



INSTALLATION GUIDE

FREIGHTLINER CASCADIA

GRILL & AIR-VENT LED LIGHT KIT

IMPORTANT! No two installation scenarios are the exact 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 and lighting coverage goals. Our light kits provide the essential components needed for a high-quality, functioning LED light 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 – usually less expensive. We urge you to review this information before starting your install to make sure you have the proper materials available.

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. Test all of them. 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 good 12vdc battery to do this (e.g. car battery, motorcycle battery, lawn tractor battery or 12vdc power supply capable of supporting a 5 amp load). If you're not sure how to do this, we have prepared a document explaining the process here: <https://docs.boogeylights.net/?wpdmdl=1305> . 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 before installing?

BEFORE YOU START

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 manual 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 truck. This is particularly the case with 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.

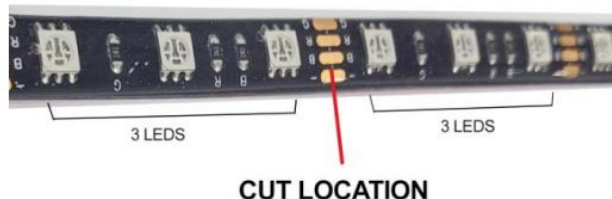
YOU MUST HAVE AN UNDERSTANDING OF 12V POWER. An essential skill with installation of any Boogey Lights LED products is knowing how to correctly wire the product to a 12vdc circuit. This includes understanding the importance of having a properly sized fuse at the power source, polarity, how to properly 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).

KNOW YOUR AMPERAGE DRAW. Pay attention to the number of LEDs you are lighting and the total amps you will be drawing. We manufacture a number of LED Controllers of varying capacities. If you over-load the LED controller, it will either not work at all or the lights will dim in a short period of time. Amperage data for all our LED products are on each product page. You can also download it directly here: <https://docs.boogeylights.net/?wpdmdl=1137>

NOTE: If for whatever reason you need to cut the LED strip, you can (Low Profile LED strips). Details on how to cut our LOW PROFILE LED strips can be found on our INSTALLATION RESOURCES page or at this link: <https://docs.boogeylights.net/?wpdmdl=964>

HI-INTENSITY SURFACE MOUNTED LED STRIPS



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.

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. We include some photos at the end of the guide showing further details.

Grill Area:

You'll need to remove the grill first. Open the hood to access the mounting bolts on the back side. Also, carefully pry the 'FREIGHTLINER' insignia off the front of the grill which will expose the last remaining mounting bolt. We mount a single 120 LED strip around three sides of the inside of the grill area (left, right, top). It's important you first put down some Butyl tape in the three seams as shown in our photos below before the LED strip is mounted. The LED strip cannot span those seams without Butyl tape being put down first. Be sure to clean the area first with rubbing alcohol and then prime with 3M adhesion primer. Butyl tape sticks much better if you do this. The LED strip starts on the passenger's side and ends on the driver's side (see photo). The power lead needs to be encased in split loom which then needs to run up the driver's side frame rail to the battery box or LED controller depending on your configuration. Before doing this though we recommend you install the air vents next so you can connect the air vent power leads with the grill power lead and then run just one power lead cable back to the battery box/led controller. Make sure the power lead is routed in such a way that it isn't pinched by the hood closing, chaffing or mounted too close to the engine or other extremely hot surfaces.

Air Vents:

You'll first need to remove the two air vents on each side of the hood. A Torx T-27 is required. We found it easier to do this when the hood was closed. Next, open the hood and remove the two black plastic splash guards on each side of the truck. There are four bolts – 10mm. This will give you room to get under the air vent plenum. Next, you'll need to drill a ¼" hole at the base of each air vent compartment. We've included a photo to show you where this is. We like to put down a piece of Gorilla tape before drilling into fiberglass. Helps reduce splintering. Once you've drilled the ¼" hole on each air vent, you'll need to "fish" the power lead wire through that hole you just drilled. We found it easier to accomplish this by first pushing a coat hanger (or similar "fish tape" like wire) up from the hole we just drilled so it comes out the air vent in the hood (or at least within reach of your hand from inside the vent). Then, temporarily tape the led power lead to that fish tape/coat hanger and pull it back through the hole you just drilled. At this point you're ready to mount the LED strip to the inside of the air vent. When mounting the strip, mounting it against the outside wall from inside the vent such that the light coming from the LED strip is facing inward. Also, place a zip tie mount on the inside of that vent too and then zip tie the power lead that is attached to the LED strip to that zip tie mount. This will stop the power lead from flopping around inside that air vent plenum. We have included a photo of what we're referring to below. Be sure to seal the bottom of the hole you drilled (with the power lead going through it) with Butyl tape. Also, we suggest using some zip tie mounts on the inside of the hood to secure the power lead against the hood. See photos.

You'll notice the LED strip with the longer power lead (20') is what should be installed on the passenger's side of the truck. The LED strip with the 15' power lead should be installed on the driver's side of the truck. The passenger's side power lead should be secured using zip ties across the front of the truck at the base of the grill and over to the driver's side where it can be connected to the driver's side air vent power lead AND the grill light power lead. From there all three LED strips (grill + passenger's side air vent + driver's side air vent) can use one single feeder cable that runs up the driver's side frame rail and into the battery box – or driver's side storage bay depending upon your installation.

LED STRIP MOUNTING

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.**

Do NOT bend the LED strip in a radius of less than 2 inches.

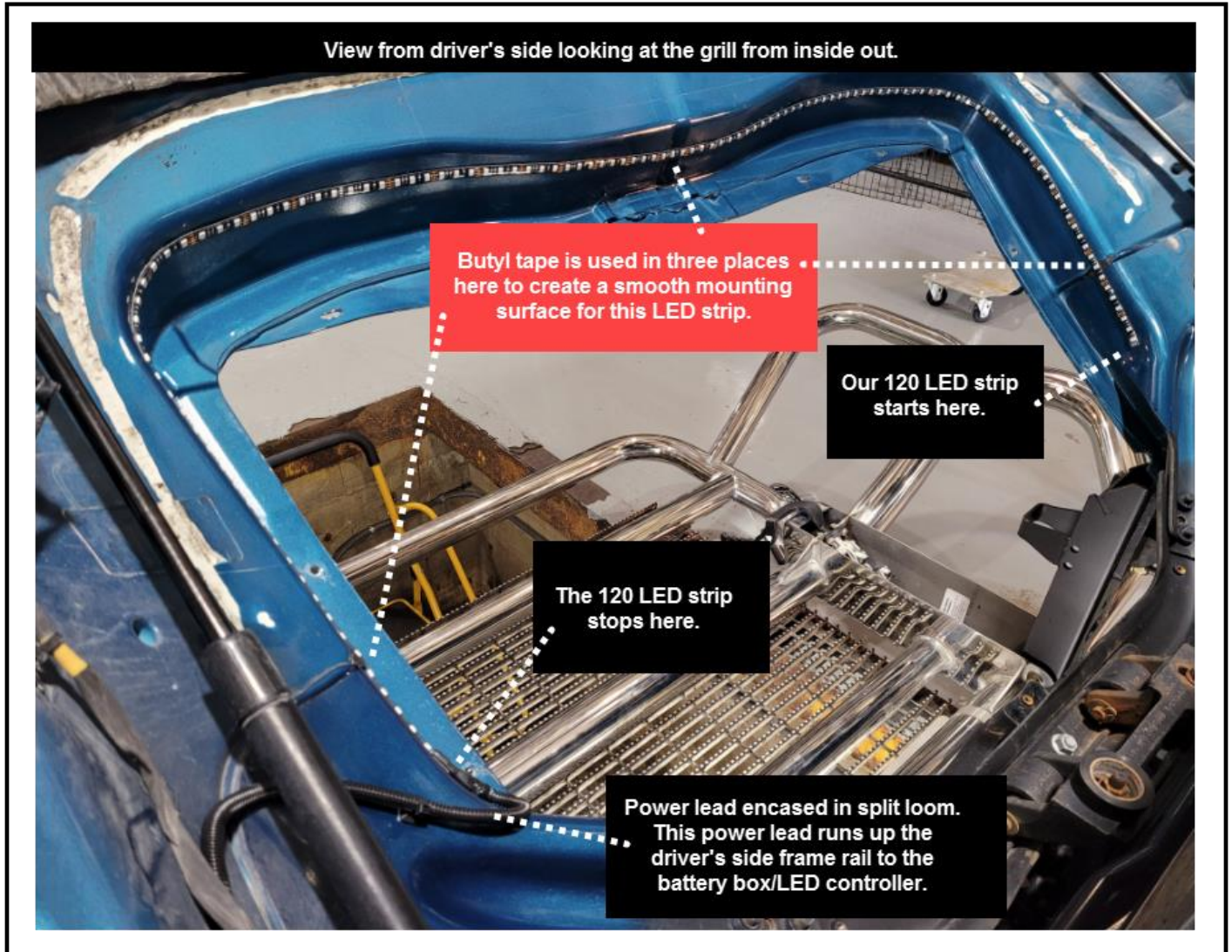


Do NOT bend the LED strip on a horizontal plane.



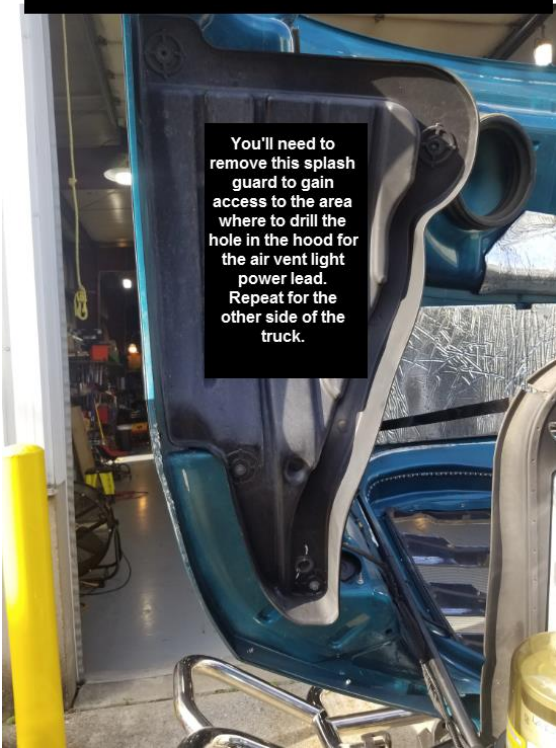
INSTALLATION PHOTOS

Here are some photos with comments on the installation we did in building this kit. We've commented on key parts of the installation along the way.

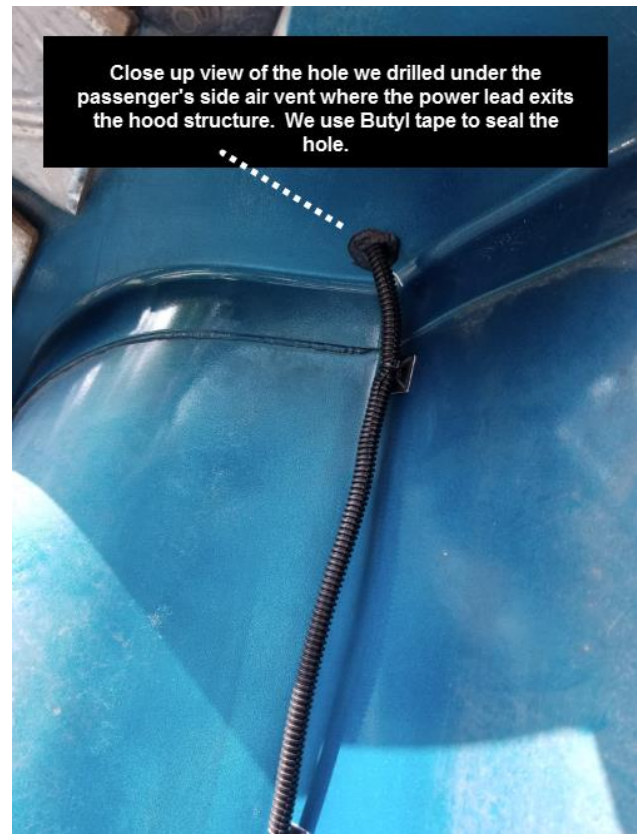




View of the Driver's Side Under Hood



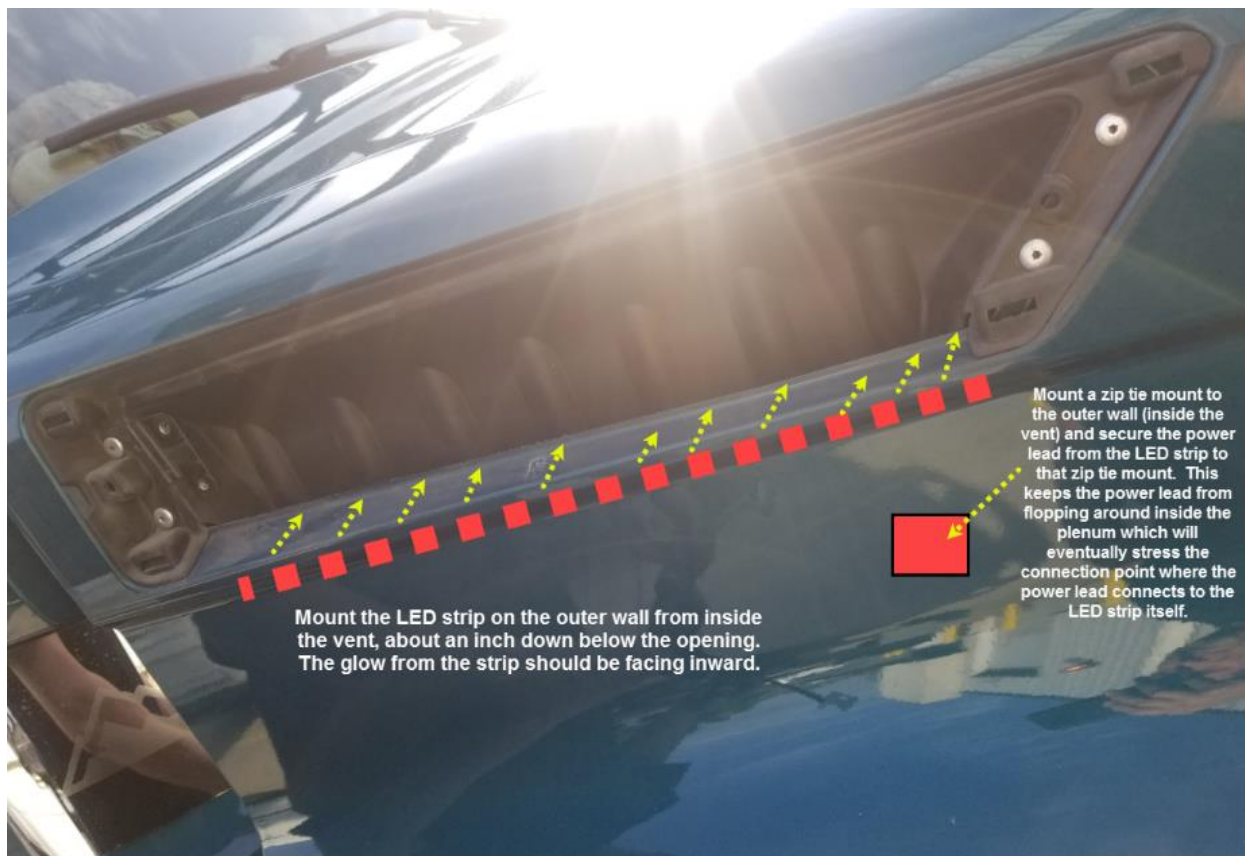
A 1/4" hole is all that's needed. We put down some Gorilla Tape first before drilling into the fiberglass. Helps reduce cracking/splintering.



View of Passenger's Side Inside Hood

This is the power lead cable that connects to the air vent light strip on the passenger's side.

A close up view of the 'Butyl Bridge' we built so the LED strip can safely cross this seam in the hood structure. Super important!





Additional Resources

- How to Videos: <https://www.boogeylights.com/how-to-videos/>
- Freightliner Cascadia Light Kit Page: <https://www.boogeylights.com/freightliner-cascadia-led-accent-light-kit/>
- Troubleshooting: <https://www.boogeylights.com/trouble-shooting-guide/>
- Installation Resources: <https://www.boogeylights.com/installation-resources/>
- How to Bench Test: <https://docs.boogeylights.net/?wpdmdl=1305>
- GEN2 LED Controller Wiring Diagrams + Operating Info: <https://docs.boogeylights.net/?wpdmdl=1163>
- GEN2 RF Wireless Remote Operating Info: <https://docs.boogeylights.net/?wpdmdl=1164>
- GEN2 Bluetooth APP Operating Info: <https://docs.boogeylights.net/?wpdmdl=1169>
- GEN2 Bluetooth APP Quick-Start: <https://docs.boogeylights.net/?wpdmdl=1167>
- Amperage Data: <https://docs.boogeylights.net/?wpdmdl=1137>

Support

- Phone: 800.847.1359 (M-F, 9-6 Eastern)
- Text: 859.955.8155
- Open a Support Ticket: <https://www.boogeylights.com/email-us/>
- Online: 24/7 resources at <https://www.boogeylights.com/installation-resources/>
- How to Make a Warranty Claim: <https://www.boogeylights.com/make-a-warranty-claim/>

Warranty

The Boogey Lights® warranty requires an original sales receipt from Boogey Lights or an authorized dealer. It covers product replacement only, not labor or other costs. Register your purchase at: <https://www.boogeylights.com/warranty-registration/>. Full details: <https://www.boogeylights.com/warranty/>.