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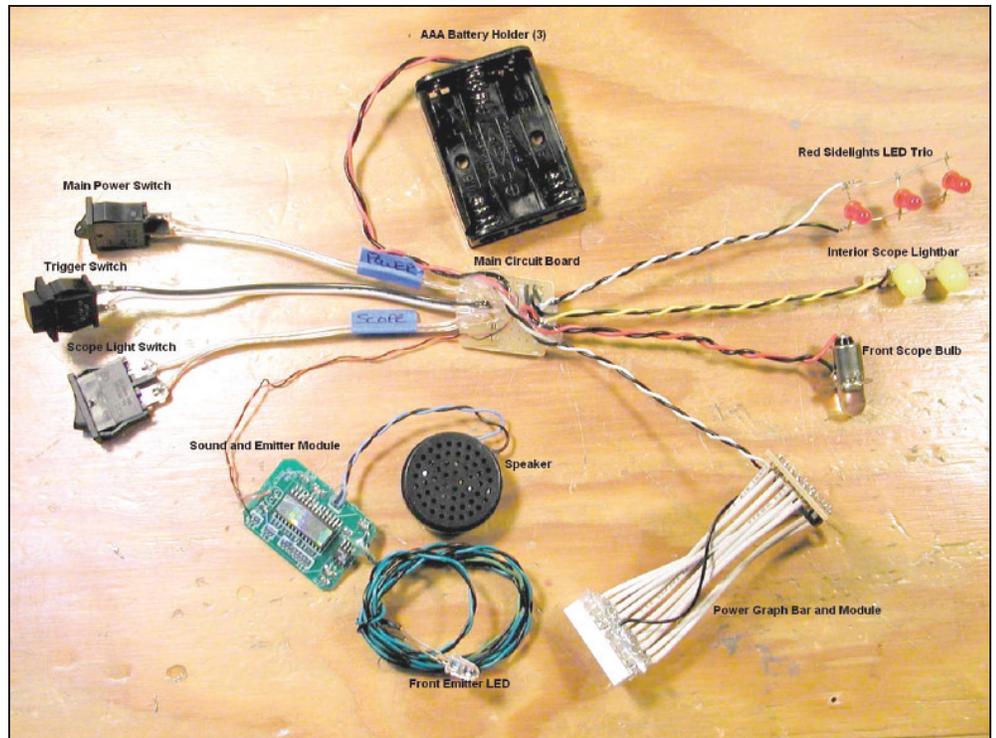
Star Trek: First Contact Phaser Rifle Electronic Upgrade Manual



- This electronic upgrade requires solid prop building and soldering experience.
- Please read this manual completely and familiarize yourself with these electronics before attempting to install this upgrade kit.
- This upgrade will require cutting and/or attaching wires with solder.
- Do not attempt to modify the electronic circuits in any way.
- This manual is only intended as a guide for the installation of the electronics. Please use the Phaser Rifle kit manual for Rifle assembly.
- Requires (3) standard AAA alkaline batteries.

TOOLS REQUIRED:

- Drill and/or Dremel tool (a dremel flex arm attachment is very helpful)
- Various modeling files
- Soldering iron and rosin core solder
- Scissors and wire cutter/stripper
- Hot glue gun - foam tape
- epoxy resin - all could be used depending on methods of installation



EXAMINE ALL PARTS AND READ THIS MANUAL COMPLETELY BEFORE BEGINNING ANY WORK:

These instructions have been written so that when followed correctly, your electronics upgrade will go smoothly and the rifle will look and sound incredible upon completion.

Again, you will need to cut and re-attach several of the wires, due to the wires coming from several different locations throughout the rifle. Therefore, the most important thing to remember is to cut only ONE pair of wires at any given time, mark them accordingly, and then re-attach them BEFORE cutting any other wires. This way you will avoid confusion about which wires attach to where. The wires are also size/color coded in order to further minimize any confusion. **Always match up the wire colors (i.e. black/black, red/red, etc.) unless otherwise stated.**

Take the electronics out of the package and lay them out similar to the picture above, separating them all in such a manner that none of the metal contacts on any part is touching any other part.

Install 3 AAA batteries, then familiarize yourself with the function of the electronics by activating the switches labeled “power” and “scope”. Then press and hold the trigger switch allowing for the complete firing cycle to complete. The front emitter LED will fire along with the sound.

***NOTE: The main “power” switch must be turned on for any of the electronics to operate, and therefore it will deactivate everything when switched off.**

To start with, it is best and easiest to prepare for installing the electronics by drilling and cutting out all of the holes required BEFORE doing anything else. That way you will be familiar with a plan, and also each installation step can be done without having to stop and drill or cut at those points during the build up.

PARTS PREPARATION:



Step 1: This photo shows the access hole cut out of the rear left side of the rifle panel. Carefully use a dremel tool to accomplish this step. This hole is for the power graph LED circuit installation and battery storage.

A replacement panel is supplied with the prop kit, allowing you to make a removable “cover” for replacing the batteries when needed.



Step 2: This photo shows the (3) holes drilled out on the mid left side panel under the scope for the 3 LED trio.

Carefully use a drill and a 13/64” drill bit for this step.



Step 3: This photo shows the cut out for the LED power graph. Precise size and shape are critical here, and careful use of a dremel tool and various files are recommended to make this hole.

Keep in mind that any slip up may require additional bodywork and Bondo use.

You will need to work on this step from the top side as well as the inside of the cavity.



Step 4: This photo shows a 3” slot cut out of the riser, where the scope will be attached. This is for the installation of the 3 red side light LEDs, as well as the storage/housing for the main circuit board and sound/emitter module. It also serves as a “connection point” for the wires coming from various locations in the rifle, addressed later in these instructions.





Step 5: This photo shows the (2) rectangular holes for the power switches cut out of the side of the scope riser. The holes are approximately $11/16$ " X $1/4$ ".

Careful use of a dremel tool and small files should be used to make these holes.

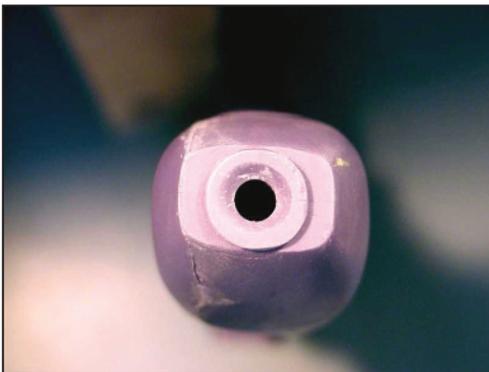
Precision is critical.



Step 6: This photo shows a small square hole for the trigger switch cut out of the trigger location above the handle. The hole is approximately $1/2$ " in diameter.

It is fairly difficult to get around the trigger guard. Careful use of a dremel tool and files are recommended for this step.

Precision is critical.

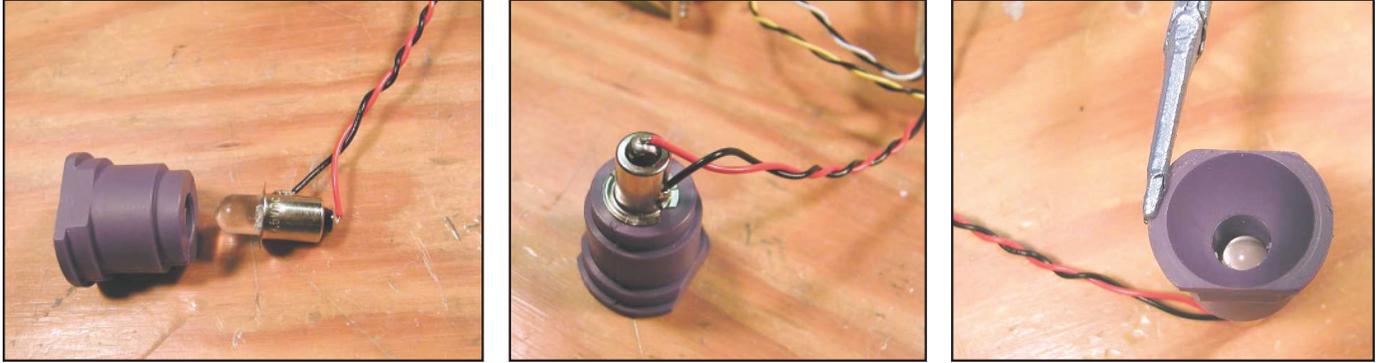


Step 7: This photo shows the hole for the LED emitter drilled out in the center of the emitter tip ring. Use a drill and a $9/32$ " drill bit for this step.

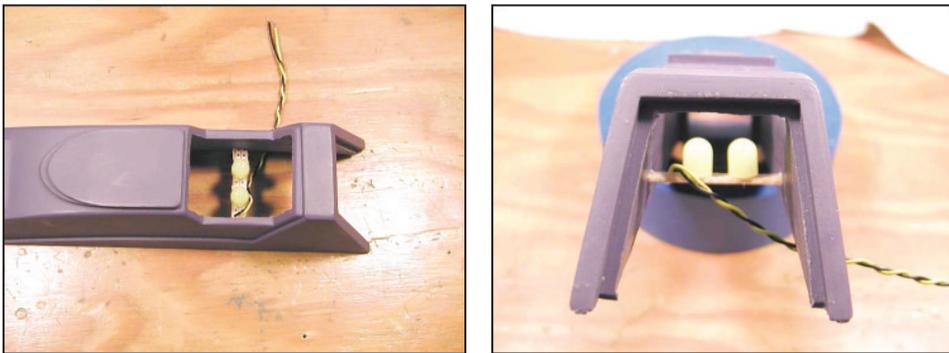
The following pages will go into more detail for installation. Use the prop building instructions as the "main" source for prop assembly, in conjunction with steps from these manual pages.

THE SCOPE:

You will need to cut and reconnect the wires for the next three steps. Use shrink-wrap to avoid shoring the soldered wires together. For ease of installation, you may want to splice in a few inches of small gauge wire. **Be certain to match up the wire colors if doing so.**



Step 8: The front scope light should be attached to the reflector supplied in the prop kit using hot glue or epoxy. **If you are going to paint the reflector dish, you will want to do so before installing the bulb.**



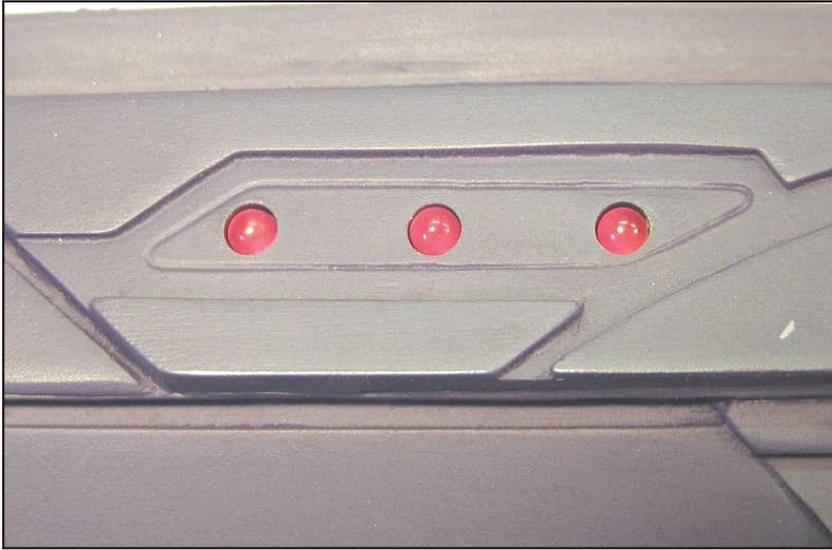
Step 9: The interior scope light bar can be trimmed at both ends using a file or wire clipper. Trim it a little on each end until it fits in the middle of the scope body by touching both sides of the interior. Mount it under the middle of the lens cut out using hot glue or epoxy. This light will serve to illuminate both the orange lens as well as the targeting graphic lens on the back of the scope.

The bottom scope plate supplied with the prop kit will need to have a suitable hole drilled though it for the wires to go through and reconnect to the main circuit board that will be housed in the side light area of the rifle.



Step 10: For optimum sound volume, the speaker should be mounted face down against the inside of the scope wall using hot glue.

SIDE LIGHT TRIO:



Step 11: The red LED side lights are soldered together and flexible so they can be easily installed into their designated holes from the inside of the rifle through the top slot cut out of the riser. Once they are in place, a small amount of hot glue should adequately secure them. ***Be sure they do not protrude past the side of the rifle, as the red acrylic lens (supplied with prop kit) will be glued in place over them.***

TRIGGER:



Step 12: You will need to cut and reconnect the wires for the next three steps. Use shrink-wrap to avoid shoring the soldered wires together. For ease of installation, you may wish to add a few inches of length using small gauge wire. Matching wire colors is not important for this step.

The trigger hole should be drilled and filed in such a way that the switch sits flush and even when properly installed.

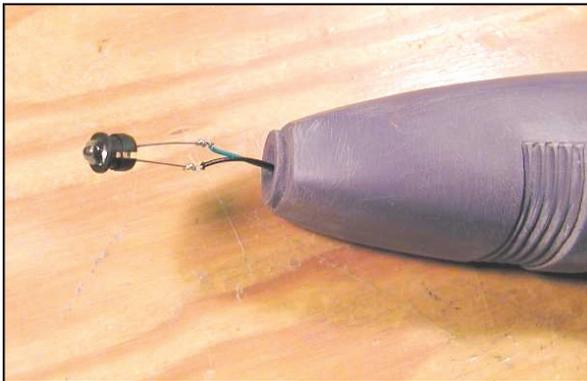
POWER GRAPH LED CIRCUIT:



Step 13: You will need to cut and reconnect **only the two black and white wires** in this step. Use shrink-wrap to avoid shorting the soldered wires together. For ease of installation, you may want to splice in a few inches of small gauge wire. **Be certain to match up the wire colors if doing so.**

With the hole properly prepared, the power bar should lay flat and parallel to the inside surface of the cavity. The bar should be carefully glued in place from the inside using hot glue. The attached circuit board should also be installed inside the cavity so that it is mounted out of the way of the battery holder. Hot glue can be carefully applied for this as well, while making sure that the battery holder can be easily slid out for replacement of batteries.

EMITTER:



Step 14: You will need to cut and reconnect the wires for this step. Use shrink-wrap to avoid shorting the soldered wires together. For ease of installation, you may want to splice in a few inches of small gauge wire. **Be certain to match up the wire colors if doing so.**

The emitter LED should have enough wire to extend through the barrel into the red LED side light area. That is where you should reconnect the wires to the attached sound and emitter module.

With the wire threaded through the barrel and the black LED ring mounted onto the emitter LED, carefully snap the assembly into the hole opening on the tip of the barrel. A small amount of epoxy can be used if needed.

SWITCHES:



Step 15: You will need to cut and reconnect **only the two black and white wires** in this step. Use shrink-wrap to avoid shorting the soldered wires together. For ease of installation, you may wish to add a few inches of length using small gauge wire. **Matching wire colors is not important with this step.**

The power and scope light switches should be mounted into the rectangular holes cut out of the riser that the scope will be mounted on.

Hot glue or epoxy is recommended for installing the switches into the body once the wires are reconnected.

Once you are to the point in your build for attaching the scope, the main circuit board and the sound/emitter module can be mounted in the side light area cavity by carefully applying small amounts of hot glue. To be sure that the electrical contacts on the boards and switches do not short, it would be best to mount them a bit away from each other.

Another method would be to wrap the boards individually with pieces of soft material such as thin foam, allowing them to be held in place with friction.