INSTALLATION GUIDE

Pickup Truck Under-Glow Light System
Optional Wheel Wells, Grill, Bed Light kit

With our EASY ORDER Under-Glow Pickup Truck LED Light Kit each kit comes with a one page CUT SHEET. That document lists the LED strips specific to your order.

IMPORTANT! No two installation scenarios are the same. Accent lighting is highly subjective. Not everyone shares the same lighting or installation quality goals. Some folks are OK with twisting wires together, others want to solder and heat shrink them. Some folks are OK with running wires where they may be seen or unprotected to save money/time, others want a tidy, clean install so they wrap plastic split-loom around all exposed cables. Some folks are OK with mounting their LED strips to whatever surface they can find, others want to take the time necessary to build out appropriate mounting surfaces to provide the best lighting effect on their vehicle and maximize the longevity of their lighting system. The point is it's not possible to provide all the materials necessary for all installation scenarios on all types of vehicles to meet everyone's quality goals. Our light kits provide the essential components needed for a high-quality, functioning lighting system. Installation of our light kit to your specific vehicle will however likely require additional items to make it look, fit and work the way you want. This is particularly the case with electrical wiring, switching functionality and mounting surfaces for the LED strips. We have created a list of additional items you may need. Here's the link: **https://www.boogeylights.com/other-items-you-might-need/** . While we offer them for sale you can also find these items locally. We urge you to review this information before starting your install.

BENCH TEST YOUR LIGHTING COMPONENTS FIRST

We know this takes a few extra minutes, but we STRONGLY suggest you bench test your lights AND your controller / switches on a table before doing anything further. While we test every light strip and controller before shipping, bench testing your lights will eliminate the possibility of any problems with the lights or controller before mounting. It also lets you know everything is working properly. Also, the process of bench testing gives you an opportunity to understand the wiring system without interference from other wires, connectors and cables. You can use any 12vdc battery to do this (e.g. car battery, motorcycle battery, lawn tractor battery or 12vdc power supply). Bench testing takes an extra 10 or 15 minutes. It's simple to do and can potentially save you hours of time and frustration down the road.

Did we mention the importance of bench testing every LED strip and controller first?

THIS IS A GUIDE. NOT A HOW-TO. It's simply not possible to provide detailed instructions for all installation scenarios. Far too many variables. The information in this document is intended to be used as a guide. It is not a detailed step-by-step how-to installation manual. We do not spell out every single step along the way. We cover the essential steps related to installing this kit. Beyond that we assume the installer has the skills, knowledge and tools necessary to do the work using the information we provide as a guide. You may need to vary your installation and/or make adjustments based on your vehicle. This is particularly the case with led strip mounting locations, electrical wire routing, electrical connections, electrical load sizing and switching. If you're unsure about how to do the installation – particularly the electrical components – we urge you to seek assistance from someone who has those skills.

YOU MUST HAVE AN UNDERSTANDING OF 12V POWER. An essential skill with installation of any Boogey Lights LED products is knowing how to correctly wire the product to a 12vdc circuit. This includes understanding the importance of having a properly sized fuse at the power source, polarity, how to properly seal an electrical connection, using properly sized wire gauge for the load, measuring voltage and measuring the additional amperage draw you're adding. If you are uncertain or unfamiliar with any of these concepts, we urge you to ask someone who has the knowledge to assist you. Electricity is unforgiving.

WORK AREA. Make sure you have ample area in which to work and that the area is protected from rain or cold temperatures. The 3M adhesive tape and 3M adhesion promoter works best if applied when the air temperature is above 40 degrees (and of course is DRY).

MOUNTING SURFACE CONSIDERATIONS. . How and where you mount your LED strips will for the most part determine the longevity of your lighting system. If you mount the LED strips to smooth, clean, continuous, straight, flat surfaces as we recommend, you can expect your lighting system to last for many years. If however you try to save installation time by bending the strips around corners/curves, mounting them on uneven/split surfaces, mounting them to rusty/dirty/greasy surfaces or mounting them in locations where they're likely to be damaged by road debris, chances are high the LED strips won't last very long (and failures under these circumstances are not covered under warranty).

Make sure you have adequate surface area where to affix the LED light strips to the bottom of your truck. When deciding on where to mount your lights, keep in mind that the mounting surface needs to be smooth, flat, straight and rigid. The strip itself cannot span multiple mounting surfaces nor can it bend around corners or be installed on top flanges, welds, brackets, gussets or cables. EVERY INCH OF THE LED STRIP MUST MAKE CONTACT WITH THE MOUNTING SURFACE. If you don't have a straight, smooth flat mounting surface, we suggest installed some aluminum or plastic flat bar first. Then, mount the LED strip to that aluminum or plastic surface. Also, the mounting surface must be free of grease and other solvents. We suggest mapping out your install before proceeding so you know where each LED strip will go. The good news is that most pickup truck chassis' have sufficient smooth flat surfaces to mount the LED strips. At the end of this document we include some photos of installations we've done to give you an idea of what's possible.

MOUNTING LOCATIONS. In our experience, each truck is a little different. There are no hard and fast rules when it comes to what looks best. And of course, not everyone has the same lighting objectives. For example, our #1 rule when we do installations is to mount the LED strips in locations where the LEDs themselves cannot be seen. We believe the end result looks much better if you can only see the glow

from the LED strips – not the LEDs themselves. Not everyone agrees with this guiding principle though. We leave it up to the customer to decide.

While we typically will mount the under-glow LED strips to the truck's chassis (see photos at the end), if your truck has running boards, you might want to consider using those running boards as the mounting surface. It kind of depends on the style of running boards though. Light we said, accent lighting is very subjective. In some cases you'll get a better glow by using the running boards as a mounting surface. If those running boards move in/out when the doors are opened/closed, you'll need to pay close attention to that movement to make sure you leave sufficient room for the power lead cable to move as well as making sure you don't have any pinch or crush points. If you're not sure what to use as the mounting location, we strongly suggest dry mounting the LEDs first to the truck using some electrical tape or similar. Then, light up the LED strips with a 12vdc battery to see how it looks. We do this all the time with installations when we aren't sure how the lights will look. Dry mounting gives you the ability to test multiple mounting locations to see which location looks the best for the lighting look you're trying to achieve.

LOW PROFILE OR HEAVY DUTY. This pickup truck under-glow light kit offers both Low Profile and Heavy Duty LED strips. Our Low Profile LED strips can be cut every 3 LEDs if needed to fit. Details on how to do this are further along in this guide. If you upgraded to the Heavy Duty strips, be aware they cannot be cut. However kits with Heavy Duty LED strips will include more strips because the Heavy Duty LED strips are not a long.

POWER AND SWITCHING. For power, you'll need access to 12vdc. For most pickup trucks, the battery is located under the hood in the engine compartment. We strongly suggest connecting directly the battery. Our kit includes the fuse holder and battery lug to do this. We do not suggest attempting to connect this light kit to an accessory terminal. Why? Most of these pickup truck light kits will pull more than 10amps – some up to 20amp depending on the configurations. Always safer to connect directly to the battery. If you want to be able to disable the lighting system from working when the truck isn't on, add a 25amp shut off switch or a heavy duty relay into the circuit that powers the lights. If you aren't sure what we are referring to here, you probably should consider asking someone who has more 12vdc power circuit design experience to assist you with this part of the installation.

If you're installing an LED controller we suggest mounting it in the engine compartment as close to the battery power source as we can get it (but safely away from any moving parts). Our experience has been you can usually mount the controller within 18" or less of the battery. If your light kit includes a controller, we also include a wiring diagram for that controller (you can also download it directly from our website). Be sure to review it before installing. If you're installing a switch, the type of switch you purchased will determine the mounting location. If it's a RF wireless switch, you can mount the receiver component (with relays) wherever the power is connected to the lighting system. If it's a wired on/off (or on/off/on), you'll need to run wires from the dash of the truck to the relays wherever you're making your power connection to the lighting system.

POWER LEAD ROUTING. Our light kit includes additional power lead wire that connects the LED strips to the controller. How much of it depends on which kit you purchased and whether or not you're using a Single Zone LED Controller vs Dual Zone. Important to make sure you're routing the power leads along

the bottom of the truck in such a way as they won't fall off, won't melt (e.g. too close to a hot exhaust) or get twisted up with other moving parts. Where possible, we like to route our power lead wires with other wiring and cabling. For most pickup truck installations, we'll route the power leads up from the bottom of the truck under the engine bay and connect them to the controller there. Just make sure you wrap the power lead wire in split loom and secure the wire so it doesn't move or touch hot components.

WHEEL WELL LEDS

If you purchased the optional WHEEL WELL LED strips you'll notice these LED strips are encased in rubber. We use our HEAVY DUTY LED product for wheel well lighting due to the close proximity of the tires to the lights. Our Heavy Duty LED strips are designed to withstand the impact of a rock strike whereas our standard low profile led strips are not.

Placement

For maximum lighting effect we prefer to mount the Heavy Duty LED strip straight up from the tire and off set a little toward the outside wall of the truck. This minimizes the possibility you'll be able to see the LED strip directly and instead, only see the glow from the LEDs flooding the tire/wheel well area. You'll have to take a look at your truck to see what's possible. If you're not sure what looks best, we suggest first dry mounting a strip to see how you like the look. You can usually use duct tape to temporarily hold the LED strip in place for this purpose.

Mounting

The biggest concern with mounting wheel well led strips is making sure they stay stuck. The last thing you want is for the LED strip to come lose while you're going down the road and wrap around the wheel/axel. Take a look at your truck's wheel wells. Some wheel wells are under-coated which can make it difficult to get the LED strips to adhere to the surface without first having to scrape the under-coating away and/or screwing the LED strip to the wheel well at each end. Others have a type of material covering the wheel well surface itself. In this case you may need to cut that material away first to get to the smooth surface beneath it. The key is making sure the surface is clean, free from grease/dirt/oil and smooth. We include more detail about this below.

If your truck is under-coated, we suggest scraping off that under-coating just enough to fit the LED strip. You can cover any bare metal you happen to expose in this process using Butyl Tape, Silicone or other similar substance after the LED strip is mounted. As always, make sure you prep the surface first with 3M Adhesion Primer. If you have room in the wheel well area, we also suggest adding a screw or rivet to each end of the Heavy Duty LED strip for extra holding power. It's not always possible however to do this due to the lack of space (unless of course you remove the entire wheel to do this in which case we highly suggest you add that screw or rivet to each end).

Wiring

Our Heavy Duty LED strips come with a 36" power lead. For use in the wheel well you're likely going to have to extend that power lead another 5 or 10 feet depending upon your setup. You can use the feeder cable we provide to do this. For these kind of extensions we prefer to tightly twist together the bare copper wires and then heat shrink over them to keep the connection point as thin as possible. You

can however also use a butt connector or closed end crimp on connector to do it too. In most cases the wheel well LEDs will wire into the feeder cable connection. See layout diagram for the suggested connection point.

If the wheel well mounting surface is a felt material, it becomes a little more challenging since you cannot mount the LED strip directly to that felt material. Here are the options for these installations (in our order of preference):

1. Cut out the felt material and install the LED light directly to the surface beneath the felt. This works well if that felt material and the underlying surface are connected to each other or very close together. If however there is a gap between the two surfaces, it's not a good idea since that felt material is likely going to a) block some of the light impacting the overall look and b) will move enough that it will eventually damage the LED strip by constantly rubbing against it.

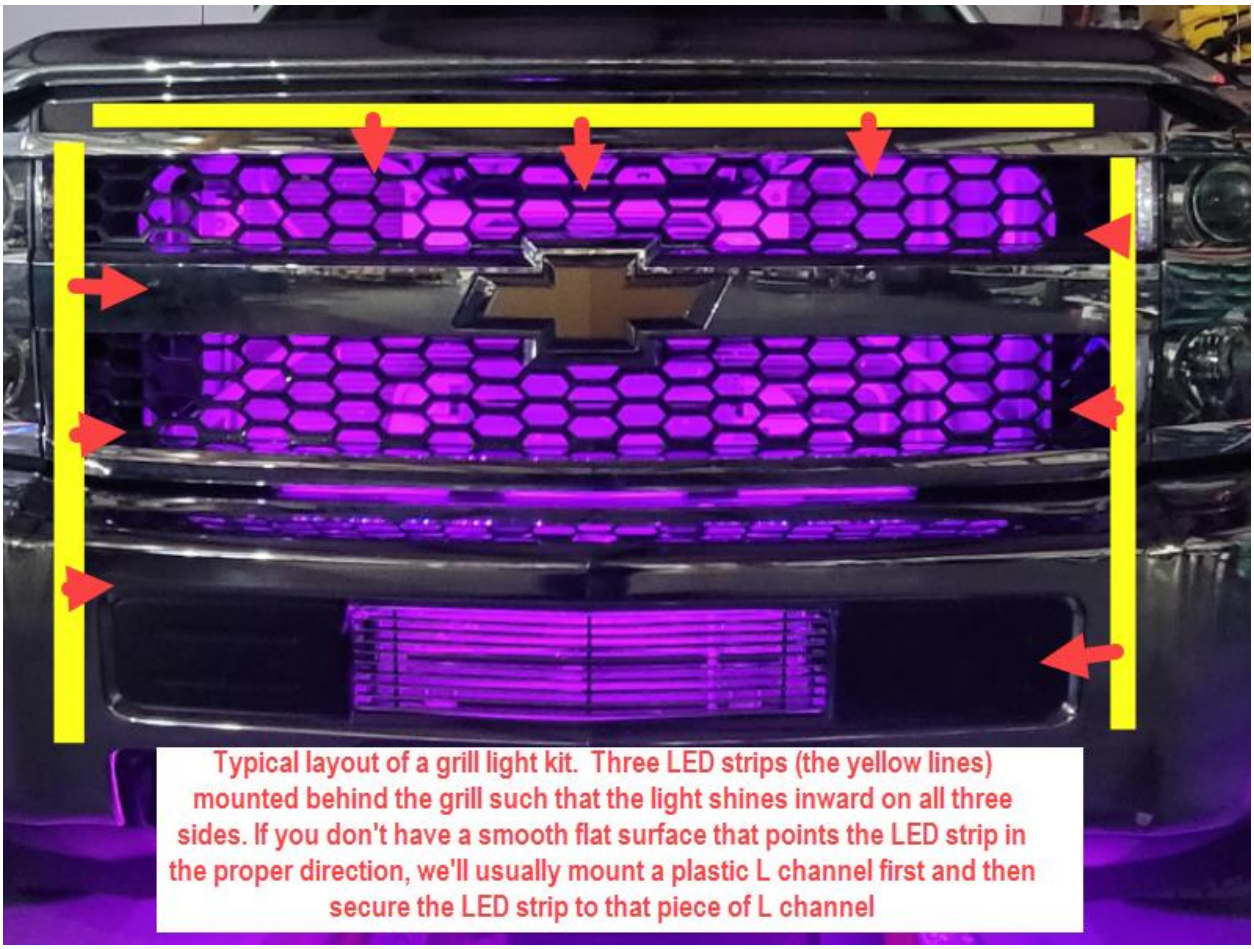
2. Mount the LED strip to some flexible plastic flat stock and then mount that plastic flat stock assembly to the felt inside the wheel well using wire and/or zip ties. In some cases, we'll even screw or rivet that plastic flat stock to the underlying service

3. Mount the LED strip directly to the felt material using zip ties. This ONLY works for our Heavy Duty LED strips.

GRILL LIGHTS

If you purchased the optional GRILL LED LIGHTS, your kit will include 2 or 3 additional LOW PROFILE LED strips depending on your truck. The kit will also include one Male-Female quick-disconnect for the grill lights. For many pickup trucks you don't have to remove the grill from the truck however you will likely have to remove some of the plastics on top of the grill area to give you room to access the back side of the grill. If you do have to remove the grill, use the supplied M-F quick-disconnectors to make future grill disassembly possible without damaging the LEDs that are mounted inside it. Here too the goal is to find mounting locations on the inside of the grill where the LED strip cannot be seen; only the glow from the LEDs should be visible. Placement of these LED strips will vary from truck to truck but generally we try to mount one led strip on each side of the grill (shining inward toward the center) and one at the top of the grill (space permitting) shining downward. We include some photos of this placement at the end of this guide where the grill is removed. Regardless of the mounting location for the led strips, it's important the power lead wires from these LED strips be wrapped in split loom and carefully routed back to the power source/controller in the engine bay. Make sure too to secure the powers leads, particularly in the area where the radiator fan and other moving parts are located.

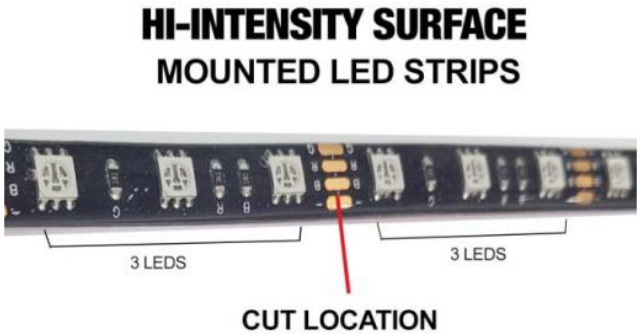
Note: If the inside of your grill area doesn't have a mounting surface sufficient to orient the LED strip shining inward, try mounting a piece of plastic L channel first. Then, mount the LED strip to that plastic L channel. You can purchase plastic (or aluminum) L channel at just about any big box store or we offer for sale too.



Typical layout of a grill light kit. Three LED strips (the yellow lines) mounted behind the grill such that the light shines inward on all three sides. If you don't have a smooth flat surface that points the LED strip in the proper direction, we'll usually mount a plastic L channel first and then secure the LED strip to that piece of L channel

CUTTING YOUR LEDS

If you need to cut your LED strip you can do so as long as you cut in the proper location – which is every three LEDs as shown in the photo. Cutting incorrectly could damage your lights and is not covered by the warranty. If you cut the strip, be sure to seal the cut end. You can also use silicone found at your local hardware store. If you do need to cut your LED strip, we strongly suggest doing so BEFORE you mount the strip to your car. **NOTE: Heavy Duty LED strips CANNOT be cut. LOW PROFILE only.**



The LED strip can be cut one time on the copper solder pad where indicated; between the cluster of 3 LEDs. Important to cut in the center of the copper pads. Once cut, the end must be sealed using silicon, liquid electrical tape or even heat shrink to stop water intrusion from damaging the strip.

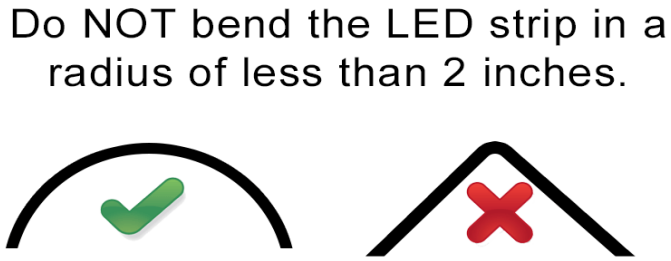
TRUCK BED LIGHT KIT

If you purchased the optional truck bed light kit, your kit will include two additional Low Profile LED light strips. For most truck beds, typical placement of these LED are underneath the truck bed side rails; one on each side of the bed. We include a photo of this placement example in this guide. How you run the power lead wires depends mostly on how you're going to switch these LED strips. For most bed lights, the lights are used as functional lighting (e.g. white). In that case there's either an on/off switch somewhere near the tail gate or a wireless on/off. How you're switching your lights on/off will determine where the power leads are run. When we install bed lights for customers, most cases we install a separate on/off wireless remote. In that case we run the power leads down behind the cab (between the cab and bed) and up to the engine bay where the on/off wireless remote connects to the battery. Ultimately you'll need to decide how you're going to use your bed lights which will determine how best to run the LED strip power leads.

Note: Our LOW profile LED strips can be cut every 3 LEDs if needed.

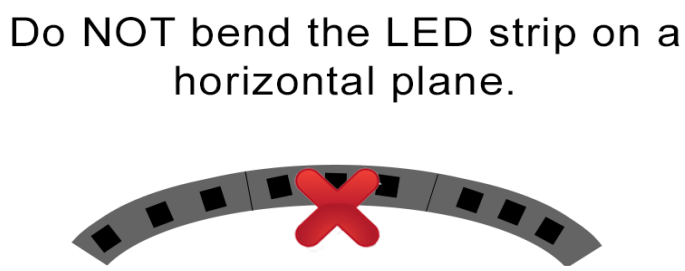
MOUNTING THE LED STRIPS

Once you have your LED strips cut (if necessary) and you know where you are going to attach them, follow these steps:



- The area where you are mounting the LEDs has to be clean: free of all dirt, oil or anything that might affect the LED from sticking. You only get one opportunity to mount the LEDs so it's critical the area be prepared properly.

- Use alcohol to clean the area where you are going to mount the LED strip. Be sure to let the alcohol dry completely before proceeding to the next step. (Note: Do not use acetone or similar cleaner without reading the section "A Word About 3M Tape & 3M Promoter" further on in this document).



- Next, use the 3M Adhesion Promoter supplied with your kit to "paint" on the promoter where you are going to mount the LED strip. See the note below (on page 6) about the proper way to use promoter. ***This is an important step. Do not bypass.*** Allow the promoter to dry for 30-60 seconds.

- Peel off the red backing tape that protects the 3M adhesive tape on your LED strip. Be careful not to let the tape touch anything. The 3M backing tape on these LED strips are one-use only. They cannot be reused.

- Carefully push the LED strip to the area you have prepared. You will want to apply only enough pressure to the strip to make sure it is firmly mounted. *You only get one opportunity to do this.* Once the LED strip touches a properly prepared surface that has been promoted, that LED strip will be very difficult to remove. Moreover, if you do remove the LED strip, the strip cannot be used again without adding another layer of 3M adhesive tape to the back. DO NOT press too hard as too much pressure can damage the LEDs and connecting wires in the strip. Also, do not pull, stretch or twist the LED strip. Too much tension on the strip will also damage the LEDs such that some of the LEDs in the strip will not illuminate. The strip must be mounted flat against a single continuous mounting surface, in a straight line. Really important that the ENTIRE STRIP be stuck to the mounting surface and that you NOT attempt to span across multiple mounting surfaces.

- Secure all power leads. Do not leave the power lead cable hanging. Doing so will place too much stress on the LED strip itself causing it to fall off or fail where the power lead connects to the LED strip. Be sure to wrap all power leads in split loom to avoid chaffing.

3M Tape & 3M Adhesion Promoter (aka Primer)

All Boogey Lights® LED strips have 3M Tape backing affixed to them. This 3M Tape is designed to make a more-or-less permanent bond between the LED strip and the surface to which it is attached. When properly prepared, 3M Tape can be affixed to polyethylene, polypropylene, ABS, PET/PBT blends, concrete, wood, glass, metal and painted metal surfaces. To make this bond you must however prepare the surface to which the LED strip will be affixed. You do this by first cleaning the surface with isopropyl alcohol (50/50 mixture with water) and then painting on 3M Adhesion Promoter. YOU CANNOT SKIP THIS STEP. Always apply 3M Adhesion Promoter to any surface Boogey Lights® LED strips will be mounted. The promoter acts as a primer that ensures maximum adhesion. Porous surfaces may require 2 applications of 3M Promoter for uniform coverage and good adhesion. If you are going to add a second coat, allow the first application of promoter to dry before applying the second coat. Our lighting kits include a small bottle of 3M Adhesion Promoter. Simply use a clean, dry cloth to apply it to the mounting surface.

Using Acetone on Heavy Oiled or Greasy Surfaces: For situations where you are affixing Boogey Lights® to a surface where heavy oils or grease are present, a "degreaser" solvent such as acetone may need to be used first. If you use acetone (or any other degreasing solvent) you must still apply the 3M Promoter. Acetone is not a replacement for promoter. In addition, if you use acetone to clean a heavy oiled or greased surface, you will still need to follow up with an alcohol cleaning to help ensure any residue or film from the acetone is removed. This is because acetone (and most other degreasing solvents) will thin the promoter as well as break down the adhesive in the tape greatly reducing the tape's stickiness. Any surface first cleaned with acetone must also be cleaned with alcohol and then thoroughly dried before painting on promoter.

Important Reminder! The 3M adhesive tape on the back of Boogey Lights® LED stripes are one-use only. If you apply them to a surface that has not been properly prepared, the holding power of the 3M adhesive tape will be greatly diminished perhaps making the light strip unusable. If you take the time to properly prepare the surface in accordance with our instructions here, you won't have any problems mounting your LEDs.

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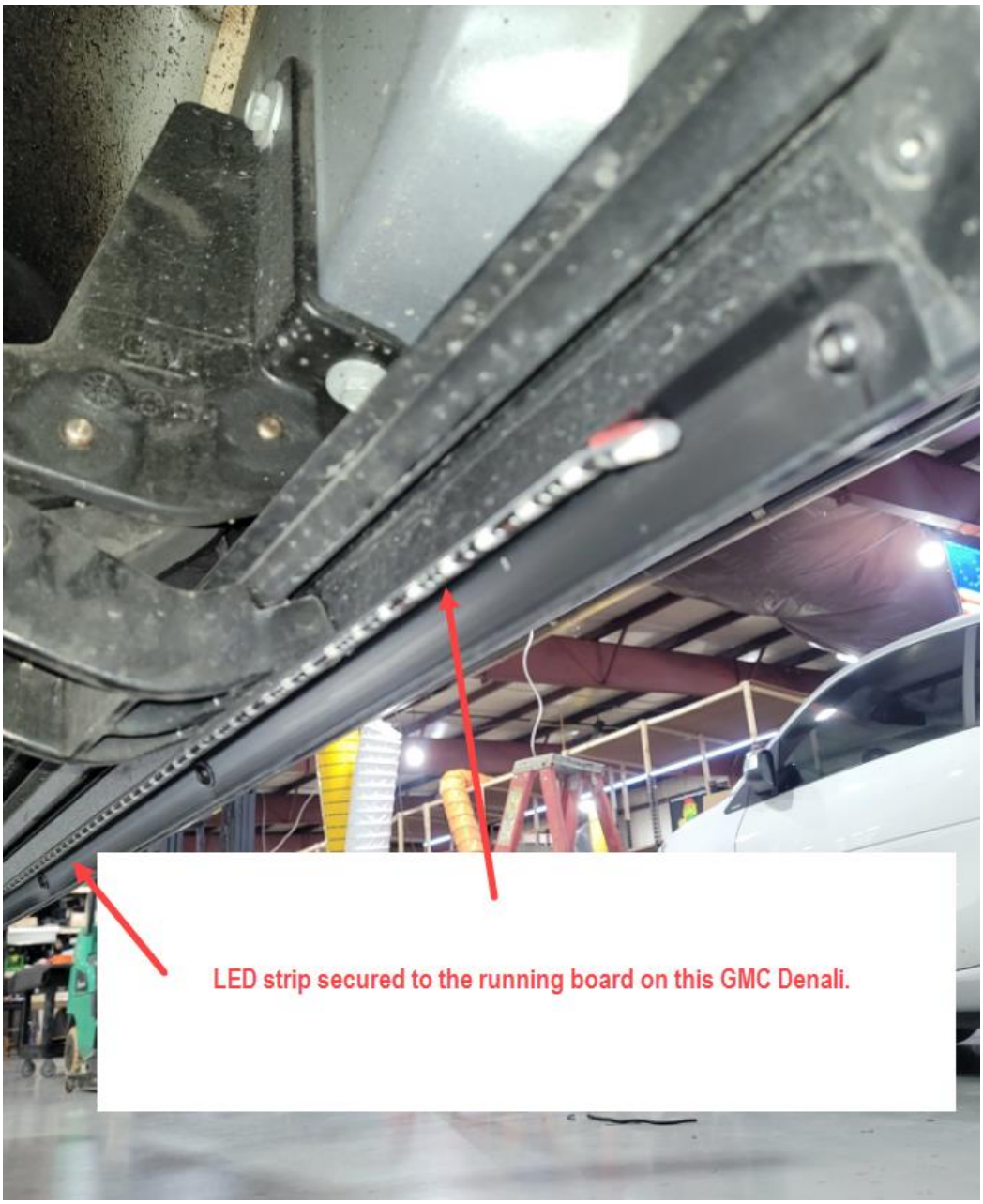
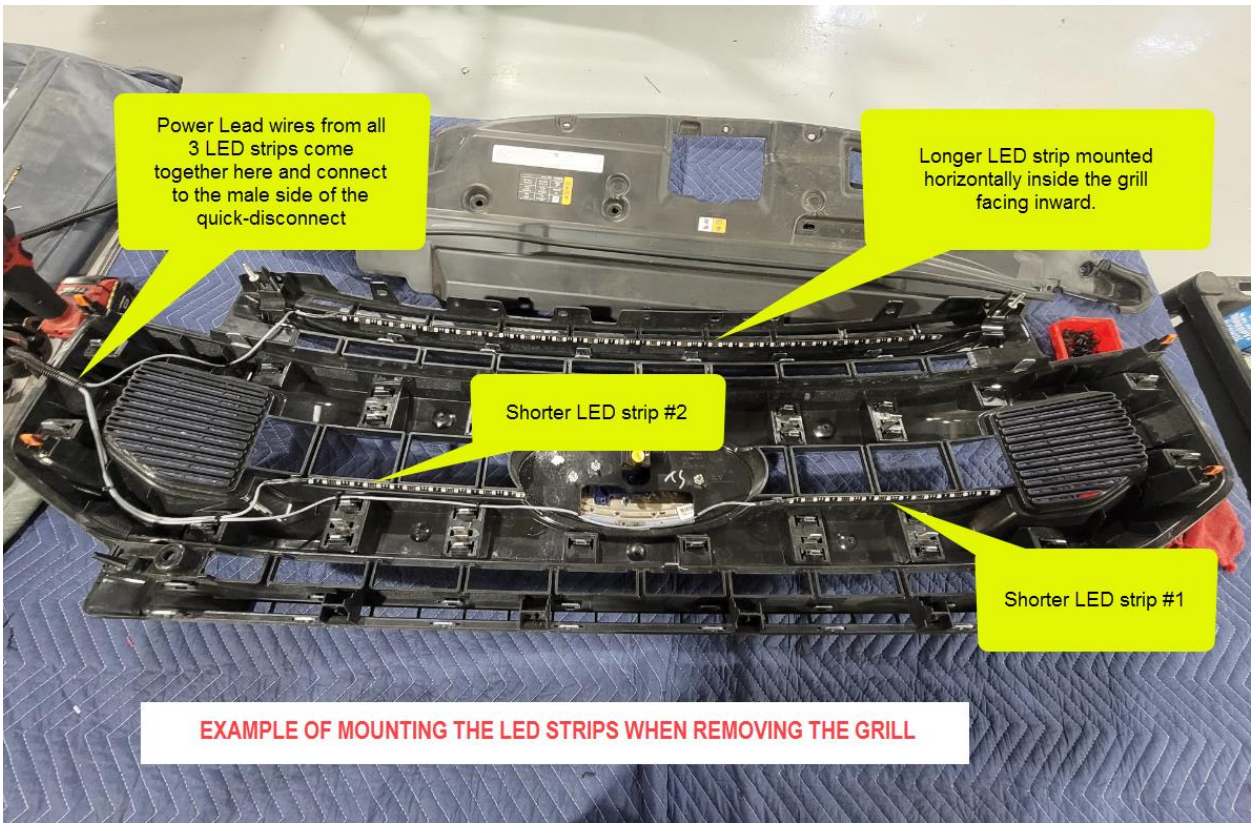
Here’s an example of the LED strip mounted to the running board. It works well.



View of the passenger's side LED strip mounted to the running board. Note the split loom and the extra power lead cable left to allow for movement of the running board when it goes in / out.


Low Profile LED Strip


View of a Heavy Duty LED strips mounted across the rear.


Power Lead wires from all 3 LED strips come together here and connect to the male side of the quick-disconnect
Longer LED strip mounted horizontally inside the grill facing inward.
Shorter LED strip #2
Shorter LED strip #1
EXAMPLE OF MOUNTING THE LED STRIPS WHEN REMOVING THE GRILL