TOYOTA RAV4 2016 LED Fog Light & DRL 2in1

Part Number: 00016-000811
Accessory Code: LD4000

TOYOTA
Southeast Toyota Distributors, LLC

Conflicts

- Vehicles w/o factory fog lights

Kit Contents

Item #	Quantity Reqd.	Description
1	2	Fog Light +DRL Housing
2	1	Driver Box
3	1	Harness Bag
4	1	User's Card
5	1	Switch

Hardware Bag Contents

Item #	Quantity Reqd.	Description
1	1	Hood Wire harness
2	1	Cabin Wire harness
3	1	Relay
4	25	Wire ties
5	1	14" wire tie
6	2	Black T-Taps

Additional Items Required For Installation

Item #	Quantity Reqd.	Description

Recommended Tools

Safety Tools	
Safety Glasses	
Electrical Tape	
Installation Tools	
10 & 12mm Wrench	
Phillips Screw Driver	
Pliers	
Torque Wrench	48 in-lbs & 67in-lbs.
Side Cutters	
Special Chemicals	
3M Silicon Sealant	

Accessory Service Parts

Part Number \ Service Part	DRL+Fog Light Housing LH	DRL+ Fog Light Housing RH	Switch	Complete Wire Harness	Driver Box	Relay
00016-00081-01	X					
00016-00081-02		X				
00016-32270-05			X			
00016-32280-03				X		
00016-32270-06					X	
00016-32260-04						X

General Applicability

MY16 Rav4 Models

Recommended Sequence of Application

Item #	Accessory	
1		
2		
3		

Mandatory

Legend

STOP: Damage to the vehicle may occur. Do not proceed until process has been complied with.

OPERATOR SAFETY: Use caution to avoid risk of injury.

CAUTION: 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.

TOOLS & EQUIPMENT: Used in Figures calls out the specific tools and equipment recommended for this process.

REVISION MARK: This mark highlights a change in installation with respect to previous issue.

SAFETY TORQUE: This mark indicates that torque is related to safety.

SPECIAL NOTE: Installation Sequences

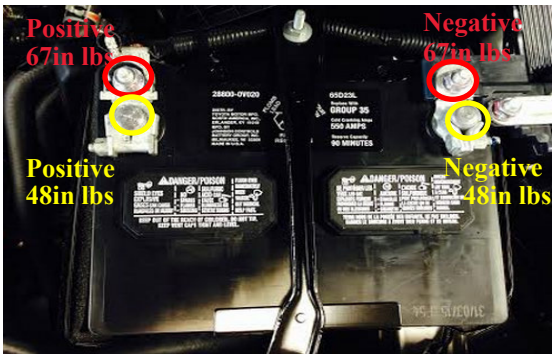
After **TMS** and **Safety** mandated preparatory steps have been taken, the installation sequence is the suggested method for completing the accessory installation. In some instances the suggested sequence is written for one associate to install and in others the sequence is given as part of a team 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.

Care must be taken when installing this accessory to ensure damage does not occur to th 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 & blankets, cleaning chemicals, etc.).
* Safety (eye protection, rechecking torque procedure, etc.).
* Vehicle Disassembly/Reassembly (panel removal, part storage, etc.).
* Electrical Components Disassembly/Reassembly (battery disconnection, connector removal, etc.).

Battery Preparation



Option 1: If the battery clamp nut cannnot be accessed to set torque to the recommened specification without removing additional panels & /or other components. You may change (reverse the direction) the negative battery clamp bolt & nut. Battery terminal must have torque set to factory specification . **CAUTION:** Do not touch the positive terminal. Re-torque to 48in lbs.

Option 2: Removing the 12mm nut from the positive or negative terminal junction. When re-tightening the torque specificationis is 67in lbs.

NOTE: It is recommended to use Option 1 when a lead wire is not being installed. However Option 2 is to be used when a lead wire is being added to the positive side, or anytime the negative side 12mm nut is being removed, re-torque both to 67in lbs.

NOTE: If removal of the postive battery terminal 12mm nut is required to install a lead wire, the negative battery terminal must be disconnected first to disable the electrical system. The postive battery or terminal should never be disconnected unless the negative battery terminal is first removed & waiting 90 seconds for the SRS system to power down.

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 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)
- Vehicle Disassembly / Reassembly (panel removal, part storage, etc)

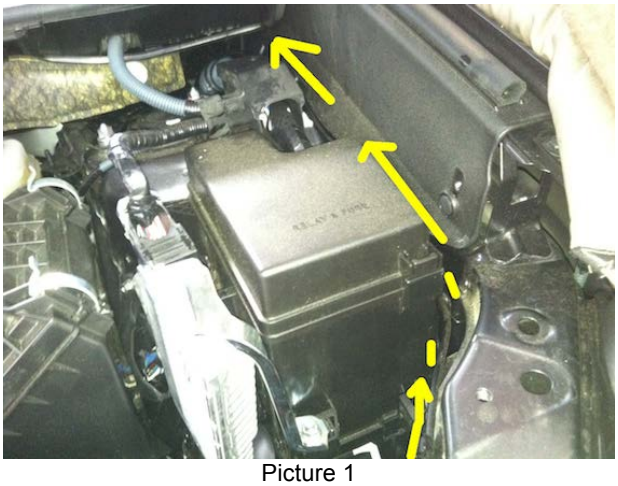
Preparation

Remove negative battery cable

Do not touch the positive terminal.
Wait at least 90 second after disconnecting the cable from the negative (-) battery terminal to disable the SRS system.

Installation

1. Route the DRL wire harness along the driver side from the battery towards the firewall of the vehicle. Secure the wire harness with wire ties as needed (picture 1)



Picture 1

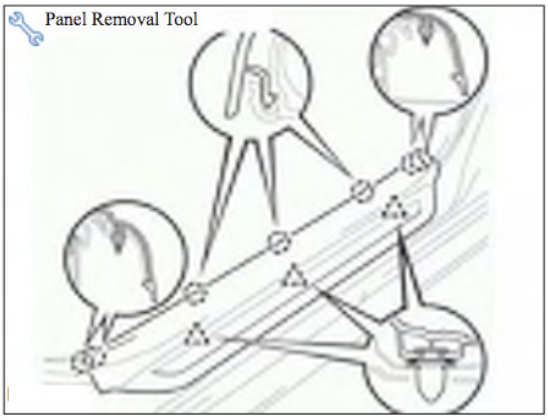
2. From inside the car, locate the large vehicle harness grommet on the left side. If accessible, cut the auxiliary wiring nipple off the grommet or cut ¼" slit in grommet. Using fish tape pull the red, black, red-white and black-white wires through firewall. Note: Extra caution should be taken not to damage the pins. Seal with 3M Silicone sealant from inside vehicle (pictures 2 & 2A)

Picture 2: View from inside vehicle

Picture 2A: View from the engine compartment

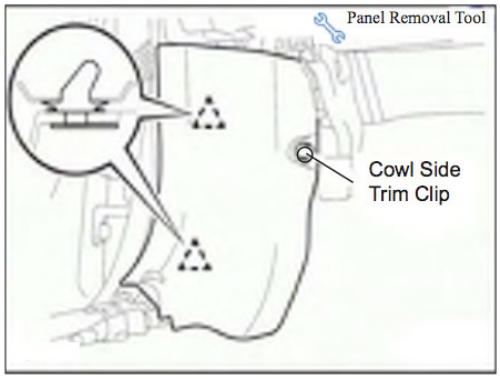
Vehicle Disassembly

3. Remove driver side door scuff plate: Disengage with panel tool and remove (pic.3)



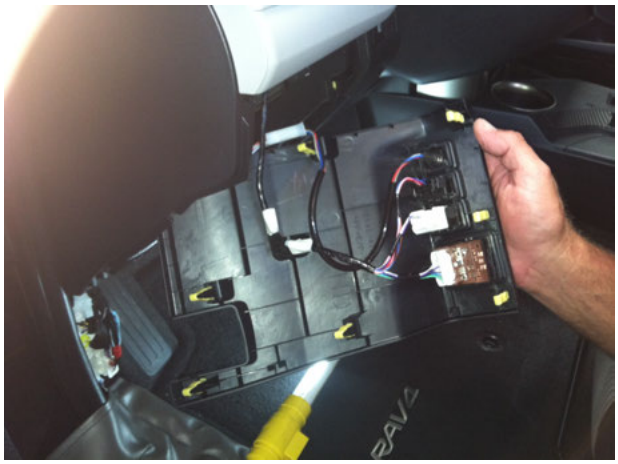
Picture 3

4. Remove the driver side cowl side trim. Unscrew the cowl side trim clip. Disengage two (2) clips and remove the cowl side trim (picture 4)



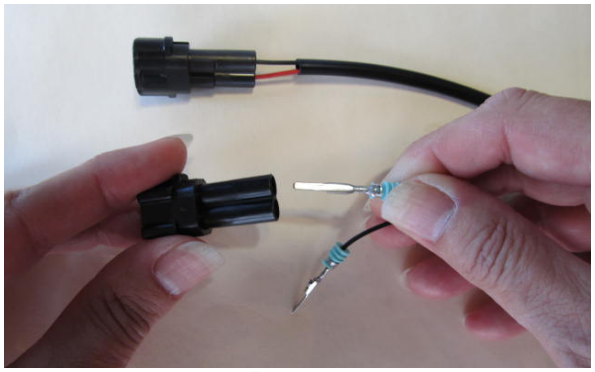
Picture 4

5. Remove driver's side upper panel (pic. 5)



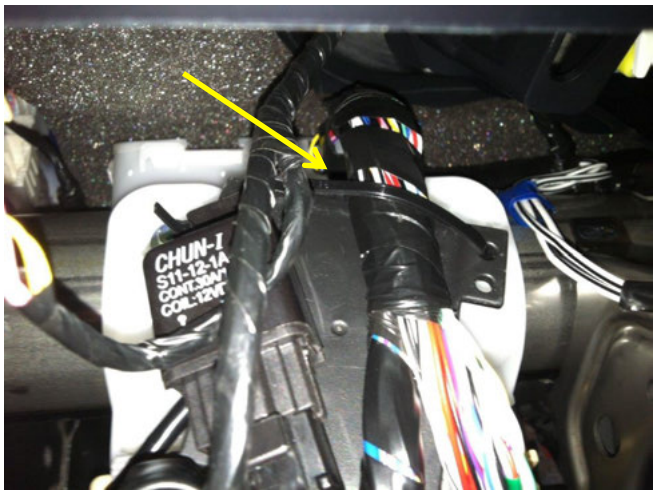
Picture 5

6. Locate the wires that were pulled through the grommet in step 2. Route wire harness towards the left side of steering wheel. Use wire ties as needed.
7. Using the driver box as a guide, push the pins of the DRL wire harness into the connector supplied in kit. Make sure that the wire colors of the connectors are aligned with the wire colors of the driver box: black with black and red with red, etc (picture 6)



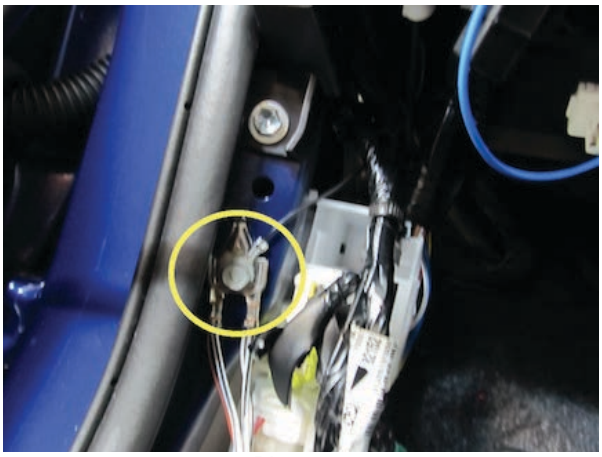
Picture 6

8. Connect the driver box to the wire harness (make sure wire colors are aligned).
9. Using a 14" wire tie, secure the driver box and relay to the main harness of the junction block (pic. 7).



Picture 7

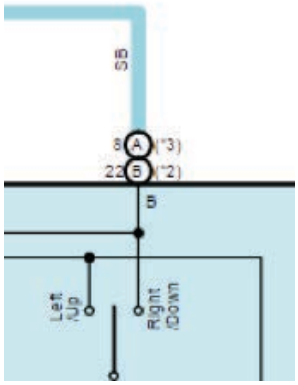
10. Secure the black wire with a ring terminal from DRL harness to ground location behind kick panel (picture 8)



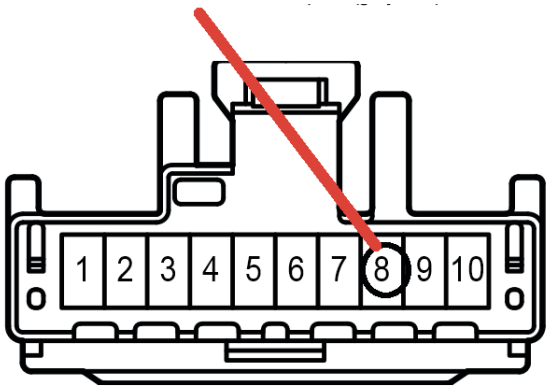
Picture 8

Note: If vehicle is made in Canada (TMMC), then follow step 11. If vehicle is made in Japan (TMC), then follow step 12.

11. Canada made vehicles (TMMC): At connector G39 install a black T-Tap to pin 8, SKY BLUE wire. Then connect the red wire from DRL harness to T-tap. Connector G39 is located at the back of mirror control switch. (pictures 9 and 9A)

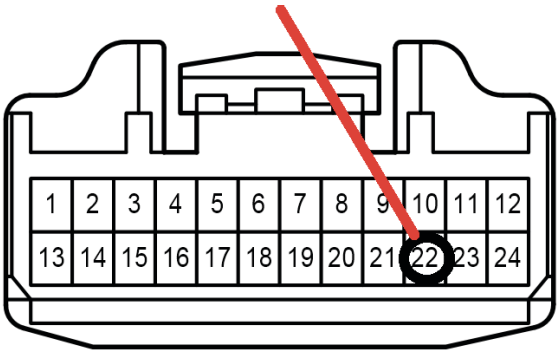


Picture 9: Mirror control switch
Connector G39, Pin 8: TMMC made
Connector G151, Pin 22, TMC made

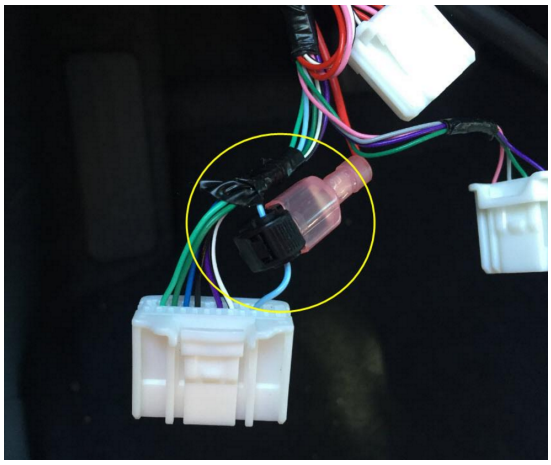


Picture 9A: Mirror control switch G39
NOTE: For Canada made vehicles ONLY

12. (Japan (TMC) made vehicles: At connector G151 install a black T-Tap to pin 22, SKY BLUE wire. Then connect the red wire from DRL harness to T-tap. Connector G151 is located at the back of mirror control switch. (pictures 10 and 11)

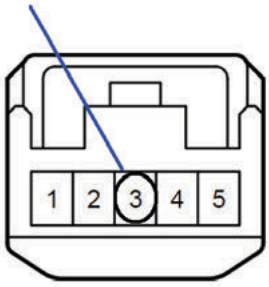


Picture 10: Mirror control switch G151
NOTE: For Japan made vehicles ONLY

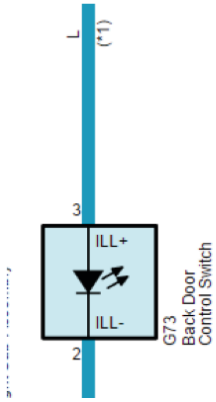


Picture 11

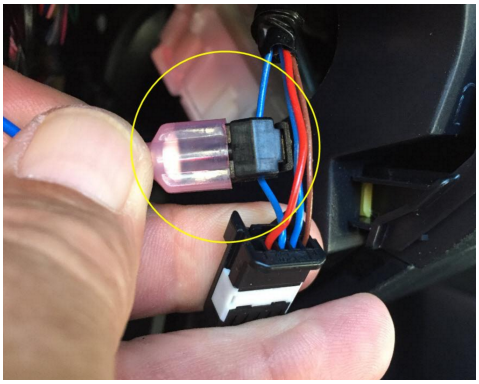
13. At the rear hatch control switch connector G73, pin 3, install a black T-Tap to the BLUE wire. Then connect the blue wire from DRL harness to t-tap. Connector G73 is located at the rear hatch dash switch. (Pictures 12, 13 and 14).



Picture 12: Rear Door switch connector G73

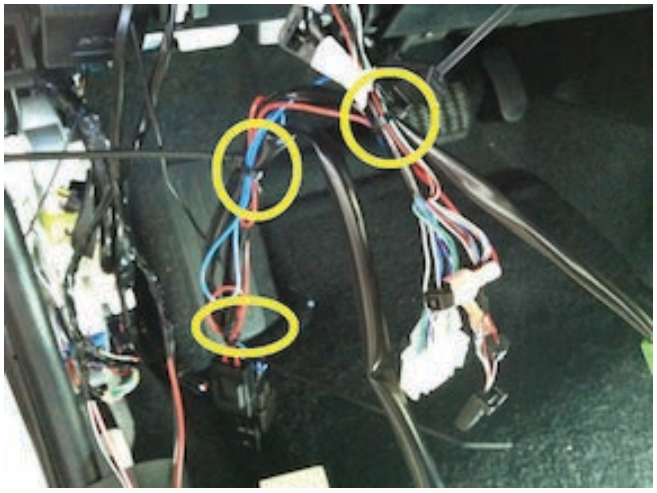


Picture 13: Rear Door Switch

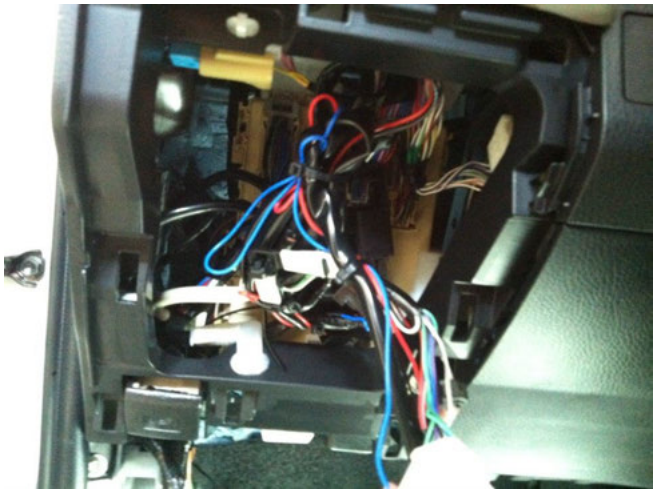


Picture 14

14. Secure any excess wire from t-taps, fuse and relay to main wire harness (picture 15 & 15A). Make sure to leave enough lead on the switch green connector.



Picture 15



Picture 15A

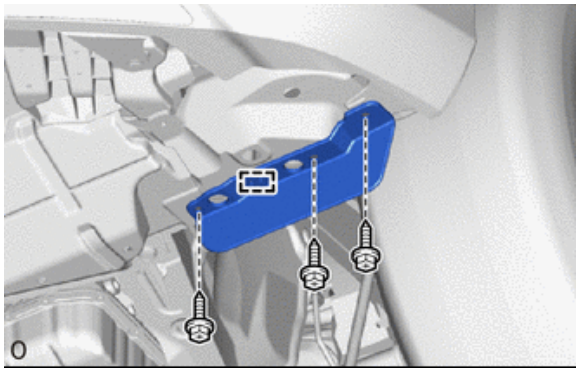
15. Push out the switch knockout located at the left of the steering wheel (picture 16).
16. Route DRL switch connector through switch knockout connector.
17. Mount switch into dash panel. Then connect the switch wire harness to switch (pic 16)

Picture 16

18. Reinstall panels and connectors

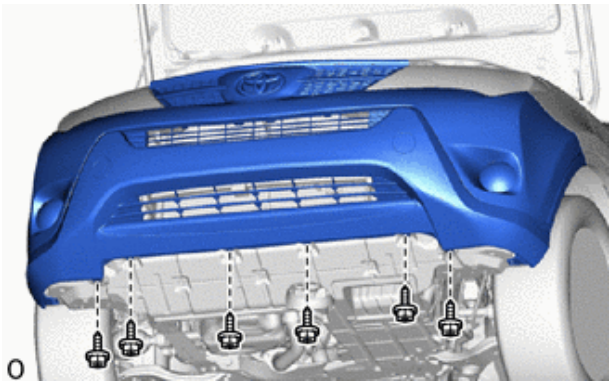
ENGINE COMPARTMENT

19. Remove front fender splash shields by removing 3 screws. Then detach the clamp (picture 17)



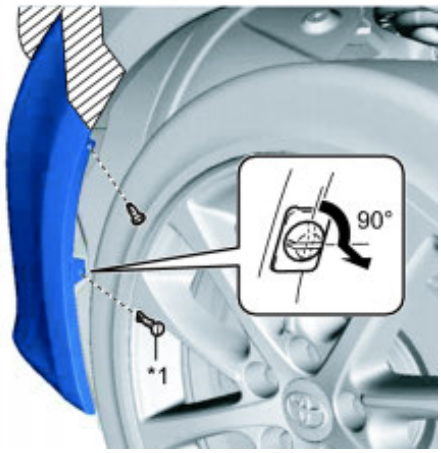
Picture 17

20. Remove 6 screws at the bottom of front bumper cover (picture 18)



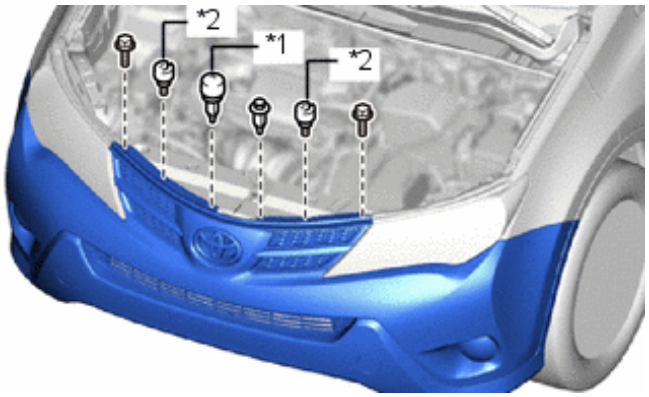
Picture 18

21. Remove the top screw securing fender lining. Then, using a screwdriver, turn clip 90 degrees and remove the pin/clip. Use same procedure for LH and RH sides (picture 19)



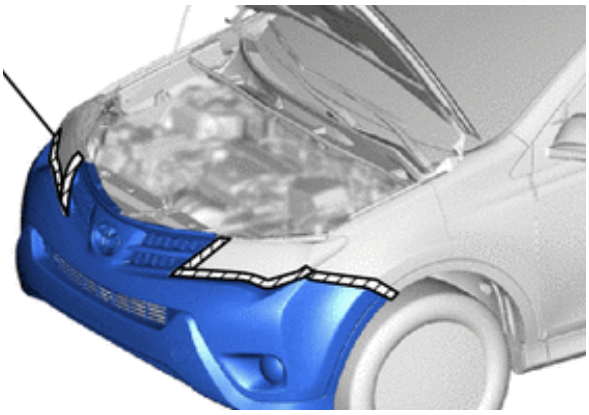
Picture 19

22. Remove the center hood cushion and 2 radiator grill protectors (picture 20), then remove 2 bolts and clips



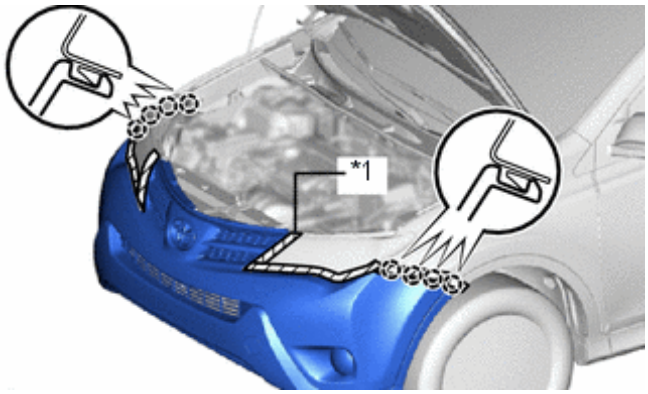
Picture 20

23. Put protective tape around the bumper cover (picture 21)

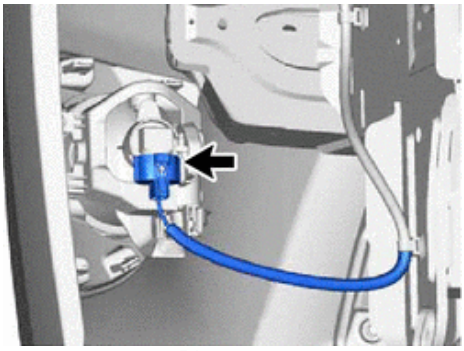


Picture 21

24. Detach the 8 claws then slowly remove the front bumper cover. Unplug the factory fog lights and any other connector attached to the bumper. Then remove bumper from vehicle (picture 22)

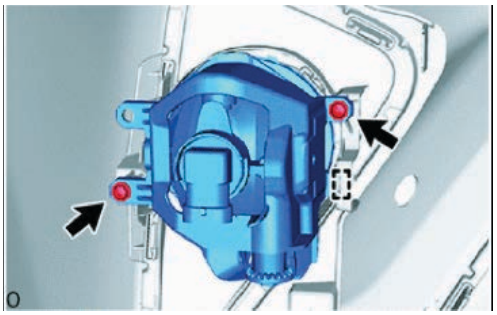


Picture 22



Picture 23

25. Place bumper on a workbench. Remove the factory fog lights: Remove 2 Philip screws (do not discard the screws, as they will be used to mount 2in1 light).



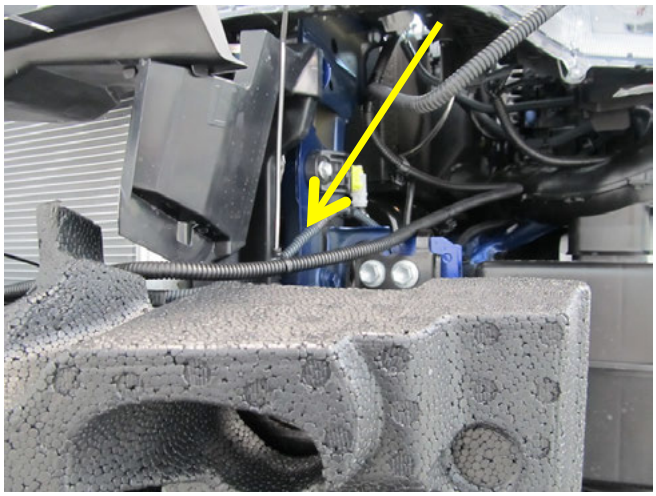
Picture 23A

26. Mount the LH and RH 2in1 Lights into bumper: use the factory screws (picture 24)

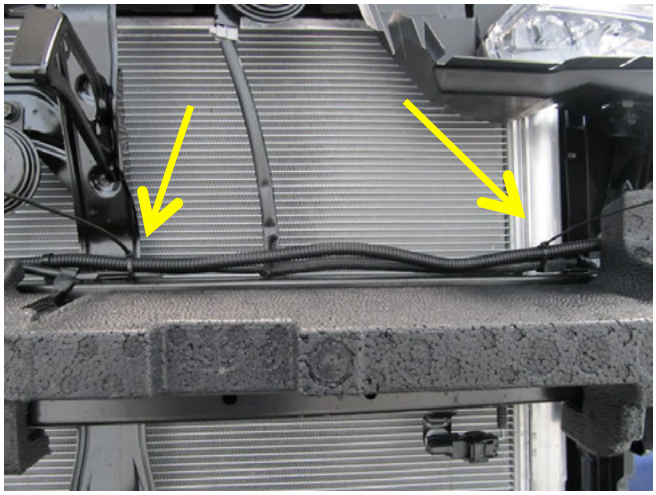
Picture 24

27. In the engine compartment, route the wire harness behind the driver's side head-lamp towards the radiator grill. Then route to the passenger side, securing harness by the bumper absorber assy. Use wire ties as shown (pictures 25~25B).

Picture 25:
Driver side head-lamp: showing securing excess wires



Picture 25A: Driver side: securing wire harness behind by radiator



Picture 25B

28. Reinstall bumper to vehicle. Before securing the bumper to the vehicle, connect the 2in1 light terminals: 2in1 fog light terminals to factory fog light wire terminal, and 2in1 DRL terminal to DRL wire harness (Picture 26). Connect any other removed terminal/connector to the bumper, then secure bumper to vehicle.

Picture 26

29. Reinstall lower splash shield.
30. Adjust LED fog lights.

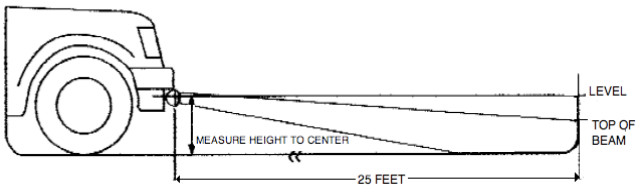
31. Reconnect negative battery terminal. Torque terminal to 48 in-lbs. for option 1. 67 in-lbs for option 2.

Fog Light Aiming

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 drivers 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 (see picture 27)



Picture 27

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

Checklist – these points MUST be checked to ensure quality installation

Check System for Operation

Check System for Operation

1. DRL will work at full power when ignition switch is ON. DRL will dim out to DOT specifications when lights are ON.
2. If DRL switch position is off, DRL will not work at any time.

Check

Accessory Functions Checks

- ▢ DRL function……..
- ▢ All Panels snapped into place…….
- ▢ Battery Terminal…….
- ▢ Operation Guide…….

Vehicle Function checks

- ▢ Check functions all switch functions

Look For:

….

Loose panels and switches

Re-torque battery terminals to 48 in-lbs for option 1.

67 in-lbs. for option 2.

Place DRL operation guide inside glove box.

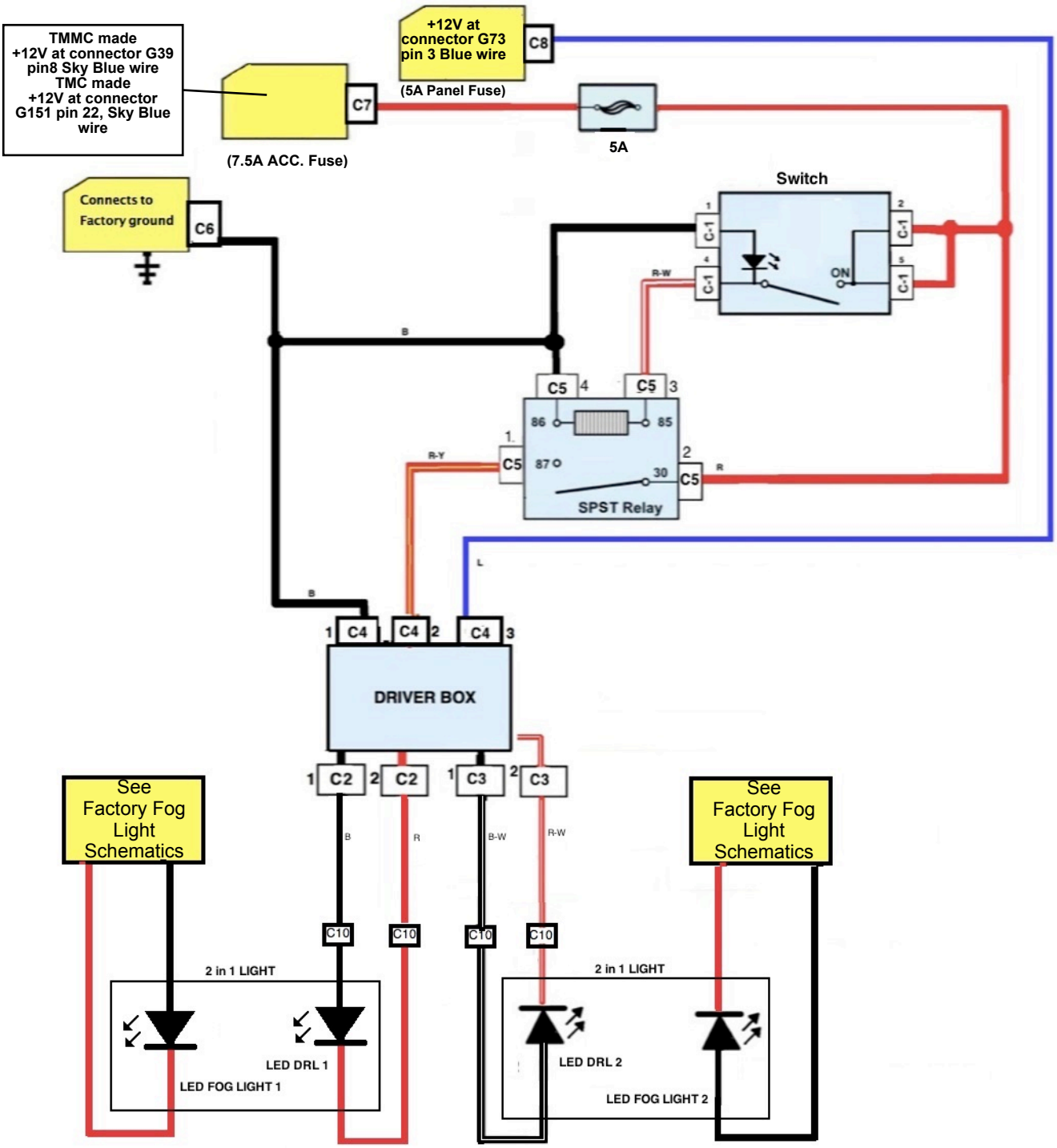
Block Diagram

LED DRL + LED Fog Light 2in1

RAV4 2016

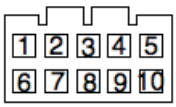
00016-00081

Ver. 12.08.2015



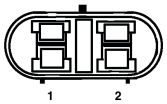
Pinout test

Connector C-1



Pin	Wire Color	Test Reference	Proper Operation
1	Black	Pin 1 to Ground	Approximately 0 VDC
2	Red	Pin 2 to Ground	Approximately 0 VDC ignition switch is OFF +12 VDC when ignition switch is ON
4	Red-White	Pin 4 to Ground	Approximately 0 VDC ignition switch is OFF Approximately 0 VDC ignition switch is ON, DRL switch is OFF +12 VDC when ignition switch is ON and DRL switch is ON
5	Red	Pin 5 to Ground	Approximately 0 VDC ignition switch is OFF +12 VDC when ignition switch is ON

Connector C-2, C-3

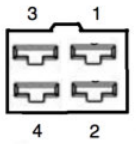


Pin	Wire Color	Test Reference	Proper Operation
1	Red or Red-White	Pin 1 to Ground	Aproximately 0 VDC when igntion switch is OFF Aproximately 0 VDC when ignition switch is ON, DRL switch is OFF Aproximately +18 to +24 VDC when ignition switch is ON, DRL switch is ON
2	Black or Black-White	Pin 2 to Ground	Aproximately 0 VDC

Connector C-4

Pin	Wire Color	Test Reference	Proper Operation
1	Black	Pin 1 to Ground	Aproximately 0 VDC
2	Red-Yellow	Pin 2 to Ground	Approximately 0 VDC ignition switch is OFF Approximately 0 VDC ignition switch is ON, DRL switch is OFF +12 VDC when ignition switch is ON and DRL switch is ON
3	Blue	Pin 3 to Ground	Aproximately 0 VDC dash panel lights are OFF +12 VDC when dash panel lights are ON

Connector C-5



FEMALE TERMINAL VIEW

Pin	Wire Color	Test Reference	Proper Operation
1	Red-Yellow	Pin 1 to Ground	Approximately 0 VDC ignition switch is OFF Approximately 0 VDC ignition switch is ON, DRL switch is OFF +12 VDC when ignition switch is ON and DRL switch is ON
2	Red	Pin 2 to Ground	Approximately 0 VDC ignition switch is OFF +12 VDC when ignition switch is ON
3	Red-White	Pin 3 to Ground	Approximately 0 VDC ignition switch is OFF Approximately 0 VDC ignition switch is ON, DRL switch is OFF +12 VDC when ignition switch is ON and DRL switch is ON
4	Black	Pin 3 to Ground	Aproximately 0 VDC

Connector C-6

Pin	Wire Color	Test Reference	Proper Operation
1	Black	Pin 1 to Ground	Aproximately 0 VDC

Connector C-7

Pin	Wire Color	Test Reference	Proper Operation
1	Red	Pin 1 to Ground	Aproximately 0 VDC when ignition switch is OFF +12 VDC when ignition switch is ON

Connector C-8

Pin	Wire Color	Test Reference	Proper Operation
1	Blue	Pin 1 to Ground	Aproximately 0 VDC dash panel lights are OFF +12 VDC when dash panel lights are ON

Connector C-10

Pin	Wire Color	Test Reference	Proper Operation
1	Black	Pin 1 to Ground	Aproximately 0 VDC
2	Red	Pin 2 to Ground	Aproximately 0 VDC when igntion switch is OFF Aproximately 0 VDC when ignition switch is ON, DRL switch is OFF Aproximately +18 to +24 VDC when ignition switch is ON, DRL switch is ON