INSTALLATION INSTRUCTIONS

FREIGHTLINER CASCADIA GEN1
REAR FAIRING ACCENT LED LIGHT KIT

RULE THE NITE™

BOOGEY LIGHTS®

Family Owned Motorsports Lighting Since 1989

800.847.1359

www.BoogeyLights.com

Thank you for purchasing genuine Boogey Lights® LED 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 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 our Under-Glow or Under-Cab light system. We have included some photos later on in this guide to help you better understand how the lighting system is mounted.

There are 10 mounting locations. Five Heavy Duty LED strips on each side of the truck along the end of each vertical fairing. We include diagrams further along in this guide showing placement of each of these LED strips. The first step in the installation process is to build out the mounting surface where the LED strips will be mounted**. Do not mount the LED strips directly to the plastic fairing extensions.** If you do, the LED strips will fail prematurely; which is not covered under warranty. Those plastic fairing extensions twist and flex way too much particularly when air flows over them at highway speeds. Instead, rivet the included black plastic molding to each of the four fairing extensions on the truck and add the horizontal bracing as indicated. We include a separate document on building out this mounting surface including how to properly brace the vertical fairing extensions. Be sure to review that document (there's a video link in that document too). Our kit includes the 5/16" rivets to do this (you'll obviously need a rivet gun 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.

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 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 to the battery box on the driver's side.
- If installing the optional Tail/Turn/Brake integration is able to access the rear tail/turn/brake lights and to tap into those four circuits (brake, tail lights, left turn, right turn).

TOOLS & SUPPLIES YOU WILL LIKELY NEED

Drill, rivet gun, 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, if you are installing the RGB multi-color version we assume you already have a Boogey Lights LED controller installed from a previous light kit (e.g. Under-Glow or Under-Cab LED light kit). If you're installing single color, we assume you have a way to turn the LED on/off.

MULTI-COLOR / RGB INSTALLATIONS: The power leads coming from the LEDs will connect to the Boogey Lights LED controller.

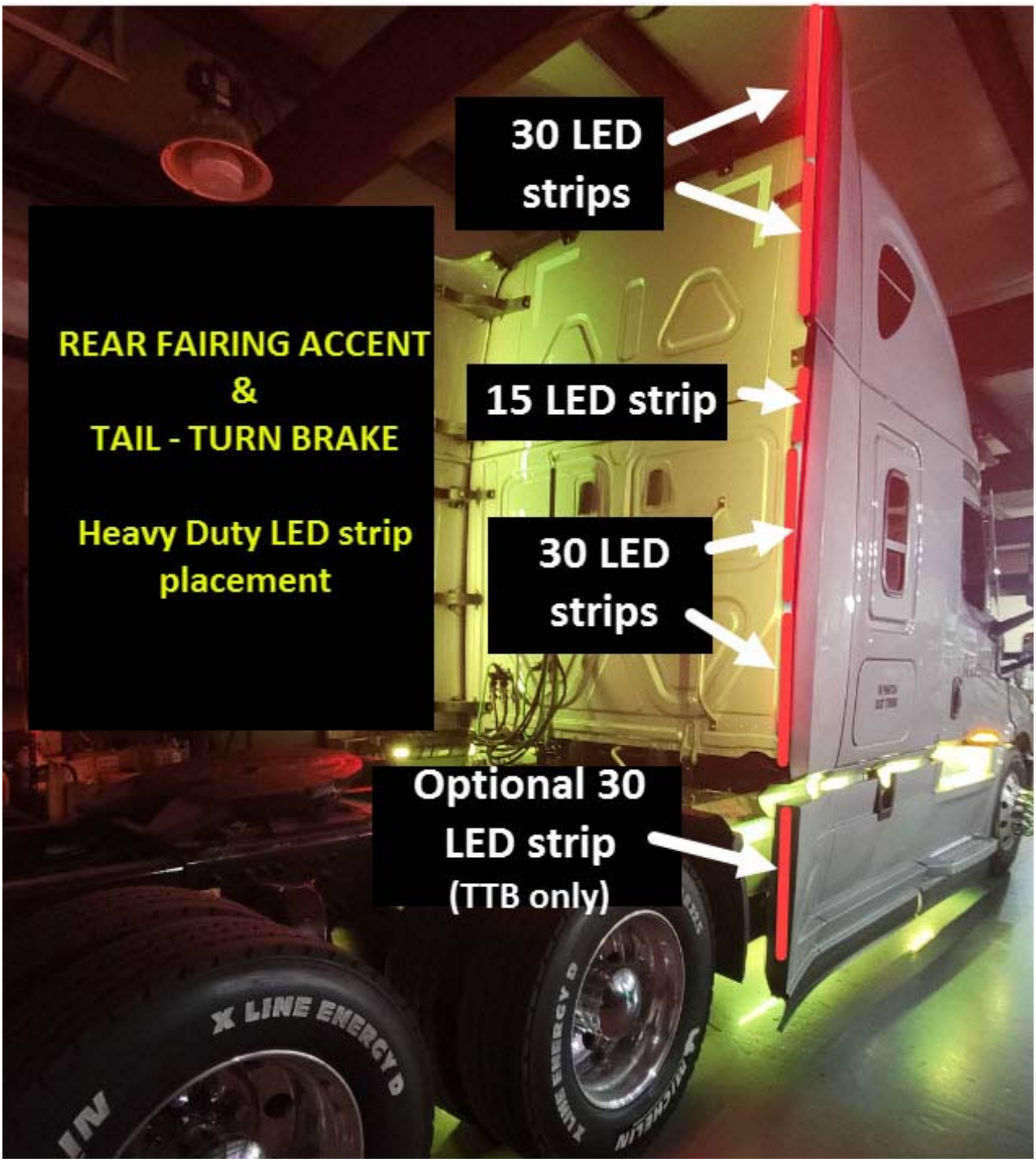
SINGLE- COLOR INSTALLATIONS: Single color LEDs do not require an LED controller to operate. They do however require a switch somewhere in the circuit to turn them off/on. There are a number of ways to do this but regardless of how you decide to switch your single color LEDs, you need to be mindful of the amperage that adding 400 or more 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.

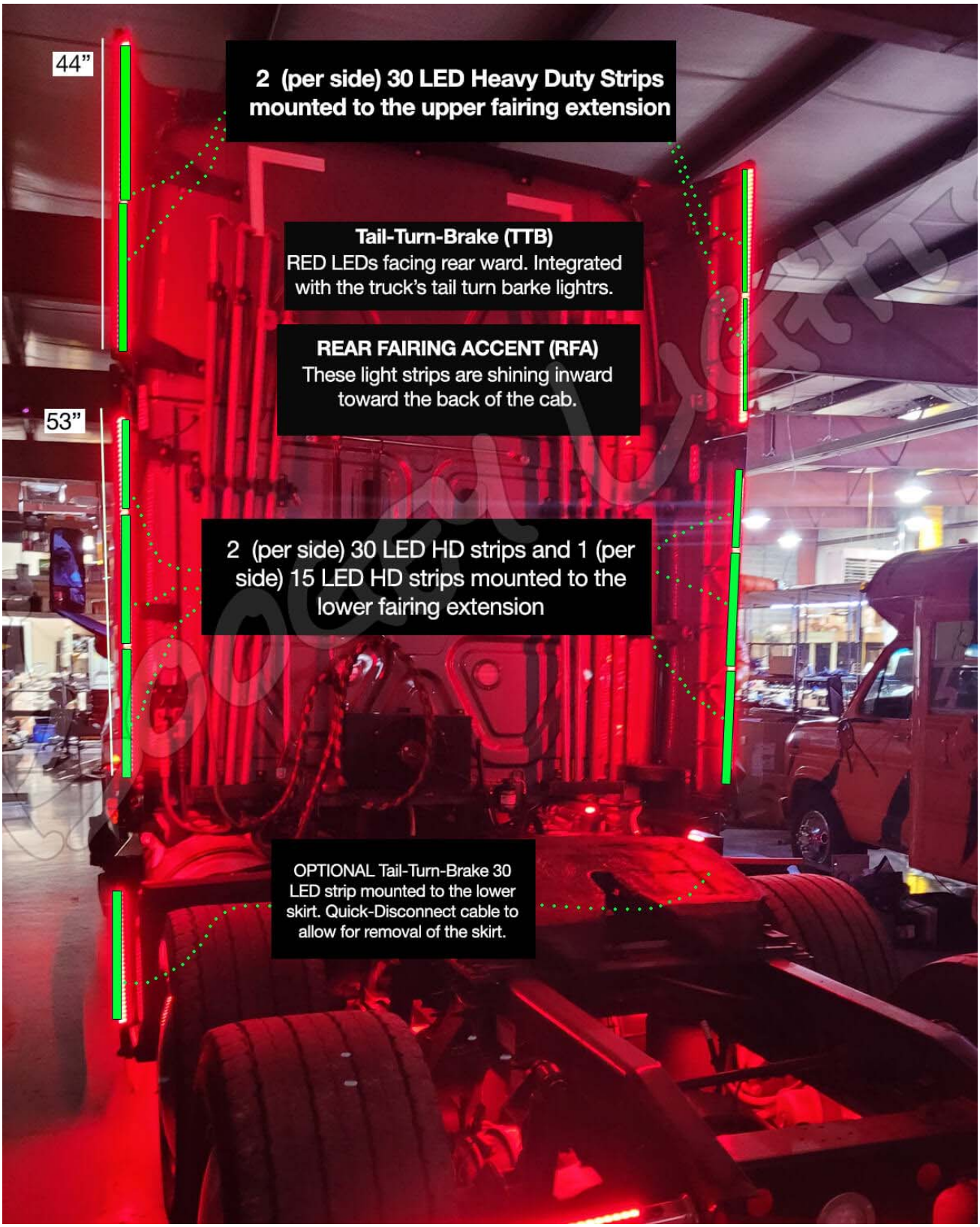
4. Bench test your setup. We know this takes a few extra minutes but we STRONGLY suggest you bench test your lights AND your controller on a table before doing anything further. While we test every light strip and controller before shipping, bench testing your lights will eliminate the possibility of 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.

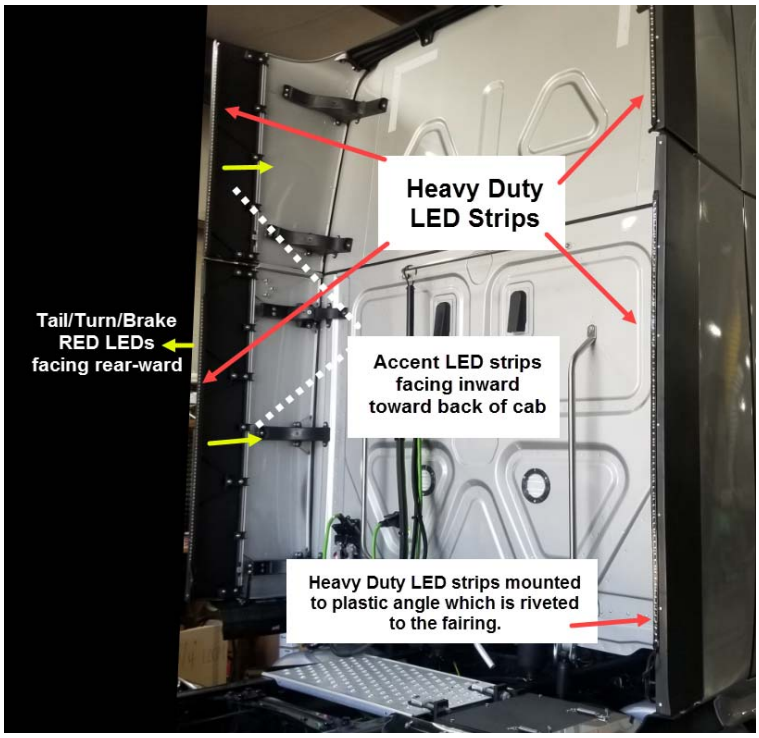
LED PLACEMENT

Once you have the black right-angle molding riveted to the fairing it's time to mount the LED strips to that molding. The Heavy Duty 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 Heavy Duty LED strips, those strips face rear-ward as shown in the photo below.




44”
2 (per side) 30 LED Heavy Duty Strips mounted to the upper fairing extension
Tail-Turn-Brake (TTB)
RED LEDs facing rear ward. Integrated with the truck’s tail turn barke lightrs.
REAR FAIRING ACCENT (RFA)
These light strips are shining inward toward the back of the cab.
53”
2 (per side) 30 LED HD strips and 1 (per side) 15 LED HD strips mounted to the lower fairing extension
OPTIONAL Tail-Turn-Brake 30 LED strip mounted to the lower skirt. Quick-Disconnect cable to allow for removal of the skirt.

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 two 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.

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.

- Black 90 degree plastic angle with 5/16" rivets.
- 18AWG or 20AWG Feeder Cable – 4 Conductor. Use this cable to extend the LED power leads to the LED controller.
- 3M Adhesion Primer. Used to prep the surface before attaching the LED strips. *Always, always, always* use this adhesion primer with 3M adhesive products if you want the bond to hold.
- 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.
- 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.
- 8" 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.
- If you purchased the optional tail/turn/brake light integration, we also include three 40A automotive relays with holders. See wiring diagram at the end of this guide.

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.

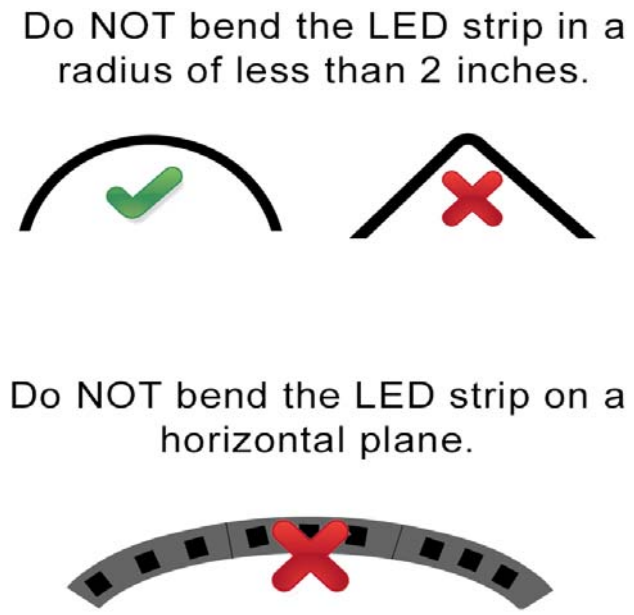
Follow these steps for mounting your LED strips:

- 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.

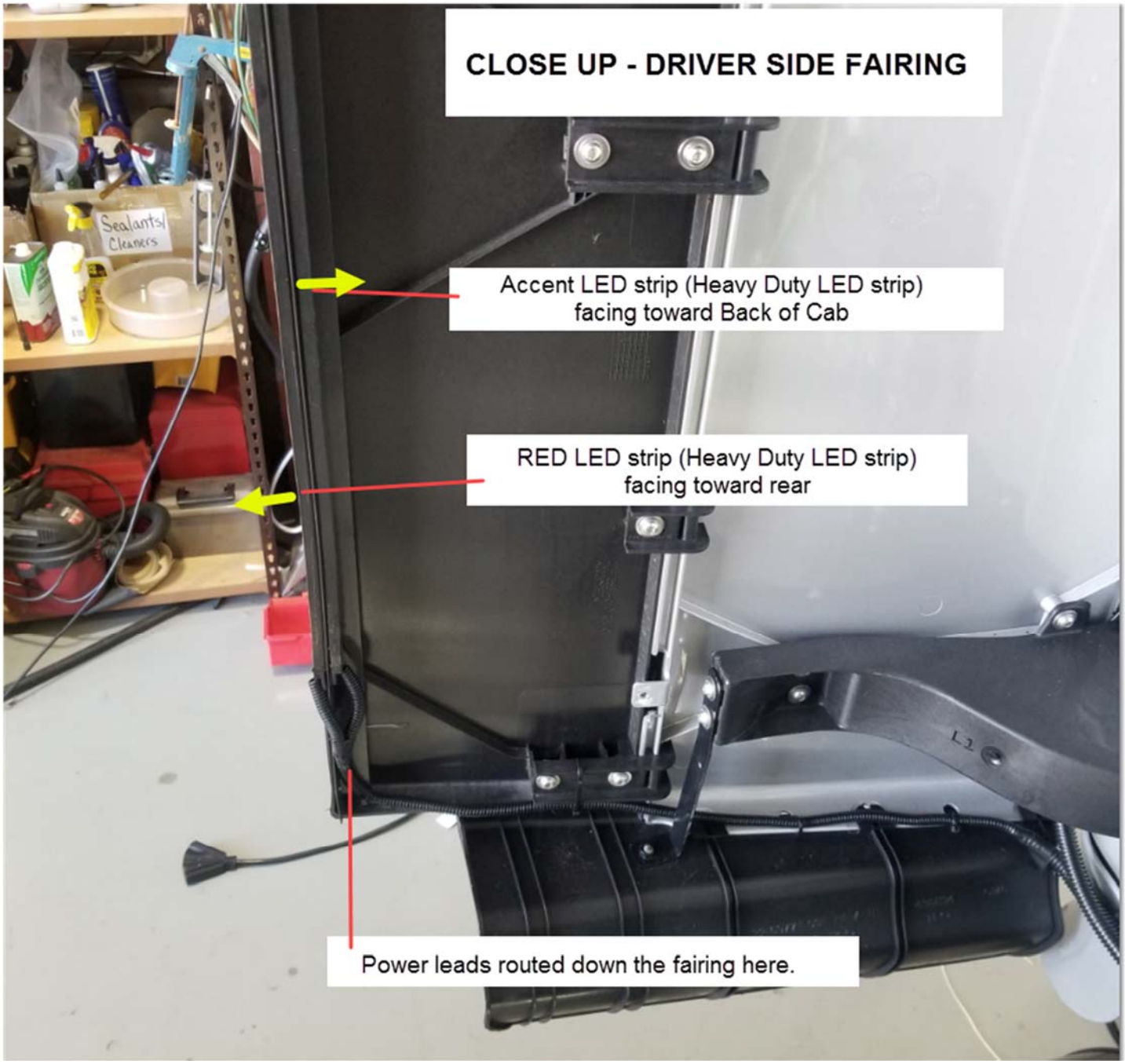
- Peel off the red backing tape that protects the 3M adhesive tape on your LED strip. Be careful not to let the tape touch anything. The 3M backing tape on these LED strips are one-use only. They cannot be reused.

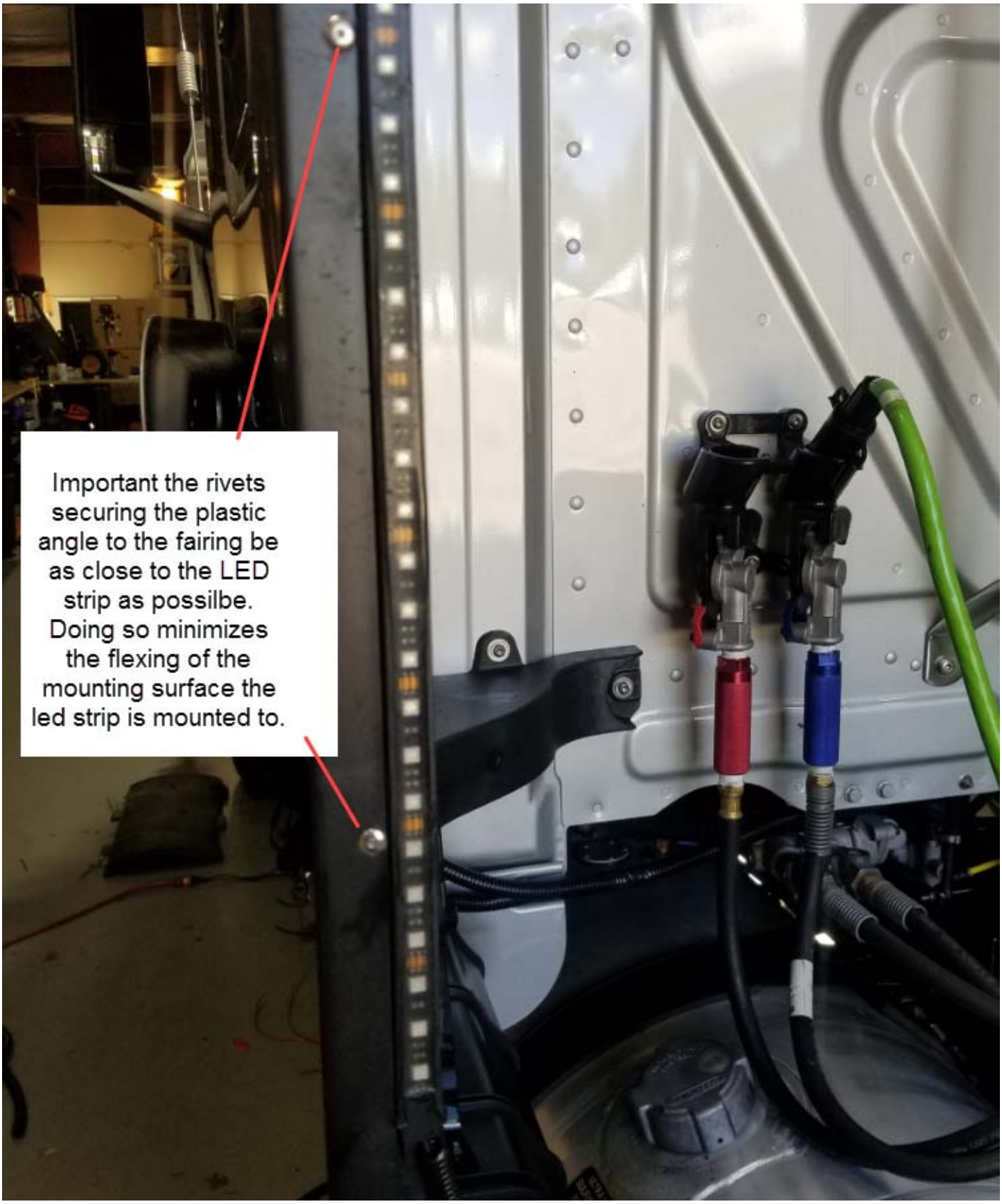


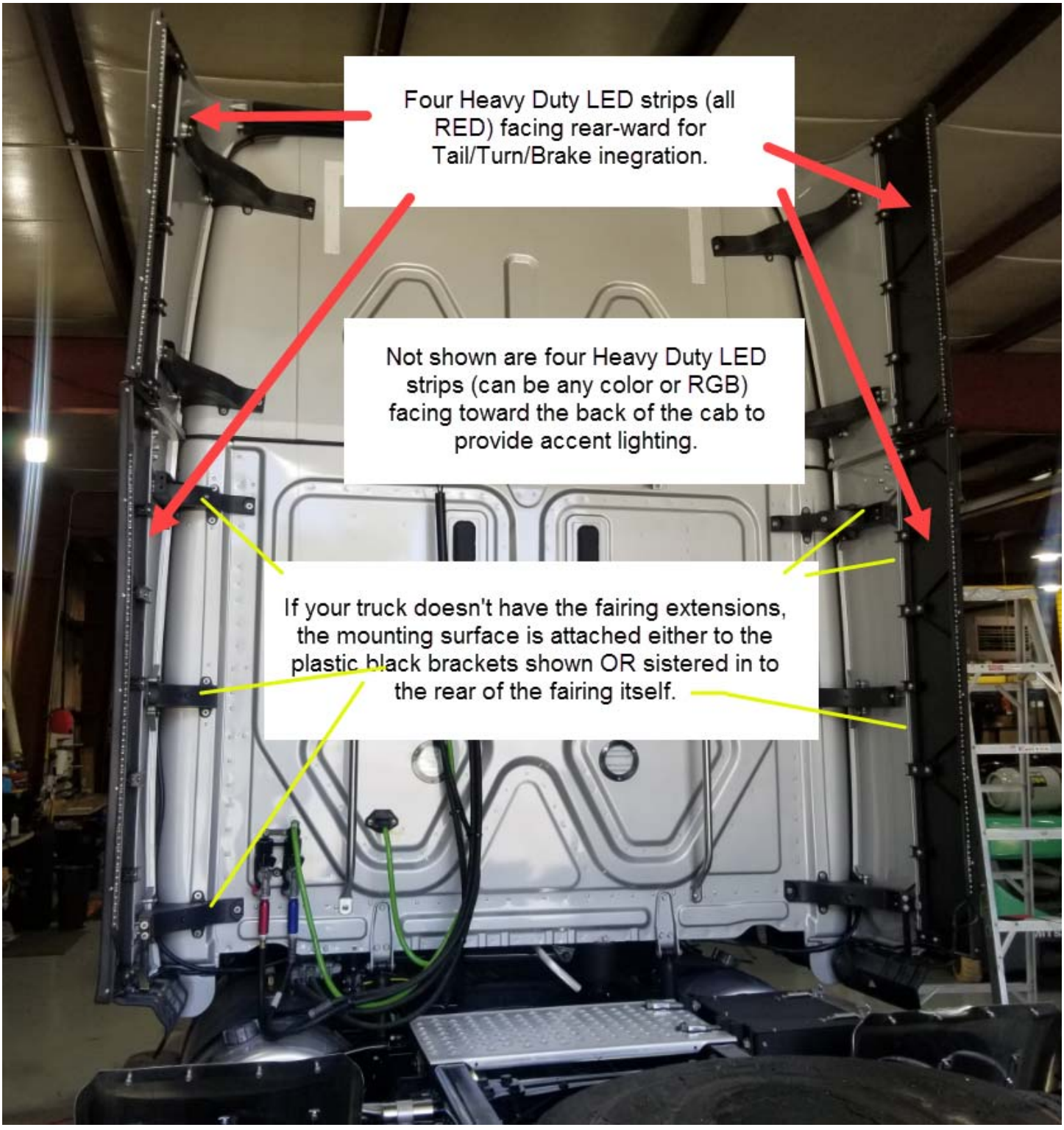
- Carefully push the LED strip to the area you have prepared. You will want to apply only enough pressure to the strip to make sure it is firmly mounted. *You only get one opportunity to do this.* Once the LED strip touches a properly prepared surface that has been promoted, that LED strip will be very 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.

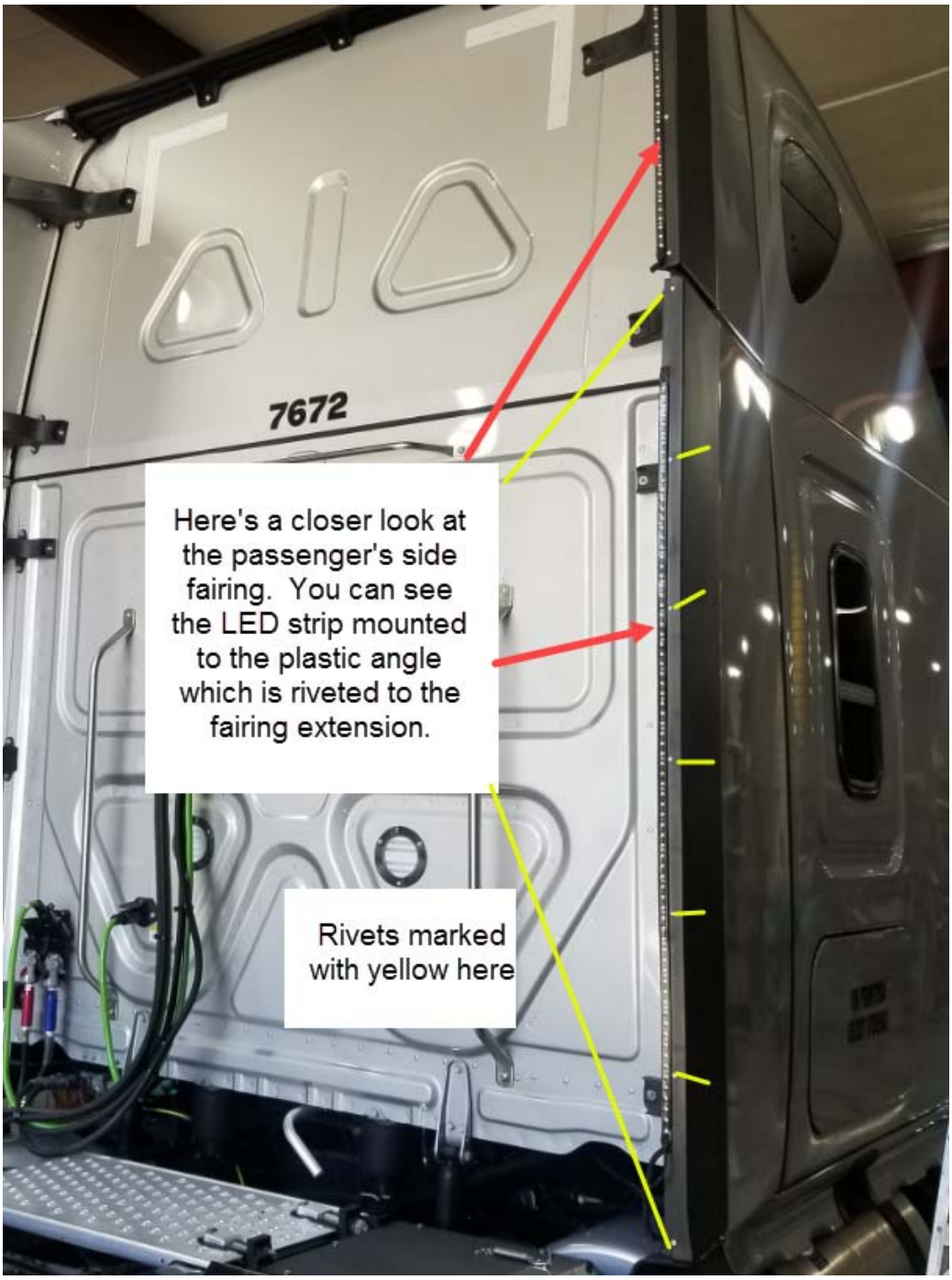
INSTALLATION PHOTOS

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.




Important the rivets securing the plastic angle to the fairing be as close to the LED strip as possilbe. Doing so minimizes the flexing of the mounting surface the led strip is mounted to.


Four Heavy Duty LED strips (all RED) facing rear-ward for Tail/Turn/Brake inegration.
Not shown are four Heavy Duty LED strips (can be any color or RGB) facing toward the back of the cab to provide accent lighting.
If your truck doesn't have the fairing extensions, the mounting surface is attached either to the plastic black brackets shown OR sistered in to the rear of the fairing itself.


7672
Here's a closer look at the passenger's side fairing. You can see the LED strip mounted to the plastic angle which is riveted to the fairing extension.
Rivets marked with yellow here

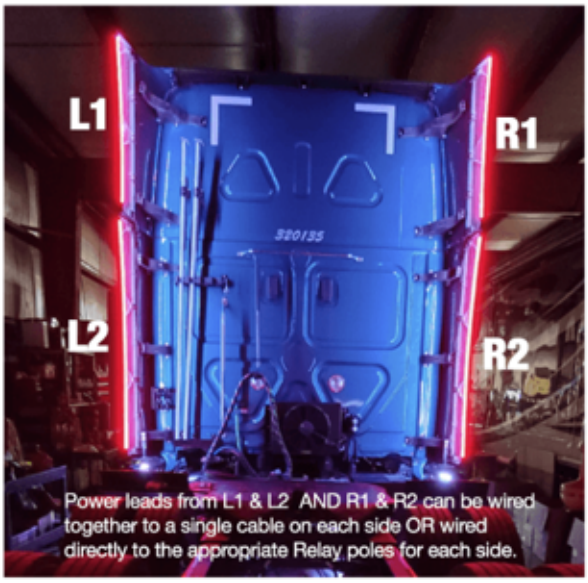
TAIL / TURN / BRAKE LIGHT INTEGRATION

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.

Note: Starting May 1, 2023 the L1 and R1 LED segments shown in the photo below consist of TWO Heavy Duty LED strips instead of one. Starting October 1, 2023 the L2 and R2 LED segments shown in this photo have THREE LED strips instead of one (2 – 30 LED strips and 1 – 15 LED strip on each side). See layout diagram earlier on in this guide.

BOOGEY LIGHTS
LED STRIP
LEFT SIDE power leads
coming from L1 & L2

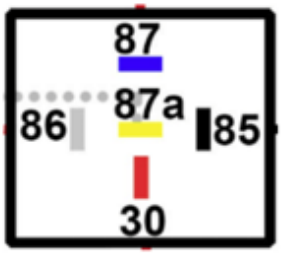
BLACK = chasis ground
BLUE (diode 1) -> RELAY 2
GREEN (diode 2) -> RELAY 1
RED (diode 3) -> RELAY 1



BOOGEY 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

RELAY 1



view of bottom of relay
each pole is numbered

85: Frame ground.

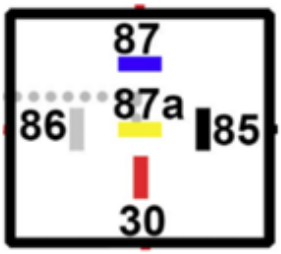
86: 12vdc+ trigger wire INPUT from truck's LEFT turn signal.

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.

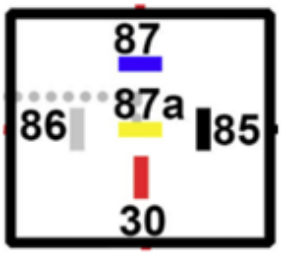
86: 12vdc+ trigger wire INPUT from truck's TAIL LIGHT aka Running Lights.

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: The colors of the wires coming out of the wiring harness are not standard and will change. Super important to pay attention to the pole numbers on the relay itself which are standard and do not change.