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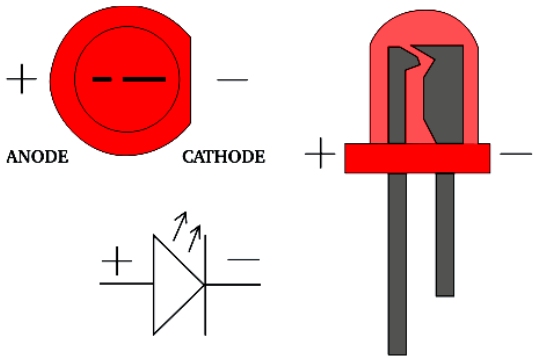
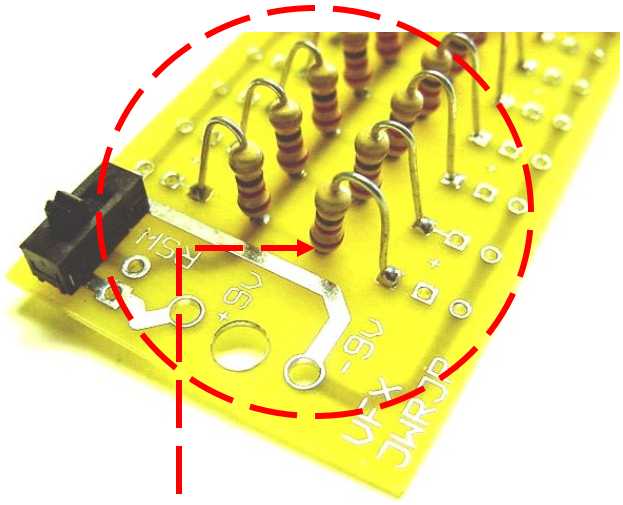
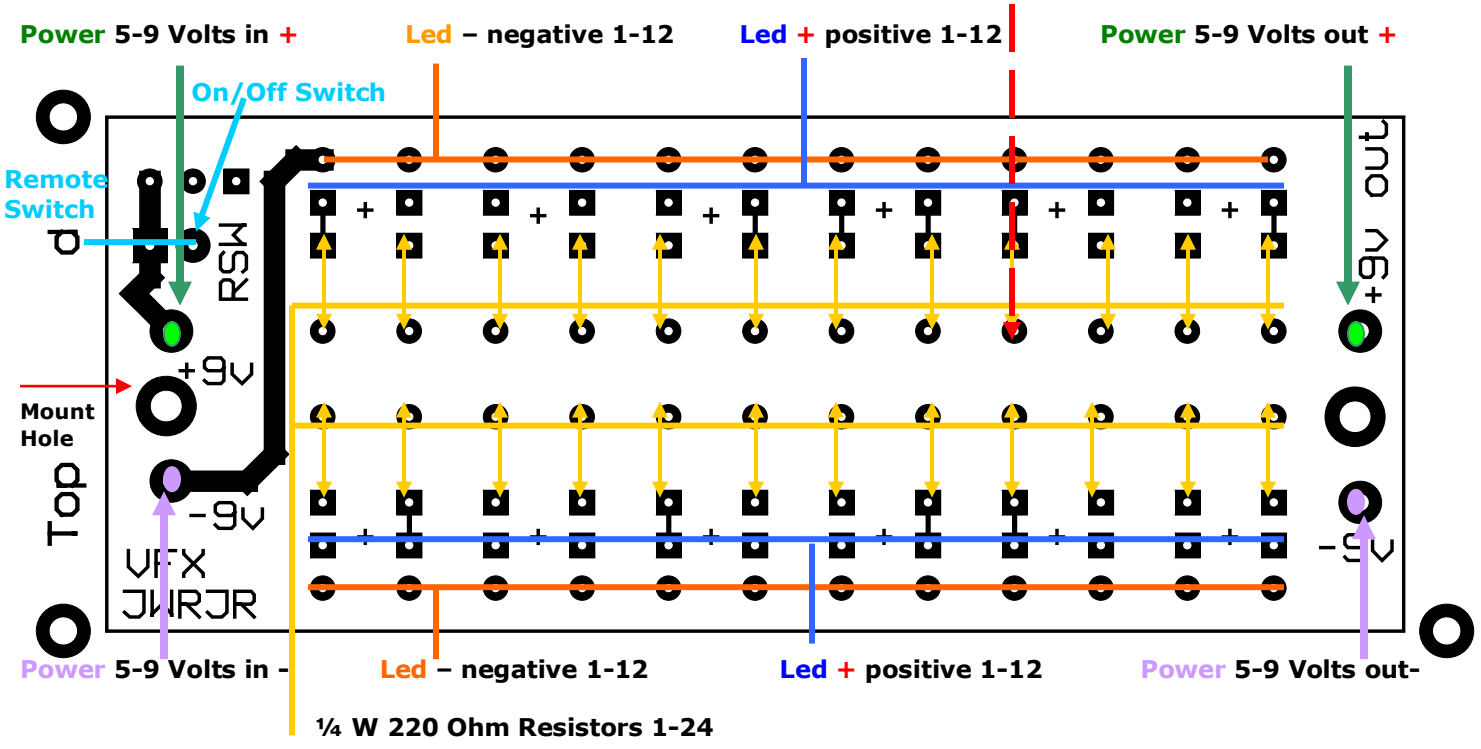
(SVLK-1)

(General Led Diagram)

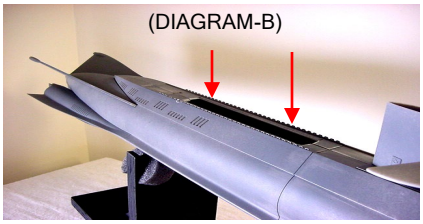




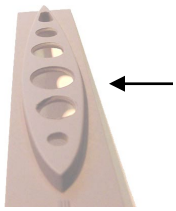
(Main Driver Board Top Side - Diagram A)

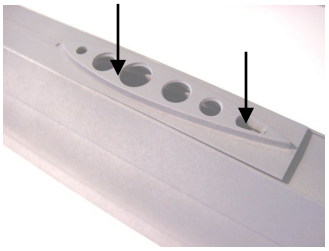


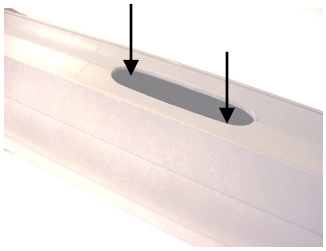
(General Lighting Instructions Ver-1)
Overview
1- Start by studying the main circuit diagrams A.
2- Unpack model kit & dry fit the main body parts together.
3- Locate all locations you would like to light up.
4- Plan out routes for wiring through out the model.
5- Prepare a location to work on the model kit.



1- Start by drilling out areas for wiring to pass through. A good area to open up for the electronics is under the missile bay. (DIAGRAM-B)
You will need to open up the main deck below the sail area in order to run wiring for the sail lights. (DIAGRAM 1-A)
(DIAGRAM -1-B)

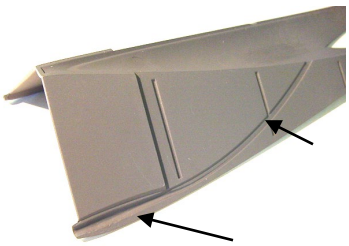


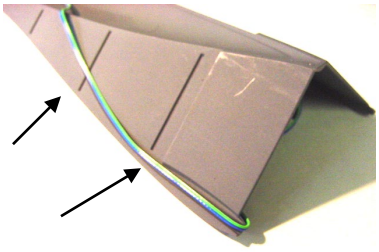


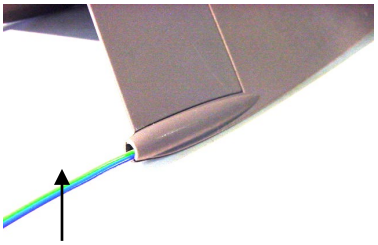


2- The tail fin area will also need to be modified for wire and led.
You will need to carefully grind your way down both sides of the main channel on both of the tail fins in order to fit the ribbon cable through the chase.
Note: Apply extra caution when removing material from channel, avoiding braking through. (DIAGRAM 1-B)

(DIAGRAM -1-B)



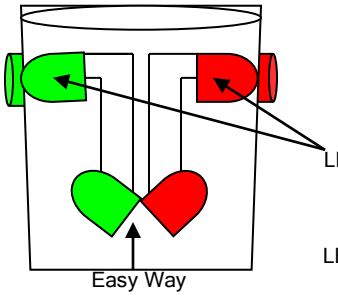


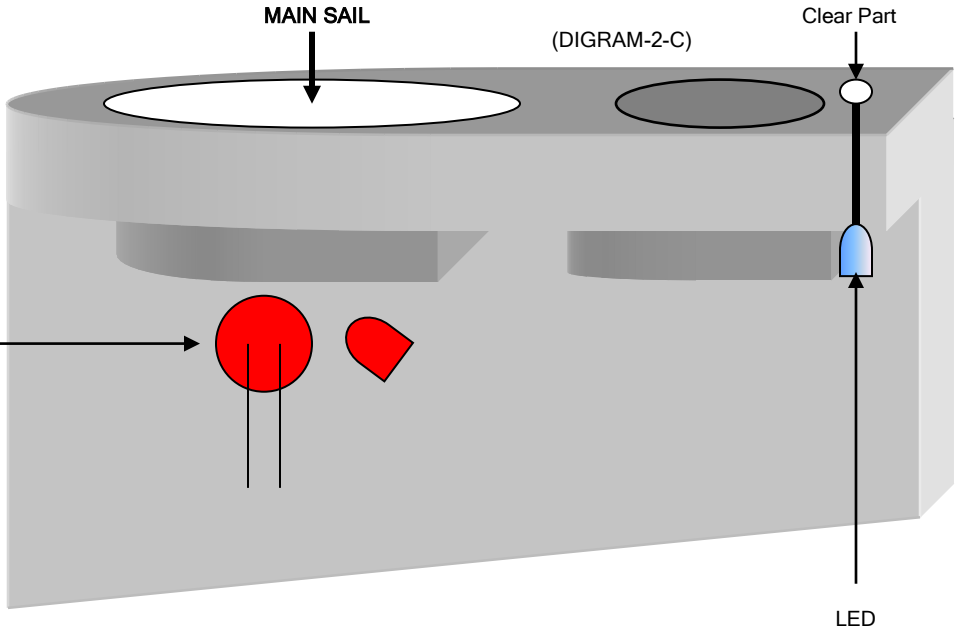


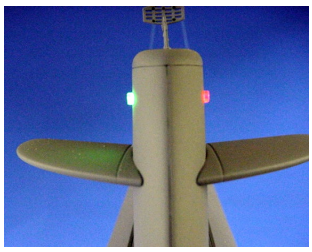
3- After step 1-2 you are ready to take on the hardest part of the build, fitting the sail lights. The easy way is to point the led towards the clear nav light part. The left & right Navigation lights are a tight fit and require you too bend the two red & green 1.8mm leds at a 90 degrees in order to look out of the clear navigation ports. Start by pre bending the leds as shown in in the Diagram 1-C., hold the leds with a small pair of needle nose pliers and then bend them 90 degrees with your fingers. Once you have made the bends you can wire and solder them together, pre test the leds after solder and check to make sure they are working. (DIAGRAM-1-C)

Step- 2 the back running light. Use the white 1.8mm led and mount it on the back side of the sail: shine it vertically towards the clear part. Note: the whole sail light set up can be pre fabricated and installed in the final stages, just remember to run your led wires extra long.
(DIGRAM-2-C)

(DIGRAM-1-C)

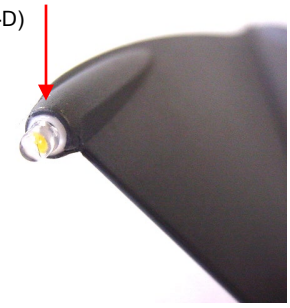


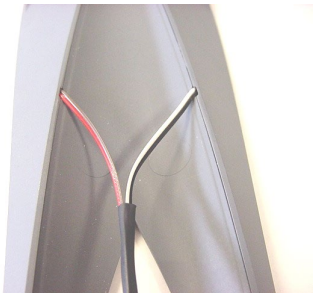


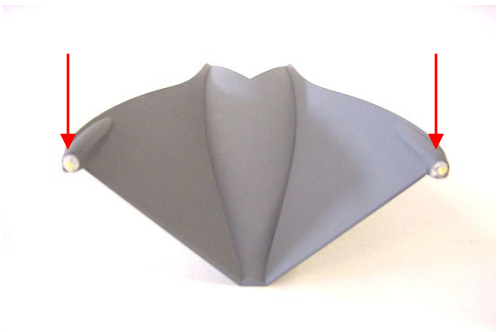


4- After pre fitting the ribbon cable for the tail fins you can glue the two halves together. "MAKE SURE THE WIRE SLIDES IN AND OUT OF THE CHANNEL" Before you glue it shut! Prefabricate the 2-3mm white leds on the ribbon cable and send them through the tail light area again make sure your able to slide the led and wire in & out smoothly. After the glue has dried go ahead and pull the led to the back of the tail fin housing and glue in place, you my want to use white glue or clear 100% silicon to mount the leds. This also is another part that you can fit loose and glue it if you like in the end. (DIAGRAM-1-D)

(DIAGRAM-1-D)

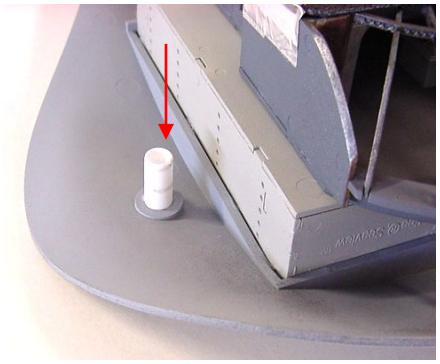


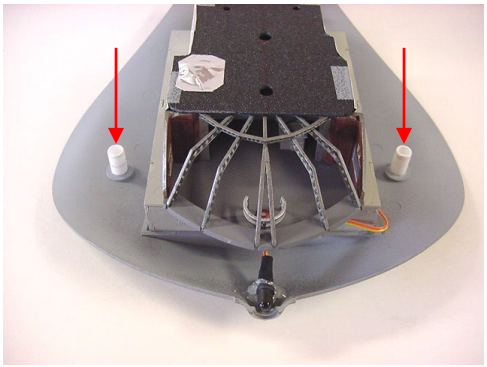




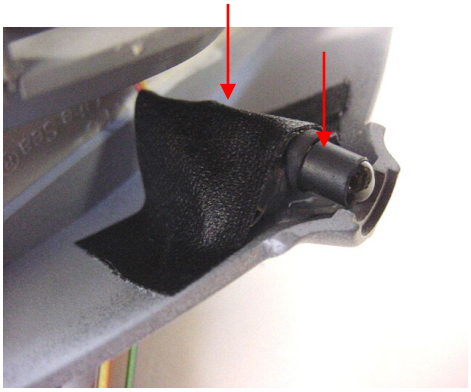
5- You're now ready for the nose light and lower manta fin search lights. Start with the lower search lights first, take the 9/32" plastic tubing and cut it in half, one for the left and on e for the right. After cutting the tubing clean up the ends and test fit the tube with the 5mm warm white leds, if they slide in easy go ahead and glue them to the center of the search light hole. After the glue dries and they are hard mounted take your pre made wire and led and glue them in place with a few dabs of hot glue, this should hold them in place for the full build. (DIAGRAM-1-E)
Step 2 the nose light is also straight forward, prefabricate a 4.8 mm warm white led on wire and mount it in the center of the nose light housing, Its best to mount the light on the lower half of the wing section, witch will make it accessible when interior is removed for viewing or service. Note: You might want to black out the area around the led except for the very front half, this will help prevent light leak around the nose seam. (DIAGRAM-2-E)

(DIAGRAM-1-E)





(DIAGRAM-2-E)

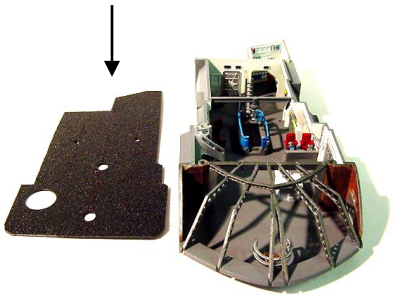


6- Interior lighting, start by laying out locations where you want the interior to be lit up, there are some many different ways to place the lighting that it's up the model builder to pick the final locations. You will need to construct a ceiling cover in order to hold the leds and prevent light leak, take a piece of hard paper or thin cardboard stock and cut out a pattern for the ceiling cover. Once you have trimmed the pattern and test fit it on the top of the interior you are ready to make the interior ceiling. Take the pattern and use this as your template, lay the pattern on a thin piece of plastic styrene. (A THICK FOR SALE SIGN IS A EASY TO FIND PLASTIC, IF YOU DON'T HAVE BULK STYRENE) Lay down the master pattern on the styrene and trace around the edge with a pencil or felt pen. Prime and paint the ceiling to desired color and drill out locations for the leds, mount the prefabricated led and wire on the top of the ceiling looking down towards the interior floor. Make sure to run the wires extra long to the back of the sub, you can pre fabricate the whole interior as a self contained unit and mount it all together as one piece, this makes easy fit and serviceable. You might want to black out the areas around the leds to prevent light leak.
(DIAGRAM-1-F)

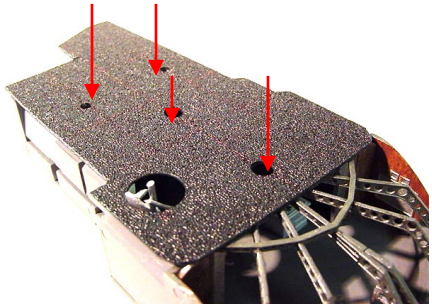
Step-2 Flying sub bay, drill out one hole for a 4.8mm warm white in the backside of the of the bay wall just under the Mobius Logo. Mount the pre made led and wire and run the wire together with the rest of the interior wires. (DIAGRAM-2-F)

(DIAGRAM-1-F)

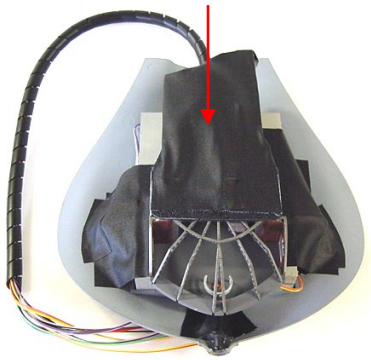
(Finished Ceiling)



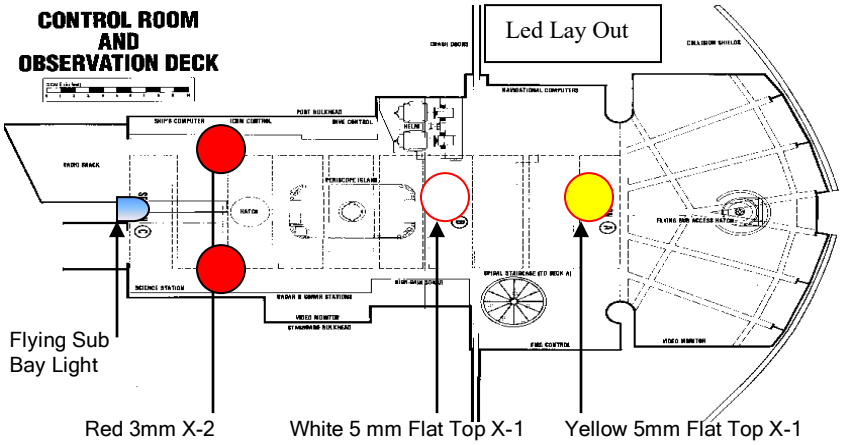
(Finished Ceiling Led Drill Out)



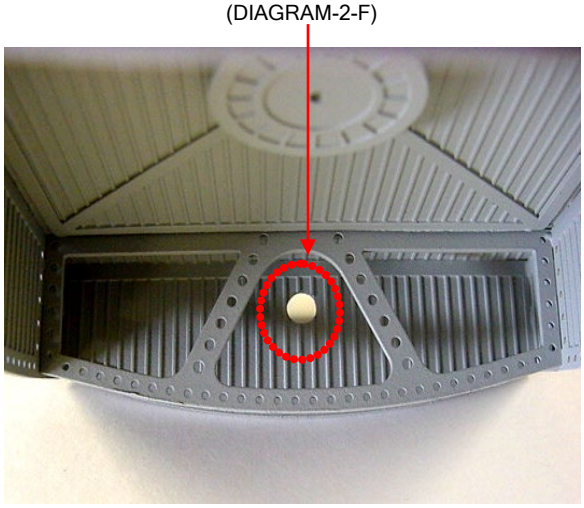
(Complete Interior)



(DIAGRAM-1-F)

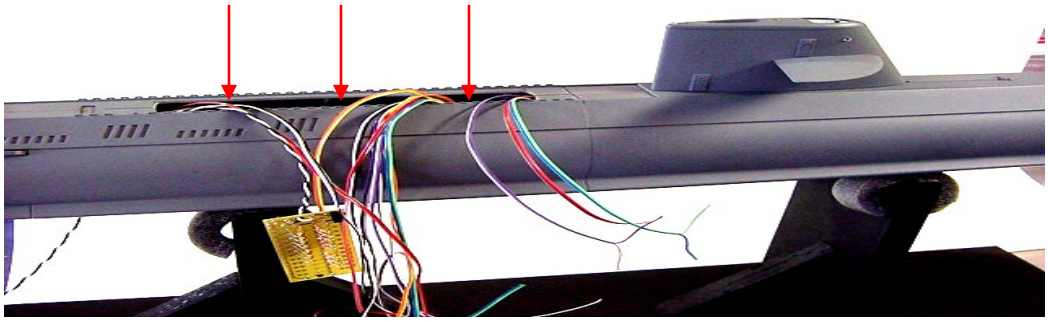


(DIAGRAM-2-F)



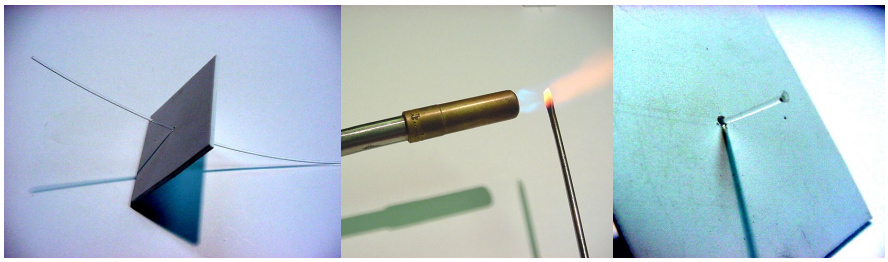
7- Circuit board hook up; Route all wires to back tail fin area or where ever you have decided to mount circuit board and battery, trim any wires at this time and prep pair to solder to circuit board. Note: Make sure to give your self enough extra wire outside of the sub to solder the circuit board. Solder each wire lead one at a time, when all connections are soldered turn on and test all lighting locations, if everything tests good, fit the excess wire back into hull and mount circuit board and battery, try to keep the extra wire off the resistors on the circuit board. (DIAGRAM-1-G)

(DIAGRAM-1-G)

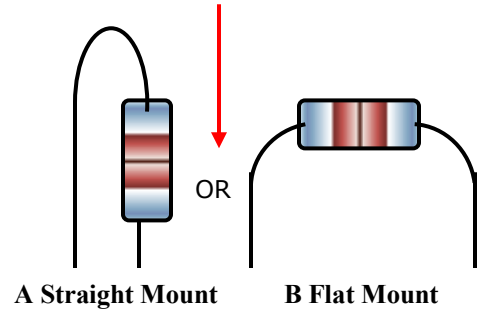


General Fiber Optic Install

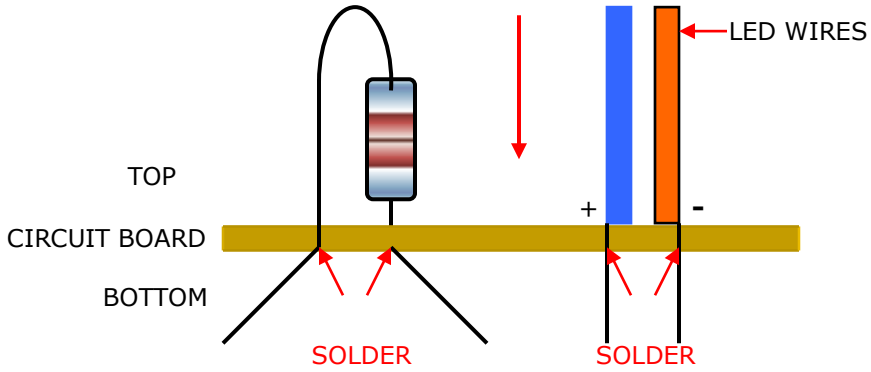
Drill out cockpit area for fiber-optics. This
Is also 100% customer preference. Drill out locations.
When you all drilled out put fiber or fibers
through the pre drilled wholes and hot melt top of fiber.
Heat up a flat blade screw driver and quickly touch it to the
End of the fiber. You want the fiber to be slightly mushroomed.
Pull fiber back against surface until flush. Use a small amount
of clear silicone on the back side of the fiber and surface wall.
This prevents the fiber from pulling out. Make sure to have
light source centered on end of fiberoptic cable.



A & B STYLE PRE BEND RESISTORS LIKE THIS



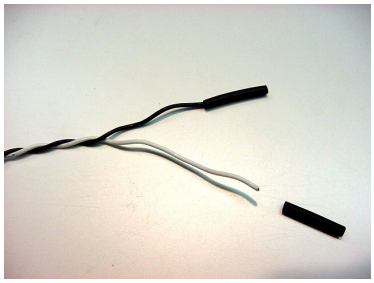
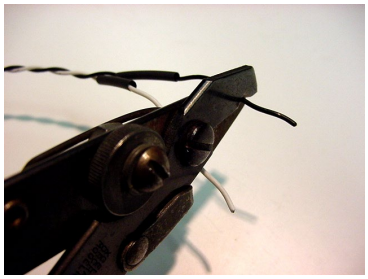
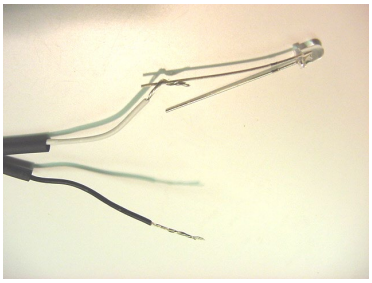
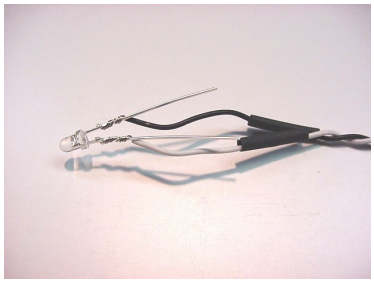
SOLDER THROUGH BOARD LIKE THIS

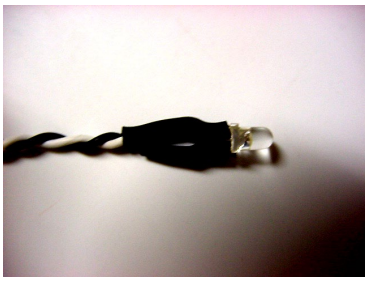


(How to Make a Wired Led)

(Diagram B)

1- Separate the two wires. Pick what color will be positive+ and what color will be negative-.
(Example) Lighter color is positive+, darker color is negative-. This will apply to any color, you make the choice.
2- Slide on two pieces of shrink tubing 1/8 - ¼ "long, Slide past area where wire coating will be striped off.
3- Strip back the protected coating and expose the bare wire, 1/8 – ¼" is about enough to wrap around the led leads. Twist bare wire together until it is a tight, stray wire or fray will get in your way later, the tighter the better.
4- Wrap wire around led leads and slide forward to led base. Solder and cut off excess leads.
5- Slide shrink tubing over soldered wire and led, heat shrink tubing to finish process.



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All sales are final. Batteries not included.
WARNING: To guard against injury, basic safety precautions should be observed, including the following:
1. Read and follow ALL safety warnings, instructions and notices.
2. Do not use equipment for other than its intended purpose.
3. Do not alter design or construction.
4. DANGER: To prevent the risk of severe or fatal electrical shock. Always disconnect power before performing any maintenance.
5. Do not operate if power cord or plug is damaged.
6. Electrical power supplied MUST match power requirements listed.
7. CAUTION: Do not operate without proper electrical ground.

GENERAL LED HANDLING PRECAUTIONS:
CAUTION: The LED can cause permanent damage to eyes at close range.
You should never look directly at the light source of the LED.
CAUTION: LEDs are static sensitive devices. Wear grounding wrist strap.
When attaching leads, the leads should be at a point at least 3mm from
The base of the LEDs. Avoid damage to LEDs by not soldering more than
3 seconds with a 700* iron. Do not use LEDs without a current limit resistor.
The forward voltage rating is typical and can vary from part to part. LEDs
may work fine connected to a battery of proper voltage, other LEDs will be
over driven and destroyed! Always use a resistor in line with LEDs.
CAUTION: This kit contains small parts which may be hazardous to
children under 12 years. Adult supervision is required.

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