INSTALLATION GUIDE

WRECKER UNDER-GLOW LED LIGHT KIT

BEFORE YOU START

It's simply not possible to provide detailed instructions for all installation scenarios. Far too many variables and truck variations. **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 however we must assume the installer has the skills, knowledge and tools necessary to do the work using the information we provide. You may need to vary your installation based on your truck. This is particularly the case with the mounting locations of the HEAVY DUTY LED strips, the electrical wire routing 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.

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).

Bench test your setup. We know this takes a few extra minutes but we STRONGLY suggest you bench test your lights (and LED controller if purchased) 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. 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.

Mounting Locations / Planning Your Install

All of the LED strips in this wrecker under-glow kit are built on our HEAVY DUTY LED strip series. The quantity and lengths of those strips depends on the type of wrecker you have and the wheel base of that wrecker. If you ordered wheel well lights, we include those as well. Each light kit includes a CUT SHEET listing the number and lengths of Heavy Duty LED strips included in your kit ALONG WITH a rough layout diagram of where on the truck those LED strips are intended to be mounted. Important to note that the layout we provide is not to scale nor is it a precise layout. It's to be used as a guide. You'll need to look at the bottom of your wrecker and make the final determination as to where the LED strips will be installed. When deciding on where to mount your lights, keep in mind that the mounting surface needs to be smooth, flat and rigid. The strip itself cannot span multiple mounting surfaces. 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.

Power & Switching

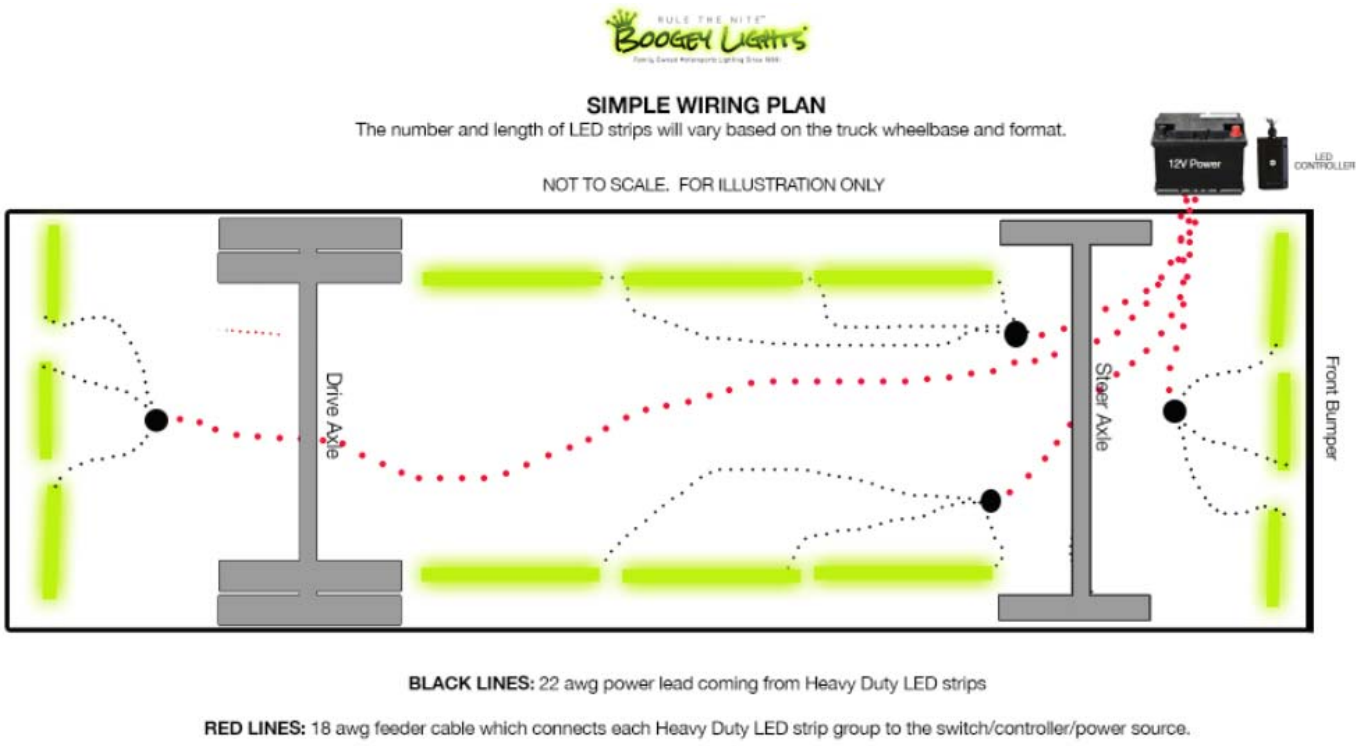
For power, you'll need access to 12vdc. Whenever possible, we suggest going directly to the truck's battery bank however many wreckers will have an 12vdc auxiliary shunt which you can connect to as well. Just make sure that auxiliary shunt will handle the additional amperage you're adding to the system. For a general idea of the amperage, refer to our CUT SHEET where we list the estimated amperage for your lighting system. Ultimately we suggest measuring the actual amperage of the system.

LED/Flasher Controller or Switches

If you're installing an LED controller or Flasher we usually mount them in the storage bay closest to the battery power source. In many wreckers, this is the first or second locker on the driver's side of the wrecker. It's important to mount it as close to the power source as possible to minimize the amount of battery cable we need to add. 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. In many wreckers there will already be some open auxiliary switches in the wrecker cab which you can use too. Regardless of the switch type, make sure you are using relays.

LED Strip Wiring Plan

The CUT SHEET previously mentioned will provide a general idea of where the LED strips included in this kit are intended to be mounted. We also include some power lead cable (22awg) and feeder cable (18awg). Each Heavy Duty LED strip has a 36" power lead. For most installation locations, that power lead will need to be extended using the 22awg cable. The 18awg feeder cable is used to connect the LED strips back to the power source. The feeder cable is used to connect the Heavy Duty LED strips to the power source. We include a simple wiring plan diagram on the next page which gives you an idea of what we're referring to.



Wheel Well Lighting

If you ordered wheel well lighting with your kit, be sure to read this information carefully.

Installing LED lights in the wheel wells of vehicles can be a little tricky. You want to avoid mounting the strip directly in line with the tire. This will help keep the LED strip out of the 'line of fire' from rocks, road debris, etc that could be kicked up by the tires. Our first choice is to mount the strip as close the fender outer edge as we can with the led strip angled slightly in towards the tire. It usually provides the best lighting. This assumes you can't see the edge of the LED strip by mounting it in this location. If that location isn't available, we will mount the LED strip further in the wheel well on the other side of the tire but not too far that the LED strip can be seen from outside the wheel well.

Note too we generally only install LED strips at the very top of the arc of the wheel well vs covering the full arc. The reason is that a) it provides a nice straight down glow without being able to see the LED strip itself and b), it reduces the likelihood of road debris being thrown from the tire and hitting the LED strip directly.

If you're lucky, the inside of the wheel well will have a smooth, flat surface of plastic or metal. In these cases you can usually mount the LED strip directly to that surface (although you still may need to remove the wheel to gain access to the mounting location.)

If the mounting surface is a felt material (common in cars and pickup trucks – not so in commercial wreckers), 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. It works too for both our Low Profile and Heavy Duty LED strips. 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 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. This will work for both our Low Profile led strips and our Heavy Duty LED strips.

3. Mount the LED strip directly to the felt material using zip ties. This ONLY works for our Heavy Duty LED strips. Using zip ties to hold our Low Profile LED strips to the felt will damage the LED strip and cause it to fail prematurely.

WHAT'S INCLUDED

In addition to the LED light strips, power leads (and controller / switch if ordered), 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. Some of the items in this are redundant if purchasing multiple light kits. In those cases we only include one for all kits.

- Power Lead Cable w/Heat Shrink – Use this cable and heat shrink to extend the Heavy Duty LED strips as needed.
- Feeder Cable – 4 Conductor will work for both RGB and Single Color. 5 conductor is included for RGBA. Use this cable to extend the LED power leads back to the battery box and/or the LED controller/switch.
- 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.
- Split Wire Loom. All power leads and the battery extension cables need to be protected from chaffing. Wrap them in this first.
- Battery Extension Cable (if LED Controller or switch is purchased). We include some 10awg 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 – Insert this fuse holder on the 12vdc positive side of the battery connection before the battery extension cable. This is critical.
- Battery Terminal Lugs (if LED Controller or switch is purchased). 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.

- 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. Here is a LINK to a page on our website that list some of these items: https://www.boogeylights.com/other-items-you-might-need/ .

If you purchased a kit without an LED Controller or switch we do not include any switching devices with the kit. We assume you already have a switch available in your truck or will be installing another switch of some type. Regardless of how you decide to switch your single color LEDs, be mindful of the amperage that adding more lights will draw. If you're considering adding these LEDs to an existing circuit (e.g. with your existing marker or running lights) we strongly suggest using a relay vs simply tapping into the existing circuit. This is especially important on newer trucks where the LCM will likely throw an error when you add more LEDs to the system.

WARRANTY

Warranty info can be found on our website at https://www.boogeylights.com/warranty/ . The warranty is a product only warranty. It covers the lights (or remote control) themselves. It does not cover reimbursement for labor or other charges involved in replacing the product.

PLEASE NOTE: If you want warranty coverage on our HEAVY DUTY LED Strips, you must follow these instructions before installing:

1. Bench test each LED strip using a 12vdc power supply. Confirm each LED diode in the strip is lighting as expected.

2. Visually inspect the LED strip to make sure it's not damaged.

Do not install a HEAVY DUTY LED strip if it's not lighting properly and/or appears damaged/defective in any way. Instead, contact Boogey Lights by opening a support ticket at https://www.boogeylights.com/contact-us/ . We will respond promptly.

Assuming you've performed the above two steps and the strips are working as expected, be sure to follow the mounting instructions included with your order.

Failure to follow these instructions will void the warranty.

Bending: While these Heavy Duty LED Strips are designed to take a beating, it's important you do not bend the strips in a radius of less than 2". Also, do not bend the LED strip on a horizontal plane. Doing so will damage the circuit traces on the PCB board causing the LED strip to fail, voiding the warranty.

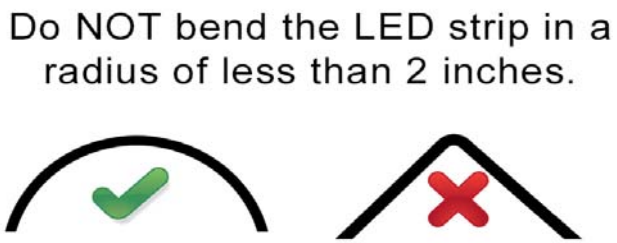
Follow these steps for mounting your LED strips:

- 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 rubbing 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).

  If the area is especially greasy, you'll need to clean it with a degreaser or similar solvent. IF you do, be sure to use rubbing alcohol on the surface next to completely remove any left-over residue from the degreaser.

- 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.

WIRING DIAGRAMS & POWER CONSIDERATIONS

This kit includes the wiring diagrams for the configuration you purchased. **Please review carefully.** An essential skill with installation of any Boogey Lights LED product 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.

Be mindful of the amount of amperage you're drawing through your lighting circuit and to not exceed the circuit component limitations. The product page of our website includes an amperage chart to give you a general idea of amperage draw but be aware that the amount of power (amps) you're pulling through the circuit will vary based on a combination of three factors: 1) The number of LEDs in the circuit, 2) the amount of copper wire in the circuit and 3) the input voltage to the circuit. The amperage ratings for our switches, controllers and LEDs assume 12.5 vdc input or less. If you're going to be driving with your Boogey Lights on, be aware that the input voltage will absolutely increase when the engine is on as RPMs increase. It's not unusual for an alternator to charge the batteries at a rate of 13.5 to 14.5 vdc depending upon the vehicle. Increasing the input voltage to the LED Controller/LEDs will also increase the amperage draw of those LEDs because they'll burn brighter. For example, we've seen circuits that draw 17 amps when the engine is off and the input voltage is 12.5vdc but jump up to drawing 24 amps when the engine is on and RPMs increased. This is because the input voltage jumps to 14vdc when the engine is running. If your circuit is only sized for 20 amps but the system requires 24 amps while running, you're going to have a problem.

Here's a photo showing how to use the 1/8" and 1/2" heat shrink to connect and seal the feeder cable connections to the power leads of each Heavy Duty LED strip. Tightly twist the copper wires together. Important that none of the copper wire strands poke through the heat shrink. Make sure they're all laying down (and not pointing outward). Then, slide the 1/8" heat shrink over the connection and heat shrink that connection. Repeat for the other 3 (or 1 if single color LEDs). When those connections have been made, slide the ½" heat shrink on top of the bundle and heat shrink. For the 1/8" heat shrink you only need about an inch (1") or 1.25" of heat shrink to seal each connection. Use 2 or 2.5 inches of the ½" heat shrink to cover the bundle.

NOTE: There are no quick-disconnect connectors in this kit. The below diagram is provided for illustration purposes of showing how to use the heat shrink.