

Starfury Lighting Kit

By Madman Lighting Inc
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Thank you for purchasing a Starfury Lighting Kit from Madman Lighting! This kit will make it easy to produce a magnificently lit model with minimal soldering and easy to use tools.

What You Get:

1 Delux-24 circuit card	18" of fiber optic	micro-power connectors (male and female)
8 Blue LEDs for thrusters	heat shrink tube	DC power plugs (male and female)
1 white LED for instrument lights	hookup wire	1 orange LED for cockpit backlight

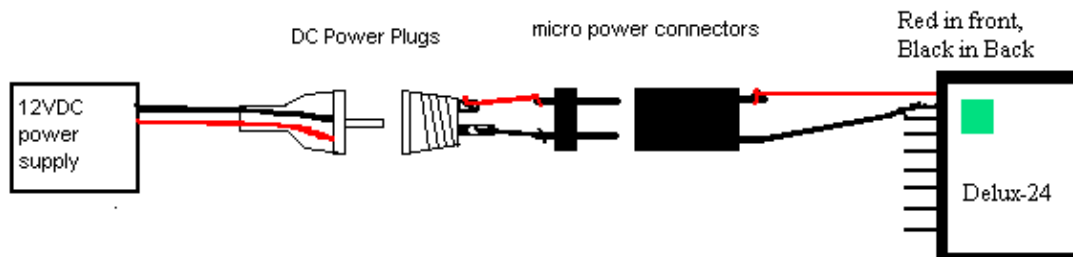
What you will need:

Tools: Xacto knife, Wire Wrap tool (Radio Shack), low wattage soldering iron and solder (Radio Shack), needle files, pin vise, set of drills including #80, small wire cutters, and a simple volt-ohm meter to measure voltage and continuity.

Supplies: Power supply, either a 12V battery pack (eight AA batteries) or a 12VDC wall transformer. Glue, putty, paint, etc.

Kits: Revell-Monogram Babylon 5 Starfury Kit (eBay),
Heavy Fighter MK I lighting kit by Dons Light and Magic (FederationModels.com)
Starfury Cannons, optional (StarshipModeler.biz)

Connecting Power to the Delux-24

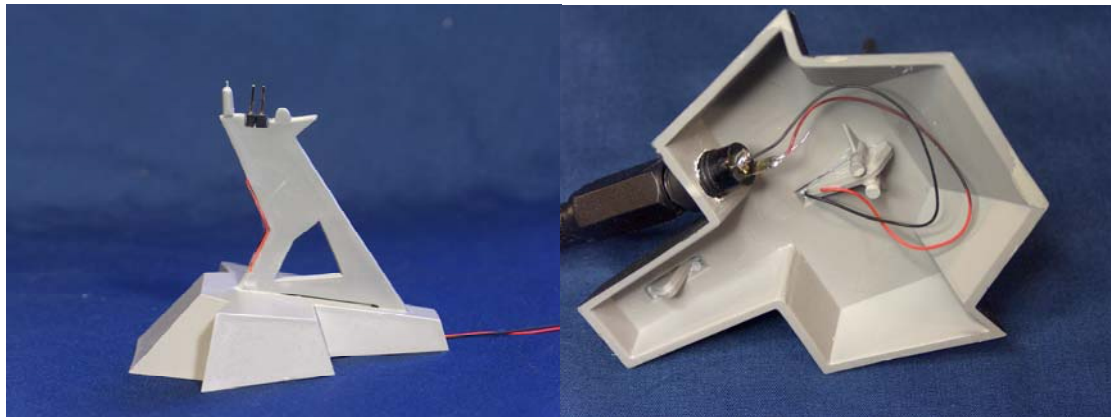


1. First, lets connect power to the Delux-24. The Delux-24 has a tiny power-on LED built-in to let you know you've hooked up power right. Once we've got power right we can take the power hookup apart and mount it in the model.
2. Connect your power supply to the DC male power plug. If using a wall transformer, clip off the plug it comes with, strip the ends, plug it in, and measure the voltage. Unscrew the DC male power jack's cover and solder the positive wire to the Outer terminal, negative (or ground) wire to the Center terminal.
3. Take the DC female power plug and about 6" of hook-up wire. Strip about 1/2" of insulation from the wire ends and solder the Red wire to the Outer terminal, Black to the Center terminal.

4. Plug in your power source and measure the voltage to make sure you've hooked it up right. Outer terminal, Red wire, should be Positive.
5. Temporarily wire-wrap power to the male micro-connector's short leads.
6. Take about 3" of hookup wire and wrap to the terminals of the female connector. Wrap the other end to the power pins of the Delux-24.
7. Turn it on! The tiny LED on-board the Delux-24 should now be lit. If not, reverse the wires and check that there are no breaks in the wires.

Wiring the Stand

1. Drill a hole in the base of the stand for the DC power plug, insert the wires through the hole and mount the plug.
2. Make a notch in the top of the stand for the male micro-power connector, between the two mounting pins on the stand. The body of the connector should be flush with the top of the stand with the long pins of the connector sticking straight up.
3. Using either a small drill or knife, drill or groove channels for the wires into the stand's vertical part and run wires from the DC power plug, up through the stand, to the micro-connector.
4. After test fitting the micro-connector in its slot, wire-wrap the power wires to the short leads of the micro-connector. Red to the Front lead, Black to the Rear lead.
5. Test your power hookup. If it's good, hide the wires with putty.

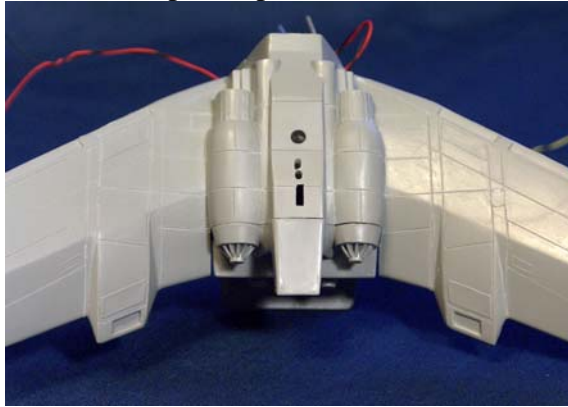


In-progress stand, the wires enter holes in the top, emerge near the middle, and enter holes again near the bottom.

Finished stand showing DC power plug connections.

Wiring the female micro-connector in the model.

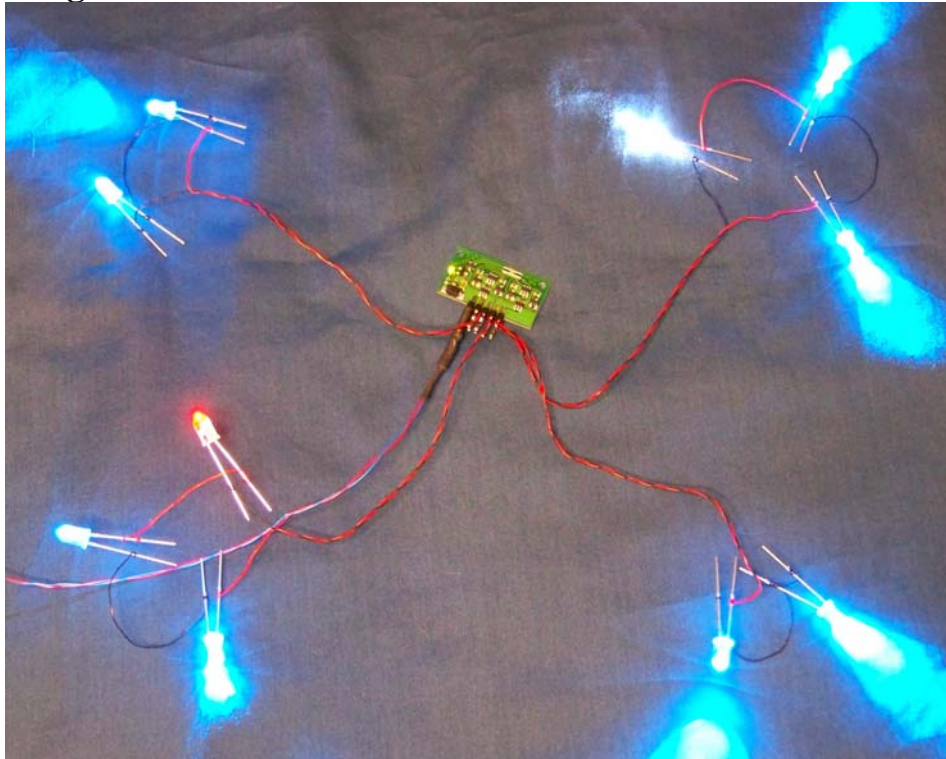
1. Using the finished stand as a guide, locate where to drill two holes in the bottom of your model where the power pins will be inserted. Make the holes slightly larger than



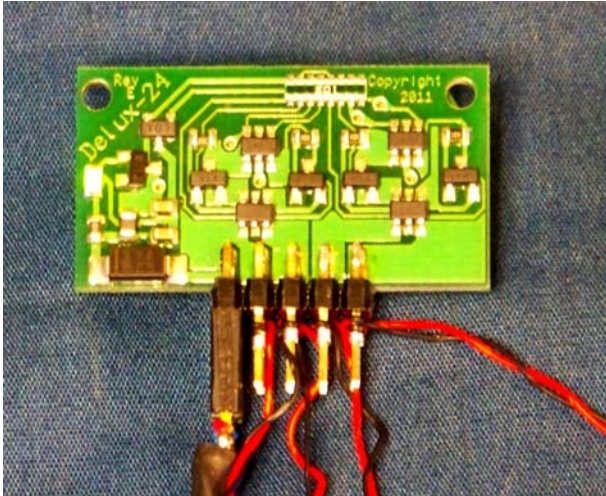
the pins.

2. Test fit the model on the stand, with power pins sticking through the holes. Test fit the female connector over the pins. Remember, Red wire towards the Front, Black to the Rear.
3. Test the power hookup.
4. Cover the bare wires on the female connector with a short piece of heat shrink tube and shrink it in place with a little heat from a low wattage soldering iron or hair dryer.
5. Use some scrap plastic sprue to make a mount for the female connector. Test power once more and glue in place.

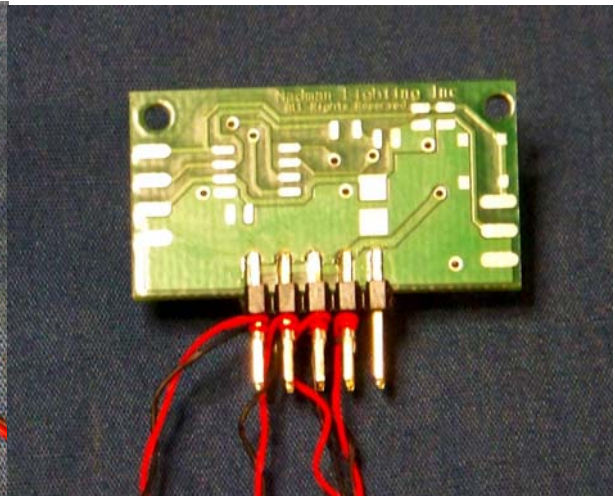
Connecting LEDs to the Delux-24 circuit card



All LEDs hooked up, notice the four groups of lights.



Top side close-up

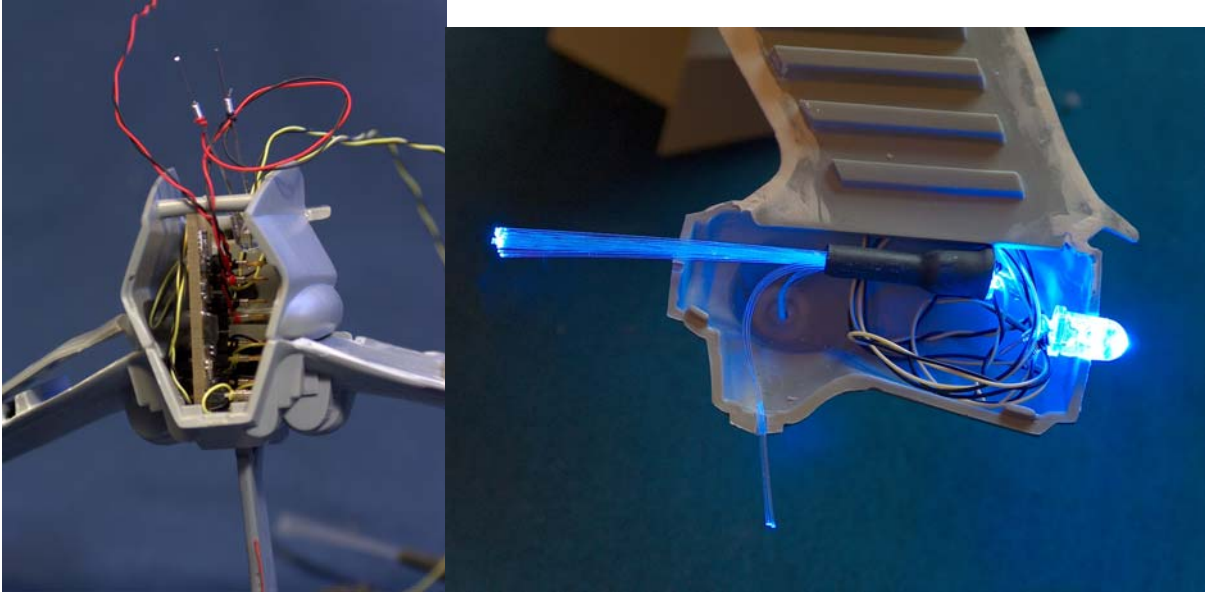


Back side close-up.

1. Time to hook the LEDs to the Delux-24! Connect the LEDs in series to each pair of posts in four groups of three LEDs.
2. Disconnect power before wiring LEDs, apply power after each hook-up to make sure they're working right, and then remove power and do the next.
3. Wire the four blue LEDs for the bottom engines first, with one LED per pair of posts. (See Delux-24 instructions) Start hooking up LEDs next to the power pins and work towards the other end.
4. Wire the orange LED.
5. For the top right engine, wire two blue LEDs in series. Connect the string of blue LEDs to the next two pins as if it were one LED.
6. For the top left engine, repeat steps 4 and five with the white LED and last two blue LEDs.
7. Power up the model, all ten LEDs should be lit.

Mounting the Delux-24 in the model.

1. Assemble the body and lower wings. Paint the interior flat white to reflect the orange light within the cockpit.
2. There's just enough room to fit the Delux-24 inside the body of the model. Slip it in place vertically and tuck in all the wires.
3. Mount the blue LEDs for the lower engines. Attach the inner lower wings.
4. Mount the Orange LED in the top of the body so it shines down into the body and lights the cockpit.
5. Mount the White LED anyplace in the body; choose an angle so the fibers are not bent too much.
6. Attach the upper wing and mount the remaining blue LEDs.

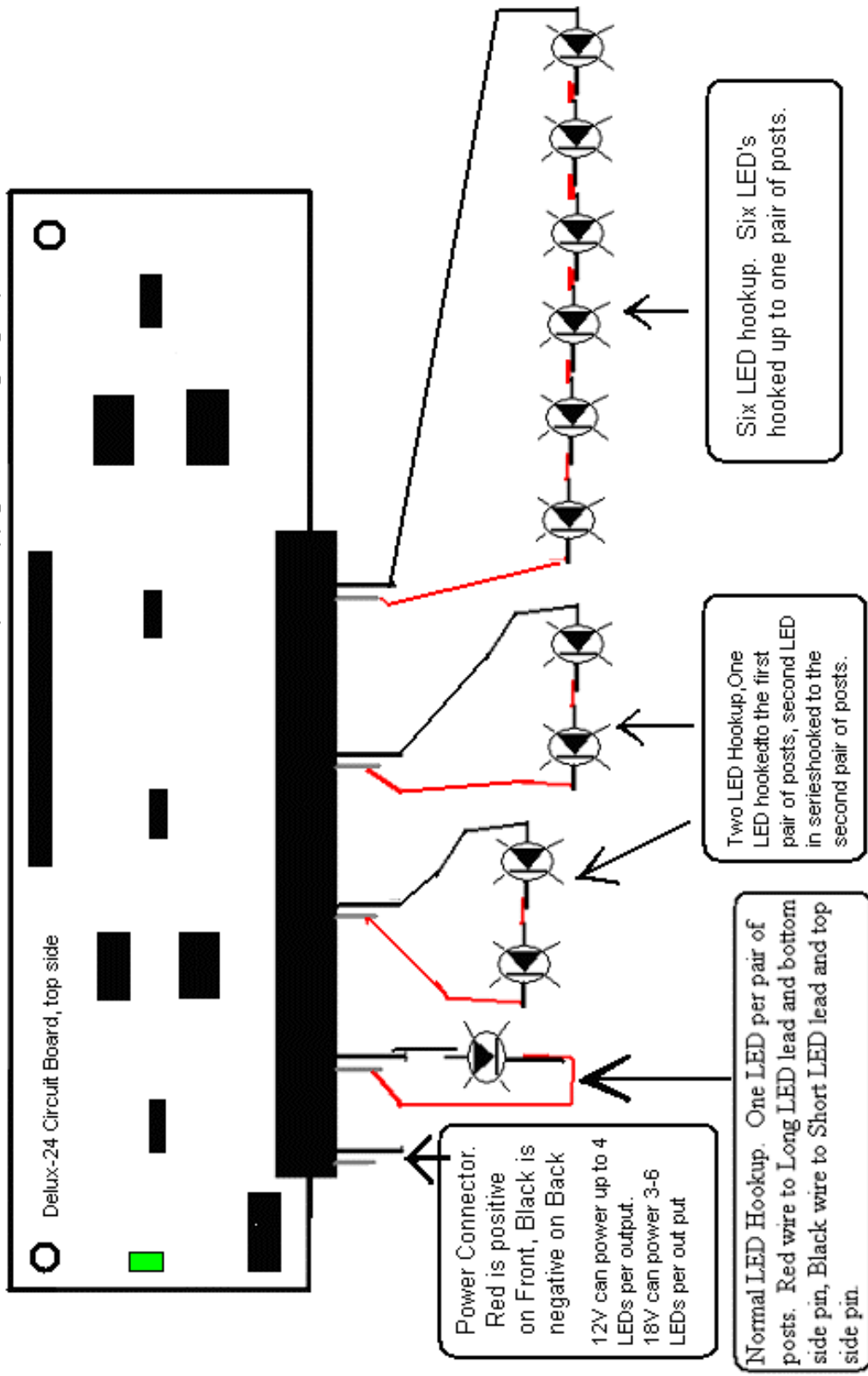


Connecting Fiber Optics to LEDs

1. Cut four lengths of fiber 3" long and strip off the black covering except for about ½" at one end. *Gently* warm up the ends of the fiber with a low wattage soldering iron by bringing the iron CLOSE, but NOT TOUCHING the ends. This will smooth them and form a lens at the end of each fiber, greatly improving light transmission.
2. Cut four lengths of heat shrink about ¾" long. Stretch one end open so it fits over the LED easily.
3. Join the LED to the fiber by butting them together and slipping the heat shrink over them both. Heat the heat shrink with a low wattage soldering iron or hair dryer to shrink it and hold the fiber to the LED.
4. Take the remaining fiber, slit open the jacket, and remove about a dozen fibers from the bundle. The exact number will depend on how many spots of white light you want in your cockpit. Warm the ends gently to "lens" them and join them to the white LED with heat shrink, you may need to wrap some tape around the end of the bundle so the heat shrink will fit tightly.
5. Drill several #80 holes in the cockpit for white light to come out and insert the fibers. It's a tight fit getting the fibers and cockpit in place so go slowly.
6. Mount the blue fiber optics in the front part of the engine nacelles as shown. Separate a few fibers from each bundle to light the maneuvering thrusters.

Painting with Fiber Optics and Lighting

It's not as hard as you think. Anyplace you have a fiber, leave a little extra, maybe ¼", sticking out, and paint the entire area. Once you're all done painting, cut the fiber flush with the surface. Now you've got a great fiber optic lighting effect.



Delux-24 Circuit Board, top side

Power Connector.
Red is positive on Front, Black is negative on Back
12V can power up to 4 LEDs per output.
18V can power 3-6 LEDs per output

Normal LED Hookup. One LED per pair of posts. Red wire to Long LED lead and bottom side pin, Black wire to Short LED lead and top side pin.

Two LED Hookup. One LED hooked to the first pair of posts, second LED in series hooked to the second pair of posts.

Six LED Hookup. Six LED's hooked up to one pair of posts.