# OpticalPlus Wiring

If you break any wires during a battery change we recommend that you send it in for service. If you decide that you would like to repair the problem yourself and have good soldering skills the following information should help you restore wiring in your OpticalPlus. If you are not successful in fixing the OpticalPlus we will still service it.

1. Cut one 2.5" and one 2.75" Teflon coated 26AWG wire from the supplied spool and strip both ends 1/8".

2. Cut two 4.5" Teflon coated 26AWG wires from the supplied spool and strip one end 1/16" and the other end 1/8" on both wires. Cut off leads from LEDs 0.1" or shorter from the LED body. Solder 1/16" stripped ends of wires to LEDs as shown. **Note that the wires should be soldered between the LED leads, not to the outside. The wires should be perpendicular to the LED central axis.**
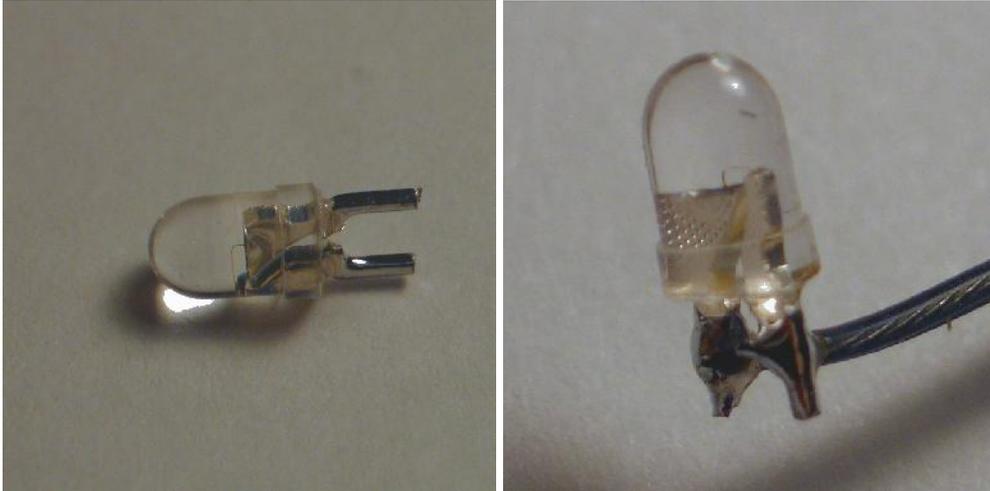
3. Insert the LEDs into their holders as shown below. The LED leads should be at or below the top surface of the LED holder. If solder or wires are preventing LED from seating fully into the LED holder trim them with clippers. Thread LED wires through the hole in the main module

bore into the battery compartment as shown.
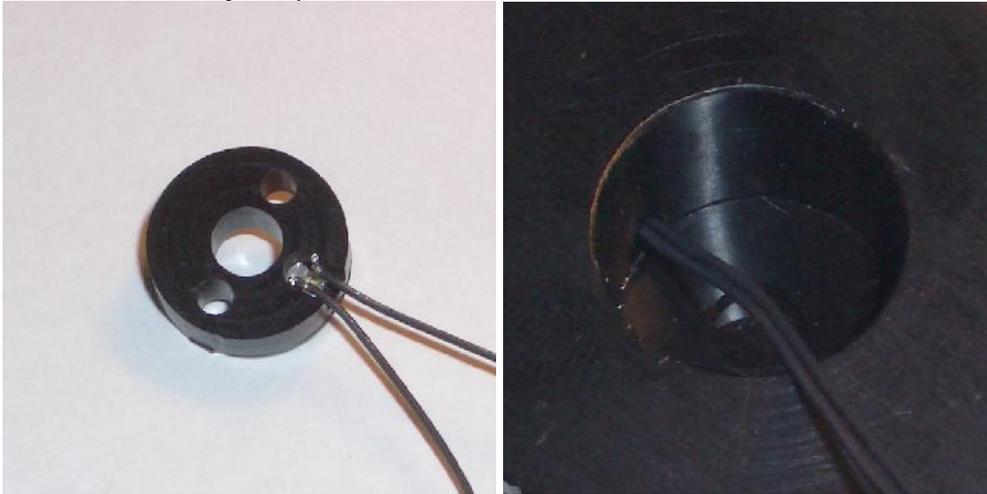
4. Carefully pull the wires through the other side of the main module while seating the LED holder as shown. **The LED should be aligned to the hole through which the wires are threaded. It will become apparent when performing this operation.** Once the LED holder is in the bore carefully push it down against the lens holder while taking up slack on wires from the other side. Please note that if the cutout on the LED holder is not lined up with the hole for wires it will not seat fully into the bore and may clip the wires. If the LED holder is slightly misaligned or needs to be removed use the two empty holes to hold it as shown.
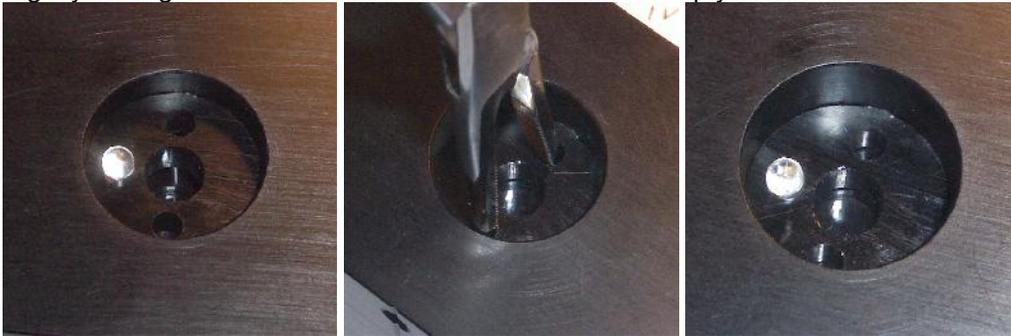
5. Prepare the pot by removing a nut and washer. It is much better to rotate the nut and washer together during this operation because otherwise the washer may become stuck on the tab. **Snip off the locating tab on top of the pot as shown,** remove enough so that when attached to the cover the pot shaft is perpendicular to the cover surface. Snip off a pot lead as shown below. Solder a resistor to terminals as shown. Solder the 2.5" wire to the pot as shown. **Note that wires should always be soldered parallel to the pot body as show below. This will provide proper strain relief. Do not solder wires to the pot parallel with**

the pot leads. Snip off resistor leads as shown.


Snip off tab

Cut off lead
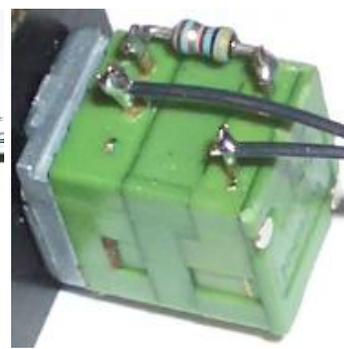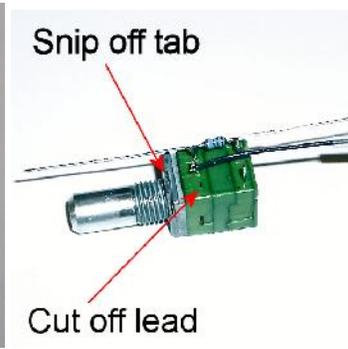
6. Insert three N batteries into both battery holders per holder marking as shown. Solder 2.75" wire with rubber tubing between two battery holders as shown below. **The polarity and orientation of battery holders should be exactly as shown. Solder them as show in the picture below. If soldering as shown the wires will be strain relieved when battery holders are placed into the main module body. If not done as shown below the wires will be bent under a sharp angle and will quickly break!** Solder the remaining end of the 2.5" wire with a pot on one end to the dual battery holder as shown. Please keep the soldering time to a minimum to prevent melting of holder plastic.

7. Insert the dual battery holder into the main module body exactly as shown. **Note the holder orientation that provides strain relief on wires.** Also note the orientation of three holes on main module in relation to the battery holder. Determine correct polarity for the LED by touching the LED leads to the remaining terminal on the pot and the indicated terminal on the dual battery holder. If the LED does not light up, switch wires around and try again. If LED still does not light please check that you are making full contact with wires. Also, make sure that the pot is fully on (turn clock wise).
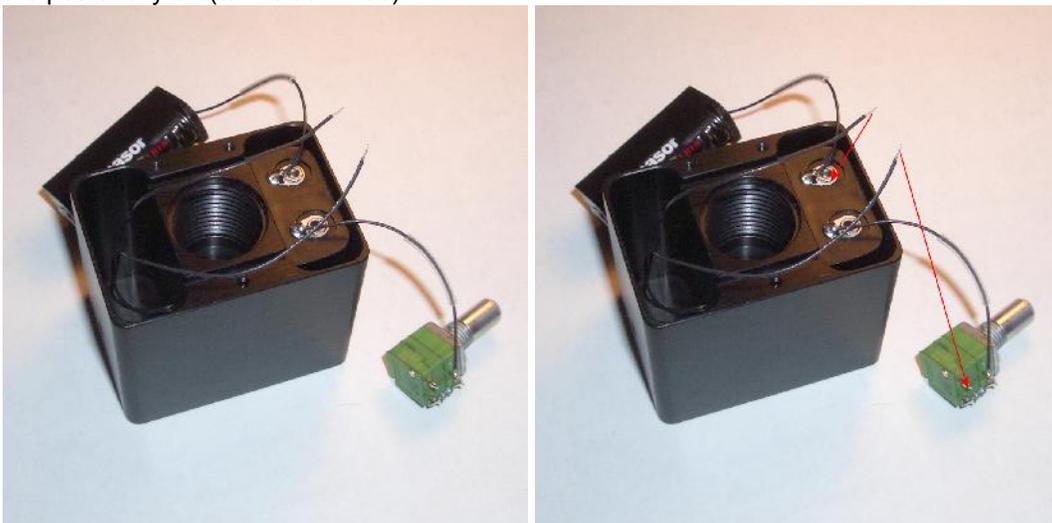
8. Solder the determined wire from LED to the terminal on the pot as shown. Solder the remaining wire to the bottom of the single battery holder as shown. **Please note the orientation of the wire soldered to the single battery holder. It must be exactly as shown because otherwise there will be a lot of strain on that wire.**
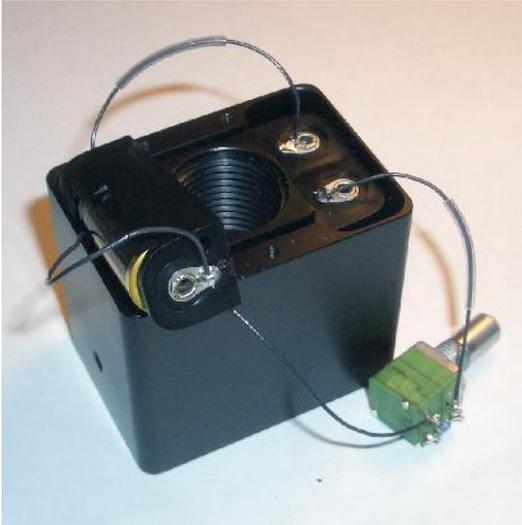
9. Insert the single battery holder into the main module body as shown. Push wires into channels on the main module body as shown. Insert the pot into the module cover as shown and **tighten the nut**. Tighten the cover to the main module body with three supplied screws. Turn the pot off (all the way counter clockwise) and place the pot knob as shown. Tighten the set screw on the knob. **Make sure that the knob is not touching the nut below and that the pot shaft rotates freely.**