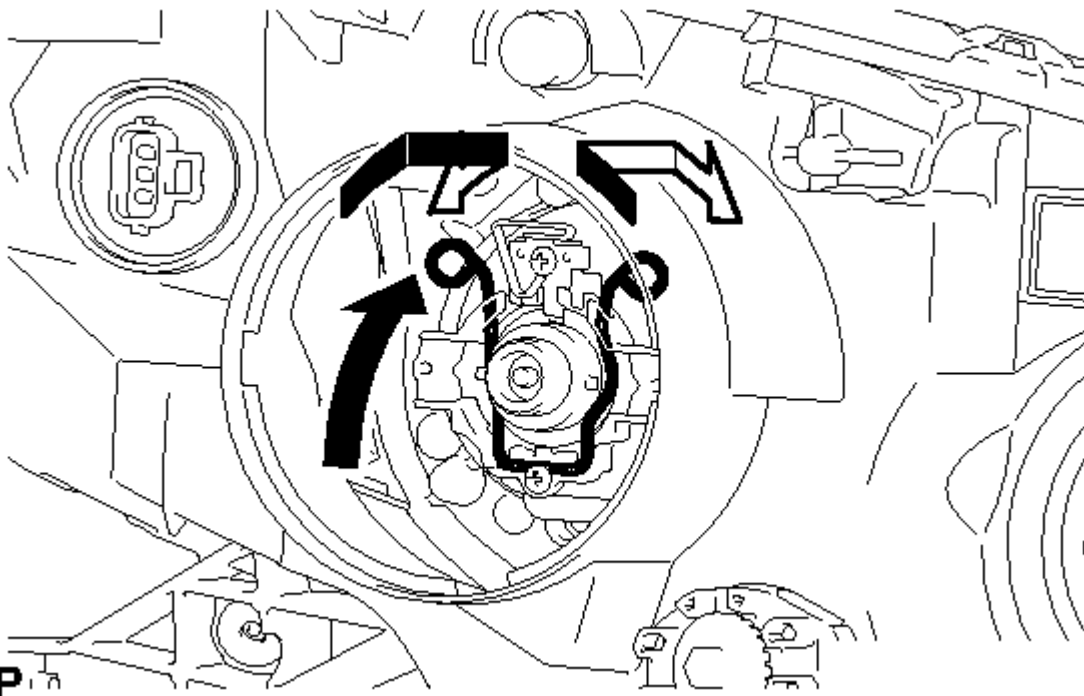
P

Fig. 25: Identifying Discharge Headlight Bulb

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

NOTE: Do not touch the bulb glass with your fingers.

- b. Lock the set spring in the direction indicated by the arrow in the illustration.

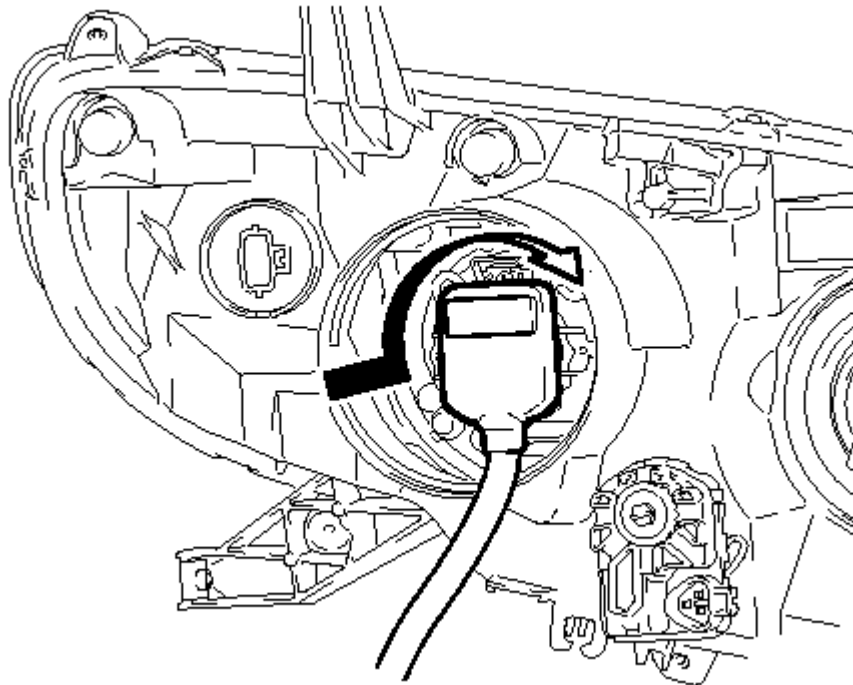


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Fig. 26: Locking Discharge Headlight Bulb Set Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

7. INSTALL LIGHT CONTROL ECU (for HID Headlight)

- a. Turn the light control ECU socket, in the direction indicated by the arrow in the illustration, to connect it.

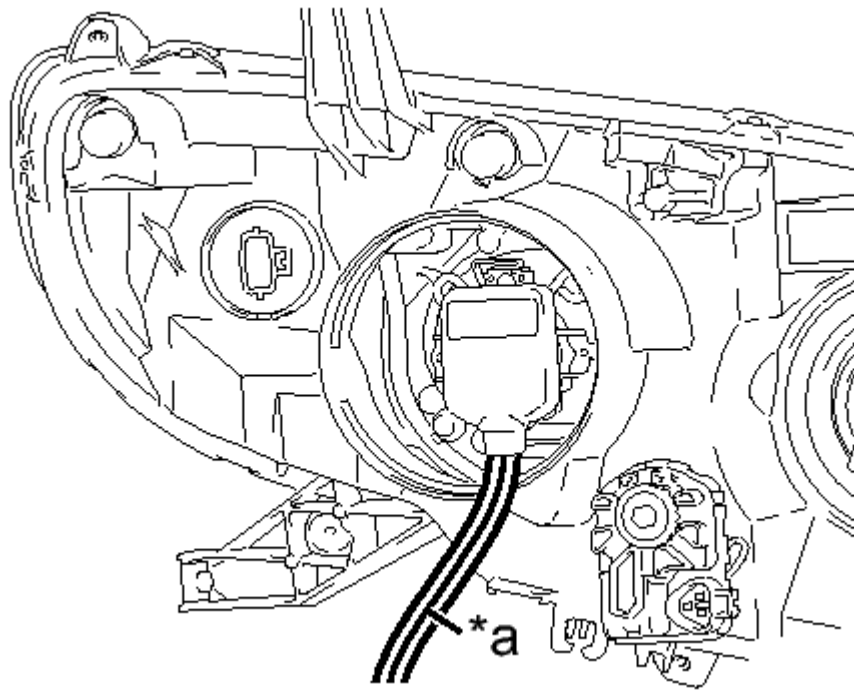


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Fig. 27: Installing Light Control ECU Socket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE:

- Make sure that the light control ECU has an o-ring installed. When installing a new light control ECU, install a new o-ring as well.
 - Make sure that the o-ring is not damaged and is free of dirt and foreign matter. If the o-ring is damaged, water can leak into the headlight assembly, which can damage the light control ECU.
 - Do not pull on the light control ECU while its socket is connected to the discharge headlight bulb.
- b. Confirm that the red line on the output harness is not twisted, and store the output harness in the headlight, making sure that the harness is not caught on or pinched by anything.



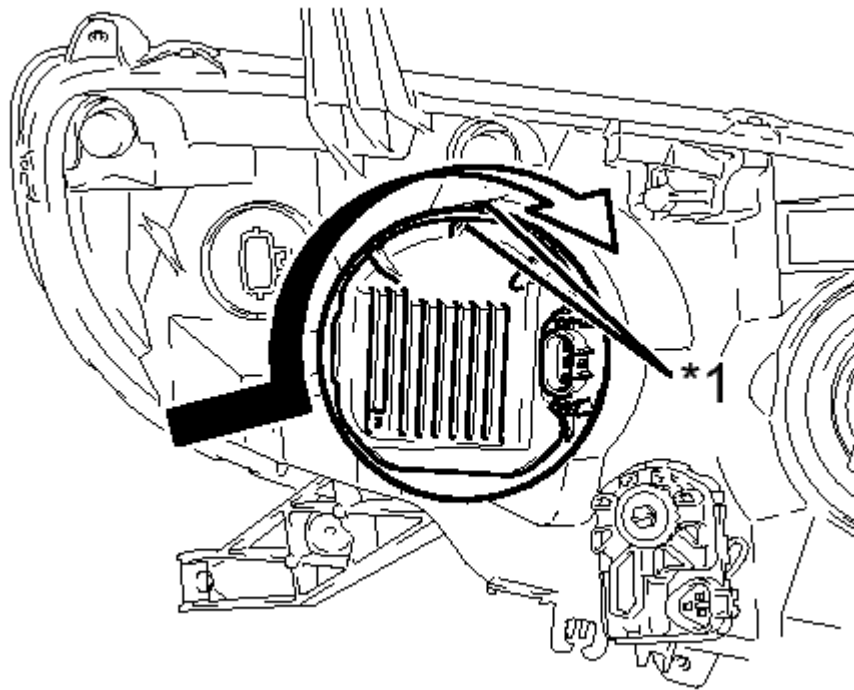
P

Fig. 28: Identifying Output Harness & Red Line
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Red Line
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- c. Turn the light control ECU, in the direction indicated by the arrow in the illustration, to install it.

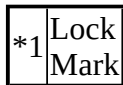


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Fig. 29: Installing Light Control ECU

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

TEXT IN ILLUSTRATION



NOTE:

- To prevent partial engagement, push the light control ECU in all the way, and turn it until the lock mark is aligned.
- Do not apply excessive force using tools, etc.

INSTALLATION

INSTALLATION

1. INSTALL HEADLIGHT ASSEMBLY

- a. Connect the connectors.
- b. Install the headlight with the bolt and 2 screws.

Torque: 3.6 N*m (38 kgf*cm, 32 in.*lbf)

(for Bolt)

2. INSTALL FRONT BUMPER COVER

Refer to **INSTALLATION**

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

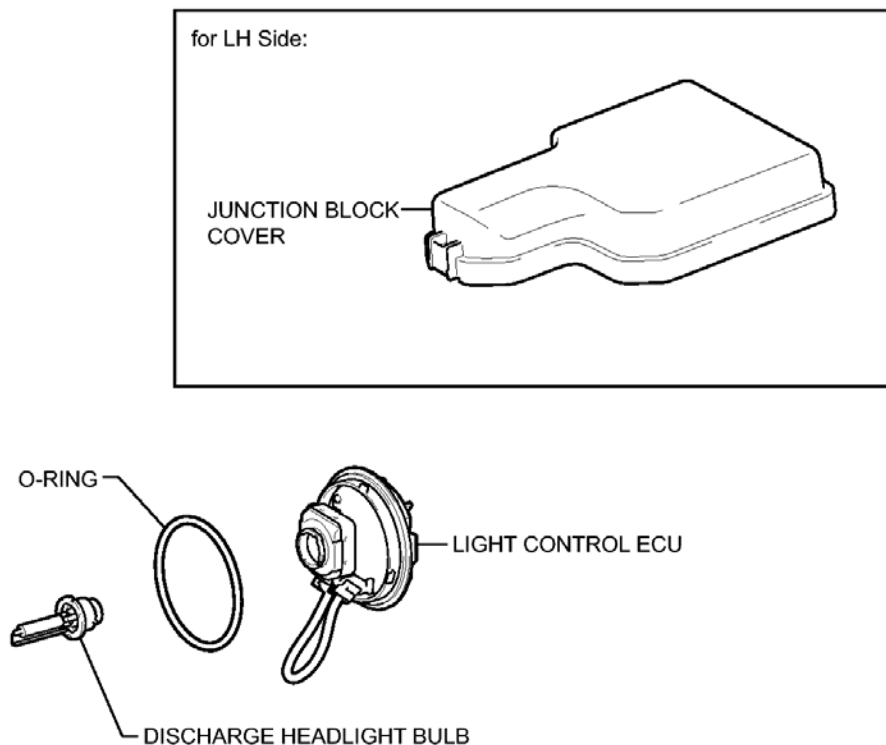
NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

4. **PREPARE VEHICLE FOR HEADLIGHT AIMING ADJUSTMENT** See step 1
5. **PREPARE FOR HEADLIGHT AIMING (Using a headlight aim test machine)** See step 2
6. **PREPARE FOR HEADLIGHT AIMING (Using a screen)** See step 3
7. **INSPECT HEADLIGHT AIMING** See step 4
8. **ADJUST HEADLIGHT AIMING** See step 5

HIGH INTENSITY DISCHARGE HEADLIGHT BULB

COMPONENTS

ILLUSTRATION



P
Fig. 30: High Intensity Discharge Headlight Bulb Replacement Components

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

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT DISCHARGE HEADLIGHT BULB

NOTE: Confirm the following items before replacing a discharge headlight bulb. If a malfunction is discovered and repaired, perform the inspection again to confirm the repair.

- Make sure that the high voltage socket of the light control ECU and discharge headlight bulb are connected normally.
- Make sure that there is no damage to the high voltage socket of the light control ECU or discharge headlight bulb connector.

HINT:

Even if a bulb seems to turn on normally, it may not be normal. Perform all the following steps in order because an abnormal condition might otherwise not be easy to duplicate.

- a. Prepare the vehicle:

Before performing the following inspection procedure, turn off the discharge headlight bulbs for more than 10 minutes to allow them to cool down sufficiently.

HINT:

Since it is necessary to find the cause of a malfunction that causes a discharge headlight bulb not to turn on, the discharge headlight bulbs should be inspected starting from a cooled off state.

1. Turn on the discharge headlights for more than 25 minutes, and check that the bulbs illuminate normally when they are turned on.

HINT:

- Leave the headlights on for more than 25 minutes to stabilize the discharge headlight bulb arc tube voltage.
 - A discharge headlight bulb that has almost reached the end of its life may turn off due to a headlight control ECU fail-safe function because the arc tube voltage is high.
2. Repeatedly turn the discharge headlights off for 15 seconds and on for 15 seconds (5 times for each). Check that the bulbs illuminate normally.

HINT:

This inspection confirms the ability of the bulbs to start when hot.

3. Turn off the discharge headlights for 3 minutes, and then turn on the discharge headlights for 3 minutes. Check that the bulbs illuminate normally when they are turned on.

HINT:

- A characteristic of discharge headlight bulbs is that their starting voltage is highest when 3 minutes have elapsed after being turned off. This is the most difficult situation for discharge bulbs to start in.
- This inspection is further confirmation of the ability of the bulbs to start when hot.

Discharge headlight bulb inspection procedure

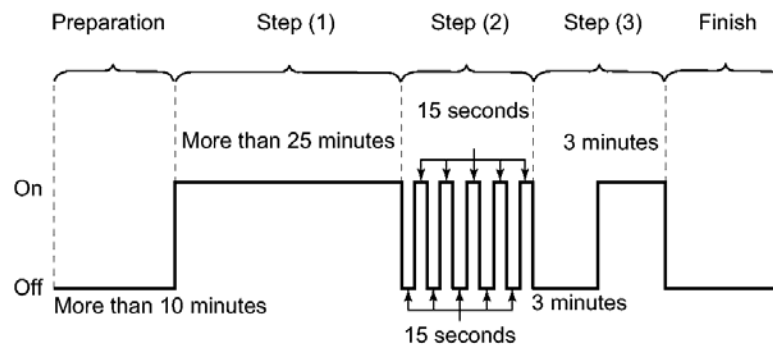


Fig. 31: Discharge Headlight Bulb Inspection Procedure
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard

The discharge headlight bulbs illuminate normally in all steps.

4. Remove the discharge headlight bulb and perform a visual inspection of the arc tube.

Standard

The inside of the arc tube is not bulging or deformed and is not clouded. However, a dull brown coloration inside the arc tube is normal.

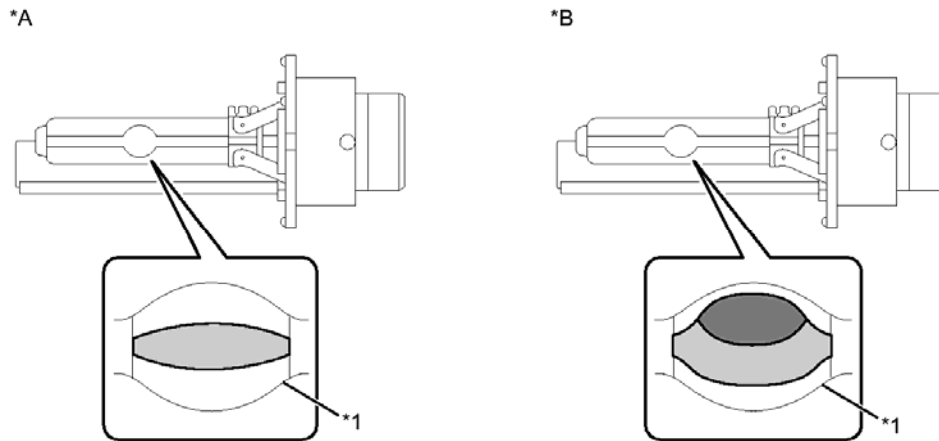


Fig. 32: Identifying Arc Tube Coloration
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*A	Discharge Headlight Bulb is Normal	*B	Discharge Headlight Bulb at End of Usable Life
*1	Arc Tube	-	-
	Inside of Arc Tube		Distortion / Clouded Area

REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. PRECAUTION

Refer to **PRECAUTION**

2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

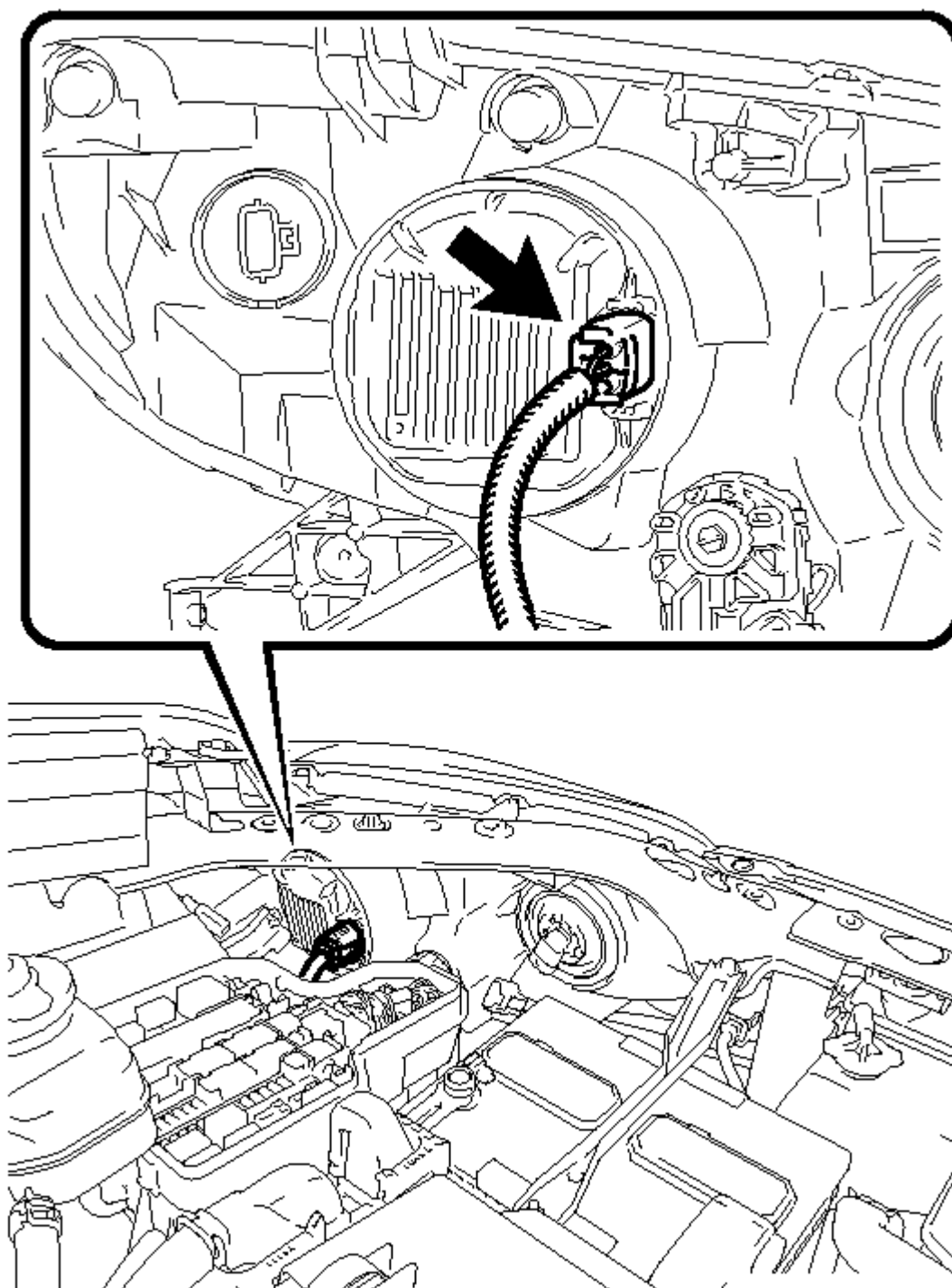
WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

3. REMOVE JUNCTION BLOCK COVER (for LH Side)
4. REMOVE LIGHT CONTROL ECU

WARNING: When the light control switch is set to HEAD or has recently been set to OFF, the light control ECU can be extremely hot, so make sure that components have cooled down before beginning work.

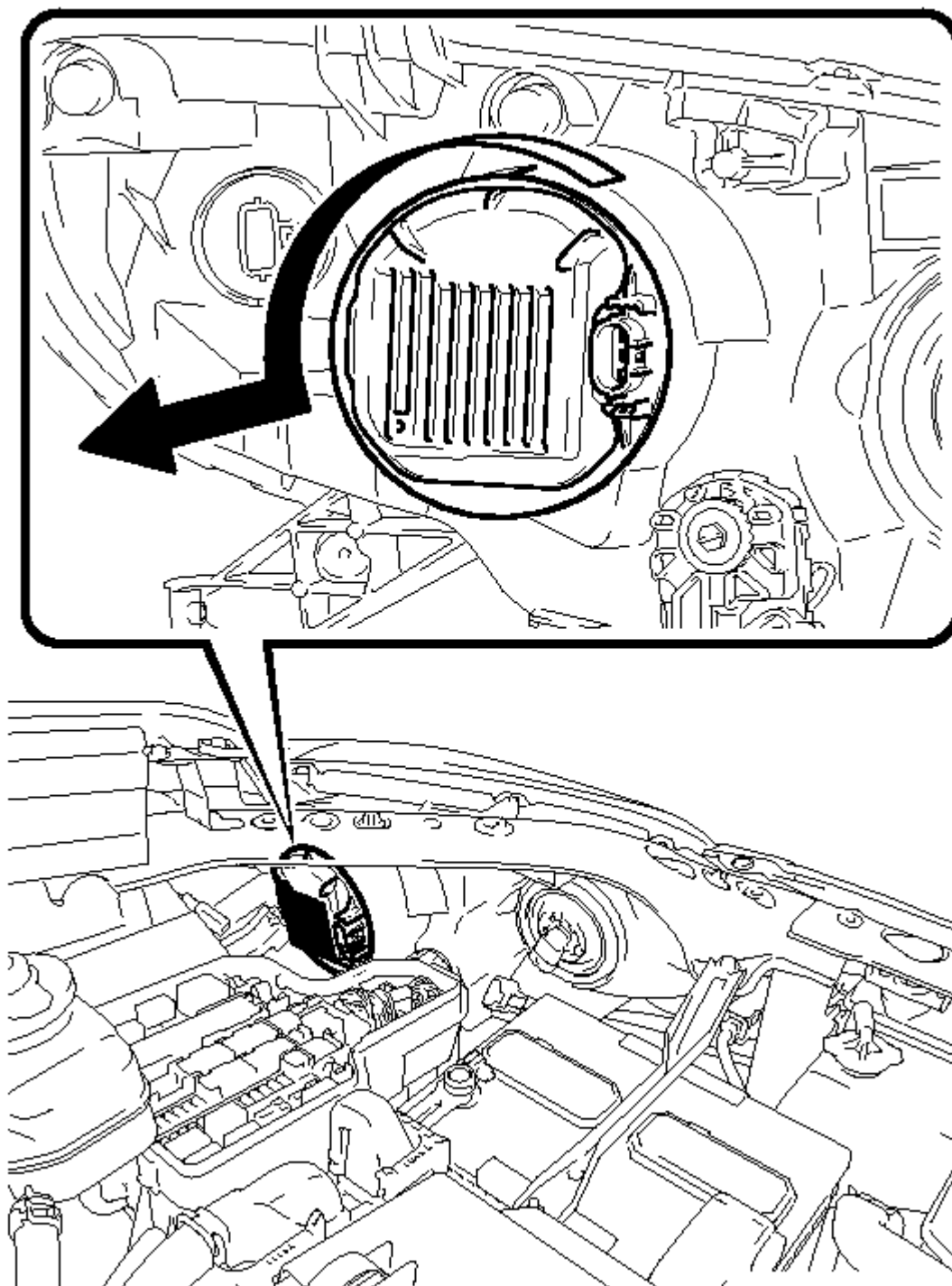
- a. Disconnect the connector.



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Fig. 33: Identifying Light Control ECU Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the light control ECU, in the direction indicated by the arrow in the illustration, to remove it.



P

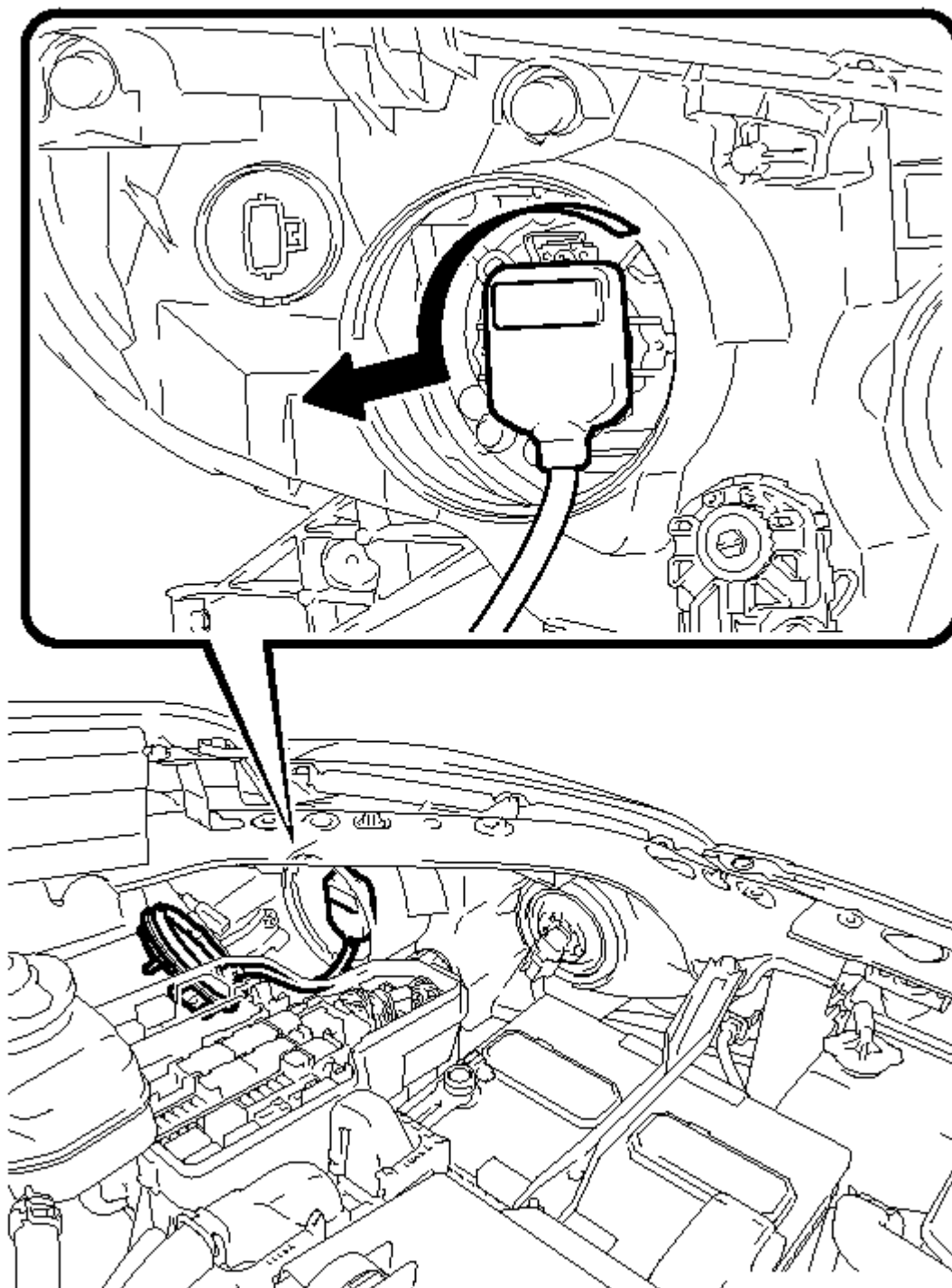
Fig. 34: Removing Light Control ECU

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

NOTE:

- Do not apply excessive force using tools, etc.

- **Make sure that the o-ring is not damaged and is free of dirt and foreign matter. If the o-ring is damaged, water can leak into the headlight assembly, which can damage the light control ECU.**
- c. Turn the light control ECU socket, in the direction indicated by the arrow in the illustration, to disconnect it.



P

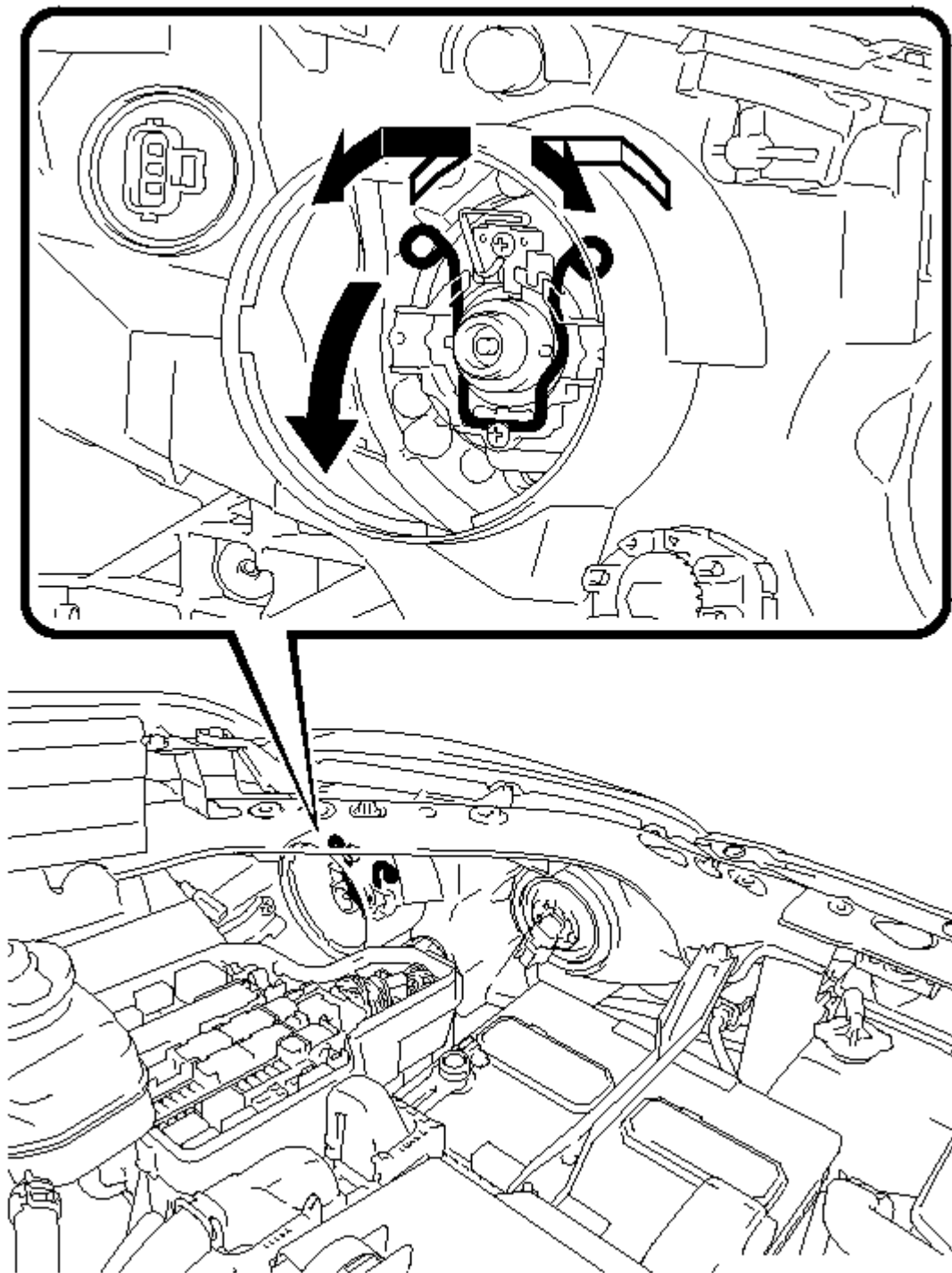
Fig. 35: Removing Light Control ECU Socket

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

NOTE: Do not pull on the light control ECU while its socket is connected to the discharge headlight bulb.

5. REMOVE DISCHARGE HEADLIGHT BULB

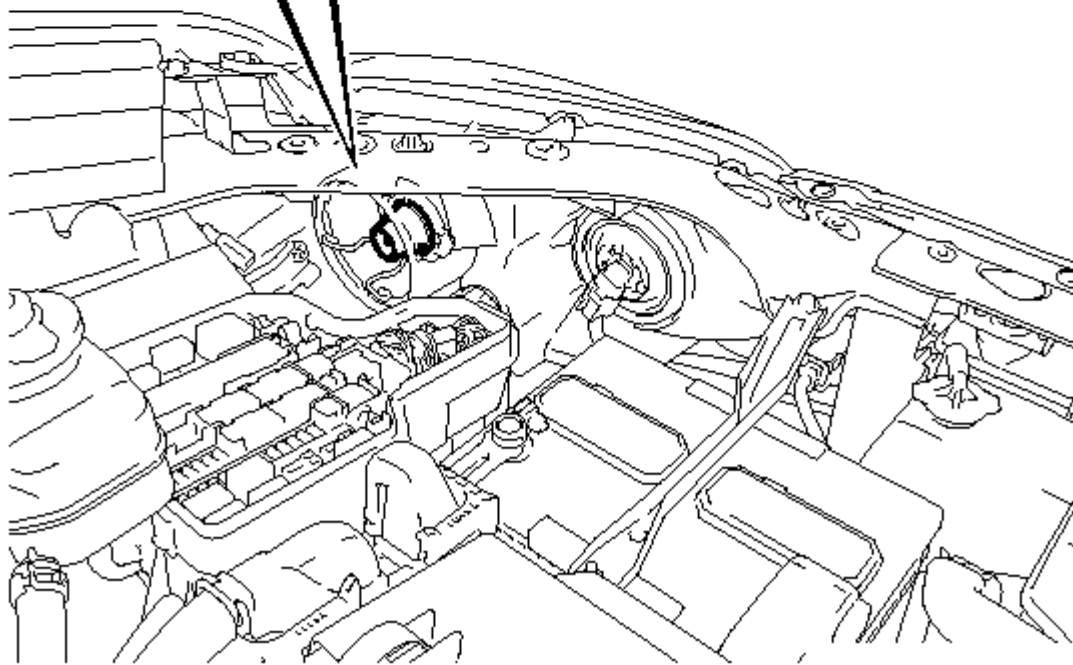
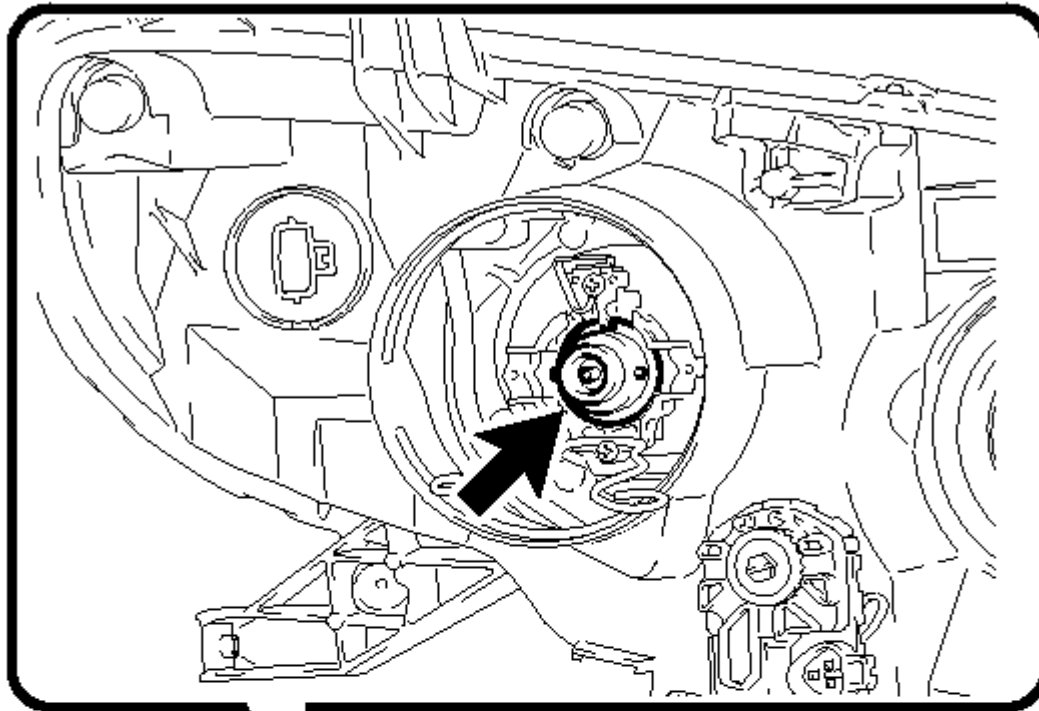
- a. Release the set spring in the direction indicated by the arrow in the illustration.



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Fig. 36: Releasing Discharge Headlight Bulb Set Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the discharge headlight bulb.



P

Fig. 37: Identifying Discharge Headlight Bulb
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

NOTE: Do not touch the bulb glass with your fingers.

INSTALLATION

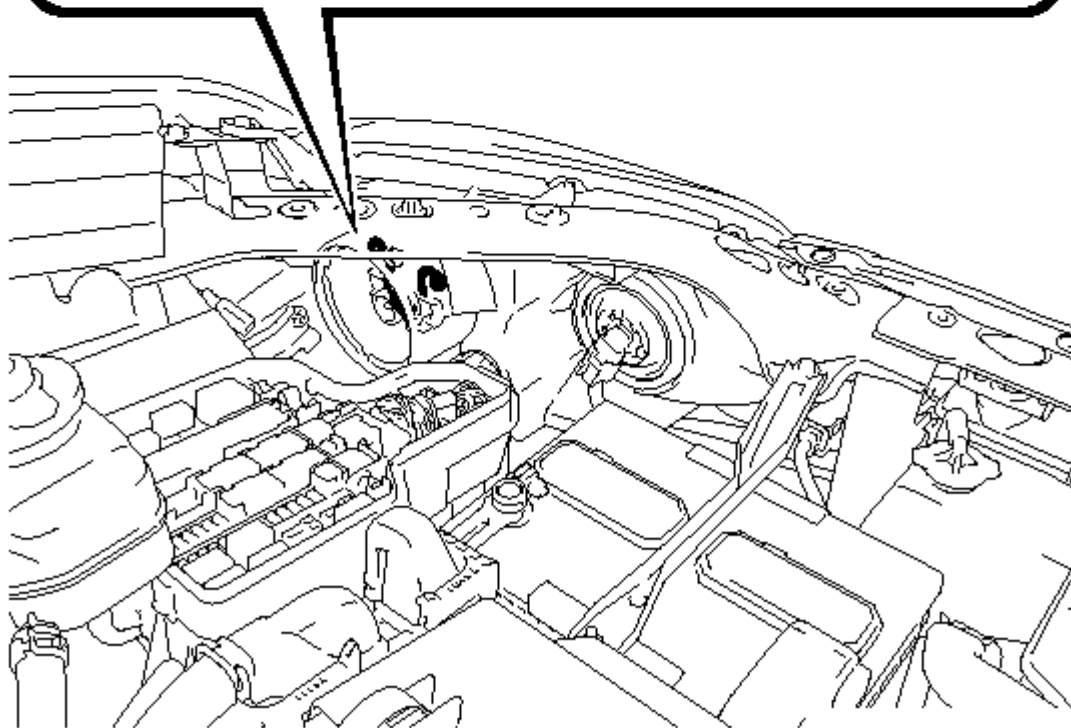
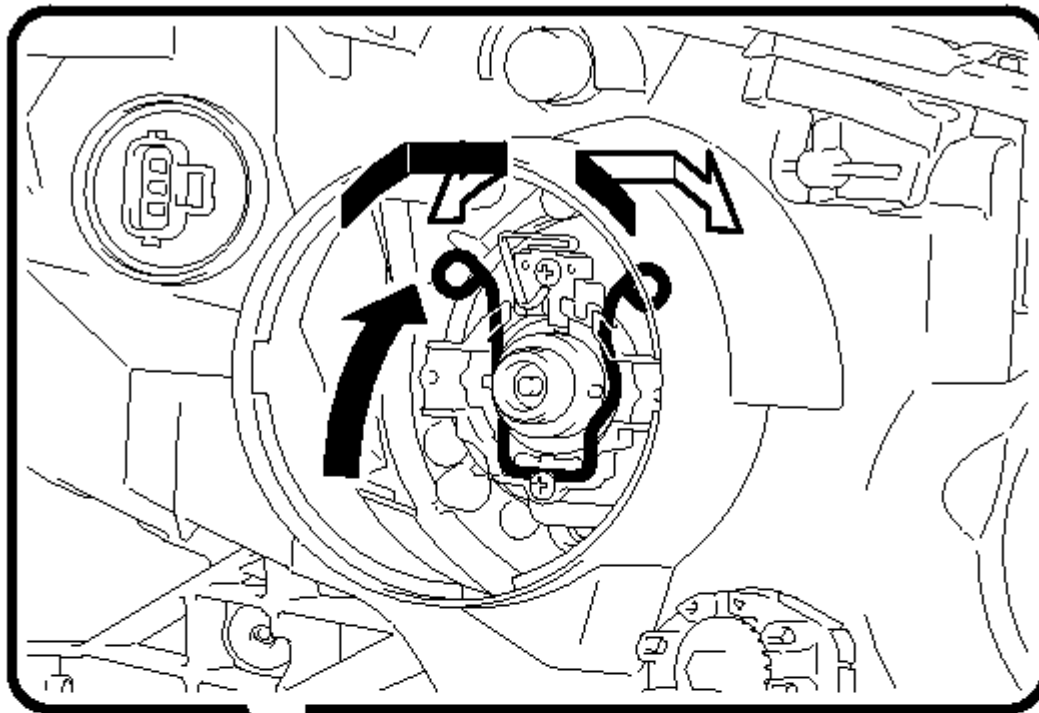
INSTALLATION

1. INSTALL DISCHARGE HEADLIGHT BULB

- a. Install the discharge headlight bulb.

NOTE: Do not touch the bulb glass with your fingers.

- b. Lock the set spring in the direction indicated by the arrow in the illustration.



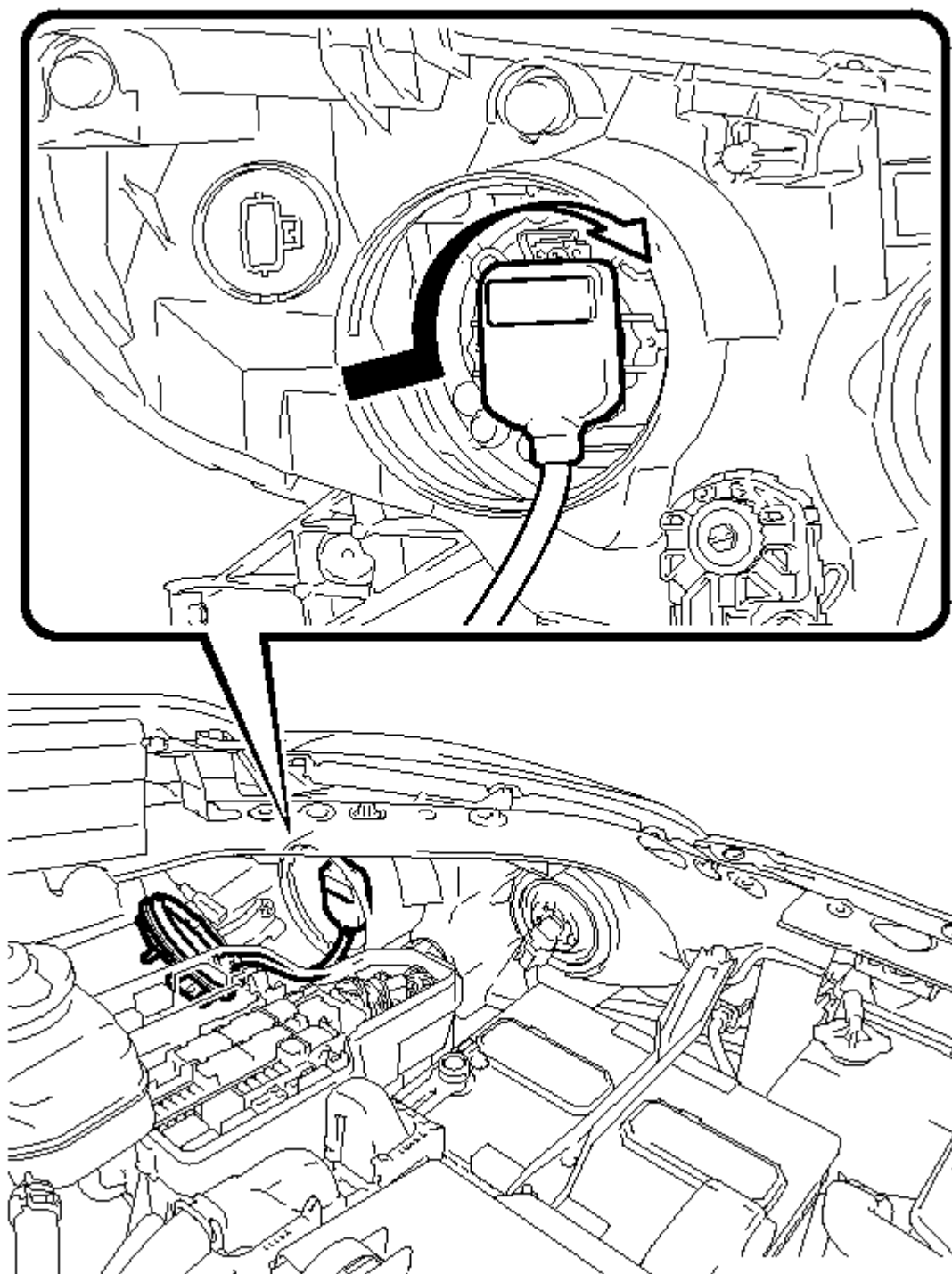
P

Fig. 38: Locking Discharge Headlight Bulb Set Spring
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

2. INSTALL LIGHT CONTROL ECU

- a. Turn the light control ECU socket, in the direction indicated by the arrow in the illustration, to

connect it.



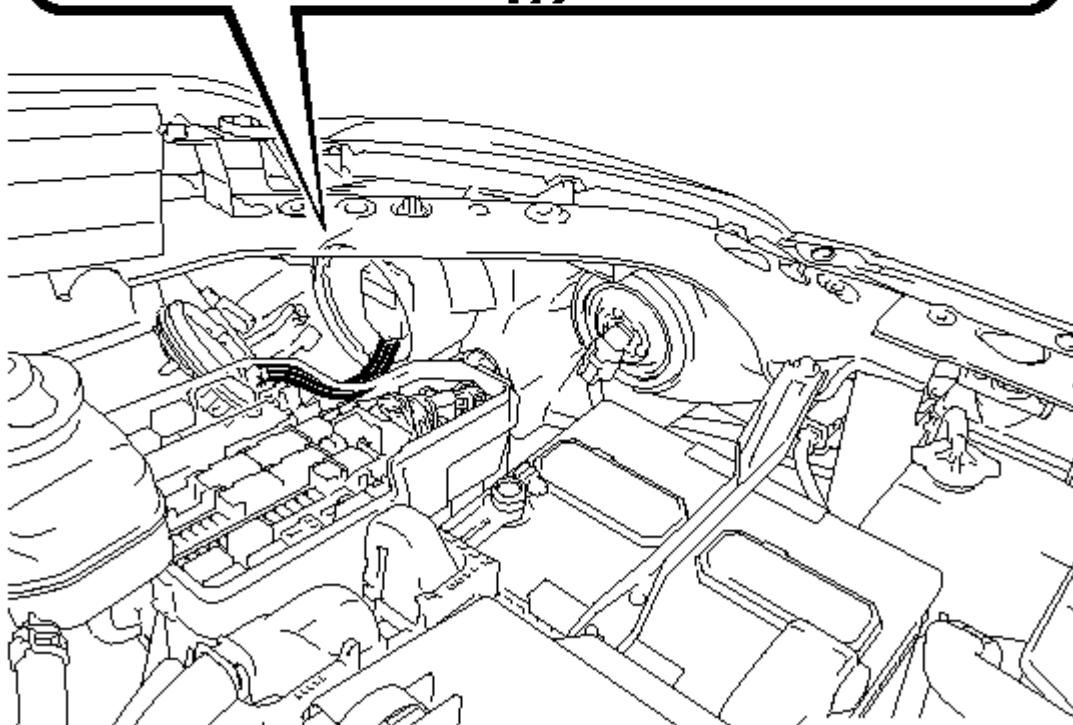
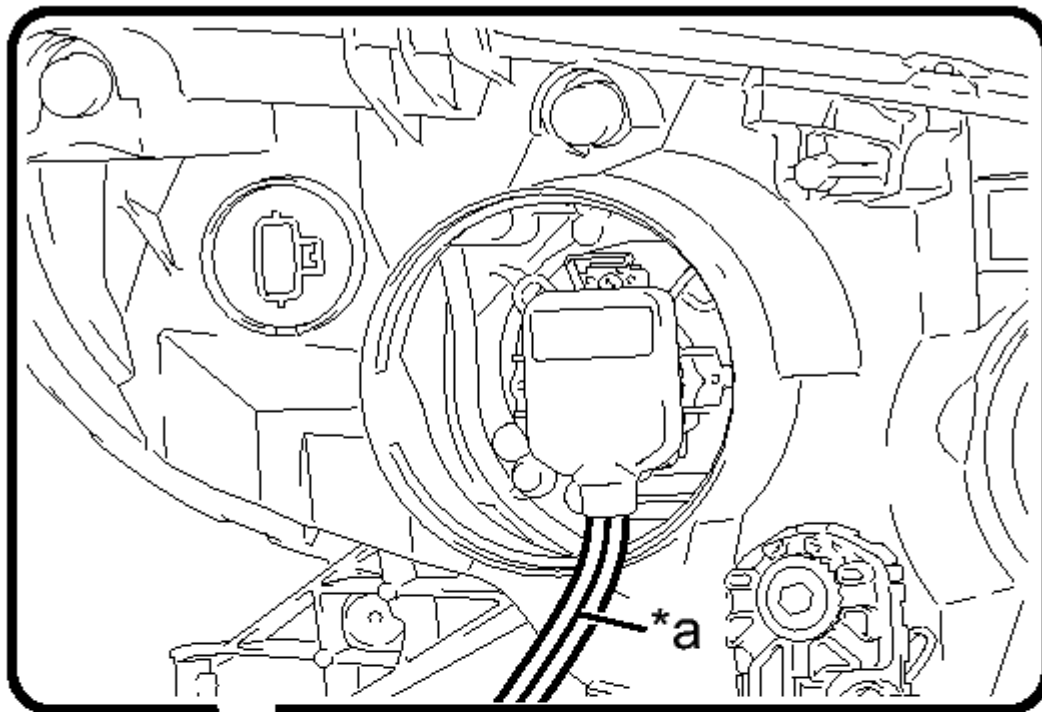
P

Fig. 39: Installing Light Control ECU Socket

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

NOTE:

- **Make sure that the light control ECU has an o-ring installed. When installing a new light control ECU, install a new o-ring as well.**
 - **Make sure that the o-ring is not damaged and is free of dirt and foreign matter. If the o-ring is damaged, water can leak into the headlight assembly, which can damage the light control ECU.**
 - **Do not pull on the light control ECU while its socket is connected to the discharge headlight bulb.**
- b. Confirm that the red line on the output harness is not twisted, and store the output harness in the headlight, making sure that the harness is not caught on or pinched by anything.



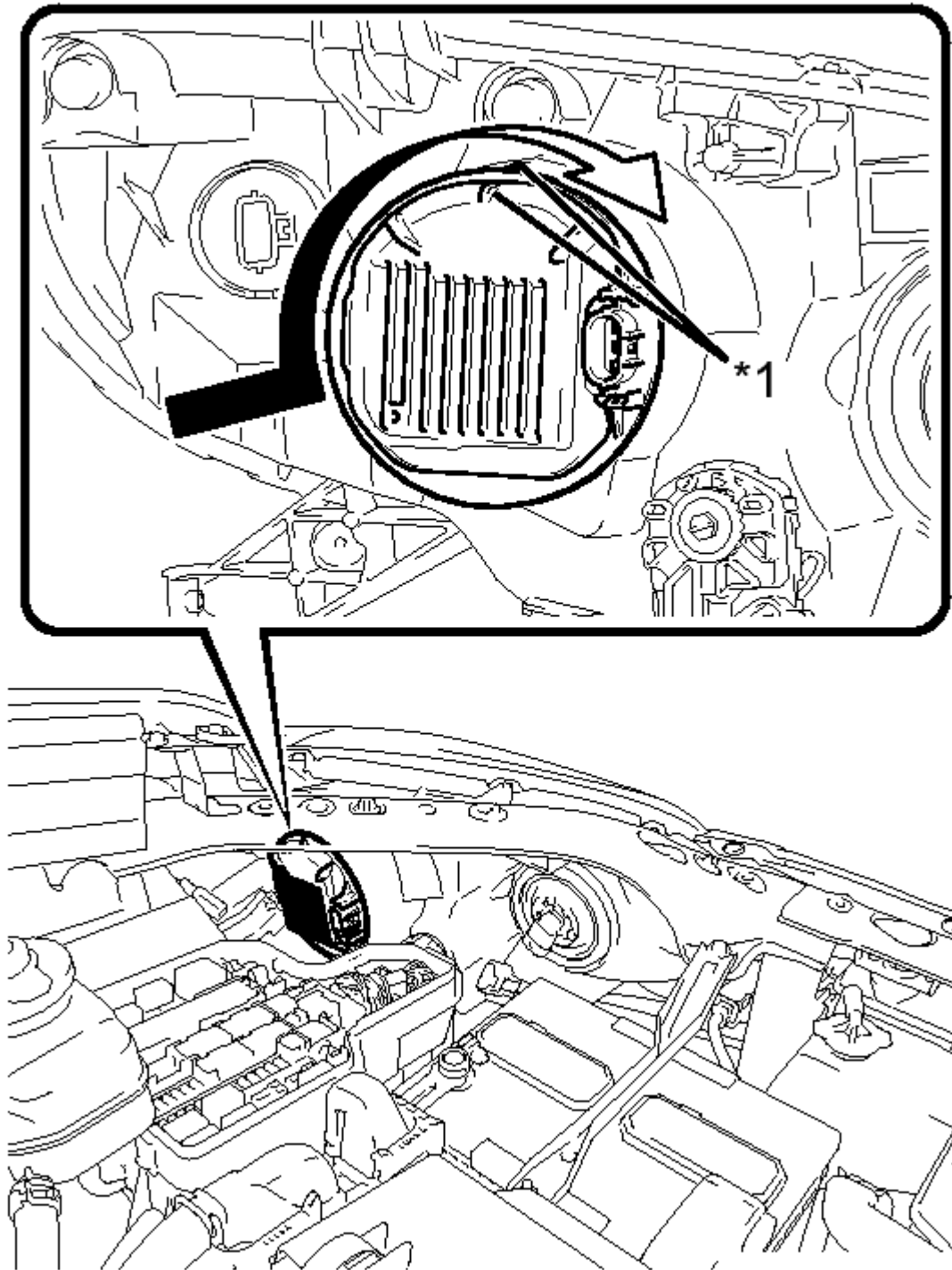
P

Fig. 40: Identifying Output Harness & Red Line
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Red

- c. Turn the light control ECU, in the direction indicated by the arrow in the illustration, to install it.

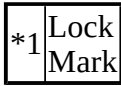


P

Fig. 41: Installing Light Control ECU

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

TEXT IN ILLUSTRATION



NOTE:

- To prevent partial engagement, push the light control ECU in all the way, and turn it until the lock mark is aligned.
- Do not apply excessive force using tools, etc.

d. Connect the connector.

3. **INSTALL JUNCTION BLOCK COVER (for LH Side)**
4. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

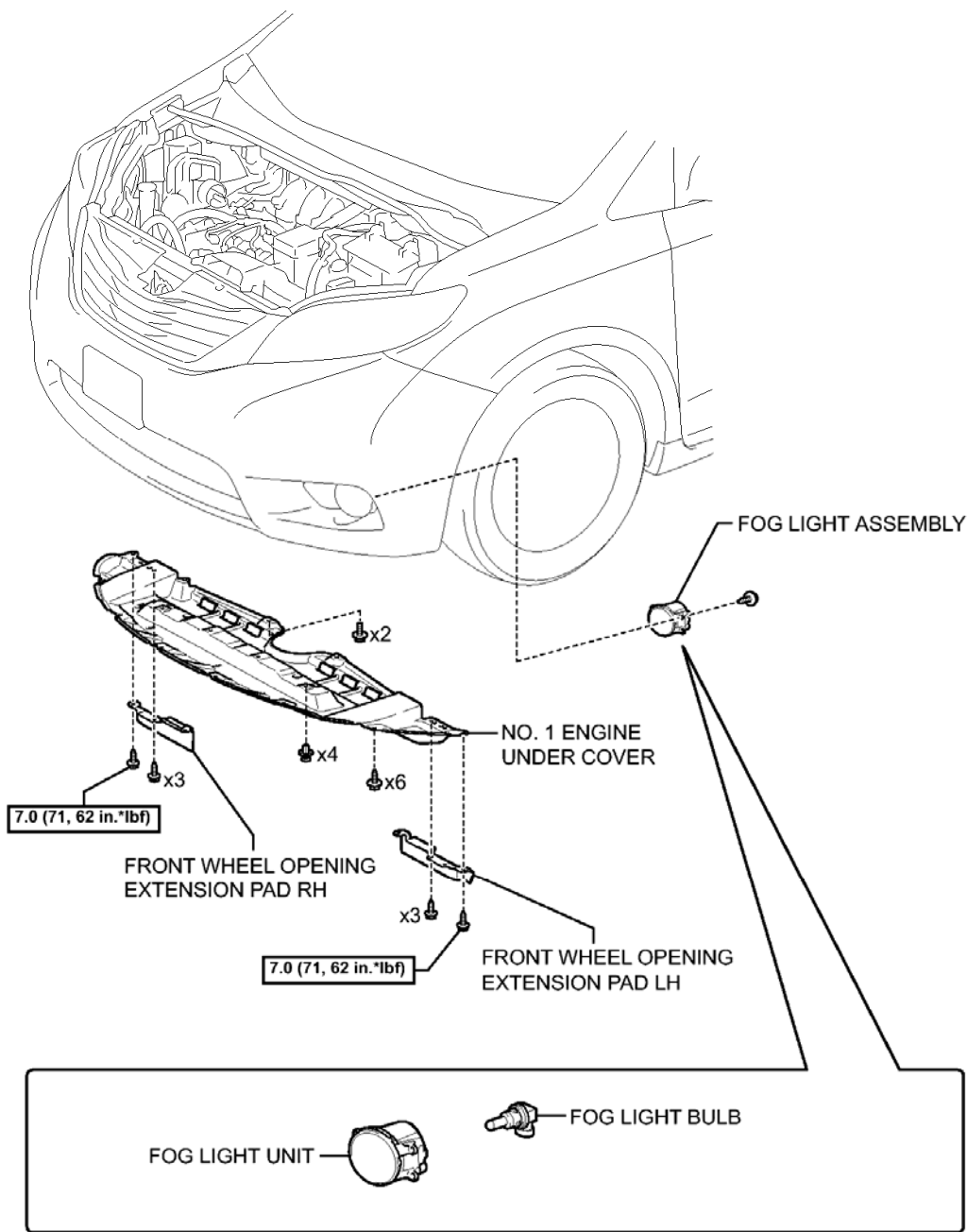
Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

FOG LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



[N*m (kgf*cm, ft.*lbf)]: Specified torque

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Fig. 42: Fog Light Assembly Replacement Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

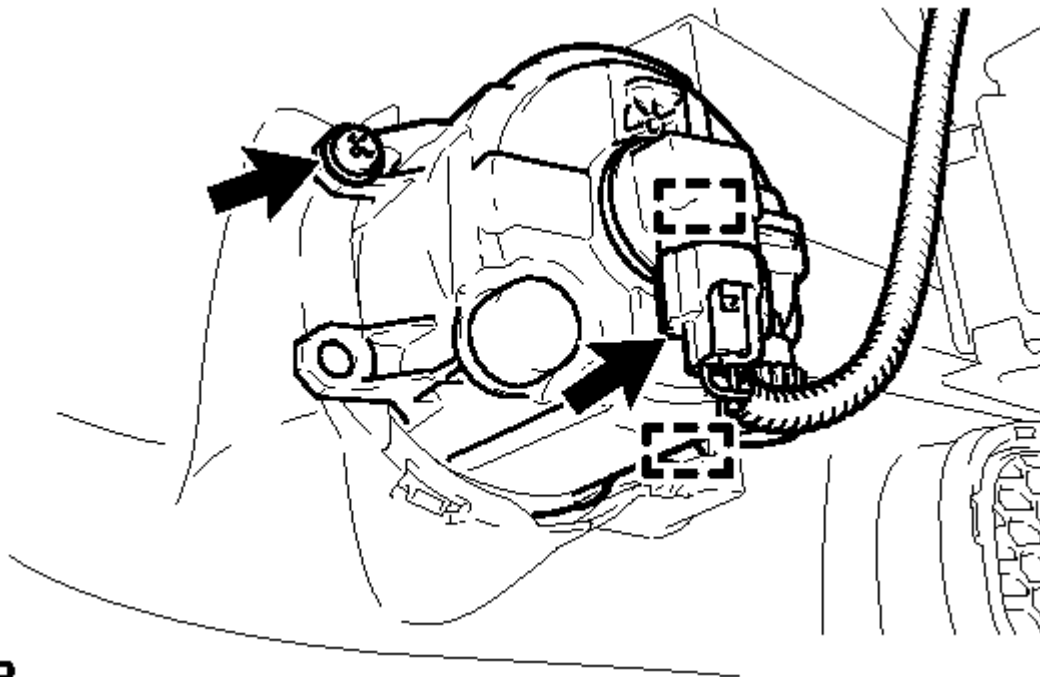
REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. **REMOVE NO. 1 ENGINE UNDER COVER** . Refer to **REMOVAL - Step 4**
2. **REMOVE FOG LIGHT ASSEMBLY**



P

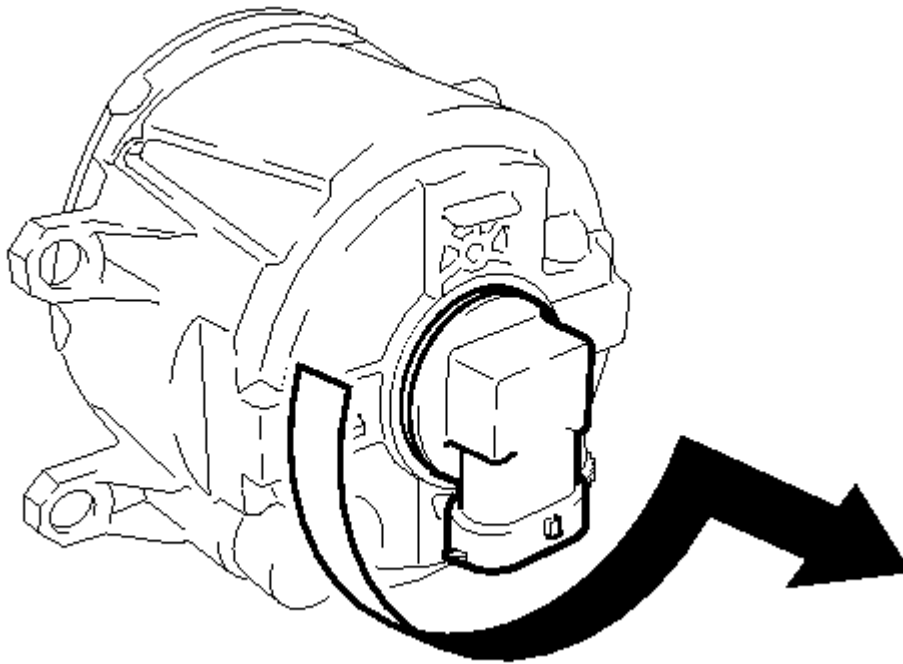
Fig. 43: Identifying Fog Light Assembly, Connector & Screw
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the screw.
- c. Disengage the 2 guides and remove the fog light.

DISASSEMBLY

DISASSEMBLY

1. **REMOVE FOG LIGHT BULB**



P

Fig. 44: Removing Fog Light Bulb

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

- a. Turn the fog light bulb, in the direction indicated by the arrow in the illustration, to remove it.

NOTE: **Do not touch the bulb glass with your fingers.**

ADJUSTMENT

ADJUSTMENT

HINT:

It is possible that a bulb is incorrectly installed, affecting fog light aim. Bulb installation should be considered prior to performing the adjustment procedure.

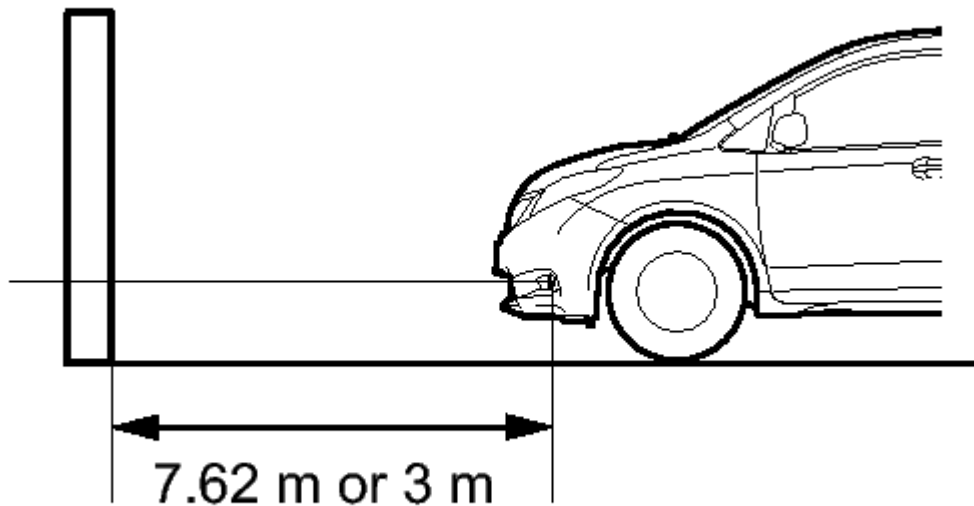
1. PREPARE VEHICLE FOR FOG LIGHT AIM ADJUSTMENT

- a. Prepare the vehicle:
 - Ensure there is no damage or deformation to the body around the fog lights.
 - Fill the fuel tank.
 - Make sure that the oil is filled to the specified level.
 - Make sure that the coolant is filled to the specified level.
 - Inflate the tires to the appropriate pressure.
 - Unload the trunk and vehicle, ensuring that the spare tire, tools and jack are in their original positions.

- Sit a person of average weight (68 kg, 150 lb) in the driver's seat.

2. PREPARE FOR FOG LIGHT AIMING

- Prepare the vehicle:



P

Fig. 45: Identifying Vehicle To Wall Distance

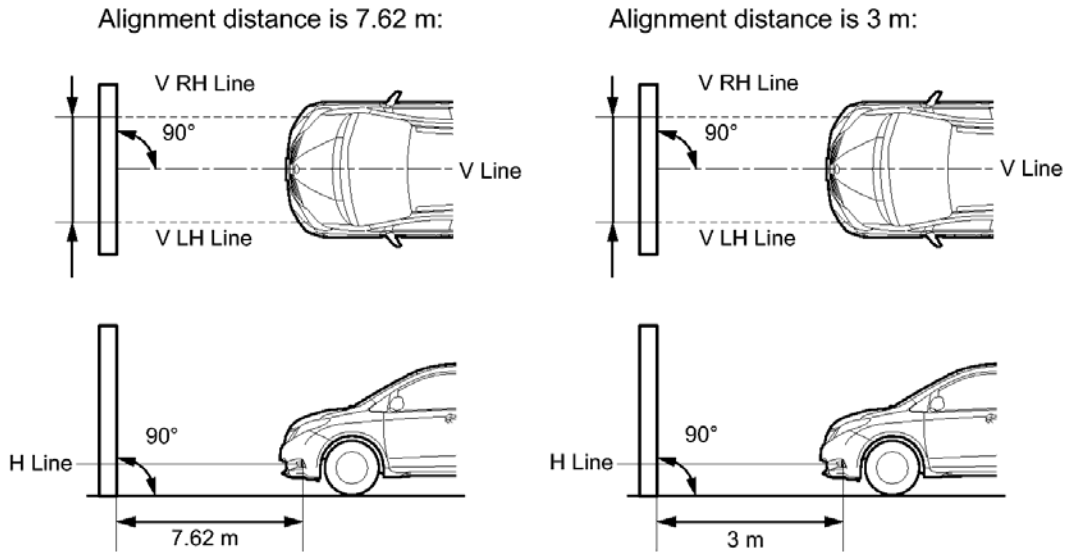
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Place the vehicle in a location that is dark enough to clearly observe the cutoff line. The cutoff line is a distinct line, below which light from the fog lights can be observed and above which it cannot.
- Place the vehicle at a 90° angle to the wall.
- Create a 7.62 m (25 ft.) distance between the vehicle (fog light bulb center) and the wall.
- Make sure that the vehicle is on a level surface.
- Position the front wheels straight ahead.
- Bounce the vehicle up and down to settle the suspension.

NOTE: A distance of 7.62 m (25 ft.) between the vehicle (fog light bulb center) and the wall is necessary for proper aim adjustment. If sufficient space is not available, secure a distance of exactly 3 m (9.84 ft.) to allow for checking and adjustment of fog light aim. (The size of the target zone will change with the distance, so follow the instructions in the illustration.)

- Prepare a piece of thick white paper (approximately 2 m (6.6 ft.) (height) x 4 m (13.1 ft.) (width)) to use as a screen.

- c. Draw a vertical line down the center of the screen (V line).
- d. Set the screen as shown in the illustration.

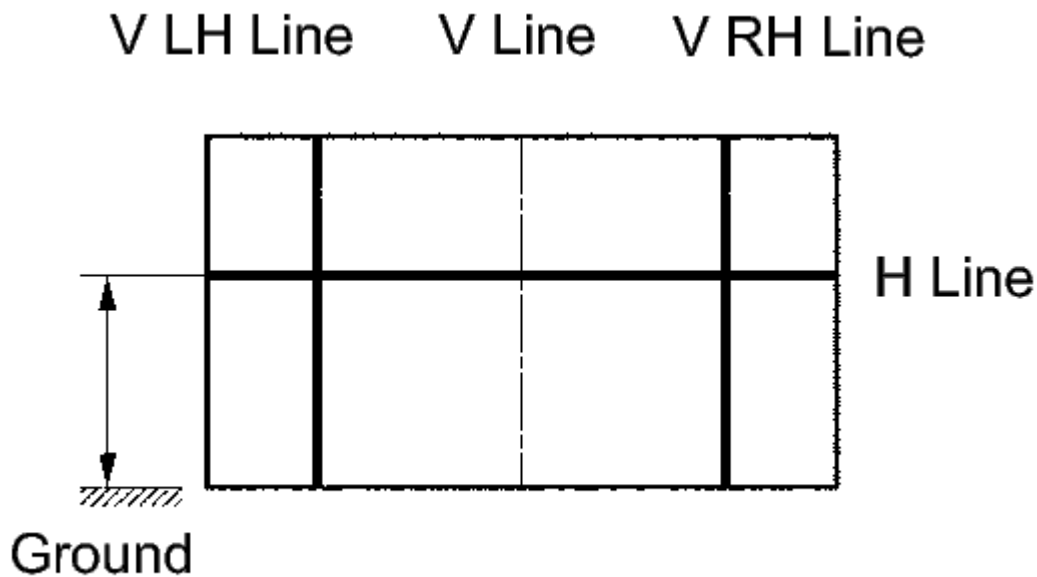


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Fig. 46: Identifying Center of Vehicle & V Line Alignment
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

- Stand the screen perpendicular to the ground.
 - Align the V line on the screen with the center of the vehicle.
- e. Draw base lines (H, V LH, and V RH lines) on the screen as shown in the illustration.



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I33423

Fig. 47: Identifying V LH Line, V RH Line Graph
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

HINT:

Mark the fog light bulb center marks on the screen. If the center mark cannot be observed on the fog light, use the center of the fog light bulb or the manufacturer's name marked on the fog light as the center mark.

1. H Line (Fog light height):

Draw a horizontal line across the screen so that it passes through the center marks. The H line should be at the same height as the fog light bulb center marks of the fog lights.

2. V LH Line, V RH Line (Center mark position of left-hand (LH) and right-hand (RH) fog lights):

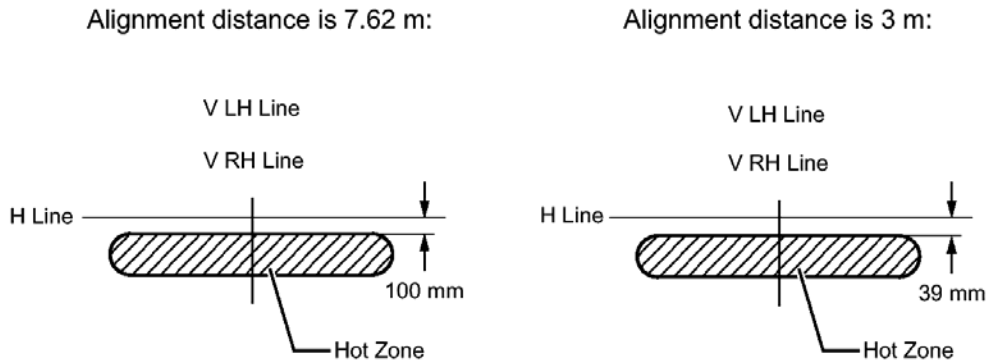
Draw two vertical lines so that they intersect the H line at each center mark (aligned with the center of the fog light bulbs).

3. INSPECT FOG LIGHT AIMING

- a. Cover the fog light or disconnect the connector of the fog light on the opposite side to prevent light from the fog light that is not being inspected from affecting the fog light aiming inspection.

NOTE: **Do not keep the fog light covered for more than 3 minutes. The fog light lens is made of synthetic resin, which may melt or be damaged due to excessive heat.**

- b. Start the engine.
- c. Turn on the fog lights and check if the upper edge of the hot zone for each fog light matches the upper edge as shown in the illustration.



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Fig. 48: Identifying Fog Light Hot Zone

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

HINT:

- If the alignment distance is 7.62 m (25 ft.):

The upper edge of the hot zone for the fog light should be 100 mm (3.94 in.) below the H line.

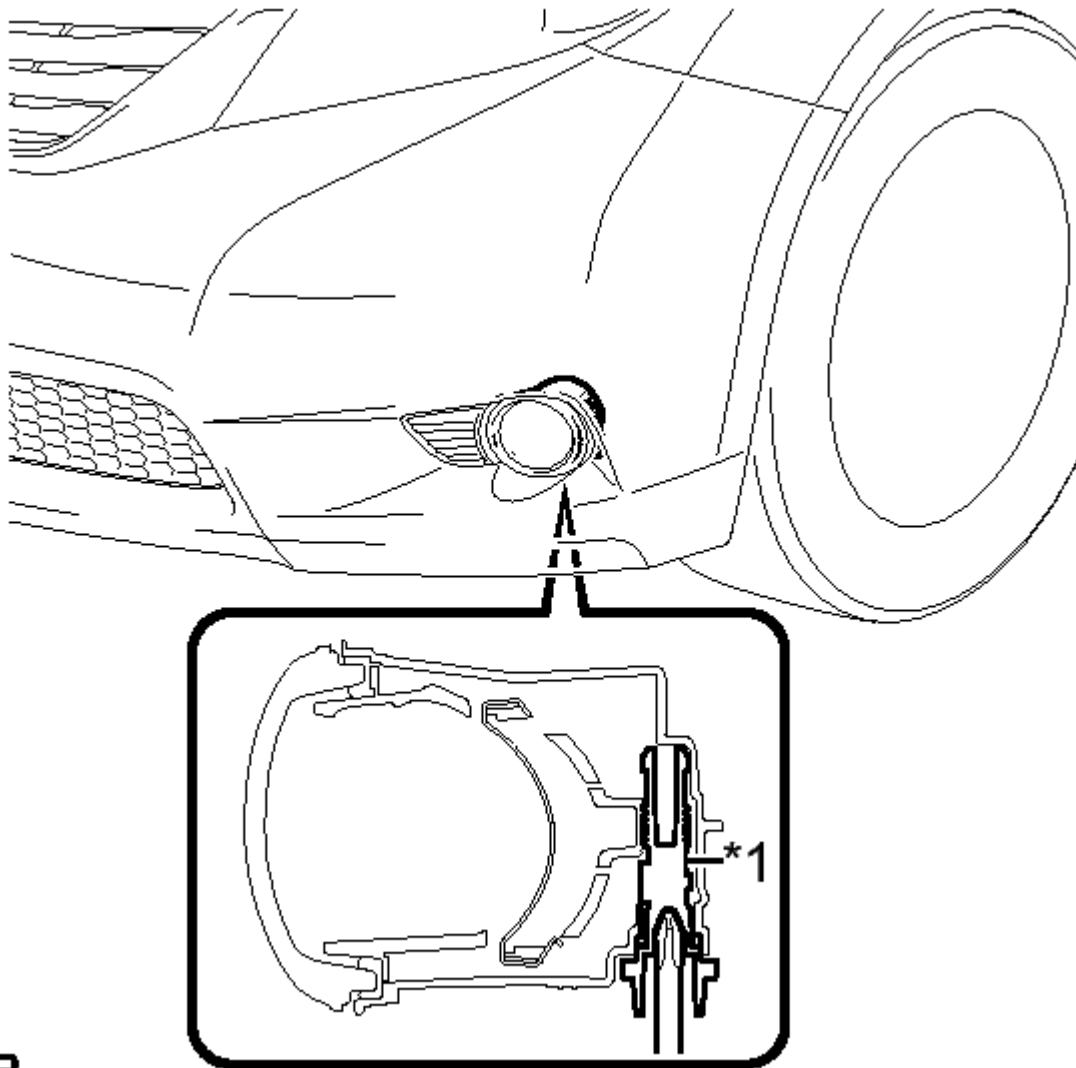
- If the alignment distance is 3 m (9.84 ft.):

The upper edge of the hot zone for the fog light should be 39 mm (1.54 in.) below the H line.

4. ADJUST FOG LIGHT AIMING

- a. Adjust the aim vertically:

Adjust the aim of each fog light to the specified range by turning each aiming screw with a screwdriver.



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Fig. 49: Identifying Fog Light Aiming Screw

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

TEXT IN ILLUSTRATION

*1	Aiming Screw
----	-----------------

NOTE: The final turn of the aiming screw should be made in the clockwise direction. If the screw is tightened excessively, loosen it and then retighten it, so that the final turn of the screw is in the clockwise direction.

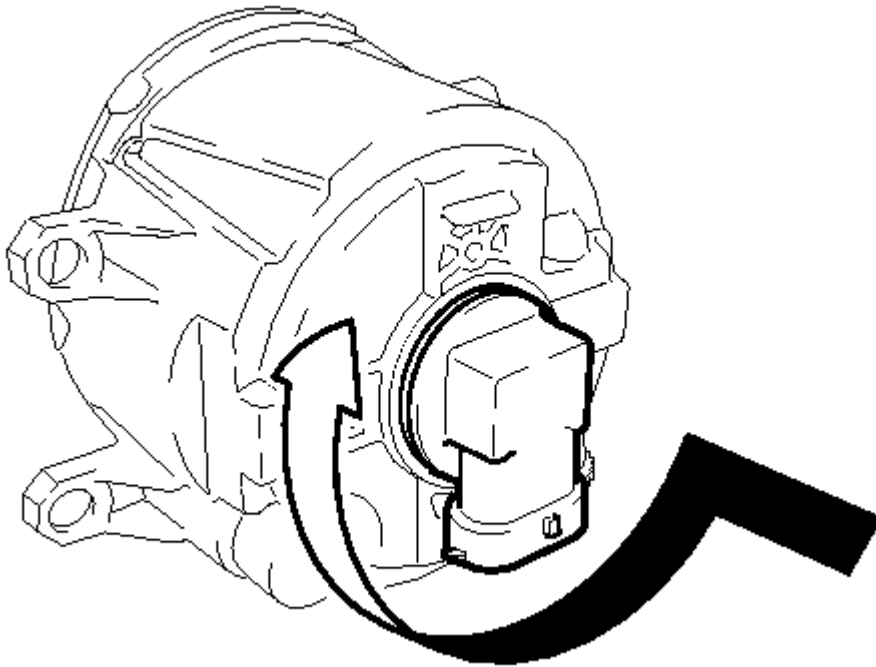
HINT:

If it is not possible to correctly adjust fog light aim, check bulb, fog light unit and fog light unit reflector installation.

REASSEMBLY

REASSEMBLY

1. INSTALL FOG LIGHT BULB



P

Fig. 50: Installing Fog Light Bulb

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

- a. Turn the fog light bulb, in the direction indicated by the arrow in the illustration, to install it.

NOTE: **Do not touch the bulb glass with your fingers.**

INSTALLATION

INSTALLATION

1. INSTALL FOG LIGHT ASSEMBLY

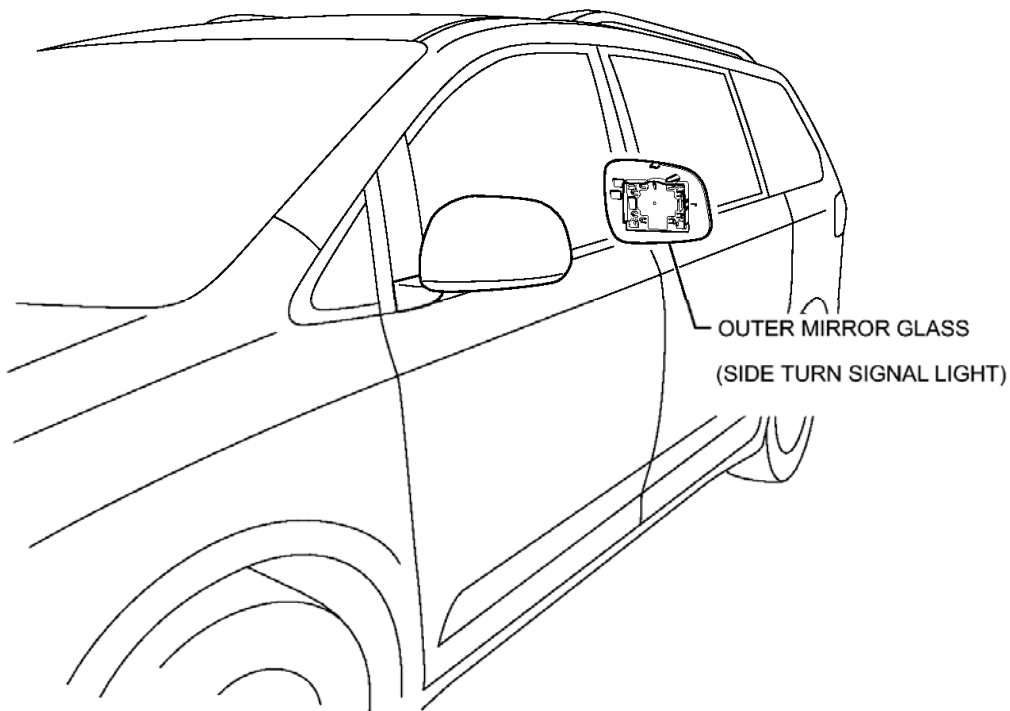
- a. Engage the 2 guides and install the fog light.
 - b. Install the screw.
 - c. Connect the connector.
2. **INSTALL NO. 1 ENGINE UNDER COVER** . Refer to **INSTALLATION - Step 16**
 3. **PREPARE VEHICLE FOR FOG LIGHT AIM ADJUSTMENT** See step 1
 4. **PREPARE FOR FOG LIGHT AIMING** See step 2
 5. **INSPECT FOG LIGHT AIMING** See step 3

6. **ADJUST FOG LIGHT AIMING** See step 4

SIDE TURN SIGNAL LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



Y

Fig. 51: Side Turn Signal Light Assembly Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

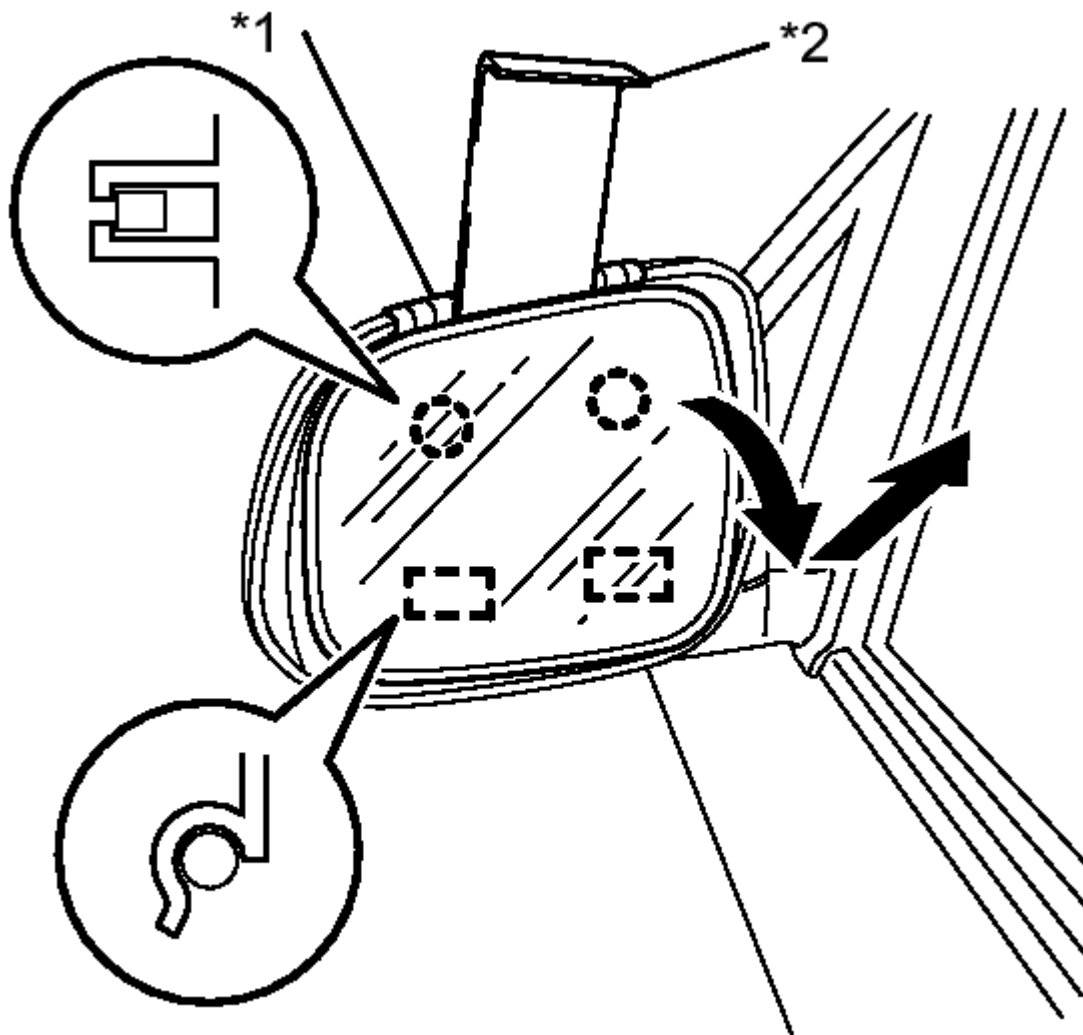
REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. REMOVE OUTER MIRROR GLASS

- a. Push the lower part of the mirror surface and tilt it.
- b. Apply protective tape as shown in the illustration.



Y

Fig. 52: Removing Outer Mirror Glass & Fasteners Using A Moulding Remover
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

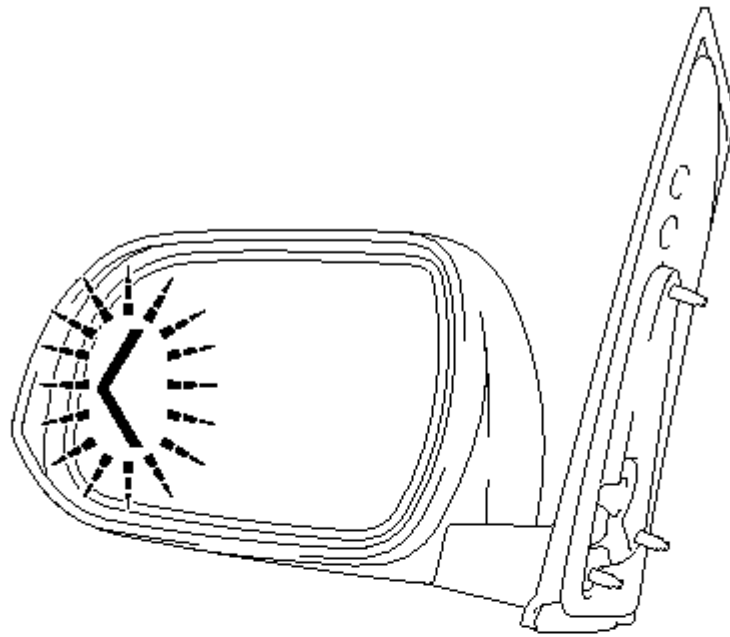
*1	Protective Tape
*2	Moulding Remover

- c. Using a moulding remover, disengage the 2 claws at the upper part of the outer rear view mirror.
- d. Disengage the 2 guides and separate the outer mirror glass.
- e. Disconnect the 2 connectors, 2 terminals and remove the outer mirror glass.

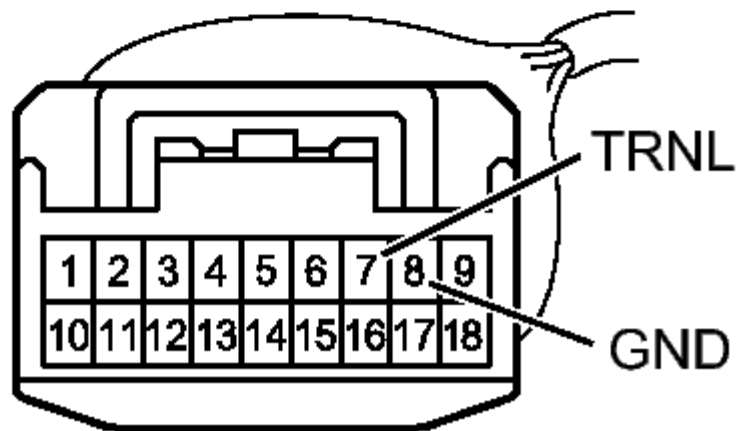
INSPECTION

INSPECTION

- 1. INSPECT OUTER MIRROR GLASS (for LH Side)**
 - a. Check the door mirror turn indicator.



*a



P

Fig. 53: Outer Mirror Glass Connector End View (LH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Apply battery voltage to the terminals of the connector, and check the LED illumination condition.

OK

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7 (TRNL) Battery negative (-) --> Terminal 8 (GND)	Door mirror turn indicator illuminates

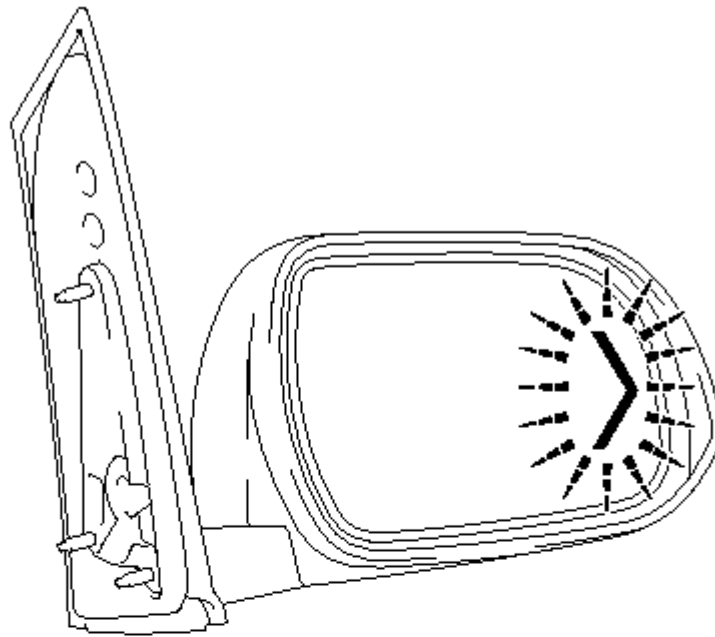
TEXT IN ILLUSTRATION

*a	Component without harness connected (Outer Mirror Glass)
----	--

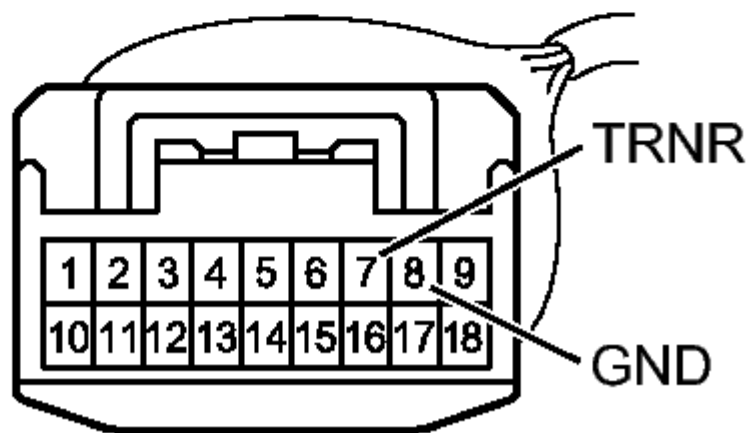
If the result is not as specified, replace the outer mirror glass.

2. INSPECT OUTER MIRROR GLASS (for RH Side)

- a. Check the door mirror turn indicator.



*a



P

Fig. 54: Outer Mirror Glass Connector End View (RH)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Apply battery voltage to the terminals of the connector, and check the LED illumination condition.

OK

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 7 (TRNR)	Door mirror turn indicator illuminates
Battery negative (-) --> Terminal 8 (GND)	

TEXT IN ILLUSTRATION

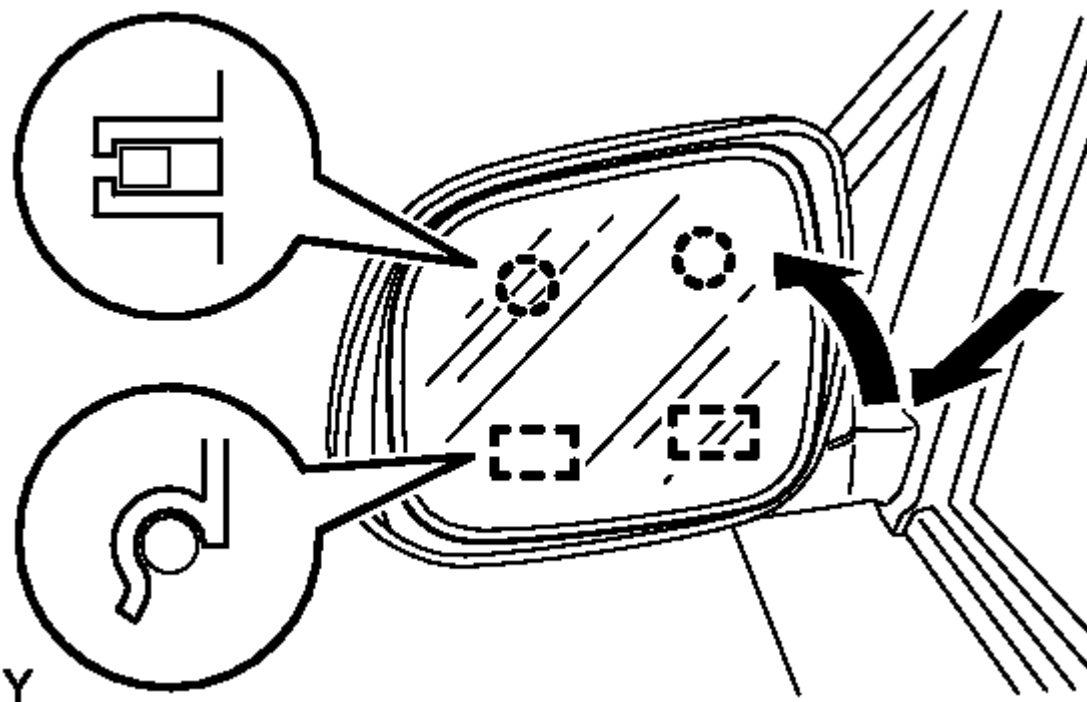
	Component without harness
*a	connected (Outer Mirror Glass)

If the result is not as specified, replace the outer mirror glass.

INSTALLATION

INSTALLATION

1. INSTALL OUTER MIRROR GLASS



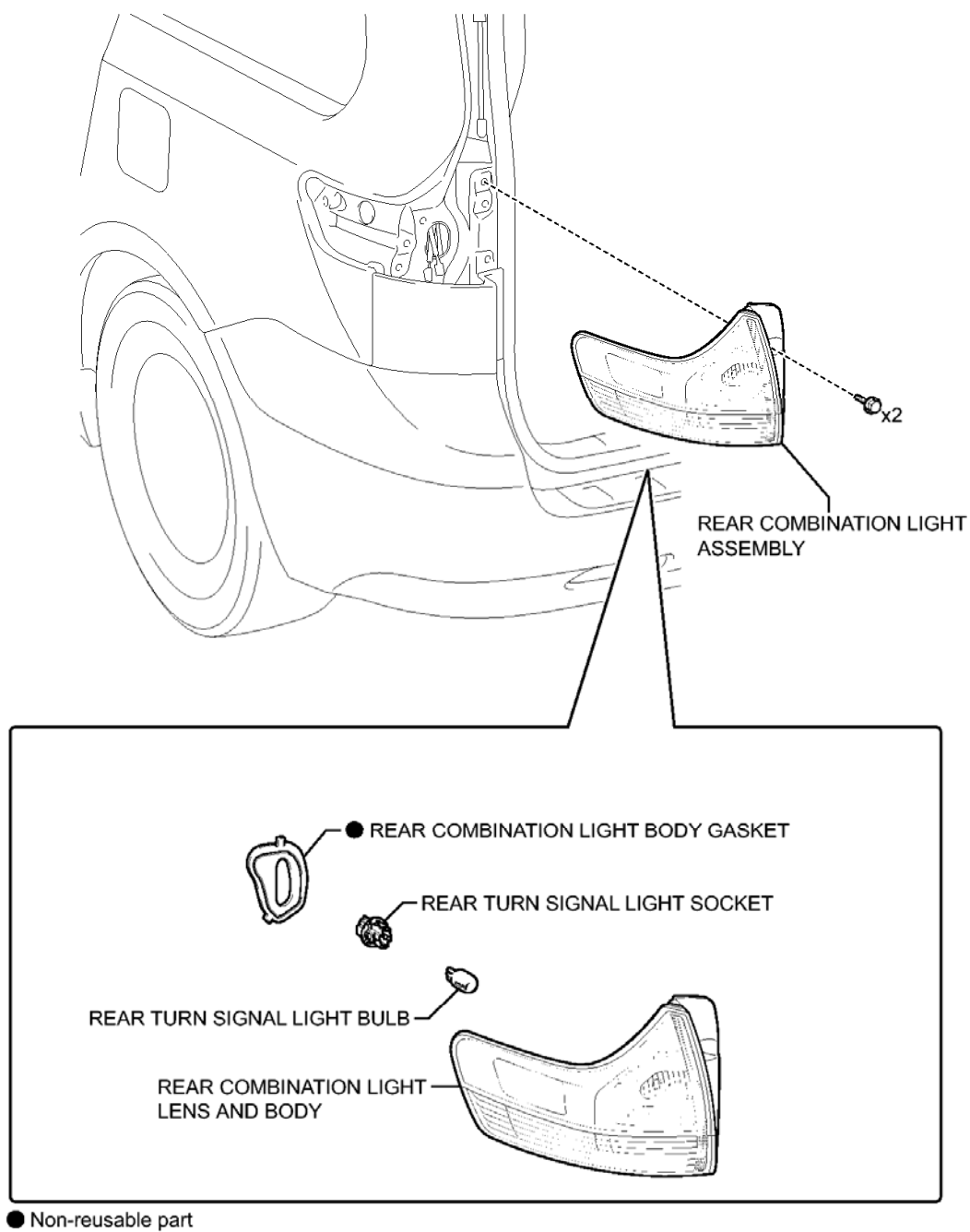
Y
Fig. 55: Installing Outer Mirror Glass & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Connect the 2 connectors and 2 terminals.
- b. Engage the 2 guides on the lower part of the outer mirror glass to the outer rear view mirror.
- c. Engage the 2 claws on the upper part of the outer mirror glass to the outer rear view mirror.
- d. Remove the protective tape.

REAR COMBINATION LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



P

Fig. 56: Rear Combination Light Assembly Replacement Components
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT REAR COMBINATION LIGHT ASSEMBLY LH

- a. Disconnect the connector from the rear combination light.

*a

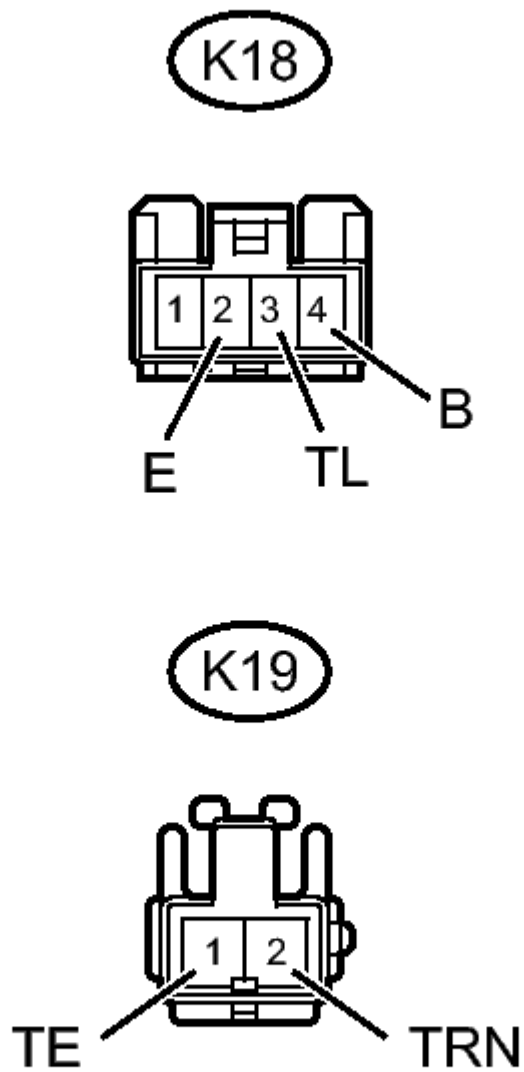


Fig. 57: LH Rear Combination Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
K18-3(TL) - K18-2(E)	Light control switch OFF	Below 1 V
	Light control switch in TAIL	11 to 14 V
K18-4(B) - K18-2(E)	Brake pedal released	Below 1 V
	Brake pedal depressed	11 to 14 V
K19-1(TE) - K19-2 (TRN)	Turn signal switch OFF	Below 1 V
	Ignition switch ON and Turn signal switch in LH	11 to 14 V (60 to 120 times per minute)

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Rear Combination Light Assembly LH)
----	--

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

2. INSPECT REAR COMBINATION LIGHT ASSEMBLY RH

- a. Disconnect the connector from the rear combination light.

*a

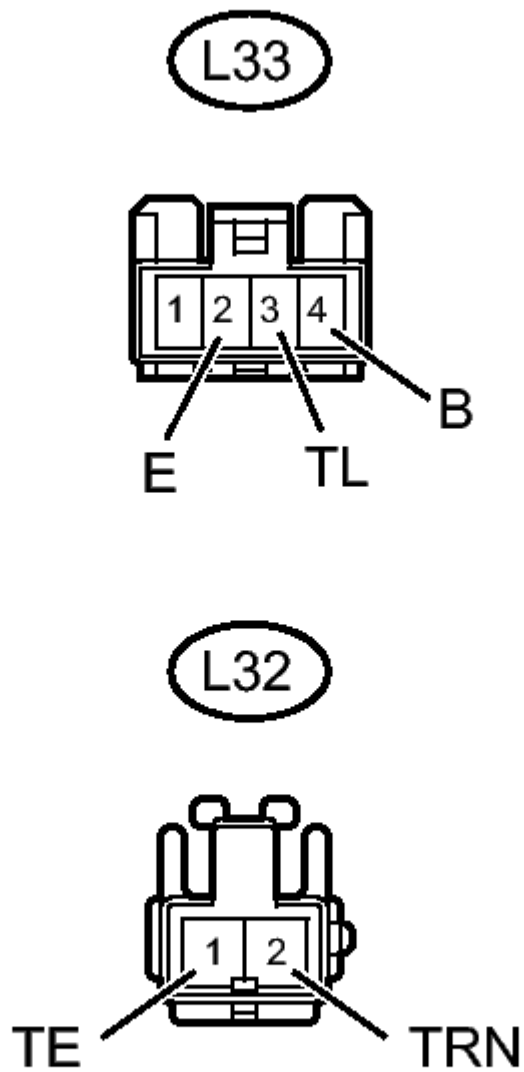


Fig. 58: RH Rear Combination Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
L33-3(TL) - L33-2(E)	Light control switch OFF	Below 1 V
	Light control switch in TAIL	11 to 14 V
L33-4(B) - L33-2(E)	Brake pedal released	Below 1 V
	Brake pedal depressed	11 to 14 V
L32-1(TE) - L32-2 (TRN)	Turn signal switch OFF	Below 1 V
	Ignition switch ON and turn signal switch in RH	11 to 14 V (60 to 120 times per minute)

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Rear Combination Light Assembly RH)
----	--

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

REMOVAL

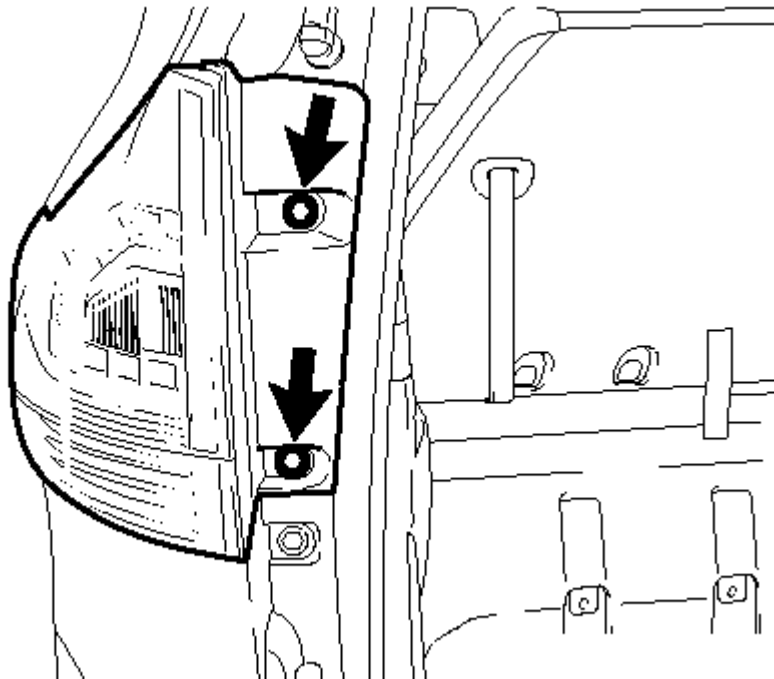
REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. REMOVE REAR COMBINATION LIGHT ASSEMBLY

- a. Remove the 2 bolts.



P

Fig. 59: Identifying Rear Combination Light Assembly & Bolts
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Disengage the 2 pins and guide.

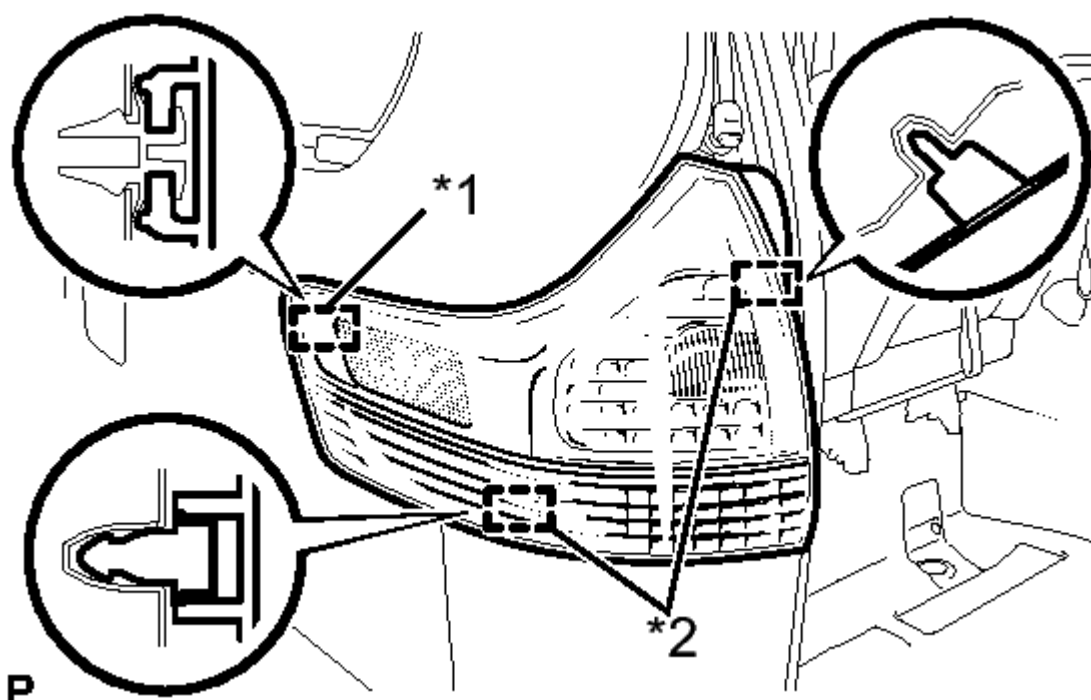


Fig. 60: Identifying Rear Combination Light Assembly & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

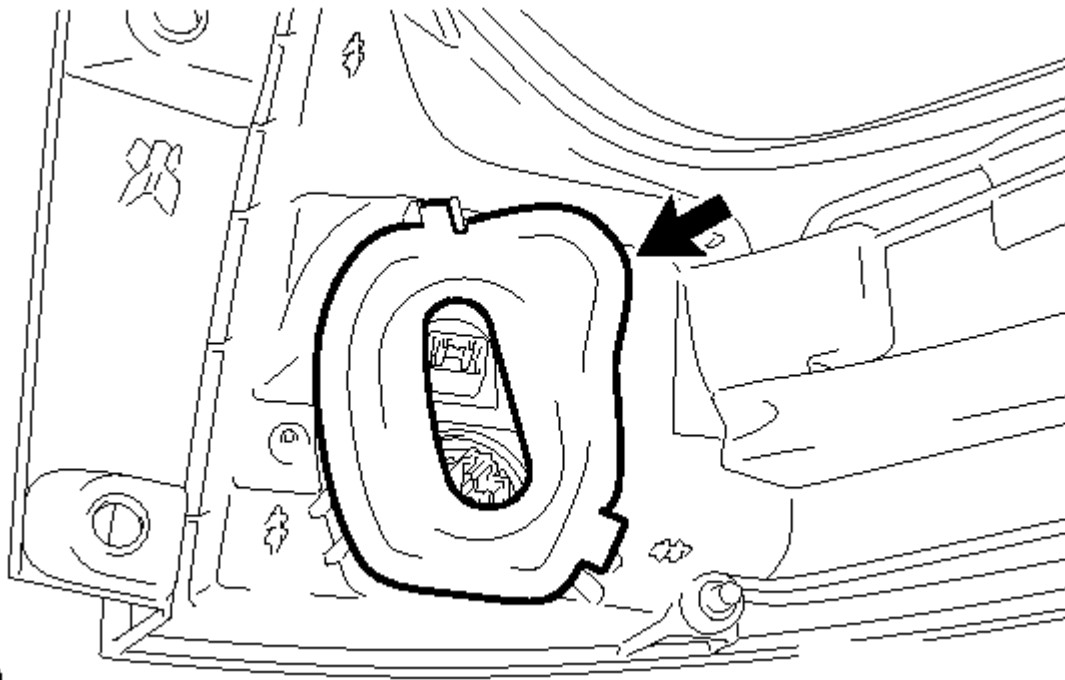
*1	Guide
*2	Pin

- c. Disconnect the connector and remove the rear combination light.

DISASSEMBLY

DISASSEMBLY

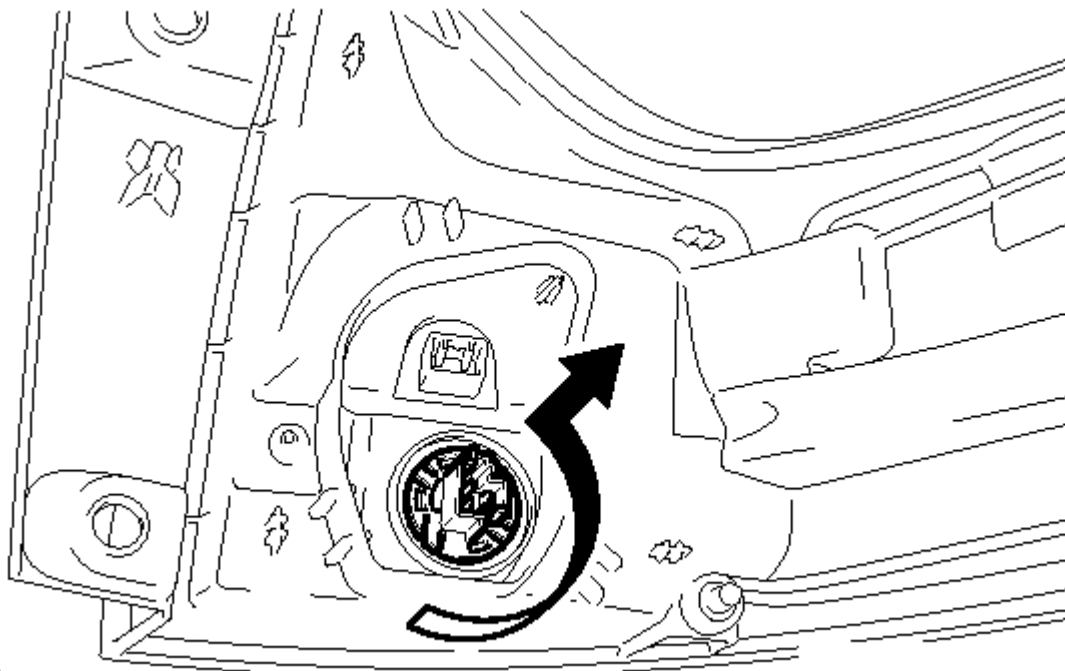
1. REMOVE REAR COMBINATION LIGHT BODY GASKET



P

Fig. 61: Identifying Rear Combination Light Body Gasket
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the rear combination light body gasket.
2. **REMOVE REAR TURN SIGNAL LIGHT BULB**



P

Fig. 62: Removing Rear Turn Signal Light Bulb

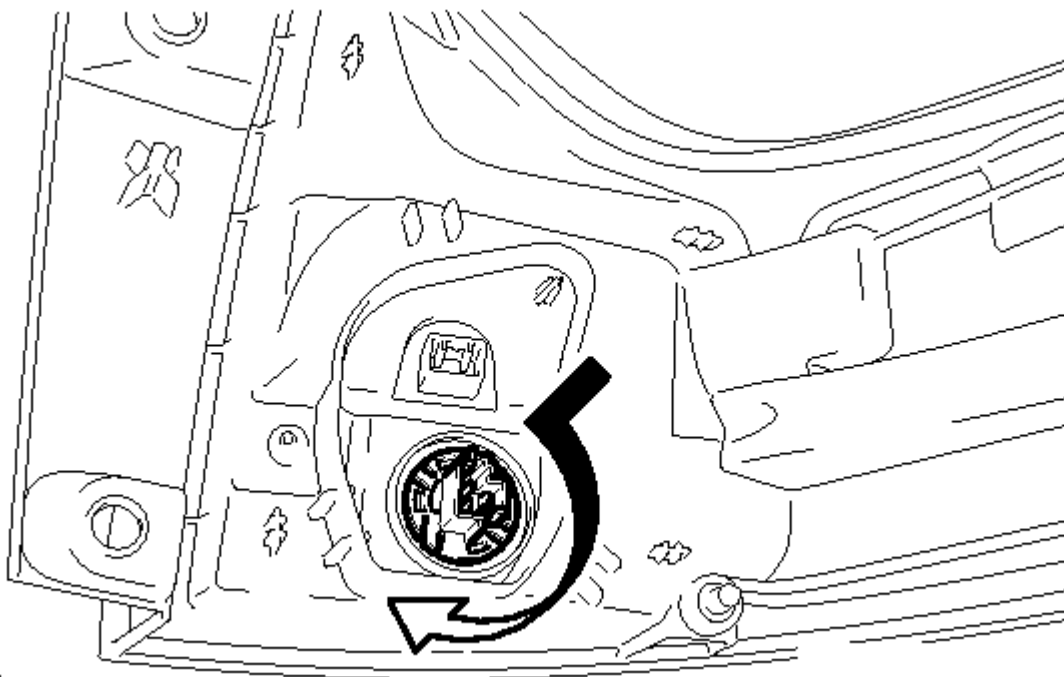
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the rear turn signal light socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
- b. Remove the rear turn signal light bulb from the light socket.

REASSEMBLY

REASSEMBLY

1. INSTALL REAR TURN SIGNAL LIGHT BULB



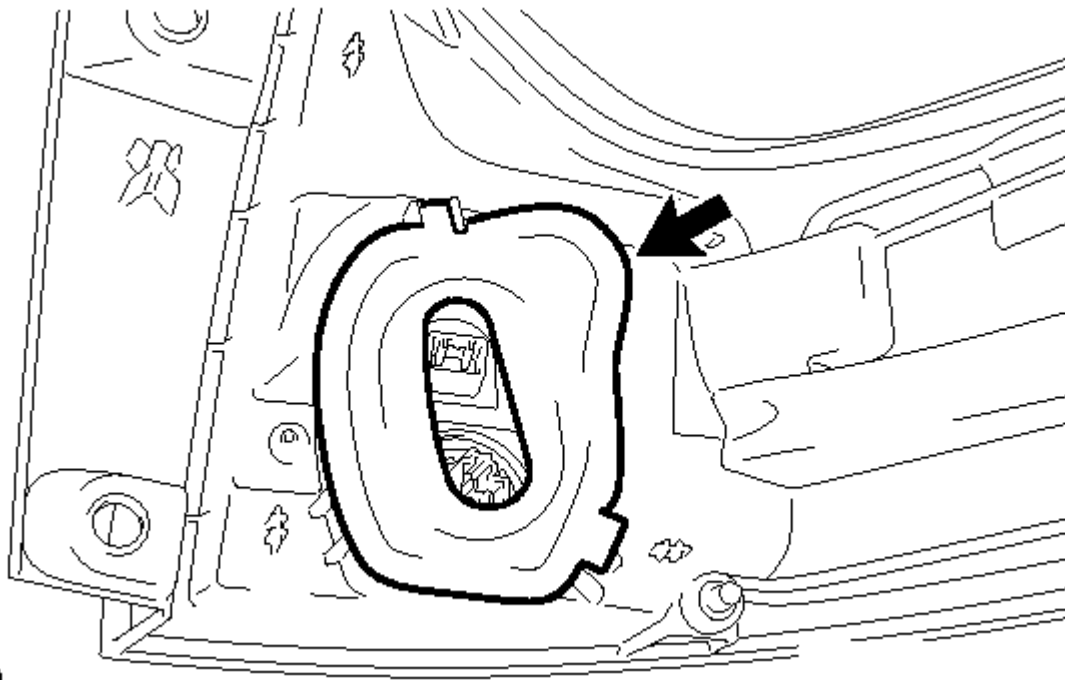
P

Fig. 63: Installing Rear Turn Signal Light Bulb

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

- a. Install the rear turn signal light bulb into the light socket.
- b. Turn the rear turn signal light socket and bulb, in the direction indicated by the arrow in the illustration, to install them.

2. INSTALL REAR COMBINATION LIGHT BODY GASKET



P

Fig. 64: Identifying Rear Combination Light Body Gasket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Install a new rear combination light body gasket.

INSTALLATION

INSTALLATION

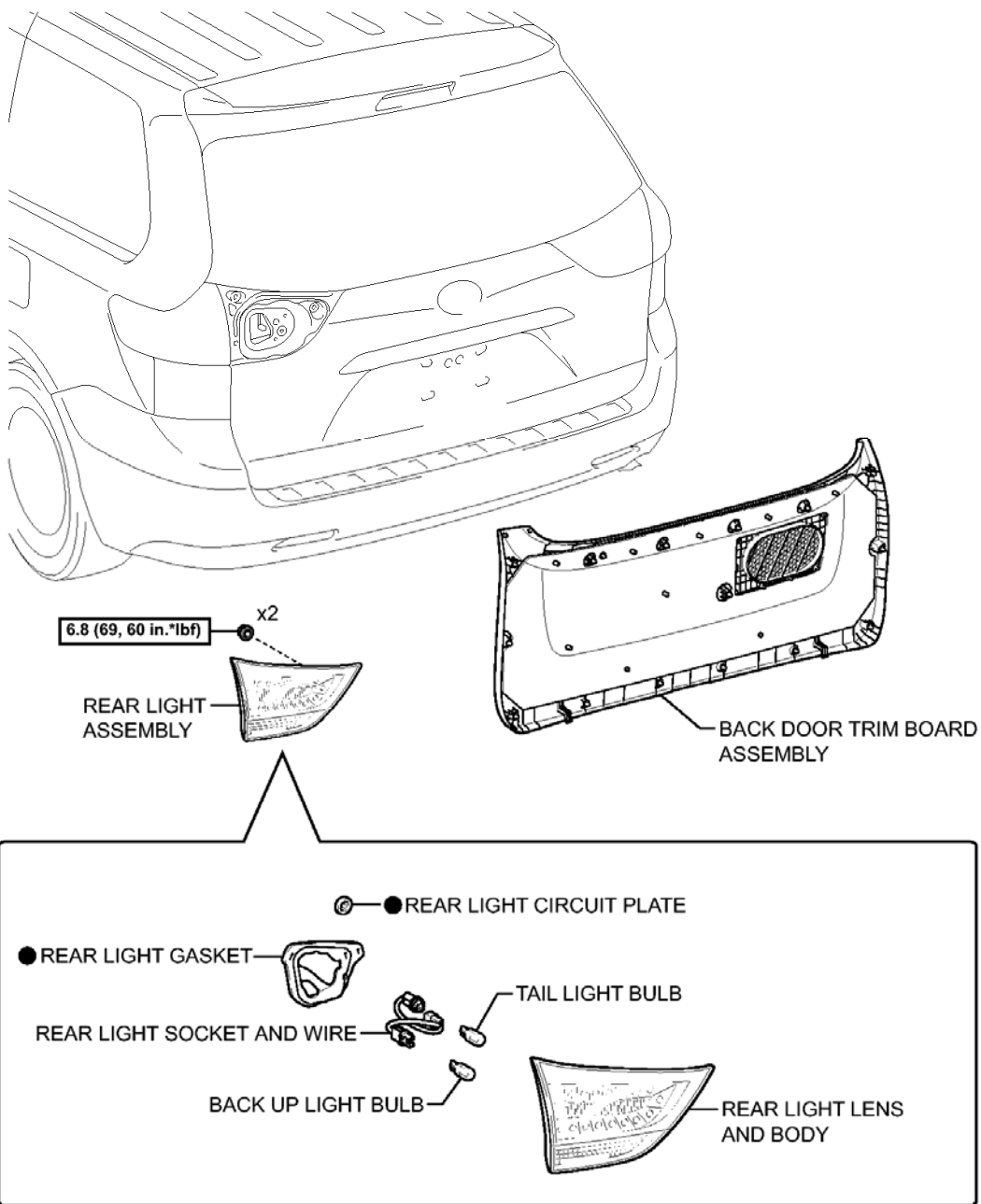
1. INSTALL REAR COMBINATION LIGHT ASSEMBLY

- a. Connect the connector.
- b. Engage the guide, 2 pins and install the rear combination light.
- c. Install the 2 bolts.

REAR LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



N*m (kgf*cm, ft.*lbf): Specified torque ● Non-reusable part

P

Fig. 65: Rear Light Assembly Replacement Components With Torque Specifications
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT REAR LIGHT ASSEMBLY LH

- a. Disconnect the connector from the rear light.

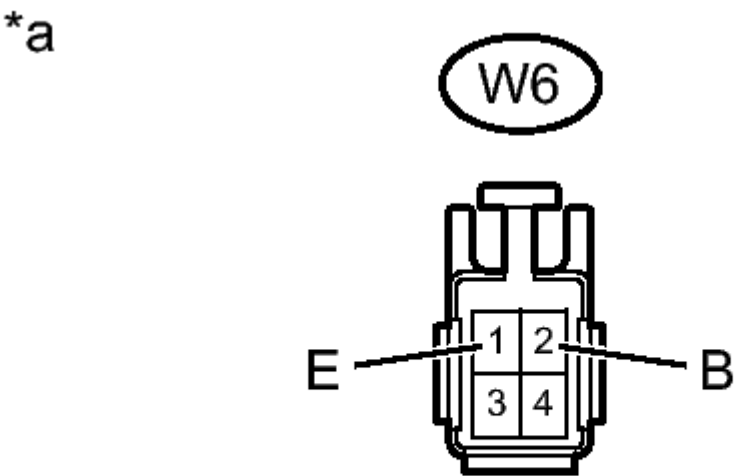


Fig. 66: Rear Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
W6-2(B) - W6-1(E)	Light control switch OFF	Below 1 V
	Light control switch in TAIL	11 to 14 V

TEXT IN ILLUSTRATION

*a	Front view of wire harness connector
-----------	--------------------------------------

(to Rear
Light
Assembly
LH)

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

2. INSPECT REAR LIGHT ASSEMBLY RH

- a. Disconnect the connector from the rear light.

*a

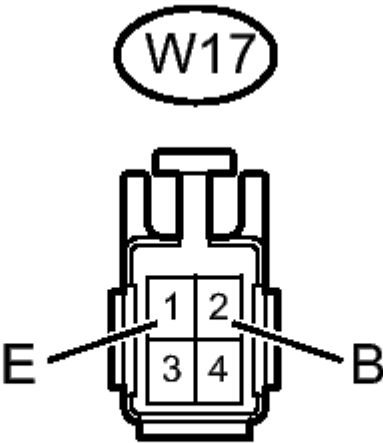


Fig. 67: Rear Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
W17-2(B) - W17-1(E)	Light control switch OFF	Below 1 V
	Light control switch in	11 to 14 V

	TAIL	
--	------	--

TEXT IN ILLUSTRATION

	Front view of wire harness *a connector (to Rear Light Assembly RH)
--	---

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

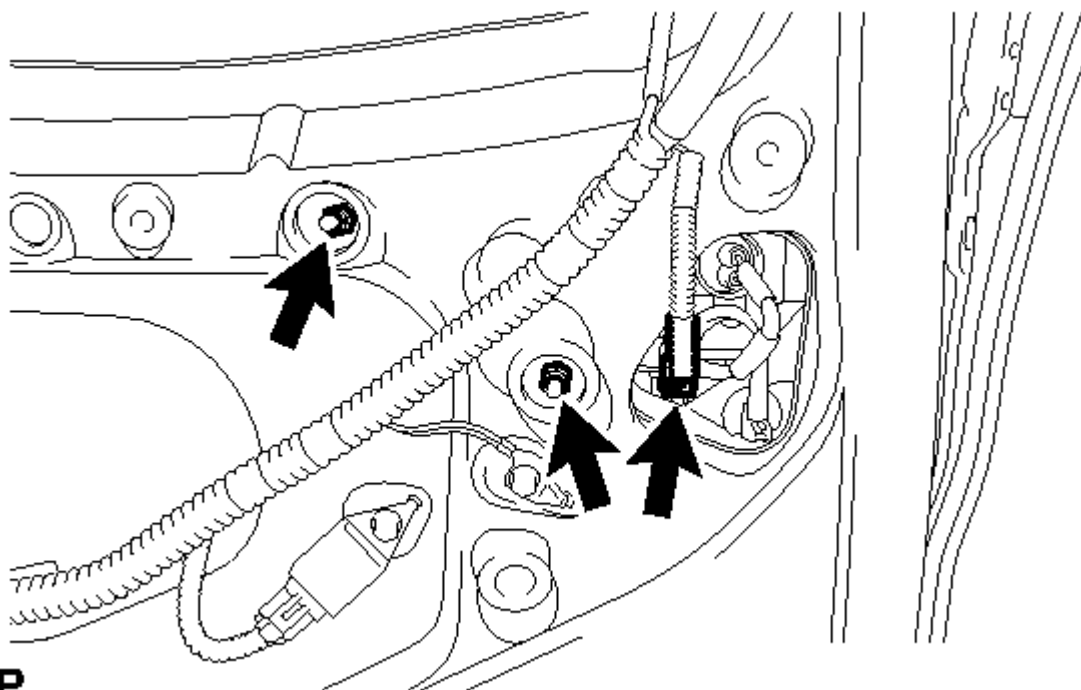
REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

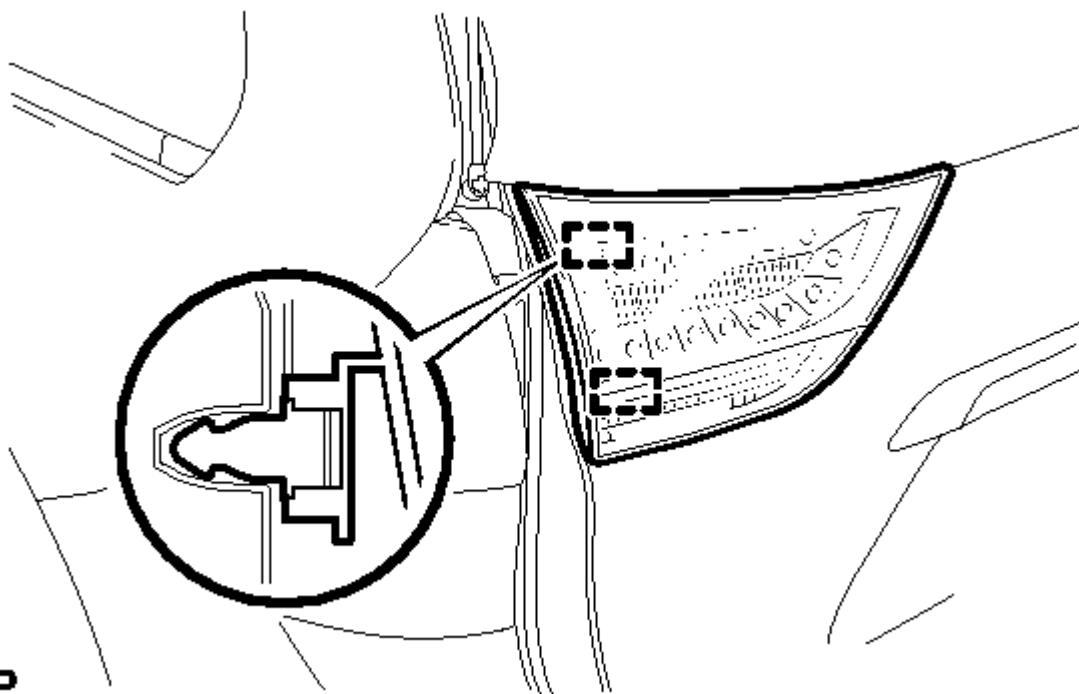
1. **REMOVE BACK DOOR TRIM BOARD ASSEMBLY** . Refer to **DISASSEMBLY - Step 2**
2. **REMOVE REAR LIGHT ASSEMBLY**
 - a. Disconnect the connector.



P

Fig. 68: Identifying Rear Light Assembly Connector & Nuts
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the 2 nuts.
- c. Disengage the 2 pins and remove the rear light.



P

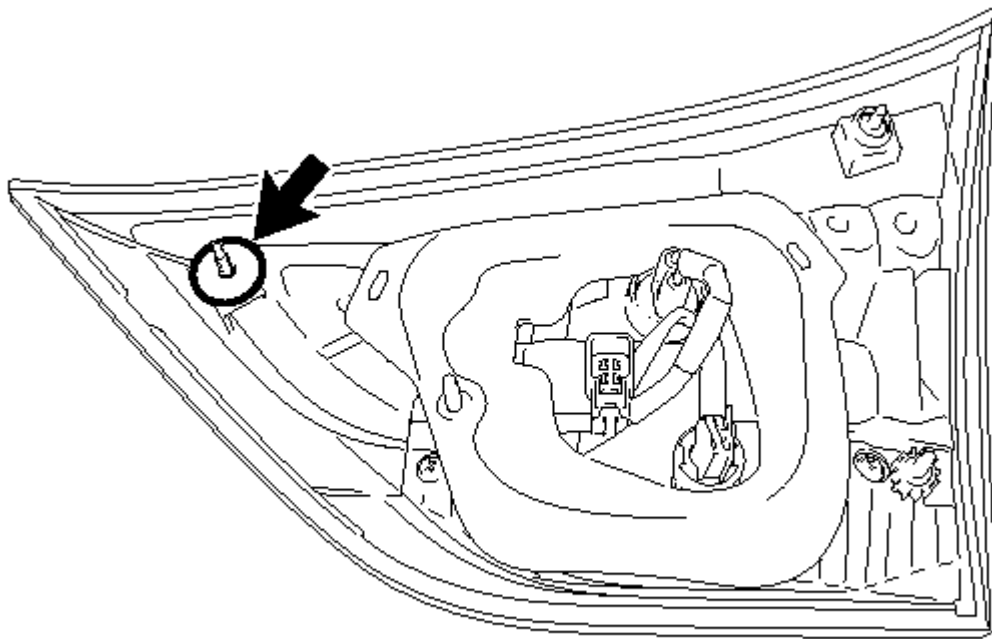
Fig. 69: Identifying Rear Light Assembly & Pins

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

DISASSEMBLY

DISASSEMBLY

1. REMOVE REAR LIGHT CIRCUIT PLATE



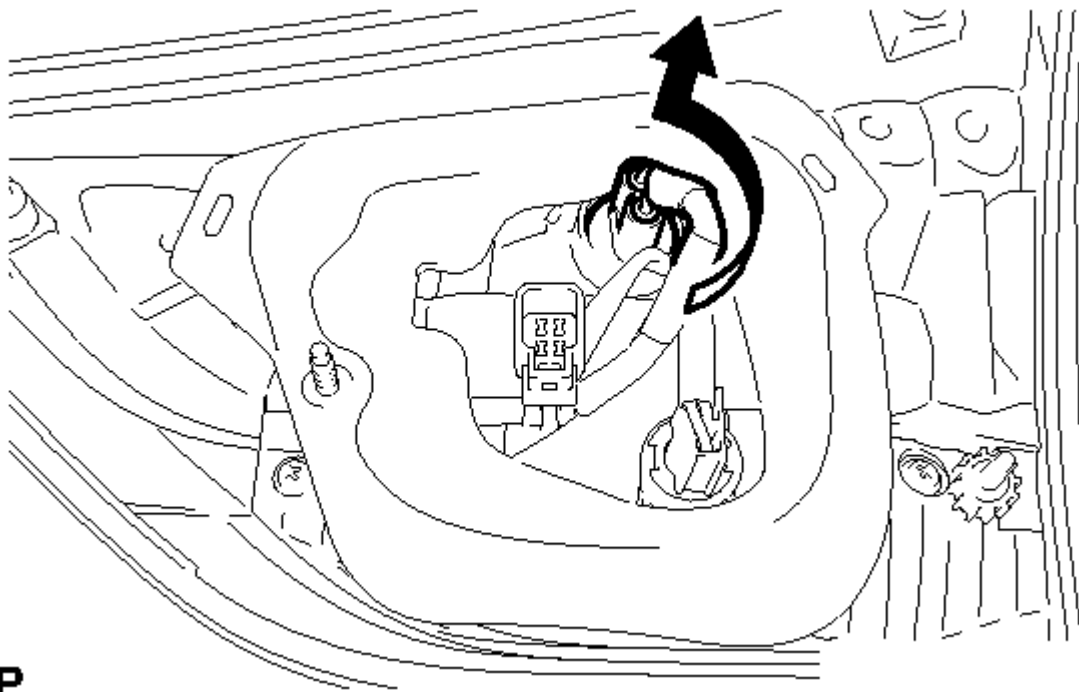
P

Fig. 70: Identifying Rear Light Circuit Plate

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

- a. Remove the rear light circuit plate.

2. REMOVE TAIL LIGHT BULB



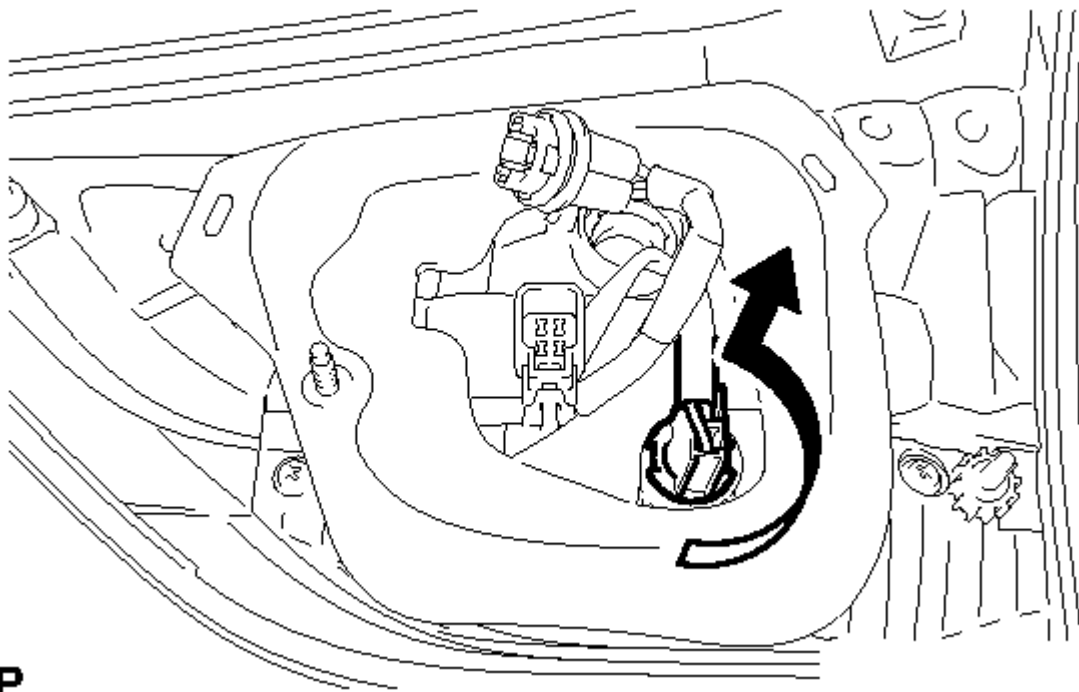
P

Fig. 71: Removing Tail Light Socket & Bulb

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

- a. Turn the tail light socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
- b. Remove the tail light bulb from the light socket.

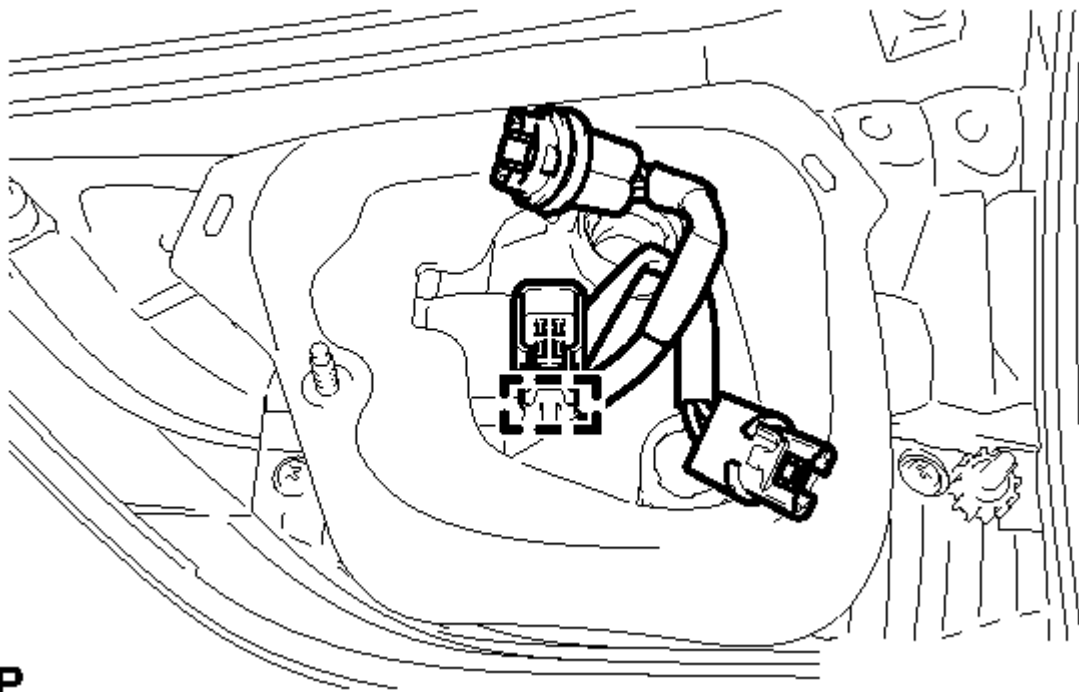
3. REMOVE BACK UP LIGHT BULB



P

Fig. 72: Removing Back Up Light Socket & Bulb
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the back up light socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
 - b. Remove the back up light bulb from the light socket.
4. **REMOVE REAR LIGHT SOCKET AND WIRE**

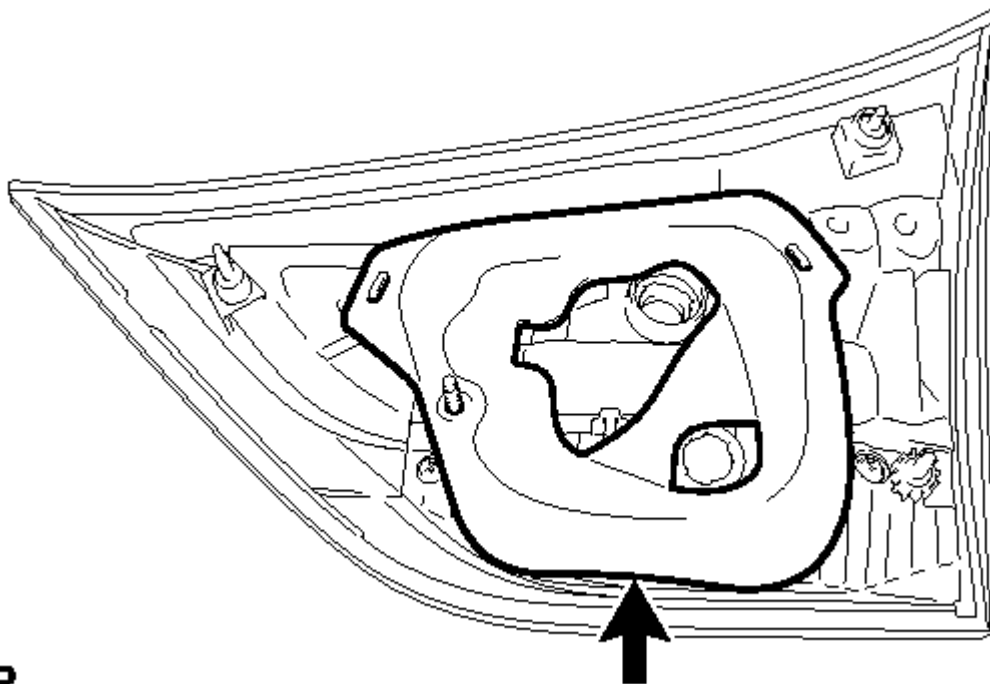


P

Fig. 73: Identifying Rear Light Socket, Wire & Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disengage the clamp and remove the rear light socket and wire.

5. REMOVE REAR LIGHT GASKET



P

Fig. 74: Identifying Rear Light Gasket

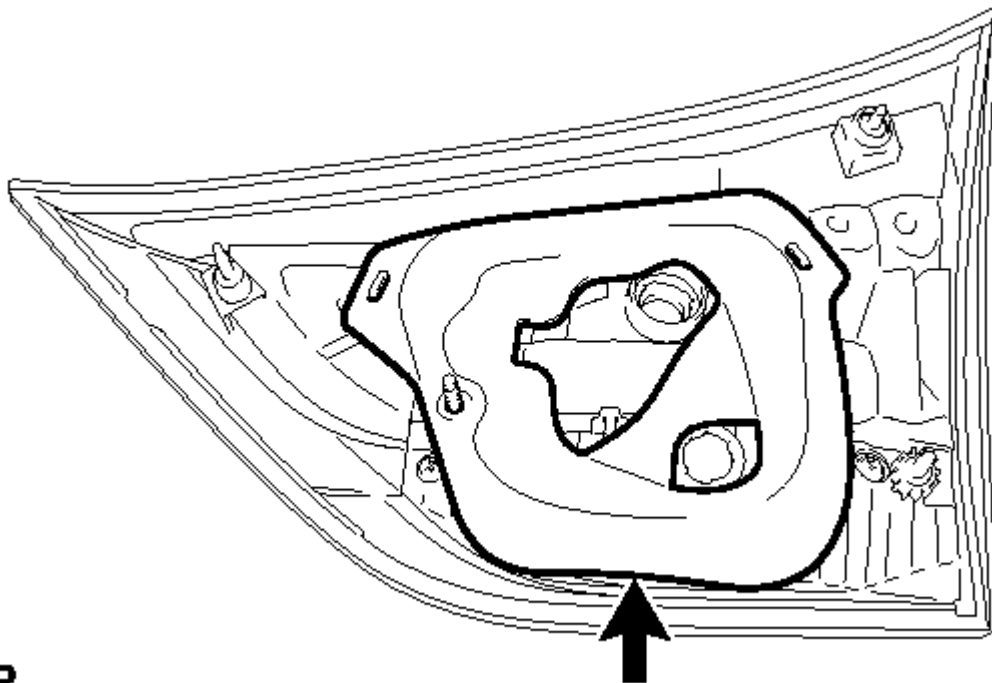
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the rear light gasket.

REASSEMBLY

REASSEMBLY

1. INSTALL REAR LIGHT GASKET



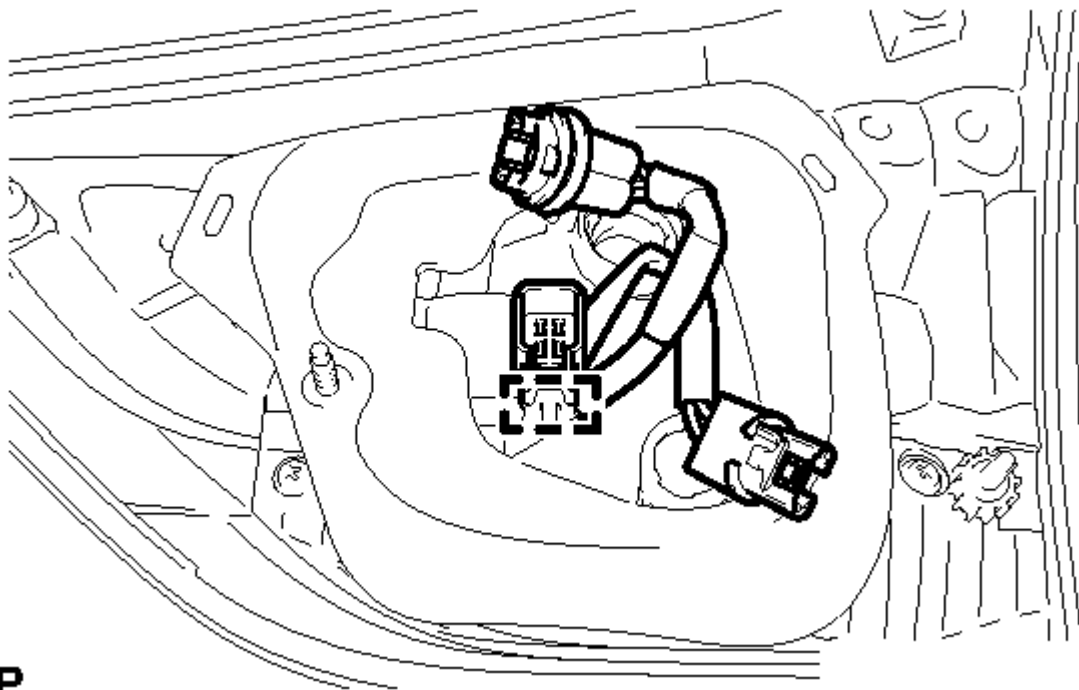
P

Fig. 75: Identifying Rear Light Gasket

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

- a. Install a new rear light gasket.

2. INSTALL REAR LIGHT SOCKET AND WIRE

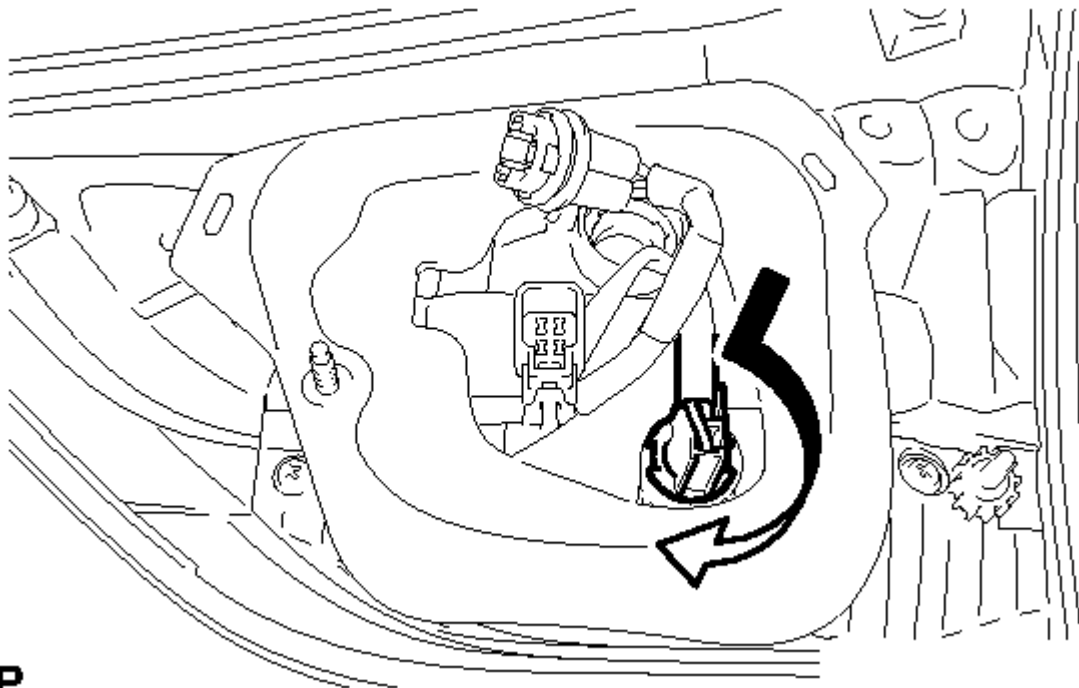


P

Fig. 76: Identifying Rear Light Socket, Wire & Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Engage the clamp and install the rear light socket and wire.

3. INSTALL BACK UP LIGHT BULB



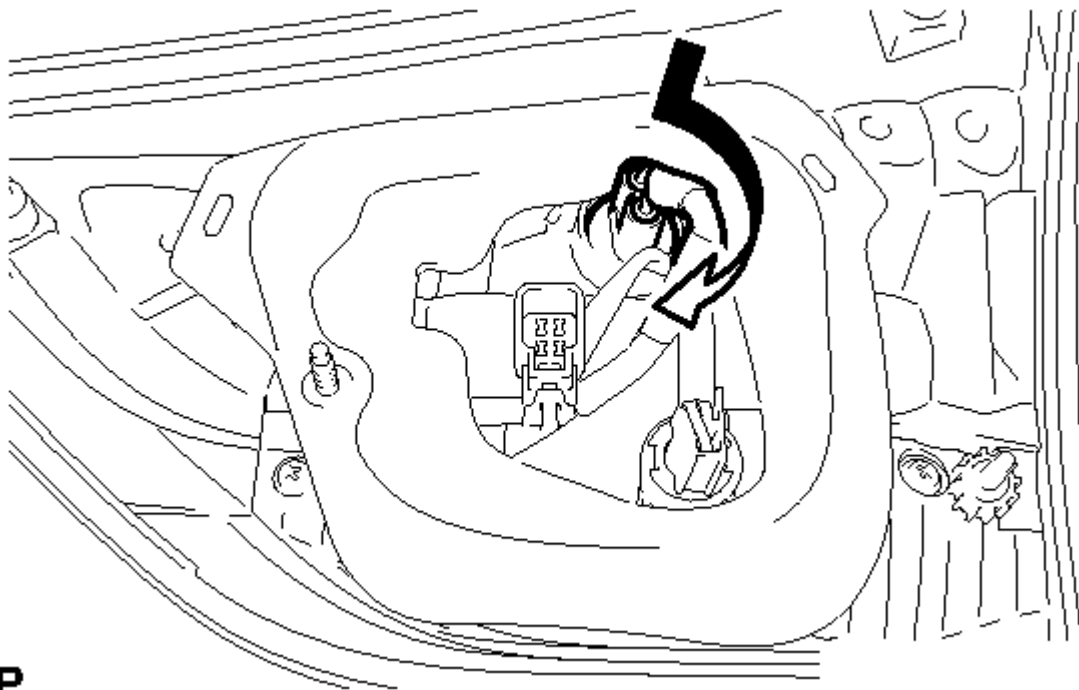
P

Fig. 77: Installing Back Up Light Bulb & Socket

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

- a. Install the back up light bulb into the light socket.
- b. Turn the back up light socket and bulb, in the direction indicated by the arrow in the illustration, to install them.

4. INSTALL TAIL LIGHT BULB



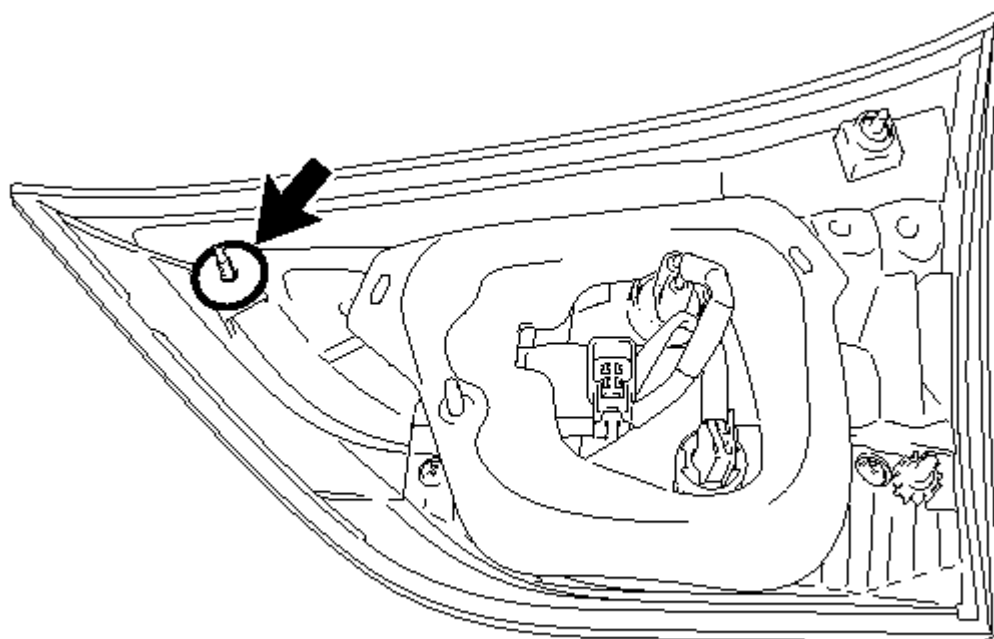
P

Fig. 78: Installing Tail Light Bulb & Socket

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

- a. Install the tail light bulb into the light socket.
- b. Turn the tail light socket and bulb, in the direction indicated by the arrow in the illustration, to install them.

5. INSTALL REAR LIGHT CIRCUIT PLATE



P

Fig. 79: Identifying Rear Light Circuit Plate

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

- a. Install a new rear light circuit plate.

INSTALLATION

INSTALLATION

1. INSTALL REAR LIGHT ASSEMBLY

- a. Engage the 2 pins and install the rear light.
- b. Install the 2 nuts.

Torque: 6.8 N*m (69 kgf*cm, 60 in.*lbf)

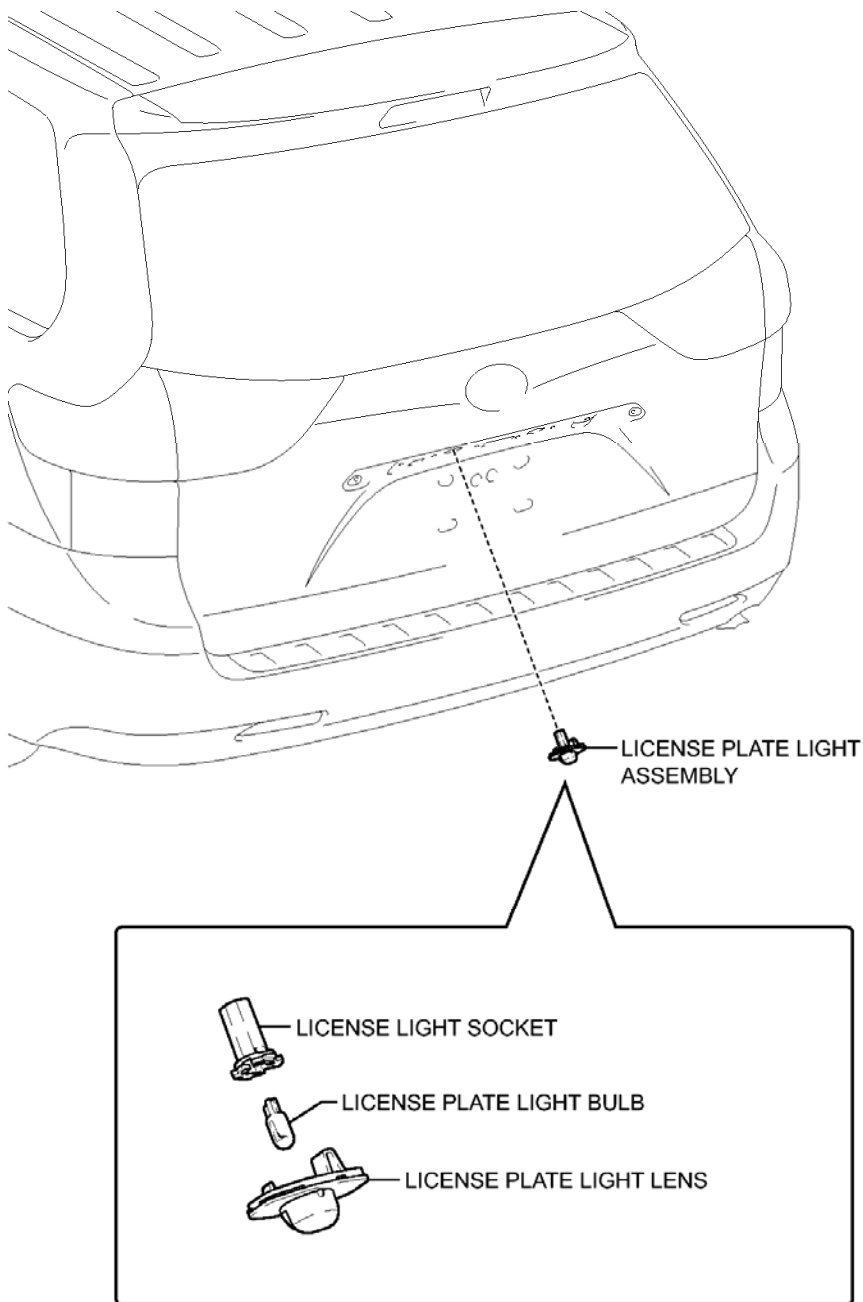
- c. Connect the connector.

2. INSTALL BACK DOOR TRIM BOARD ASSEMBLY . Refer to REASSEMBLY - Step 27

LICENSE PLATE LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION



P
Fig. 80: License Plate Light Assembly Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. REMOVE BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY

Refer to **REMOVAL**

2. REMOVE LICENSE PLATE LIGHT ASSEMBLY

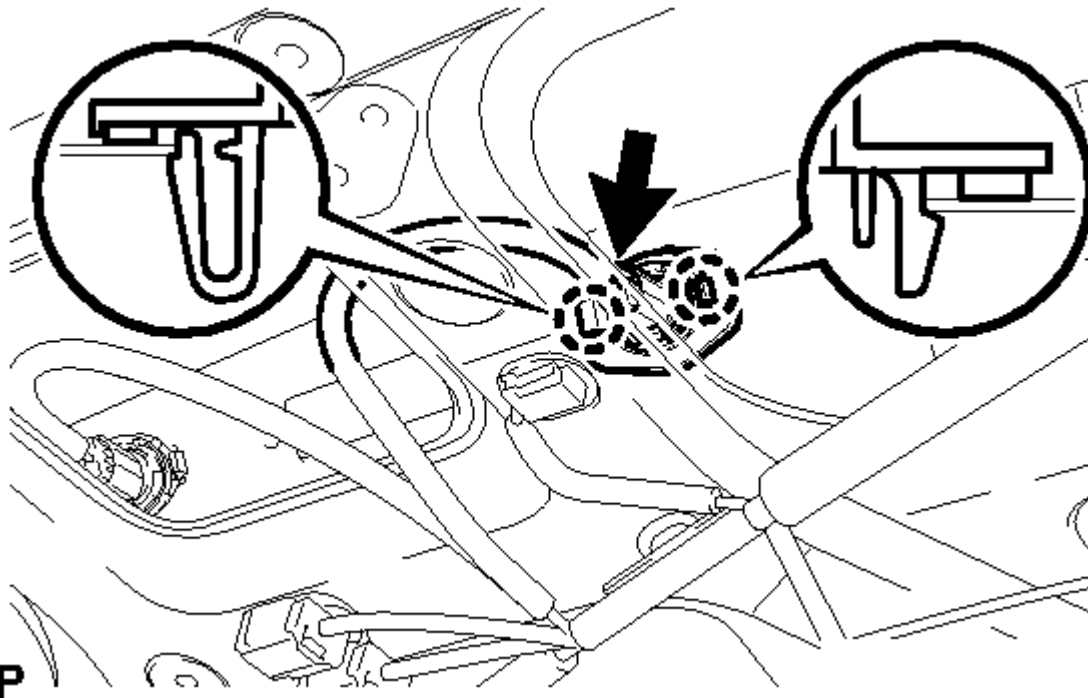
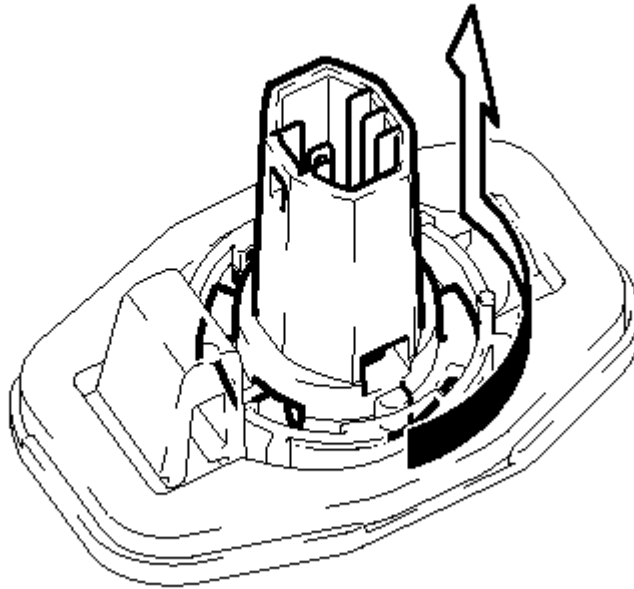


Fig. 81: Identifying Remove License Plate Light Assembly, Connector & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the 2 claws and remove the license plate light.

3. REMOVE LICENSE PLATE LIGHT BULB



P

Fig. 82: Removing License Plate Light Bulb & Socket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Turn the license plate light socket and bulb, in the direction indicated by the arrow in the illustration, to remove them.
- b. Remove license plate light bulb from the light socket.

INSPECTION

INSPECTION

1. INSPECT LICENSE PLATE LIGHT ASSEMBLY

- a. Check the operation of the license plate light.

*a

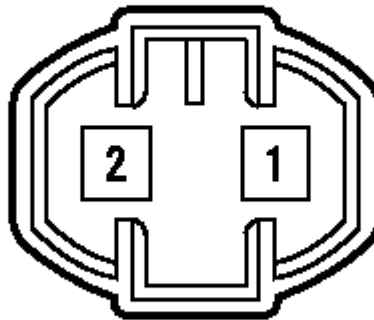


Fig. 83: License Plate Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness
	connected (License Plate Light Assembly)

1. Apply battery voltage to the license plate light terminals.

OK

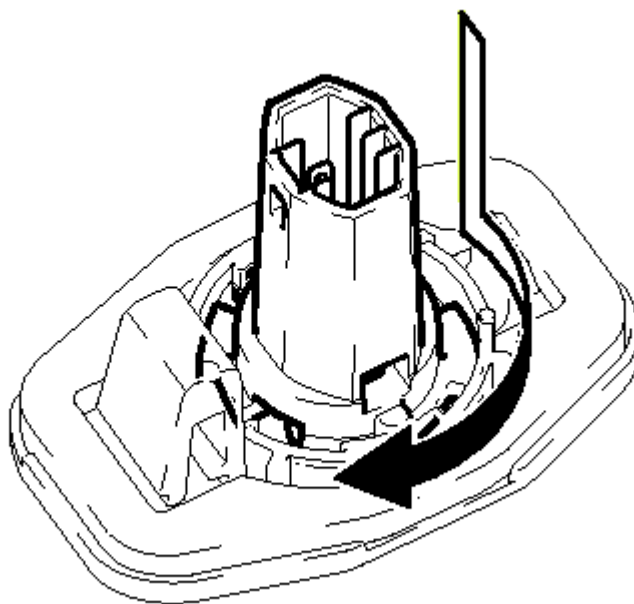
Measurement Condition	Specified Condition
Battery positive (+) -- > 2 Battery negative (-) -- > 1	Light comes on

If the result is not as specified, replace the bulb or license plate light.

INSTALLATION

INSTALLATION

1. INSTALL LICENSE PLATE LIGHT BULB



P

Fig. 84: Installing License Plate Light Bulb & Socket
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

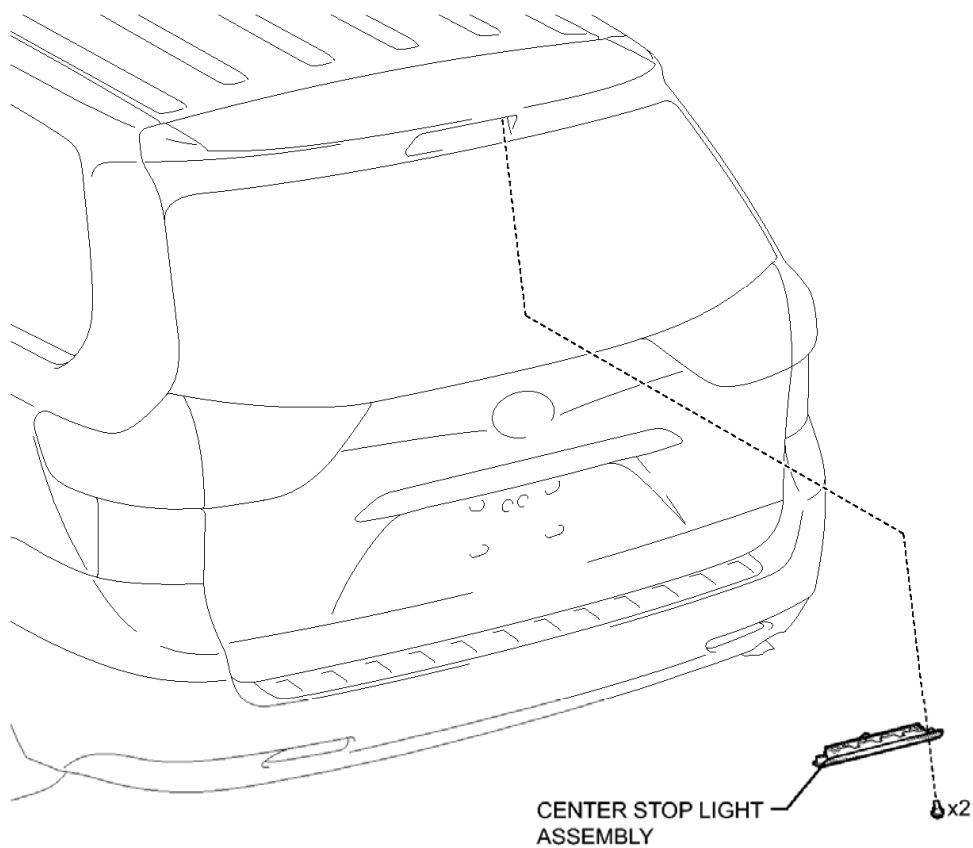
- a. Install the license plate light bulb into the light socket.
 - b. Turn the license plate light socket and bulb, in the direction indicated by the arrow in the illustration, to install them.
2. **INSTALL LICENSE PLATE LIGHT ASSEMBLY**
 - a. Engage the 2 claws and install the license plate light.
 - b. Connect the connector.
3. **INSTALL BACK DOOR OUTSIDE GARNISH SUB-ASSEMBLY**

Refer to **INSTALLATION**

HIGH MOUNTED STOP LIGHT ASSEMBLY

COMPONENTS

ILLUSTRATION

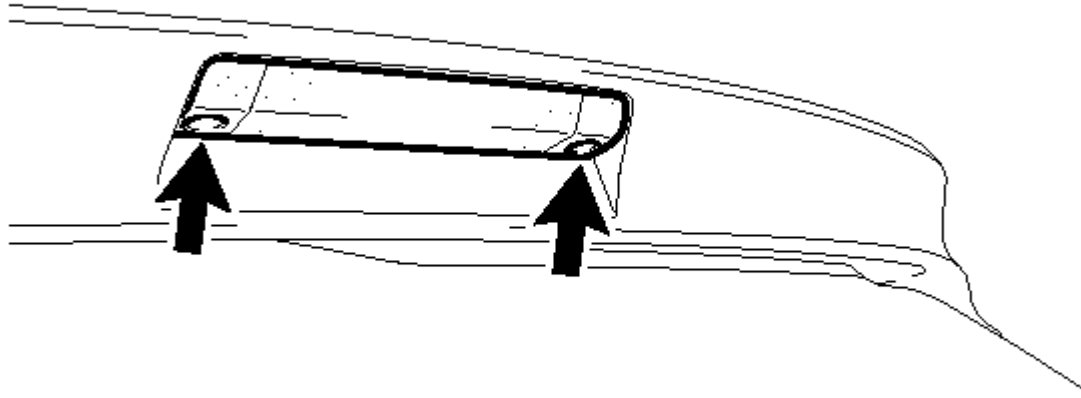


P
Fig. 85: High Mounted Stop Light Assembly Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE CENTER STOP LIGHT ASSEMBLY



P

Fig. 86: Identifying Center Stop Light Assembly & Screws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

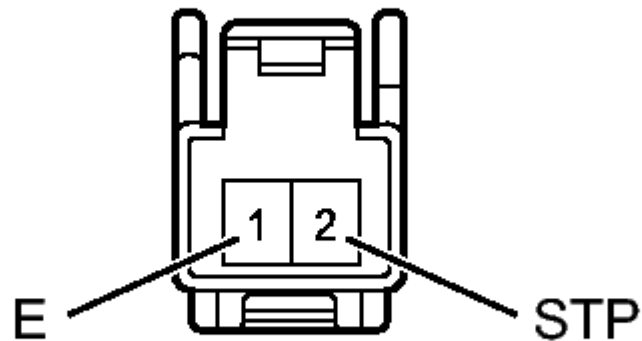
- a. Remove the 2 screws.
- b. Disconnect the connector and remove the center stop light.

INSPECTION

INSPECTION

1. **INSPECT CENTER STOP LIGHT ASSEMBLY**
 - a. Check the operation of the center stop light.

*a



H

Fig. 87: Center Stop Light Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*a	Component without harness
	connected (Center Stop Light Assembly)

1. Apply battery voltage to the center stop light terminals.

OK

Measurement Condition	Specified Condition
Battery positive (+) -- > 2 (STP) Battery negative (-) -- > 1 (E)	Light comes on

If the result is not as specified, replace the center stop light.

INSTALLATION

INSTALLATION

1. INSTALL CENTER STOP LIGHT ASSEMBLY

- a. Connect the connector.
- b. Install the center stop light with the 2 screws.

DOOR MIRROR FOOT LIGHT

COMPONENTS

ILLUSTRATION

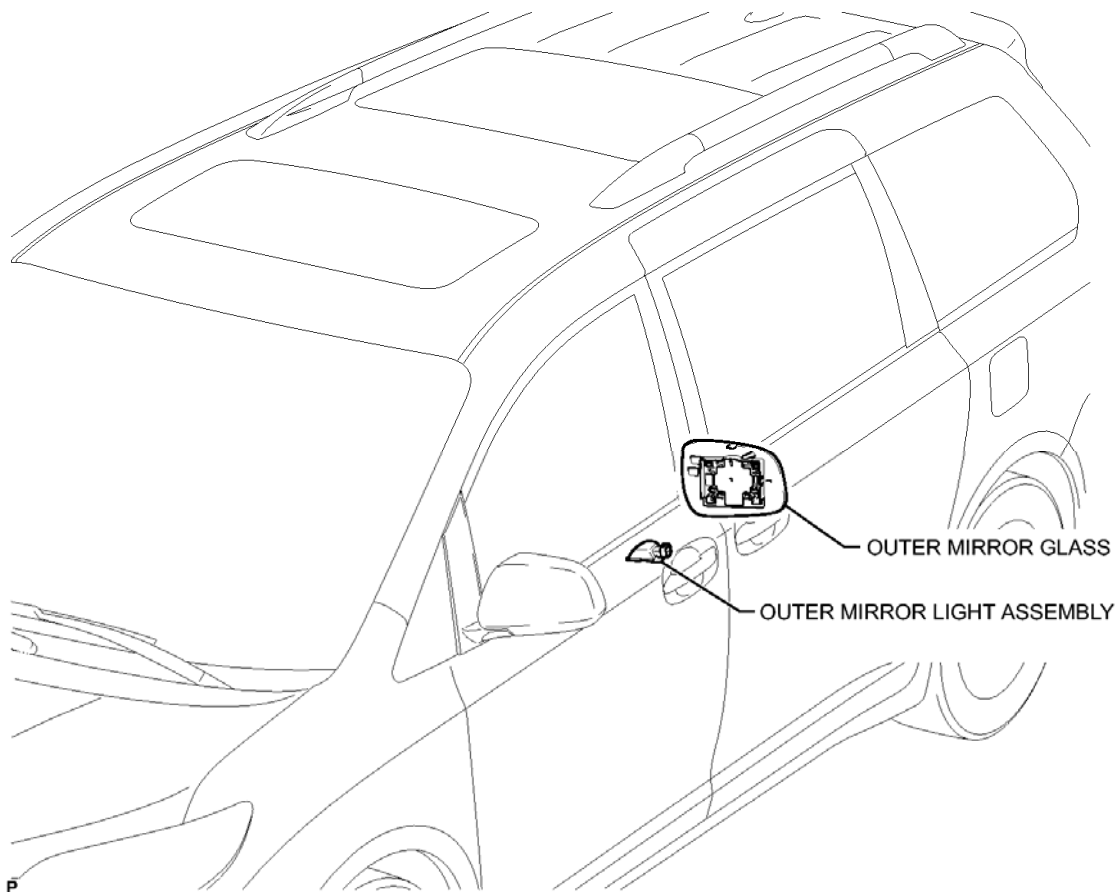


Fig. 88: Door Mirror Foot Light Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

HINT:

- Use the same procedure for both the RH and LH sides.
- The procedure described below is for the LH side.

1. **REMOVE OUTER MIRROR GLASS** . Refer to **REMOVAL - Step 1**
2. **REMOVE OUTER MIRROR LIGHT ASSEMBLY**

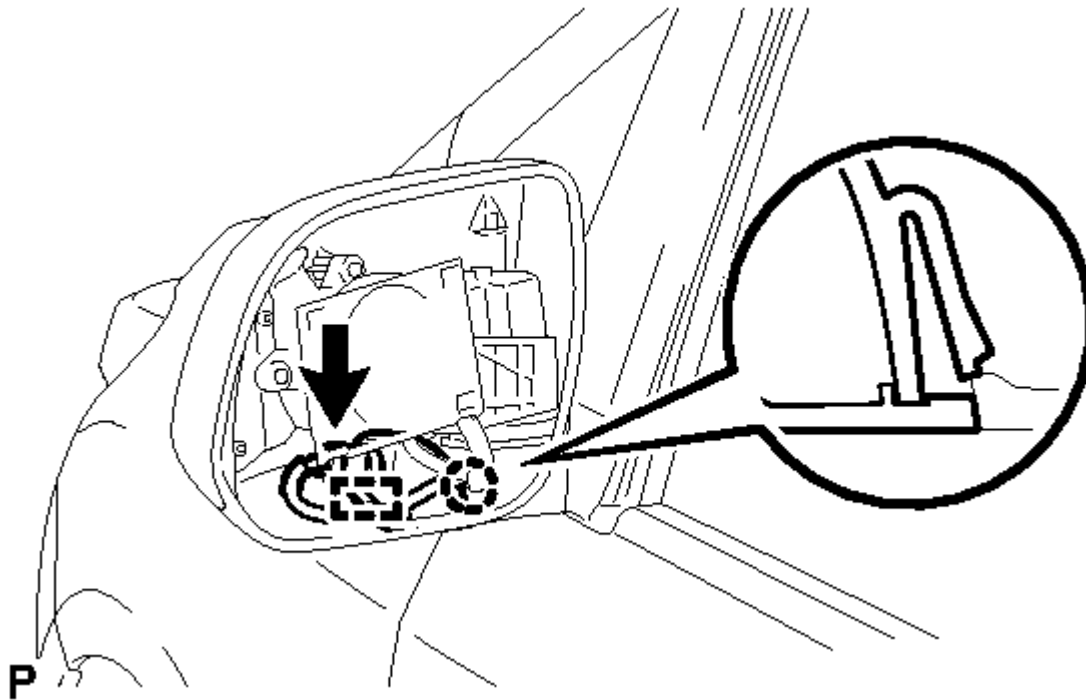


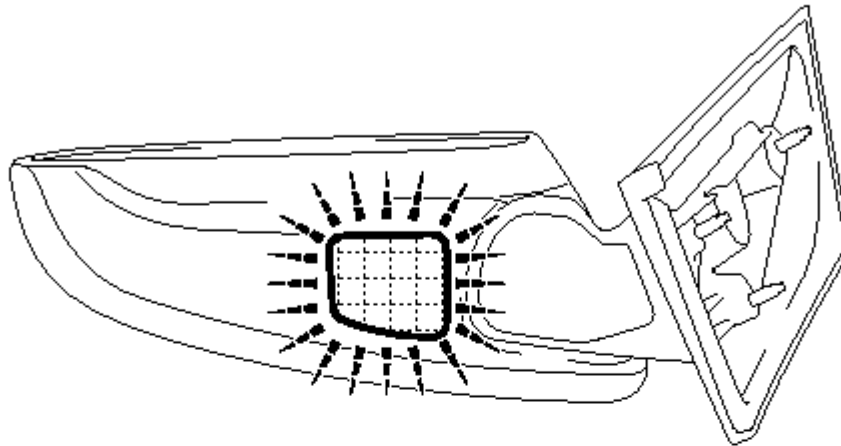
Fig. 89: Identifying Outer Mirror Light Assembly, Connector & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the claw, guide and remove the outer mirror light.

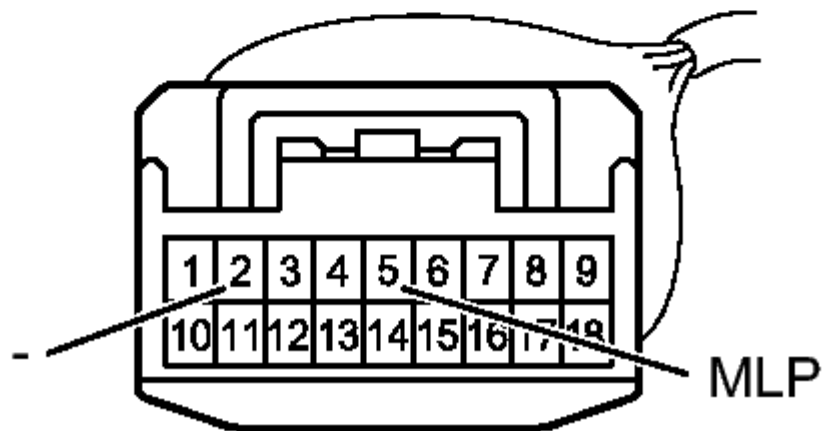
INSPECTION

INSPECTION

1. **INSPECT OUTER MIRROR LIGHT ASSEMBLY LH**
 - a. Check the door mirror foot light.



*a



P

Fig. 90: Outer Mirror Light Assembly LH Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Apply battery voltage to the terminals of the connector, and check the illumination condition.

OK

Measurement Condition	Specified Condition
Battery positive (+) -- > Terminal 5 (MLP) Battery negative (-) -- > Terminal 2 (-)	Door mirror foot light illuminates

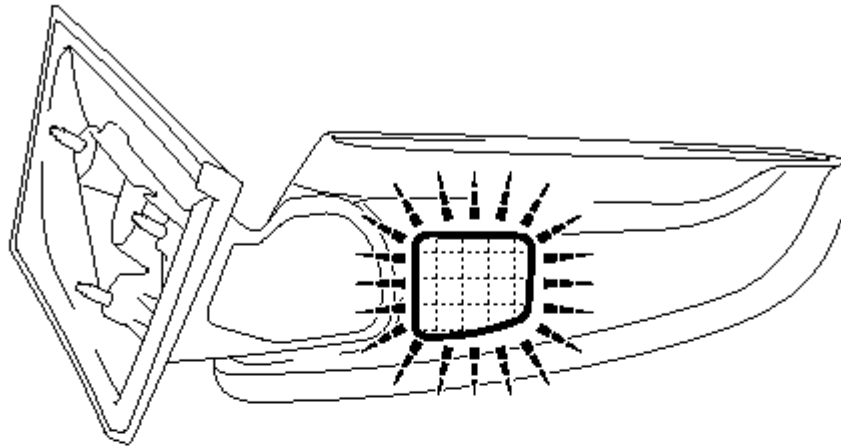
TEXT IN ILLUSTRATION

*a	Component without harness connected (Outer Mirror Light Assembly LH)
----	--

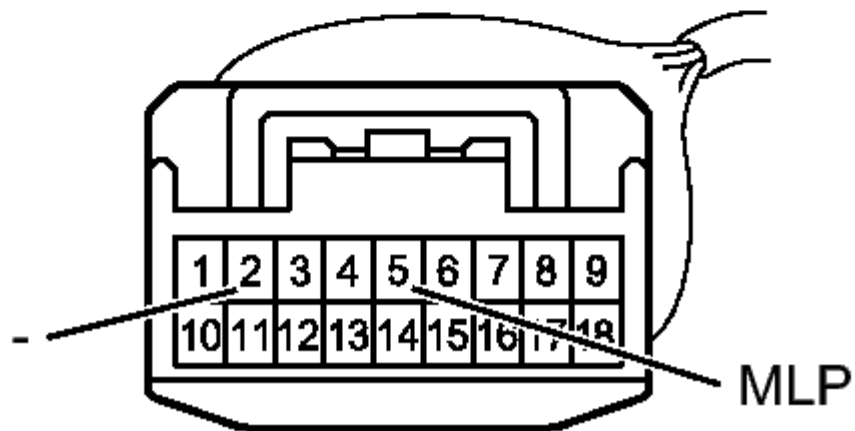
If the result is not as specified, replace the outer mirror light assembly.

2. INSPECT OUTER MIRROR LIGHT ASSEMBLY RH

- a. Check the door mirror foot light.



*a



P

Fig. 91: Outer Mirror Light Assembly RH Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

1. Apply battery voltage to the terminals of the connector, and check the illumination condition.

OK

Measurement Condition	Specified Condition
Battery positive (+) --> Terminal 5 (MLP)	Door mirror foot light illuminates
Battery negative (-) --> Terminal 2 (-)	

TEXT IN ILLUSTRATION

*a	Component without harness connected (Outer Mirror Light Assembly RH)
----	--

If the result is not as specified, replace the outer mirror light assembly.

INSTALLATION

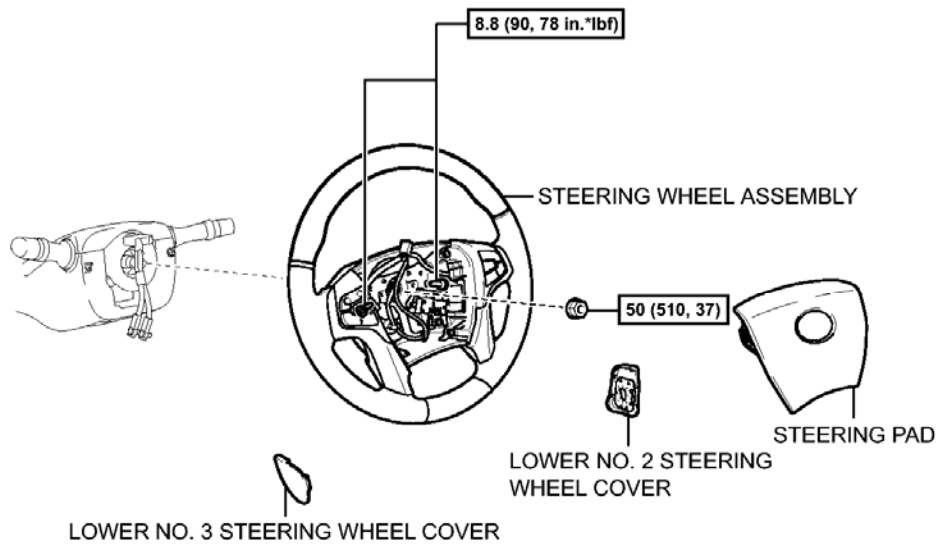
INSTALLATION

1. **INSTALL OUTER MIRROR LIGHT ASSEMBLY**
 - a. Engage the claw, guide and install the outer mirror light.
 - b. Connect the connector.
2. **INSTALL OUTER MIRROR GLASS** . Refer to **INSTALLATION - Step 1**

HEADLIGHT DIMMER SWITCH

COMPONENTS

ILLUSTRATION

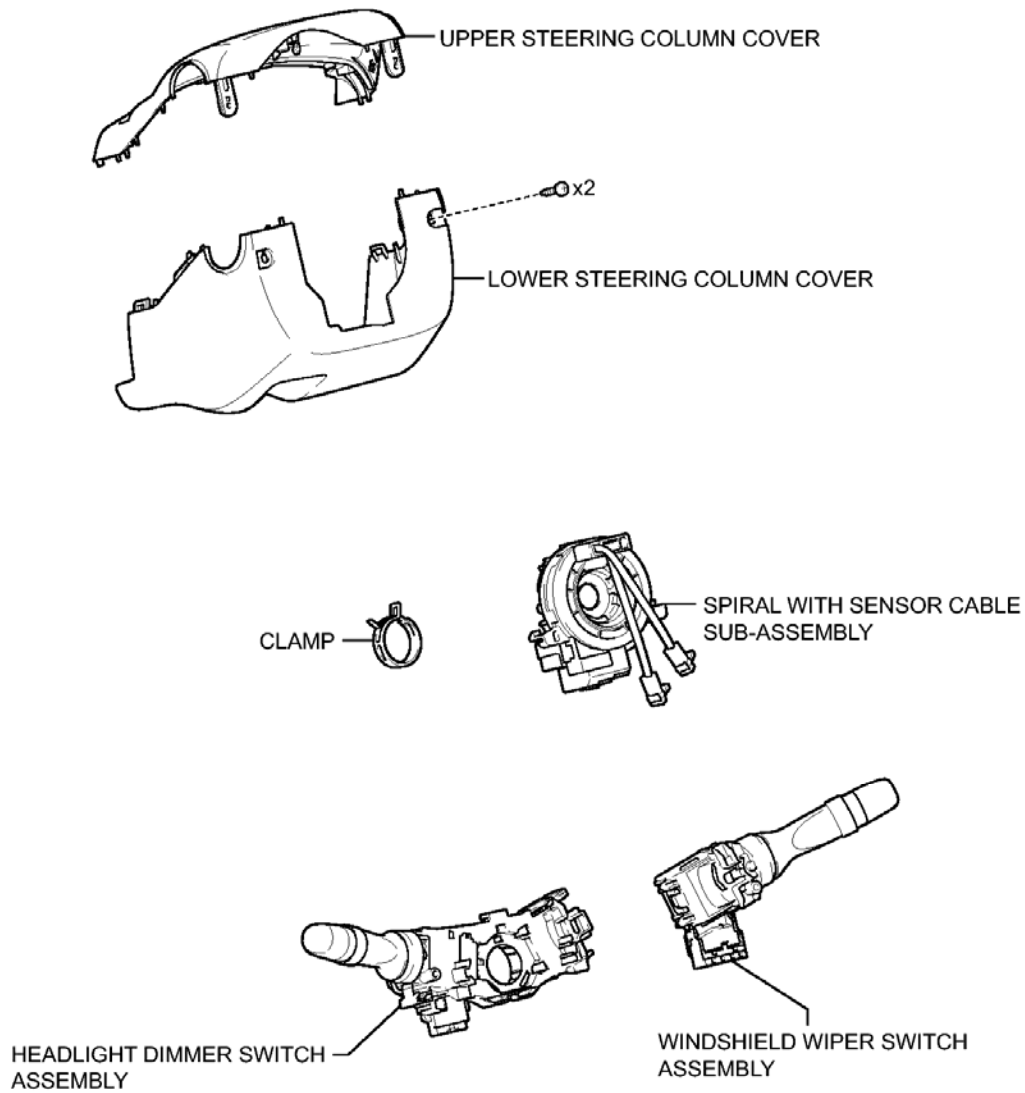


N*m (kgf*cm, ft*lbf) : Specified torque

P

Fig. 92: Headlight Dimmer Switch Replacement Components With Torque Specifications (1 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION



P
Fig. 93: Headlight Dimmer Switch Replacement Components (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

WARNING: Some of these service operations affect the SRS airbag system. Read the

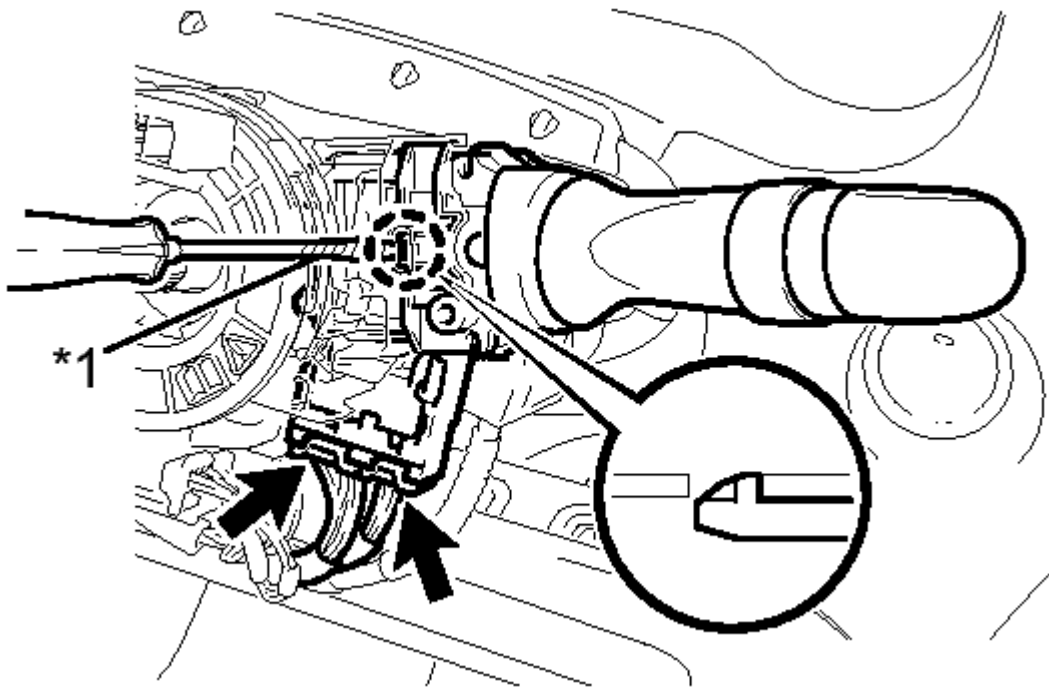
precautionary notices concerning the SRS airbag system before servicing. Refer to PRECAUTION .

1. POSITION FRONT WHEELS FACING STRAIGHT AHEAD
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to INITIALIZATION .

3. REMOVE LOWER NO. 3 STEERING WHEEL COVER . Refer to REMOVAL - Step 2
4. REMOVE LOWER NO. 2 STEERING WHEEL COVER . Refer to REMOVAL - Step 3
5. REMOVE STEERING PAD . Refer to REMOVAL - Step 4
6. REMOVE STEERING WHEEL ASSEMBLY . Refer to REMOVAL - Step 6
7. REMOVE LOWER STEERING COLUMN COVER . Refer to REMOVAL - Step 10
8. REMOVE UPPER STEERING COLUMN COVER . Refer to REMOVAL - Step 11
9. REMOVE SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY . Refer to REMOVAL - Step 9
10. REMOVE WINDSHIELD WIPER SWITCH ASSEMBLY



P

Fig. 94: Removing Windshield Wiper Switch Connectors & Claw Using Screwdriver
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the 2 connectors
- b. Using a screwdriver with its tip wrapped in protective tape, disengage the claw and remove the wiper switch.

TEXT IN ILLUSTRATION



NOTE: Do not press the claw too hard, as it may be damaged.

11. REMOVE HEADLIGHT DIMMER SWITCH ASSEMBLY

- a. Disconnect the connector.

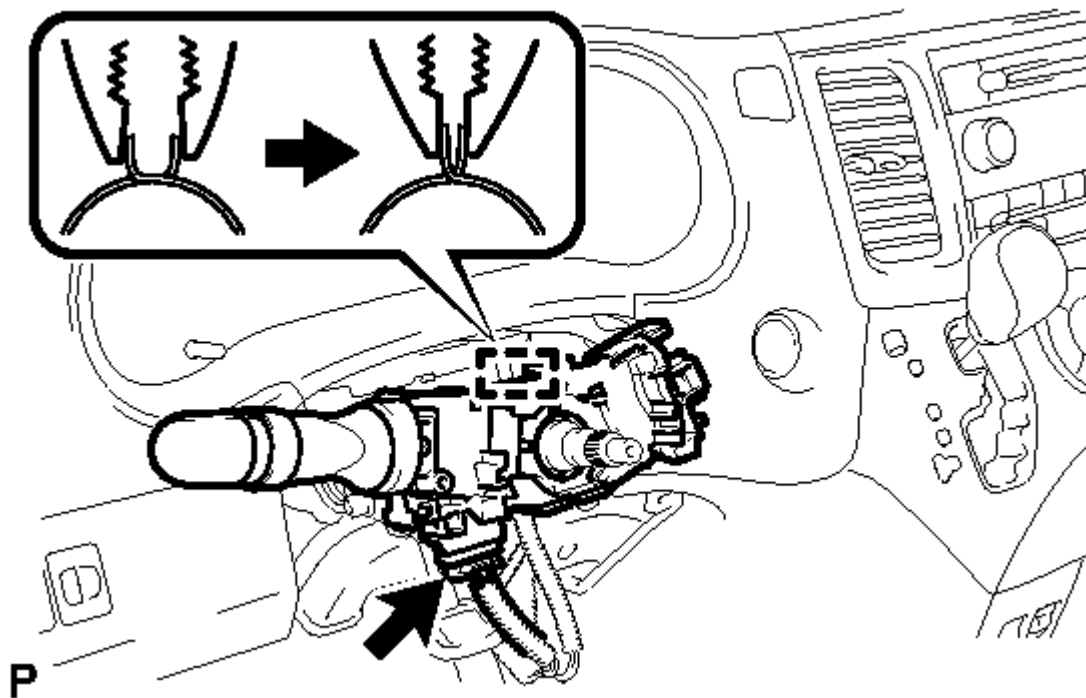
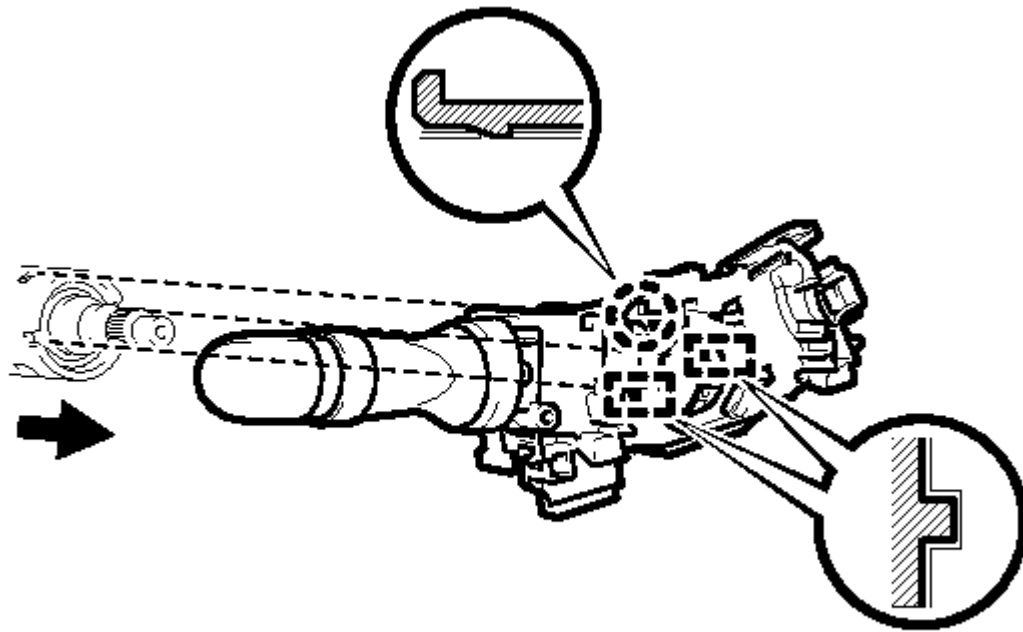


Fig. 95: Identifying Headlight Dimmer Switch Assembly Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Remove the headlight dimmer switch, as shown in the illustration.
- c. Disengage the claw, 2 guides and remove the headlight dimmer switch.



P

Fig. 96: Removing Headlight Dimmer Switch Assembly & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. INSPECT HEADLIGHT DIMMER SWITCH ASSEMBLY

- a. Check the resistance of the light control switch.
 1. Measure the resistance according to the value(s) in the table below.

*a

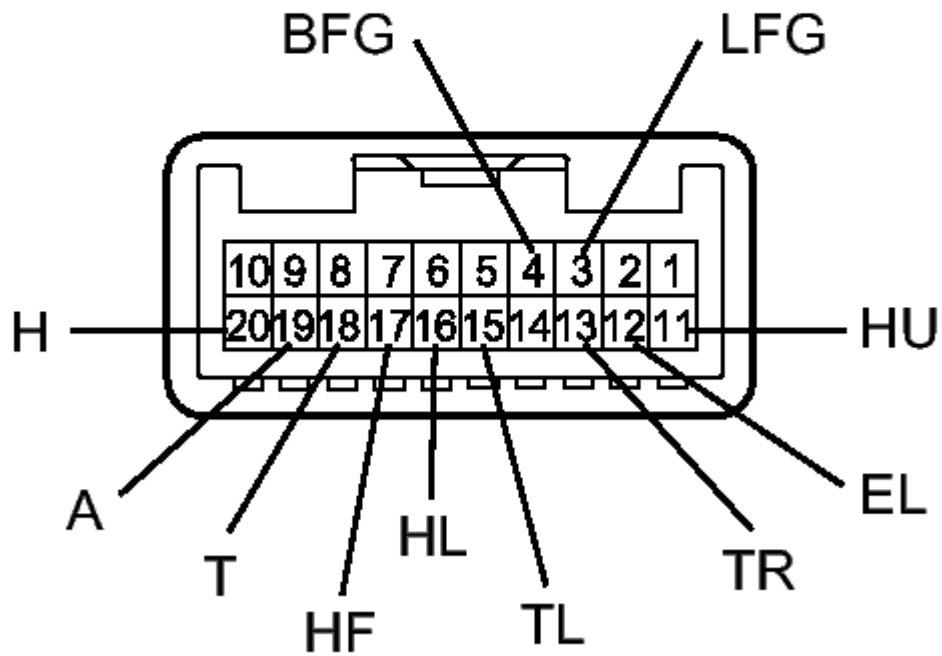


Fig. 97: Headlight Dimmer Switch Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
12 (EL) - 18 (T)	TAIL	Below 1 ohms
12 (EL) - 18 (T)	HEAD	Below 1 ohms
12 (EL) - 20 (H)	HEAD	Below 1 ohms
12 (EL) - 19 (A)	AUTO	Below 1 ohms

If the result is not as specified, replace the headlight dimmer switch.

b. Check the resistance of the headlight dimmer switch.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
17 (HF) - 12 (EL)	FLASH	Below 1 ohms
16 (HL) - 12 (EL)	LOW BEAM	Below 1 ohms
11 (HU) - 12 (EL)	HI BEAM	Below 1 ohms

If the result is not as specified, replace the headlight dimmer switch.

c. Check the resistance of the turn signal switch.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
12 (EL) - 13 (TR)	Right turn	Below 1 ohms
12 (EL) - 13 (TR) 12 (EL) - 15 (TL)	Neutral	10 kohms or higher
12 (EL) - 15 (TL)	Left turn	Below 1 ohms

If the result is not as specified, replace the headlight dimmer switch.

d. Check the resistance of the fog light switch.

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
3 (LFG) - 4 (BFG)	ON	Below 1 ohms

3 (LFG) - 4 (BFG)	OFF	10 kohms or higher
----------------------	-----	-----------------------

TEXT IN ILLUSTRATION

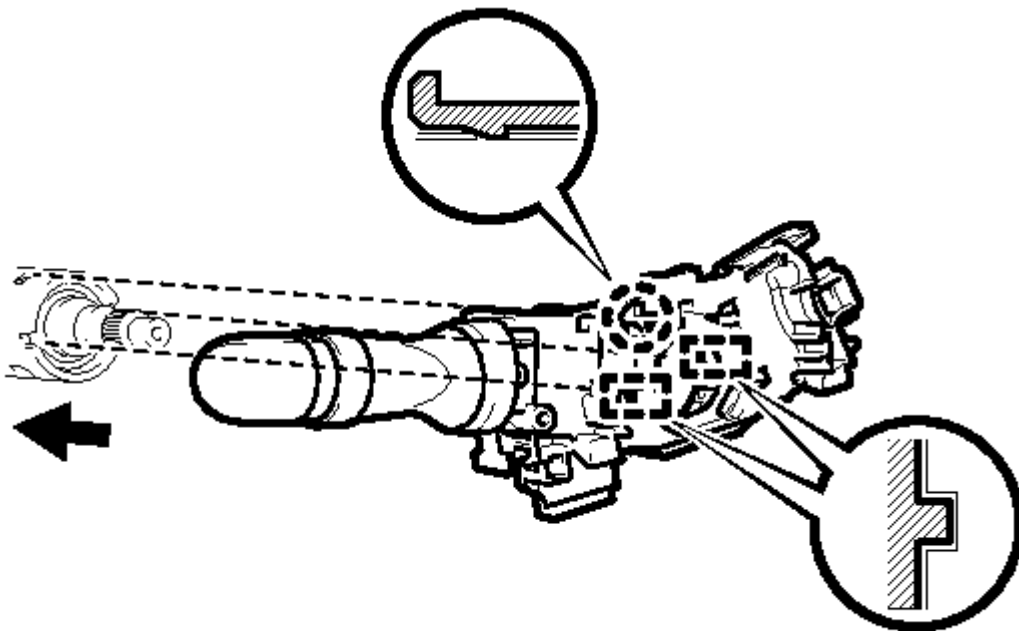
*a	Component without harness connected (Headlight Dimmer Switch Assembly)
----	---

If the result is not as specified, replace the headlight dimmer switch.

INSTALLATION

INSTALLATION

1. INSTALL HEADLIGHT DIMMER SWITCH ASSEMBLY



P

Fig. 98: Installing Headlight Dimmer Switch Assembly & Fasteners
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- Engage the claw, 2 guides and install the headlight dimmer switch, as shown in the illustration.
- Install the headlight dimmer switch with the clamp.

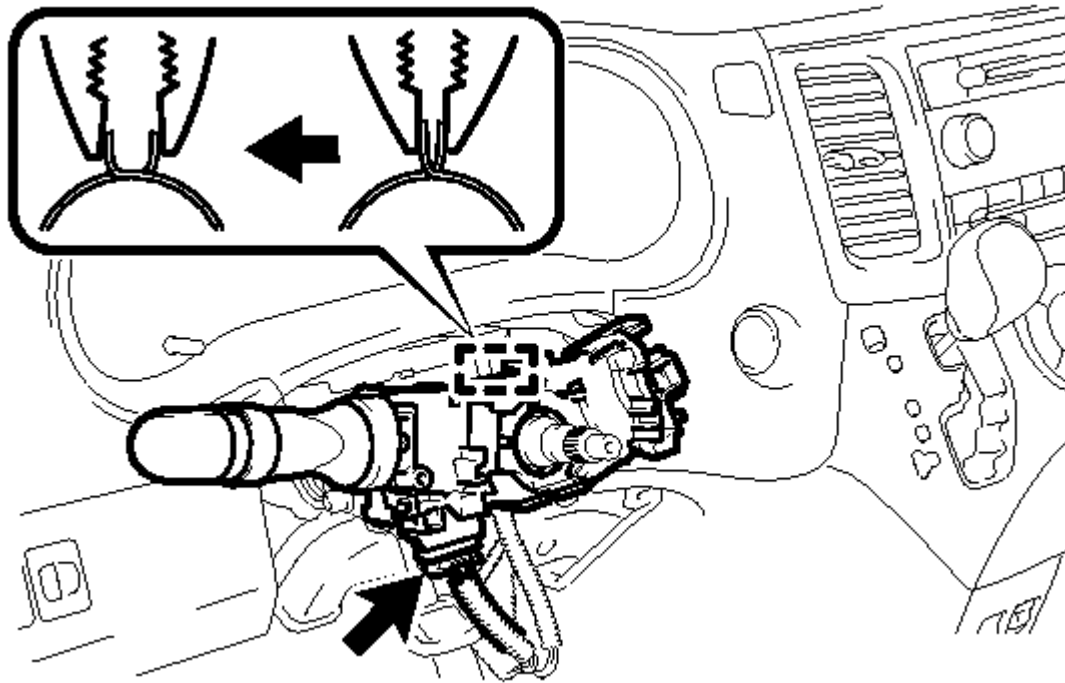


Fig. 99: Installing Headlight Dimmer Switch Connector & Clamp
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- c. Connect the connector.
2. **INSTALL WINDSHIELD WIPER SWITCH ASSEMBLY**
 - a. Engage the claw and install the wiper switch.
 - b. Connect the 2 connectors.
3. **INSTALL SPIRAL WITH SENSOR CABLE SUB-ASSEMBLY** . Refer to INSTALLATION - Step 1
4. **INSTALL UPPER STEERING COLUMN COVER** . Refer to INSTALLATION - Step 6
5. **INSTALL LOWER STEERING COLUMN COVER** . Refer to INSTALLATION - Step 7
6. **ADJUST SPIRAL CABLE** . Refer to INSTALLATION - Step 4
7. **INSTALL STEERING WHEEL ASSEMBLY** . Refer to INSTALLATION - Step 12
8. **INSPECT STEERING WHEEL CENTER POINT**
9. **INSTALL STEERING PAD** . Refer to INSTALLATION - Step 1
10. **INSTALL LOWER NO. 2 STEERING WHEEL COVER** . Refer to INSTALLATION - Step 3
11. **INSTALL LOWER NO. 3 STEERING WHEEL COVER** . Refer to INSTALLATION - Step 2
12. **POSITION FRONT WHEELS FACING STRAIGHT AHEAD**
13. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: When disconnecting the cable, some systems need to be initialized after

the cable is reconnected. Refer to INITIALIZATION .

14. **INSPECT STEERING PAD** . Refer to ON-VEHICLE INSPECTION - Step 1

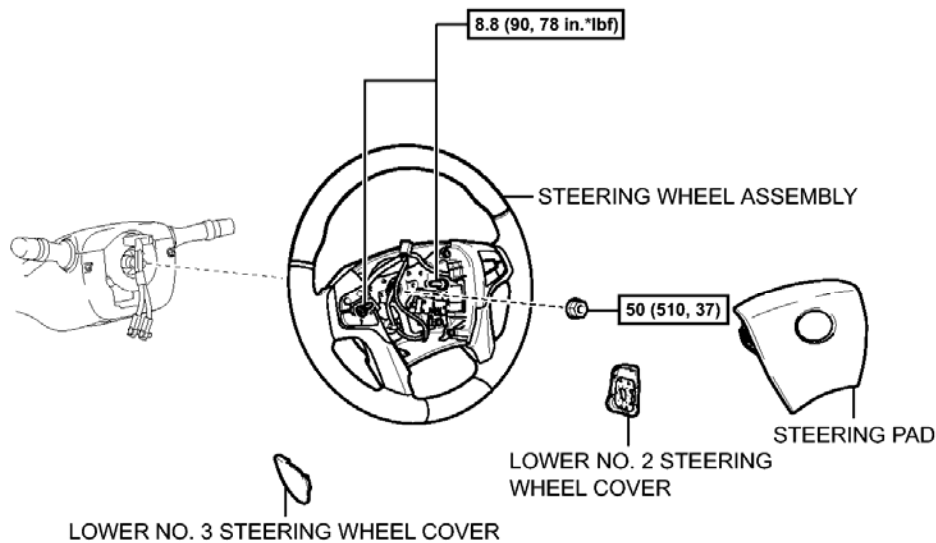
15. **INSPECT SRS WARNING LIGHT**

Refer to DIAGNOSIS SYSTEM

HAZARD WARNING SWITCH

COMPONENTS

ILLUSTRATION



N*m (kgf*cm, ft*lbf) : Specified torque

P

Fig. 100: Hazard Warning Switch Replacement Components With Torque Specifications (1 Of 2)
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ILLUSTRATION

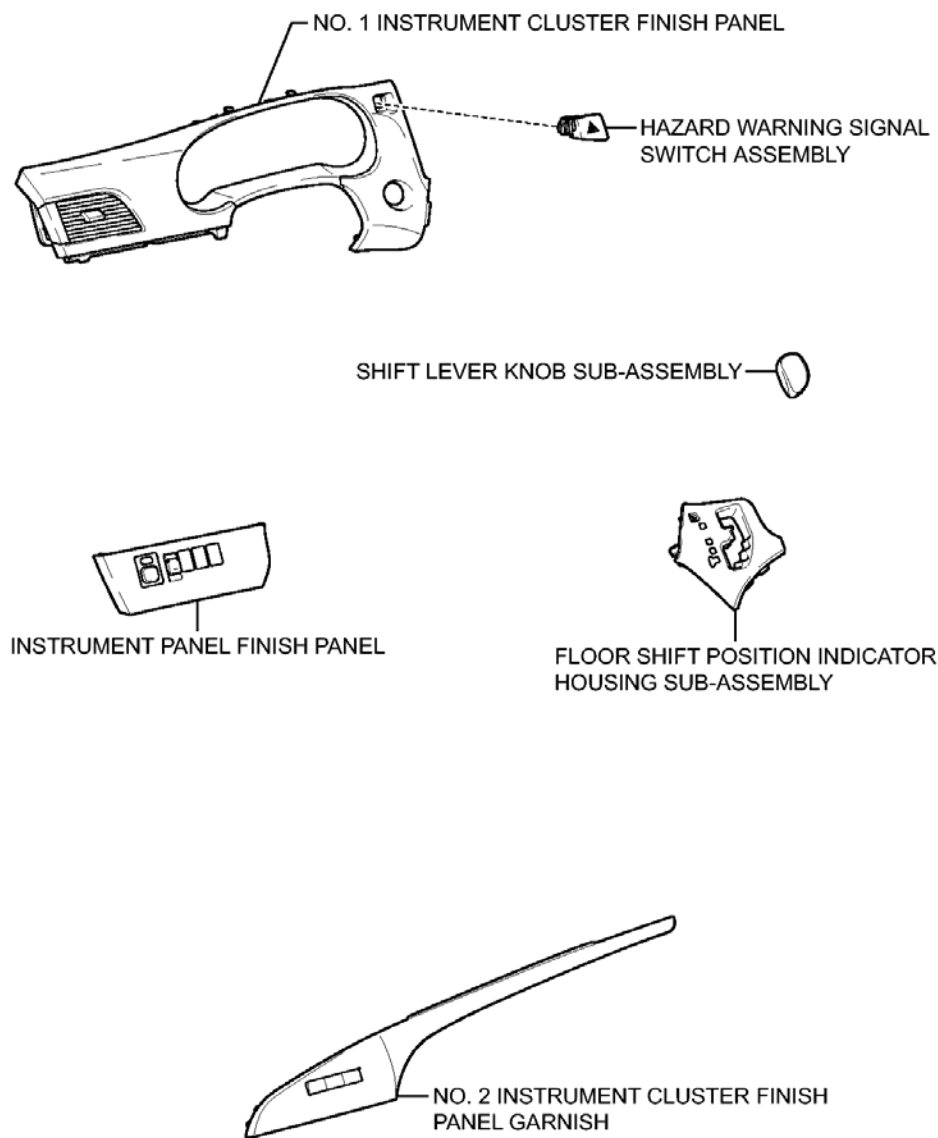


Fig. 101: Hazard Warning Switch Replacement Components (2 Of 2)
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

WARNING: Some of these service operations affect the SRS airbag system. Read the

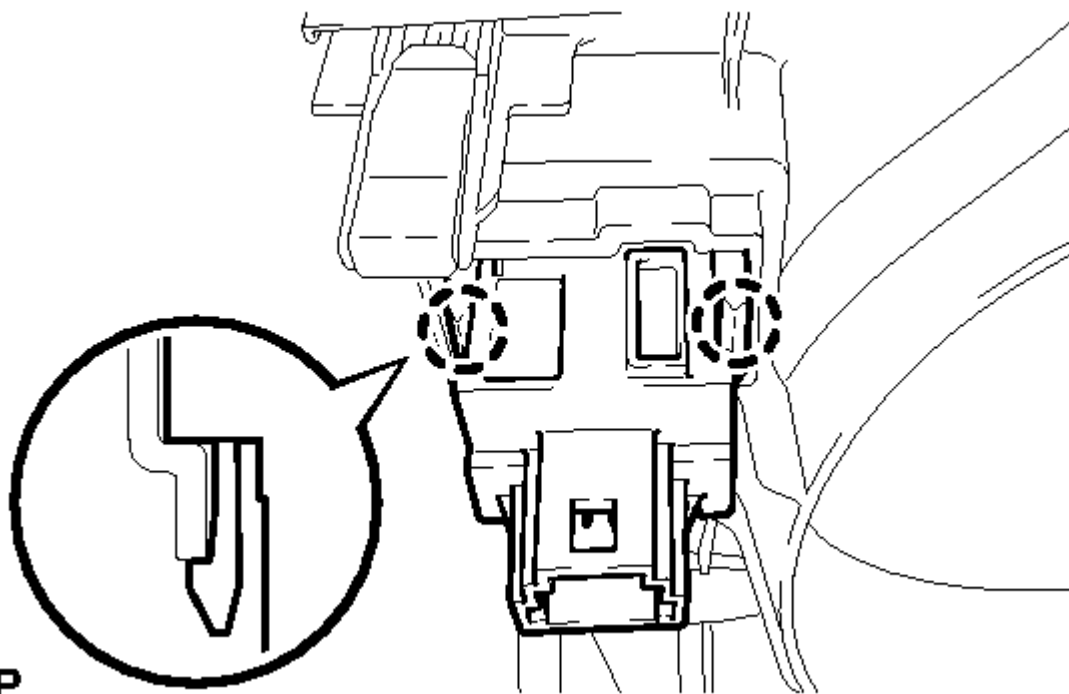
precautionary notices concerning the SRS airbag system before servicing. Refer to **PRECAUTION**

1. POSITION FRONT WHEELS FACING STRAIGHT AHEAD
2. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

WARNING: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .

3. REMOVE LOWER NO. 3 STEERING WHEEL COVER . Refer to **REMOVAL - Step 2**
4. REMOVE LOWER NO. 2 STEERING WHEEL COVER . Refer to **REMOVAL - Step 3**
5. REMOVE STEERING PAD . Refer to **REMOVAL - Step 4**
6. REMOVE STEERING WHEEL ASSEMBLY . Refer to **REMOVAL - Step 6**
7. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH . Refer to **REMOVAL - Step 23**
8. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY
9. REMOVE FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY . Refer to **REMOVAL - Step 25**
10. REMOVE INSTRUMENT PANEL FINISH PANEL . Refer to **REMOVAL - Step 22**
11. REMOVE NO. 1 INSTRUMENT CLUSTER FINISH PANEL . Refer to **REMOVAL - Step 26**
12. REMOVE HAZARD WARNING SIGNAL SWITCH ASSEMBLY



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Fig. 102: Identifying Hazard Warning Signal Switch Assembly & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

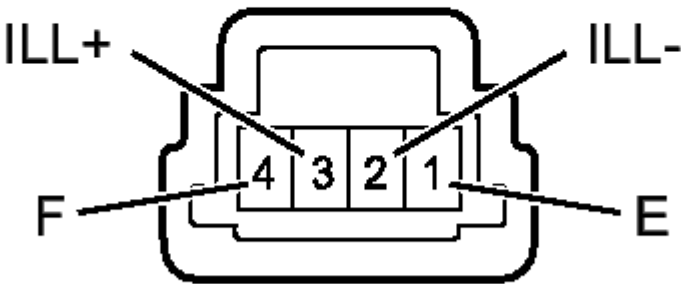
- a. Disengage the 2 claws and hazard warning signal switch.

INSPECTION

INSPECTION

1. INSPECT HAZARD WARNING SIGNAL SWITCH ASSEMBLY

*a



H

Fig. 103: Hazard Warning Signal Switch Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Check the resistance.
 - 1. Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
1(E) - 4(F)	OFF	10 kohms or higher
1(E) - 4(F)	ON	Below 1 ohms

TEXT IN ILLUSTRATION

*a	Component without harness connected (Hazard Warning Signal Switch Assembly)
----	---

If the result is not as specified, replace the hazard warning signal switch assembly.

b. Check the operation hazard warning signal switch illuminates.

1. Apply battery voltage to the hazard warning signal switch illuminates terminals.

OK

Measurement Condition	Specified Condition
Battery positive (+) -- > 3 (ILL+) Battery negative (-) -- > 2 (ILL-)	Illuminates

If the result is not as specified, replace the hazard warning signal switch.

INSTALLATION

INSTALLATION

1. **INSTALL HAZARD WARNING SIGNAL SWITCH ASSEMBLY**
 - a. Engage the 2 claws and install the hazard warning signal switch.
2. **INSTALL NO. 1 INSTRUMENT CLUSTER FINISH PANEL** . Refer to **INSTALLATION - Step 32**
3. **INSTALL INSTRUMENT PANEL FINISH PANEL** . Refer to **INSTALLATION - Step 36**
4. **INSTALL FLOOR SHIFT POSITION INDICATOR HOUSING SUB-ASSEMBLY** . Refer to **INSTALLATION - Step 33**
5. **INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY**
6. **INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH** . Refer to **INSTALLATION - Step 35**
7. **ADJUST SPIRAL CABLE** . Refer to **INSTALLATION - Step 4**
8. **INSTALL STEERING WHEEL ASSEMBLY** . Refer to **INSTALLATION - Step 12**
9. **INSPECT STEERING WHEEL CENTER POINT**
10. **INSTALL STEERING PAD** . Refer to **INSTALLATION - Step 1**
11. **INSTALL LOWER NO. 2 STEERING WHEEL COVER** . Refer to **INSTALLATION - Step 3**
12. **INSTALL LOWER NO. 3 STEERING WHEEL COVER** . Refer to **INSTALLATION - Step 2**
13. **POSITION FRONT WHEELS FACING STRAIGHT AHEAD**
14. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

NOTE: When disconnecting the cable, some systems need to be initialized after

the cable is reconnected. Refer to INITIALIZATION .

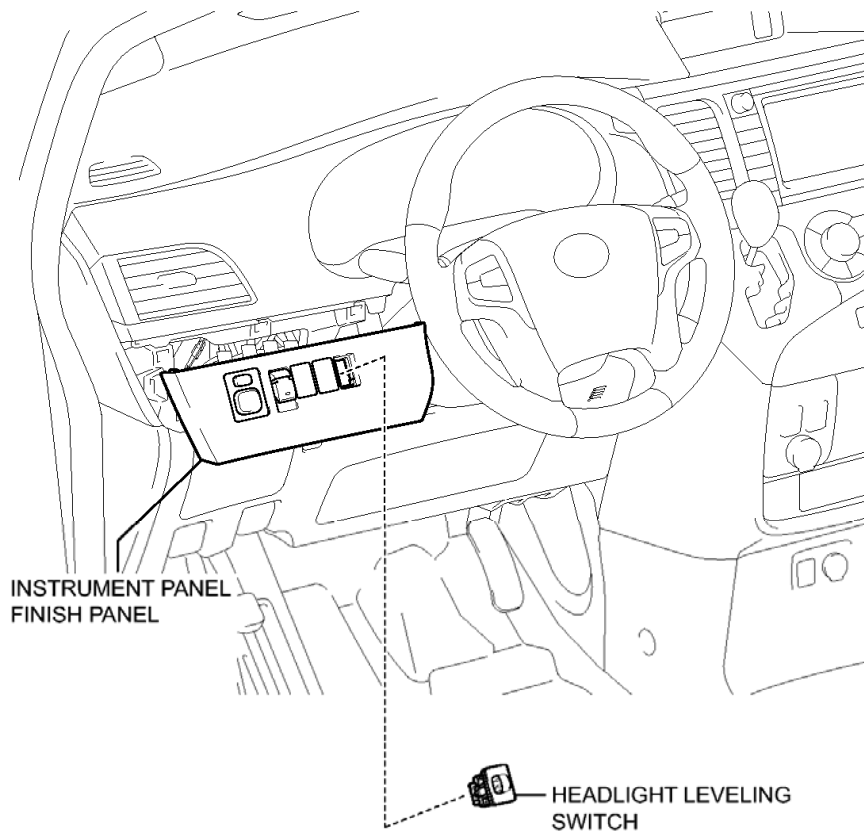
15. **INSPECT STEERING PAD** . Refer to ON-VEHICLE INSPECTION - Step 1
16. **INSPECT SRS WARNING LIGHT**

Refer to DIAGNOSIS SYSTEM

HEADLIGHT LEVELING SWITCH

COMPONENTS

ILLUSTRATION



P

Fig. 104: Headlight Leveling Switch Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE INSTRUMENT PANEL FINISH PANEL . Refer to REMOVAL - Step 22
2. REMOVE HEADLIGHT LEVELING SWITCH

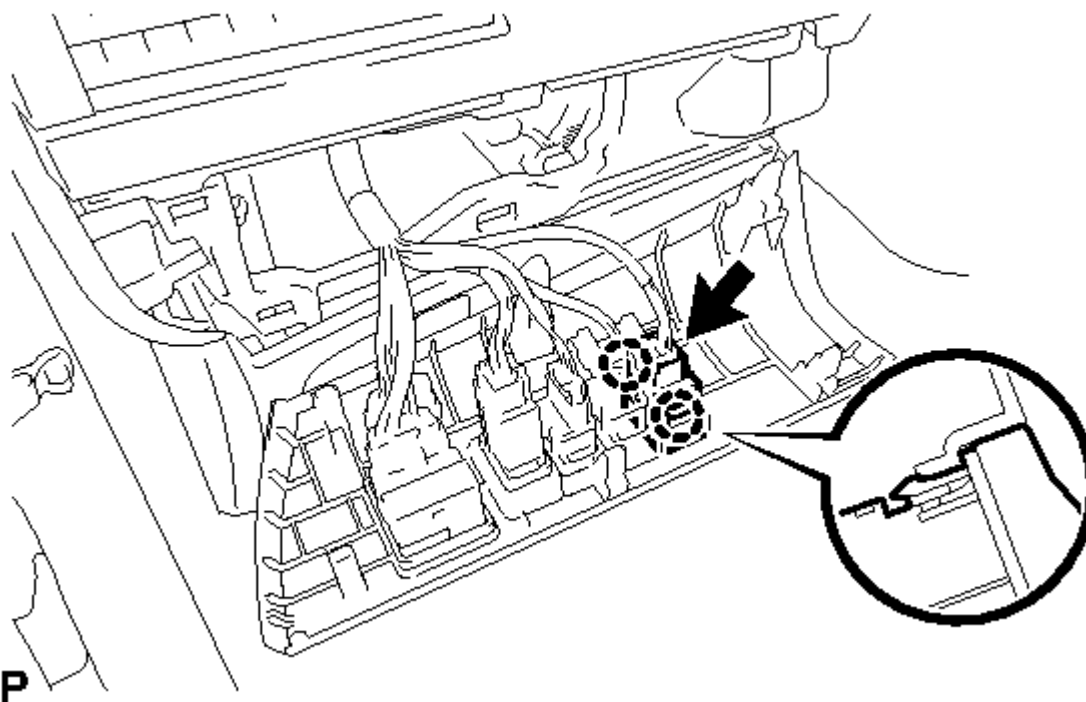


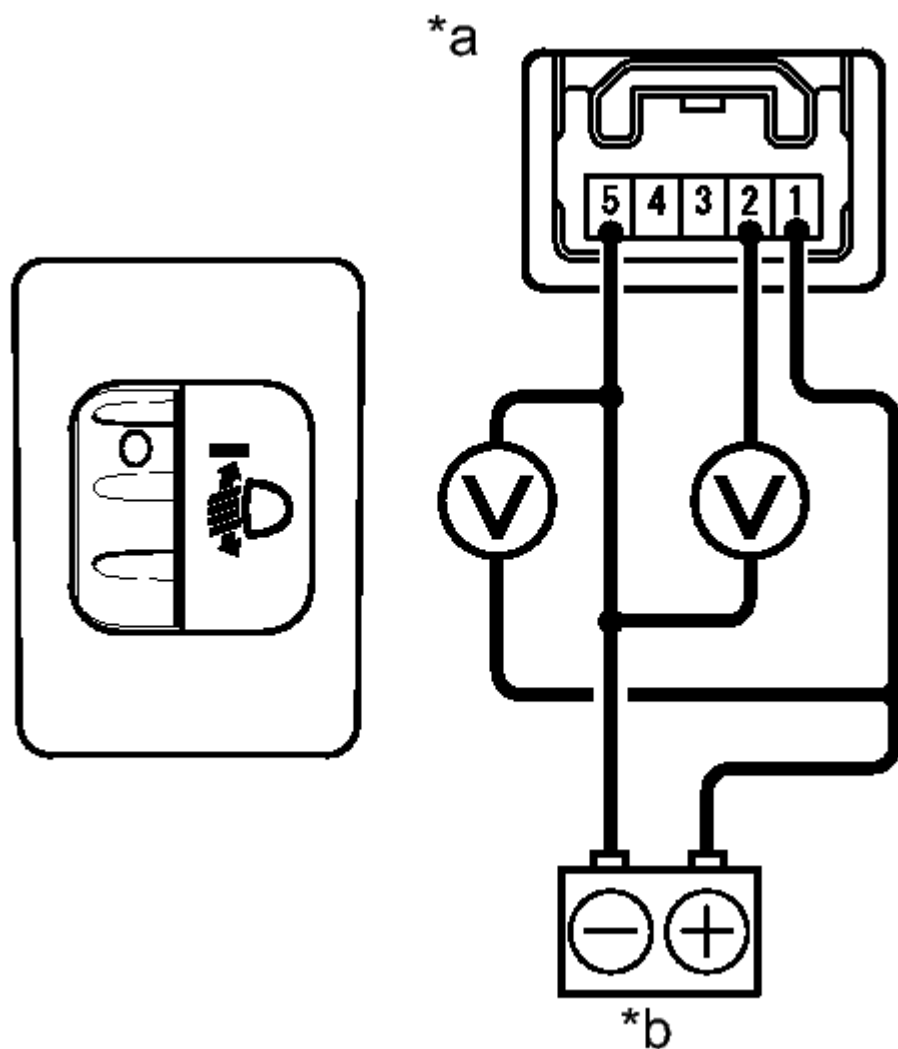
Fig. 105: Identifying Headlight Leveling Switch & Claws
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the 2 claws and remove the headlight leveling switch.

INSPECTION

INSPECTION

1. INSPECT HEADLIGHT LEVELING SWITCH



P

Fig. 106: Inspecting Headlight Leveling Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Check the ratio.

TEXT IN ILLUSTRATION

*a	Component without harness connected (Headlight Leveling Switch)
*b	Battery

1. Connect the positive (+) battery lead to terminal 1 and the negative (-) battery lead to

terminal 5.

2. Check the ratio which is obtained by dividing the voltage between terminals 2 and 5 by the voltage between 1 and 5. The voltages must be measured using a voltmeter.

Standard Ratio

Tester Connection	Switch Condition	Specified Condition
1 - 5 and 2 - 5	0	0.87 to 0.93
1 - 5 and 2 - 5	1	0.76 to 0.82
1 - 5 and 2 - 5	2	0.66 to 0.72
1 - 5 and 2 - 5	3	0.55 to 0.61
1 - 5 and 2 - 5	4	0.44 to 0.50
1 - 5 and 2 - 5	5	0.34 to 0.40

If the result is not as specified, replace the headlight leveling switch.

- b. Check the operation of the headlight leveling switch illuminates.

1. Apply battery voltage to the headlight leveling switch illuminates terminals.

OK

Measurement Condition	Specified Condition
Battery positive (+) -- > 3 Battery negative (-) -- > 4	Illuminates

If the result is not as specified, replace the headlight leveling switch.

INSTALLATION

INSTALLATION

1. INSTALL HEADLIGHT LEVELING SWITCH

- a. Engage the 2 claws and install the headlight leveling switch.

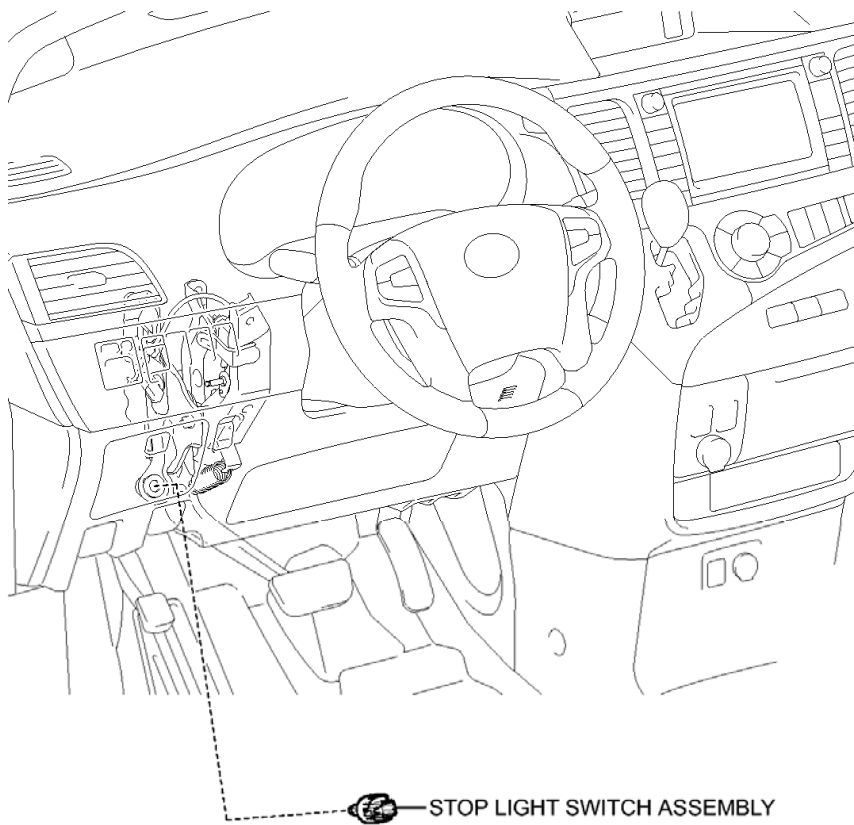
b. Connect the connector.

2. **INSTALL INSTRUMENT PANEL FINISH PANEL** . Refer to **INSTALLATION - Step 36**

STOP LIGHT SWITCH

COMPONENTS

ILLUSTRATION



P

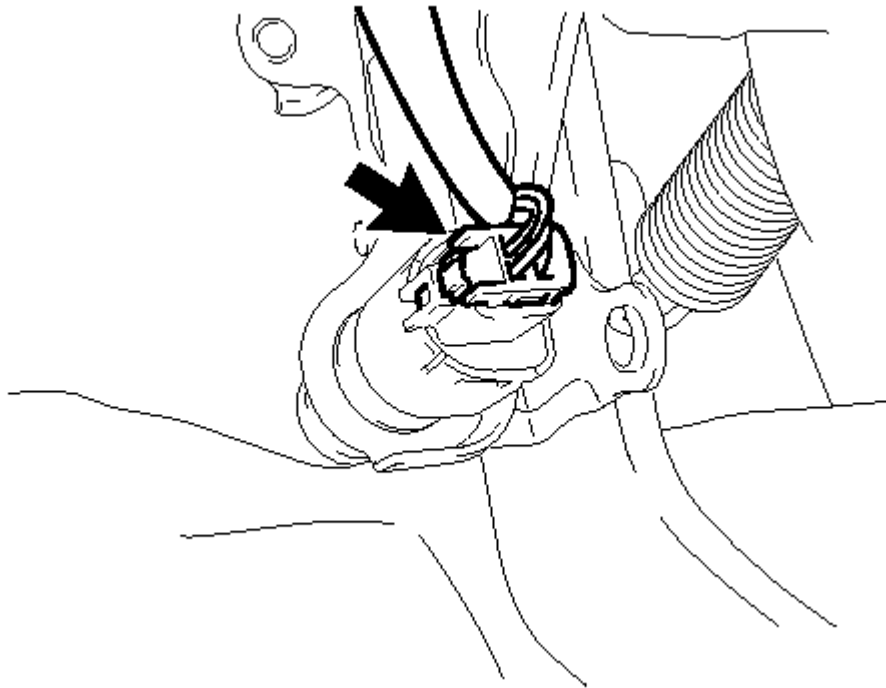
Fig. 107: Stop Light Switch Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. **REMOVE STOP LIGHT SWITCH ASSEMBLY**

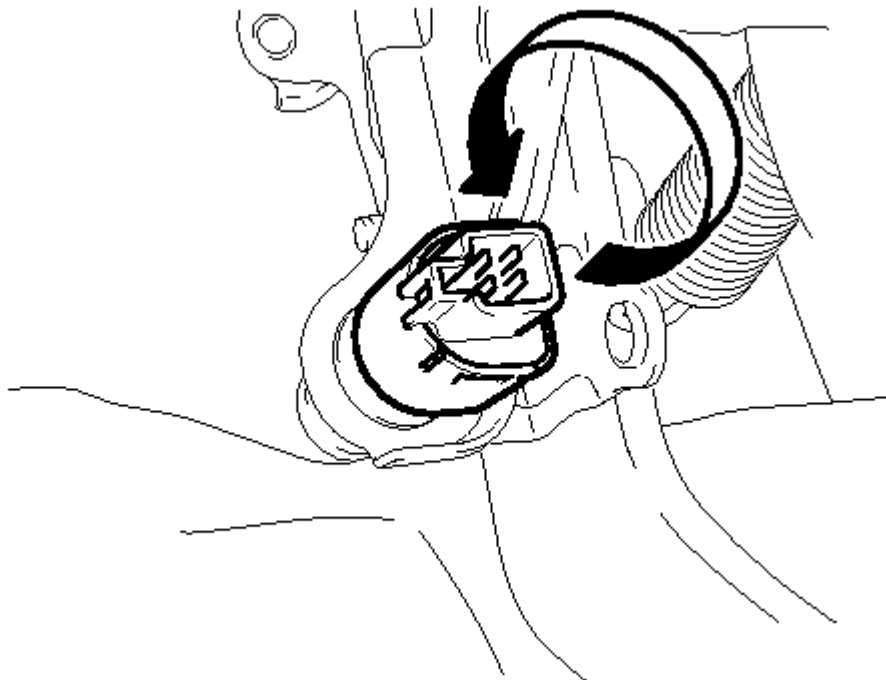
- a. Disconnect the connector.



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Fig. 108: Identifying Stop Light Switch Assembly & Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- b. Turn the stop light switch counterclockwise and remove it.



P

Fig. 109: Removing Stop Light Switch
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

INSPECTION

INSPECTION

1. INSPECT STOP LIGHT SWITCH ASSEMBLY
 - a. Check the resistance.

*a

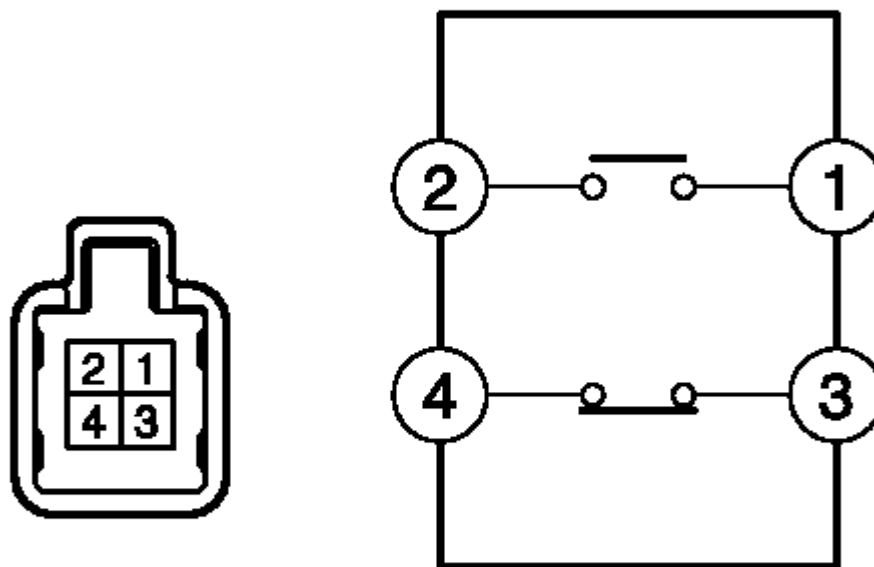


Fig. 110: Stop Light Switch Connector End View
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

Component without

harness
connected
*a (Stop Light
Switch
Assembly)

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
1 - 2	Not pushed	Below 1 ohms
1 - 2	Pushed	10 kohms or higher
3 - 4	Not pushed	10 kohms or higher
3 - 4	Pushed	Below 1 ohms

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

INSTALLATION

INSTALLATION

1. INSTALL STOP LIGHT SWITCH ASSEMBLY

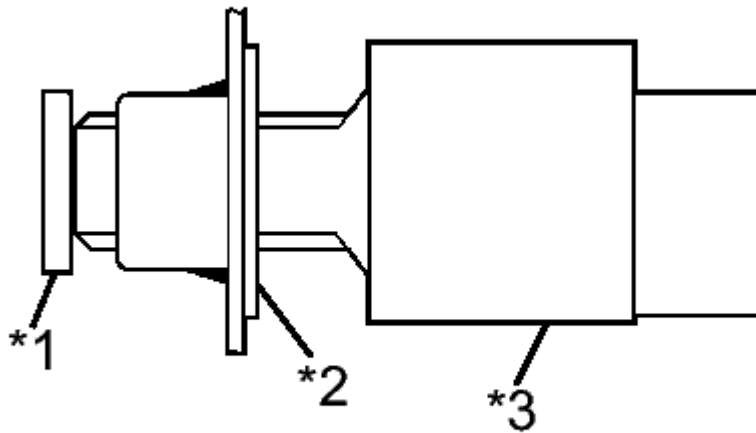


Fig. 111: Installing Stop Light Switch Assembly
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Brake Pedal
*2	Adjuster
*3	Stop Light Switch

- a. Install the stop light switch into the adjuster until it slightly touches the brake pedal.

HINT:

Do not depress the brake pedal.

1. Make a quarter turn clockwise to install the stop light switch.

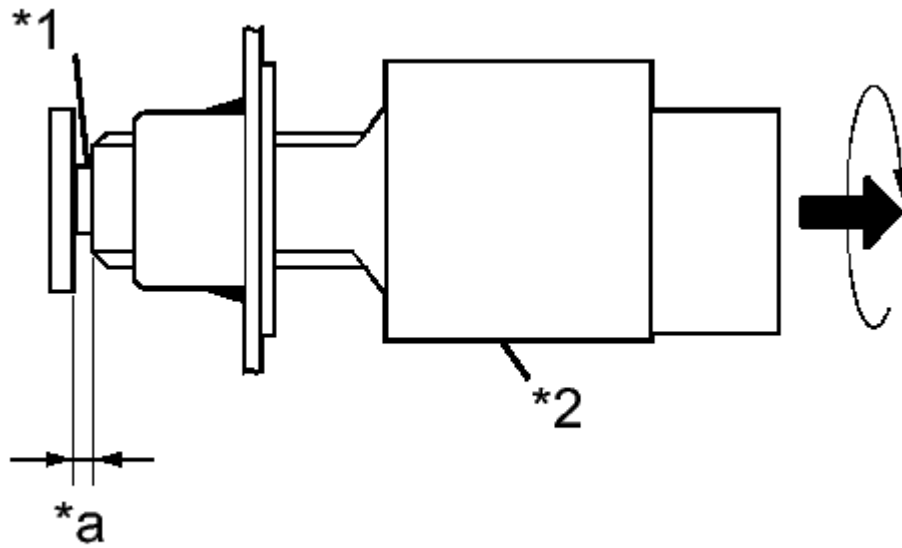


Fig. 112: Identifying Stop Light Switch Clearance
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

TEXT IN ILLUSTRATION

*1	Shaft
*2	Stop Light Switch
*a	Stop Light Switch Clearance

HINT:

- Do not depress the brake pedal.
- The turning torque for installing the stop light switch is as below.

Torque: 1.5 N*m (15 kgf*cm, 13 in.*lbf)

or less

- Check the stop light switch clearance.

Stop light switch clearance

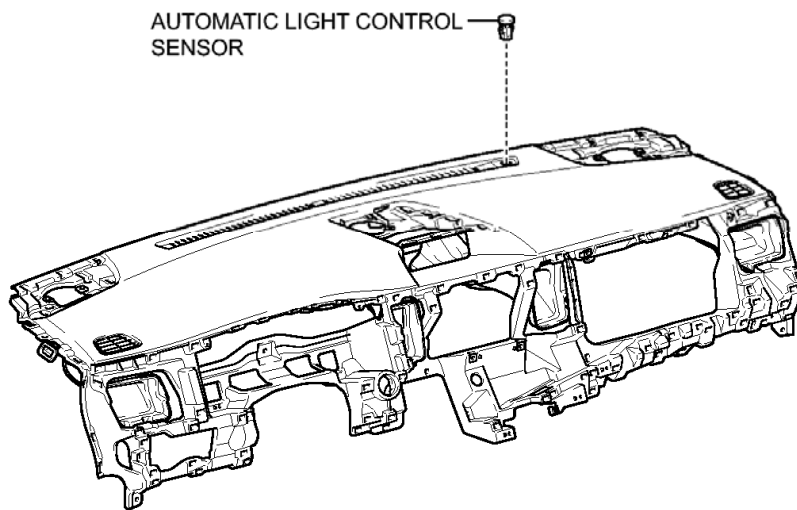
0.5 to 2.6 mm (0.020 to 0.102 in.)

- c. Connect the stop light switch connector to the stop light switch.

AUTOMATIC LIGHT CONTROL SENSOR

COMPONENTS

ILLUSTRATION



P

Fig. 113: Automatic Light Control Sensor Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. **INSPECT AUTOMATIC LIGHT CONTROL SENSOR**
 - a. Check the power source circuit and ground circuit.

*1

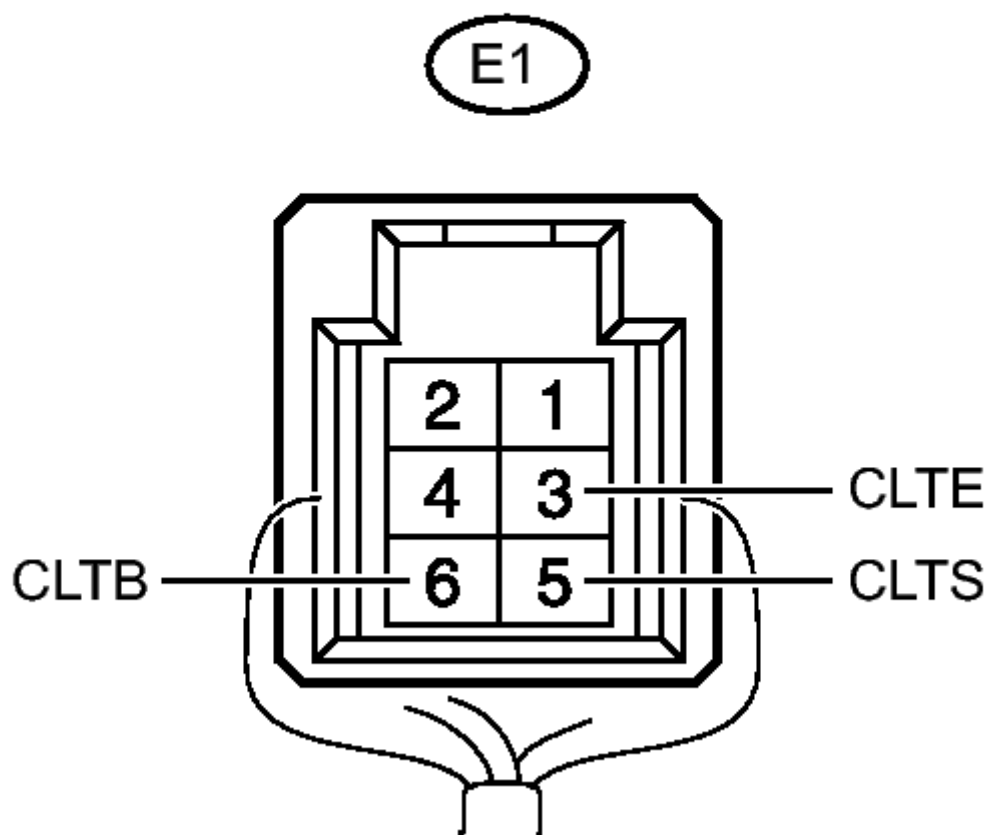


Fig. 114: Automatic Light Control Sensor Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
E1-6 (CLTB) - E1-3 (CLTE)	Ignition switch ON	11 to 14 V

TEXT IN ILLUSTRATION

	Component
--	-----------

*a	with harness connected (Automatic Light Control Sensor)
----	---

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

Standard Resistance

Tester Connection	Switch Condition	Specified Condition
E1-3 (CLTE) - Body ground	Always	Below 1 ohms

- b. Check the waveform.
 - 1. Check the waveform according to the value(s) in the table below.

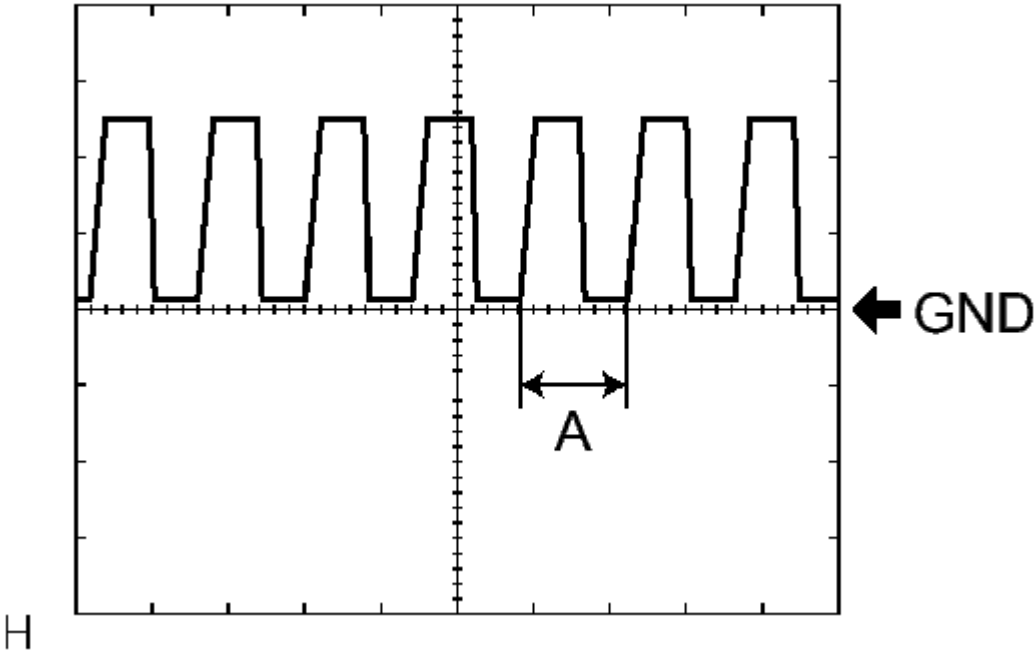


Fig. 115: Checking Waveform Graph
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Waveform



Tester Connection	Tool Setting	Switch Condition	Specified Condition
E1-3 (CLTE) - E1-5 (CLTS)	5 V/DIV., 5 msec./DIV.	Ignition switch ON, Headlight dimmer switch AUTO	Correct waveform is as shown (see Fig. 115)

HINT:

If the ambient light becomes brighter, width A becomes narrower.

If the result is not as specified, replace the automatic light control sensor.

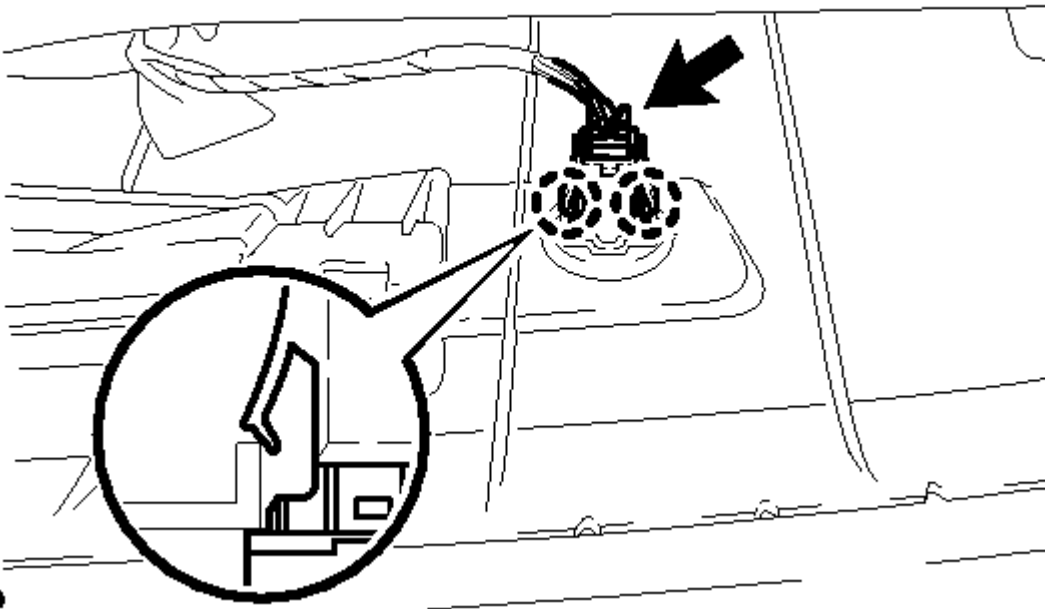
REMOVAL

REMOVAL

1. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **REMOVAL**

2. REMOVE AUTOMATIC LIGHT CONTROL SENSOR



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Fig. 116: Identifying Automatic Light Control Sensor, Connector & Claws

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

- a. Disconnect the connector.
- b. Disengage the 2 claws and remove the automatic light control sensor.

INSTALLATION

INSTALLATION

1. INSTALL AUTOMATIC LIGHT CONTROL SENSOR

- a. Engage the 2 claws and install the automatic light control sensor.
- b. Connect the connector.

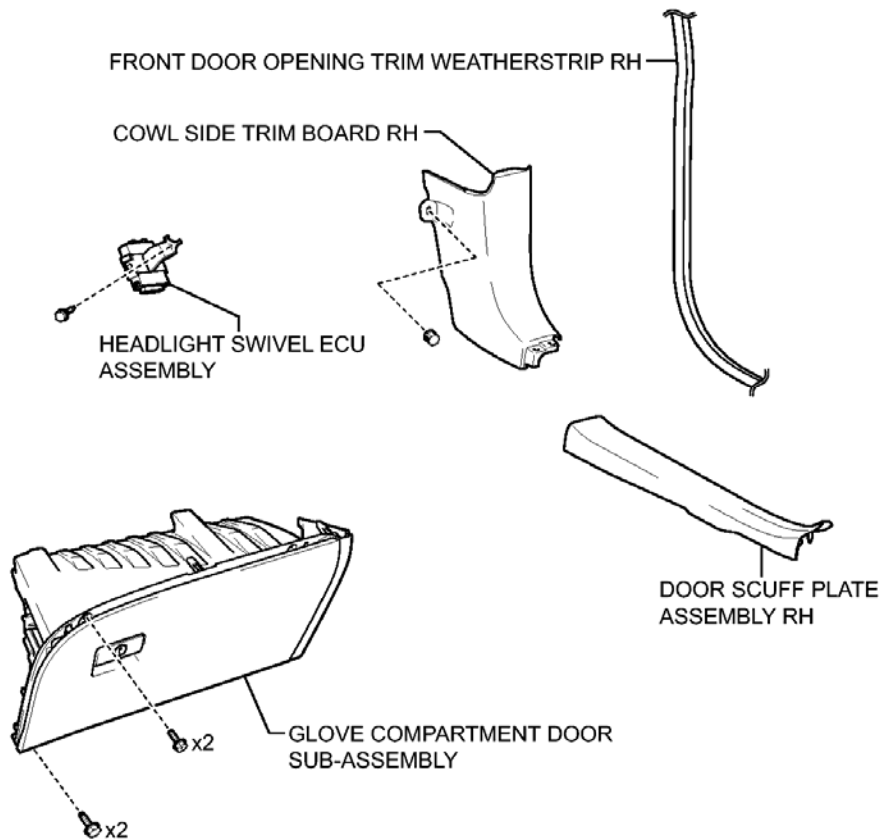
2. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY

Refer to **INSTALLATION**

AFS ECU

COMPONENTS

ILLUSTRATION



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Fig. 117: AFS ECU Replacement Components

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

REMOVAL

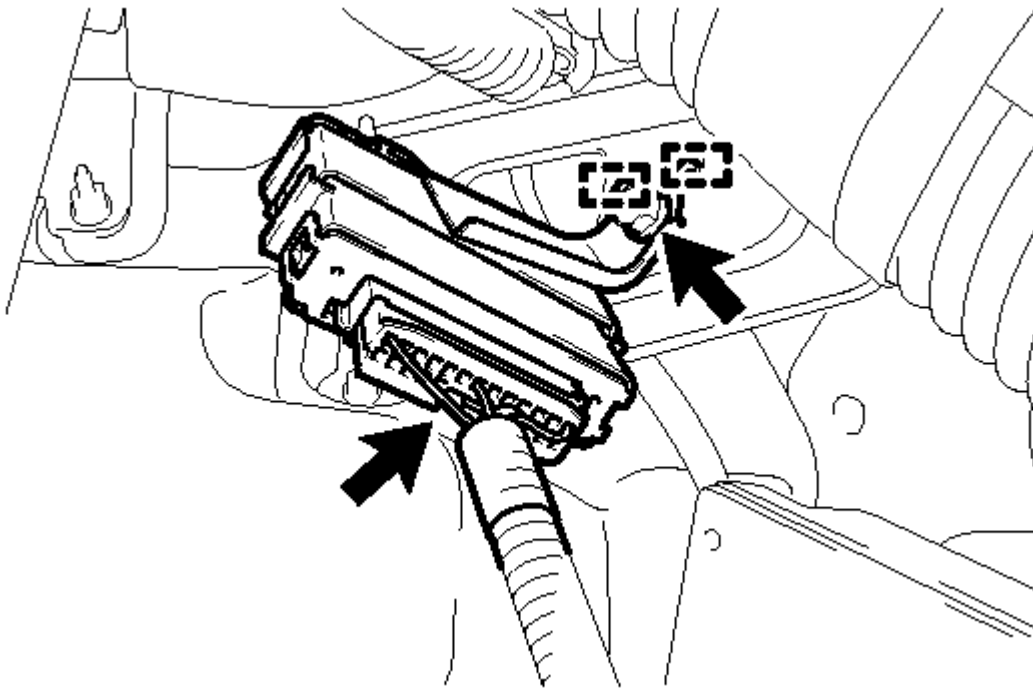
REMOVAL

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

NOTE: When disconnecting the cable, some systems need to be initialized after the cable is reconnected. Refer to **INITIALIZATION** .

2. **REMOVE DOOR SCUFF PLATE ASSEMBLY RH** . Refer to **REMOVAL - Step 3**
3. **SEPARATE FRONT DOOR OPENING TRIM WEATHERSTRIP RH**
4. **REMOVE COWL SIDE TRIM BOARD RH** . Refer to **REMOVAL - Step 5**
5. **REMOVE GLOVE COMPARTMENT DOOR SUB-ASSEMBLY** . Refer to **REMOVAL - Step 34**

6. REMOVE HEADLIGHT SWIVEL ECU ASSEMBLY



P

Fig. 118: Identifying Headlight Swivel ECU Assembly, Connector & Fasteners
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Remove the bolt, then disengage the 2 hooks and remove the headlight swivel ECU.

INSTALLATION

INSTALLATION

1. INSTALL HEADLIGHT SWIVEL ECU ASSEMBLY

- a. Engage the 2 hooks and install the headlight swivel ECU with the bolt.
- b. Connect the connector.

2. INSTALL GLOVE COMPARTMENT DOOR SUB-ASSEMBLY . Refer to INSTALLATION - Step 24

3. INSTALL COWL SIDE TRIM BOARD RH . Refer to INSTALLATION - Step 35

4. INSTALL FRONT DOOR OPENING TRIM WEATHERSTRIP RH

5. INSTALL DOOR SCUFF PLATE ASSEMBLY RH . Refer to INSTALLATION - Step 37

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

Torque: 5.4 N*m (55 kgf*cm, 48 in.*lbf)

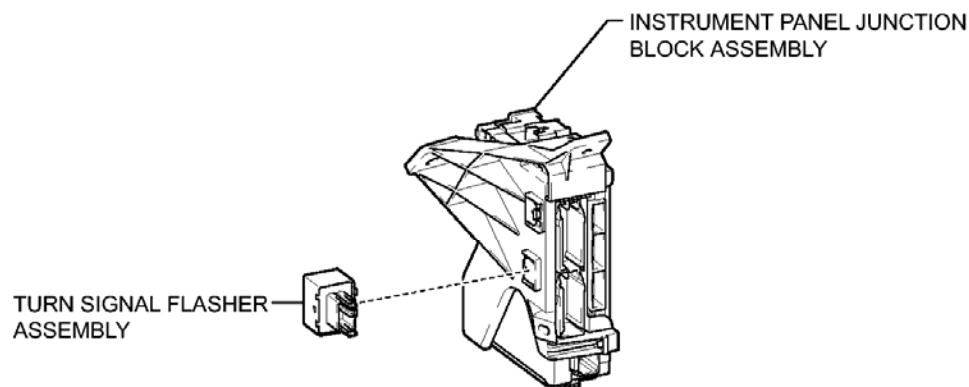
NOTE: When disconnecting the cable, some systems need to be initialized after

the cable is reconnected. Refer to INITIALIZATION .

TURN SIGNAL FLASHER ASSEMBLY

COMPONENTS

ILLUSTRATION



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Fig. 119: Turn Signal Flasher Assembly Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

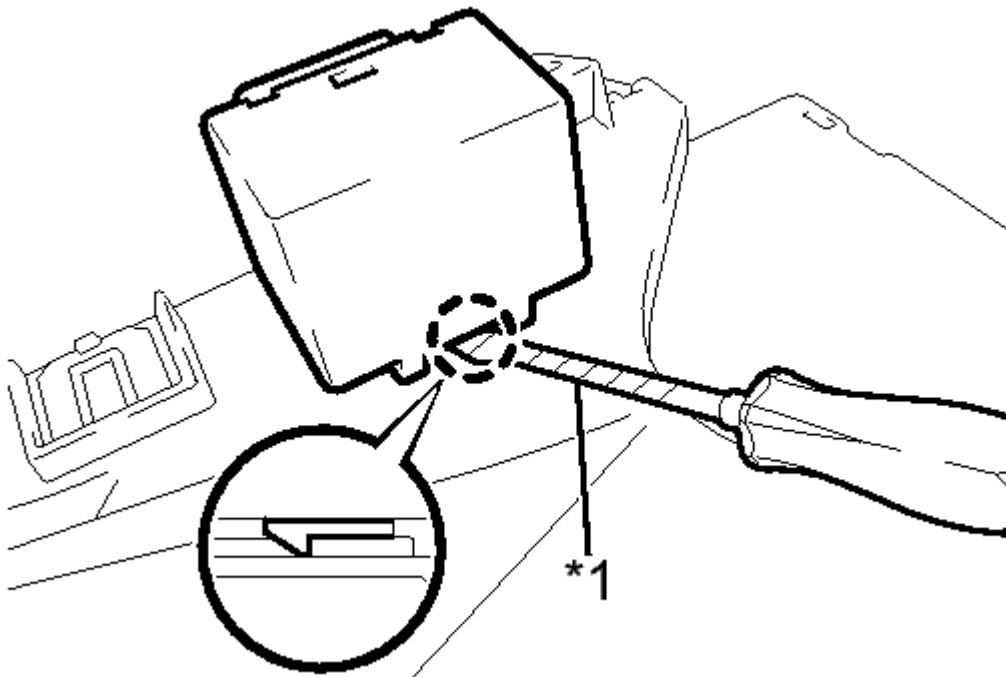
REMOVAL

REMOVAL

1. REMOVE INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY

Refer to REMOVAL

2. REMOVE TURN SIGNAL FLASHER ASSEMBLY



P

Fig. 120: Removing Turn Signal Flasher Assembly & Claw Using A Screwdriver
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Using a screwdriver with its tip wrapped in protective tape, disengage the claw and remove the turn signal flasher.

TEXT IN ILLUSTRATION

*1	Protective Tape
----	--------------------

INSPECTION

INSPECTION

1. INSPECT TURN SIGNAL FLASHER ASSEMBLY

- a. Disconnect the turn signal flasher assembly connector.

*a

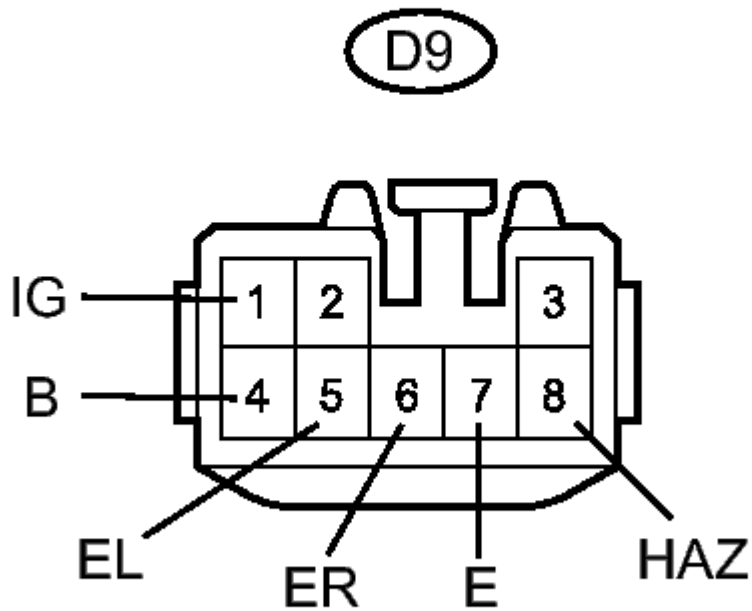


Fig. 121: Turn Signal Flasher Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Condition	Specified Condition
D9-1 (IG) - Body ground	Ignition switch off	Below 1 V
	Ignition switch ON	11 to 14 V
D9-4 (B) - Body	Always	11 to 14 V

ground		
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TEXT IN ILLUSTRATION

*a	Front view of wire harness connector (to Turn Signal Flasher Assembly)
----	--

If the result 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.

Standard Resistance

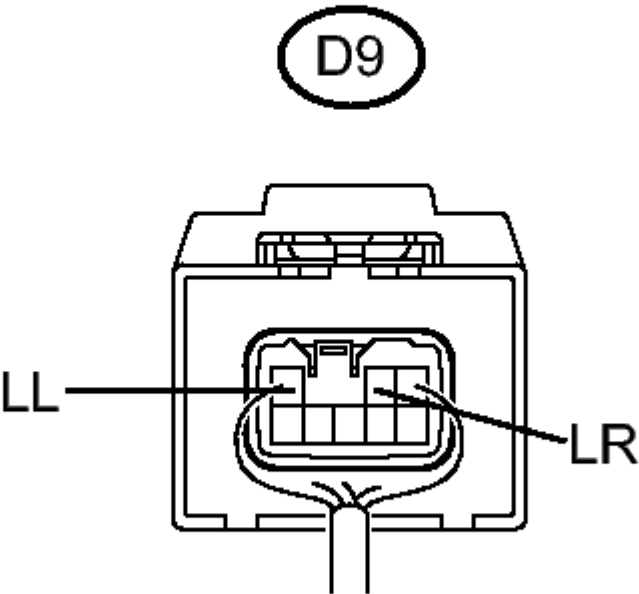
Tester Connection	Switch Condition	Specified Condition
D9-5 (EL) - Body ground	Turn signal switch off	10 kohms or higher
	Turn signal switch in left turn position	Below 1 ohms
D9-6 (ER) - Body ground	Turn signal switch in neutral position	10 kohms or higher
	Turn signal switch in right turn position	Below 1 ohms
D9-7 (E) - Body ground	Always	Below 1 ohms
D9-8 (HAZ) - Body	Hazard warning switch off	10 kohms or higher
	Hazard	

ground	warning switch on	Below 1 ohms
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If the result is not as specified, repair or replace the wire harness or connector.

- d. Reconnect the turn signal flasher assembly connector.

*a



H

Fig. 122: Identifying Turn Signal Flasher Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- e. Measure the voltage according to the valve(s) in the table below.

Standard Voltage

Tester Connection	Switch Condition	Specified Condition
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D9-2 (LR) - Body ground	Hazard warning switch off	Below 1 V
	Hazard warning switch on	11 to 14 V (60 to 120 times per minute)
	Turn signal switch off	Below 1 V
	Ignition switch ON and turn signal switch in RH position	11 to 14 V (60 to 120 times per minute)
D9-3 (LL) - Body ground	Hazard warning switch off	Below 1 V
	Hazard warning switch on	11 to 14 V (60 to 120 times per minute)
	Turn signal switch off	Below 1 V
	Ignition switch ON and turn signal switch in LH position	11 to 14 V (60 to 120 times per minute)

TEXT IN ILLUSTRATION

*a	Component with harness connected (Turn Signal Flasher Assembly)
----	--

If the result is not as specified, the turn signal flasher assembly may have a malfunction.

INSTALLATION

INSTALLATION

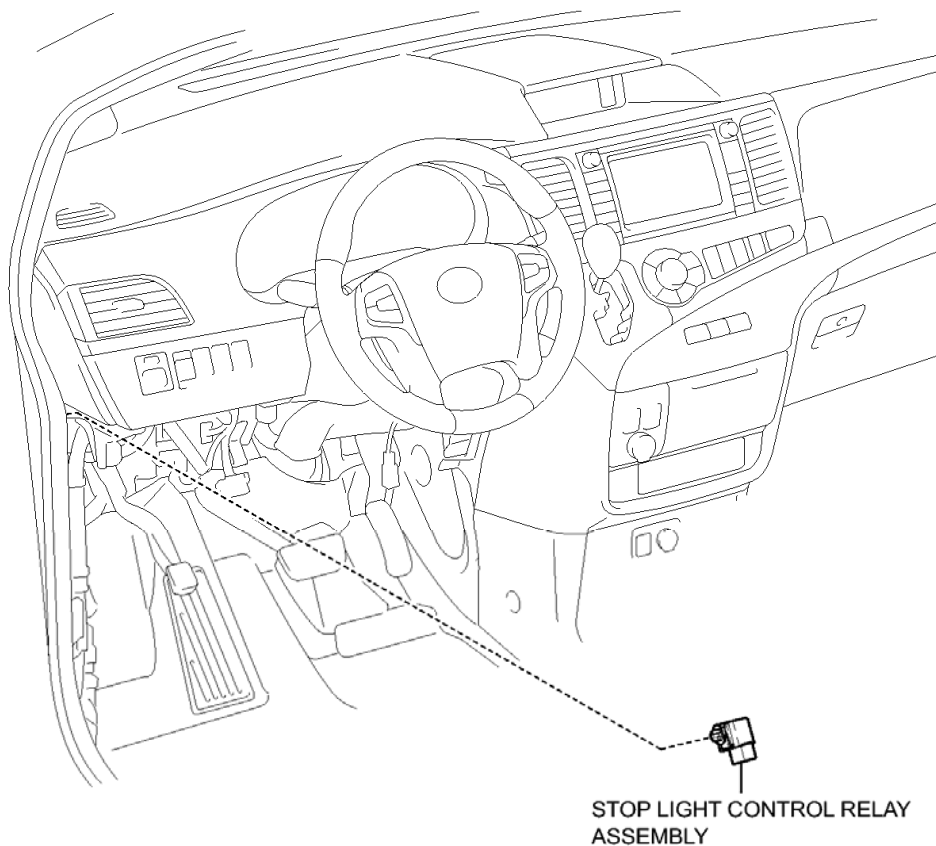
1. **INSTALL TURN SIGNAL FLASHER ASSEMBLY**
 - a. Engage the claw and install the turn signal flasher.
2. **INSTALL INSTRUMENT PANEL JUNCTION BLOCK ASSEMBLY**

Refer to **INSTALLATION**

STOP LIGHT CONTROL RELAY

COMPONENTS

ILLUSTRATION



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

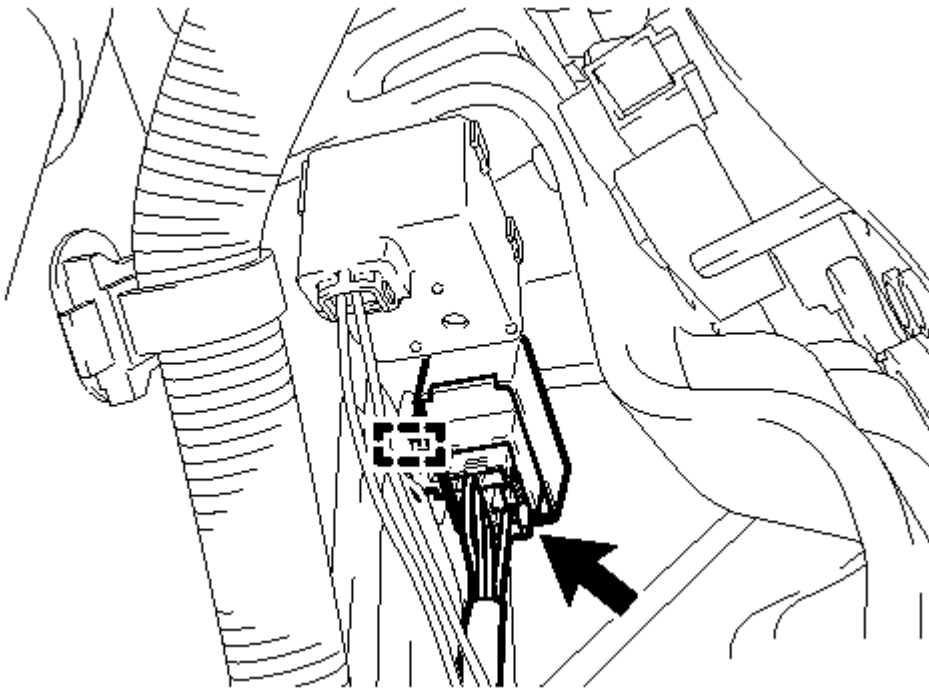
REMOVAL

REMOVAL

1. REMOVE KNEE AIRBAG ASSEMBLY

Refer to REMOVAL

2. REMOVE STOP LIGHT CONTROL RELAY ASSEMBLY



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Fig. 124: Identifying Stop Light Control Relay, Connector & Clamp
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Disconnect the connector.
- b. Disengage the clamp and remove the stop light control relay.

INSPECTION

INSPECTION

1. INSPECT STOP LIGHT CONTROL RELAY ASSEMBLY

- a. Disconnect the stop light control relay connector.

*a

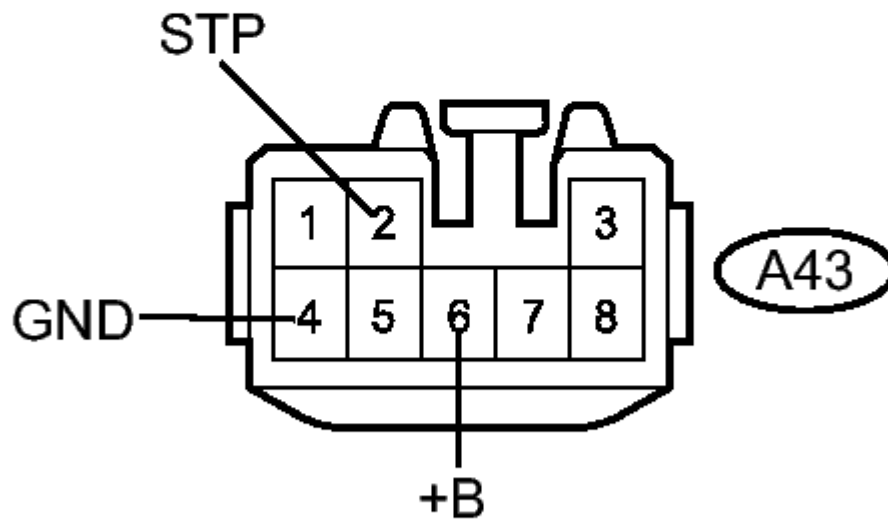


Fig. 125: Stop Light Control Relay Assembly Connector End View
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Voltage

Tester Connection	Condition	Specified Condition
A43-2 (STP) - Body ground	Brake pedal released	Below 1 V
	Brake pedal depressed	11 to 14 V
A43-6 (+B)		

- Body ground	Always	11 to 14 V
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TEXT IN ILLUSTRATION

Front View Wire harness
*a Connector (to Stop Light Control Relay)

If the result 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.

Standard Resistance

Tester Connection	Condition	Specified Condition
A43-4 (GND) - Body ground	Always	Below 1 ohms

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

- d. Reconnect the stop light control relay connector.
e. Measure the voltage according to the value(s) in the table below.

*a

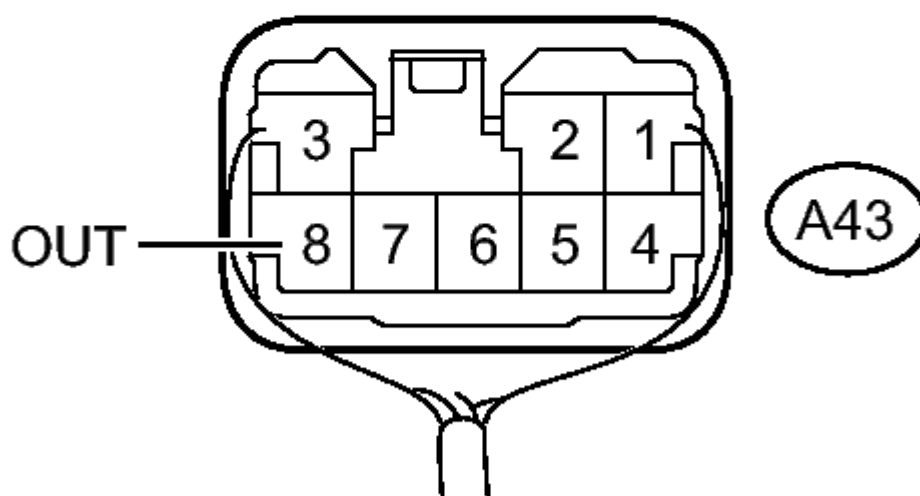
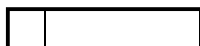


Fig. 126: Identifying Stop Light Control Relay Assembly Connector
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

Standard Voltage

Tester Connection	Condition	Specified Condition
A43-8 (OUT) - Body ground	Brake pedal released	Below 1 V
	Brake pedal depressed	11 to 14 V

TEXT IN ILLUSTRATION



*a	Component with harness connected (Stop Light Control Relay)
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If the result is not as specified, replace the stop light control relay.

INSTALLATION

INSTALLATION

1. INSTALL STOP LIGHT CONTROL RELAY ASSEMBLY

- a. Engage the clamp and install the stop light control relay.
- b. Connect the connector.

2. INSTALL KNEE AIRBAG ASSEMBLY

Refer to **INSTALLATION**

RELAY

ON-VEHICLE INSPECTION

ON-VEHICLE INSPECTION

1. INSPECT HEADLIGHT DIMMER RELAY

- a. Check the resistance.

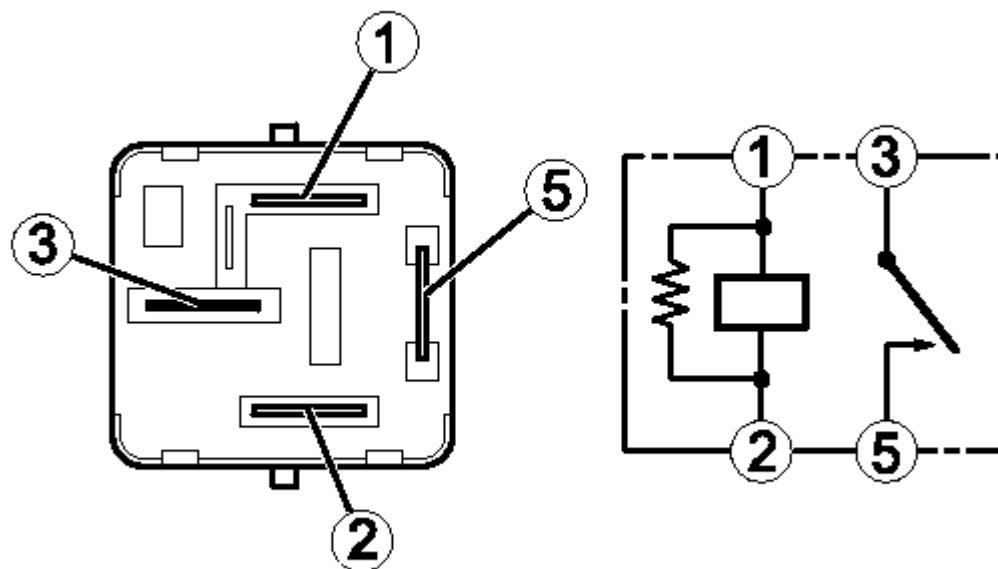


Fig. 127: Checking Headlight Dimmer Relay
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

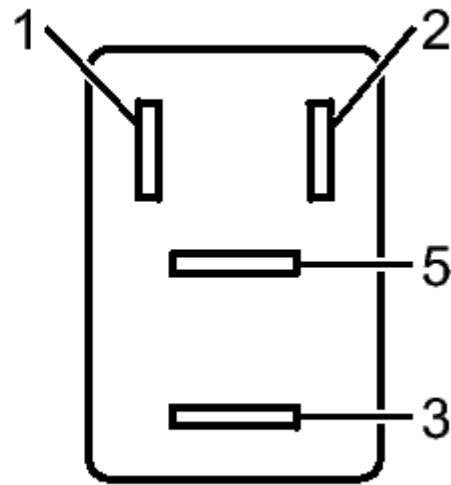
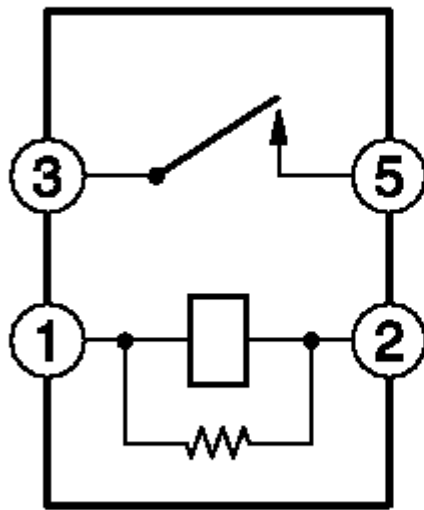
Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	When battery voltage not applied	10 kohms or higher
3 - 5	When battery voltage to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the headlight dimmer relay.

2. INSPECT LIGHT CUT RELAY

- a. Check the resistance.



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Fig. 128: Inspecting Battery Blower Terminal Relays
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

Tester Connection	Condition	Specified Condition
3 - 5	When battery voltage not applied	10 kohms or higher
3 - 5	When battery voltage to terminals 1 and 2	Below 1 ohms

If the result is not as specified, replace the light cut relay.

3. INSPECT HEADLIGHT RELAY (w/ Headlight Relay)

- a. Check the resistance.

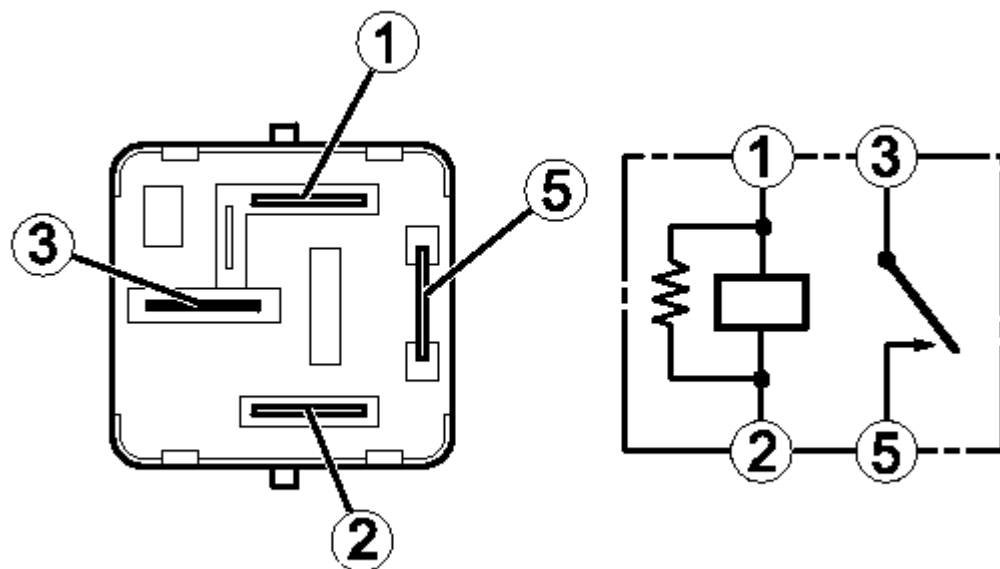


Fig. 129: Checking Headlight Dimmer Relay
 Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

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

Standard Resistance

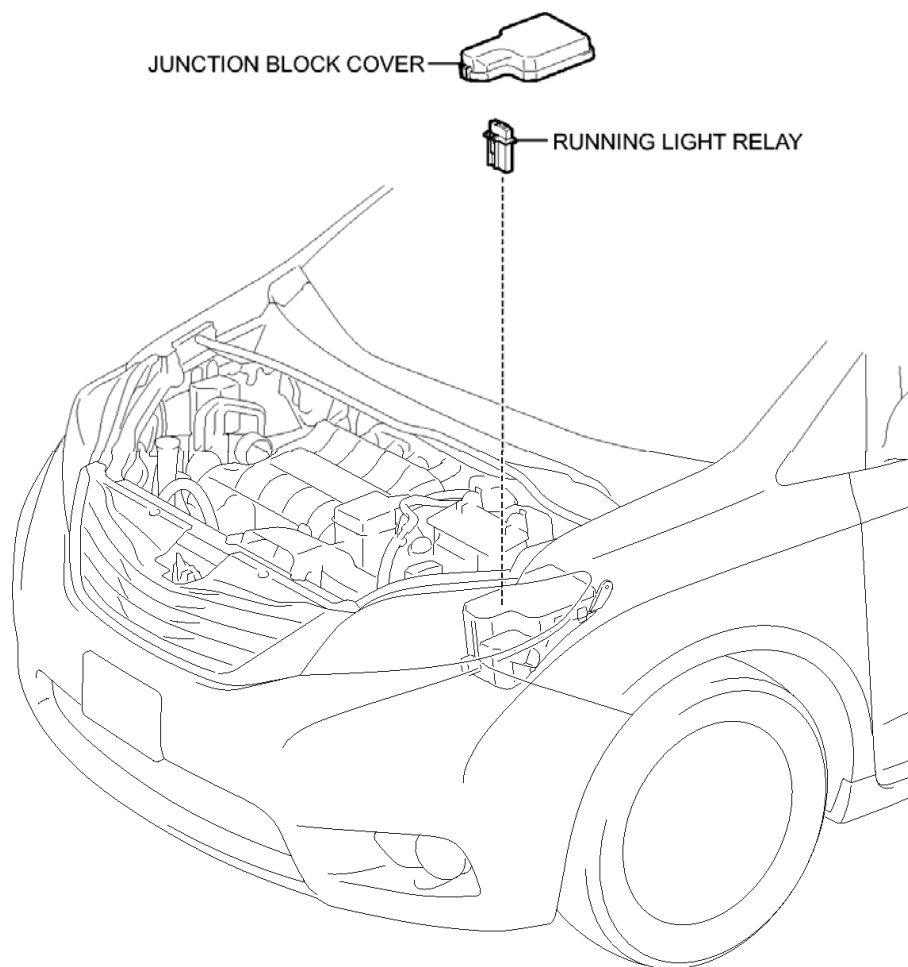
Tester Connection	Condition	Specified Condition
3 - 5	When battery voltage not applied	10 kohms or higher
3 - 5	When battery voltage to terminals 1 and 2	Below 1 ohms

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

DAYTIME RUNNING LIGHT RELAY

COMPONENTS

ILLUSTRATION



P

Fig. 130: Daytime Running Light Relay Replacement Components
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

REMOVAL

REMOVAL

1. REMOVE JUNCTION BLOCK COVER
2. REMOVE RUNNING LIGHT RELAY

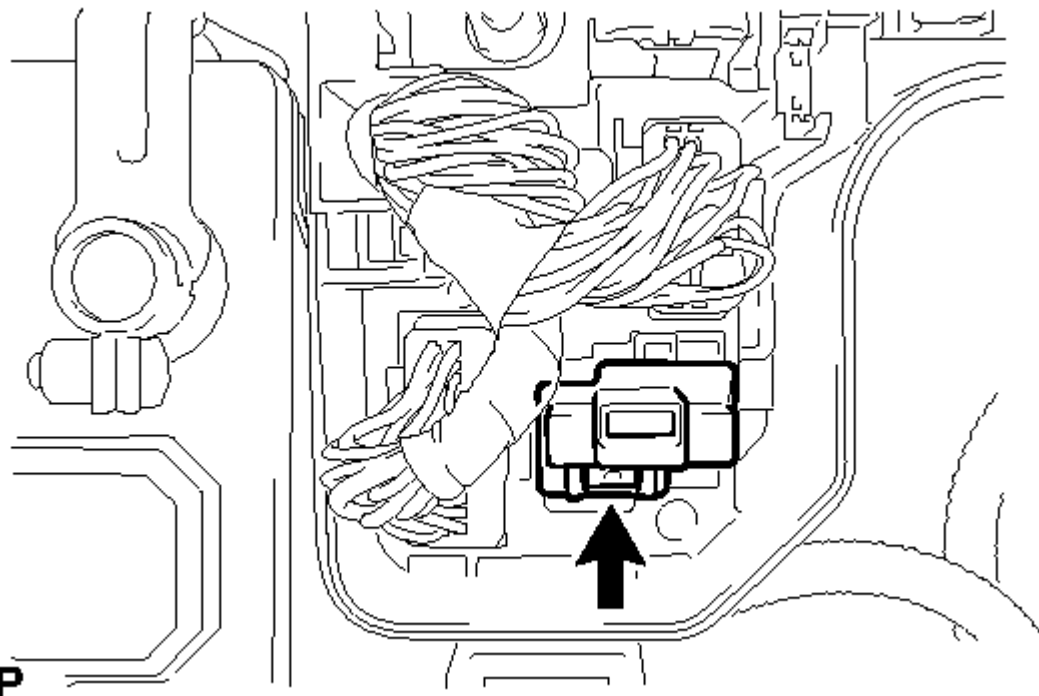


Fig. 131: Identifying Running Light Relay
Courtesy of TOYOTA MOTOR SALES, U.S.A., INC.

- a. Remove the running light relay.

INSTALLATION

INSTALLATION

1. **INSTALL RUNNING LIGHT RELAY**
 - a. Install the running light relay.
2. **INSTALL JUNCTION BLOCK COVER**