

Expressive Undercabinet Lights

Installation Guide

First, thank you for buying our mod. It is cool to know that we can help people keep their machines in great condition and looking their best! *Please read these instructions fully before installing the kit.* Reach out to us *before you start* if you have any questions.

Information:

This kit is designed to take the signal that drives the expression lights in your Stern game and replicate it underneath the cabinet, so they light up in the same colors and patterns as the expression lights, in perfect sync! We did our best to make this kit easy to install, and easy to remove, should you ever need to. As of this writing, this kit will work with both Led Zeppelin and Rush games with expression lighting installed, though it should also work with any future games that use expression lighting. All kits are fully bench tested right before they go into the box.

Tools you'll need include: 1/4" nut driver or slotted screwdriver, #2 Philips screwdriver, tape measure, pencil/pen/Sharpie, 5/8 (16mm) drill bit (Forstner style recommended, but not required), and a drill. Optionally, a 3/32" (2.5mm) drill bit can be used for making pilot holes (just be SUPER careful not to drill all the way through). Also, having a second set of hands to help hold things while you work will greatly simplify the installation since you'll be working against gravity the whole time.

Installation:

Step 1:

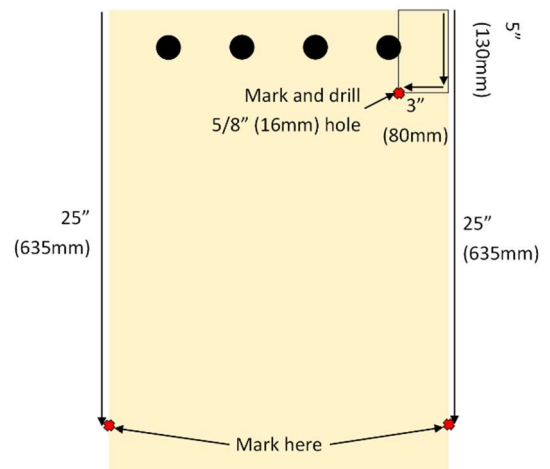
TURN OFF THE POWER to the game and unplug it. This is crucial to avoid damaging the game. The node boards, expression lights, and our expressive speaker lights are all VERY sensitive to power surges. Wipe away any dust on the bottom of the cabinet with a tack cloth or lightly dampened rag.

Step 2:

Time to mark and drill the through hole. To ensure proper orientation, this image shows what it would look like if you were on your back, under the machine, with your head towards the backbox, looking up at the bottom of the cabinet. Do not include the cabinet side/back walls when measuring and marking/drilling, only include the bare wood of the bottom plywood.

First, make a mark at 5" (130mm) down and 3" (80mm) in from the upper right corner. Carefully drill a 5/8" (16mm) hole at this location. Prior to drilling, take a look inside the cabinet and ensure that no wires or other parts have shifted and are in the drill zone. When the hole is done, insert the grommet with the protective flaps towards the ground, until it snaps in place.

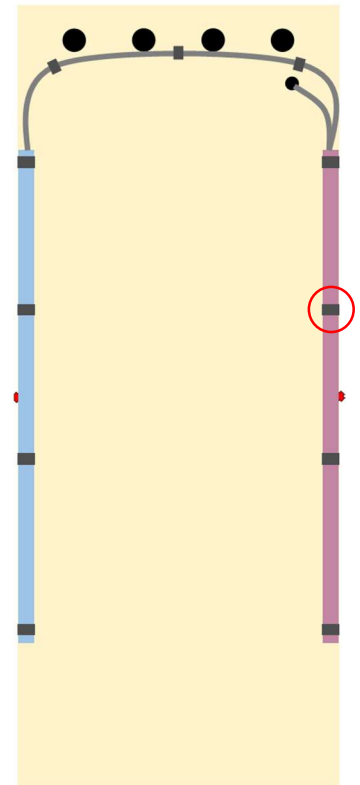
Second, measure and mark the point halfway down each side of the cabinet, about 25" (635mm).



Step 3:

Do not install anything in this step, just examine the light strips and ensure you're properly oriented. On each side there are two strips of LEDs paired up in preinstalled mounting blocks. You'll notice one pair is close to the pigtail with the plug while the other pair are distanced by a much longer wire. From this point forward, each pair of strips will simply be referred to as if it was a singular strip. The side close to the pigtail will go on the left side of the game (your right side if you're still looking up at the underside of the cabinet), near the grommets hole. This is shown here as the purple strip in the image and will be referred to as "the purple strip" from this point forward.

The more distanced side will go on the right side of the game (your left side if you're still under the cabinet), away from the grommets hole. This is shown here as the blue strip in the image and will be referred to as "the blue strip". If done properly, the screw holes on the 8 mounting blocks will be facing the center of the game. The image to the right shows how it will all be installed, again from the underside looking up.



Step 4:

We'll install the purple strip first, beginning with the mounting block circled in red in the image. First, align the center of the strip's length (this will be a copper junction/cut point, not an LED) with the center mark you made back in Step 2. Have someone hold the strip firmly at this point. Count four LEDs from the center towards the grommets hole. The bracket shown in the red circle will sit in between the fourth and fifth LED. It may have shifted a bit, so double-check its position before continuing. Predrill the pilot hole (optional) then drive in one of the silver $\frac{3}{4}$ " screws with the nut driver or slotted screwdriver to secure the mounting block.

Now count four LEDs in the other direction from the center. The next mounting block will sit between the fourth and fifth LED here as well. Mark the center of the hole but don't screw it in yet. Tear and peel the tape backing off of the LED strips between the two mounting blocks. Carefully stick this section down, then secure the second mounting block with its screw.

Repeat this process for the last two blocks at the ends of the strip. Both will sit in between the last and second to last LEDs at each end of the strip. If there is any slack in the orange wires running between the pair of strips, you can snug it up by pulling the slack through the blocks until you're happy with it. You can optionally secure the wires at the mounting blocks with a small dab of hot glue or similar.

Repeat this entire process for the blue strip.

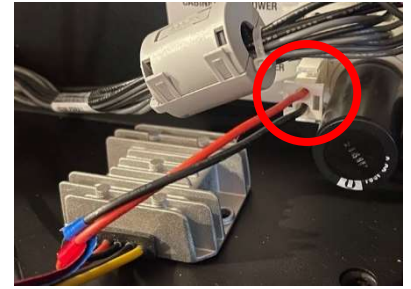
Step 5:

Push the plug through the grommets hole and feed it into the cabinet until the wire is snug. The grommet's fins will hold this firmly in place.

Secure the braid wrapped wire with the mounting clips and screws roughly as shown in the picture above, wherever you're happy with the placement.

Step 6:

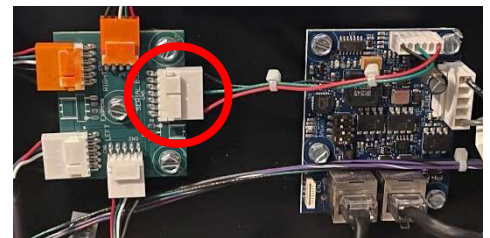
Now we'll install the power supply. Open the speaker panel. Drop the wire bundle down into the cabinet through the left hole in the neck. Once again, ensure that the power is turned off before proceeding. Plug the power supply connector into CN7 (48V) on the power supply board, as shown circled in red. If you already have an accessory on CN7, you'll need a splitter, also available in our Pinside shop. Find a place where the power supply sits comfortably and secure it to the bottom of the backbox by removing the cover on the sticky pad and pressing it down firmly against the backbox.



If you have previously installed one of our Expressive Light kits, you already have the interface board installed, so skip to step 9.

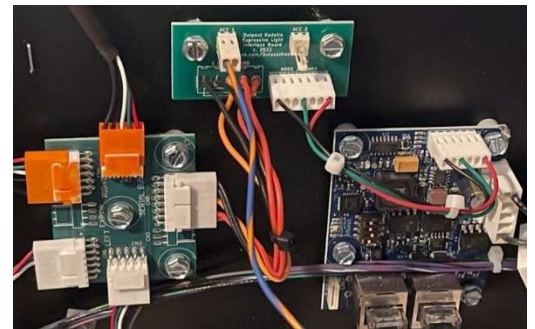
Step 7:

You're done with the backbox, so close it up. Now, remove the pinballs from the machine and fully lift the playfield. Now you need to disconnect the Node 2 board from the expression light distribution board by removing the plug, as indicated by the red circle. These boards can be found on the left inside wall of the cabinet, approximately 1/3 of the way back. Be careful not to directly touch any boards through this process, as all are sensitive to static shocks.



Step 8:

Now, take that same plug you just removed and plug it into the "NODE 2 BOARD" plug on the little green interface board included with our kit. Take the "E LIGHT BOARD" wire coming out of our interface board and plug it into the expression light distribution board where the Node 2 board was originally connected. Using two hex head 3/4" screws included with the kit, find a place where the interface board sits, such that none of the wires are strained, and secure it to the cabinet with the 1/4" nut driver or slotted screwdriver.



Step 9:

Connect the power supply cable to the pigtail you pushed through the grommet back in step 6. Use existing wire loops to secure the power cable in the cabinet. Take the orange wire coming out of the plug (with the ferrite core on it) and run it towards the front of the cab, where the interface board was installed. Plug the orange wire into either "ACC 1" or "ACC 2" on the interface board (either one will work the same way). Secure the orange wire using existing wire loops.

Congratulations! You're all done! Double check your connections, lower the playfield, reinstall the pinballs, and you're ready to turn the game on. The lights will power on with the game and you should see the test cycle run through both the expression lights and your new expressive undercabinet lights. Now sit back and watch the show when the attract mode starts! ENJOY!!

Contact:

If anything goes wrong or if you have any questions, feel free to reach out to support@ninjacamp.com or @OutpostKodelia on Pinside. I will respond as quickly as possible.