



INSTALLATION GUIDE

WESTERN STAR REAR FAIRING ACCENT LED LIGHT KIT

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. 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 12vdc battery to do this (e.g. car battery, motorcycle battery, lawn tractor battery or 12vdc power supply). If you're not sure how to bench test, download this pdf: <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 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.

MOUNTING SURFACE. 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

SECURE THE POWER LEADS. Make sure the power lead wire that connects to one end of the LED strip is firmly secured to the boat. Do not allow that power lead to move or flex at the point where it attaches to the LED strip. If you do, it will fail prematurely and is not covered under warranty.

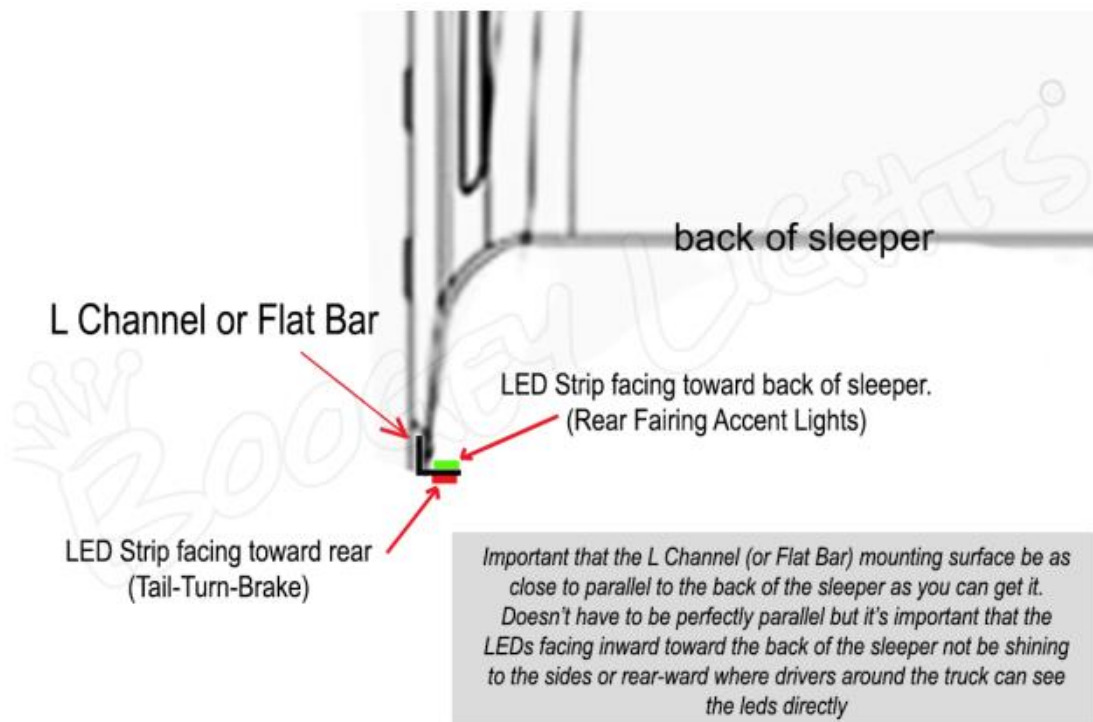
POWER LEADS. All of the power leads coming from the LED strips will need to be routed back to your power source/switch/controller which is usually mounted near the battery bank. We typically will mount the led controller in the driver's side storage box (aka 'jockey box'). If you're installing this kit along with another one of our light kits, you can usually merge the wiring together. It's important these power lead be secured (especially at the point where the power lead attaches to the LED strip) and wrapped in split loom to prevent chafing.

JULY 2022 UPDATE – IMPORTANT!

We have made two changes to this light kit which are not reflected in the installation documentation.

The first change relates to the type of LED strips we use for all rear fairing accent light kits installed on semi-trucks. All rear fairing accent light kits now use our HEAVY DUTY LED strips versus the low profile strips which are shown in some of the photos for this installation guide. Our Heavy Duty LED strips are better able to handle the vibration and flexing when the strips are mounted to the vertical fairings. They are installed the same way as the low profile strips. They're just a little wider and taller.

The second change is the type of mounting surfaces we include with the kit. We now include three different types of plastic mounting surfaces: two types of 'L' channel and one type of plastic flat bar. Previously, we only included one 'L' channel type. The reason we include three different types is because not all trucks – even the same make and model year -- have the same fairing structure. It's important to use the mounting surface that works best for your truck. How do you know what's best? Choose the one that provides a rigid, flat mounting surface such that the led strips are mounted facing directly toward the back of the cab. Below is a close-up diagram showing what we're referring to. In some cases, you may have to secure the mounting surface to the actual brackets that hold the fairings to the truck. In others, you can rivet the mounting piece directly to the fairing itself (assumes the fairing is rigid). Whichever method you choose, it's important the mounting surface be solid – if it's mounted in such a way that it can twist or flex as the truck drives down the road, the LED strip that's secured to it will fail prematurely due to the constant flexing/twisting. Note: If your truck has a flexible rubber boot tip at the end of your fairing, do not mount to that rubber boot.



RGB/MULTI-COLOR KIT Installations

Installation of this led light kit takes 2 to 5 hours depending on whether or not you're adding in the optional TAIL-TURN-BRAKE light integration and/or integrating with an existing Boogey Lights LED controller and light system from another one of our lighting systems. We have included some photos later on in this guide to help you better understand how the lighting system is mounted.

SINGLE COLOR KIT Installations

Installation of our single color kit typically takes 2 to 4 hours depending on whether or not you're adding in the optional TAIL-TURN-BRAKE light integration and/or integrating with an existing Boogey Lights lighting system. With single color installations we always recommend using a dedicated on/off switch OR if you want to tie them into an existing circuit (e.g. marker lights), we suggest adding a relay to the circuit. If you purchased any of the on/off wireless switches we offer, you do not need a relay in this kit are the only lights you're switching on it. The single color on/off wiring diagram is included at the end of this guide.

Know your Power Consumption

Regardless of which switching mechanism you're using, it's important to be mindful of the amount of amperage you're drawing through your lighting circuit and not exceed the circuit component limitations. 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. It's important to keep in mind that the amperage ratings for the switches/controllers/LEDs assume 12.5 vdc input voltage. If you're wiring your lights to a vehicle that has a charging mechanism (e.g. alternator), the input voltage will likely increase when the engine is on; particularly as RPMs increase. It's not unusual for an alternator to charge the battery at a rate of 13.5 to 14 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. This is why we strongly suggest measuring actual amperage drawn for your particular installation to make sure it's fused and wired appropriately. If you are not familiar with DC electricity and how to measure both voltage and amperage draw, we urge you to seek the assistance of someone who does. Improperly sized circuits can cause fires and/or damage other electrical systems in your vehicle.

MOUNTING SURFACE LOCATIONS

There are 4 mounting locations. Two Heavy Duty LED strips are mounted on each side of the truck along the end of the fairing. These Heavy Duty LED strips fasten to a plastic mounting surface which is riveted to the truck's fairing. There are a wide variety of rear fairing structures on the market today. Some trucks have wind deflectors, some don't. Some fairings have a flat mounting surface, some don't. In this kit we have included eight plastic mounting pieces. Four plastic 'L' channels. Four plastic flat bars. You'll only use one type or the other. Each are 72" long. You will need to cut them to fit your truck. In most cases the plastic 'L' channel will work for the Western Star.

The first step is to rivet the included right angle black plastic "L" channel (or plastic flat bar) to each of the four fairing extensions on the truck. Our kit includes the 5/16" rivets to do this. We recommend at least 4 rivets in each piece. This plastic molding sits INSIDE the fairing flair such that only about 5/8" of the molding sticks out beyond the stock fairing edge. This is where the LED strip is mounted. See photos at the end of the guide. The ACCENT LED strips mount to the inside of each of the plastic angles facing inward toward the rear of the cab.

If you're also installing the tail/turn/brake light kit, those RED led strips will mount to the same plastic angle pieces but facing toward the rear of the truck. All power leads run down the fairing and from there will connect to the switching device (e.g. LED controller, on/off switch) and/or the brake / tail / turn integration point which we like to do behind the cab area for easy access.

Starting June 1, 2022 we are using our HEAVY DUTY LED strips for both Rear Fairing Access LEDs and Tail-Turn-Brake light kits. The below photos show our low-profile LED strips.

LED PLACEMENT

Once you have the black right-angle molding riveted to the fairing it's time to mount the LED strips to that molding. The LED accent light strips (usually RGB, but not necessarily) face inward toward the back of the cab. These LEDs will flood the rear of the truck with light WITHOUT the LEDs themselves being seen by drivers on either side of the truck. If you're installing the RED tail/turn/brake light LED strips, those strips face rear-ward as shown in the photo below. NOTE: this photo is from our Freightliner kit but the process is the same on the Western Star.



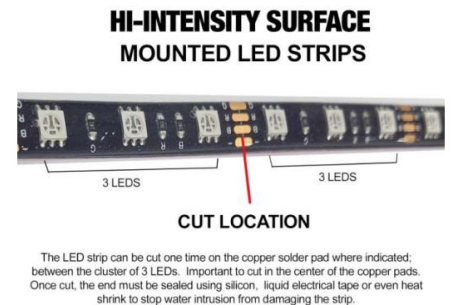
The inward facing accent lighting LED power leads will connect to the Boogey Lights LED controller (assuming RGB installation) ... OR ... if this is a single color installation, those power leads will connect to whatever switch you're using to turn them on/off.

OPTIONAL TAIL / TURN / BRAKE LIGHT INTEGRATION

If you purchased the optional TAIL/TURN/BRAKE Light integration, there are three wiring diagrams at the end of this guide you'll need to complete the installation. The power leads from these LED strips run down the fairing and from there will connect to the relay housing which we suggest locating immediately behind the cab or similar location where the relay housing can be accessed if needed. A 10 awg battery cable needs to be run to the truck's battery and connected to the 12vdc + power with the included fuse holder. The 12vdc - needs to be connected to the frame.

For integration with the truck's tail-turn-break lights to make the system work, you need access to THREE circuits: the truck's tail light circuit, left turn signal and right turn signal. The truck's brake light uses the same light as the turn signals. Where you pull those circuits from is up to you HOWEVER we prefer to pull them directly from the rear tail light assembly on the rear the truck and then run a feeder cable up to the relay housing where the connections are made. We think it's easier (and cleaner) to do it this way while minimizing the possibility you might interfere with any of the truck's other electrical systems (which is always a concern in these situations). The reality however is that you can also find these wires in the wiring harness that runs on the inside of the frame rails back to the rear tail light assembly. On the frame (aka 'chassis') ground, it's super important to make sure the surface you're connecting to is bare metal. In many cases you'll have grind off the painted surface first. Refer to the RELAY wiring diagram at the end of the guide.

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.



MOUNTING THE LED STRIPS

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. NOTE: These photos are from our Freightliner light kit. The process is the same for the Western Star. Also, these photos showing our low-profile led strips. Starting June 1, 2022 we are only using our HEAVY DUTY LED strips for both Rear Fairing Access LEDs and Tail-Turn-Brake light kits.

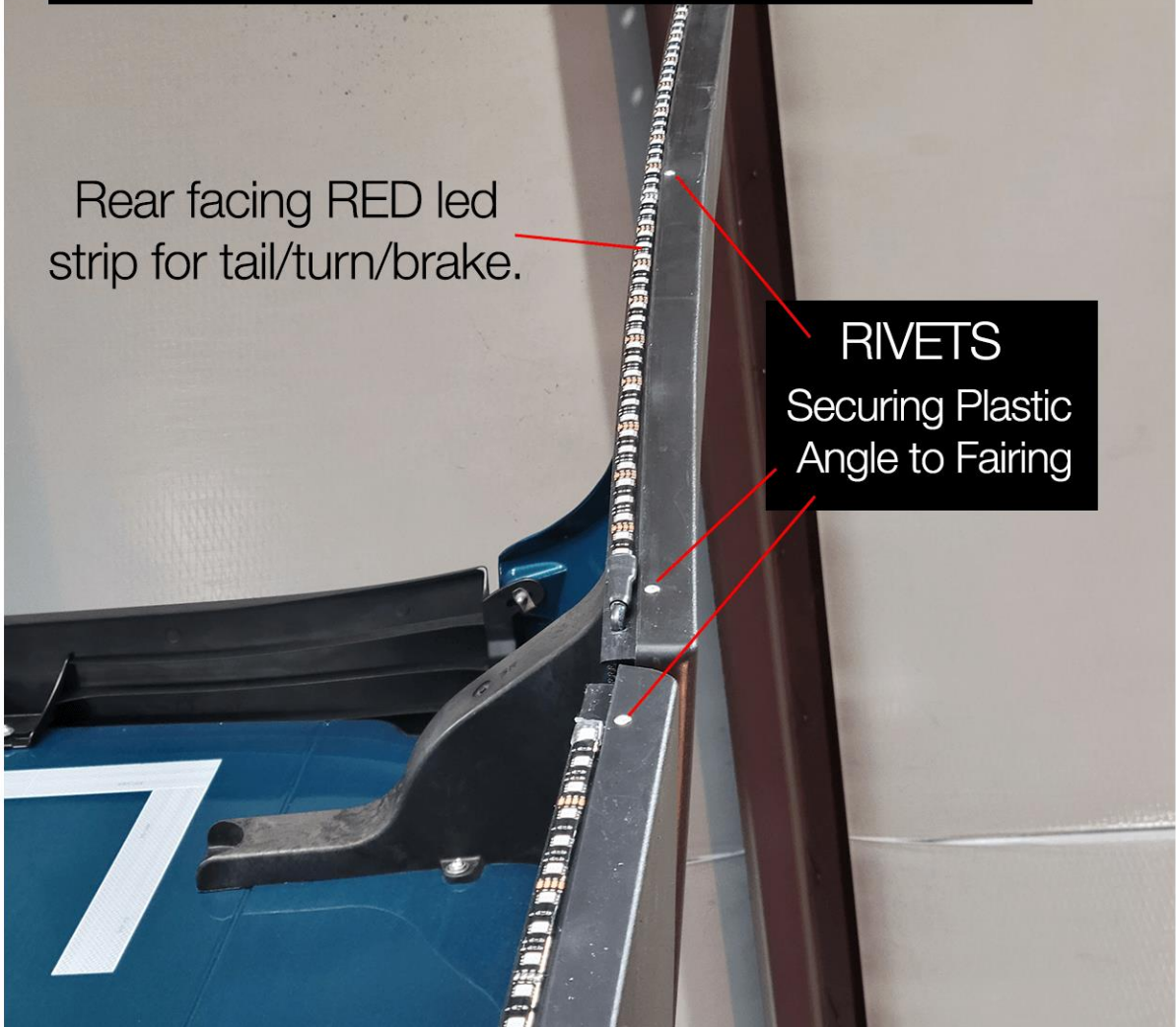


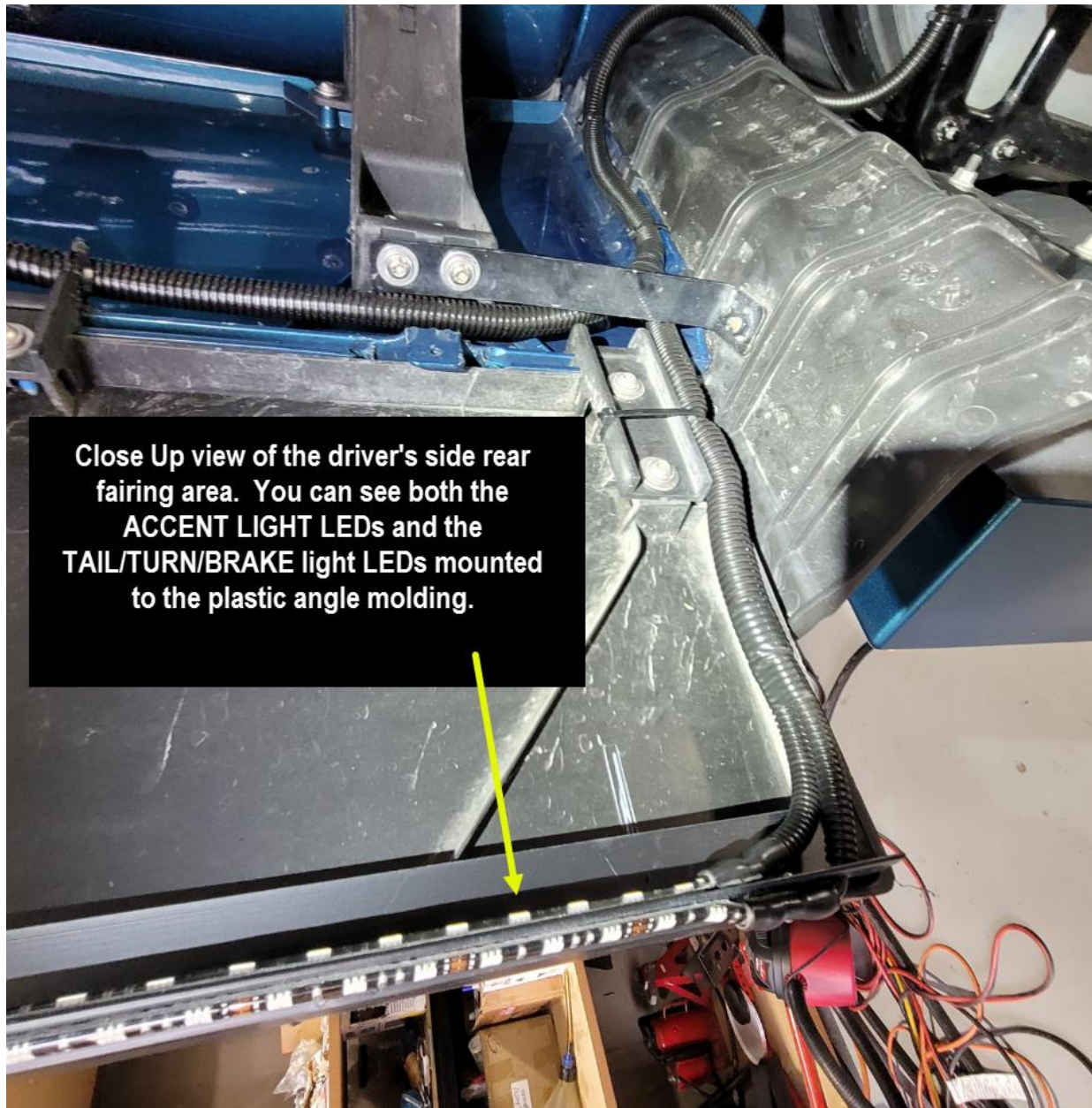
CLOSE UP - PASSENGERS SIDE REAR

Rear facing RED led strip for tail/turn/brake.

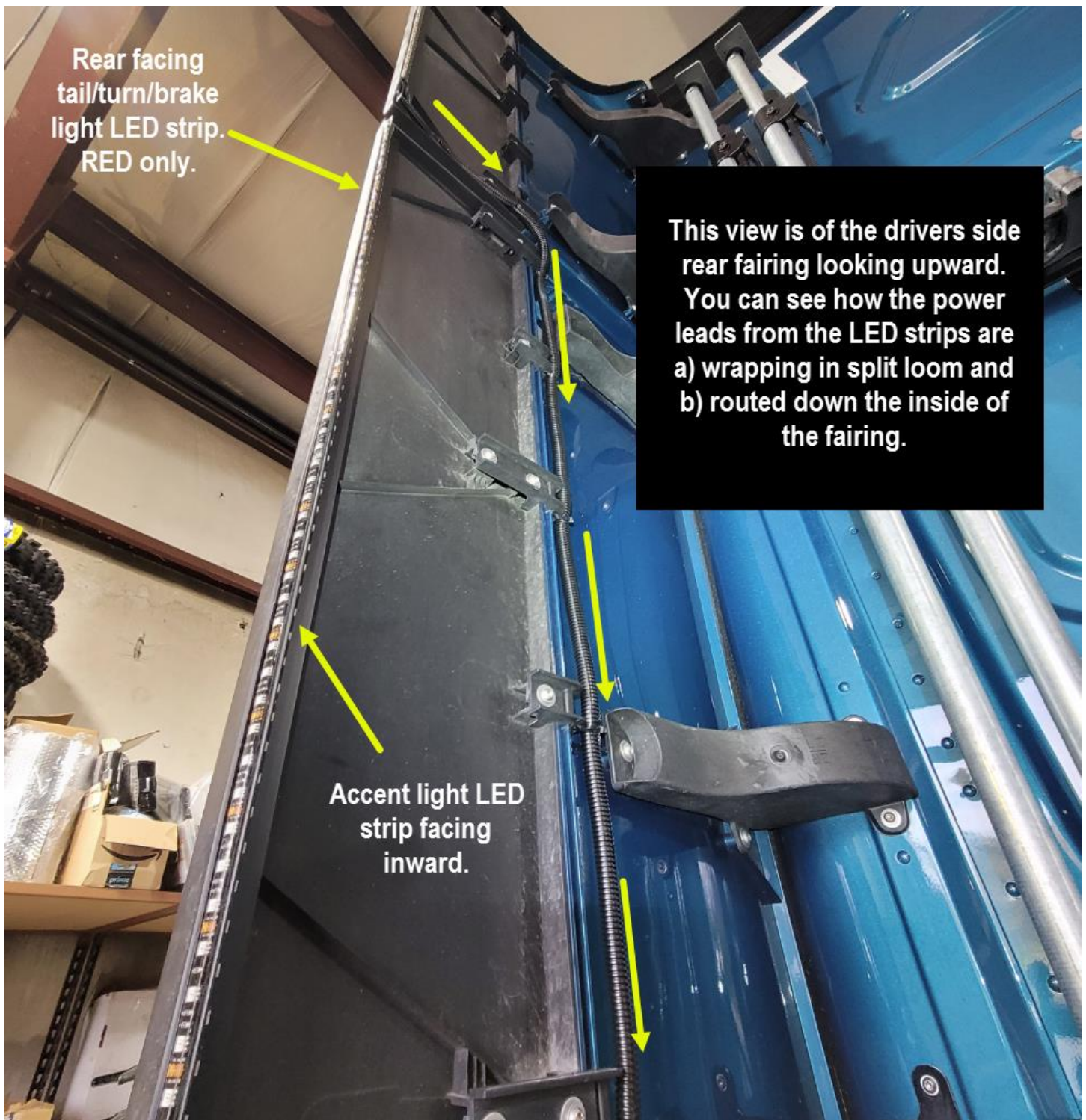
RIVETS

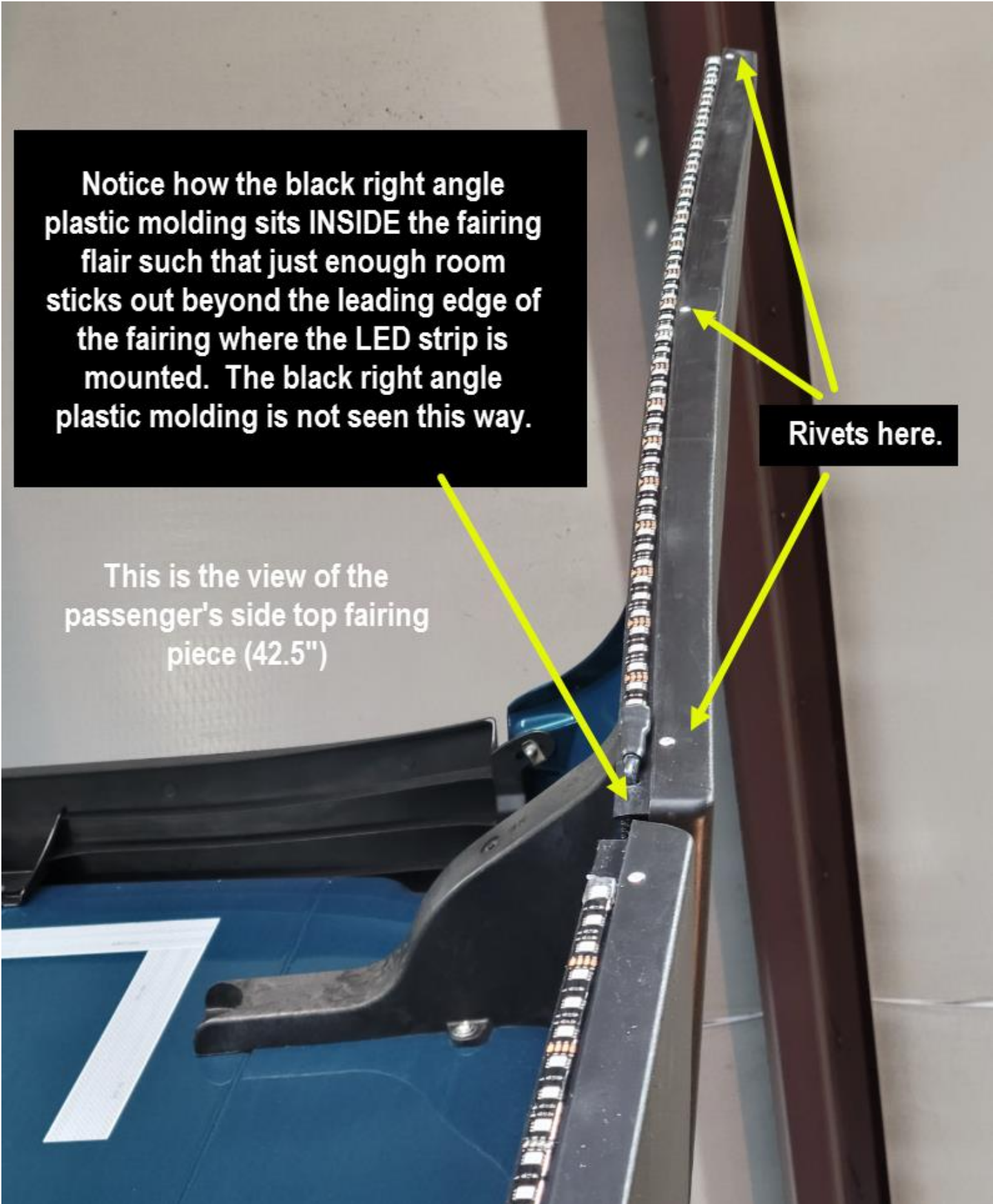
Securing Plastic Angle to Fairing





Close Up view of the driver's side rear fairing area. You can see both the ACCENT LIGHT LEDs and the TAIL/TURN/BRAKE light LEDs mounted to the plastic angle molding.

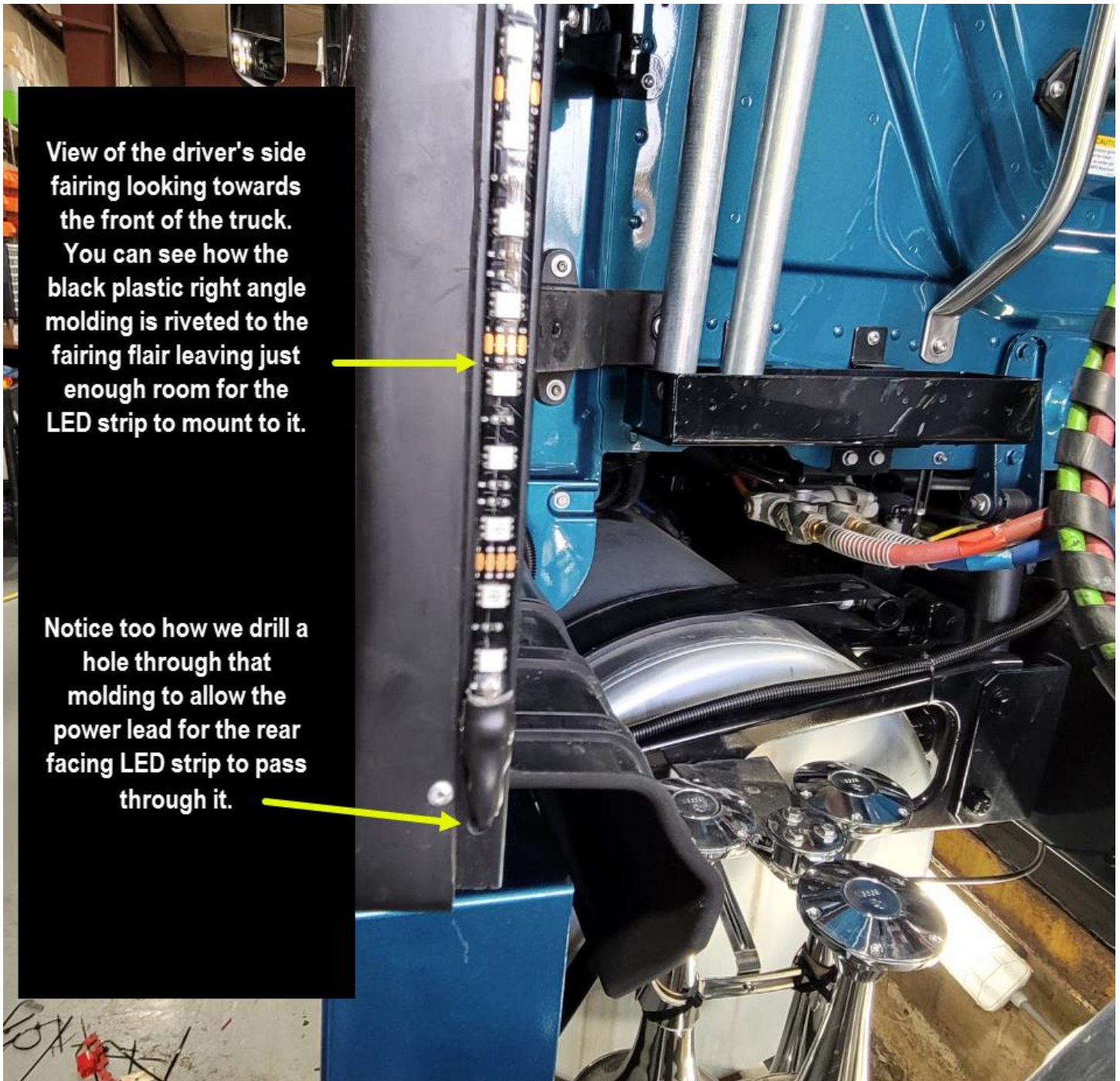




Notice how the black right angle plastic molding sits **INSIDE** the fairing flair such that just enough room sticks out beyond the leading edge of the fairing where the LED strip is mounted. The black right angle plastic molding is not seen this way.

Rivets here.

This is the view of the passenger's side top fairing piece (42.5")



View of the driver's side fairing looking towards the front of the truck. You can see how the black plastic right angle molding is riveted to the fairing flange leaving just enough room for the LED strip to mount to it.

Notice too how we drill a hole through that molding to allow the power lead for the rear facing LED strip to pass through it.

TAIL / TURN / BRAKE LIGHT INTEGRATION

If you purchased the optional TAIL/TURN/BRAKE Light integration, these two diagrams show you how the LED strips need to be wired. **NOTE: You must use the RELAYS we provide. Do not attempt to run the Boogey Lights tail/turn/brake light system using the truck's own lighting system power. Doing so will over-load the truck's LCM which will cause all of the lights on the truck to shut down. When that happens, you won't have any lights at all.**

This photo shows the Freightliner Cascadia kit. The Western Star is the same configuration.

FREIGHTLINER CASCADIA TAIL-TURN-BRAKE LED WIRING

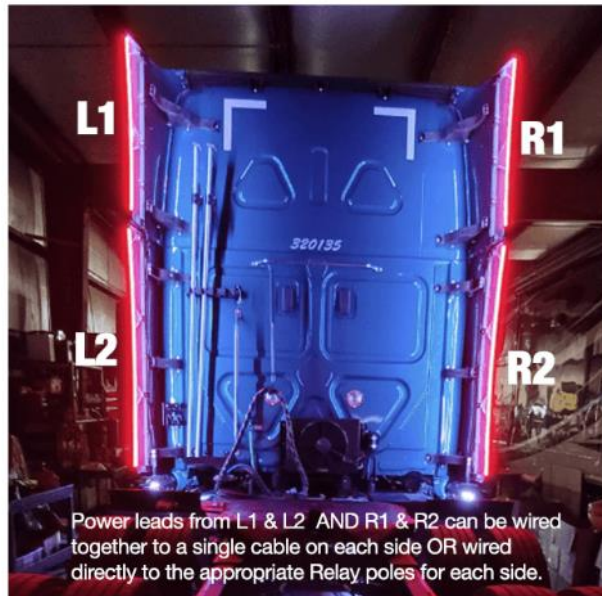
BOOGEE LIGHTS

LED STRIP

LEFT SIDE power leads
coming from L1 & L2



BLACK = chasis ground
BLUE (diode 1) -> RELAY 2
GREEN (diode 2) -> RELAY 1
RED (diode 3) -> RELAY 1



BOOGEE LIGHTS

LED STRIP

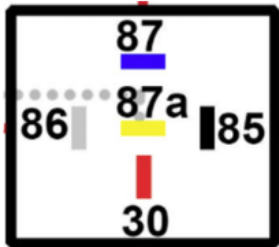
RIGHT SIDE power leads
coming from R1 & R2



BLACK = chasis ground
BLUE (diode 1) -> RELAY 2
GREEN (diode 2) -> RELAY 3
RED (diode 3) -> RELAY 3

FREIGHTLINER CASCADIA TAIL-TURN-BRAKE RELAY WIRING

RELAY 1



view of bottom of relay
each pole is numbered

85: Frame ground.

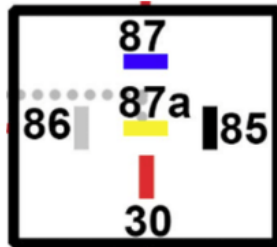
86: 12vdc+ trigger wire INPUT
from truck's LEFT turn signal.

87: 12vdc+ OUT to Diodes 2 and
3 on the LEFT SIDE Boogey
Lights LED STRIP.

87a: not used. cap the wire

30: Connects to 12vdc+ side of
battery (with inline fuse).

RELAY 2



view of bottom of relay
each pole is numbered

85: Frame ground.

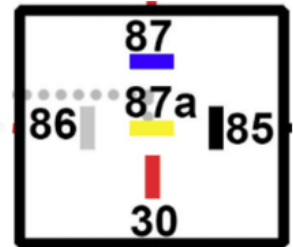
86: 12vdc+ trigger wire INPUT
from truck's TAIL LIGHT aka
Running Lights.

87: 12vdc+ OUT to Diode 1 on
BOTH the LEFT and RIGHT SIDE
Boogey Lights LED STRIPS

87a: not used. cap the wire

30: Connects to 12vdc+ side of
battery (with inline fuse).

RELAY 3



view of bottom of relay
each pole is numbered

85: Frame ground.

86: 12vdc+ trigger wire INPUT
from truck's RIGHT turn signal.

87: 12vdc+ OUT to Diodes 2 and
3 on the RIGHT SIDE Boogey
Lights LED STRIP.

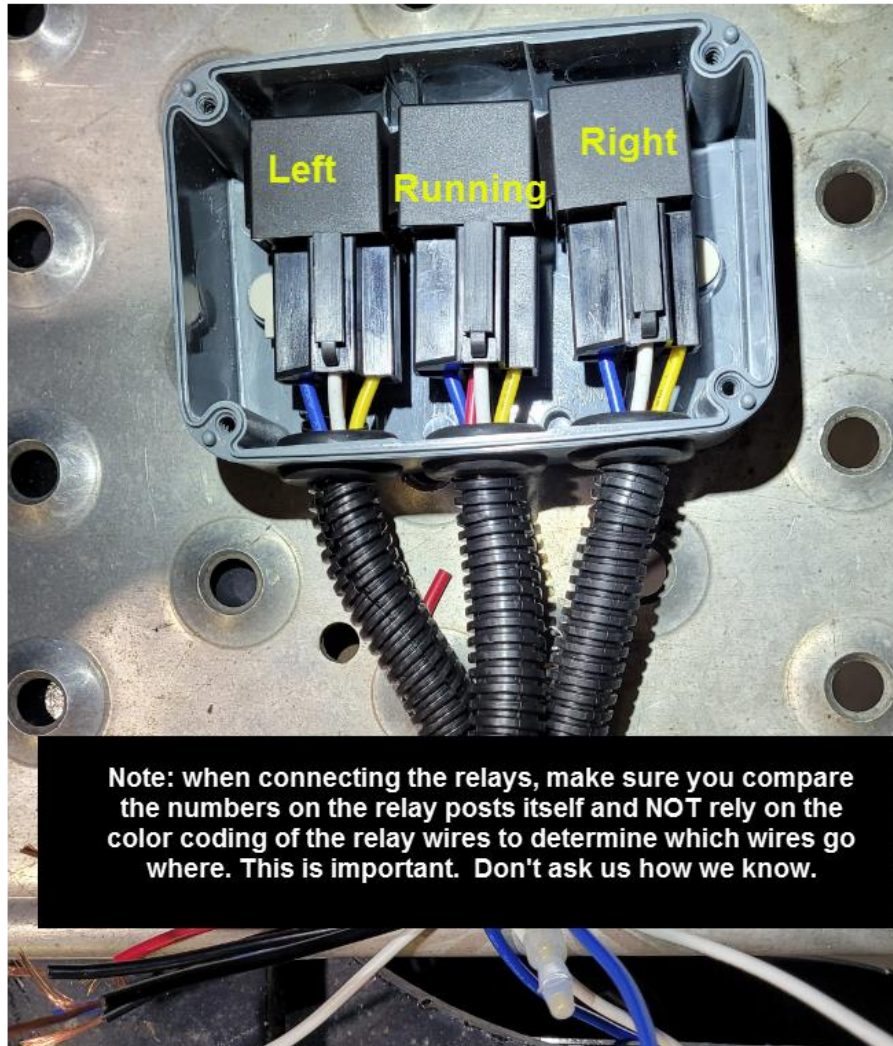
87a: not used. cap the wire

30: Connects to 12vdc+ side of
battery (with inline fuse).

Be sure the RELAYS are mounted in the provided housing OR something similar to keep them dry.

NOTE: When wiring up the relays, make sure you compare the numbers on the relay posts itself (eg. 85, 86, etc) and NOT rely on the color coding of the wires coming from the relay base to determine which wire goes where. This is super important. Don't ask us how we know.

View of the 3 relays in the water proof housing.



Additional Resources

- Product Page: <https://www.boogeylights.com/western-star-led-light-kit/>
- How to Videos: <https://www.boogeylights.com/how-to-videos/>
- 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>
- Amperage Data: <https://docs.boogeylights.net/?wpdmdl=1137>
- Cutting Your LEDs: <https://docs.boogeylights.net/?wpdmdl=964>
- 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>

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/>.