

INSTALLATION GUIDE

TAIL-TURN-BRAKE ADD-ON 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

It's simply not possible to provide detailed instructions for all installation scenarios on all vehicles. 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 nor does it assume knowledge of your specific vehicle's lighting circuit design, capacity or overall amperage rating. We cover the essential steps related to installing the LEDs in this kit only. Beyond that however we must assume the installer has the skills, knowledge and tools necessary to safely adapt to their vehicle as needed using the information we provide. This is particularly the case with electrical wiring and circuit sizing. If you're unsure about how to do the installation – particularly the 12vdc electrical components – we urge you to seek assistance from someone who has those skills.

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).

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

Tools You May Need

Sockets/wrenches/screw drivers in the sizes necessary to remove the stock tail light assembly from the RV. You may also need a drill with ¼" drill bit. In addition, you'll need wire cutters/strippers, crimping tool, electrical tape, rubbing alcohol, shop rag or two. We also suggest a 12vdc multi-meter to confirm/double check voltages.

What You 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 can gain access to the rear tail light assemblies and in particular, the wiring behind them.
- The installer understands 12vdc electricity, the importance of sizing the lighting circuit to safely handle the additional load (amps) adding these LEDs will create on that circuit and how to make electrical connections using crimp on and/or heat shrink connectors.

NOTE: Every installation varies a little so you may need to purchase additional items. Make sure to

review our list of other items you may need before starting your installation. Here's the link:
<https://www.boogeylights.com/other-items-you-might-need/>

Mounting & Placement Locations / Planning Your Install

We suggest mounting these ADD-ON Tail-Turn-Brake light above the existing stock tail light housing where it can be easily seen from 100+' behind you. The longer the LED strip, the better the visibility. The LED strip has a 36" power lead so unless you want to extend that power lead length, you'll need to mount the LED strip within 30" or less of the stock light housing. See our product photos for examples of real customer installations. The ideal mounting location is one in which you can drill a 1/4" hole in the RV to feed the power lead cable through and then drop down to splice into the back of the existing tail/turn/brake circuit. This makes for a clean installation. In some situations you may not be able to do that in which case the power lead cable may need to be run on the outside of the RV and down to the stock tail/turn/brake light housing. You'll need to take a look at your RV to see what's possible. If you have to run the power lead wiring on the outside, we suggest using either Butyl tape or 3M VHB tape to securely fasten the power lead cable to the RV (we also suggest wrapping the power lead in split-loom). It's not ideal but it can be done so it looks good. You'll of course need to remove the existing tail light housing on both the left and right sides from the RV to gain access to the wiring. It's usually a very simple thing to do. As for making the actual wire connections, we prefer to cut the existing wires (once we've clearly identified them) and then use butt connectors (supplied in the kit) to re-connect while at the same time adding in the new Boogey Lights LED strip. Some folks prefer to use a scotch lock connector however in our experience, they're not as reliable particularly on vehicles that move, flex and vibrate. Our kit includes some butt connectors to do this.



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 rubbing 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).

If the area is especially greasy, you'll need to clean it with a degreaser or similar solvent. IF you do, be sure to use rubbing alcohol on the surface next to completely remove any left-over residue from the degreaser.

- 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.

For these HEAVY DUTY LED strips, you can also add a screw into each end.

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



Do NOT bend the LED strip on a horizontal plane.



Wiring to Existing Tail / Turn / Brake

Each single Boogey Lights LED contains THREE DIODES, all of which are RED. The number of LEDs on a Heavy Duty LED Strip varies based on the length of the LED strip. The longer the LED strip, the more LEDs on that strip. Each Heavy Duty LED strip has 4 conductors: One 12vdc negative (the black wire which is the ground) and then three 12vdc positive wires (color coded red, green and blue). Each of those three positive wires connects to one of the diodes in each LED. This gives you three different LED Diodes you can control making it ideal for Tail, Turn, Brake light integration. Simply wire the Boogey Lights LED strip to your existing RV tail light housing as follows:

<u>STOCK LIGHT</u>	<u>BOOGY LIGHTS LED STRIP</u>
• Existing Ground (12vdc-) ->	Black wire on Boogey Lights LED Strip (12vdc -)
• Existing Tail Light 12vdc+ ->	Red wire on Boogey Lights LED Strip (12vdc+)
• Existing Turn Light 12vdc+ ->	Green wire on Boogey Lights LED Strip (12vdc+)
• Existing Brake Light 12vdc+ ->	Blue wire on Boogey Lights LED Strip (12vdc+)

Depending on your RV's tail light wiring, you may not have these same three 12vdc positive wires. In some RVs the brake and the turn signal share the same circuit. In that case you would wire both the Green and Blue 12vdc+ wires on the Boogey Lights LED strip to the existing turn/brake light circuit on each side of the trailer.

BTW – from the Boogey Lights LED strip perspective, it doesn't matter which of the red/green/blue wires you connect with the existing tail/turn/brake wires as long as all of them are 12vdc positive. We provide the color codes above just to help with the explanation. Since all three of these power lead wires (red/green/blue) coming from the Boogey Lights LED strip connect to a single red diode inside each LED chip, they're all the same colors (RED) in terms of the functionality.

DO NOT assume the color of the wires on your existing tail light circuit follows any particular wiring convention. It's entirely possible for example that the black wire on your existing circuit is a 12vdc POSITIVE wire instead of 12vdc negative which is customary for 12vdc power. Super important you isolate and test each wire on your existing circuit to confirm what it does (e.g. brake/tail/turn) and it's polarity (e.g. positive or negative). If you're at all uncomfortable or unfamiliar with how to do this, please ask someone who has the experience to do this to assist you with this part of the installation.

Note that some trial and error may be required to identify which wires on the existing light housing operate each of these light functions. You'll need to have the tow vehicle present and connected in order to test each of the tail/turn/brake light functions. We assume the installer has the skills necessary to safely do this trial and error testing without blowing a fuse. Have a 12vdc multi-meter handy can be helpful in these cases.

Do not over-load your vehicle's lighting circuit. Adding more LEDs to your vehicle's lighting circuit will increase the load (amperage) on that circuit. Depending on your vehicle, increasing that load may cause the lighting control module to shut down the light circuit if that additional load exceeds the pre-programmed limit for your vehicle. You can get around this limitation by using relays to power the additional LEDs or of course, reducing the number of LEDs you're adding such that the load is below the limit set by your vehicle.