RAVEK

CAN-AM DEFENDER LTD/CAB 2021+

TURN SIGNAL KIT

PLUG & PLAY AUTO-CANCEL
WITH WHITE RUNNING LIGHTS

INSTRUCTION MANUAL

RAVEK

CAN-AM DEFENDER LTD/CAB 2021+

PLUG & PLAY AUTO-CANCEL UTV TURN SIGNAL KIT WITH WHITE RUNNING LIGHTS

Part #: 65-105
Fitment: CAN-AM DEFENDER LTD/CAB 2021+

PARTS INCLUDED:

- Turn Signal Controller (1x)
- Switchback Apex Light (2x)
- Taillight Harness (2x)
- Power Harness (1x)
- Horn (1x)
- Turn Signal Rocker Switch (1x)
- Horn/Hazards Rocker Switch (1x)
- Turn Signal Rocker Switch Extension Harness (1x)
- Horn/Hazards Rocker Switch Extension Harness (1x)
- Right Taillight Extension Harness (1x)
- Left Taillight Extension Harness (1x)
- Right Turn Signal Extension Harness (1x)
- Left Turn Signal Extension Harness (1x)
- License Plate Extension Harness (1x)
- Right Dash Indicator Harness (1x)
- Left Dash Indicator Harness (1x)
- Dielectric Grease (1x)
- Heat Shrink (1x)
- Wire Loom (1x)
- Roll Bar Adapter (2x)
- Strap (2x)
- Zip Tie (20x)
- Double Sided Tape (2x)
- M6 Flat Washer (2x)
- M5 x 0.8 x 6mm Allen Screw (4x)
- M6 x 1.0 x 10mm Allen Cap Screw (2x)
- Adhesive Promoter Wipe (3x)
- Rubbing Alcohol Wipe (3x)

TOOLS NEEDED: *OPTIONAL

Side Cutter Pliers

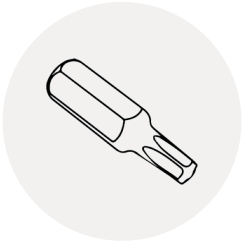
Push Pin Pliers

Needle Nose Pliers

Pick

3mm Allen Wrench

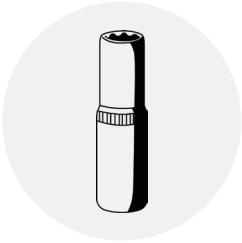
4mm Allen Wrench



T-30 Torx

Knife

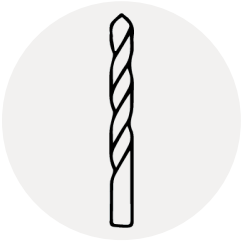
Ratchet



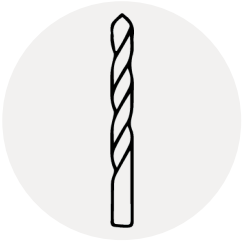
10mm Deep Well Socket

Small Flathead Screwdriver

Heat Gun / Lighter



*11/32” drill bit**



*1/4” drill bit**

*Drill**

*Wire Fish**

INSTALL VIDEO TUTORIAL

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GENERAL NOTES

- *Throughout this process, be sure to keep track of any screws or fasteners you remove as they will be re-installed in the same location.*
- *Dielectric grease is provided, and you can use it for added protection.*

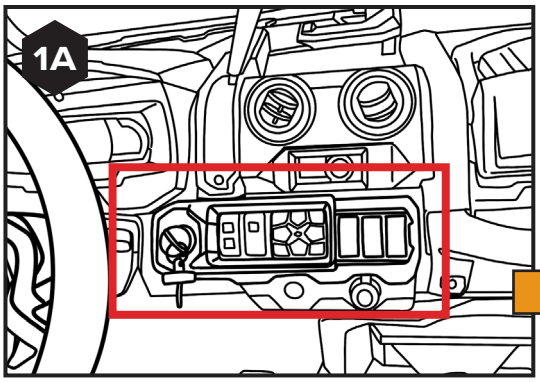
1 PREP THE VEHICLE

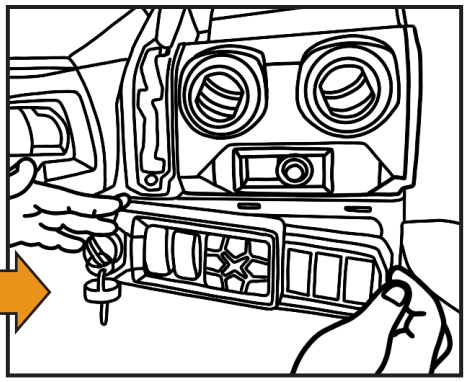
i

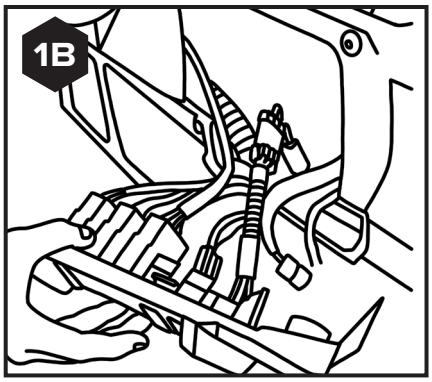
Locate your switch panel and open it by carefully prying the bottom edge free and releasing the clips. Leave the switch panel hanging. [SEE FIGURES 1A – 1B]

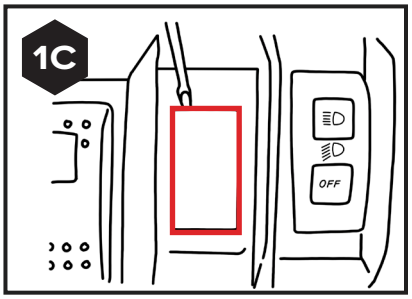
NOTE: Open the panel and let it rest (do not unplug any of your rocker switches). [SEE FIGURE 1B].

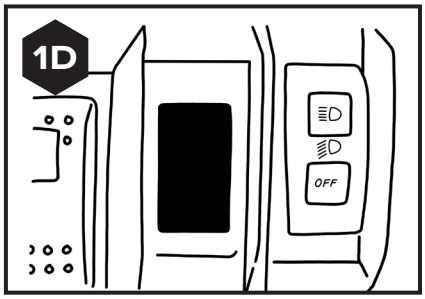
Choose two open rocker switch slots where you'll install your switches to in a future step, remove the knock outs by prying them out using a SMALL FLAT HEAD SCREWDRIVER. [SEE FIGURES 1C & 1D]









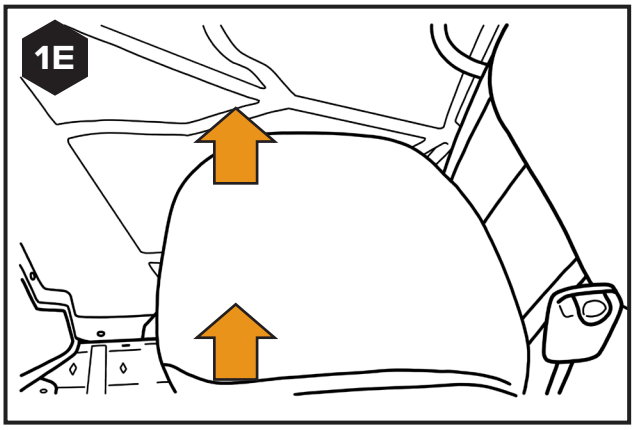


ii

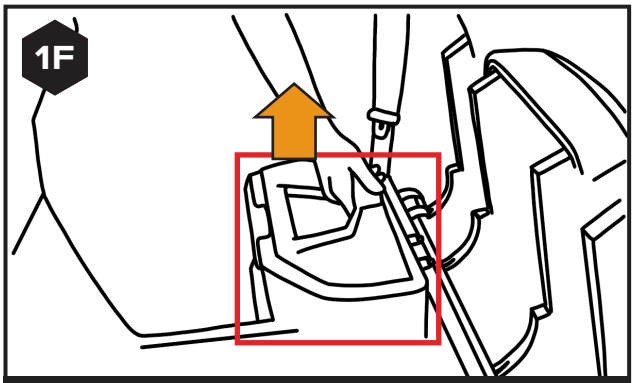
Flip the passenger seat up and remove the storage box (if equipped). Remove the three push pins holding the front passenger floor panel using PUSH PIN PLIERS. [SEE FIGURES 1E – 1G]

NOTE: If your Defender has two rows of seats; remove the rear floor tunnel panel using PUSH PIN PLIERS to remove the 3 push pins holding the panel. [SEE FIGURE 1H]

1E

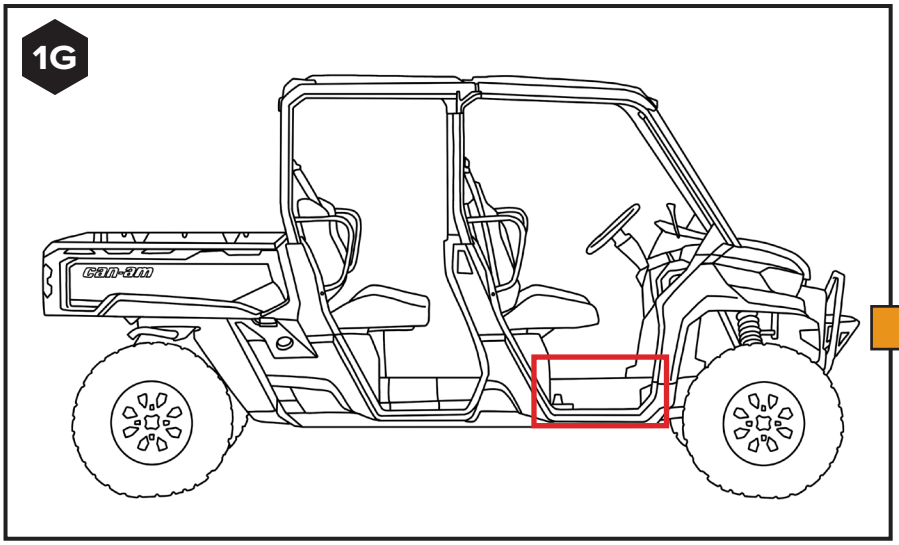


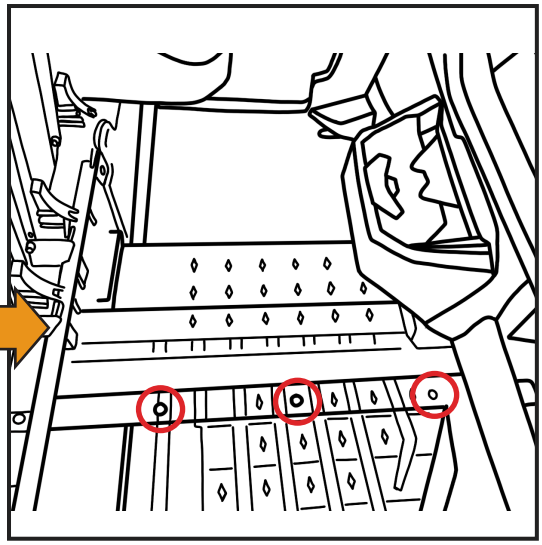
1F



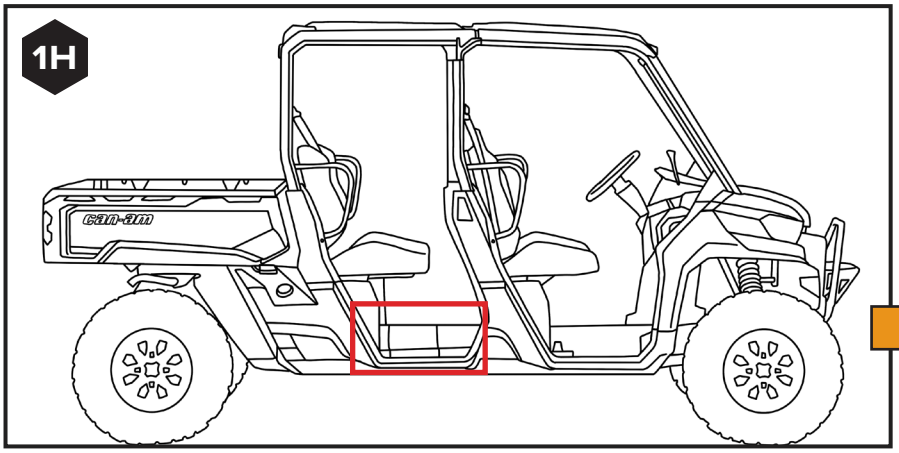
STORAGE BOX IN SELECTED MODELS ONLY

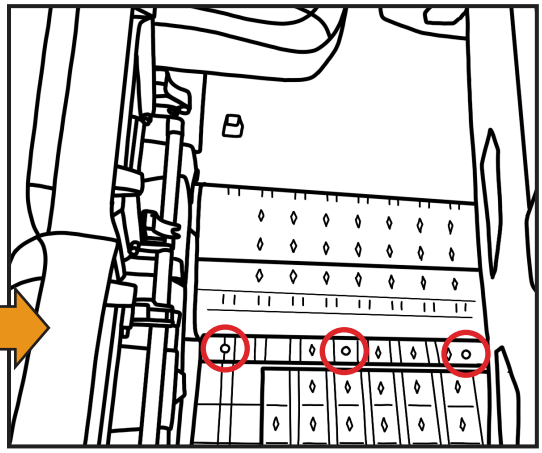
1G





1H

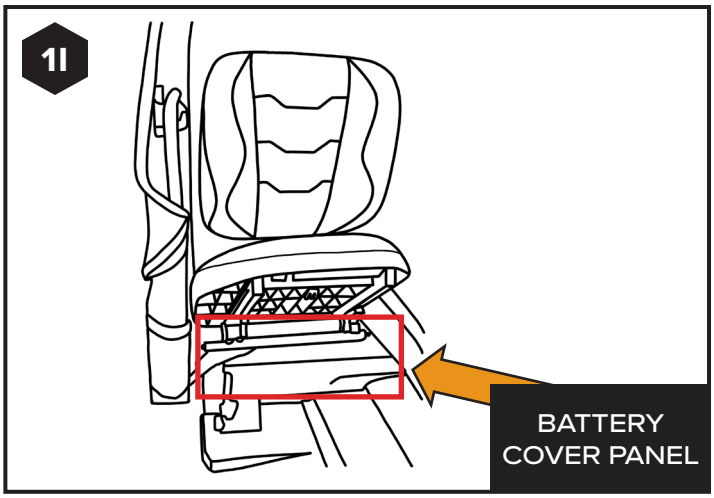


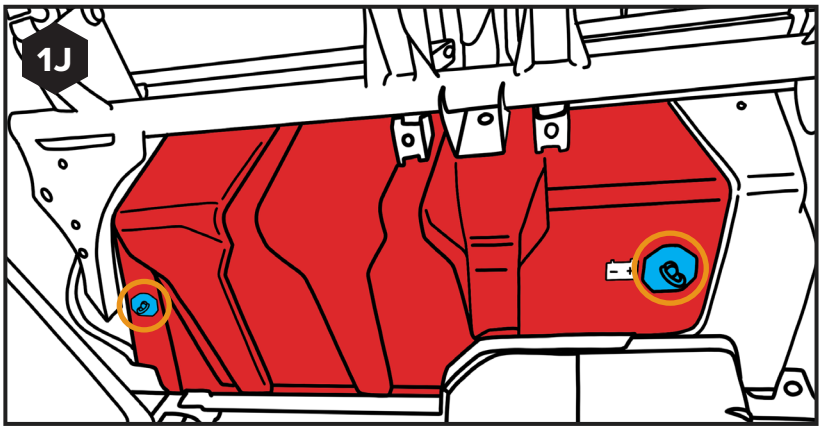


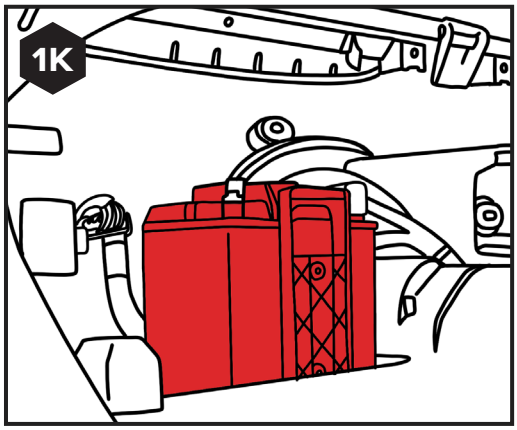
iii

Remove the battery cover panel by rotating the two twist pins to free the panel. [SEE FIGURES 1I – 1K]

PASSENGER SEAT SEEN





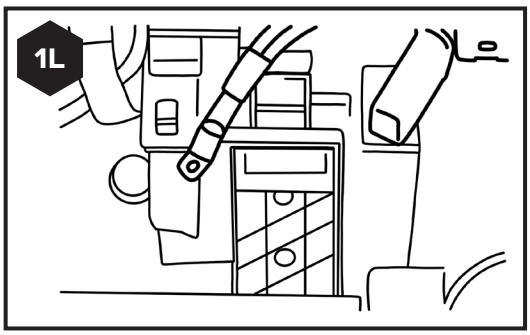


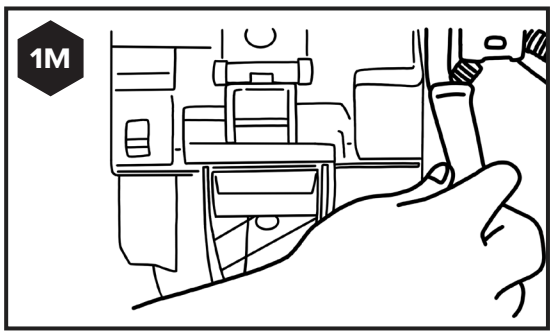
iv

Now that you have identified your battery's location, disconnect both terminals using a 10MM DEEP WELL SOCKET and a RATCHET. [SEE FIGURES 1L & 1M]

NOTE: Disconnect the negative battery terminal first to prevent arcing. Make sure cables don't touch each other or any metal surfaces when disconnected.

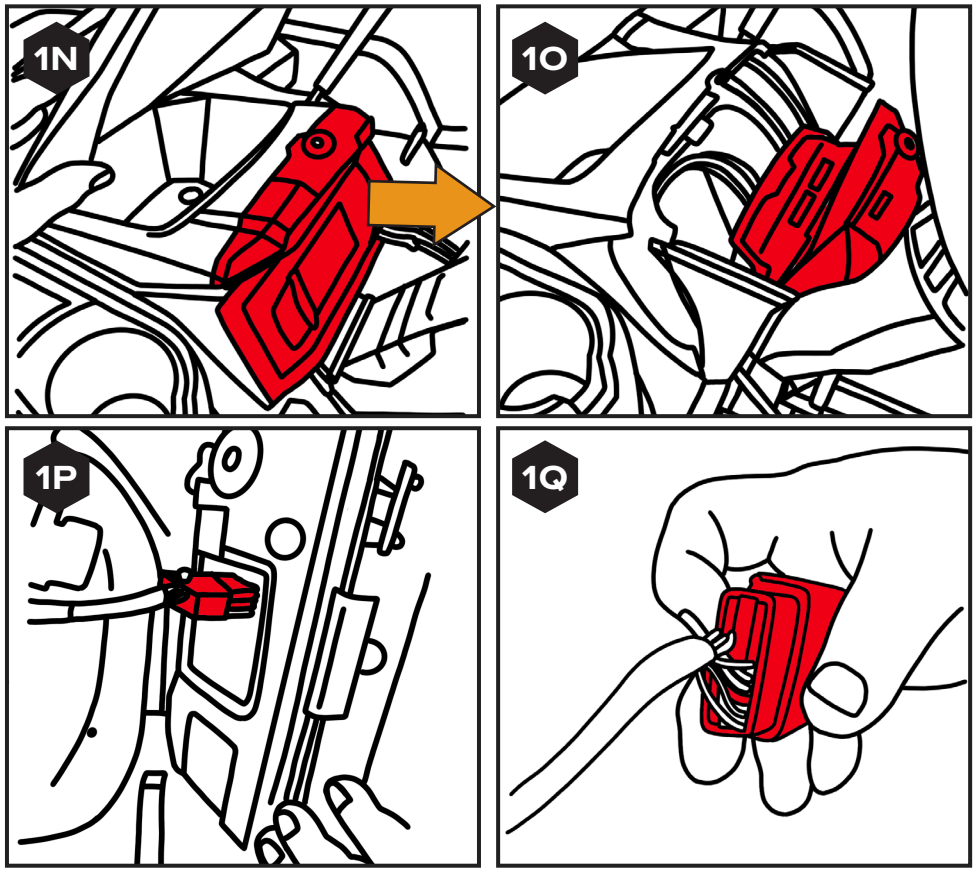
DISCONNECT NEGATIVE BATTERY TERMINAL FIRST





v

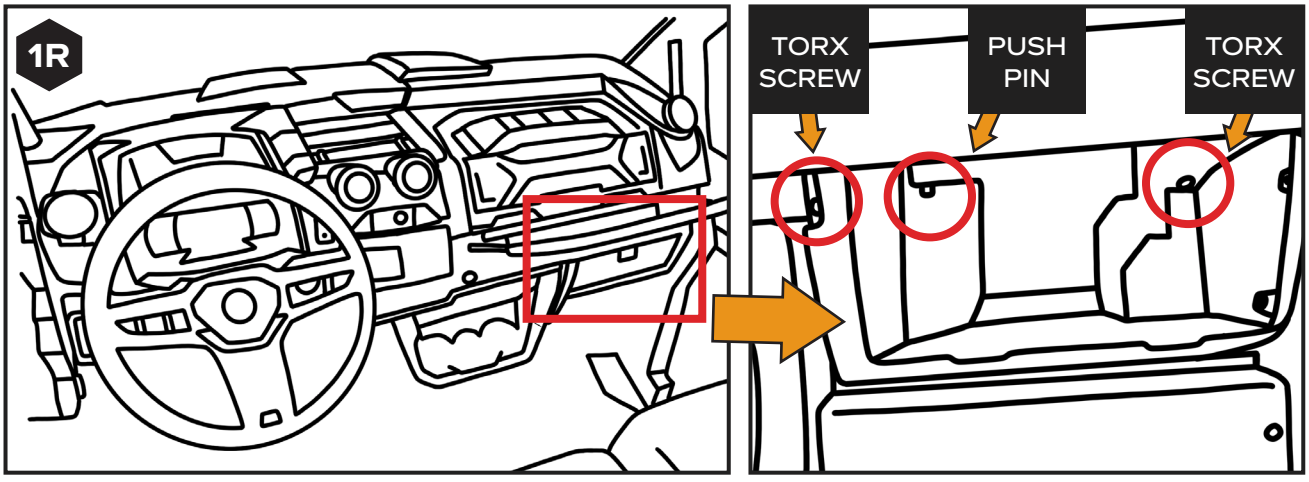
Remove instrument cluster, by opening your driver's storage compartment and pulling the cluster out to remove. Once cluster is loose, unplug the connector by releasing the tab on backside of the connector. Set cluster aside. [SEE FIGURES 1N -1Q]



vi

Remove the two torx screws and one push pin holding the passenger side storage compartment, using a T-30 TORX and PUSH PIN PLIERS. [SEE FIGURE 1R]

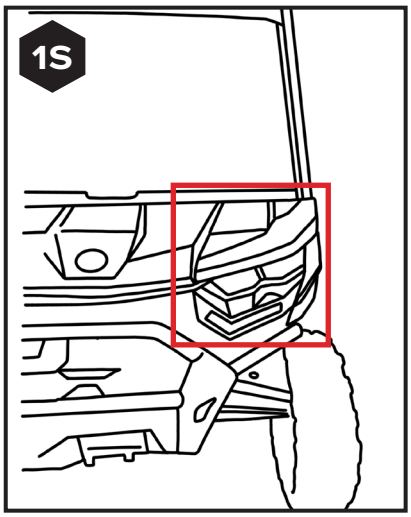
NOTE: This storage compartment is removed because the area behind the compartment it's a great spot to mount your turn signal controller to in a future step.

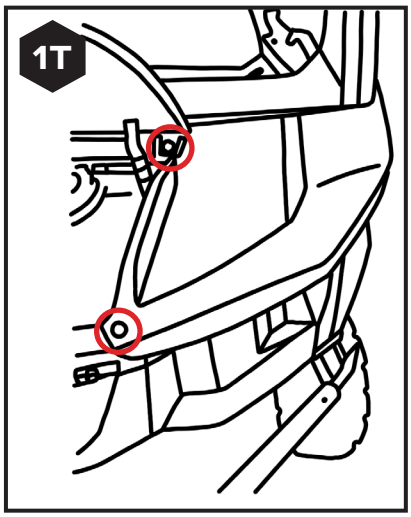


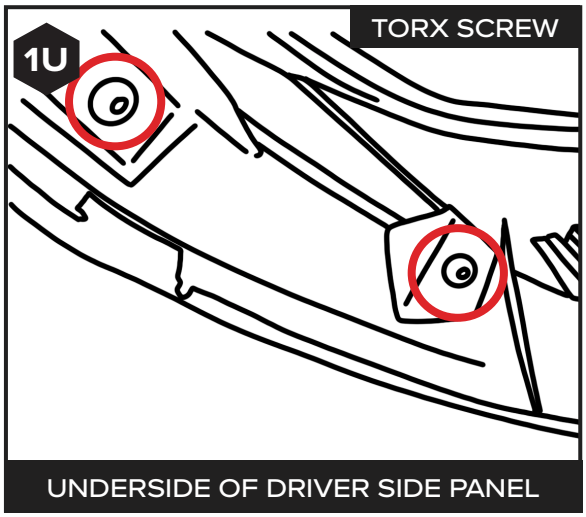
vii

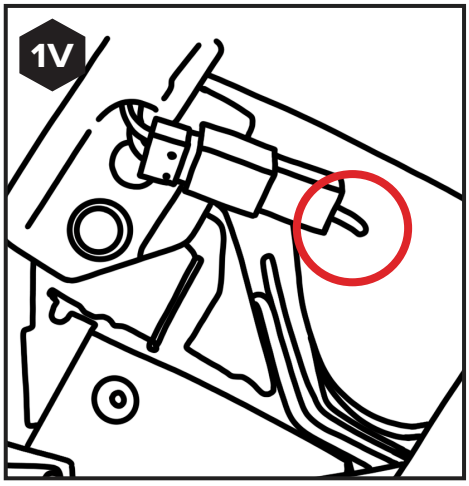
Remove the driver side front panel using PUSH PIN PLIERS and T-30 TORX to remove the two push pins and torx screws seen below. Once hardware is removed, carefully pry panel out and set aside. [SEE FIGURES 1S – 1X]

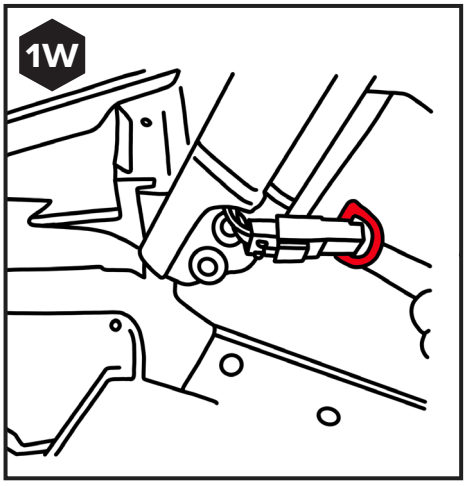
NOTE: Captured in FIGURE 1X is the rubber grommet on the driver's side of the Defender that can be used for wire routing, use a knife to make the grommet's hole bigger.

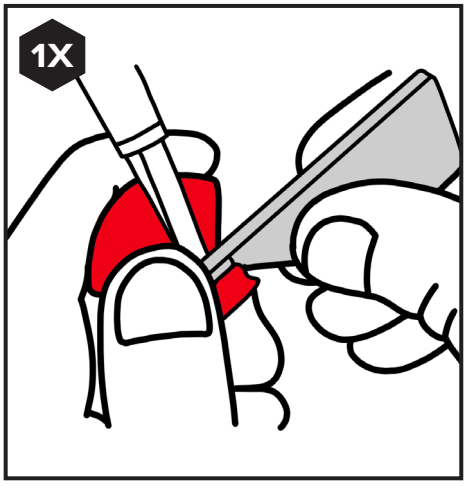






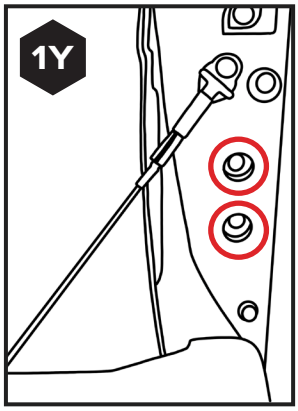


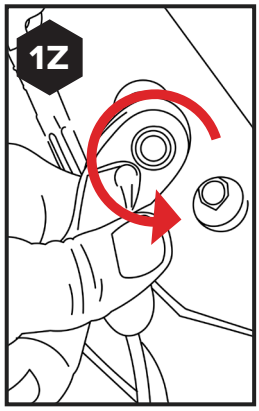


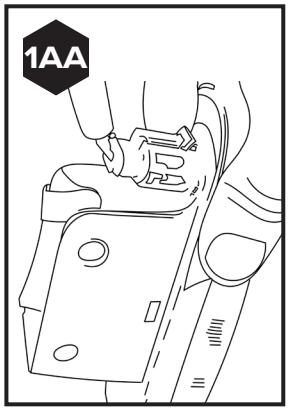


viii

Open the tailgate and remove both taillights using a 10MM DEEP WELL SOCKET and RATCHET and set aside. [SEE FIGURES 1Y – 1AA]





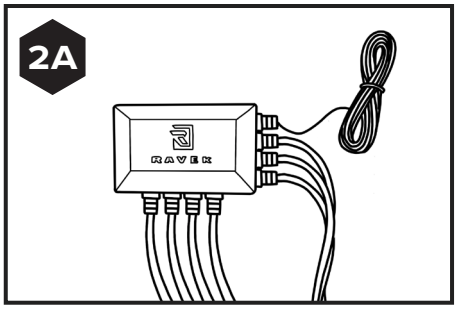


2 INSTALL THE WIRING TO THE TURN SIGNAL CONTROLLER

i

Grab your Turn Signal controller and set it where you'll permanently mount it in a future step. [SEE FIGURE 2A]

NOTE: We recommend installing your controller behind the passenger side storage compartment removed in step 1.vi.



ii

Plug all of your extension harnesses except for Horn/Hazards and Turn Signal harnesses into the controller's corresponding connectors. Even though all the connectors are waterproof, we recommend using a small dab of dielectric grease in each connection point. [SEE DIAGRAM A FOR AN OVERVIEW OF YOUR CONNECTIONS]

NOTE: All of your extension harnesses have labeled heat shrink, allowing you to determine where each extension harness plugs into. [SEE DIAGRAM A]

NOTE: The Brake Input red wire does not have an extension harness to be plugged; this will be routed directly to the driver's side taillight harness in an upcoming step.

NOTE: Some kits come with extension wires for your rear left and right brake lights. Depending on wire routing these may not be used.

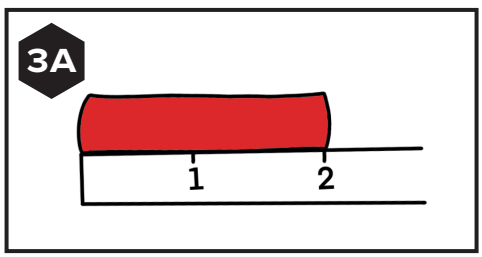
3 HEAT SHRINK YOUR CONNECTIONS

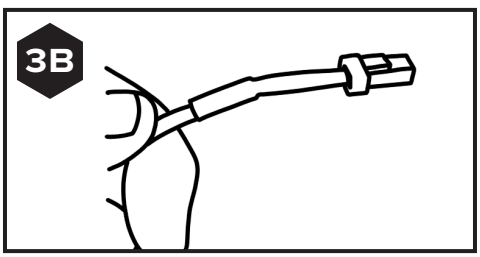
i

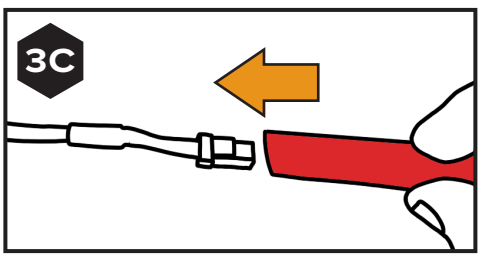
As you make plug & play connections, use the heat shrink tubing provided to protect your connections from dirt on the trails.

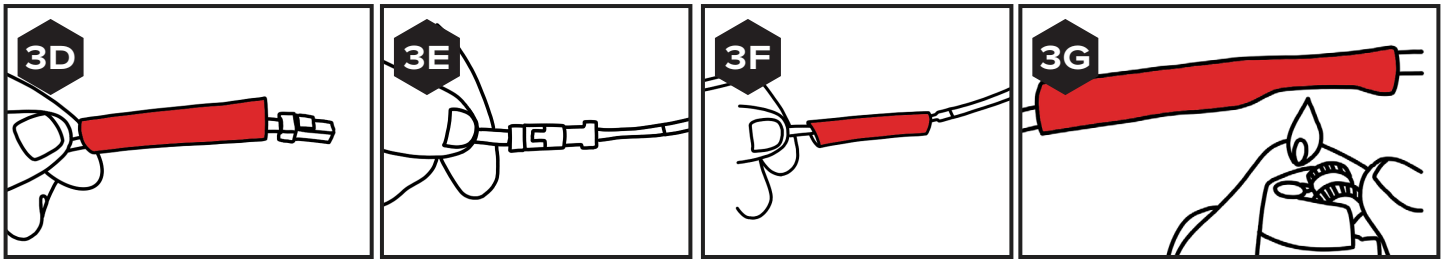
Go over the connection points you make and cut 2" of heat shrink for each. Use a lighter or heat gun to shrink the tubing. [SEE FIGURES 3A – 3G]

HEAT SHRINK CONNECTIONS



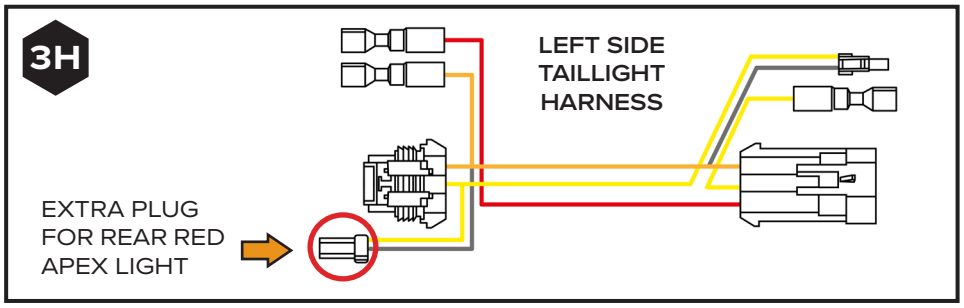


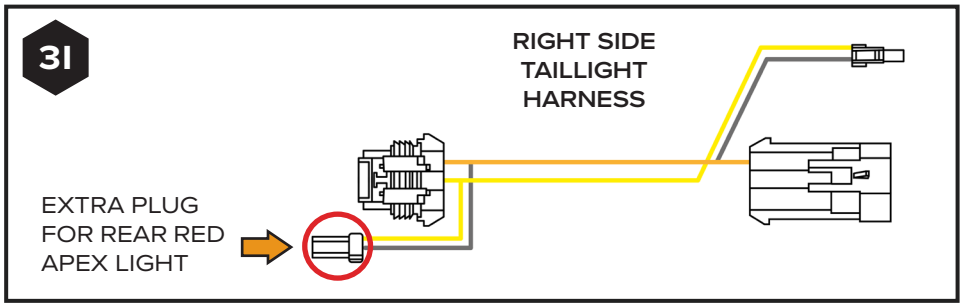


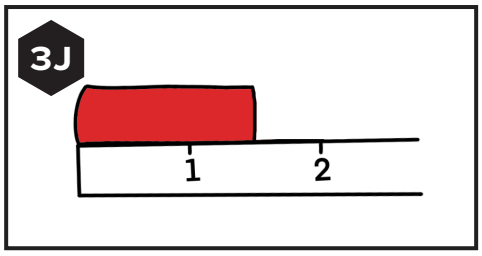


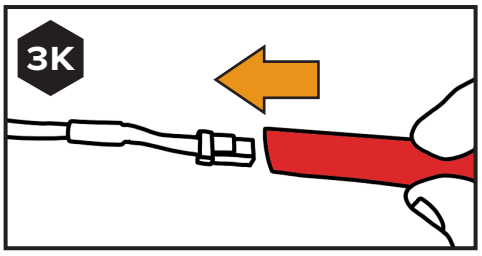
If you won't use the extra Taillight Harness connectors (mentioned in step 5) cut 1.5" piece of heat shrink tubing, slide it over the connector and heat shrink it using a lighter or heat gun. Use needle nose pliers to pinch the end of the extra heat shrink. This will act as a cap to protect the connectors from getting dirt inside. [SEE FIGURES 3H – 3M]

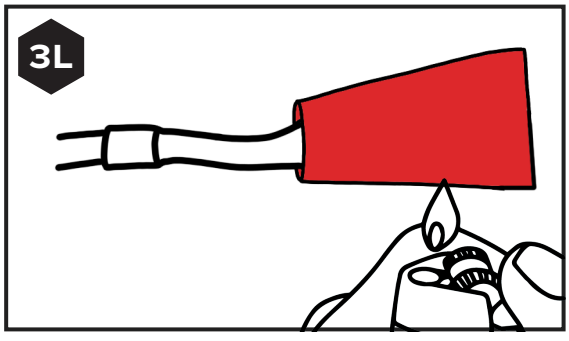
HEAT SHRINK EXTRA PLUGS

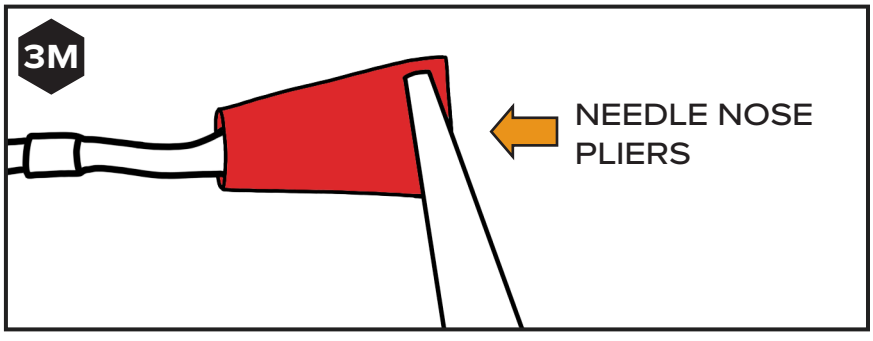












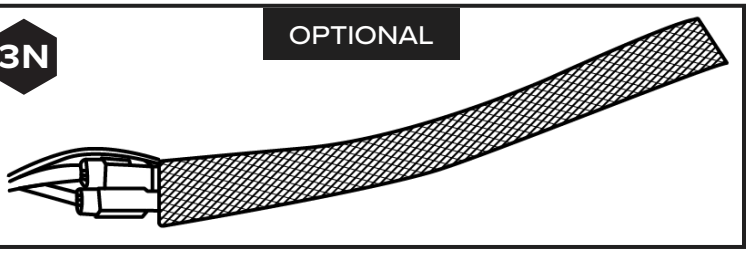
ii

This step is optional as this will help with maintaining a clean OEM look. Not required for protection of the wiring.

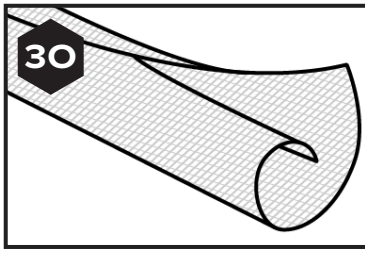
Grab your Brake Input wire and route it through the wire loom (supplied with the kit). [SEE FIGURE 3N & 3O]

3N

OPTIONAL



3O



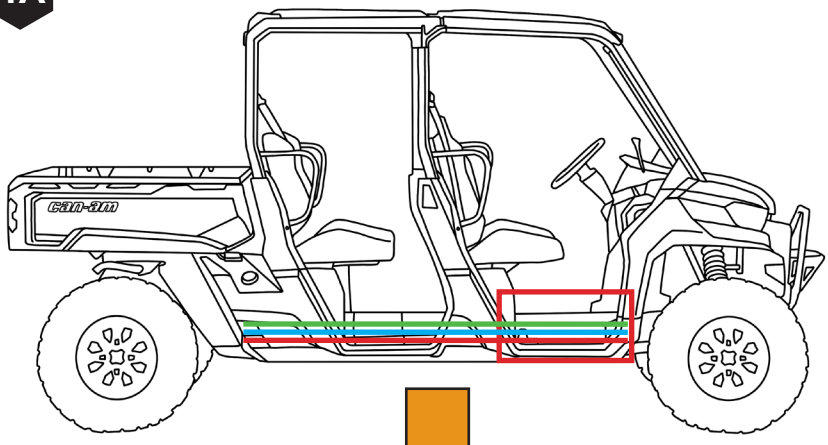
4 ROUTE THE REAR LIGHT WIRING

i

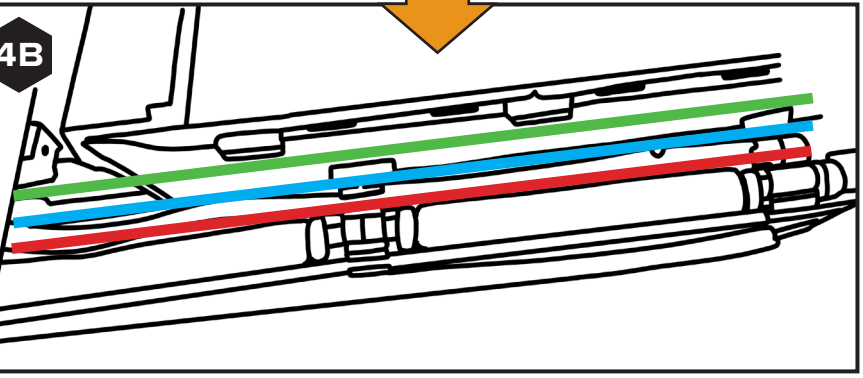
Grab your Rear Left extension, Rear Right extension, and Brake Input wire.

Route your LEFT REAR and Brake Input wires through the driveshaft tunnel panels removed in step 1.ii to the left taillight and route your RIGHT REAR wire through the driveshaft tunnel to the right taillight. [SEE FIGURE 4A, 4B, & DIAGRAM B]

4A



4B

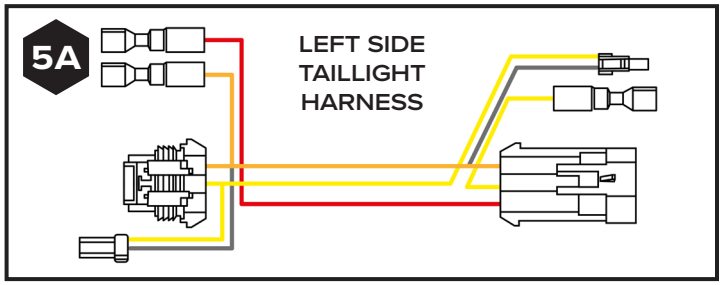


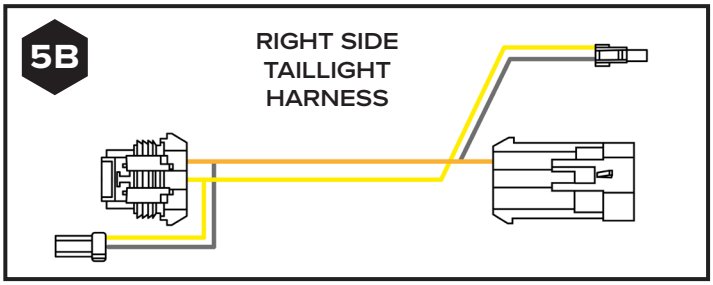
5 PLUG IN YOUR REAR LIGHTS WIRING

i

With the rear wiring coming out of the controller and routed up to the taillights, you are ready to install your taillight harnesses, included with the kit. [SEE FIGURES 5A & 5B]

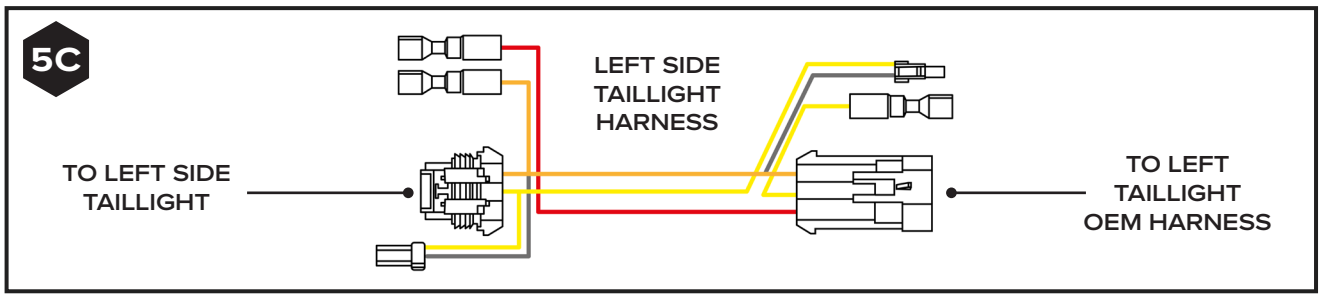
NOTE: The left side Taillight Harness is easily identifiable as the Taillight harness with the most connectors coming from it.





ii

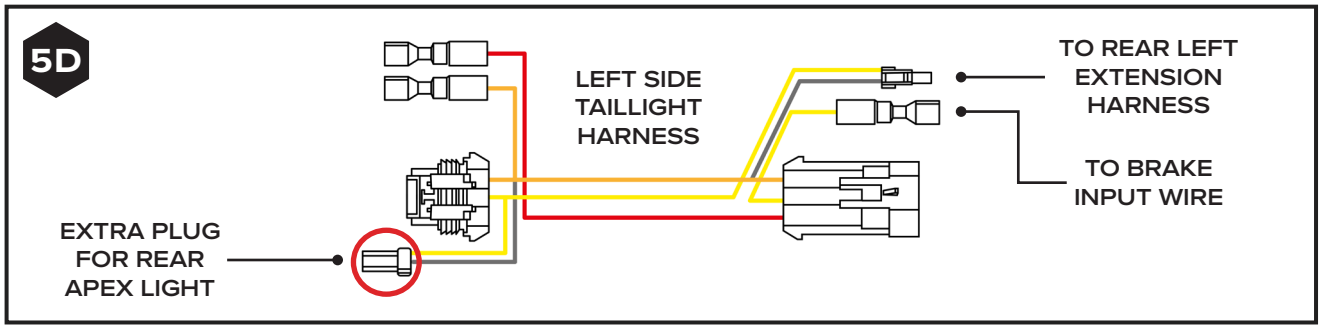
Plug in the left side Taillight Harness to the left side taillight and to the unplugged OEM left side taillight harness from step 1.viii. [SEE FIGURE 5C]



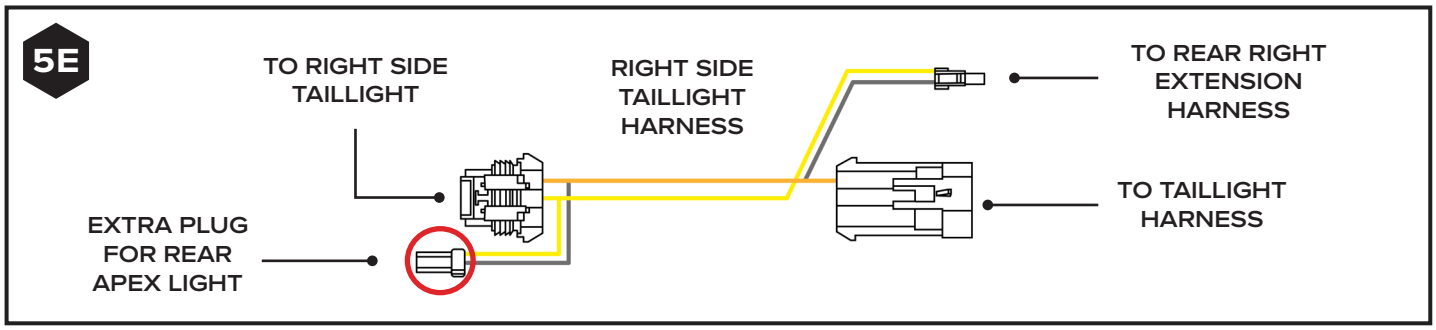
iii

Plug your REAR LEFT extension harness into the corresponding labeled connector from the left Taillight harness, and plug your Brake Input wire to the connector labeled on the left Taillight connector. [SEE FIGURE 5D]

NOTE: Extra plug on taillight harness provided to easily add RAVEK Rear Running & Brake Apex Lights to your Defender (RAVEK Part #65-101) , these will add running light, brake light, and turn signal functionality to your machine.

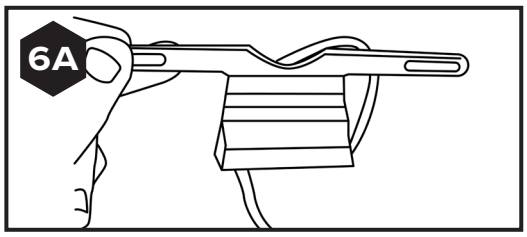


iv Repeat the previous two steps on the right Taillight with the right- side harness provided (excluding the Brake Input information). [SEE FIGURE 5E]

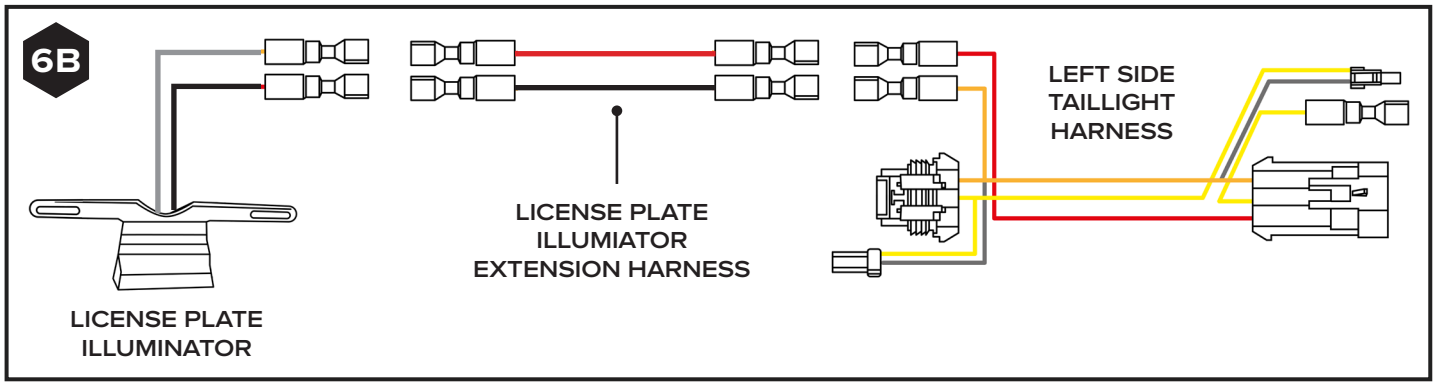


6 PLUG IN YOUR LICENSE PLATE ILLUMINATOR (OPTIONAL)

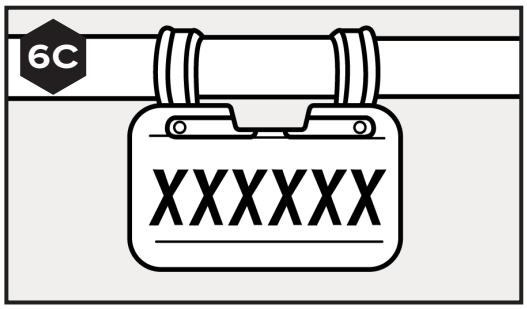
i Locate the License Plate Illuminator provided with your kit. [SEE FIGURE 6A]



ii Plug the connectors from the License Plate Illuminator (White = Power) (Black = Ground) to the License Plate Illuminator Extension Harness. Plug the extension harness to the left Taillight Harness labeled accordingly. [SEE FIGURE 6B]



iii Affix the License Plate Illuminator to your license plate, reusing the hardware from your license plate. [SEE FIGURE 6C]



NOTE: Before driving your UTV on public roads, check your local laws. This includes verifying if a license plate illuminator is required.

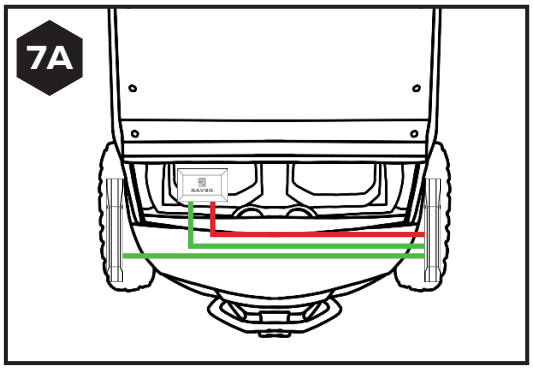
7 ROUTE FRONT LEFT & RIGHT TURN WIRING

i

With all your rear wiring routed (but not yet secured), go to where you placed your Turn Signal Controller and grab your FRONT LEFT and FRONT RIGHT wires.

ii

Route your FRONT LEFT and FRONT RIGHT extension harnesses to the front end of the Defender, where you went to mount your Apex Turn Signal Lights permanently (jump to the next step to see all the mounting options for your lights). [SEE FIGURE 7A]



8 SELECT LOCATIONS FOR APEX LIGHTS

i

Your options include:

- **Exterior Body Panel**
  Any exterior panel with 8" of flat surface for mounting
- **Roof Mounting**
- **Roll Bar/Bumper Mounting**

Check out the video to the right (see QR code) for a 50 second walkthrough of the different Apex Light mounting options.

9 READY TO MOUNT APEX LIGHT

i

If you have chosen to mount your Apex Lights to a roll bar or bumper, you will follow the Roll Bar mounting steps detailed in step 9A.

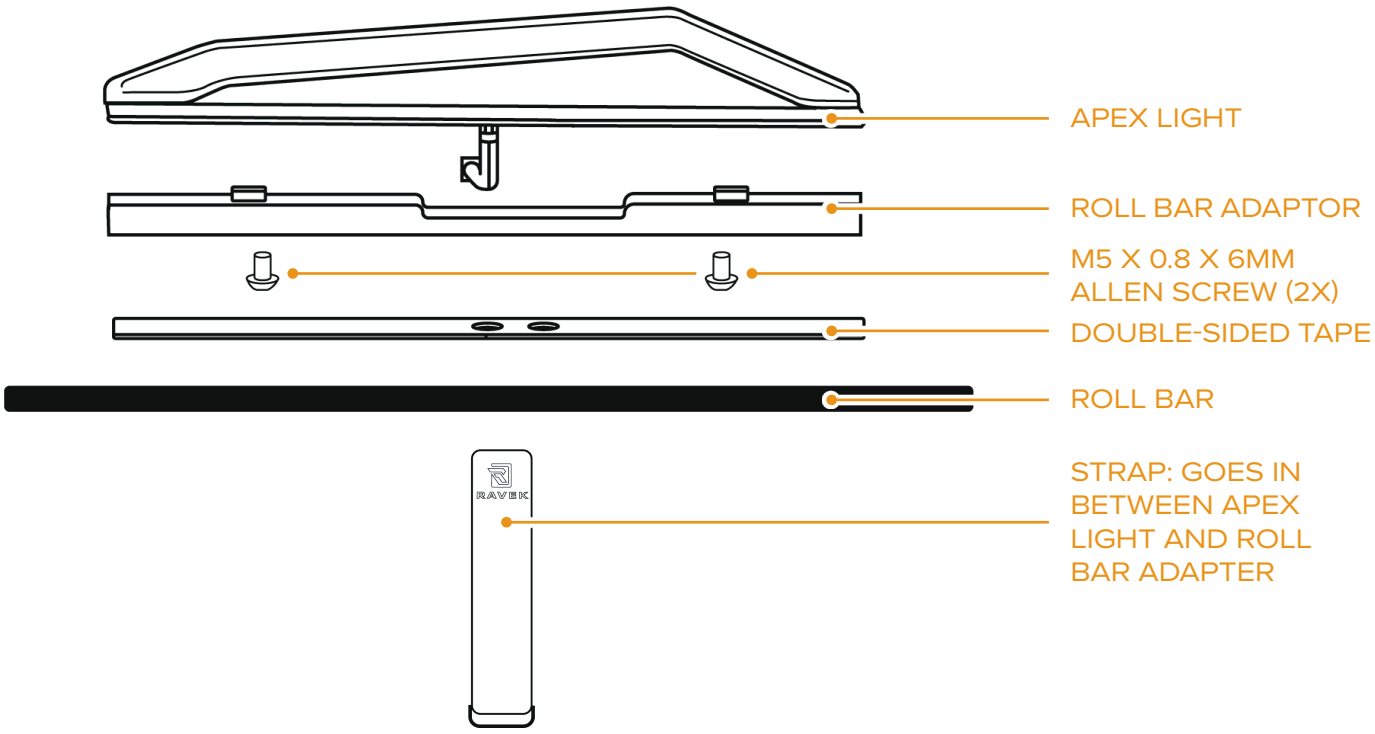
If you have decided to mount your Apex lights to either an exterior panel or to your roof, you now have to decide whether you want to mount your Apex lights via:

a) **Adhesive mount (i.e. no drill) → follow step 9B**

b) **Drill-mount for increased security → follow step 9C**

9A OPTION A - ROLL BAR MOUNTING:

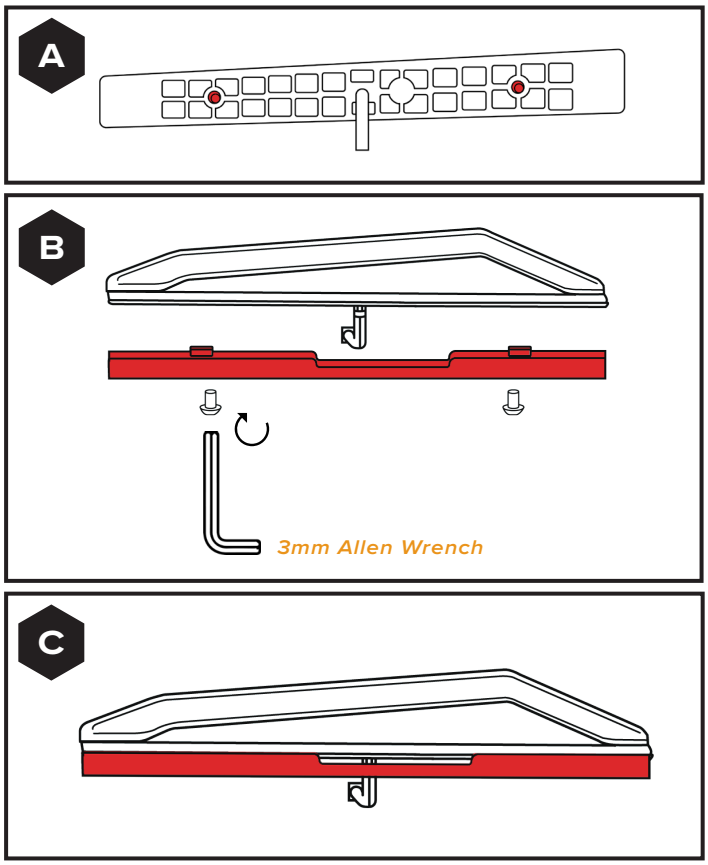
OPTION A DIAGRAM - ROLL BAR MOUNTING



INSTALL ROLL BAR ADAPTOR

Install the roll bar adapter to the base of the light by using two of the M5 x 0.8 x 6mm Allen Screws with a 3MM ALLEN WRENCH. [SEE FIGURES A THROUGH C]

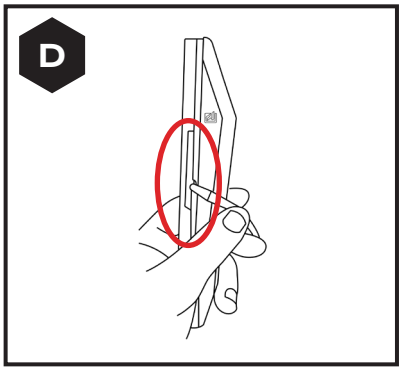
NOTE: Select which side you would like your wire to exit the light that allows you to best hide your wires.



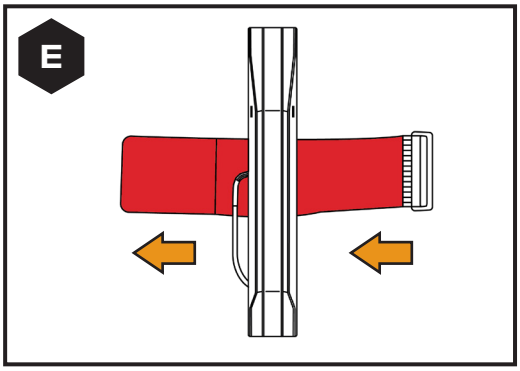
ii INSTALL STRAP

Once the roll bar adapter is secured to the light, install the strap provided through the opening between the light base and the roll bar adapter. [SEE FIGURES D & E]

D



E

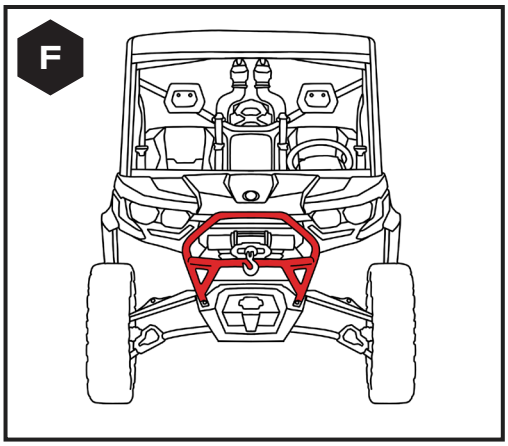


iii WIPE DOWN SURFACES

Before you permanently install your Apex light to the UTV's roll bar you've chosen, wipe down the roll bar and the base of the light with the rubbing alcohol wipe provided and let dry.

Next wipe down the roll bar and light base with the adhesion promoter wipe provided. Let dry. [SEE FIGURES F - J]

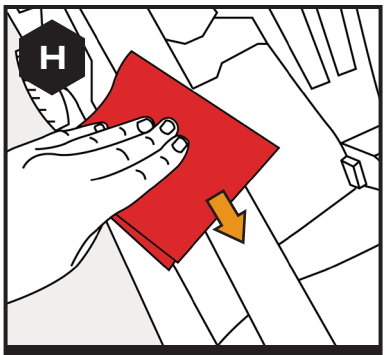
F



G

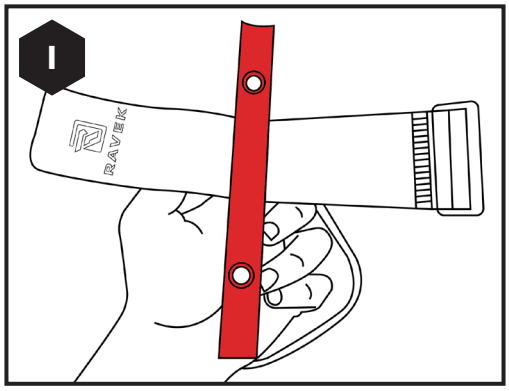
RUBBING ALCOHOL WIPE

H

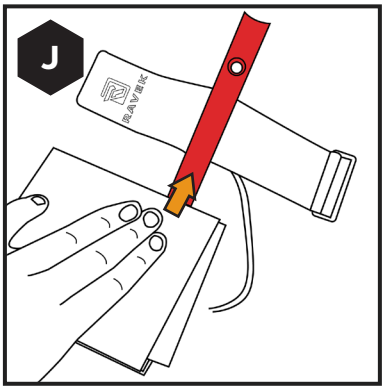


ADHESIVE PROMOTER WIPE

I

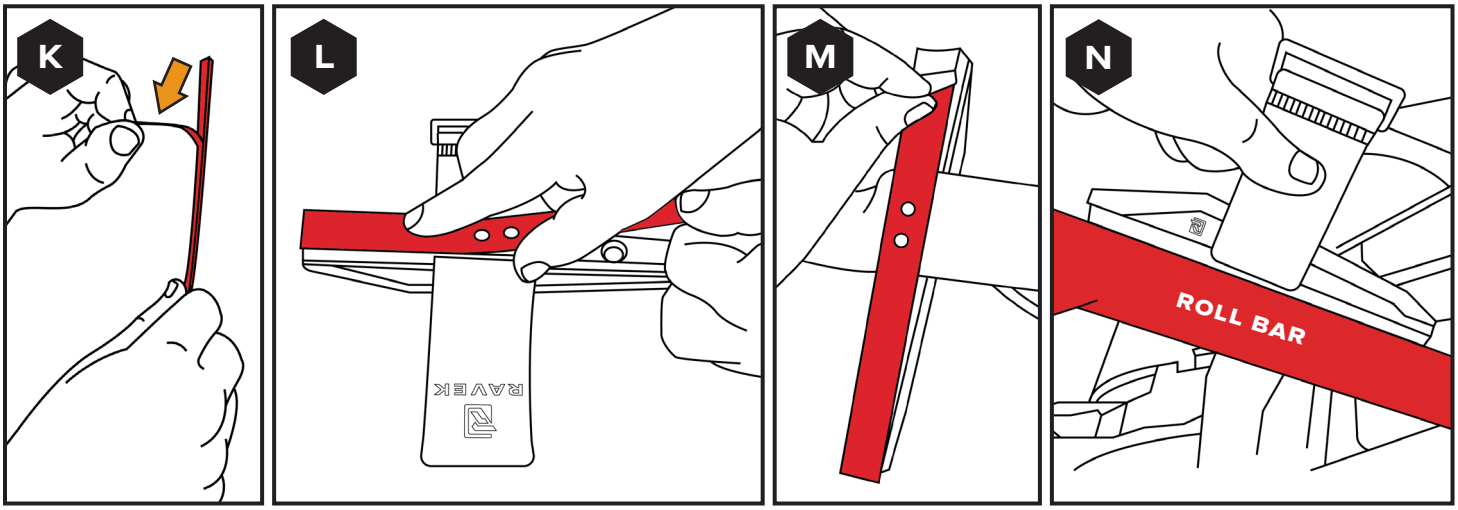


J



iv APPLY TAPE

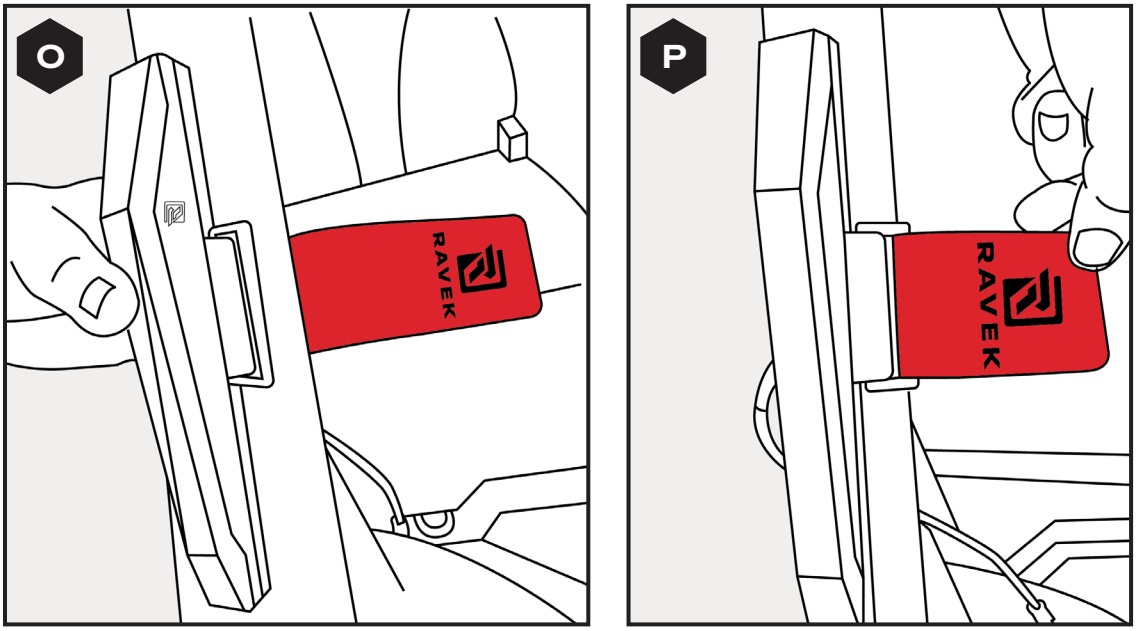
Apply the double-sided tape to the dry Apex light's roll bar adapter, and attach the light to the surface you cleaned and prepared in the prior step. [SEE FIGURES K - N]



v TIGHTEN STRAP

Tighten straps onto base and roll bar. [SEE FIGURES O & P]

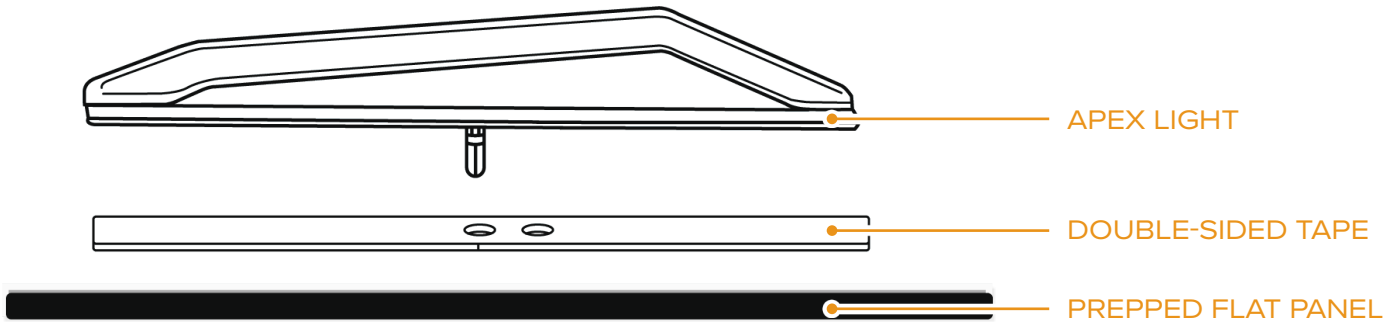
NOTE: If you have excess length of strap you can rotate the buckle away from the slack to reduce the slack in the strap.



JUMP TO STEPS 10-15 TO FINISH INSTALL

9B OPTION B - ADHESIVE ONLY MOUNTING:

OPTION B DIAGRAM - ADHESIVE ONLY MOUNTING

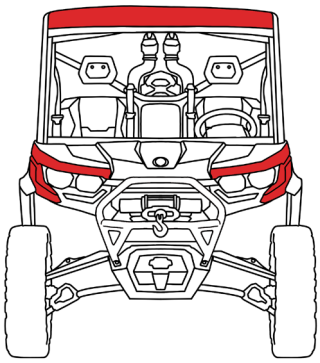


i LOCATE A SURFACE TO MOUNT TO

Locate an exterior panel with 8” of flat surface for mounting. [SEE FIGURE A]

NOTE: If you’re adhesive mounting the Apex Lights to the roof, we recommend drilling a hole to feed the wires through. The Apex Light adhesive creates a water-tight seal.

A

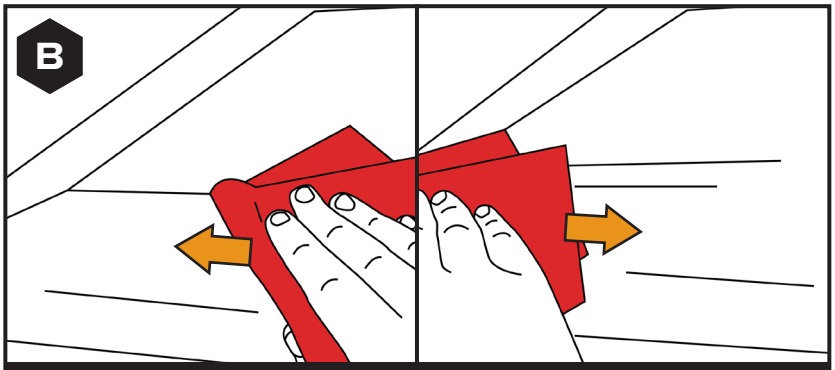


ii WIPE DOWN SURFACES

Before you permanently install your Apex Light to the UTV’s flat panel you’ve chosen, wipe down the panel and the base of the light with the rubbing alcohol wipe provided and let dry.

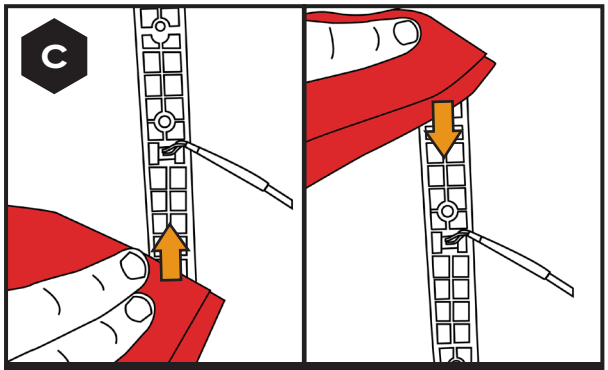
Next wipe down the panel and light base with the adhesion promoter wipe provided. Let dry. [SEE FIGURES B & C]

B



RUBBING ALCOHOL WIPE | ADHESIVE PROMOTER WIPE

C



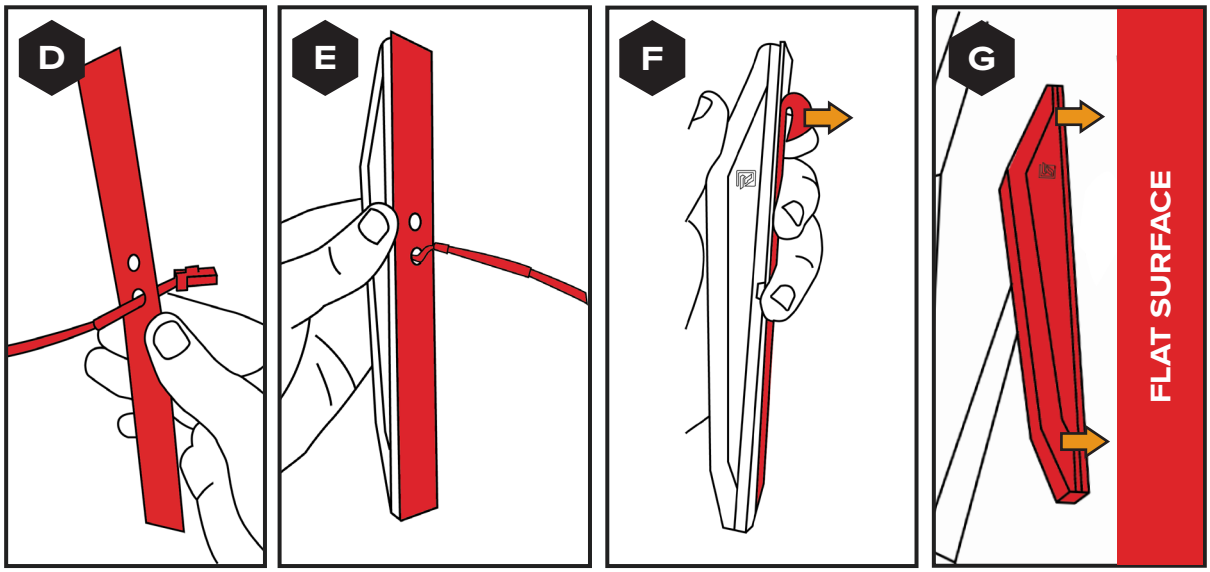
RUBBING ALCOHOL WIPE | ADHESIVE PROMOTER WIPE

iii

APPLY TAPE

Apply the double-sided tape to the Apex light's base and affix the light to the prepped surface. [SEE FIGURES D - G]

NOTE: Be sure the whole light's base is in contact with the surface of the UTV to ensure the light will hold up permanently.

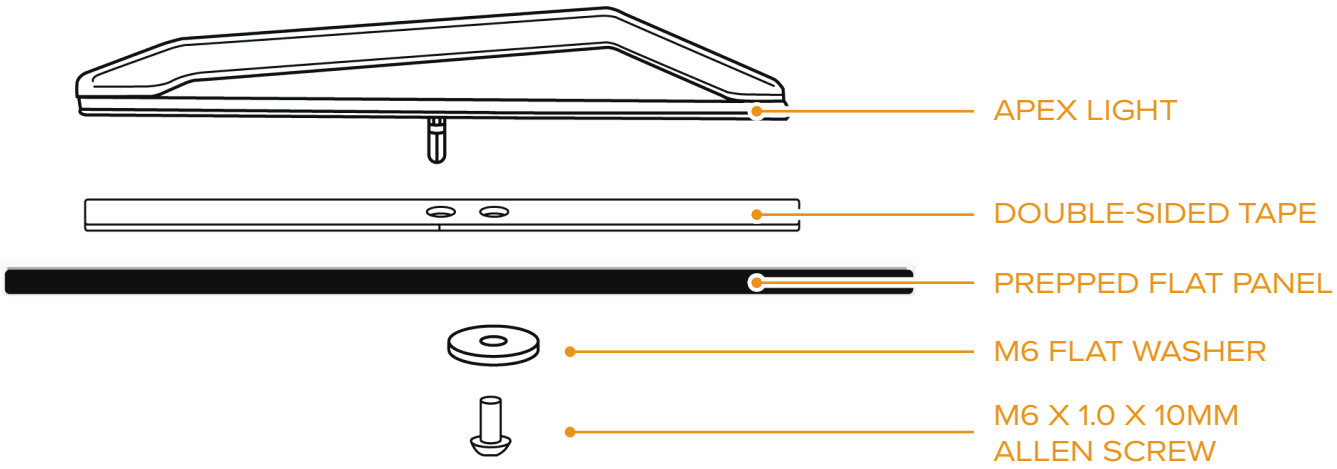


JUMP TO STEPS 10-15 TO FINISH INSTALL

9C

OPTION C - DRILLED AND ADHESIVE MOUNTING:

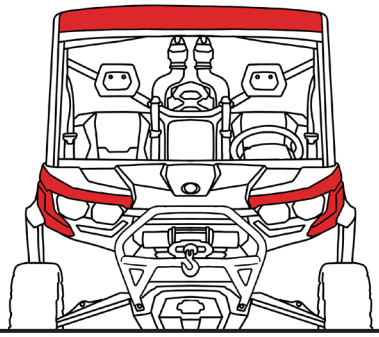
OPTION C DIAGRAM - DRILLED AND ADHESIVE MOUNTING



i LOCATE A SURFACE TO MOUNT TO

Locate an exterior panel with 8” of flat surface for mounting. [SEE FIGURE A]

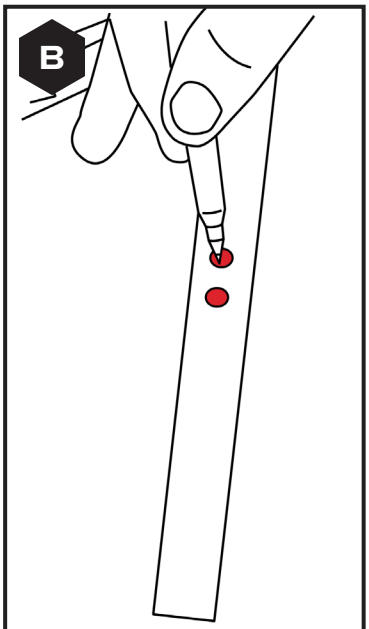
A



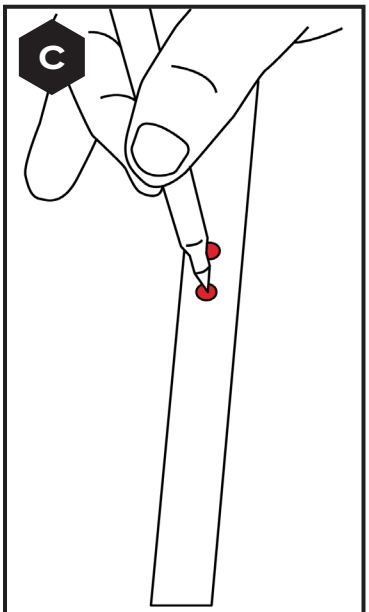
ii MARK HOLES TO DRILL

Use the double-sided tape holes as a template for the drilling locations. Confirm you can access the inside of the panel that you’ll need to be able to access this area with your flat washer. [SEE FIGURES B - D]

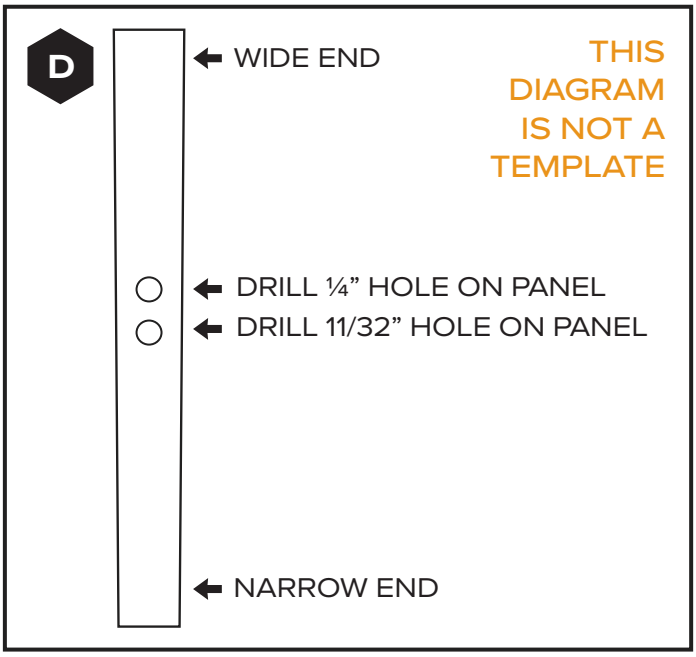
B



C



D



iii DRILL ¼” HOLE

Once you have your holes marked, drill a ¼” hole that will be used to feed the screw through.

NOTE: We recommend using a brad point drill bit to avoid damaging your panel.

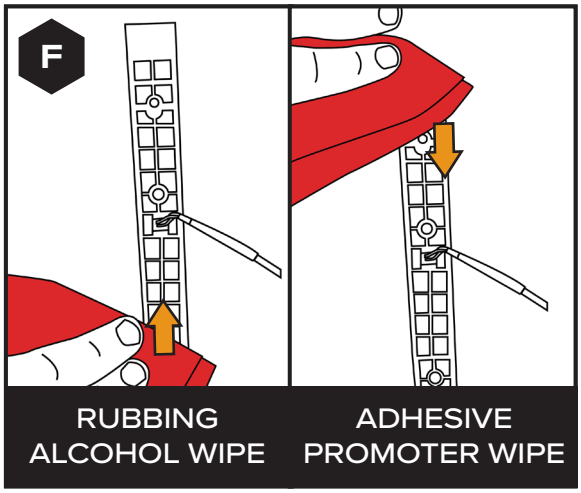
iv DRILL 11/32” HOLE

Drill a 11/32” hole that you will feed the Apex Light’s wire connector through.

v WIPE SURFACE WITH RUBBING ALCOHOL

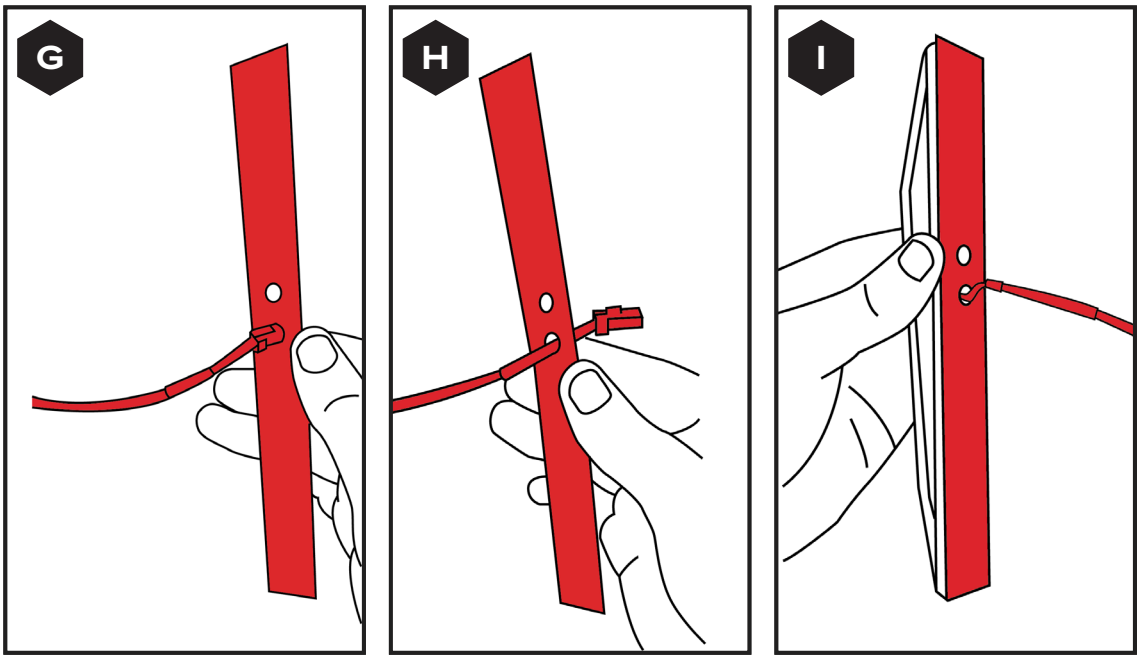
Before you permanently install your Apex Light to the UTV's flat panel you've chosen, wipe down the panel and the base of the light with the rubbing alcohol wipe provided and let dry.

Next wipe down the panel and light base with the adhesion promoter wipe provided. Let dry. [SEE FIGURES E & F]



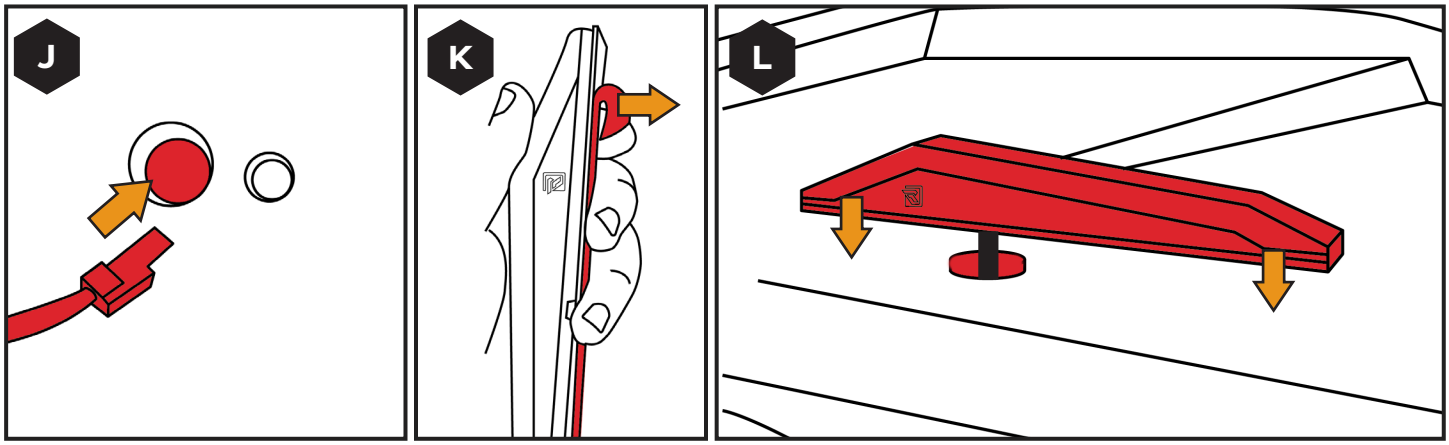
vi APPLY TAPE

Apply the double-sided tape to the Apex Light's base. [SEE FIGURES G - I]



vii ADHERE LIGHT TO PREPPED SURFACE

Feed your light's wiring through the 11/32" hole. Peel away the double-sided tape cover, and stick the Apex Light to the prepped surface. [SEE FIGURES J - L]



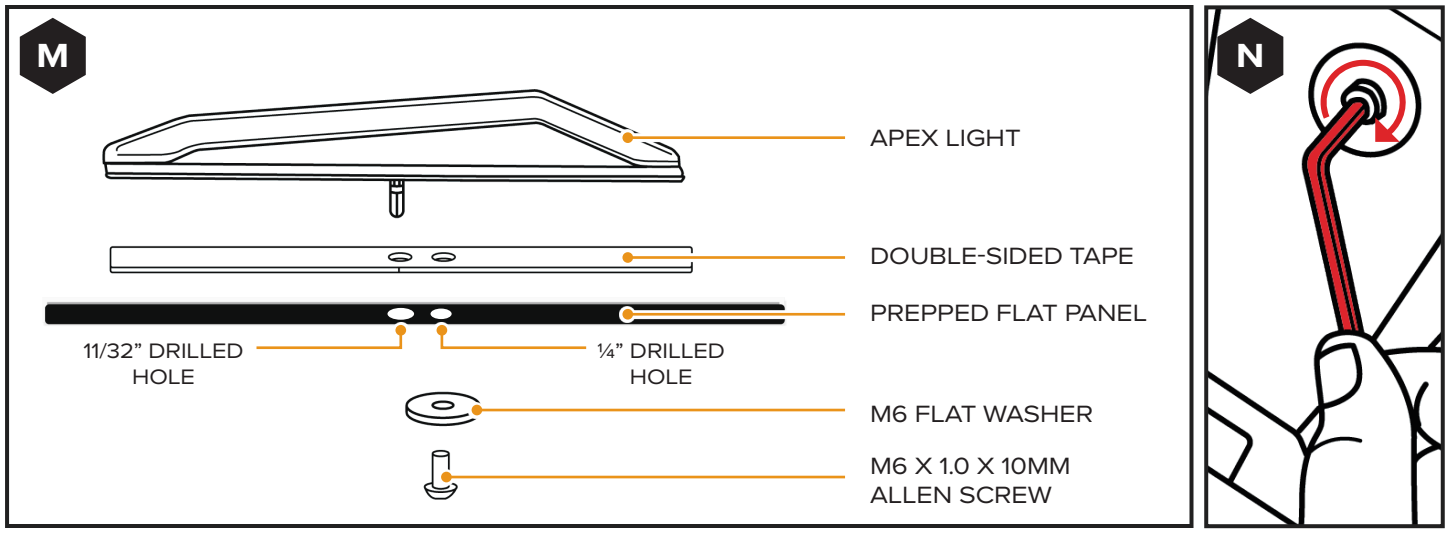
viii THREAD IN SCREW

Thread your M6 x 1.0 x 10mm Socket Allen Screw with an M6 Flat Washer through the backside of the panel into the light's base using a 4MM ALLEN WRENCH. [SEE FIGURES M & N]

NOTE: If a longer screw is required, you have two options:

1. Give us a call or email, and we will express mail you a screw of the length you need.

2. Go to your local hardware store and purchase a M6 x 1.0 x (your desired length).



JUMP TO STEPS 10-15 TO FINISH INSTALL

10 INSTALL YOUR ROCKER SWITCHES

i

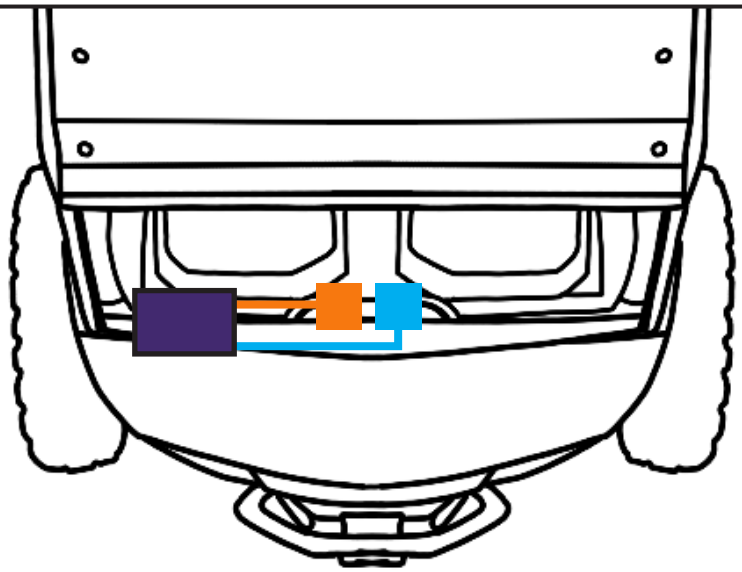
• Grab your Turn Signal rocker switch and extension wire. Feed the extension wire through your chosen open slot in your switch panel.

• Route the small plug on the extension wire to the controller and plug it into the controller. [SEE FIGUIRE 10A]

NOTE: The easiest way to route the extension wire is through the rocker switch open slot, and to the controller, as described above.

NOTE: Repeat this process with the Horn/Hazard Switch extension wire.

10A



HORN/HAZARDS ROCKER SWITCH AND EXTENSION HARNESS

TURN SIGNAL ROCKER SWITCH AND EXTENSION HARNESS

CONTROLLER

11 INSTALLING YOUR HORN

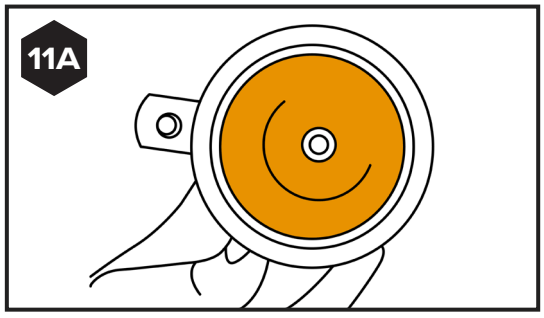
i

Return to the Turn Signal Controller and route the Horn Extension harness to the front of the Defender, where you will permanently mount the Horn reusing an OEM bolt that you select.

ii

Grab your horn from the kit once your wiring is fed to the front area. [SEE FIGURE 11A]

11A

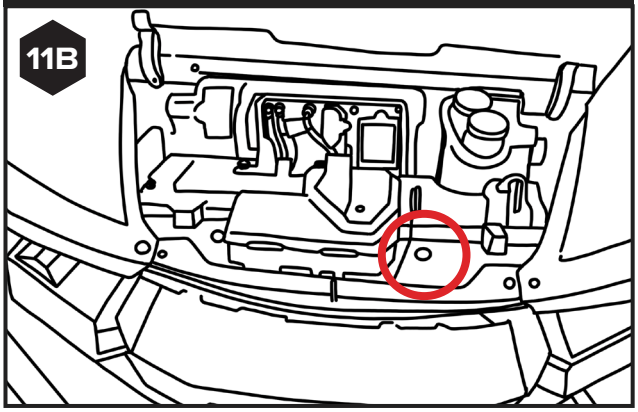


iii

Install the horn in an open area that is out of the way of suspension or moving parts of the Defender, reusing a bolt location you choose on the front of the defender. [SEE FIGURE 11B]

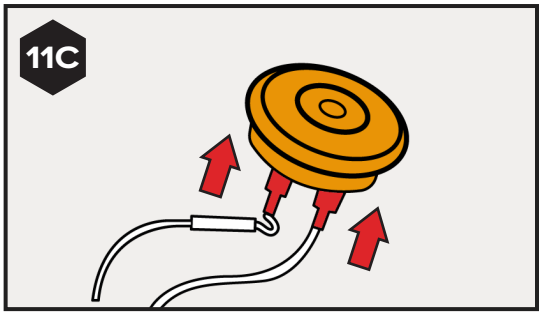
NOTE: We recommend installing it on the front end of the Defender using the screw highlighted in figure 11B. [SEE FIGURE 11B]

BOLT SHOWN LOCATED UNDERNEATH FRONT CENTER HOOD PANEL



iv

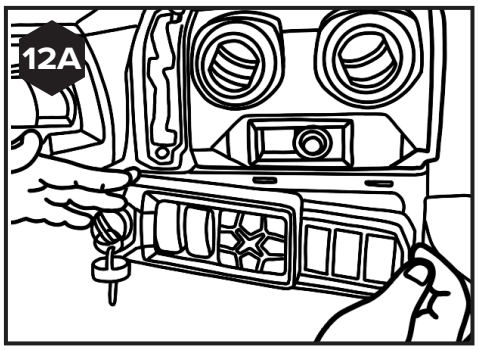
Plug both spade connectors from the extension harness to the connectors on the backside of the horn (no specific connector to plug into). [SEE FIGURE 11C]

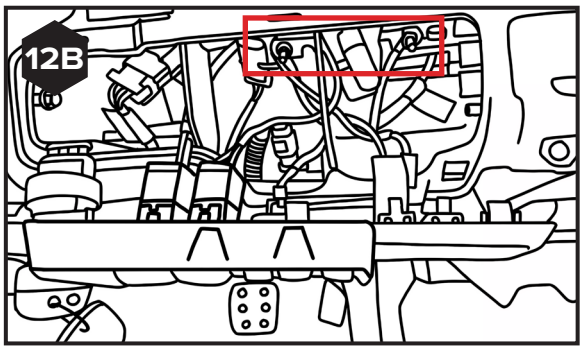


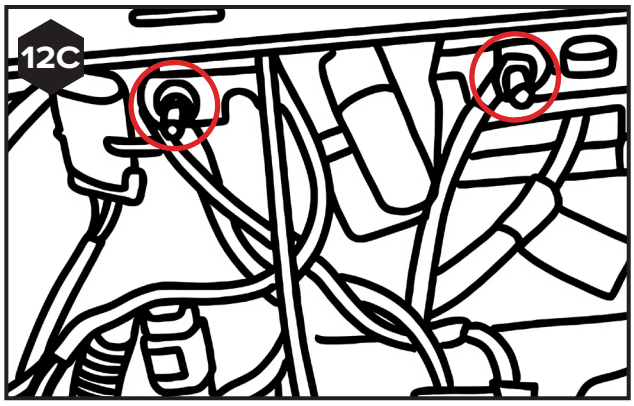
12 HOOK UP YOUR TURN SIGNAL CONTROLLER TO POWER

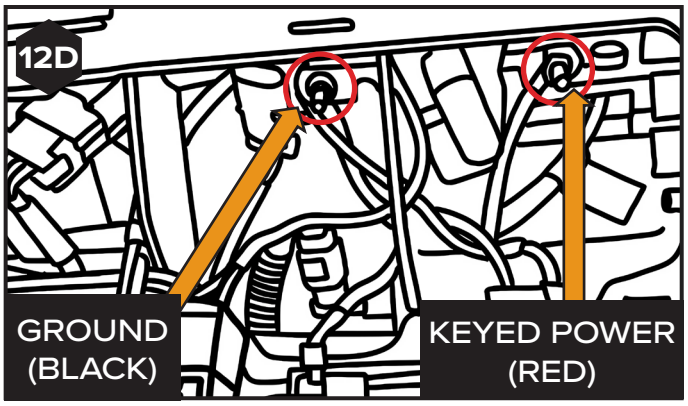
i

Return to the Turn Signal Controller and hook up your Power Harness supplied to the negative (black wire) ring terminal to the far-left terminal, and the positive (red wire) to the far-right terminal on the bus bar. [SEE FIGURES 12A -12D]





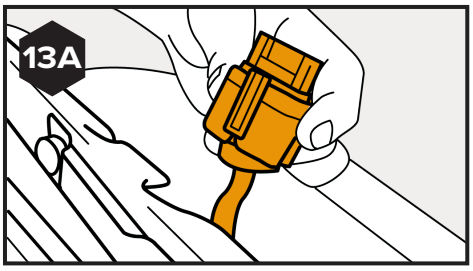




13 INSTALL DASH INDICATORS

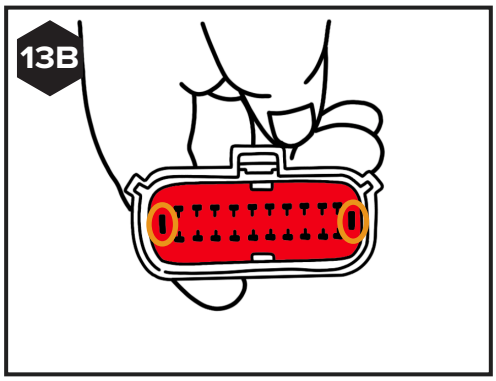
i

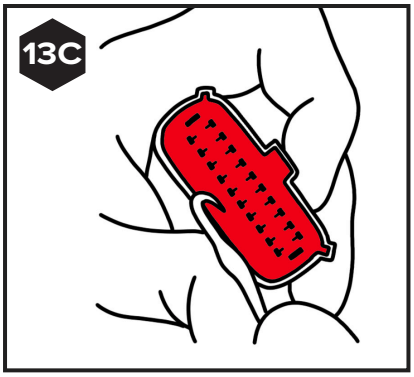
Grab the connector that was once plugged into the instrument cluster. [SEE FIGURE 13A]

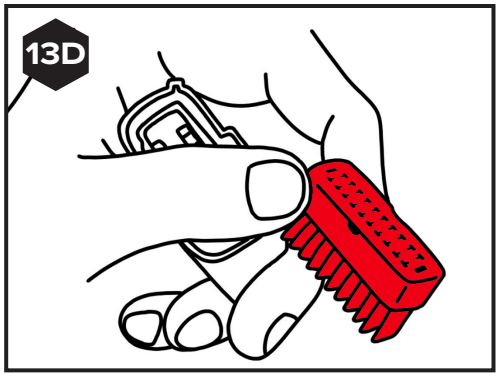


ii

Remove the white pin cover. First, release the cover by depressing the two tabs at each end of the connector using a PICK. Once tabs have been released, completely remove cover by carefully prying it out using a PICK. [SEE FIGURES 13B - 13D]



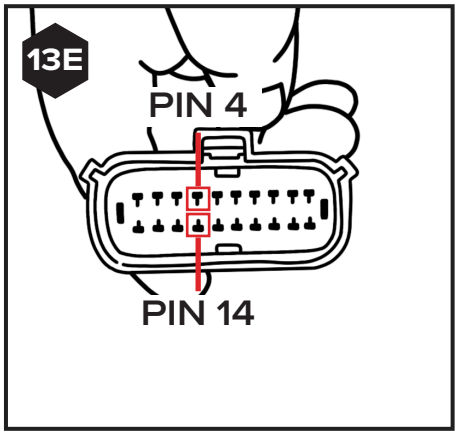


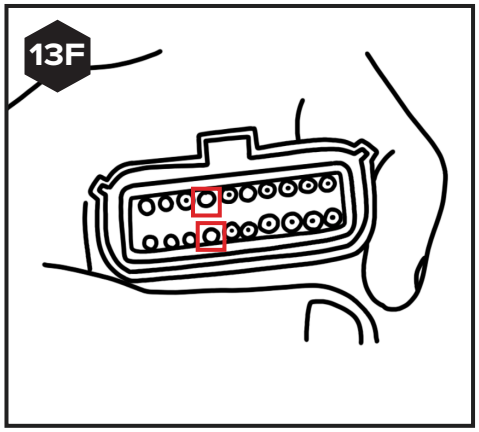


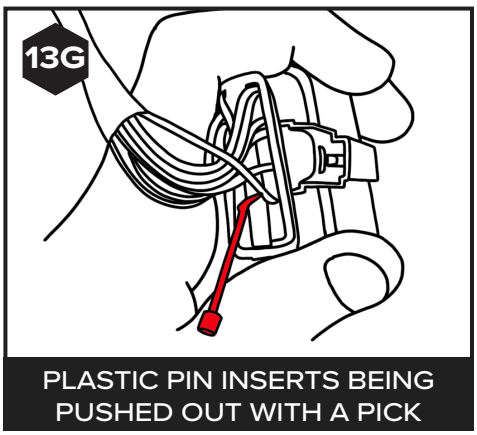
iii

Remove the plastic pin inserts on terminals 4 and 14 by pushing them outward from wire side of the plug. [SEE FIGURES 13E & 13F]

NOTE: Pin locations are not labeled on the connector but use figure 13E as a guide. (4th pin on the top row and 4th pin on the bottom row looking at the connector with the push tab facing up) [SEE FIGURES 13E – 13G]



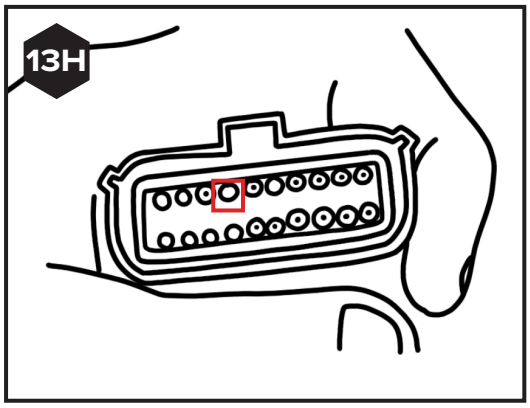




PLASTIC PIN INSERTS BEING PUSHED OUT WITH A PICK

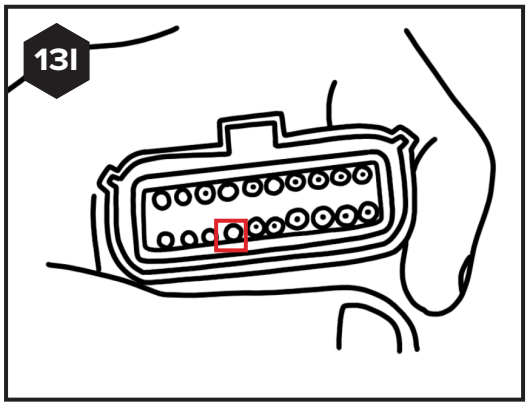
iv

Grab your RIGHT DI wire, insert the pin from the wire side of plug into terminal 4, and verify it lines up evenly with the other pins. [SEE FIGURE 13H]



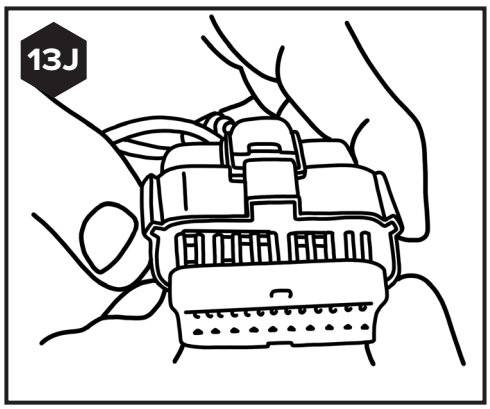
v

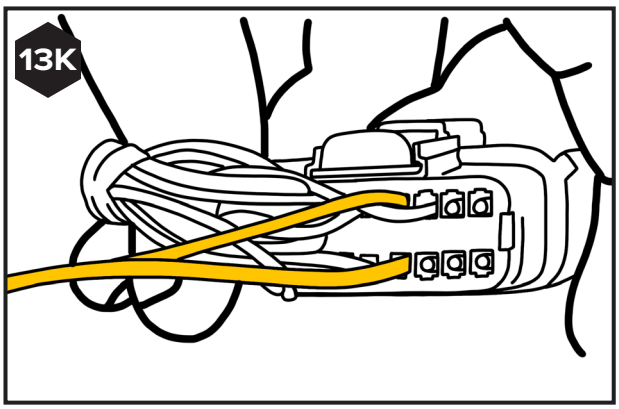
Grab your LEFT DI wire, insert the pin from the wire side of plug into terminal 14, and verify it lines up evenly with the other pins. [SEE FIGURE 13I]



vi

Once pins are precisely inserted into their respective terminals, you may snap the connector back to its default closed format and reinstall the white cover previously removed, by clipping it into place. [SEE FIGURES 13J & 13K]





14 VERIFY THE FUNCTION OF THE KIT

i

Now it's time to confirm the kit is working as designed, but before reconnect your battery by reversing step 1.iv.

With you battery connected turn your Defender's Power on, and test all the kit's features:

- **Running brake lights**
- **Running white lights**
- **Brake light w/ pulse effect**
- **Left turn signal → 15 second auto cancel**
- **Left turn signal dash indicator (in gauge cluster)**
- **Right turn signal → 15 second auto cancel**
- **Right turn signal dash indicator (in gauge cluster)**
- **Hazards**
- **Horn (plug your ears)**

15 TIDY UP YOUR MACHINE

i

Once the function of the kit is verified and everything is working appropriately, go over all your connection points and heat shrink them (if you have not done so already) as mentioned in step 3.

ii

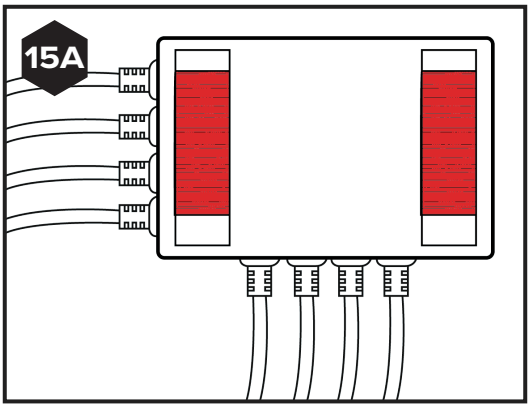
Use the zip ties supplied in the kit, secure all of your wiring to frame tubes or roll bars (away from hot or moving components).

iii

Once all of your wiring is secured with the help of the zip ties, cut all the excess zip ties using side cutter pliers.

iv

Place the two strips of double-sided tape provided in the kit on the backside cavities on the controller. [SEE FIGURE 15A]



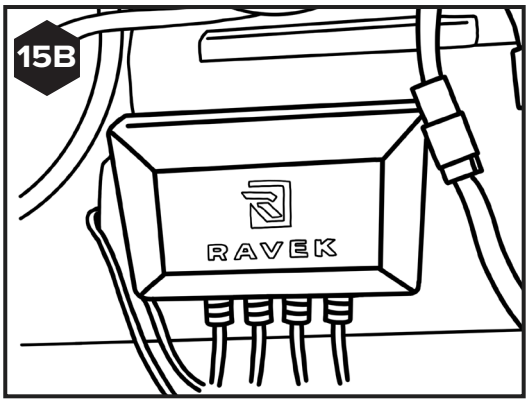
v

Locate a nice flat surface to stick the controller to. Clean the surface with the Rubbing Alcohol Wipe and Adhesive Promoter Wipe provided in the kit, and let dry before continuing.

NOTE: We recommend placing your controller behind the passenger storage compartment area removed in step 1.vi.

vi

Once the surface is clean and dry, stick your controller to your chosen location and let the tape cure for 24 hours before riding. [SEE FIGURE 15B]



vii

Reverse steps 1.i - 1.viii to reinstall all of your Defender's body panels and parts that were previously removed.

RAVEK

BUILT FOR MORE

WHY RAVEK

Stock UTVs don't come with enough storage, lighting, comfort, and protection. That's why we started RAVEK.

We live to design, manufacture, and test innovative SxS upgrades that elevate the riding experience. Here's what you can expect from us:

- Durable products built to last (100% lifetime guarantee)
- UTV upgrades thoughtfully designed & tested by riders
- Outstanding installation support (videos & USA customer service)
- Constant flow of epic riding content (check out our social media)

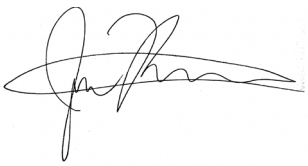
We're confident your RAVEK product will earn its place on your machine. Please call or e-mail us if we can help.

- Harry & Ricky (Brothers & Owners)

MESSAGE FROM THE DESIGNER

All UTVs come without turn signals, and even though you can ride them on the road, people need to make hand signals to indicate to other riders that you are making a turn! Not only is it tiring, but not safe!

That is why I created this kit: you can easily install a turn signal kit to your UTV, add some personality to your ride, and make your ride safe at any time of the day.



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