

Ghostbusters Trap Light Kit

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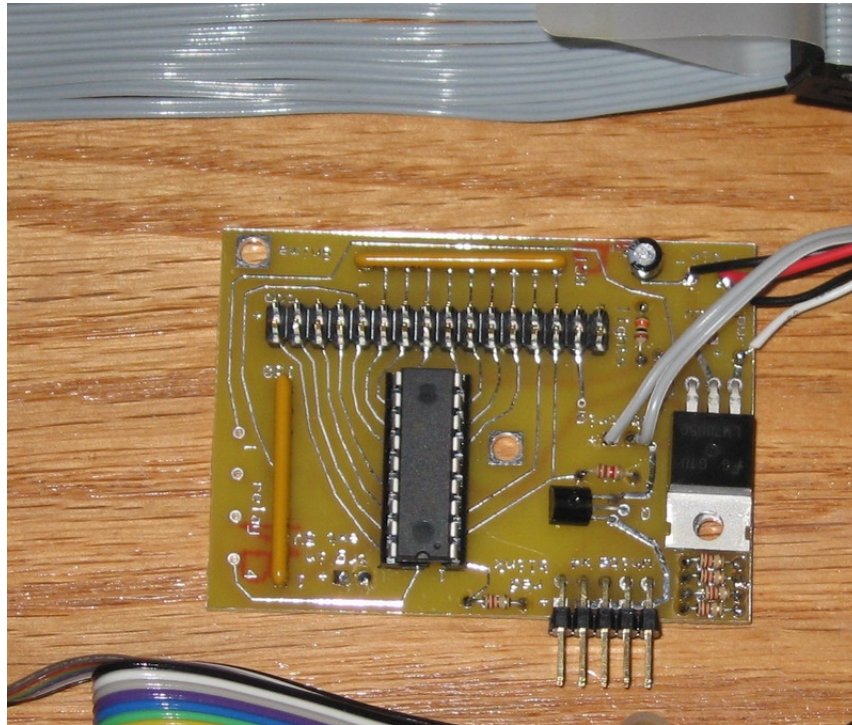
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DESCRIPTION

This board controls both the trap bar graph (consisting of 14 rectangular LEDs), as well as the blinking “trap closed” red LED and the white interior trap “ghost” lights.

This kit will seamlessly interface with our *GB trap servo* kit if you want to make an automated trap that has the proper light effects and opening/closing doors that can be triggered from the trap pedal!

Here is a picture of the assembled trap board:



Power switch:

The 2 switch wires next to the 9V battery snap coming off the board are connected up to the master on/off power switch. This allows you to keep the batteries connected, but you can turn the unit on and off by just using the switch. You can replace this switch with your real trap toggle switch if need be. Just cut off the existing switch and wire in your trap power switch.

Trap bargraph LED header:

The 32-pin gold header on the board is for connecting the bar graph trap LEDs. We have included a ribbon cable that connects to this header. Once you plug in the cable you can then install the LEDs in the other end of the ribbon cable.

FINISHING THE KIT - WIRING

There is some very minor wiring that needs to be performed to finish the kit. This allows the user to tailor the installation to their specific trap internals.

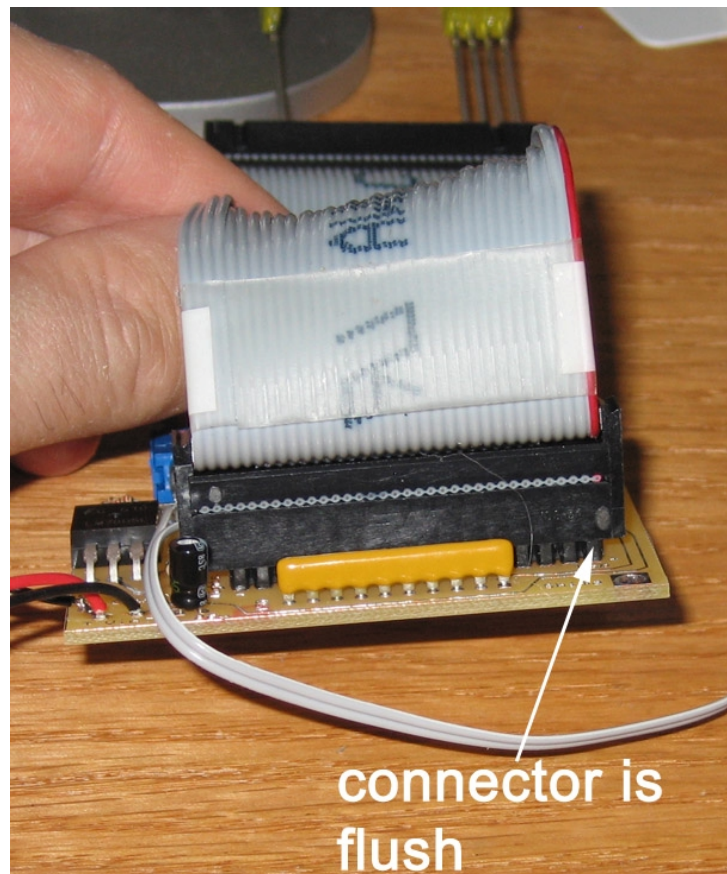
Tools: soldering iron, wire strippers/cutter, hot glue

In order to finish the kit, you need to install the yellow rectangular bar graph LEDs in the 32-pin ribbon cable, hook up the optional white interior trap LEDs and the blinking red LEDs with the included 10-pin ribbon cable, and mount the board in your trap.

Installing trap bargraph LEDs:

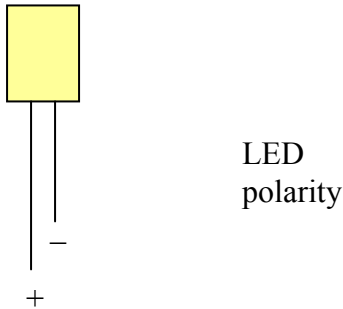
The next pictures show how to do the install (LEDs sequence from left to right).

Plug the ribbon cable into the board header with the red wire on the right side in this picture:

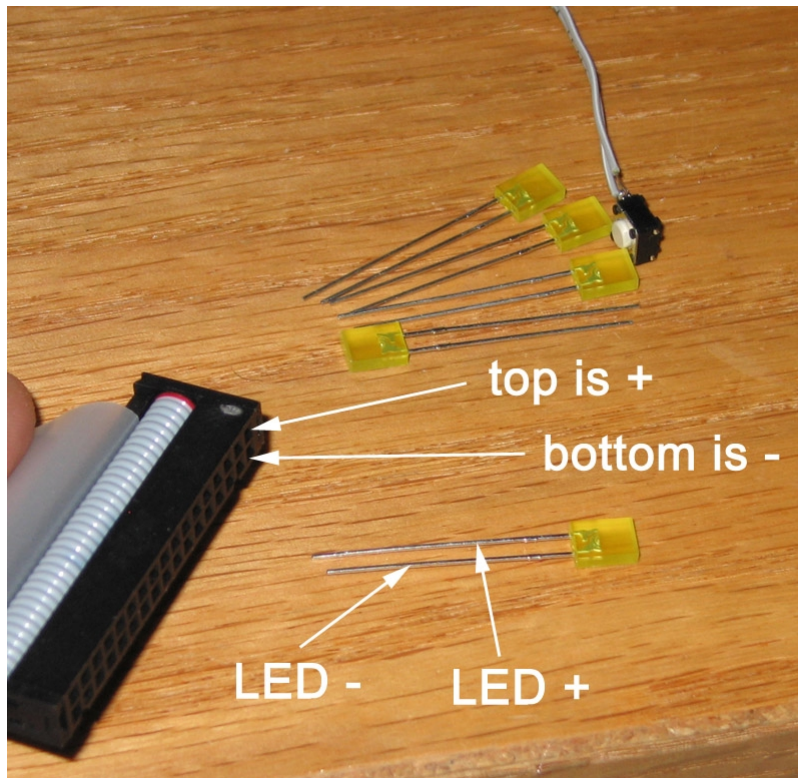


The connector is flush on the right side and there will be one extra position not used on the left. This is because the header is 2x16 (has 16 columns) while the ribbon cable is 2x17 (has 17 columns).

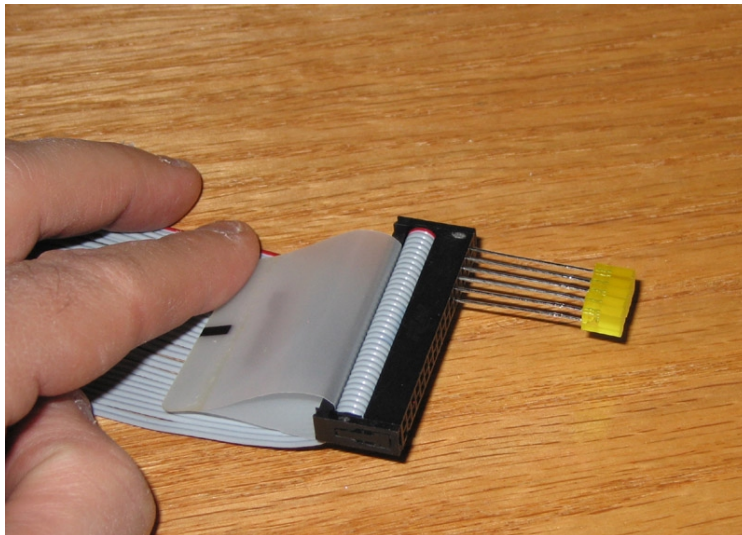
The yellow rectangular LEDs come with one lead longer than the other. It looks like:



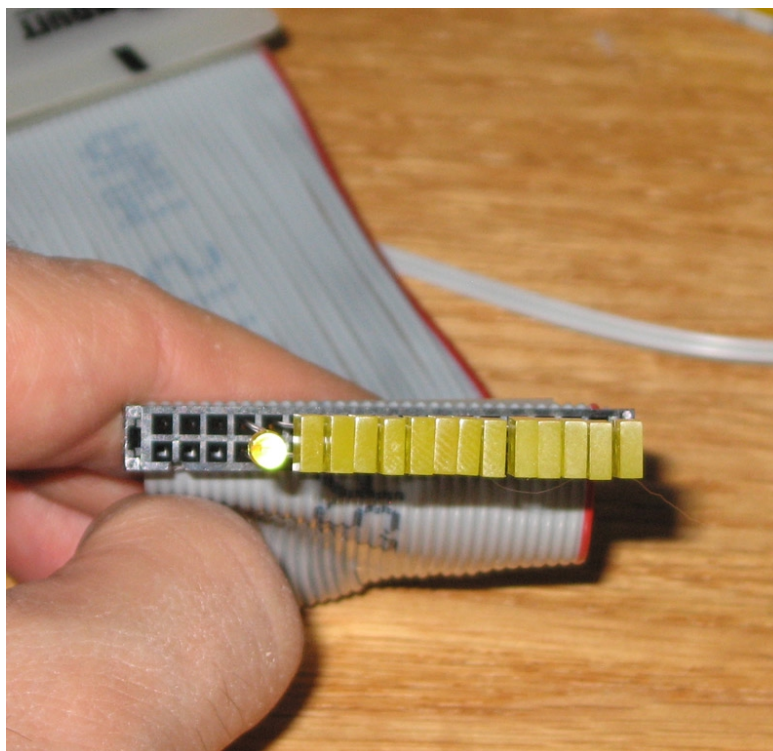
Here is a pic of the bar graph ribbon cable with the polarity for the LEDs noted.



Install the yellow LEDs starting with the socket pair with the red wire. The top row is the positive (+) side for the LEDs, and the bottom row is the negative (-) side.



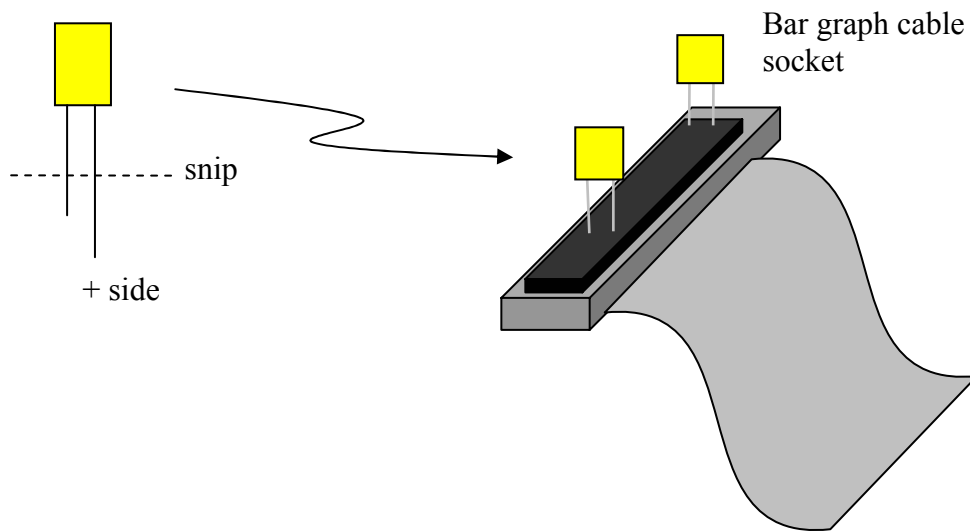
The 3mm LED (which resides next to the trap bargraph) goes in the 4th socket on the left side. When you have finished, it will look like this. You will have 14 yellow sequencing LEDs total.



NOTE: The furthestmost left socket (from the red wire) is unused and the 2nd and 3rd leftmost sockets are for optional LEDs that are always on)

TIP: Once you see how much room you will need to install the LEDs in your trap, you can cut the leads on the LEDs and reinstall them into the cable sockets. This will allow you to tweak the length of the LED legs that best fits in your trap bargraph area. You can also bend the LED legs using small pliers to better fit in your trap bargraph façade.

Again, the long end of the LED is positive. If you want to shorten the lead length just remove each LED, snip the leads, and reinstall into the socket.

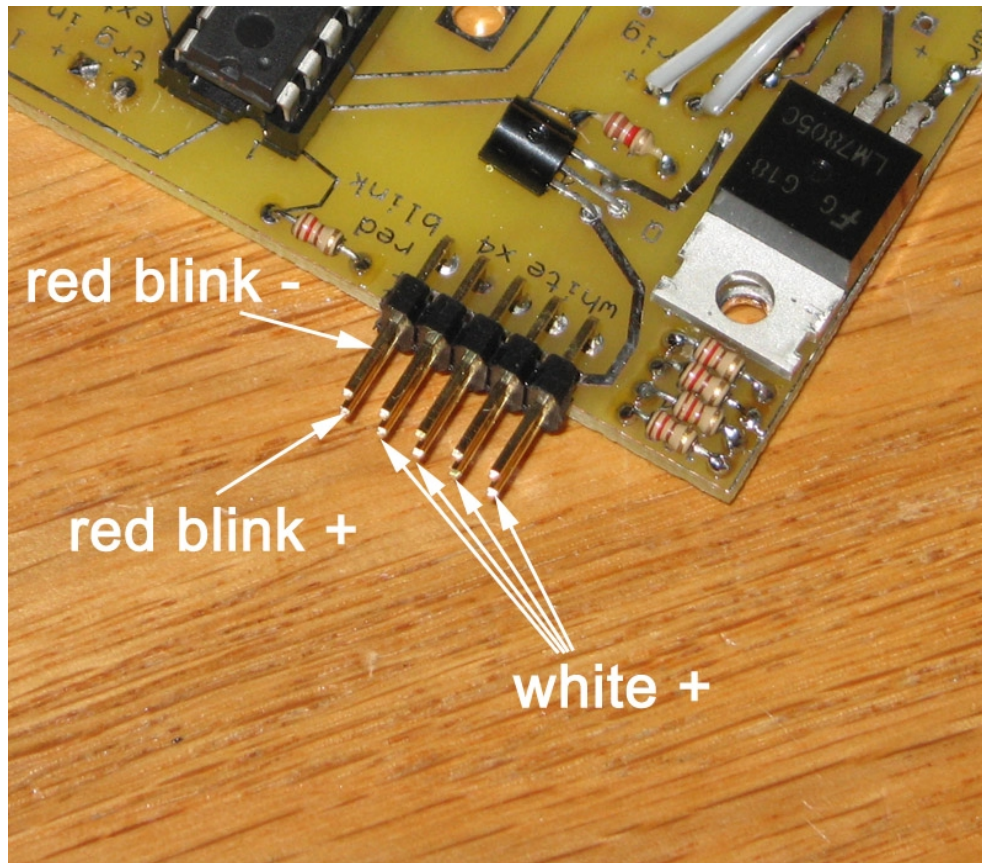


The bar graph consists of 13 rectangular sequencing LEDs and 2 rectangular static LEDs, for a total of 15 rectangular LEDs. The 2 static LEDs are included in case your trap assembly has a larger rectangular hole which you need to fill. You can connect up these 2 LEDs to extend the length of the bar graph, but these 2 lights will always stay on and do not sequence like the upper 13 LEDs in the bar graph.

Installing optional interior white “ghost” LEDs:

The optional white LEDs are accessed off the 10-pin LED header like the blinking red LED (shown above). The included ribbon cable makes it easy for you to plug in the cable, then splice the end wires and connect up (soldering is preferable) the included white LEDs.

Here is a closeup of the 10-pin LED header pins with pin descriptions.



The first 8 pins are for (up to) 4 white interior trap LEDs to light the interior of the trap when the doors are opened. Polarity of these wires are shown in the below pic.

The last pair of pins is for the blinking “trap closed” red LED.

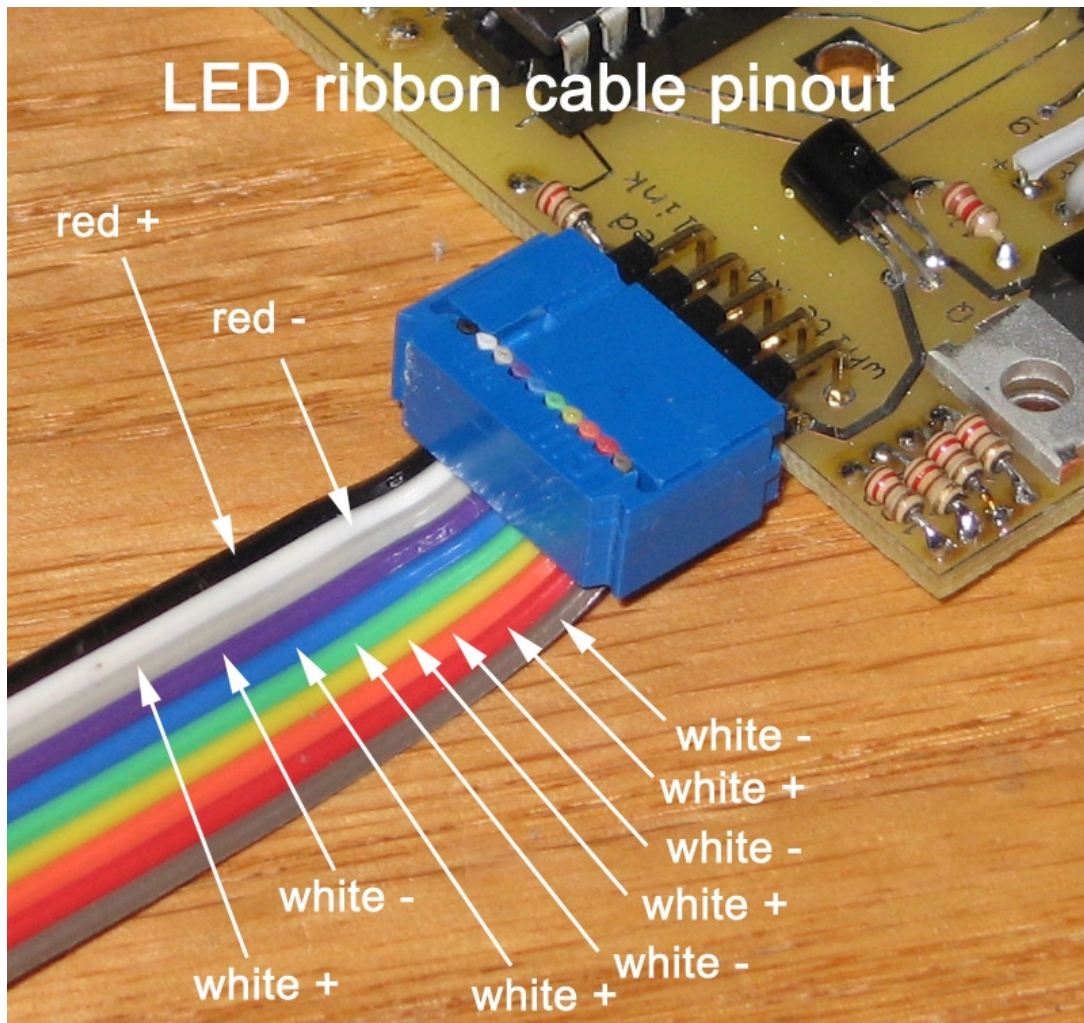
NOTE: The LED wires have polarity which you must obey. The longer lead on each of the LEDs is the positive end. The shorter lead is the negative end.

Blinking red LED:

The red “trap closed” LED attaches to the last pair of pins on the 10-pin header on the trap board. You can use the included ribbon cable to simply splice the wires and solder/glue the LED to the correct spot.

If you want to check the LEDs before you wire them up, simply power on the board and carefully place the LED (noting polarity) across the correct header pins, and watch it light up!

And with the ribbon cable attached, here are the pinouts. Note the color of the wires and the pins they are connected to!



After you splice the end of the wires, just solder (or attach) the proper LED. Use an exacto knife to *carefully* splice the individual wires on the end of the ribbon cable.

Also, you can use any LED you like (instead of the included ones), but note that the brightness may vary with different colors.

NOTE: you can replace the “ghost” LEDs with a larger light source, but make sure the LEDs do not require more than 500mA total with the onboard driver circuit. Otherwise you risk damaging the components on the board.

POWER SUPPLY

A sufficient power supply is 6-9V DC. So, you can use 6 AA batteries, 6 C cell or D cell batteries. You can even use a 7.2V RC car battery if you like. You must use a minimum of 6V on the board in order for it to operate.

One 9V battery will work but will not last long. A 9V lithium battery will last 3x longer than alkalines. You can find other battery holders with a 9V snap connector already on them at Radio Shack or your local electronics shop. A 6AA battery holder is included in this package, which should give you many hours of use!

A rule of thumb: the bigger the batteries, the longer they will last. If your board starts acting unpredictably, or quits sequencing, check to make sure the batteries are good. Dead or old batteries will cause the board to act unpredictably. Make sure you check the battery polarity before hooking them up!

OPERATION

Turn on the board and make sure the bargraph LEDs start doing a random sequence. They will keep sequencing like this until you open the trap using the attached trigger wires or pushbutton/lever switch.

When you short the trigger wires together (or press and hold the button), this emulates opening the trap doors! All the bargraph LEDs will turn off. The “ghost” white LEDs and 3mm yellow LED will now turn on.

When the trigger wires are let go (or the button is released), this emulates closing the trap doors. Now the bargraph LEDs will sequence up and the red “trap closed” LED will begin to blink! The white LEDs will stay on inside the trap for 20 sec after the doors close to tell you that you caught a ghost.

The trap cycle repeats when you open the trap again using the trigger wires. If you wait 1 min without any button presses, the trap will reset itself and go back to the initial random sequencing. You can also cycle power to the trap with the power switch to reinitialize everything back to the beginning.

MOUNTING THE BOARD

When you mount the board inside your trap, make sure the bargraph LEDs are lined up with your rectangular slot. You can hot glue the bargraph LEDs into the ribbon cable sockets if you want a permanent connection! Rubbing alcohol will remove the hot glue if you mess up.

You can bend the LED leads to help make them fit, or cut them shorter.

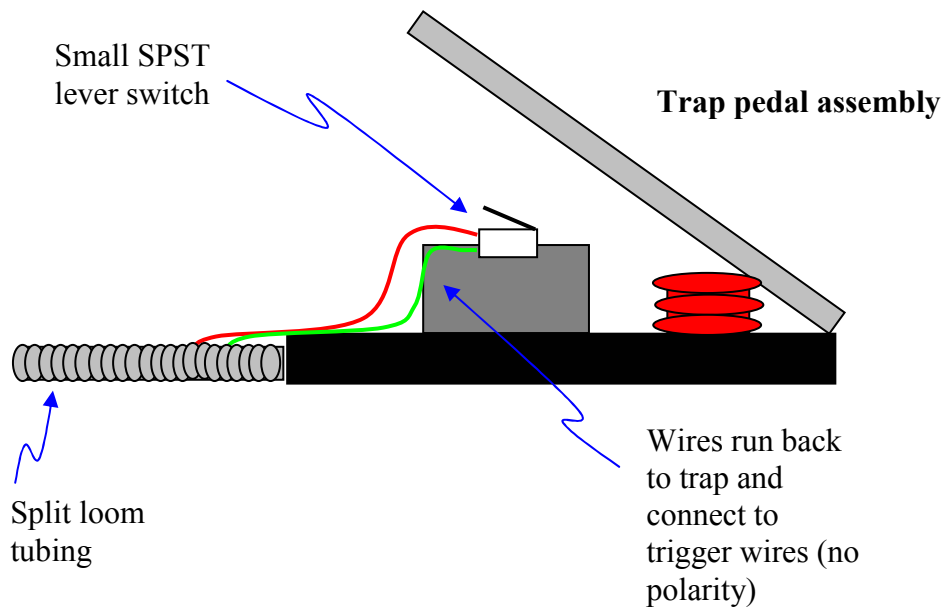
There is a small amount of room to mount the bargraph LEDs within the container structure, so that flexibility of the ribbon cable will help you guide the LEDs inside the trap container.

Here is a picture of a fully installed kit in a homemade trap. (pic courtesy hyperdyne):



Attaching trigger wire to trap pedal (if not using our servo kit)

Here is a diagram on how you can run more wire from the trigger wires on the board up to your trap pedal. Here you can use a standard normally-open (NO) SPST lever switch (commonly available), and when you step on the pedal it will trigger the trap light kit.



Attaching trigger wire to trap pedal (WITH our servo kit)

If you are using our servo kit, then you can follow the instruction document on the **GB trap servo** kit to connect a lever switch to your trap pedal using the above diagram. This way the wires go back to the servo board to trigger the doors via the pedal.

In this setup, the servo kit in turn has a wire output that connects to the light board. This wire communicates with the trap light board to synchronize the doors and lights based on one triggering input from the pedal.

NOTICE: There is no warranty on kits!! It is your responsibility to install the board. Kits cannot be returned! This kit can consume a lot of current. Be careful if you plan to use a battery source that is capable of delivering a lot of current. Contact a professional if you need assistance. Hyperdyne Labs assumes no responsibility for the misuse of this kit.