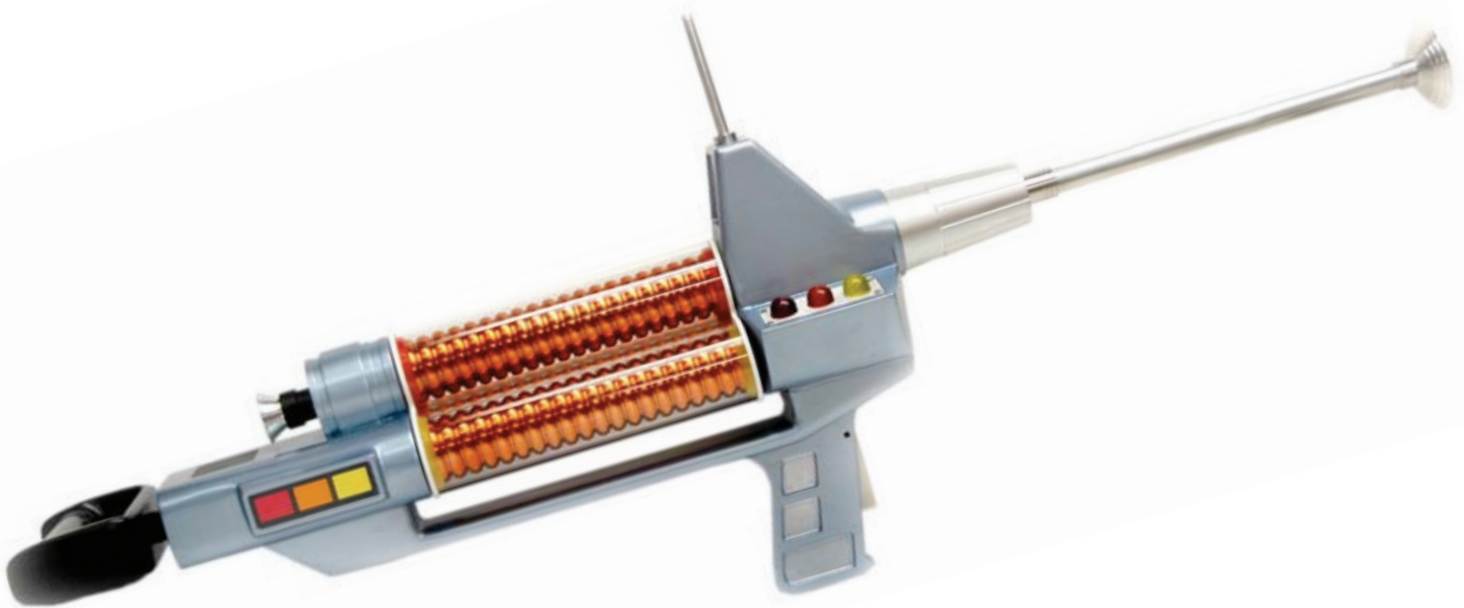




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#PRP1775

***Star Trek*[™] TOS Phaser Rifle Prop Kit Assembly Manual**



Roddenberry.com proudly presents for the first time as a licensed product a highly accurate kit version of the famous ***Star Trek: The Original Series* Phaser Rifle** as used by Captain Kirk on the planet Delta Vega in the second pilot episode "Where No Man Has Gone Before." This kit is fully detailed with machined aluminum, cast metal parts, and laser-cut plastic parts. This Phaser Rifle kit features a rotating power coil assembly and all the classic looks of one of ***Star Trek*** fandom's favorite props.

Note: This kit is not for the inexperienced hobbyist; some experience in model making is encouraged to complete this kit due to its complexity.

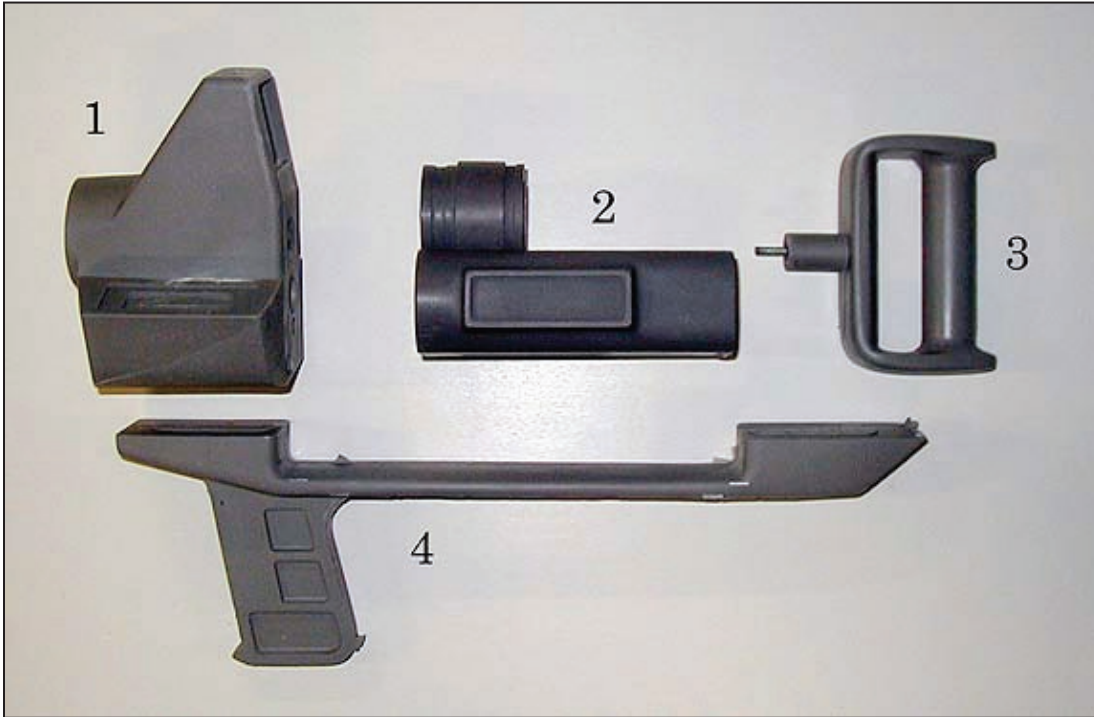
TOOLS AND SUPPLIES NEEDED:

- Auto body spot putty, and/or Bondo filler
- Sandpaper (220 rough grit, 320, 400, up to 600 finish grits)
- Dremel tool
- Hand drill
- 3/32 -inch drill bit
- 1/16 -inch drill bit
- 1/8 -inch drill bit
- Hobby knife (X-Acto brand or similar)
- 5-minute epoxy glue
- Cyanoacrylate Glue
- Testors Clear Parts Cement
- Masking tape (blue low-tack painter's tape recommended)
- An assistant for certain 2-person assembly operations (recommended)

PAINT OPTIONS:

- Sandable-type gray primer (Undercoat)
- Plastikote 1540 Light Blue Truck Paint (Main Body)
- Krylon Dull Aluminum or silver (Barrel Base)
- Krylon Metallic Copper (Power Coil Cores)
- Krylon Semi-Flat Black (Handgrip)
- Brush-on gold (Barrel Fins)

PARTS PREP



Step 1: Wash your resin castings with a chlorine-based soap such as Ajax or Comet along with water to remove any trace of mold release. Rinse thoroughly and let dry.

Sand all mold lines, flashing, and sprues from the resin and unfinished cast metal parts as well as the bottoms of the six-colored core end rings and the three indicators until smooth, and bondo and putty any objectionable holes or lines in the resin parts. Some holes may already be filled by the manufacturer before shipping.

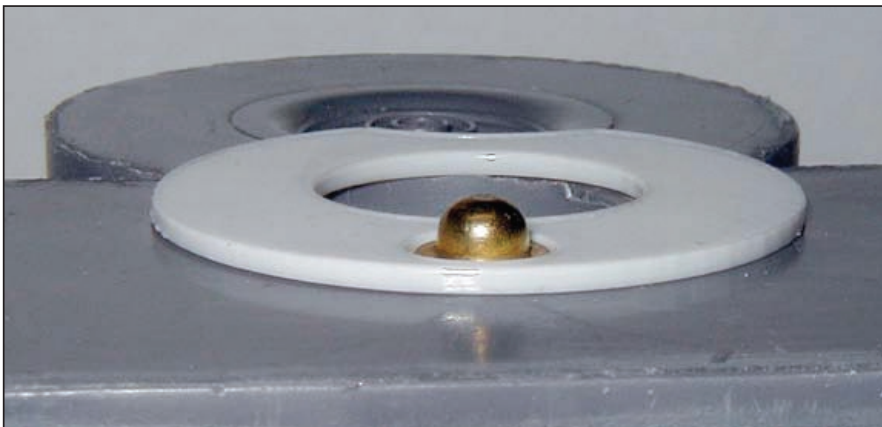
Any parts that fit into other parts may need to be sanded for proper fit. **And with the exception of the rear body to the handgrip bridge**, drill your holes before painting. Check and recheck the fit of all parts before painting or permanently assembling anything. There isn't a set procedure for drilling and finishing your parts and making your sub-assemblies, but there is a definite assembly procedure for putting the main rifle pieces together. Taking your time with this project will yield a prop you'll be proud of!

Sand and use the Scotchbrite pad on the trigger and the cast metal side indicator and slotted plates for a brushed metal finish. You may also use the Scotchbrite on the aluminum barrel tube if desired. Drill the mounting holes on the two plates with up to a 3/32" bit, and clean up the countersinks so the 2-56 screws will be flat with the surface.

The machined metal parts should not require any further finishing work.

Any acrylic parts you will be gluing to acrylic are best glued with acrylic or styrene solvent cement to "weld" the parts together. And when securing to resin or metal, use 5-minute epoxy, or a "window builder" glue like Testors Clear Parts Cement if gluing something that will be visible, like the rear side windows. Avoid using cyanoacrylate glues on visible acrylic details, they may white-fog and craze acrylic plastics.

FRONT BODY AND HANDGRIP BRIDGE ASSEMBLY



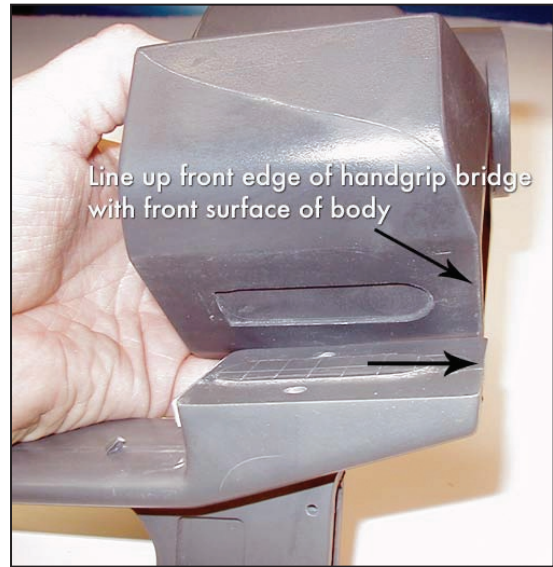
Bullet catches and power coil bushings, showing the approximate height of the bullet above the bushing surface.

Step 2: Test fit the bullet catches on the two body parts, roughen the resin surface where the bushings will be glued, then glue on the two power coil bushings with CA glue, being sure they're centered on each bullet catch and on the center axle hole. Sand the bushings so they're smooth, and before painting the body parts, mask the bushings – you don't need to have paint rubbing off and possibly gumming the works when you're rotating the power coil, and it also serves to mask the axle holes. You may glue the catches at this time or wait until after painting – see later in the instructions for gluing details.



Step 3: Drill 1/16" holes for securing the front body indicator and slotted plates (slot plate on left, the 3-hole plate on right when facing forward with the part as if you're holding it to fire at a target). You can try to thread the 2-56 screws in the resin...or if you can, buy a 2-56 tap (available at many hobby or hardware stores).





Styrene pieces in bridge resin, and front body to handgrip bridge assembly.

Step 4: The handgrip bridge has several pieces of white plastic that are visible and/or sticking out of the casting. These are put on during the casting process to suspend two metal stiffening rods and should be sanded or ground away with a Dremel tool below the part surface, then bondo filled and sanded smooth. If they are merely sanded flush, they might show up later after painting as all cast resin parts shrink a little over time.

The front body should be secured to the handgrip bridge before painting. It will save from having to manhandle the parts too much from going through the placement and drilling process after painting with the risk of damaging the paint finish. When placed at its desired spot with the front edges of bridge and body flush to each other, use a T-square or other 90° square tool or object and square the back side with the length of the handgrip bridge and mark and drill into the front body with your 1/8" drill for the 2 1/2" screws. It is highly recommended that you pre-screw in these two holes with the screws (just like using a tap for threading holes for machine screws) before you actually attach the parts, just in case you're having a hard time getting them in – it is possible for the screws to break before they go in all the way. You may fill in the screw heads, if desired, for a smooth finish, or leave them alone, as this is accurate to the film-used prop. CA glue may also be used in the joint, if you want, after screwing it together for greater strength.

Important Note: *The rear body cannot be marked or drilled until after the prop is painted and the rotating power coil is fully assembled with the bullet catches in place on the two body parts.*

PAINTING



Masking and final paint finish of handgrip.

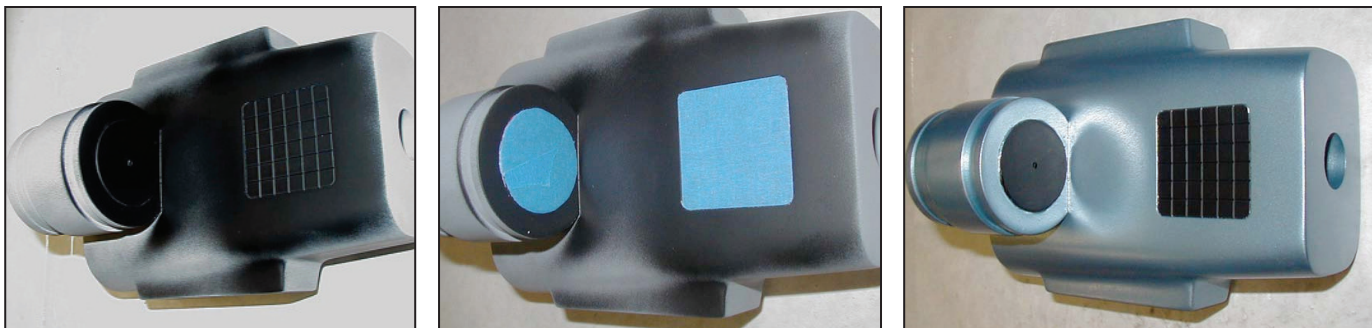
Step 5: Mask those areas that will be glued to each other or that need to be free of paint – if they're not masked, they'll need to have the paint scraped, as glue does not stick to paint very well. Spray a primer coat first, fill in and sand holes and flaws that you missed, then primer again.

When the primer finish of your parts is good, spray in metallic blue the front body/handgrip bridge assembly, and the rear body.

If you look at the episode and/or look at screen captures of the rifle, it appears the recesses in the handgrip might have been painted silver. It is entirely a personal preference if you want to paint the grip recesses silver or not, but if you do, paint the silver contrast color after you paint the finish blue coat...and be sure you cover everything you don't want silver overspray on. It can be a pain to clean up from an already finished surface.

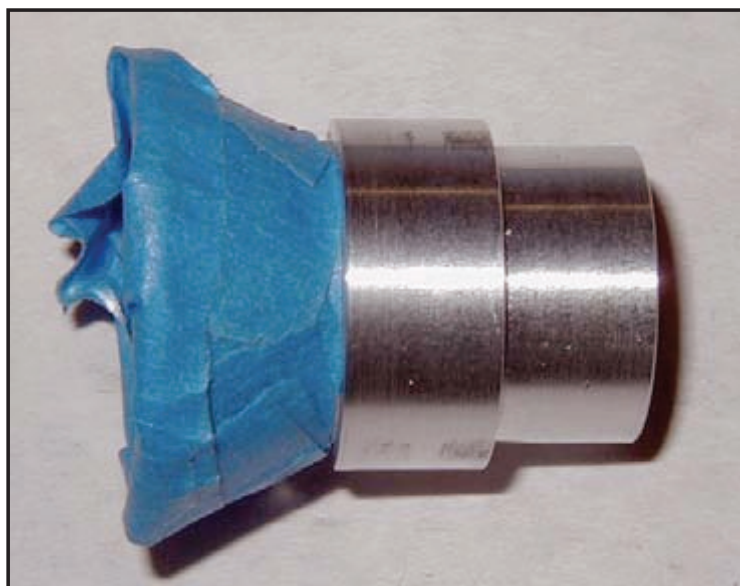


Step 6: Spray in silver the resin barrel, and brush paint with gold or brass the 12 ribs in the front end. You may paint inside this area with black to make the gold stand out better if desired, either with brush paint or with spray paint as part of the silver painting process before you apply the gold.



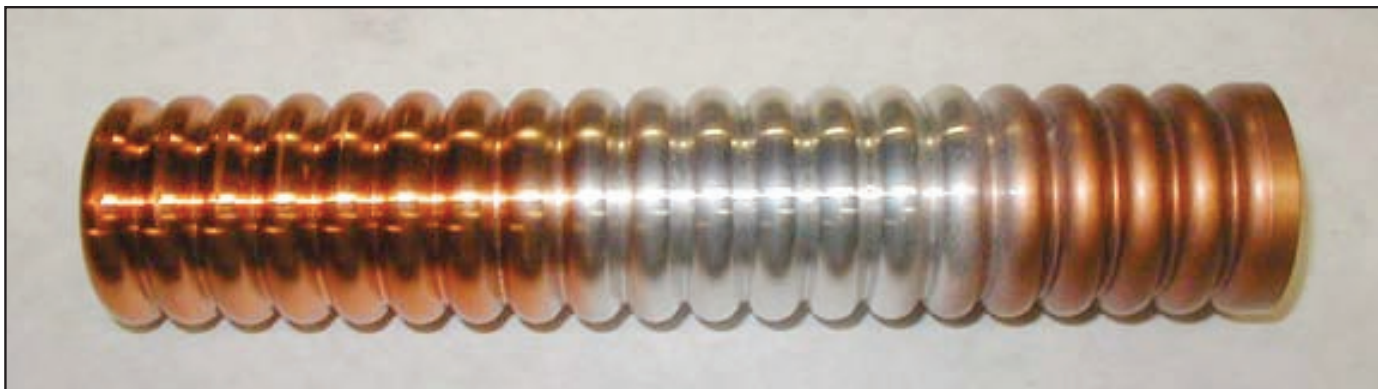
Spraying and masking the rear body contrast colors.

Step 7: Spray in semi-flat black the slightly inset large square detail on the top of the rear body and the circle on the back of the round cylinder that the eyecup screws onto (mask the blue first, or spray black first and mask the square and the circle before spraying blue – regardless of the order of painting, allow several hours or overnight for your first color to cure before applying any masking tape).



Rear handle, and eyecup masking before spraying the exposed metal black.

Step 8: Also primer and spray semi-flat black the rear handle (mask the threaded stud) and the eyecup body but not the flared flange (see masking in photo).



Sample paint photo left to right: Tamiya custom mix on raw metal as used on the instruction pictures, raw aluminum, and Krylon Metallic Copper on primer

Step 9: The machined aluminum power coil cores are finished in copper; they may be painted with primer then Krylon Metallic Copper or a similar copper paint, which is the most economical method without purchasing an airbrush or sending them to a plating or anodizing shop. While dull looking, it does make it look a little more like “used” or “oxidized” copper.

Before painting using your chosen method, clean any residual oils off the cores with a solvent or with soap and water, let dry before painting.

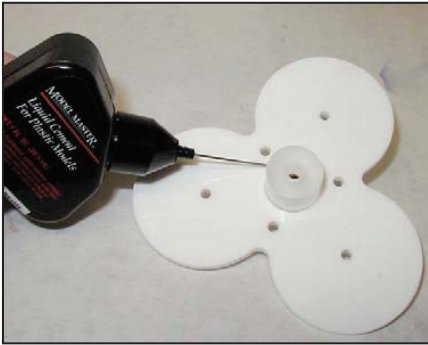
HMS Creative Productions painting expert Darcienne Sparber suggests that if you want to make the copper look more like shiny new metal and you have access to an airbrush (expert airbrush use not required), you can airbrush directly on the metal -- no primer needed! You will need to create a custom mix of transparent red and orange with Tamiya brand jar paints recommended (approx. 60-70 percent transparent red with the rest transparent orange) to create a plated-looking metal finish. Add a few drops of transparent green to the mix to cut down on the screaming orange glare – copper metal does have a little bit of a greenish tone. Airbrush one or more thin coats on the cores, and you’ll be amazed at how well they’ll look. And if for some reason the color or the finish isn’t quite to your liking, you can easily strip Tamiya paints from the cores using denatured alcohol, acetone, or some other solvent and try again. Test spray a small portion of one core or a scrap piece of aluminum before committing all of the cores to paint if necessary.

Another method you may decide to use for the power coil cores is airbrushing Alclad brand paint (copper), but we recommend the part be painted gloss black first for all their paints. It is too thin to be sprayed directly on metal and have it darken enough for the desired look – but you will have a convincing-looking copper power core.

One other method you can use is copper anodizing or plating, but this becomes expensive and is impractical for most people.



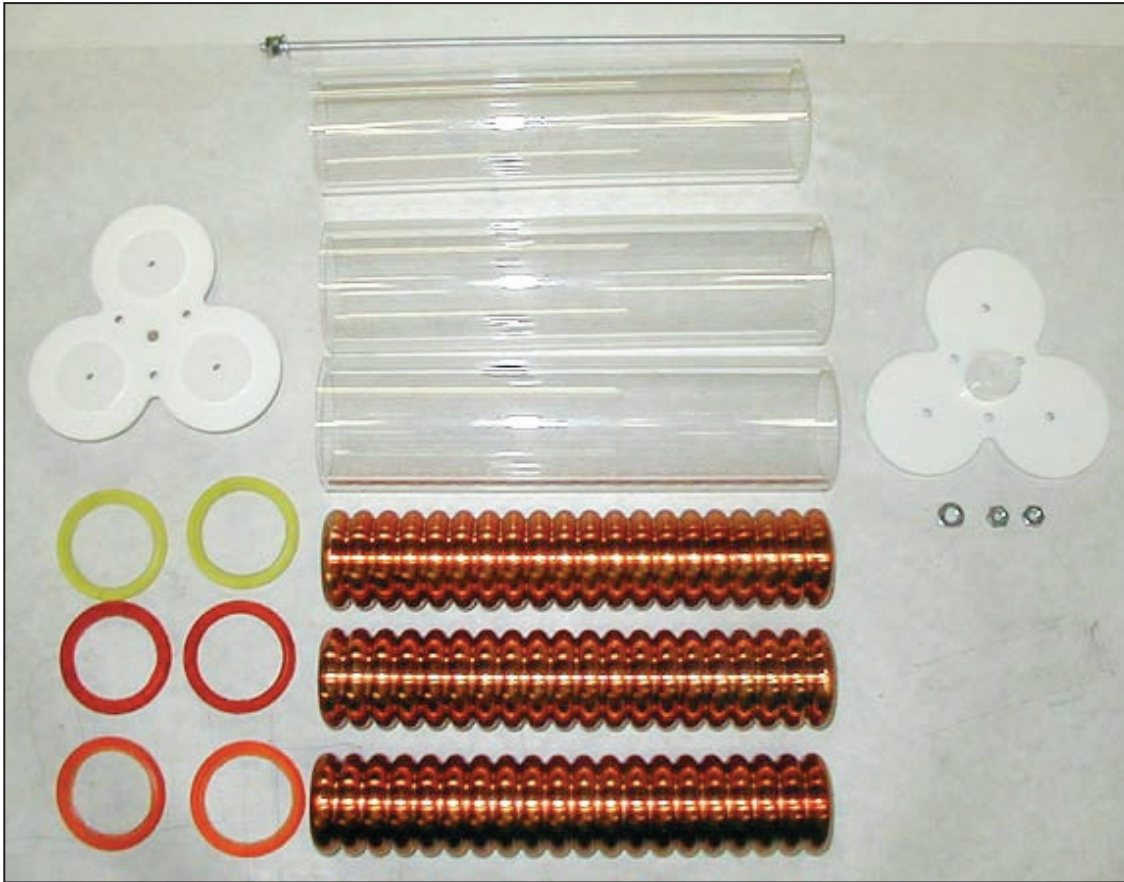
POWER COIL END PLATES



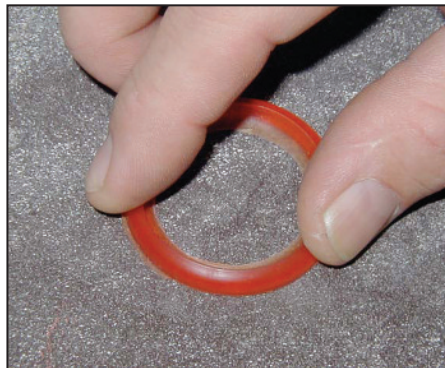
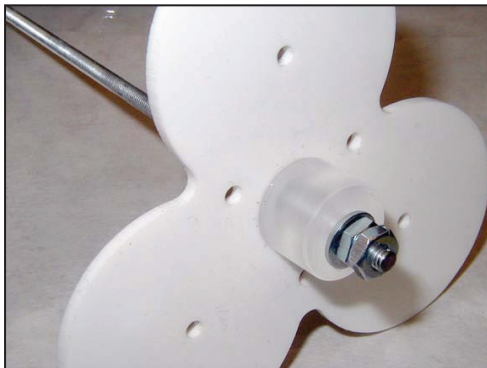
Step 10: Assemble the two power coil end plates as follows: remove the paper from all plastic parts, then insert the 3/16" brass alignment pin into the center hole and place one of the axles on this. With acrylic solvent cement, glue the axle in place, making sure you have a solid glue joint without any voids. Allow the joint to harden up a few minutes, then you can remove the pin and repeat the process for the other end plate. The glue pictured above is fairly thick, but will work as long as you allow it to cure to its maximum strength – **don't play with the parts while the glue is doing its work!** Pressing down and slightly rotating the parts will help in "welding" the joints.

On the opposite side of the plate from the axle, use the 1/8" pin to align and glue each of the three inner core alignment plates onto the end plate, again allowing a little time before you remove the pin, as there might be a danger of the part shifting on you if the joint is still fresh. ***Do not put these plates on the same side as the axle; the part will not work and will be almost irreparable if you do.***

POWER COILS



Power coil parts before assembly.

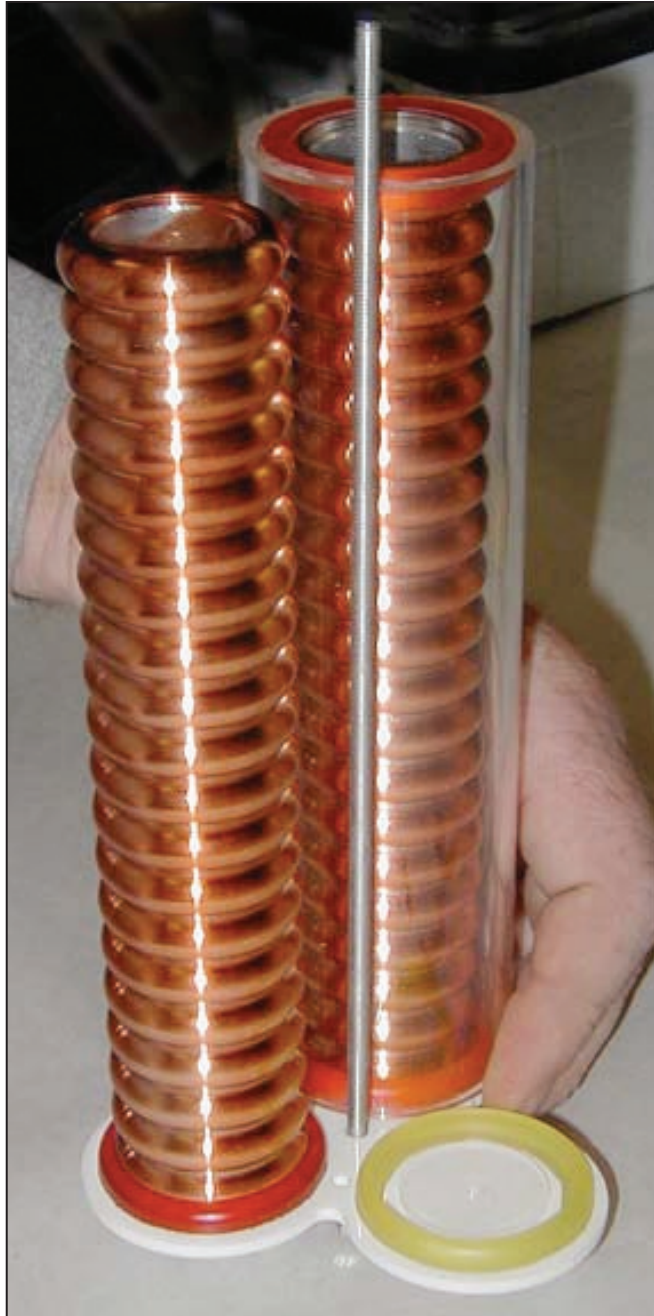
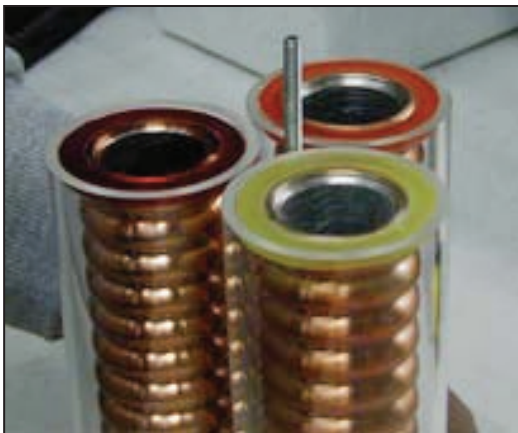


All-thread rod in one of the end plates, and sanding the bottom of the core end rings.

Step 11: Have your 8-32 all-thread rod ready with one end having a nut and washer and through an end plate.

If you haven't done it before now, sand the bottoms of the colored core end rings and remove any flashing from them, making sure they fit in the clear tubes.

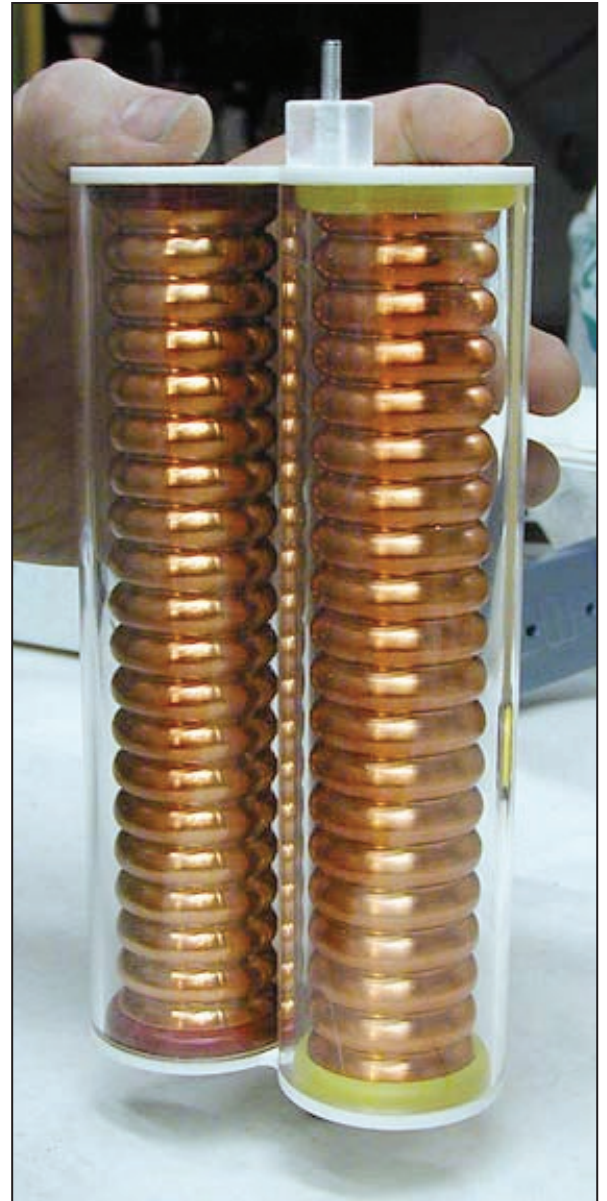
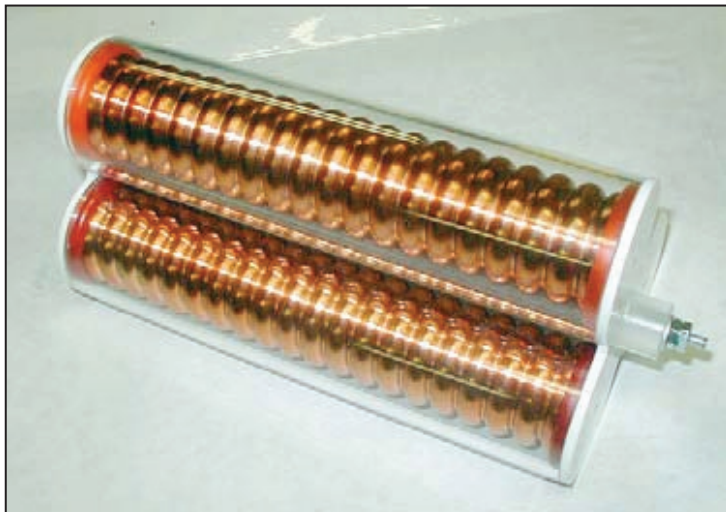
Clean the three clear tubes using a plastic cleaner, preferably one that will make the plastic anti-static, and try to keep dust out of the tubes and off the copper finished cores when you're assembling.



Assembly of power coil.

Step 12: Assemble the power coil by laying down on a table one of the end plates with the all-thread sticking upwards, and putting in place the cores and clear tubes, along with the colored core end rings. Don't try to push a core end ring through the length of tube – work one core at a time, and make sure the same color is on the same core. You might want the assistance of a friend for this assembly.

Any imperfections in any of the parts can be rotated to the inside so they won't be as obviously visible on the finished prop. If done properly, gluing is not necessary for any of these parts.



Step 13: When the other end plate is secured, get a washer and nut on the all-thread to keep it together. When properly tightened and straight (try not to stress the acrylic end plates by overtightening, but be sure the assembly isn't loose; gently twist the assembly to check for looseness), use the other two nuts and tighten against the first two nuts to keep everything secured and prevent the assembly from working itself loose.

FINAL ASSEMBLY



Gluing front grill to the black square background.

Step 14: The clear grill portion should be painted silver, either with a brush after gluing, or use spray paint while it is still separate from the background piece. You can leave the grill clear if you want, but when glued onto the black background square, it might not look as good or show up as well. Sand the bottom side of the grill detail (and not the black background) to get rid of residual paint, then glue the grill onto the black square with solvent cement at the corners and/or edges. Use just enough for a good joint and allow to cure. You might need to sand the edges of the assembled grill before it will fit into the body recess.



Step 15: Before (or after) painting, glue on the two bullet catches with 5-minute epoxy, making real sure you don't glue the interior springs of the catches or the moving bullet core itself – these allow the power coil assembly to “lock in place” at the desired settings with an audible click. You won't have a second chance if you use too much glue to where it gums up the works – you only need a little glue on one side of the hole.

The bullet catches may be pressed in without glue if the hole is tight enough for it to stay in place. When correctly installed, the lip of the catch body will be below the surface of the bushing plate (see the pictures earlier in the instructions), with the bullet end sticking out so they will engage the end plate holes. When you're making the final assembly of your rifle, you can use a small drop of oil in the bullet catch to make the spring-action a little easier.



Trigger orientation to grip.

Step 16: Stick the foam strip to the back edge of the trigger near the round end – it is a self-stick strip, but you may use CA if needed. The trigger is secured by the 4-40 set screw from the right side and will capture the trigger. While it will hang loose, it shouldn't swing wildly out the front.



Front grill and resin barrel base on rifle.

Step 17: After painting, glue the completed front grill into the square depression below the barrel by scraping paint away from the raised middle and using epoxy glue (glue does not stick well to painted surfaces). Glue the painted resin barrel base in place with CA glue or 5-minute epoxy before (or after) assembling the power coil and the rear body to the main rifle. You'll want to align the ribs so they appear even with the body. Test fit this part first before gluing! **Do not glue the aluminum barrel tube at this time**, though you can glue the emitter dish and tip as a sub-assembly...but without gluing the dish to the barrel tube.



Step 18: Install the antenna to the top of the front body, rounded end up. You may need to get a 5/16" drill bit and a drill to loosen the hole slightly, as well as possibly having to angle the hole if the antenna doesn't sit straight on the body – check antenna fit before drilling anything. Once the antenna is glued using 5-minute epoxy sparingly on one side of the hole (using too much glue may create an air seal which will make it very difficult to push the antenna in), slip on and epoxy glue the antenna collar in place. You may want to sand the bottom surface of the collar flat before installing.



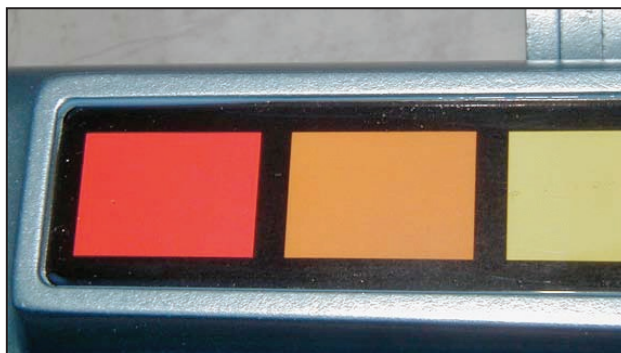


Step 19: Carefully cut out and apply the self-stick target sight graphic onto the square white/milk plex piece, then glue to the front body with epoxy glue (scrape away the paint in the middle first!).

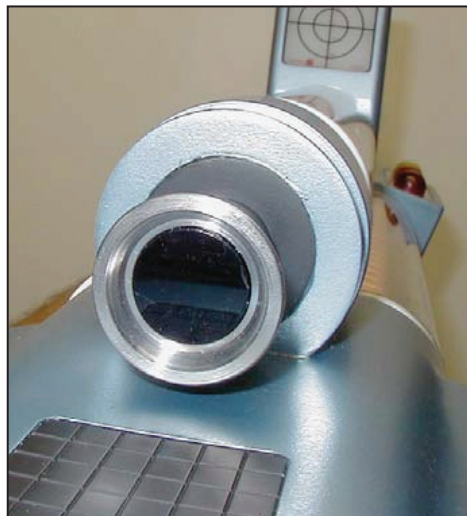
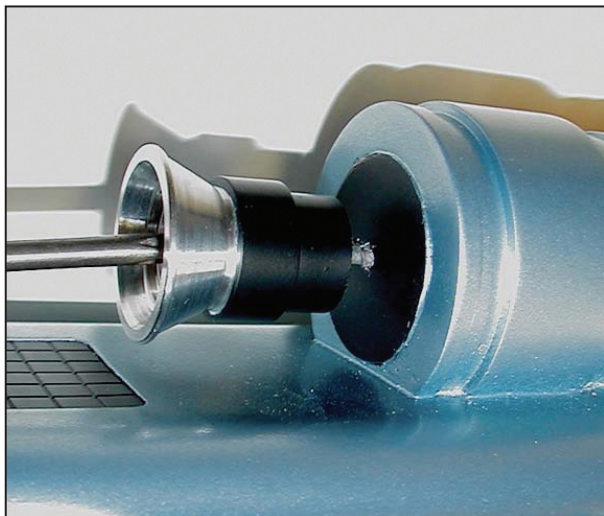


Step 20: Screw the indicator plate to the right side, then glue the three round indicators into the holes of the indicator plate (back to front: red, orange, yellow). Apply the strip of black vinyl tape in the left side depression – it should reach from end to end in the depression, and then screw the slotted plate on.

The photo on the right shows clearly the sight and two side panels of the Front Body in their finished form. Vinyl, graphics, and plates and details are installed.



Step 21: Cut out the two side indicator graphics and fit these in the side depressions as shown (red to the back, and be sure it fully fits without it buckling when the window is put in). Then, after peeling the protective paper from the side windows, put these in place one at a time and glue using Testors Clear Parts Cement & Window Maker without scraping the paint – and try to avoid getting glue inside the window, which may damage the graphic. If desired, you may want to brush paint some black along the inside edges just in case you cut away any of the black border on the graphic sheets before gluing. Follow the directions on the glue; it may take an hour or two before the joint is secure enough for you to glue the other side.



Screwing in eyecup, and finished with eyecup dot in place.

Step 22: On the rear body, secure the eyecup and tube on the back of the round resin area with the 1 1/2" screw (pre-screw the hole first!), then hide the screw by gluing on the black plastic dot with CA or epoxy.



Drilling and screwing on the rear body to the rifle.

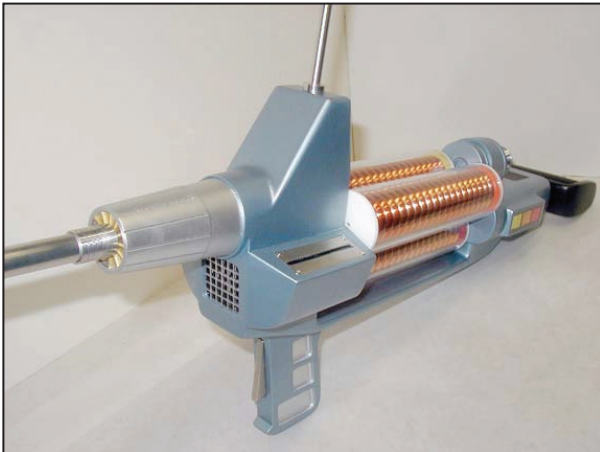
Step 23: Now that you have your parts painted, your power coil assembled, and the front body in place with both bullet catches installed; you may now place and secure the rear body, which is done by holding the power coil and the rear body together on the handgrip bridge and pushing together on the front body as straight as possible (remember you have two bullet catches that may be pushing the parts away from each other, and you want all of the parts to be tight). Secure the use of the previously-mentioned friend if needed (which is mentioned in the tool list – get one at least!) and mark the location of the two screw holes. Then set everything else aside and drill the two 1/8" holes in the rear body (**without going through the body...**), then assemble the three main assemblies together. Again, you should pre-screw (tap) the two screw holes before actually assembling.





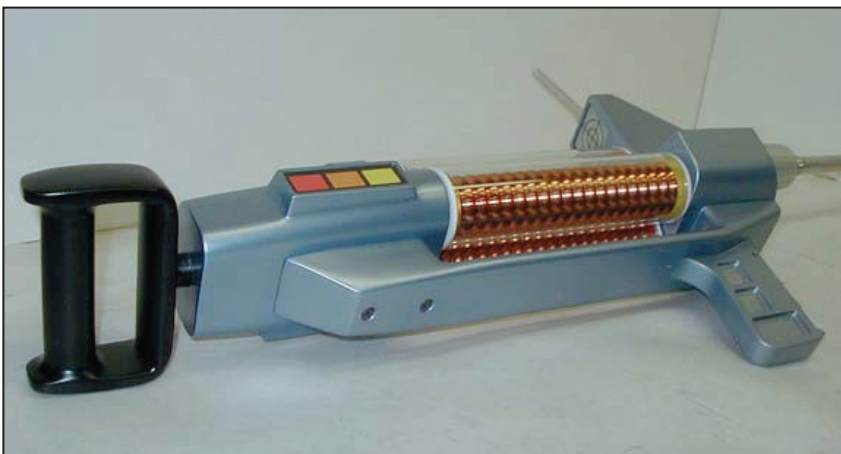
Rear Handle screws into back of rifle in place.

Step 24: The back handle screws in place in the back of the rear body, which allows it to rotate in place. Although it is pretty strong, it is recommended you do not carry the rifle by the handle as it can still break if it's holding up the weight of the rifle.



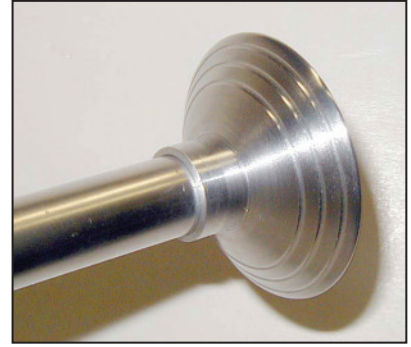
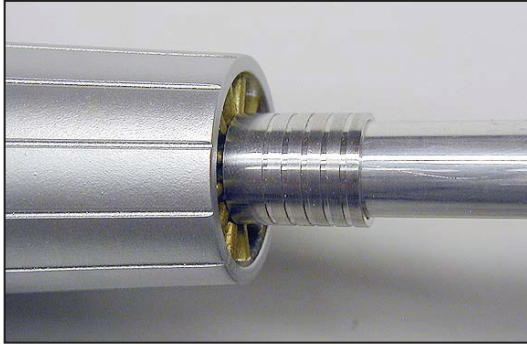
Rifle showing rotation of power coil.

Step 25: Once done, it shouldn't ever have to come apart. Gravity acting on the weight of the front and back body parts should cause the bridge to flex just enough for the power coil to rotate freely, yet click in place when it's in a position to engage the bullet catches.



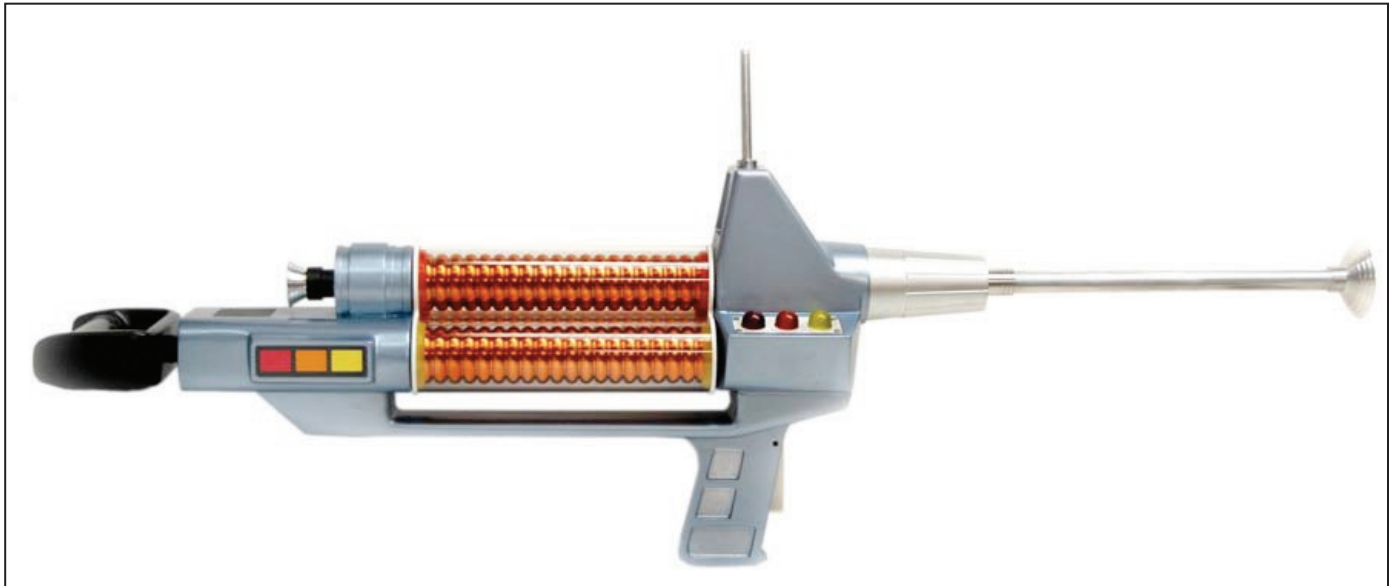
View of bottom of completed rifle assembly.

Step 26: Again, the exposed screws are screen-used accurate...though if you wish, you may Bondo fill and sand the screw holes and carefully paint over them, masking everything else off to keep from applying over spray to the remainder of the prop.



Emitter dish details.

Step 27: Finally the emitter barrel tube can be installed. Don't forget the small barrel detail tube (grooves towards the front), and glue the barrel on the body with CA, and the detail tube to the back against the resin barrel. Glue the two emitter parts together, and glue the emitter to the barrel last.



Enjoy your newly assembled Star Trek The Original Series Phaser Rifle!

IMPORTANT NOTES:

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