INSTALLATION INSTRUCTIONS

FREIGHTLINER CASCADIA UNDER-CAB LED LIGHT KIT

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Thank you for purchasing genuine Boogey Lights® L\ED Lighting products! We know you're anxious to get started but we strongly recommend taking time to read through these instructions. You'll likely save yourself some grief and aggravation if you do. For additional installation support refer to www.BoogeyLights.com or give us a call at 800.847.1359 for assistance.

ABOUT THIS GUIDE

Installation of this led light kit takes 4 to 5 hours to do it properly. There are 10 different mounting locations in this kit (5 on each side of the truck) and all of the power leads need to be carefully run. DIYers will need to be familiar with removing the side skirts on the passenger's side of the truck as well as the driver's side. You also need to remove the steps on both sides of the truck. For the multi-color version of this kit, the LED controller is mounted in the driver's side storage / jockey box – although you could also mount it in the passenger's side too if you'd like. You will need to drill a ½" wide hole in the floor of that box to connect power to the battery box, led wires and antenna. All of the LED strips that mount to the side skirts include a 5' power lead. The LED strip that mounts under the door has a 20' power lead. The five LED strips on the passenger's side can be connected together on that side of the truck. Then, using the included power lead feeder cable run a single power lead over to the driver's side of the truck where they'll connect to the LED controller. To do this you'll need to get under the truck. Be sure to wrap all power lead wire in split loom which is included in the kit. Repeat that process for the driver's side. The LED controller should connect directly to the battery bank with the included fuse holder added at the battery. We've included some photos of the suggested mounting locations for each strip at the end of this guide. We do not however include detailed instructions on how to remove the side skirts/steps. We assume anyone attempting to install this light kit has the knowledge to do this already (or, is willing to figure it out on their own using any number of online sources).

In putting together this installation guide we assume the installer has access to and has a basic understanding of using the tools needed to complete this installation. We also assume the following:

- The installer knows how to access and remove the steps and side panels of the truck.
- The installer understands 12vdc electricity, making electrical connections using crimp on connectors, the importance of having a fuse in the circuit at the battery location and polarity.
- How to access the batteries, remove / connect battery connections, how to make electrical connections (e.g. crimping) and the importance of making sure all electrical connections are sealed properly (e.g. no water intrusion).
- How to run cabling such that the power leads and related wiring are secured in a way as to not create a hazard when driving the truck and/or placing them in locations which might damage them (e.g. up against the exhaust pipe, DPF, drive shaft, wheels, etc.).
- Capable of getting under the truck to safely run the power lead connections from the passenger's side over to the battery box on the driver's side.

TOOLS & SUPPLIES YOU WILL LIKELY NEED

Metric tools (e.g. torx), wire cutters, wire strippers, crimping tool, electrical tape, rubbing alcohol, shop rags, extra zip ties.

BEFORE YOU START

We suggest you carefully review the following before you begin:

1. It's simply not possible to provide detailed instructions for all installation scenarios. The information in this manual is intended to be used as a guide. You may need to vary your installation based on your unique situation. This is particularly the case with electrical wiring and LED placement.

2. 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 works best if applied when the air temperature is above 40 degrees (and of course is DRY).

3. Make sure you know where your electrical connections will terminate. For this kit, the LED controller should be located in the driver's side storage box on the forward wall. We include some 3M Quick-Lock to mount the controller to the wall.

The LED power leads and power cable coming from the controller will need to exit the storage box through the floor and then connect to the battery box. We supply the battery lugs, battery extension cable and fuse holder to make the power connection. It's important this be done properly. If you are unfamiliar with 12vdc power, we strongly suggest you ask someone who is familiar with it to assist you in this process.

We also include some LED power lead feeder cable that can be used to extend the power leads for the LEDs coming out of the LED Controller down to the battery box area. We find it easier if we make all of our connections at the battery box area than to try to run all of the power leads from the LED strips all the way to the LED controller mounted inside the storage box.

MULTI-COLOR INSTALLATIONS: We have included two wiring diagrams later on in this guide. One is for the SINGLE ZONE Heavy Duty LED controller. The other for the DUAL ZONE Heavy Duty LED controller.

SINGLE- COLOR INSTALLATIONS: Single color LEDs do not require an LED controller to operate. They do however require a switch somewhere in the circuit to turn them off/on. There are a number of ways to do this but regardless of how you decide to switch your single color LEDs, you need to be mindful of the amperage that 400 LEDs will draw. If you're adding these LEDs to an existing circuit (e.g. with your marker or running lights) we strongly suggest using a relay vs tapping into the existing circuit. This especially important on newer trucks where the LCM will likely throw an error when you add 400 more LEDs to the system.

4. Bench test your setup. We know this takes a few extra minutes but we STRONGLY suggest you bench test your lights AND your controller 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. 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. You can also use a common 9vdc battery to test your lights if you don't have a 12vdc bench testing power source available (the lights won't be as bright). It's simple to do and can potentially save you hours of time and frustration down the road. Please take our advice. Bench test your LEDs AND controller before mounting.

BTW … Did we mention we suggest bench **testing your LEDs and** controller before installing? You would be surprised at how many people don't take our advice on this step.

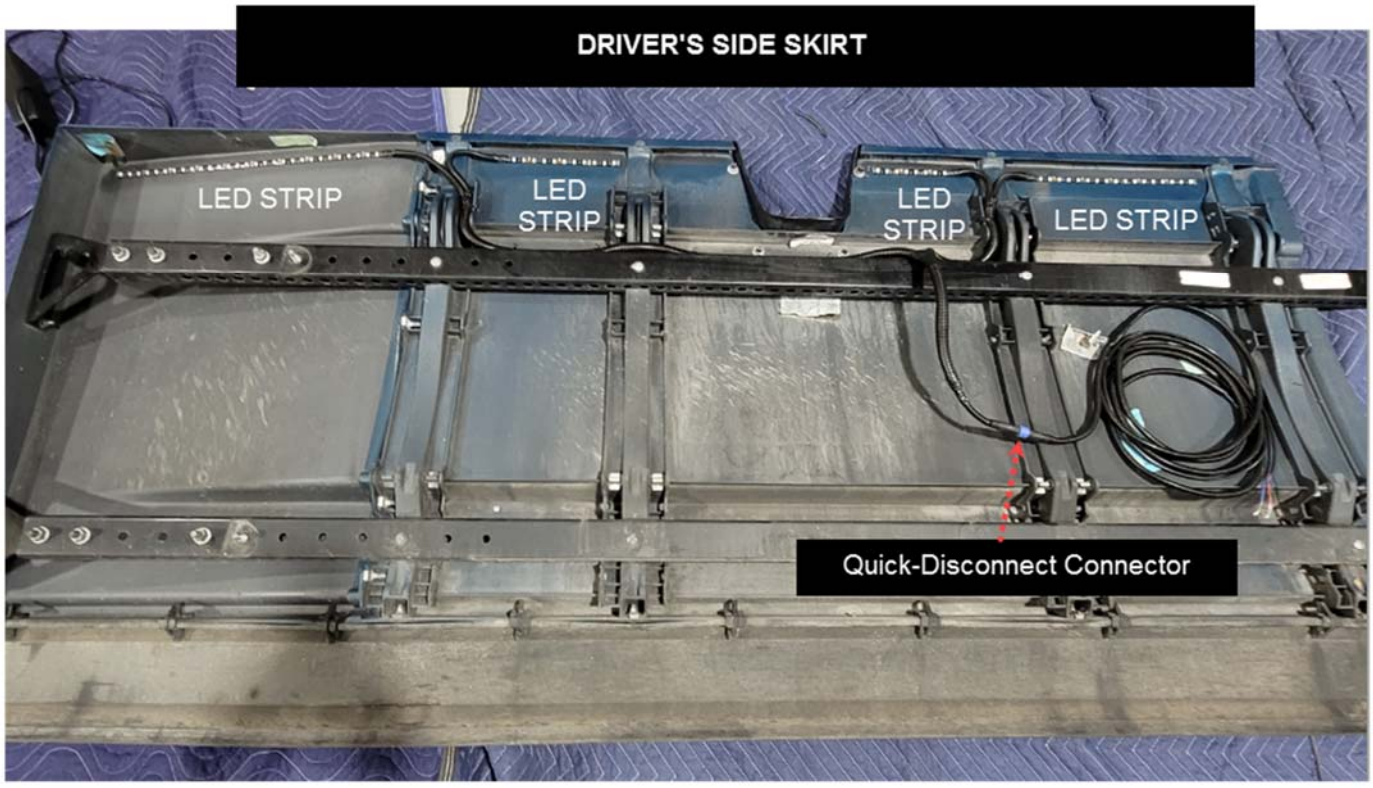
TYPICAL LED PLACEMENT

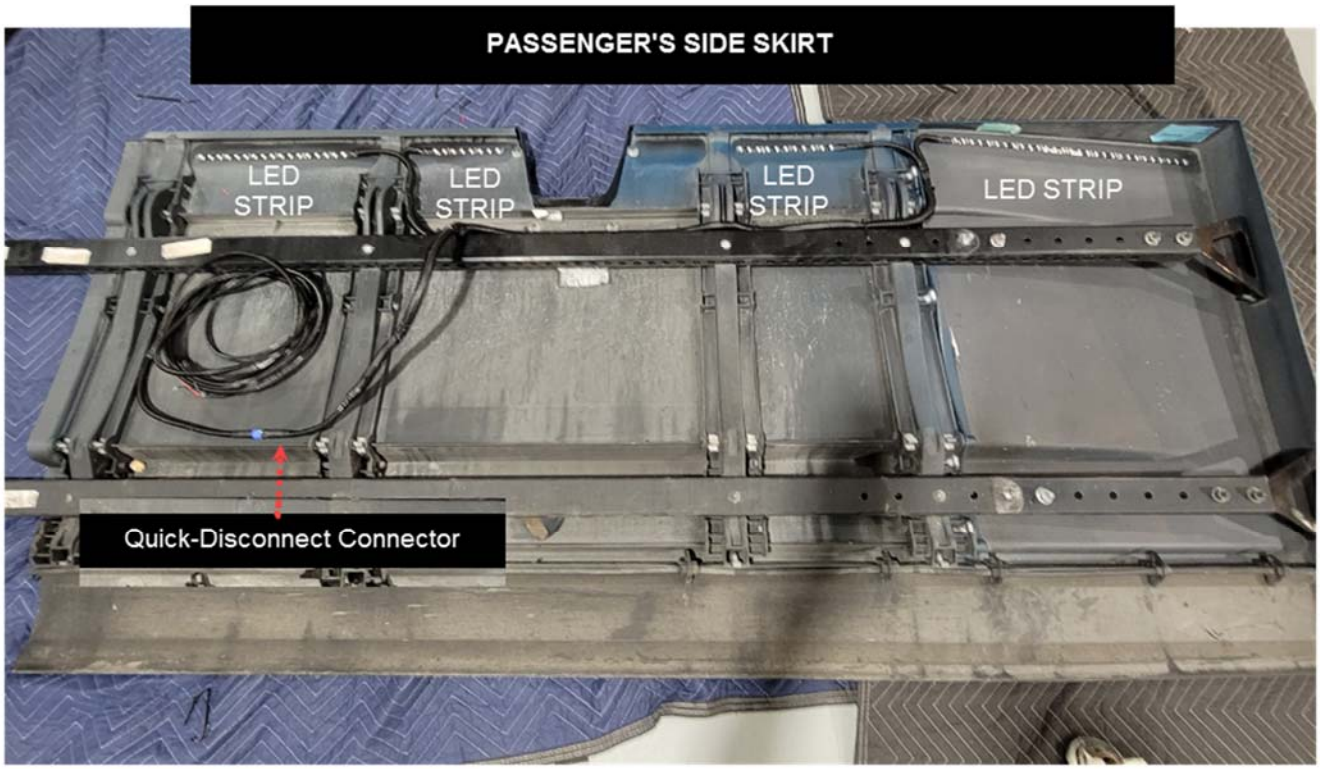
These are the LED placement locations we used for this kit. It's important to follow this placement pattern to ensure the LED strips are protected. Mounting them in any other way voids warranty. Refer to the diagram on the next page with numbered placements. We also include some photos at the end of the guide showing further details.

Driver's Side & Passenger's Side

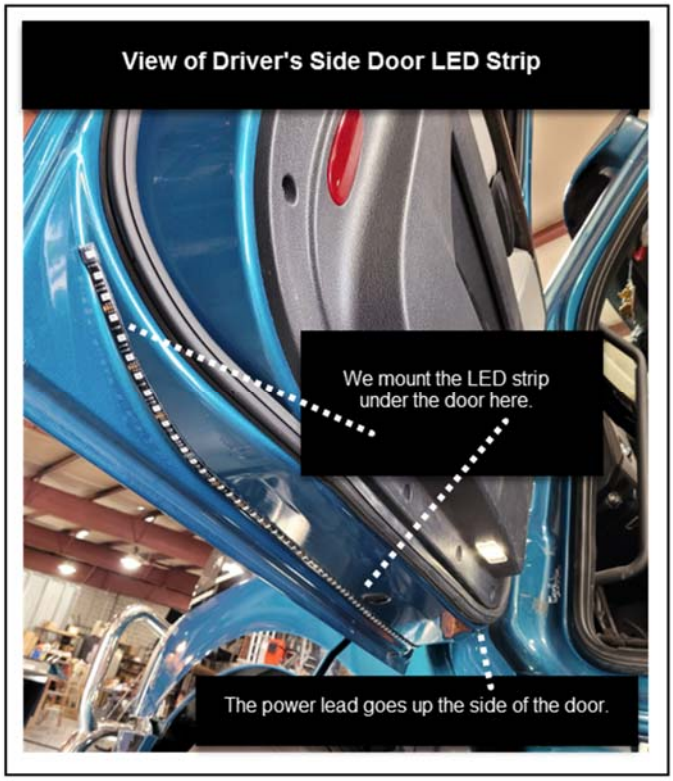
Under Door: 1 - 45 LED strip mounted to the bottom of the driver's side door. This LED strip has a 20' power lead. See photo below for placement.

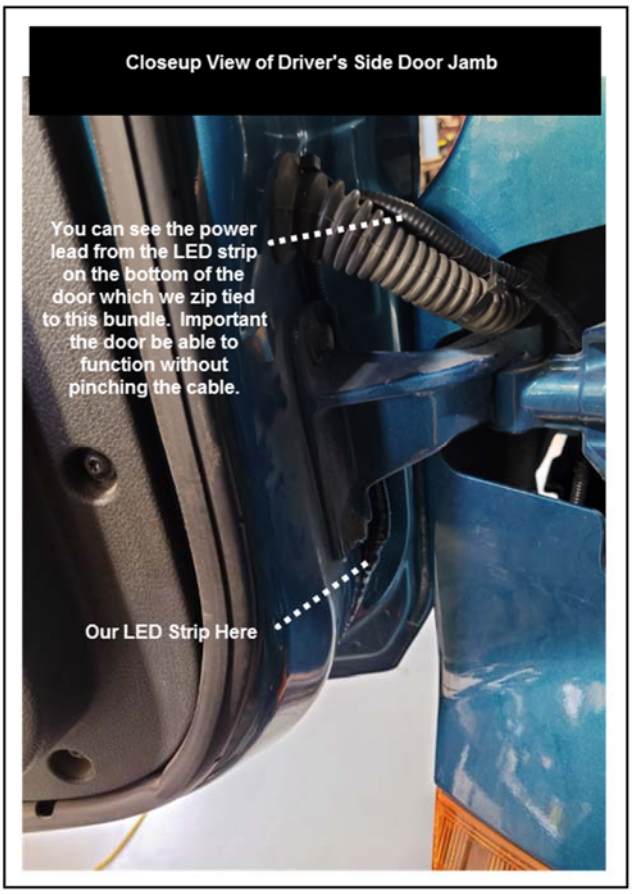
Inside of Skirt: 4 LED strips mounted to the inside of the skirt. See photo below showing location. Note that each LED strip has a 5' power lead which all connect together at the male part of the quick-disconnect connector. Note that when mounting these LED strips to the side skirts you want to mount them as high up on the skirt as possible so maximize the amount of light that shines through. Just make sure the location where you're mounting them is flat and smooth; and not in a place that will rub or touch any other part of the truck.




PASSENGER'S SIDE SKIRT
LED STRIP
LED STRIP
LED STRIP
LED STRIP
Quick-Disconnect Connector


SAFETY
View of the LED strip mounted under the passenger's side door.


View of Driver's Side Door LED Strip
We mount the LED strip under the door here.
The power lead goes up the side of the door.


Closeup View of Driver's Side Door Jamb
You can see the power lead from the LED strip on the bottom of the door which we zip tied to this bundle. Important the door be able to function without pinching the cable.
Our LED Strip Here

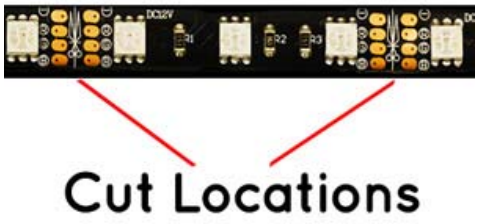
WHAT'S INCLUDED

In addition to the LED light strips and power leads, this kit includes some additional items you'll need. Here's a quick review of those items and why we include them. Some of the photos at the end of this guide reference these items too.

- 18AWG or 20AWG Feeder Cable – 4 Conductor. Use this cable to extend the LED power leads to the LED controller. We recommend ganging up the connections for LED strips located in the same area and then using the feeder cable to extend those LEDs to the controller.
- Male/Female Quick-Disconnects. Used on each side skirt. See wiring diagram at the end of this guide.
- 3M Adhesion Primer. Used to prep the surface before attaching the LED strips AND the 3M quick-lock tape. *Always, always, always* use this adhesion primer with 3M adhesive products if you want the bond to hold.
- 3M Quick Lock Reclosable Tape. This is a heavy duty "Velcro like" product. Used to mount the LED controller to the wall in front of the driver's storage compartment. Be sure to apply 3M Adhesion Primer to both the mounting surface and the back of the LED controller .
- Split Wire Loom / ¼". All power leads and the battery extension cables need to be protected from chaffing. Wrap them in this first. See photos.
- Split Wire Loom / ½" . We include the ½" split wire loom to be used when you're connecting multiple power leads together. Helps protect that connection.
- Battery Extension Cable. We include some 12awg cable to extend the battery power inputs going to the LED Controller to the battery. Be sure to wrap this extension cable in split loom.
- Fuse Holder – 25AMP. Insert this fuse holder on the 12vdc positive side of the battery connection before the battery extension cable. This is critical.
- Battery Terminal Lugs. We include a couple of battery terminal lugs that attach to the battery extension cable (crimp on) to make it easy to connect the positive and negative power leads to the truck's battery to the LED controller. It's a much better way to make this connection than to just simply wrap the bare cable around the battery post.
- Butyl Tape. We use butyl tape to seal the hole in the storage box where the LED controller is located. We also use it in a few places on this installation to help hold power lead wires in place. Butyl will only work if you apply it to a clean surface so make sure you first clean the surface with rubbing alcohol.
- Zip Ties. We include some zip ties which you'll need to secure the LED power leads to the truck.
- Crimp On Wire Connectors. These are used to secure the wire connectors at the LED Controller as well as making all power lead connectors to the feeder cable. We recommend wrapping each connector after it's crimped with electrical tape to protect it from water intrusion.

NOTE: Every installation varies a little so you may need to purchase additional items (or more of them such as zip ties) for your install.

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 below photo. Cutting incorrectly could damage your lights and is not covered by the warranty. If you cut the strip, be sure to use the included heat shrink tubing to seal the cut end. You can also use silicone found at your local hardware or RV store. If you do need to cut your LED strip, we strongly suggest doing so BEFORE you mount the strip.



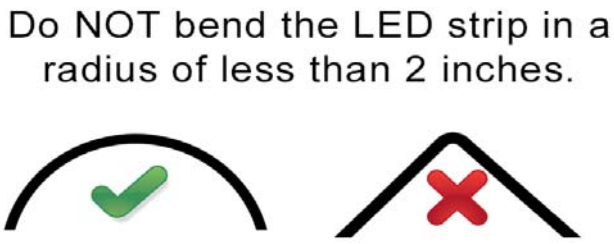
Follow these steps for mounting your LED strips:

- 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 the supplied alcohol pads 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).

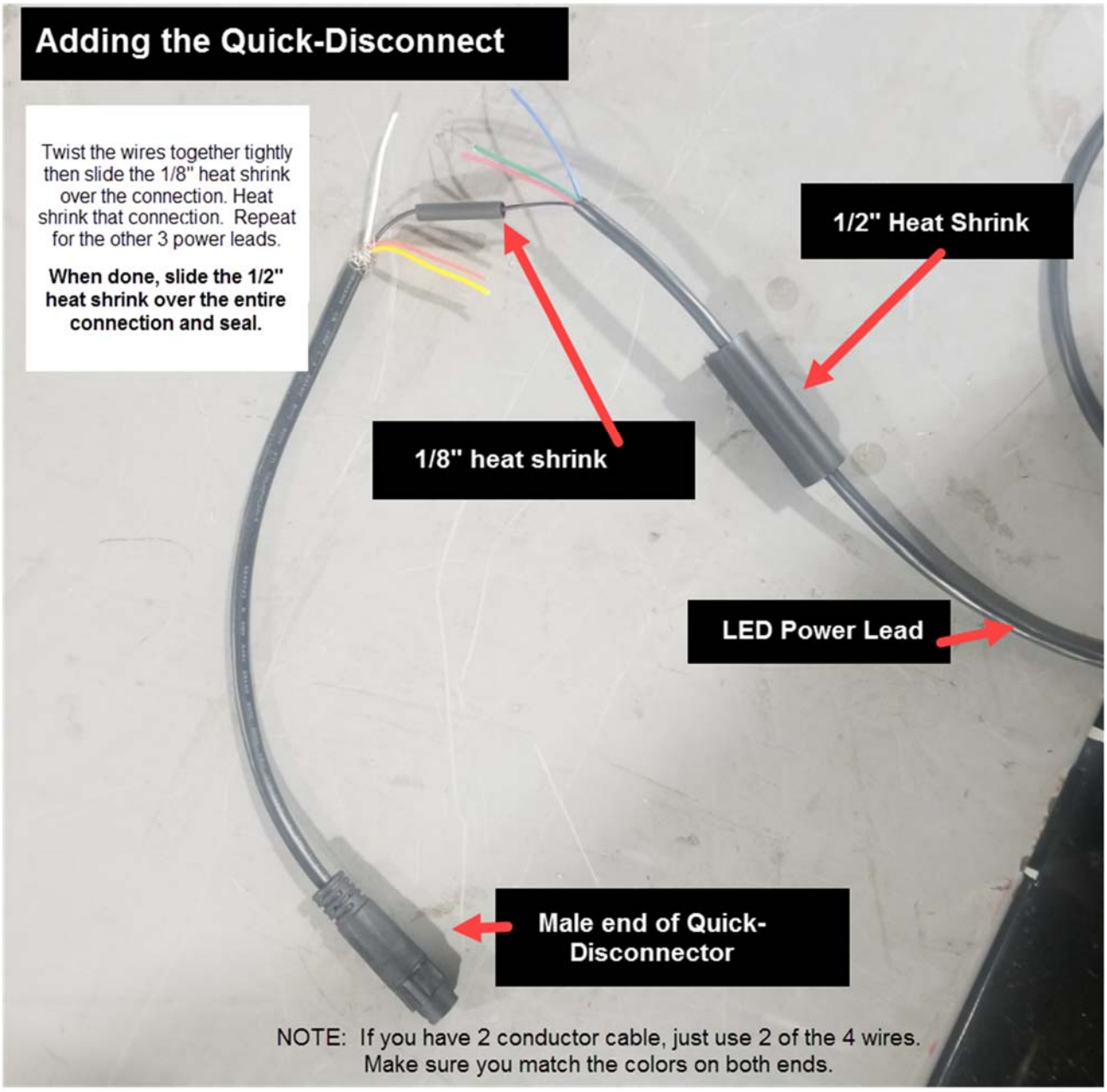
- Next, use the 3M Adhesion Promoter supplied with your kit to "paint" on the promoter where you are going to mount the LED strip. ***This is an important step. Do not bypass.*** Allow the promoter to dry for 60-90 seconds.

- 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.

Here are some additional photos with comments on the installation we did in building this kit.


Adding the Quick-Disconnect
Twist the wires together tightly then slide the 1/8" heat shrink over the connection. Heat shrink that connection. Repeat for the other 3 power leads.
When done, slide the 1/2" heat shrink over the entire connection and seal.
1/2" Heat Shrink
1/8" heat shrink
LED Power Lead
Male end of Quick-Disconnector
NOTE: If you have 2 conductor cable, just use 2 of the 4 wires.
Make sure you match the colors on both ends.

Heavy Duty (single zone) LED Controller Wiring Diagram

COMBO Bluetooth + Wireless RF Controller

NOTE: If the distance from the LED Controller to the battery is more than 18”, we strongly recommend adding another INLINE FUSE on the positive side of the circuit at the point at which the 12vdc+ connects to the battery.

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DUAL ZONE, HEAVY DUTY COMBO CONTROLLER

Bluetooth + RF / Wiring Diagram

The Dual Zone Heavy Duty controller has TWO 12vdc, 20amp inputs. It's important to connect both of them to a 12vdc power source capable of handling the amperage. This controller can power a maximum of 1500 RGB LEDs per zone. Do not overload.

NOTE: If the distance from the LED Controller to the battery is more than 18", we strongly recommend adding another INLINE FUSE at the battery.

MAX of 1,500 LEDS

LED Strip Blue, Red, Green & Black Wires
Connects w/ Red, Green, Blue and Black Wires from Controller. Connect with a crimp on connector. Each wire represents its respective light color. BLACK is the GROUND wire.

Each LED strip needs to connect to the controller. If you need to extend the power leads, we offer extension wire.

Zone 1

Controller RED Fused Wires (Both Zones)
Connects to positive side of battery

to 12vdc Ground

Controller Black Ground Wires
Connects to negative side of battery.

Depending upon load, you may need to use 2 different 12vdc power sources

Zone 2

to 12vdc Ground

COMBO CONTROLLER: OPERATE VIA RF WIRELESS OR BLUETOOTH

RF REMOTE CONTROL

Long Range M7 Wirelss Remote
(Uses 27A 12v Battery)

BLUETOOTH ENABLED

Bluetooth wireless

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Download the APP operating manual from www.BoogeyLights.com

MAX of 1,500 LEDS

LED Strip Blue, Red, Green & Black Wires
Connects w/ Red, Green, Blue and Black Wires from Controller. Connect with crimp on connector. Each wire represents its respective light color. BLACK is the GROUND wire. Each LED strip needs to connect to the controller. If you need to extend the power leads, we offer extension wire.

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