

TOYOTA RAV4 2016 LED Illumination Package (Interior & Exterior)

Part Number: 00016-00069

Accessory Code:LL1000



Conflicts

Note: None

Kit Contents

Item #	Quantity Req'd.	Description
1	4	Puddle Lights and Harnesses
2	1	Control Module
3	1	Power Harness
4	1	Hardware bag
5	2	Foot-well Lights
6	1	Foot-well Harness
7	1	Mounting Bracket Kit

Hardware Bag Contents

Item #	Quantity Req'd.	Description
1	15	Wire Ties
2	4	Foil Tape
3	5	Foam Tape
4	14	Plastic Rivets
5	3	Red T-Taps
6	2	Blue T-Tap
7	1	Sealing Putty
8	8	Mounting Bracket Bolts
9	8	Mounting Bracket Nuts

Additional Items Required For Installation

Item #	Quantity Req'd.	Description

Recommended Tools

Safety Tools	
Special Tools	
Installation Tools	
Phillips Screwdriver	
Trim Removal Tool	Rivet Gun
Pliers	Tape Measure
Drill	Torque Wrench
5/32" Drill Bit	3mm Allen wrench
11/64" Drill Bit	Fish Tape
7/16" Drill Bit	Utility Knife
Drill Stop	
7,10&12mm Sockets/Ratchet	
Special Chemicals	
50/50 alcohol water mixture	
VPC Approved Sealant	

Color Applicability/Trim Level

[illegible]

General Applicability


MY16 Models


Recommended Sequence of Application


Item #	Accessory	
1		
2		
3		


1


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

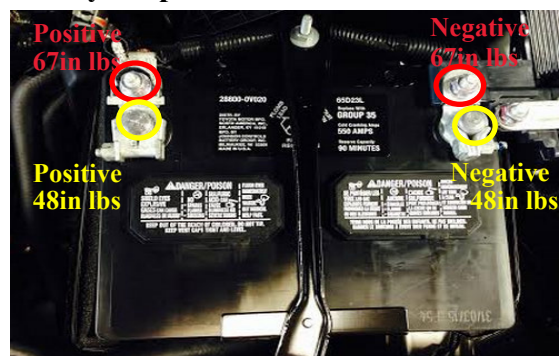
After TMS and Safety mandated preparatory steps have been taken, the installation sequence is the suggested method for completing the accessory installation. In some instances the suggested sequence is written for one associate to install and in others the sequence is given as part of a team accessory 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 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 & 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 cannot be accessed to set torque to the recommended 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 specification 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 positive 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 positive 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.

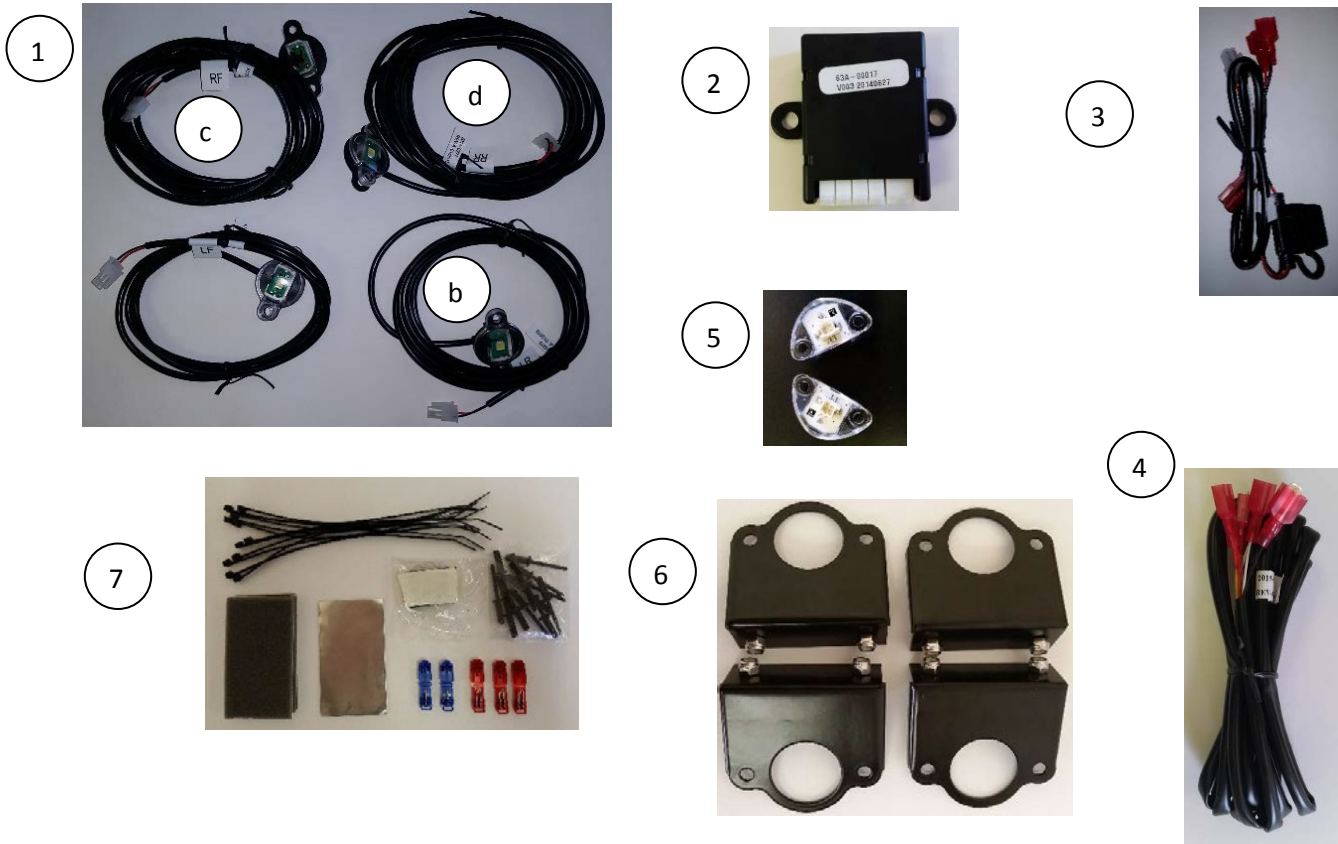
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- Electrical Component Disassembly/Reassembly (battery disconnection, connector removal, etc.).

Item	Quantity	Description	Part Number
1.	4	Puddle Lights and Harnesses	
(a)	1	LF (4.9') Puddle Light	00016-00064-05
(b)	1	LR (7.8') Puddle Light	00016-00064-06
(c)	1	RF (10.8') Puddle Light	00016-00064-07
(d)	1	RR (13.8') Puddle Light	00016-00064-08
2.	1	Control Module	00016-00064-04
3.	1	Power Harness	00016-00064-01
4.	1	Foot-well Harness	00016-00064-02
5.	2	Foot-well Lights	00016-00064-03
6.	4	Puddle Light Mounting Brackets	00016-00069-01
7.	1	Hardware Bag	





VEHICLE PREPERATION:

Note: Use bracket as drill guide.

1. Measure and drill locations for the [redacted] light pod brackets using 11/64" drill bit. These should be approximately 3 1/2" forward of the forward most rear jack point (centered below the 3rd grommet from the rear) Figure 1.
2. Measure and drill locations for the [redacted] light pod brackets using 11/64" drill bit. They should be centered approximately 9 1/4" back from the rear most front jack point (Figure 2).
3. Install all 4 mounting brackets using included bracket hardware. Brackets should be in-board of pinch weld, with bolts being fed through the pinch weld then the bracket (Figure 3).

NOTE: Appy VPC sealant to all pinch weld holes before mounting brackets.

4. Mount appropriate light in corresponding bracket, securing in place with plastic rivets.

NOTE: Arrow on puddle light lens must face out, away from bracket tabs.

5. Remove undercarriage skid plates from both sides.
6. Remove Drain plugs from both left and right front floor pans (Figure 4).



Figure 1



Figure 2



Figure 3



Figure 4

Remove Door Scuff Plates and Cowl Side Trim

7. Disengage the 8 claws and 2 clips to remove the front door inside scuff plate, LH (Figure 5).
8. Remove the nut. Detach the clip and remove the cowl side trim board, LH (Figure 6).
9. Detach the 2 clips and guide and remove the inner No. 1 instrument panel bracket cover, LH (Figure 7).
10. Pull back carpeting and remove floor silencer pad.
11. Repeat for RH side.
12. Route rear passenger side harness forward, securing with a wire tie to the frame cross member (Figure 8).



Figure 5

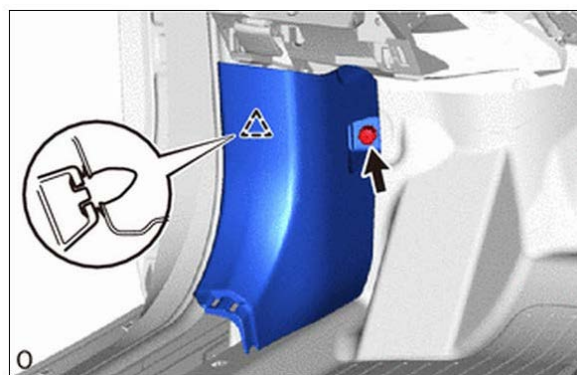


Figure 6

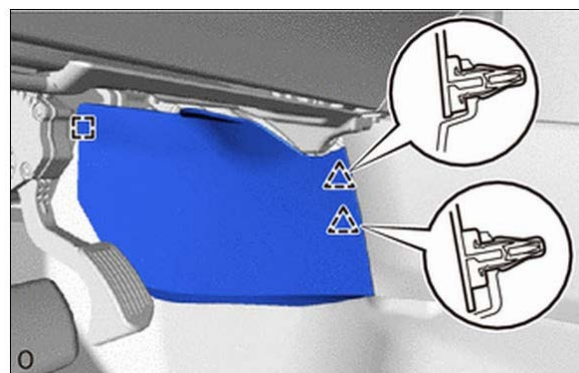


Figure 7



Figure 8

13. Route driver side rear harness along corrugated tubing using wire ties and factory clips (Figure 9).



Figure 9

14. Route the front harnesses together with the rears towards drain plug locations (Figure 10).



Figure 10

15. Using a sharp blade, cut an 'X' in the middle of each drain plug, in order to route harnesses through and into the vehicle.

16. Lift front carpet to gain access to the drain holes and route both front and rear puddle light harnesses up and into the vehicle.

17. Re-install drain plugs, with the harnesses threaded through plugs (Figure 11).

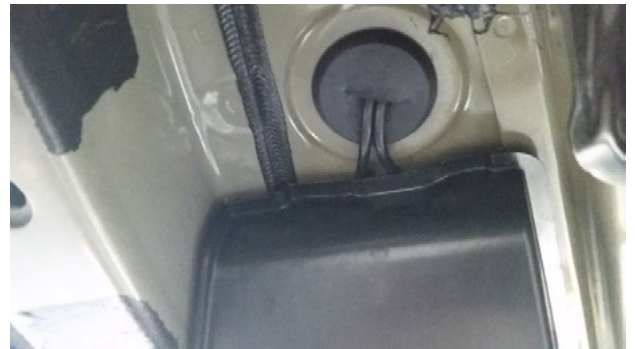


Figure 11

18. Re-install undercarriage skid plates.

19. Seal harnesses to drain plugs using half of included sealing putty per side. Make sure to work putty completely around wires for a water tight seal (Figure 12).

NOTE: The use of VPC approved sealant can be used for sealing grommets.

20. Route passenger side harnesses toward the center console and fish to driver side (Figure 12).



Figure 12

21. Route driver side harnesses towards outside rocker (Figure 13).



Figure 13

22. Remove Fuse Box Opening Cover.

- (a) Apply protective tape as shown in Figure 14.
- (b) Detach the 8 clips and remove the fuse box opening cover.

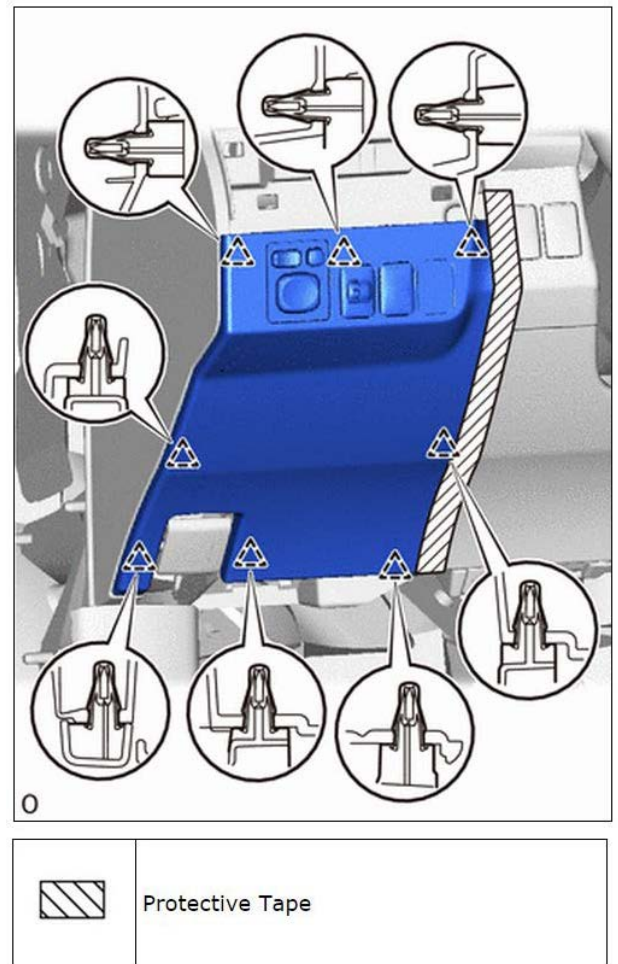


Figure 14

- (c) Disconnect each connector and detach the wire harness clamp (Figure 15).



23. Remove No. 1 Instrument Panel Under Cover Sub-assembly (Figure 16).

- (a) Remove 2 screws.

- (b) Detach the 2 claws and 2 guides, and remove the No.1 instrument panel under cover sub-assembly.

- (c) Disconnect the connector.

24. Measure 1 ½" in from the left claw and drill a 7/16" hole in the panel as shown in Figure 17.

25. Align foot-well light with connector in hole and flat side facing seats. Using a 5/32" drill bit, drill mounting holes. Attach using included rivets.

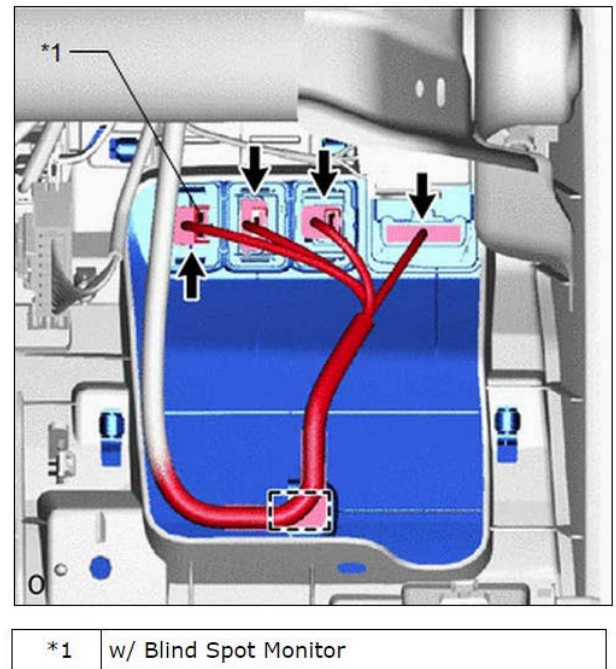


Figure 15

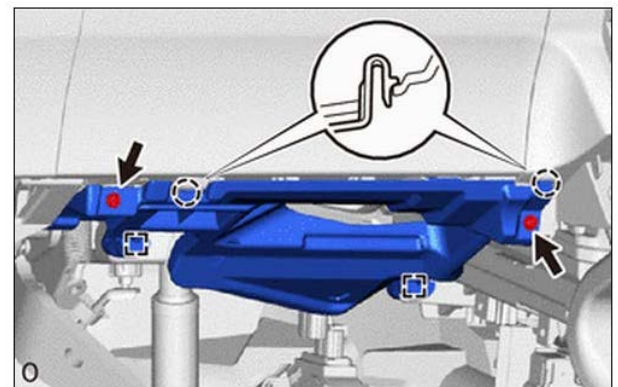


Figure 16



Figure 17

26. Remove No. 2 Instrument panel under cover sub-assembly.

(a) Disengage the 2 claws and 2 guides and remove the No. 2 instrument panel under cover sub-assembly (Figure 18).



Figure 18

27. Mark location for passenger side light 3" from the back edge of the No. 2 panel as shown in Figure 19.



Figure 19

28. Drill a 7/16" hole where the connector will fit and align with flat side of light facing the seat.

29. Using a 5/32" drill bit, drill mounting holes. Attach using included rivets (Figure 20).



Figure 20

All connectors are pin side view.

30. Using a Red T-tap, connect the **Red** wire from the **Puddle Light power harness** to the **Pink** wire in **Pin 47** of the 3C connector at the JB (Figure 21).

31. Using a Red T-tap, connect the **Black** wire of the **Puddle Light power harness** to the **Grey** wire in **Pin 35** of the 3D connector at the JB (Figure 21).

32. Connect the **Red** wire from the foot-well harness to the red wire from the puddle light power harness. Connect the **White** wire from the foot-well harness to the white wire from the puddle light harness.

33. Using a Red T-tap, connect the **Yellow** wire to the **Green** wire in **Pin 15** of the 3C connector at the JB (Figure 21).

34. Using a Blue T-tap, connect the **Black** wire to the **White/Black** wire in **Pin 9** of the 3D connector at the JB (Figure 21).

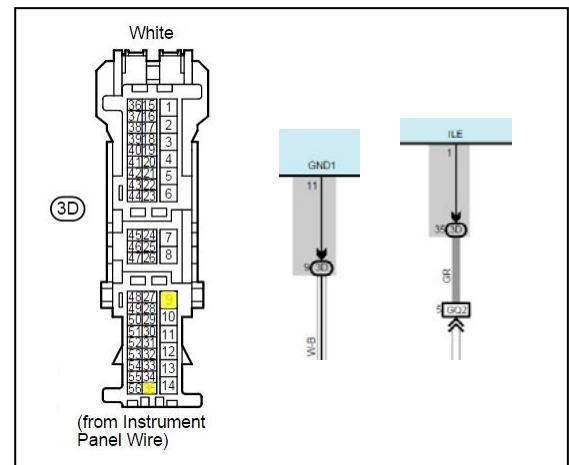
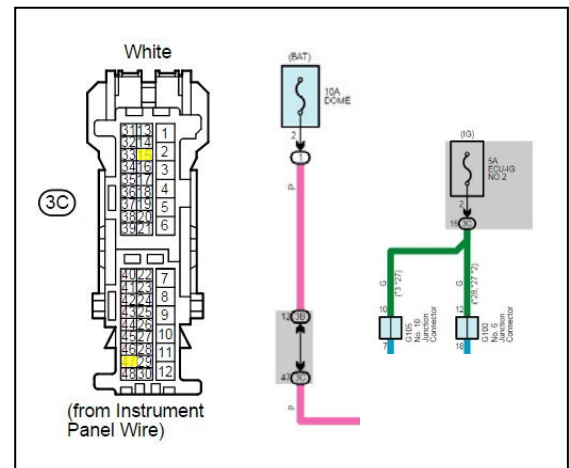
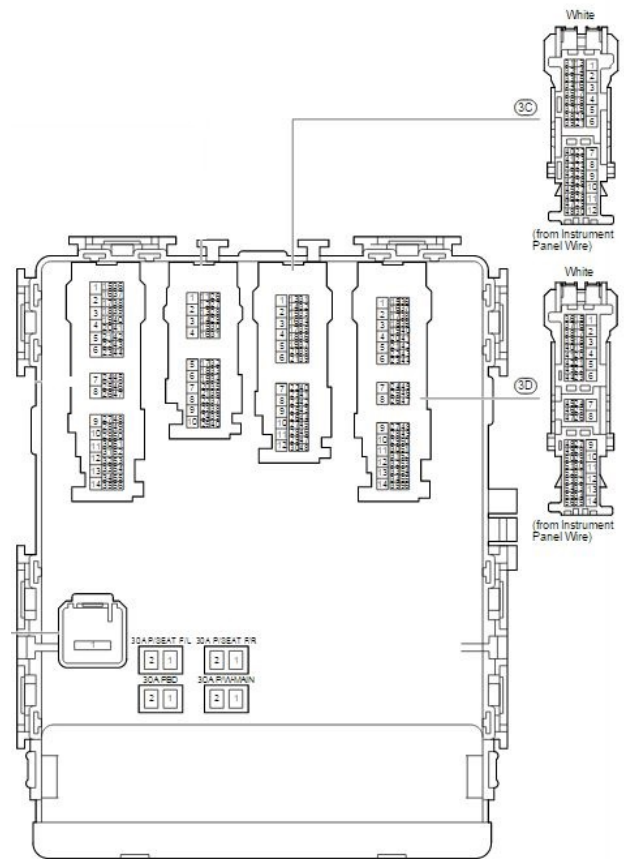


Figure 21

35. Route long side of foot-well power harness, above pedals and secure in place. Fish over to passenger side foot-well along puddle light harnesses and using a piece of foam tape, tape in place on center console (Figure 22).



Figure 22

36. Connect to passenger side foot-well light and **reinstall** No. 2 Instrument panel under cover sub-assembly with attached light.

37. Reinstall both floor silencer pads.

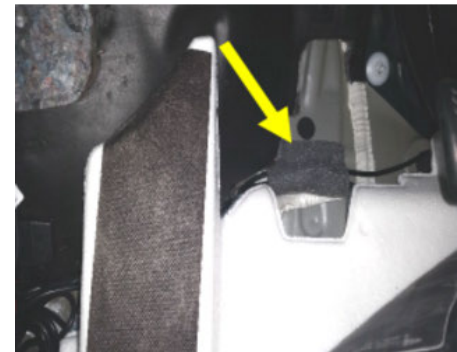


Figure 23

38. Route passenger side puddle harness from center console to topside of drivers floor silencer pad & tape in place as shown in fig. 23

39. Route short side of foot-well harness to driver side foot-well light. Connect and wire tie in place.

40. Connect all puddle light harnesses and mount the control module behind connectors in driver side kick panel. Bundle excess harnesses and wire tie between floor silencer pad and kick panel (Figure 24).



Figure 24

TESTING AND REASSEMBLY



1. REINSTALL ALL TRIM PANELS IN THE ORDER OF REMOVAL TAKING SPECIAL CARE TO MAKE SURE ALL HARNESSSES AND WIRING ARE PROPERLY SECURED. MAKE SURE HARNESSSES ARE NOT PINCHED OR BOUND BY TRIM PIECES.



2. RECONNECT NEGATIVE BATTERY CABLE AND TORQUE TO 48 IN/LBS.

CHECKLIST - THESE POINTS MUST BE CHECKED TO ENSURE A QUALITY INSTALLATION

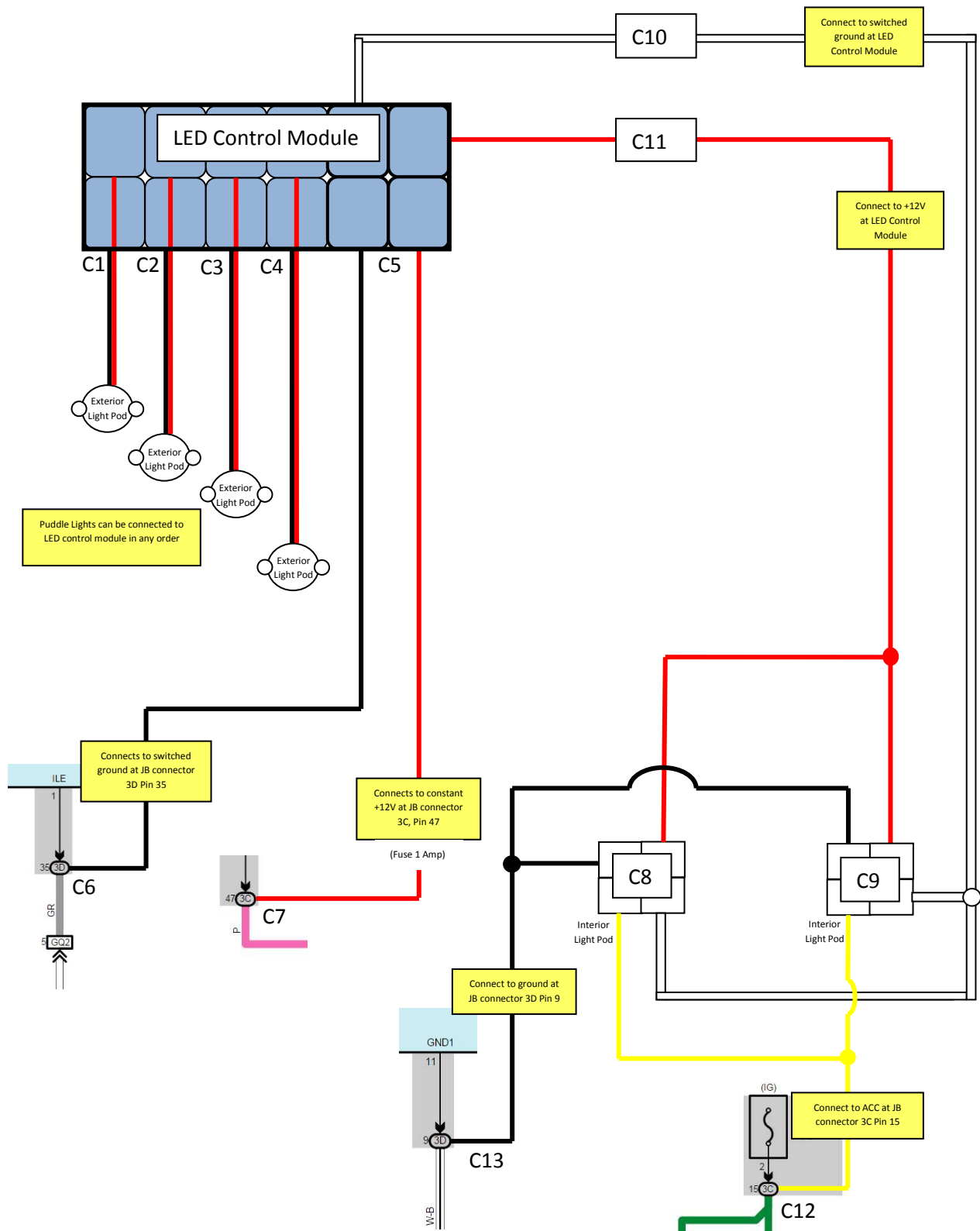
ACCESSORY FUNCTION CHECK

	CHECK:		LOOK FOR:
	Test for Full Light condition		Close all doors and lock vehicle, do foot-well and puddle lights go out? Unlock vehicle, do foot-well lights come on full brightness? Do puddle lights come on?
	Test for Low Light condition		Start vehicle, do puddle lights go out? Do the foot-well lights dim to low level?

VEHICLE FUNCTION CHECK

	VEHICLE FUNCTION:		VEHICLE FUNCTION DETAIL:
	IGNITION		VERIFY THAT THE VEHICLE WILL CRANK.
	SRS WARNING LIGHT		CONFIRM SRS WARNING LIGHT ILLUMINATES FOR APPROXIMATELY 6 SECONDS WITH THE IGNITION ON, AND THEN GOES OUT.

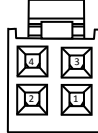
Block Diagram RAV4 Lighting Package





Connector C-1 thru C-4

Pin	Wire Color	Test Reference	Proper Orientation
1	Black	Pin 1 to Ground	Exterior LEDs (-)
2	Red	Pin 2 to Ground	Exterior LED (+)



Connector C5

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 when Dome Light is ON +12 VDC when Dome Light is OFF
3	White	Pin 3 to Ground	Approximately 0 VDC (when disconnected from control module)
4	Red	Pin 4 to Ground	Approximately 0 VDC (when disconnected from control module)

Connector C6



Pin	Wire Color	Test Reference	Proper Operation
1		Pin 1 to Ground	Approximately 0 VDC when Dome Light is ON +12 VDC when Dome Light is OFF

Connector C7



Pin	Wire Color	Test Reference	Proper Operation
1			+12 VDC

Connector C8 & C9



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

Connector C10



Pin	Wire Color	Test Reference	Proper Operation
1	White	Pin 1 to Ground	Approximately 0 VDC when Dome Light is ON +12 VDC when Dome Light is OFF

Connector C11



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

Connector C12



Pin	Wire Color	Test Reference	Proper Operation
1	Yellow	Pin 1 to Ground	Approximately 0 VDC ignition switch OFF +12 VDC when ignition ON

Connector C13



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