

INSTALLATION GUIDE

RV ENGINE BAY LED Light Kit



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.

BEFORE YOU START

Installing the Boogey Lights® LED RV Engine Bay LED light kit is perhaps one of the easiest installations we do primarily because there's usually plenty of open room in the engine bay area to mount the lights and run the wiring. In the vast majority of cases engine bay lighting is integrated with an existing Boogey Lights light kit – typically under-glow but it doesn't have to be that way. This Engine Bay LED light kit can also be installed stand alone. For the purposes of this guide we're going to assume this light kit is connecting to an existing under-glow LED light kit already installed on the RV.

If you're installing this kit stand alone, the only difference is that you'll need to wire in the LED controller or on/off switch to power the LED strip(s) mounted in the engine bay area. We'll typically connect power to the engine starting batteries which are usually in or very close to the engine bay itself. While we generally discourage connecting any of our lighting systems to the starter batteries, most engine bay light kits contain relatively few LEDs so the voltage draw isn't all that significant. If however you're worried about preserving your starter battery power just for starting the motorhome, you'll need to find 12vdc power elsewhere. In these situations we recommend connecting to the house batteries but realize for a lot of motorhome configurations the house batteries are often 30+ feet away.

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 RV. This is particularly the case with where to mount the LED strips. 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://www.boogeylights.net/?wpdmdl=1137>

As a point of reference, one 16' RGB LED strip (300 LEDs) will consume about 3.5 amps on full power brightness (white, max brightness setting). One 16' RED single color LED strip (300 LEDs) will consume about 4.3 amps on full power brightness. On lower brightness settings the consumption is considerably less. While most people do not use this max brightness setting for long periods of time, you still need to make sure the 12vdc power source you're using is not only capable of powering the load you're adding, it needs to be able to sustain that load over time.

BENCH TEST YOUR SETUP FIRST. 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. 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; many regret it later.

NOTE ABOUT ELECTRICAL WIRE COLORS. Modern RVs, trailers, motorhomes, fifth-wheels and campers often have a mixture of **110vac** and **12vdc** wiring installed. **ALL Boogey Lights® products are native 12vdc.** If you connect a Boogey Lights® controller or LED strip to 120vac instead of 12vdc, it will absolutely damage the controller and LED strip beyond repair. Similarly, if you reverse the polarity of the power (e.g. connecting 12vdc+ to the negative side of the controller), it may also damage the controller beyond repair.

In a typical 120vac environment the BLACK wire is the positive (hot) wire and the WHITE wire is the neutral/ground wire. HOWEVER, in a 12vdc environment, the BLACK wire is always 12vdc- (ground/negative) and the RED (or WHITE) wire is always 12vdc+ (hot). All Boogey Lights® controllers have the power leads clearly marked as to what is 12vdc positive and 12vdc negative.

While we suggest only connecting Boogey Lights® products directly to your RV's house batteries it may be more convenient to tie into an existing 12vdc circuit rather than running power back to the house batteries. **If you are going to tie into an existing circuit it is important to make sure you have properly identified the type of power you are tapping into (AC or DC) AND have identified the polarity of the wires (positive or negative).** **Do not assume the color of the wires will match the controller. We strongly suggest using a volt meter to make sure you are using the proper power and polarity.** **Also, make sure the circuit you are tapping into (both the circuit-breaker rating and wiring) is capable of handling the additional amperage draw you are adding to the circuit. Overloading the circuit could result in over-heating and potentially cause a fire. Wiring the power incorrectly will damage your controller beyond repair and invalidate the warranty.**

HOW TO VIDEOS -> <https://www.boogeylights.com/how-to-videos/>

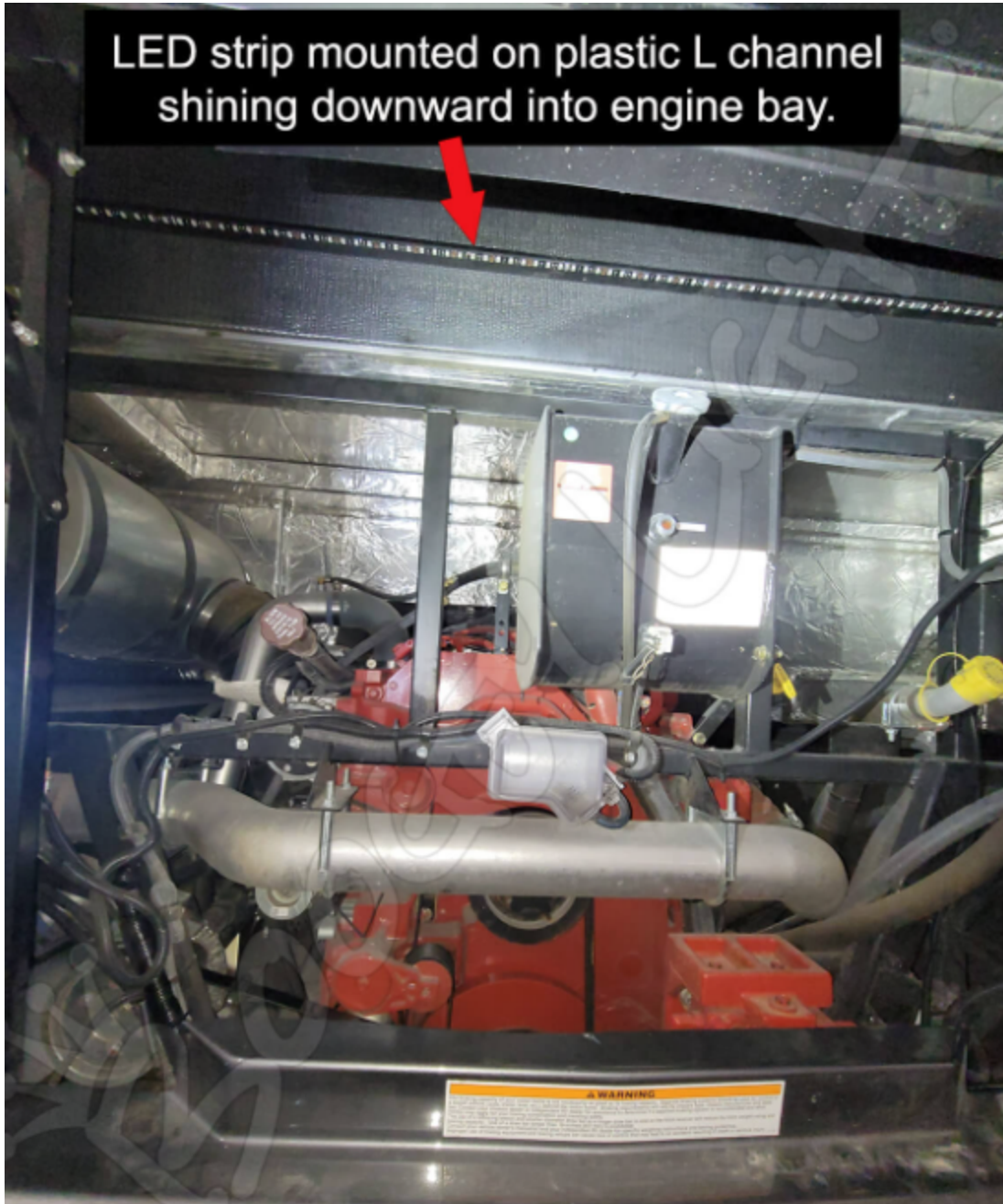
CHOOSING THE MOUNTING LOCATION IN YOUR ENGINE BAY

When it comes to diesel pusher engine bay lighting, there is no one size fits all solution. Too many variables. The goal of engine bay lighting is to mount the LED strip(s) in a place where the glow from those light strips shine through the bay door structure without being able to see the actual LED light strips from outside the engine bay. This means the structure of the engine bay door largely determines where the LED strip(s) will need to be mounted and how many LED strips are needed to provide the glow you want. Some engine bay doors have large slots making it easier. Others have smaller slots and/or screens which require more carefully placed LED strips. For example, we've had to install the LED strip directly to the bay door in some cases in order to get the best glow effect. The LED strip needs a smooth flat mounting surface of about 1/2" wide so as long as you have a smooth flat surface that's at least 1/2" wide, you should be able to mount an LED strip to that surface.

Most engine bay lighting systems will have the primary (and longest) LED strip mounted at the top of the engine bay with the LED strip shining downward illuminating the engine bay. We do this using the supplied plastic L channel included with this kit and riveting that plastic channel to the back wall of the engine bay a few inches above the hinge point of the engine bay door. See photos below. On some engine bays it's possible to mount two vertical LED strips on each side of the bay both of them shining inward toward the center. An example of that type of installation is shown in the photo below. In other installations you may have to mount at least one led strip on the bay door itself to achieve the lighting glow you're looking for. Each bay is a little different. This light kit can be configured with up to four LED strips (only one is required -- the other three are optional). We've never seen an engine bay that required more than four LEDs strips.



Here's a photo of the L channel mounted at the top of the engine bay. The LED strip is mounted to that L channel facing downward.

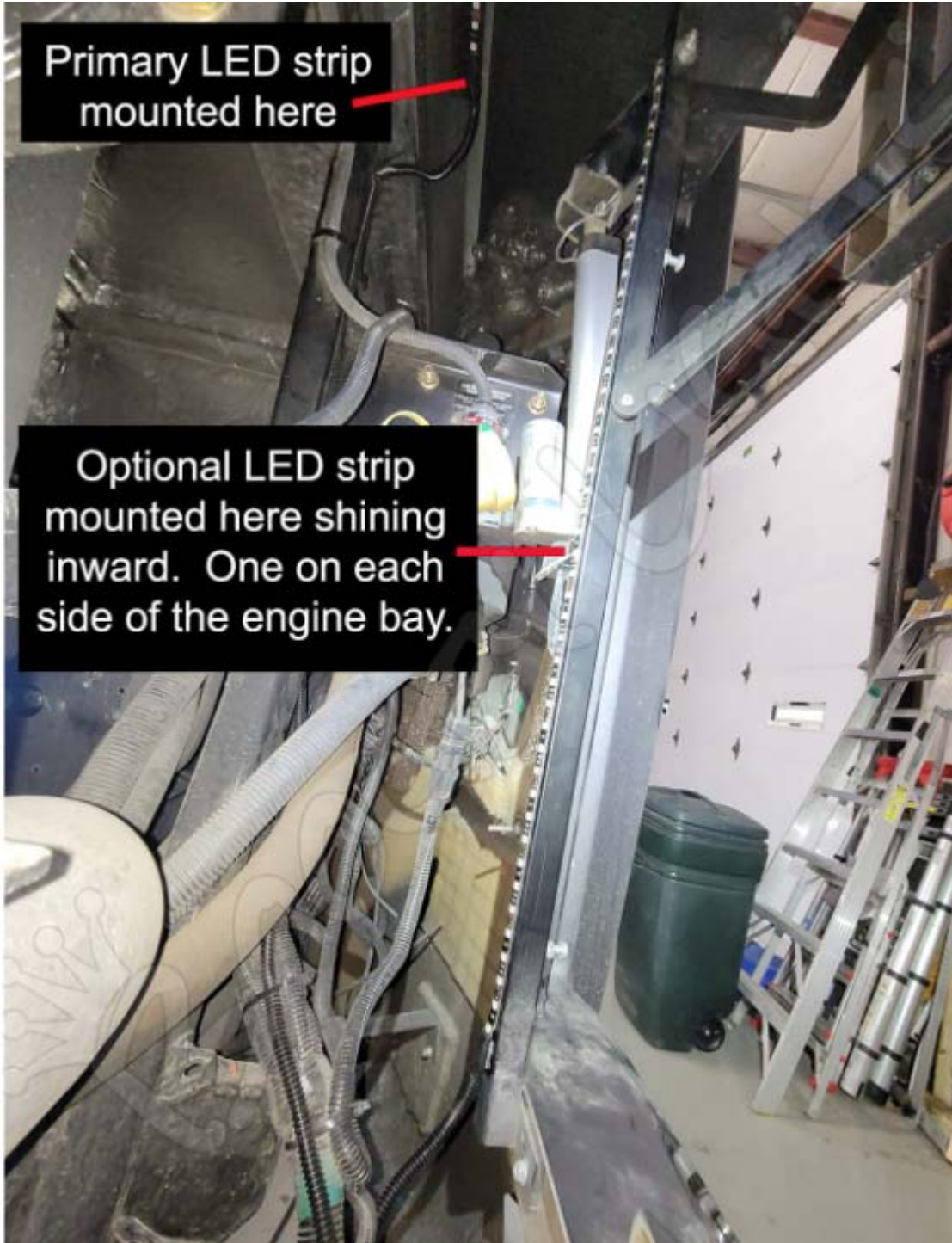


Here's a close up view of the primary LED strip used to illuminate the engine bay area. Note that the L channel is riveted to the engine bay wall. If you can't rivet the L channel, you may be able to use screws or even heavy duty 3M reclosable fastener. The challenge is that this part of the engine bay tends to get hot so anything that uses adhesive will eventually work loose over time – at least that's been our experience. Whatever you use to hold that L channel in place, make sure it's firmly attached.

You can see the LED strip mounted to that channel with the power lead routed down to where it ultimately connects to the existing Under-Glow light system.



Here's a photo showing the primary LED strip mounted at the top of the engine bay compartment with another optional LED strip mounted on one of the vertical uprights shining inward. The structure of your engine bay coupled with the engine bay door structure will determine whether or not this kind of configuration will work for your application.



Primary LED strip mounted here

Optional LED strip mounted here shining inward. One on each side of the engine bay.

CONNECTING TO THE LED CONTROLLER

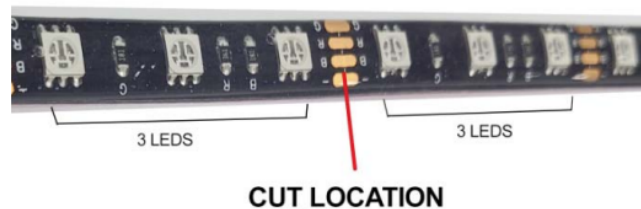
The vast majority of Engine Bay LED light kits are used with existing RV under-glow light kits. We typically will connect all LED strips mounted in the engine bay area to one feeder cable which then connects to the existing under-glow light kit. In this way the engine bay lights will work whenever the under-glow lights are on. The one exception is if we're adding a separate cut off switch which will allow the user to turn off the Engine Bay light kit when the under-glow lights are on (not everyone wants the engine bay lights to always be on when the under-glow lights are on). In this scenario we'll install a simple on/off toggle switch in the engine bay area that breaks the ground wire running to the engine bay LED strips.

If you're installing this kit stand alone, the only difference is that you'll need to wire in the LED controller or on/off switch to power the LED strip(s) mounted in the engine bay area. We'll typically connect power to the engine starting batteries which are usually in or very close to the engine bay itself. While we generally discourage connecting any of our lighting systems to the starter batteries, most engine bay light kits contain relatively few LEDs so the voltage draw isn't all that significant. If however you're worried about reserving your starter battery power just for starting the motorhome, you'll need to find 12vdc power elsewhere. In these situations we recommend connecting to the house batteries but realize for a lot of motorhome configurations the house batteries are often 30+ feet away. We include a wiring diagram for the LED controller (if purchased). Be sure to refer to that wiring diagram.

Regardless of how you're wiring the lights, make sure all power leads are wrapping in split loom and zip tied firmly to an appropriate surface. We include split loom with every kit. You don't want any of the wires hanging loose inside that engine bay area. You also want to make sure that none of the power leads are near moving engine parts or too close to hot surfaces.

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 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 to your RV/Camper/Trailer. **NOTE: Heavy Duty LED strips CANNOT be cut. LOW PROFILE only.**

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 silicone, liquid electrical tape or even heat shrink to stop water intrusion from damaging the strip.

MOUNTING THE LED STRIPS

Once you have your LED strips cut (if necessary) and you know where you are going to attach them, follow these steps:

- 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 without reading the section "A Word About 3M Tape & 3M Promoter" further on in this document).
- Next, use the 3M Adhesion Promoter supplied with your kit to "paint" on the promoter where you are going to mount the LED strip. See the note below (on page 6) about the proper way to use promoter. ***This is an important step. Do not bypass.*** Allow the promoter to dry for 30-60 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. **NOTE: With these large LED rolls we suggest you unroll the LEDs as you apply them to the side or bottom of your RV, camper or trailer.**
- Secure all power leads. Do not leave the power lead cable hanging. Doing so will place too much stress on the LED strip itself causing it to fall off or fail where the power lead connects to the LED strip.

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



Do NOT bend the LED strip on a horizontal plane.



3M Tape & 3M Adhesion Promoter (aka Primer)

All Boogey Lights® LED strips have 3M Tape backing affixed to them. This 3M Tape is designed to make a more-or-less permanent bond between the LED strip and the surface to which it is attached. When properly prepared, 3M Tape can be affixed to polyethylene, polypropylene, ABS, PET/PBT blends, concrete, wood, glass, metal and painted metal surfaces. To make this bond you must however prepare

the surface to which the LED strip will be affixed. You do this by first cleaning the surface with isopropyl alcohol (50/50 mixture with water) and then painting on 3M Adhesion Promoter. **YOU CANNOT SKIP THIS STEP.** Always apply 3M Adhesion Promoter to any surface Boogey Lights® LED strips will be mounted. The promoter acts as a primer that ensures maximum adhesion. Porous surfaces may require 2 applications of 3M Promoter for uniform coverage and good adhesion. If you are going to add a second coat, allow the first application of promoter to dry before applying the second coat. Our lighting kits include a small bottle of 3M Adhesion Promoter. Simply use a clean, dry cloth to apply it to the mounting surface.

Using Acetone on Heavy Oiled or Greasy Surfaces: For situations where you are affixing Boogey Lights® to a surface where heavy oils or grease are present, a "degreaser" solvent such as acetone may need to be used first. If you use acetone (or any other degreasing solvent) you must still apply the 3M Promoter. Acetone is not a replacement for promoter. In addition, if you use acetone to clean a heavy oiled or greased surface, you will still need to follow up with an alcohol cleaning to help ensure any residue or film from the acetone is removed. This is because acetone (and most other degreasing solvents) will thin the promoter as well as break down the adhesive in the tape greatly reducing the tape's stickiness. Any surface first cleaned with acetone must also be cleaned with alcohol and then thoroughly dried before painting on promoter.

Important Reminder! The 3M adhesive tape on the back of Boogey Lights® LED stripes are one-use only. If you apply them to a surface that has not been properly prepared, the holding power of the 3M adhesive tape will be greatly diminished perhaps making the light strip unusable. If you take the time to properly prepare the surface in accordance with our instructions here, you won't have any problems mounting your LEDs.

NEED HELP? HAVE MORE QUESTIONS?

Links to all product specs and installation information including remote control functions, wiring diagrams, APP control instructions and operating instructions can be found on our website in the **INSTALLATION INSTRUCTIONS** section (<https://www.boogeylights.com/installation-resources/>). We also offer a number of How To Videos which can be found here: <https://www.boogeylights.com/how-to-videos/>. For Trouble Shooting, refer to this page here: <https://www.boogeylights.com/trouble-shooting-guide/>.

If you need additional assistance or have questions, we offer a number of options. If it's during regular business hours you can call us TOLL FREE at 800.847.1359, M-F 9-5 Eastern. We also offer TEXT support (859.955.8155). If it's after hours, you can check our website. We include as much information as we can online for 24x7 access. You can also send us an email by visiting the CONTACT US link at the top of every page of our website.

WARRANTY INFORMATION

The Boogey Lights® original-owner warranty is only available to customers who purchase genuine Boogey Lights® products from the Boogey Lights website or an authorized Boogey Lights® dealer and present the original sales receipt from that dealer. **THIS WARRANTY IS NULL AND VOID IN THE ABSENCE OF AN ORIGINAL SALES RECEIPT FROM AN AUTHORIZED BOOGEEY LIGHTS® DEALER.** This warranty is a product-only warranty and does not cover reimbursement for labor or any other charges you may incur having a defective product replaced. Complete warranty details can be found here: <https://www.boogeylights.com/warranty/>

You can register your purchase for warranty by visiting our website at <http://www.BoogeyLights.com/warranty-registration/>. This is especially important if you purchased this product from someone other than the Boogey Lights website directly.