



V.10.09.2017

## LED Fog Light

Year & Model	2017 – Corolla
Part Number	<b>TCO-817</b>

## Conflicts

Note: 1832, 1852, 1856, 1872, 1874

## General Applicability

Fits Models	
1863	1866
1864	
1865	

## Additional Items Required For Installation

Items	Description
1	N/A
2	

## Sequence of Application

Item	Description
1	N/A
2	

### SPECIAL NOTE: Installation Sequences

After general & Safety mandated preparatory steps have been taken, the installation sequence is the suggested method for completing the accessory installation. In some instances the suggested sequence is written for one associate to install & in others the sequence is given as part of a team accessory installation. Unless otherwise stated in the document, the associates may perform the installation steps in any order to make the installation as efficient as possible while maintaining consistent quality

## Recommended Tools

<b>Safety Items</b>	
Safety Glasses	
<b>Special Tools</b>	
N/A	
<b>Installation Tools</b>	Pliers
10 mm Wrench	Side Cutters
12 mm Wrench	Electrical Tape
Torque Wrench	Fish wire tool
Philips screw driver	9" socket extension
Nylon panel tool	
<b>Special Chemicals</b>	
VDC Approved sealant	
Soap / Water mix	

## Legend

	<b>STOP:</b> Damage to the vehicle may occur. Do not proceed until process has been complied with.
	<b>OPERATOR SAFETY:</b> Use caution to avoid risk of injury.
	<b>CAUTION:</b> A process that must be carefully observed in order to reduce the risk of damage to the accessory/vehicle and to ensure a quality installation.
	<b>TOOLS &amp; EQUIPMENT:</b> Used in Figures calls out the specific tools and equipment recommended for this process.
	<b>REVISION MARK:</b> This mark highlights a change in installation with respect to previous issue.
	<b>SAFETY TORQUE:</b> This mark indicates that torque is related to safety.

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## Preparation

### Kit/Hardware Bag Contents

Item#	Qty	Description
1	2	LED Light Housings w/bezels
2	1	Wire Harness Bag
3	1	In dash Switch
4	1	Fog Light operation guide

### Wire Harness Bag Contents

Item#	Qty	Description
1	1	Under-Hood Wire Harness
2	1	In-dash wire harness
3	1	Jumper wire harness
4	1	Red t-tap
5	1	Relay box
6	1	Split loom tubing
7	25	Wire Ties

## Parts for Installation

Care must be taken when installing this accessory to ensure damage does not occur to the vehicle. The installation of this accessory should follow approved guidelines to ensure a quality installation. These guidelines can be found in the “Accessory Installation Practices” document.

This document covers such items as:

- Vehicle Protection (use of covers and blankets, cleaning chemicals, etc.).
- Safety (eye protection, re-checking torque procedure, etc.).
- Vehicle Disassembly/ Reassembly (panel removal, part storage, etc.).
- Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).

Item	Quantity	Description
1	1 each	LED Fog Light Housing + Bezel, LH
2	1 each	LED Fog Light Housing + Bezel, RH
3	1	Switch
4	1	Wire Harness
5	1	Relay



1.



2.



3.



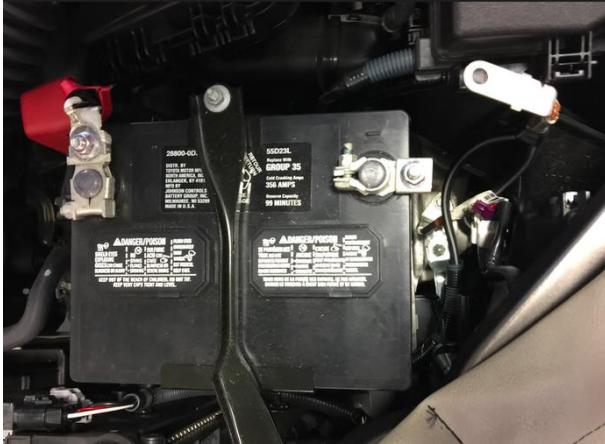
4.



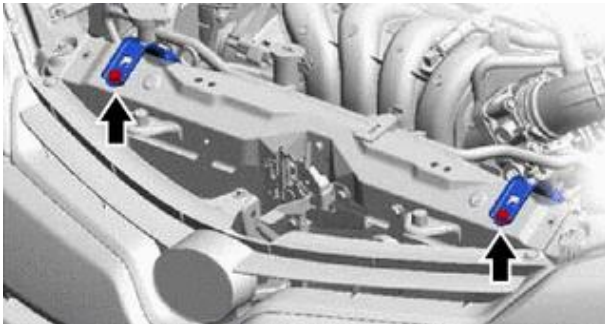
5.

## Procedures:

### Vehicle Disassembly / Installation Process



Picture 1



Picture 2



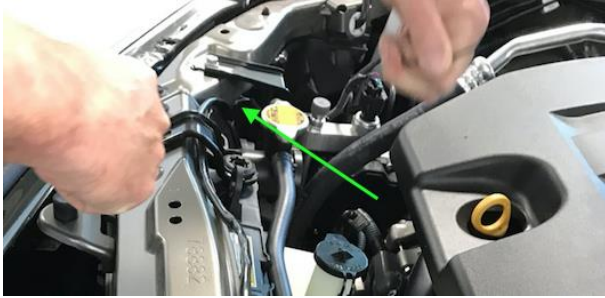
Picture 2B

1. Remove the 10mm negative battery terminal (picture 1).

2. Remove the upper radiator support: remove the 2 bolts and 2 upper radiator supports, marked in red on picture 2.

3. Lay under-hood wire harness along the front of engine compartment, and run it under the upper radiator supports, marked with green arrows in picture 2B.

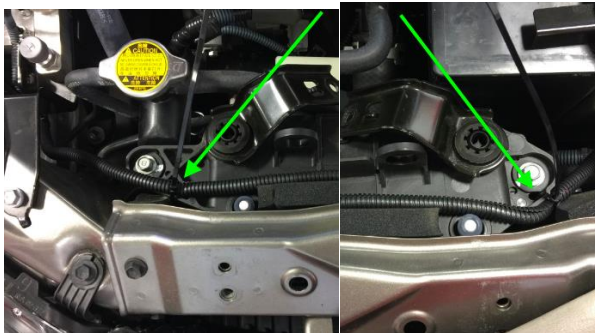
4. Reinstall upper radiator supports. Torque bolts to 19 N-m (14 ft-lb).



Picture 3



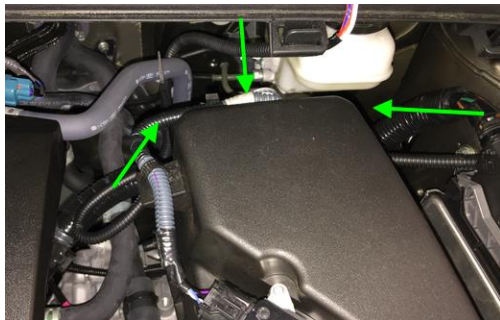
Picture 4:



Picture 5



Picture 6



Picture 6A

5. At the passenger side of the vehicle, route the under-hood wire harness to reach the RH fog lamp compartment (picture 3).

6. At the driver side of the vehicle, route the under-hood wire harness in front of the battery, to reach the LH fog lamp compartment (picture 4).

7. Using wire ties, secure the under-hood wire harness on top of the radiator support (see green arrows on picture 5).

8. Route the under-hood wire harness (bullet connectors end) along the LH side of the engine compartment (see green arrow on picture 6): from in front of the battery, then along the side of the fuse box towards the firewall. Secure wire with ties.

9. Continue routing the under-hood wire harness towards the rubber grommet under the brake reservoir (picture 6A). Secure harness with wire ties.





Picture 7

10. Locate the large vehicle harness grommet on the driver side. Cut the auxiliary wiring access nipple off the grommet. Using a fish tool, push the fog light wire harness through the grommet. Lubricate wire with soap and water.

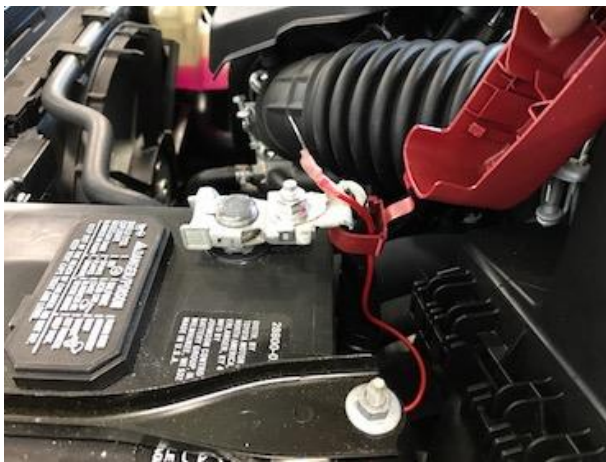
Note: extra caution should be taken not to damage the connectors while pushing them through the grommet (picture 7). Seal grommet with 3M silicone.



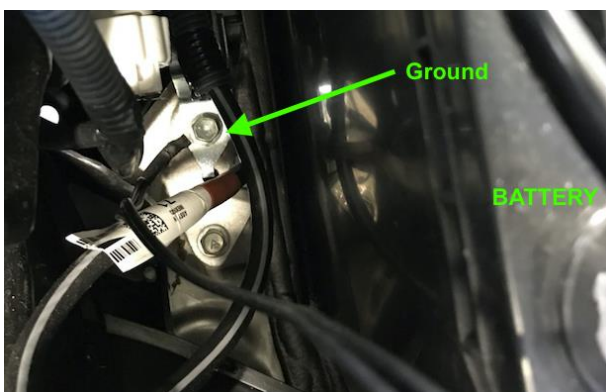
11. Route the 12v red wire from the under-hood wire harness through the positive red terminal cover (picture 8). Secure ring terminal to the positive battery terminal. Torque nut to: 48 in-lb. Use wire ties to secure wire harness and fuse to the positive battery cable.



12. Secure the negative ring terminal connector (black wire) of the under-hood wire harness to the ground point next to the battery (picture 8A). Torque nut to: 48 in-lb.



Picture 8



Picture 8A



Picture 9

13. At the driver side, unplug 6 pin connector from the headlamp assembly, and install the supplied 6-pin jumper harness (picture 9-9A).



Picture 9A



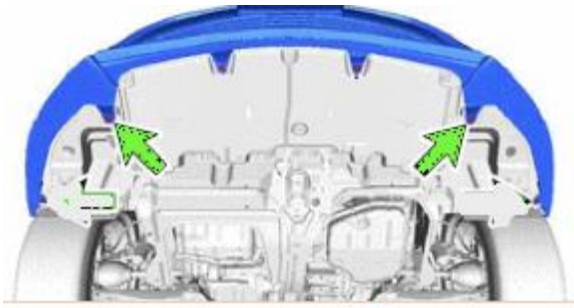
Picture 9B

14. Use supplied wire split loom to cover the white jumper wire. Plug the white wire from the jumper harness into the white wire of the under-hood fog light harness (picture 9B).

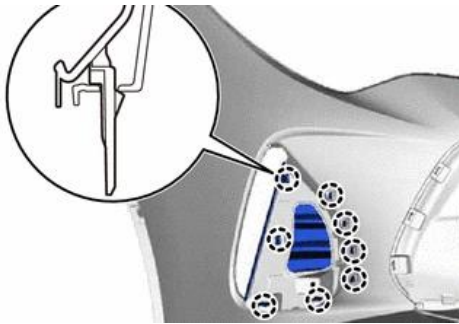


15. Secure excess wires with wire ties behind the driver's side headlamp (picture ).





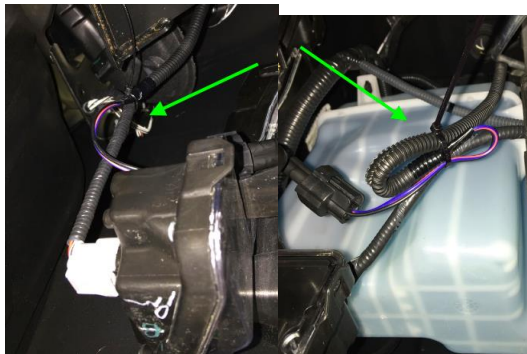
Picture 10



Picture 11



Picture 11A

Driver Side Passenger Side  
Picture 12

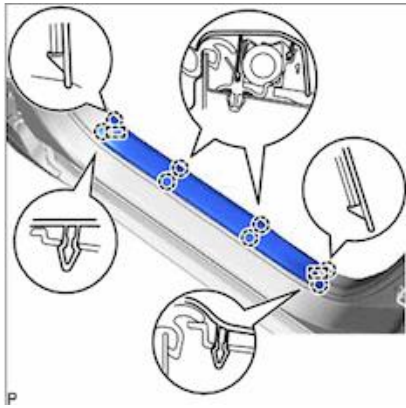
16. From under the car, remove the lower splash shields: remove 1 screw on each side (picture 10).

17. Remove the fog light cover plates (LH and RH): disengage 8 claws and remove. Discard cover plates (picture 11).

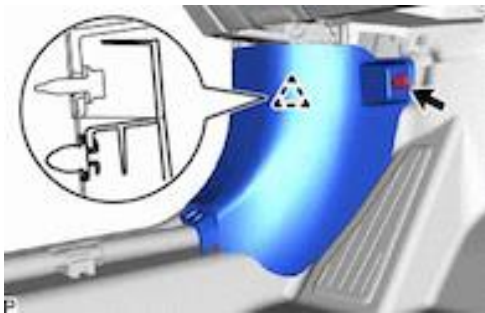
18. Install the driver side fog lamp housing and bezel into bumper (picture 11A). Note: make sure all the clips are fully engaged.

19. Connect the fog lamp to the fog lamp wire harness, previously ran. Secure wires to factory harness (picture 12).

20. Repeat processes on passenger side.

**Interior of Vehicle**

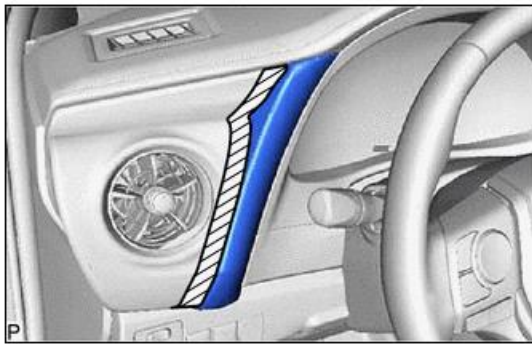
Picture 13



Picture 14



Picture 15



Picture 16

21. Using a panel removal tool, remove the driver side scuff plate (picture 13).

22. Remove the driver side cowl side trim: Remove clip (picture 14).

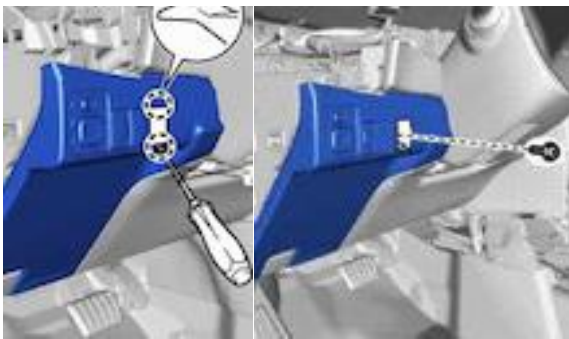
23. Remove the lower dash panel, by removing 2 screws (picture 15).

24. Using a panel removal tool, remove No.1 meter hood cluster. Apply protective tape to the area shown on picture 16.



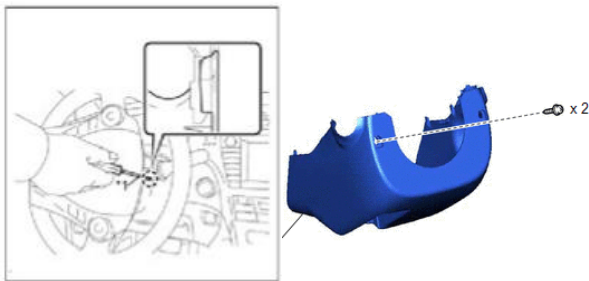
Picture 17

25. Using a nylon panel tool, remove the LH side A/C vent (No.1 instrument panel register assembly). Disengage 4 clips (picture 17).



Picture 18

26. Remove the left side switch panel: Remove the switch knockout, then remove the Philip screw and claws securing the panel (picture 18).



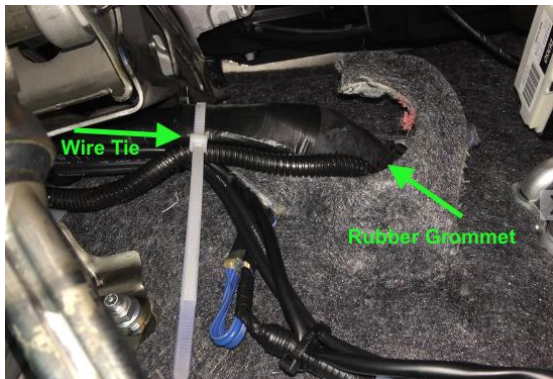
Picture 19

27. Remove the wheel column lower cover: Turn steering wheel and remove 2 Phillip screws (picture 19).

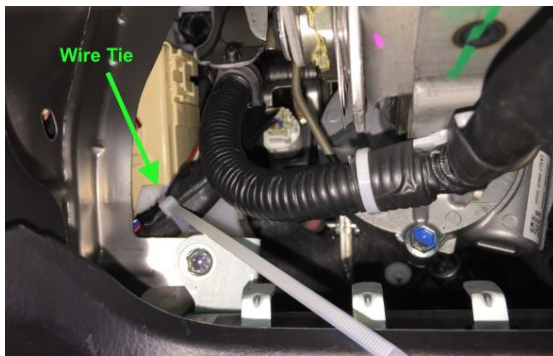


Picture 20

28. Use an empty switch knock out on the left panel. Mount the fog light switch into the switch knock out (picture 20).



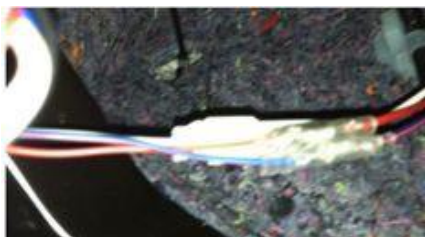
Picture 21



Picture 21A



Picture 22

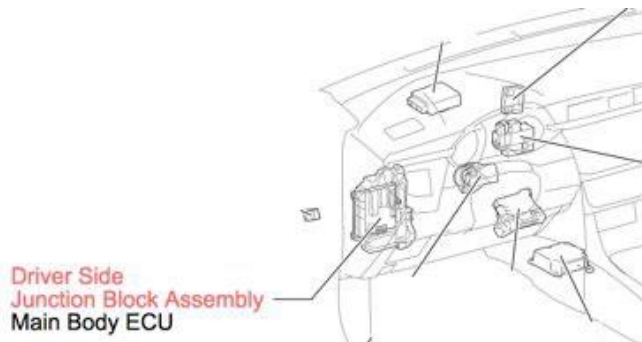


Picture 22A

29. Locate the wires that we pushed through the grommet in step 10. It will be the grommet above the gas pedal. Route the wire harness to reach the area on the left side of the steering wheel. Secure harness with wire ties (see green arrows on pictures 21~21A for wire ties location).

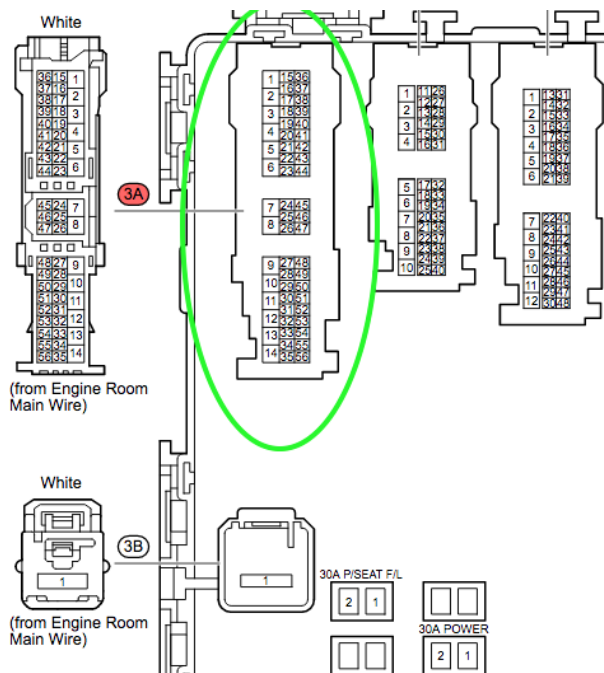
30. Push the supplied white connector into the white wire pin (Note: the white connector may be connected to the switch harness). Then connect the switch harness to the under-hood wire harness: 2 bullet connectors and one white connector (picture 22~22A).



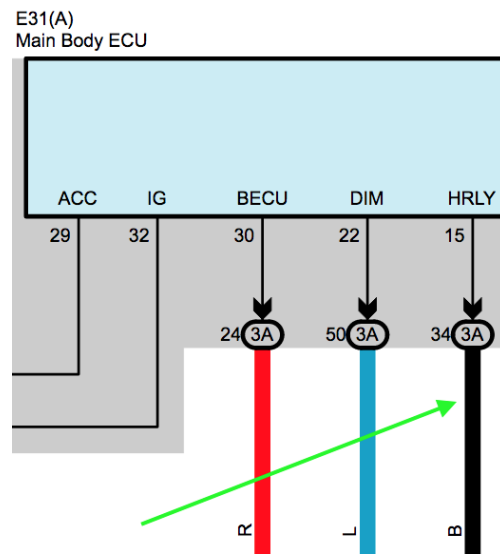


Picture 23

31. At connector 3A, pin 34, black wire, Install a red t-tap. Then connect the **green/black** wire from the in-dash switch harness to the t-tap. Connector 3A is located at the left side of the steering wheel, at the main junction block (pictures 23~23D).



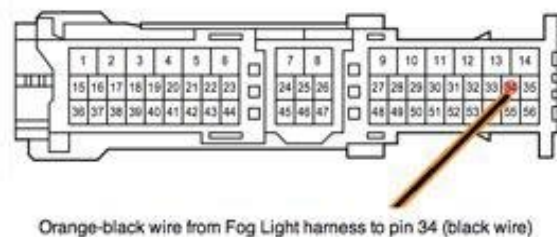
Picture 23A



Picture 23C



Picture 23B



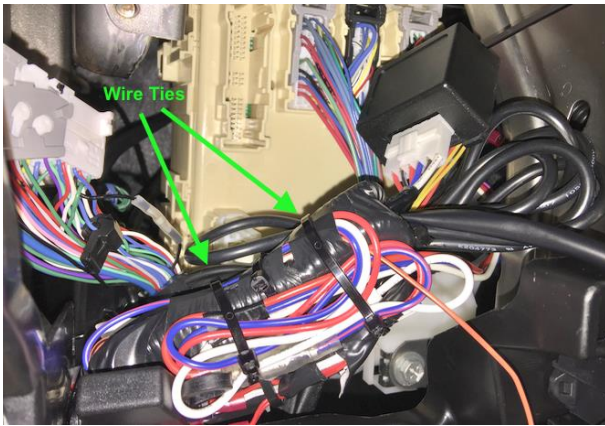
Picture 23D





Picture 24

32. Secure the ring terminal (black wire) of the in-dash switch harness to the ground point next to the kick panel (picture 24).

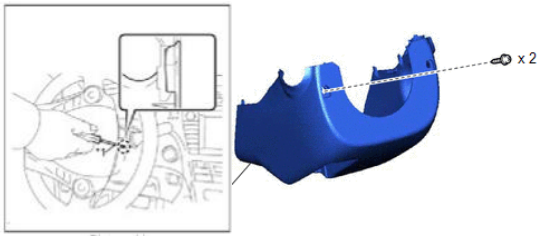


Picture 25

33. Plug green switch connector from under-dash fog light harness into the switch.

34. Secure excess wires and relay box to factory harness, with wire ties (picture 25).

## Vehicle Reassembly



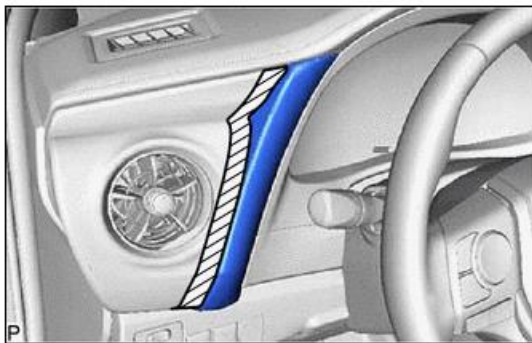
Picture 26



Picture 27



Picture 28



Picture 29

35. Reinstall the wheel column lower cover: Turn steering wheel and reinstall 2 Phillip screws (picture 26).

36. Reinstall the left side switch panel: Reinstall the screw then reinstall the switch knockout (pictures 27).

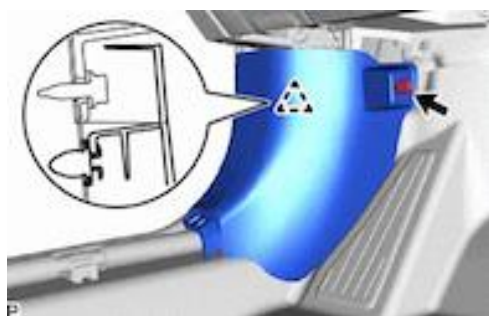
37. Reinstall the LH side A/C vent (No.1 instrument panel register assembly). Apply pressure on panel until clips engage (picture 28).

38. Reinstall the No.1 meter hood cluster (picture 29).



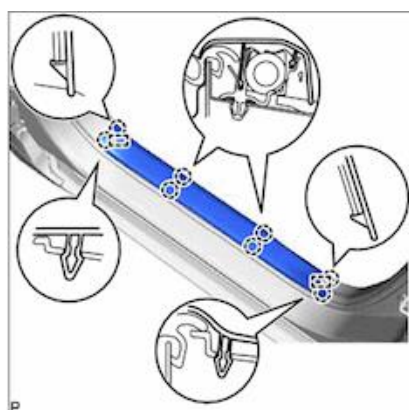
Picture 30

39. Reinstall the lower dash panel: secure 2 screws (picture 30).



Picture 31

40. Reinstall the driver side cowl side trim: Reinstall clip (picture 31).

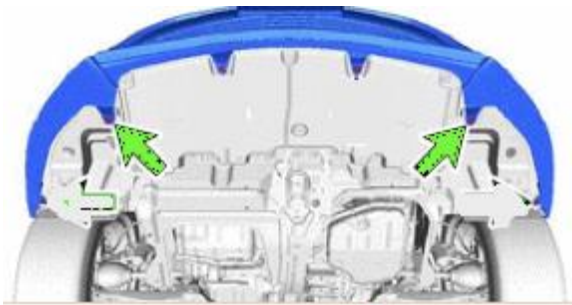


Picture 32

41. Reinstall the driver side scuff plate (picture 32).



Picture 33



Picture 34

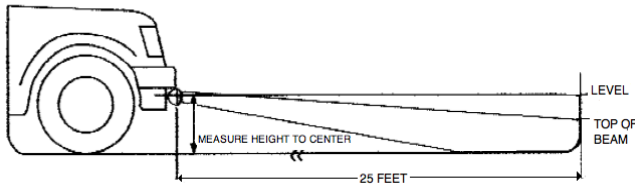


42. Reinstall the 10mm negative battery terminal (picture 33). Torque terminal to 48 in-lb.

43. Adjust fog light aiming (follow procedure on page 20).

44. Reinstall lower splash shields (picture 34).

## Fog Light Aiming



Picture 35



**NOTE:** Use only hand tools to adjust the fog light aiming screw. *DO NOT* use automatic tools, as they will damage the fog light

Traditional fog lights are usually mounted in the front bumper about 10-24 inches from the ground. There are two important issues to address when installing fog lights: the first is to minimize the amount of return glare into the driver's eyes, and the other is to minimize the glare into oncoming eyes. Both of these issues must be accomplished while putting as much light as possible on the road.

These fog weather light aiming instructions are suggestions taken from common practice and the S.A.E. standard J583. Some modifications to these instructions may be necessary to minimize glare.

Visual aim is made with the top of the beam 4 inches below the lamp center at 25 feet with the lamp facing straight forward (picture 35).



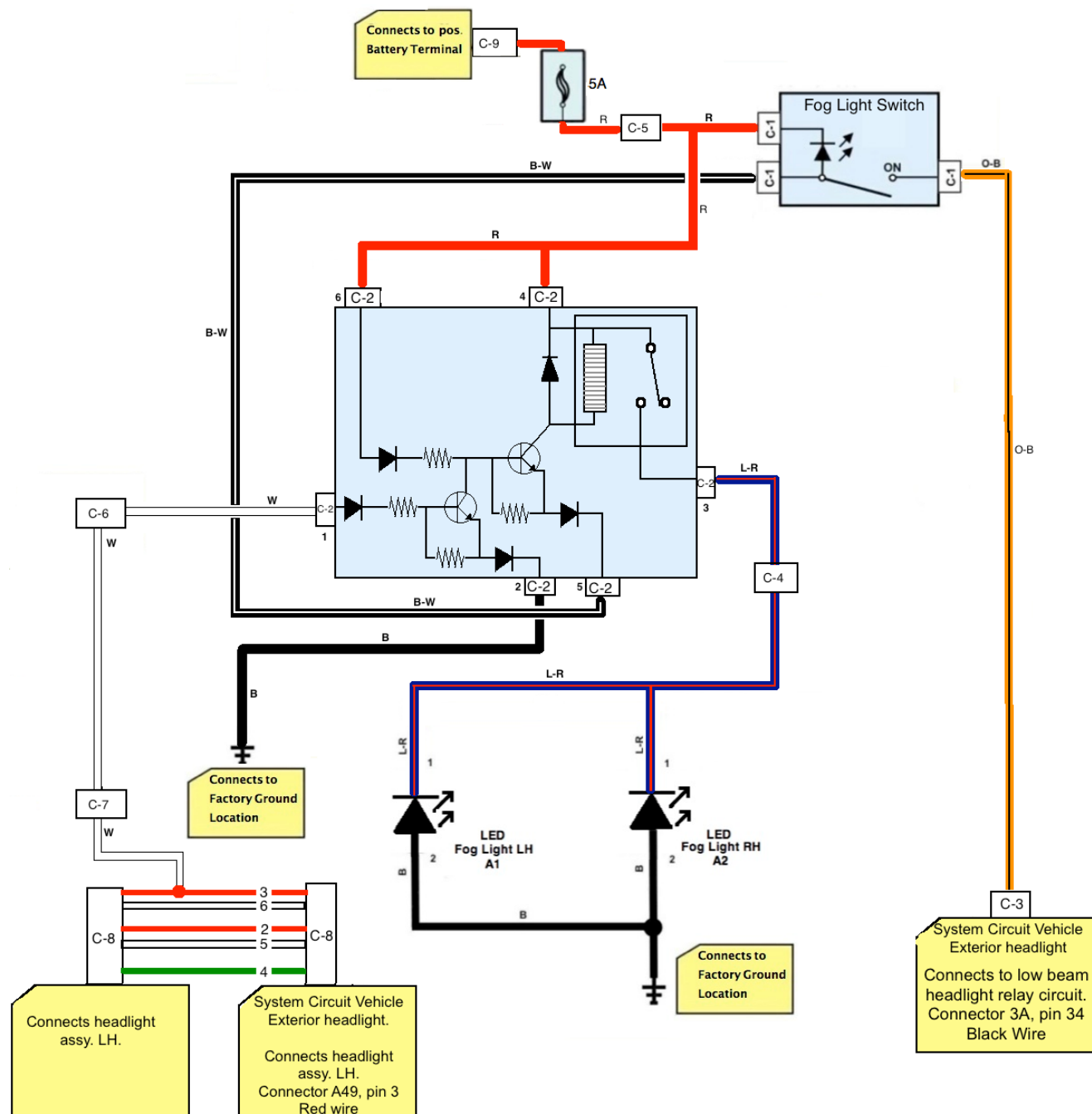
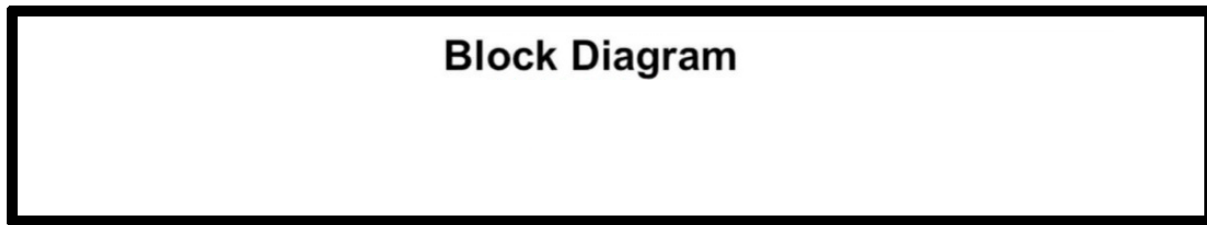
## Functions and Quality Check

1. Turn on headlamp low beams, then press fog light switch to “ON” position. Fog lights should be working. Fog lights will only work when the low beam headlamps are “ON”. Fog lights will NOT work when the high beam headlamps are “ON”.

Check	Look For
Accessory Function Checks	
<input type="checkbox"/> Fog Light Function.....	- Inoperable Fog Light Function
<input type="checkbox"/> All Panels snapped into place .....	- Loose panels and switches
<input type="checkbox"/> Battery Terminal .....	- Re-torque battery terminals to 48 in-lb
<input type="checkbox"/> Operation Guide .....	- Place Fog Light operation guide inside glove box
Vehicle Function Checks	
<input type="checkbox"/> Check all vehicle functions.....	

## Diagnostics and Procedures:

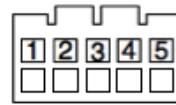
### Block Diagram



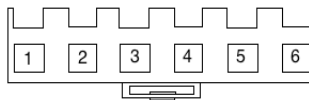
## Pin out Test

### Connector C-1

\*\*Unplug connector from switch prior to testing pin outs



Pin	Wire Color	Test Reference	Proper Operation
1	Orange Black	Pin 1 to Ground	Approx. +12 VDC when headlights are OFF or HIGH BEAMS ON 0 VDC when headlights are ON (LOW BEAM position)
2	Red	Pin 2 to Ground	Always +12 VDC
3	White-Black	Pin 3 to Ground	Approximately +12 VDC when FOG LIGHT switch is OFF Approximately +12 VDC when headlights are OFF or HIGH BEAMS ON 0 VDC with FOG LIGHT switch ON and headlights are ON (LOW BEAM position)



### Connector C-2,

Pin	Wire Color	Test Reference	Proper Operation
1	White	Pin 1 to Ground	Approximately 0 VDC High beams are OFF Approximately +12'VDC when High beams are ON
2	Black	Pin 2 to Ground	Approximately 0 VDC
3	Blue-Red	Pin 3 to Ground	Approximately +12 VDC when FOG LIGHT switch is OFF Approximately +12 VDC when headlights are OFF or HIGH BEAMS ON 0 VDC with FOG LIGHT switch ON and headlights are ON (LOW BEAM position)
4	Red	Pin 4 to Ground	Always +12 VDC
5	Black-White	Pin 5 to Ground	Approximately +12 VDC when FOG LIGHT switch is OFF Approximately +12 VDC when headlights are OFF or HIGH BEAMS ON 0 VDC with FOG LIGHT
6	Red	Pin 6 to Ground	Always +12 VDC



### Connector C-3

Pin	Wire Color	Test Reference	Proper Operation
1	Orange-Black	Connector to Ground	Approximately +12 VDC when headlights are OFF or HIGH BEAMS ON +0 VDC when headlights are ON (LOW BEAM position)

### Connector C-4



Pin	Wire Color	Test Reference	Proper Operation
1	Blue-Red	Connector to Ground	Approximately +12 VDC when FOG LIGHT switch is OFF Approximately +12 VDC when headlights are OFF or HIGH BEAMS ON +12 VDC with FOG LIGHT switch ON and headlights are ON (LOW BEAM position)

### Connector C-5



Pin	Wire Color	Test Reference	Proper Operation
1	Red	Connector to Ground	Always +12 VDC

### Connector C-6



Pin	Wire Color	Test Reference	Proper Operation
1	White	Pin 1 to Ground	Approximately 0 VDC High beams are OFF Approximately +12 VDC when High beams are ON

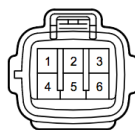
### Connector C-7



Pin	Wire Color	Test Reference	Proper Operation
1	White	Pin 1 to Ground	Approximately 0 VDC High beams are OFF Approximately +12 VDC when High beams are ON

### Connector C-8

Refer to system circuit vehicle exterior headlight



Pin	Wire Color	Test Reference	Proper Operation
3	Red	Pin 6 to Ground	Approximately 0 VDC High beams are OFF Approximately +12 VDC when High beams are ON

### Connector C-9



Pin	Wire Color	Test Reference	Proper Operation
1	Red	Connector to Ground	Always +12 VDC

### Connector A-1, A-2

\*\*Fog Lamp connector at bulb



Pin	Wire Color	Test Reference	Proper Operation
2	Blue Red	Pin 1 to Ground	Approximately 0 VDC when FOG LIGHT switch is OFF Approximately 0 VDC when headlights are OFF or HIGH BEAMS ON +12 VDC with FOG LIGHT switch ON and headlights are ON (LOW BEAM position)
3	Black	Pin 2 to Ground	Always continuity