

INSTALLATION INSTRUCTIONS

VOLVO VNL
REAR FAIRING ACCENT LED LIGHT KIT



RULE THE NITE™

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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.

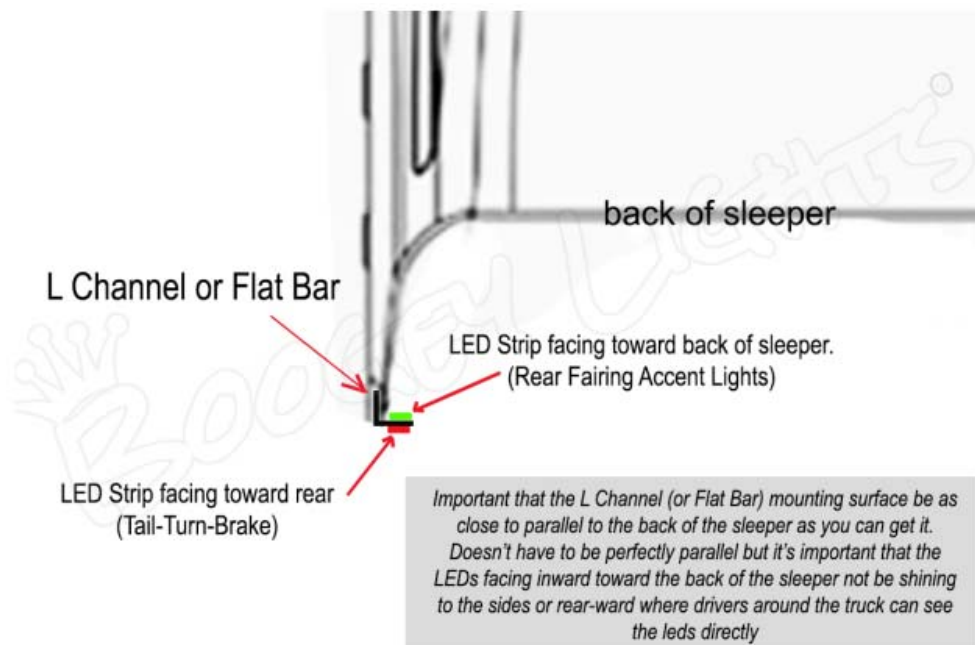
UPDATE – IMPORTANT

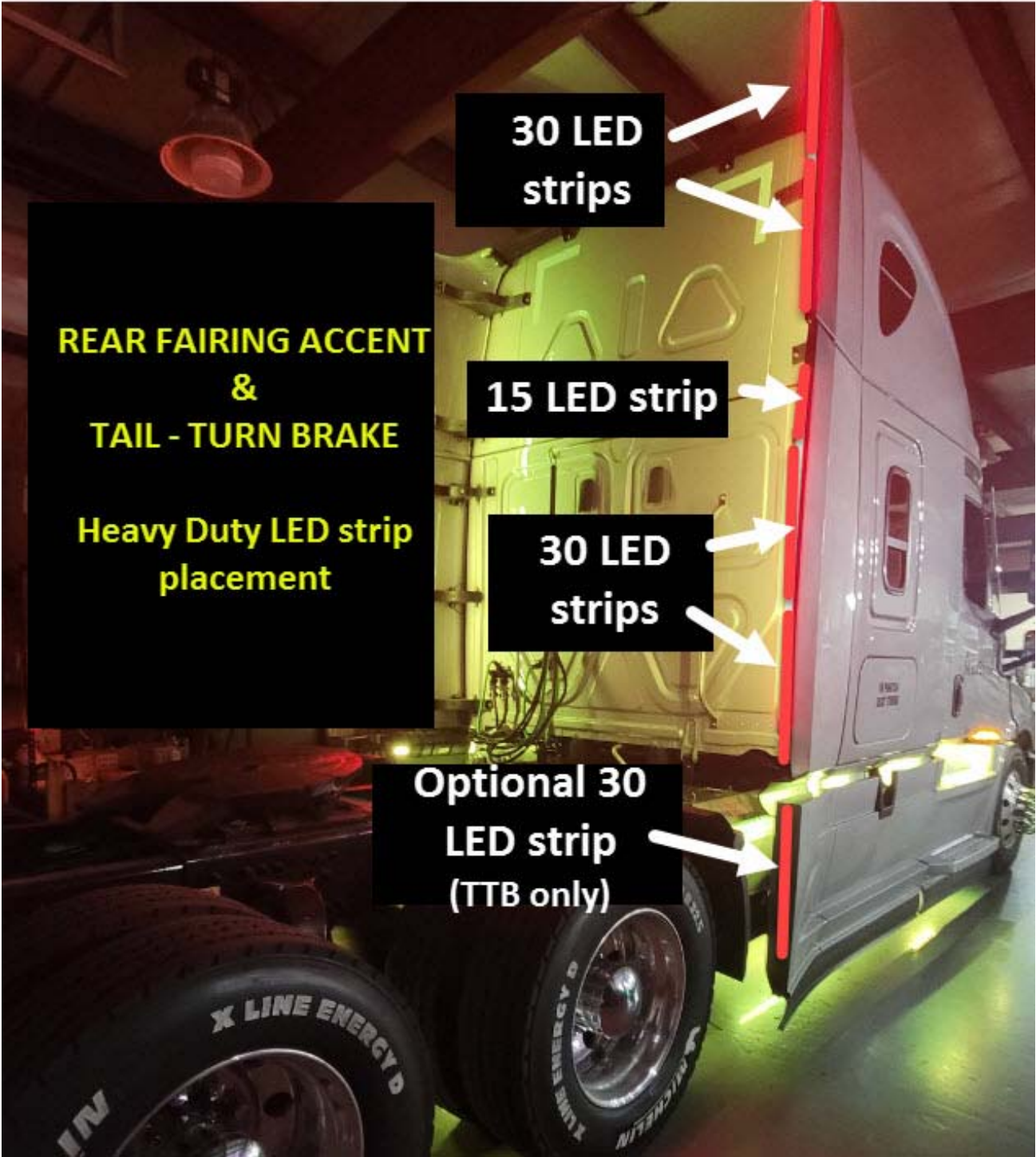
We have made three changes to this light kit since this light kit was first introduced in 2020. The three changes are not fully reflected in some of the installation photos contained in this guide. Here's the list:

#1. 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.

#2. The second change is the type of mounting surfaces we include with the kit and how to best brace those mounting surfaces to protect the LED strip from flexing too much. We have included additional documentation with this kit detailing these changes along with a link to a video on our website showing how to do it. Please make sure you review that document thoroughly. It's important the mounting surface for the Rear Fairing Accent lights (and Tail-Turn-Brake light kit if also purchased) be stable. 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.

#3. The third change is that this light kit now includes a total of 10 Heavy Duty LED strips for the Rear Fairing Access (RFA) light kit (5 strips mounted on each side facing inward) and 10 Heavy Duty LED strips for the Tail-Turn-Brake (TTB) light kit (5 strips mounted on each side facing reward). The maximum length of a single heavy duty led strip is 22" . Using these shorter Heavy Duty LED strips greatly reduces the amount of strip failures due to twisting and flexing of the plastic fairing extensions. The kit takes a little longer to install due to the additional LED strips but is much more durable when used on the plastic fairing extensions used on Volvo and Freightliner trucks. We have included a diagram of this layout on the next page for reference.





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 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 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 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.

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. 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.

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.

REAR FARING ACCENT (RFA) LIGHTS

There are 10 mounting locations. Five heavy duty LED strips on each side of the truck along the end of the fairing facing in ward toward the back of the sleeper/cab. The first step is to rivet the included black plastic flat bar to each of the four fairing extensions on the truck. Our kit includes the 5/16" rivets to do this. The accent LED light strips mount to the inside of each of the plastic flat bar facing inward toward the rear of the cab. Be sure to install the reinforcing braces too referenced earlier in this documentation (see video link). If you're installing an LED controller or switch with this kit, you'll need to remove the driver's side steps to access the batteries (all power connections come from the battery directly). Also, the LED controller can be mounted in either the driver's side storage / jockey box or passenger's side. We prefer the driver's side since it's closest to the battery bank. Regardless of which side you choose, you will need to drill a hole in the floor of that box to connect power to the battery box, led wires and antenna. The 12vdc positive side of the LED controller will connect directly to the battery bank (with fuse). The 12vdc negative side will connect to any bare metal support. If you're also installing the tail/turn/brake light kit, those RED Heavy Duty led strips will mount to the same plastic flat bar 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.

OPTIONAL TAIL / TURN / BRAKE ADD-ON

There are 10 mounting locations. Five heavy duty LED strips on each side of the truck along the end of the fairing facing rear-ward. See diagram of this layout further on this guide. The RED Tail / Turn / Brake LED light strips mount to the outside of each of the plastic flat bar facing toward the rear of the truck. 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-brake 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.

NOTE: You must use the three 40amp RELAYS we provide in the kit. 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.

THINGS YOU'LL NEED TO KNOW

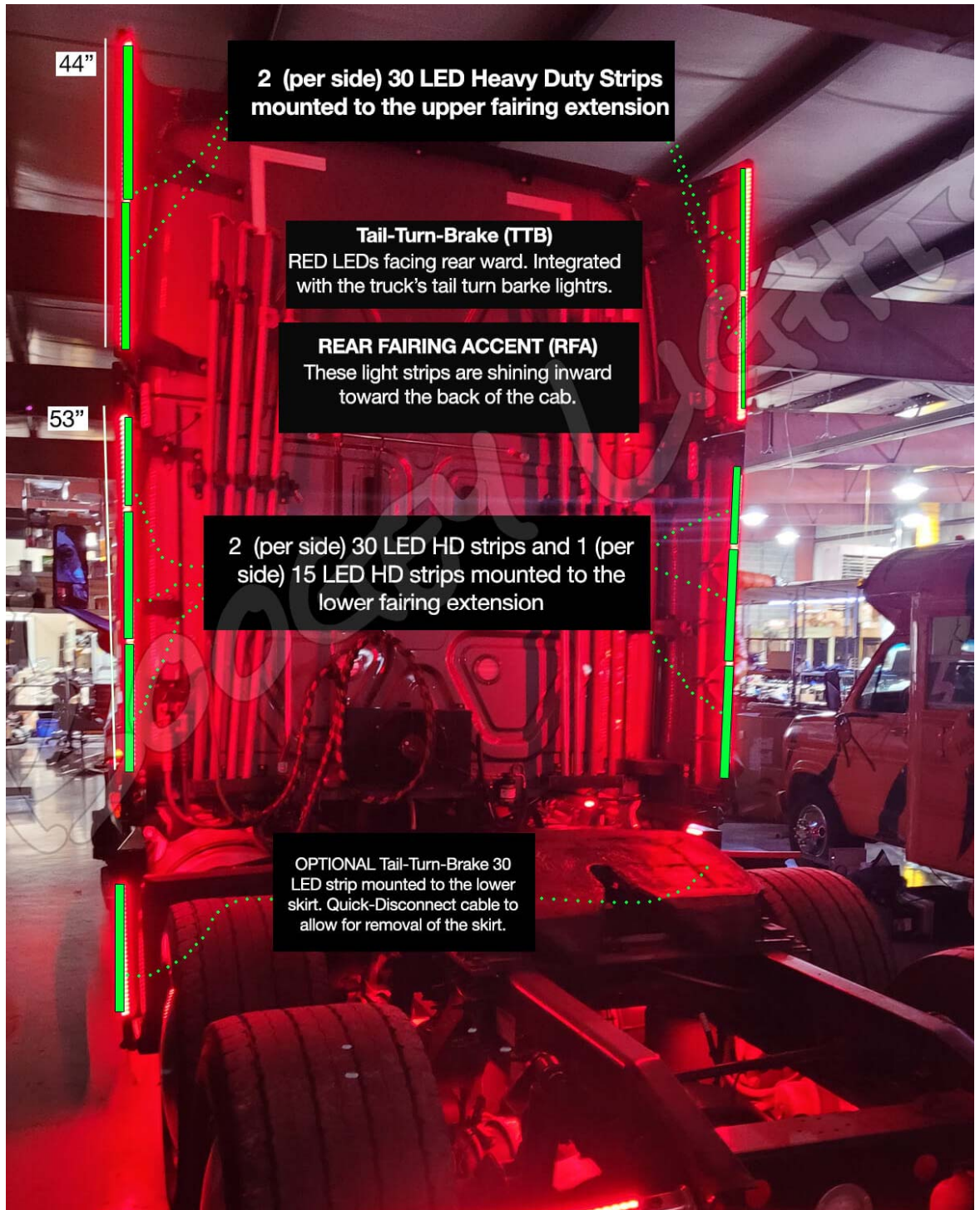
In putting together this installation guide we assume the installer has access to and has a basic understanding of using the tools needed to complete this installation. We also assume the following:

- 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).

LED PLACEMENT

Once you have the black plastic flat bar riveted to the fairing it's time to mount the LED strips to that molding. The LED accent light strips 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.

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.

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.

- Pieces of black plastic angle with 5/16" rivets to build out the vertical mounting surfaces referenced.
- 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 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).
- 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.

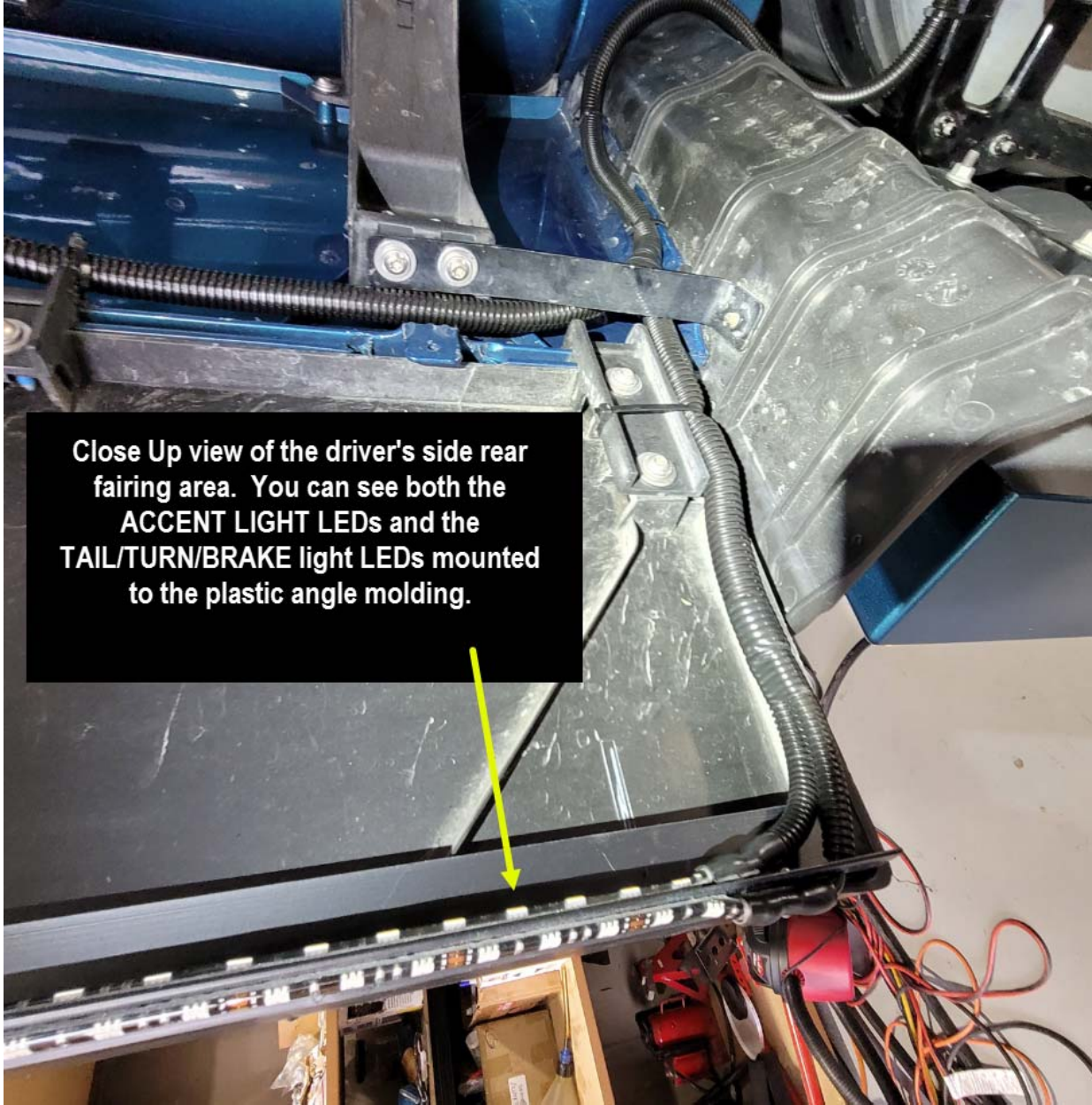


INSTALLATION PHOTOS

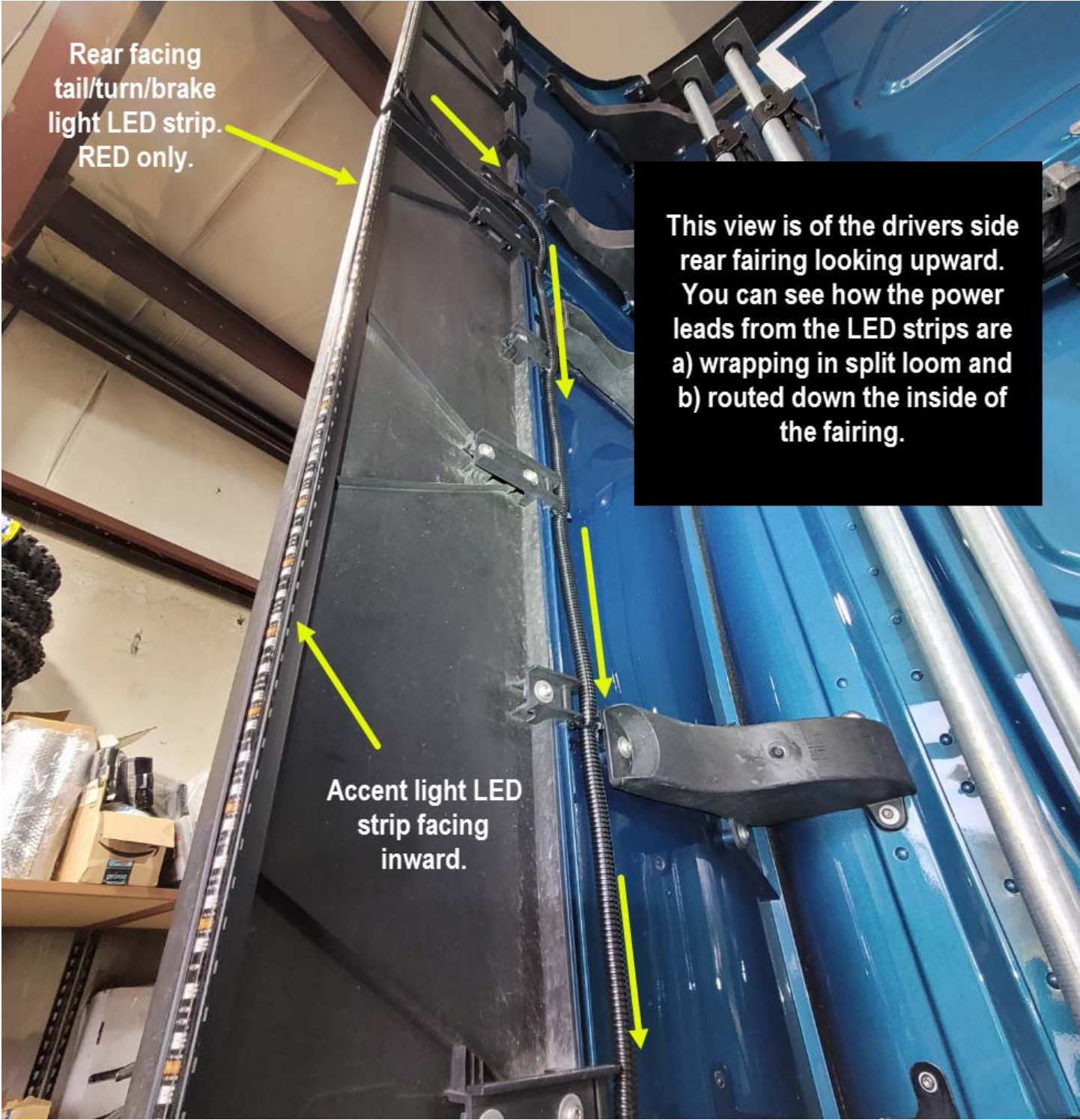
Here are some photos with comments on the installation we did in building this kit. We've commented on key parts of the installation along the way.

NOTE: This photo is of an installation on a 2021 Freightliner Cascadia which is using the original kit configuration. The LED strips shown in this photo is our low profile strips. We no longer use these. Instead, we use our Heavy Duty LED strips. They work the same, just more durable.





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.



Rear facing
tail/turn/brake
light LED strip.
RED only.

Accent light LED
strip facing
inward.

This view is of the drivers side
rear fairing looking upward.
You can see how the power
leads from the LED strips are
a) wrapping in split loom and
b) routed down the inside of
the fairing.

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.**

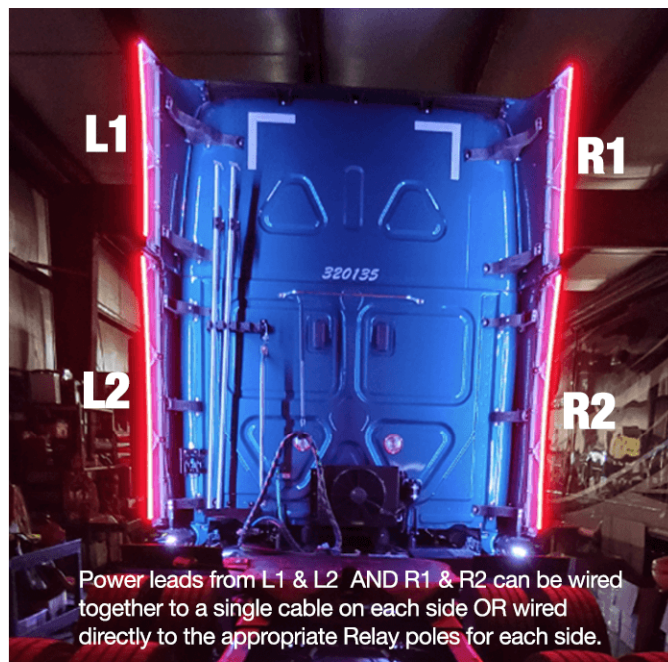
Note: Starting May 1, 2023 the L1 and R1 LED segments shown in the photo below consist of TWO Heavy Duty LED strips instead of one. Starting October 1, 2023 the L2 and R2 LED segments shown in this photo have THREE LED strips instead of one (2 – 30 LED strips and 1 – 15 LED strip on each side). See layout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

TAIL-TURN-BRAKE RELAY WIRING

BOOGY 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



BOOGY LIGHTS
LED STRIP
RIGHT SIDE power leads
coming from R1 & R2

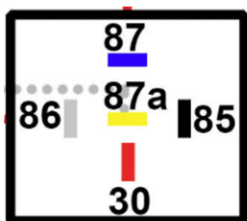


BLACK = chasis ground
BLUE (diode 1) -> RELAY 2
GREEN (diode 2) -> RELAY 3
RED (diode 3) -> RELAY 3



TAIL-TURN-BRAKE RELAY WIRING

RELAY 1



view of bottom of relay
each pole is numbered

85: Frame ground.

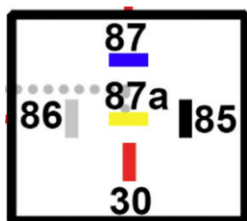
86: 12vdc+ trigger wire INPUT from truck's LEFT turn signal.

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.

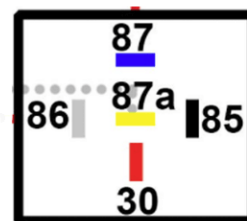
86: 12vdc+ trigger wire INPUT from truck's TAIL LIGHT aka Running Lights.

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.

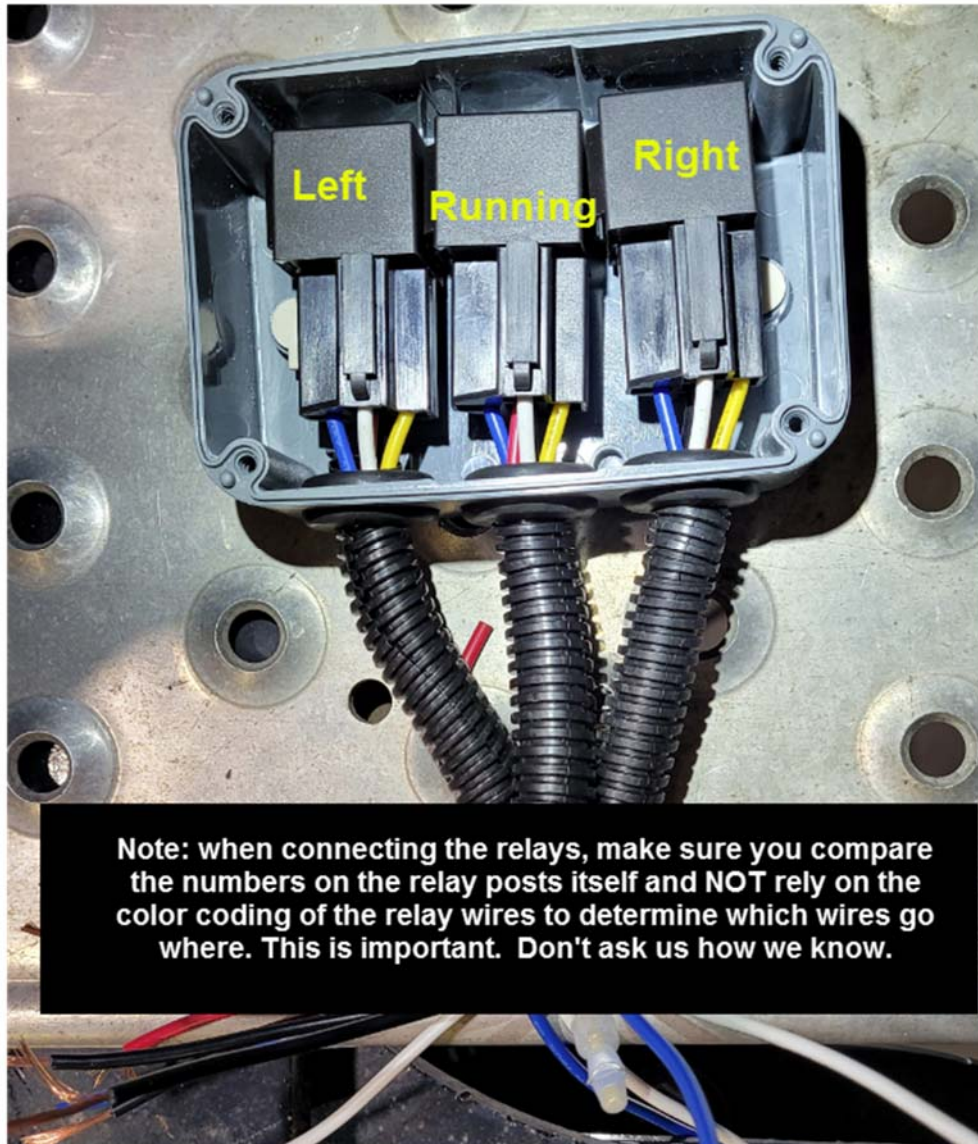
87: 12vdc+ OUT to Diodes 2 and 3 on the RIGHT SIDE Boogey Lights LED STRIP.

87a: not used. cap the wire

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



View of the 3 relays in the water proof housing.



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

This product does not include any quick disconnect connectors. However, you will need to extend the power leads on the Heavy Duty LED strips if you purchased the Tail Turn Brake light integration. The below diagram shows you how we use the heat shrink to make these power lead connections.

