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**#PRP1764**

***Star Trek III: The Search For Spock™***  
**Phaser Prop Kit Assembly Manual**



**Roddenberry.com** presents the **STAR TREK III: The Search For Spock Phaser** as an economical alternative for those who like to put together their own prop projects.

This kit has all needed parts to complete either one of two designs: the phaser as seen in the movie and years later on *The Next Generation* in the episode "Final Mission," or the phaser as originally conceived by the model shop at Industrial Light and Magic which went through minor detailing changes to make the finished movie phaser (photos of which appeared in at least one of the early 1980's game manuals for FASA's "Star Trek: The Role Playing Game").

## INTRODUCTION:

This kit may require some prop or model making experience to finish, and is made hollow for incorporation of electronic upgrades. Electronic circuits, working switches, or parts not included.

For reference, due to its design similarity to the TOS phaser prop, the main parts are referred to as "Phaser 1" and "Phaser 2"

**Parts and instructions specific to the "prototype" or "FASA" phaser are in bold blue.**

### **Parts included with the kit:**

- Phaser 1 (P1) resin castings top and bottom
- Phaser 2 (P2) resin castings -- top "banana" and bottom handgrip/body (both P1 and P2 castings are made with the original prototype detailing)
- Phaser 1 parts:
  - Clear red-cast emitter plate
  - Force-setting plate with 4 simulated-cast LEDs
  - Green-cast LED "trigger"
  - Micro-slide switch
  - Graphics plate with red and white vinyl strips
  - Blue vinyl graphics and plates
  - Chrome mylar strip
  - Non-functional micro-slide switch casting
  - 3 screws (2 @ 2-56 x 3/4"; 1 @ 4-40 x 1/2")
- Phaser 2 parts:
  - Clear emitter rod
  - Trigger (switch cap) with trigger sleeve
  - Left and right side plates
  - Three screws (2-56 x 3/8)
  - 4 magnets
  - Black felt square

### **Paints needed for both phaser versions (spray paints unless noted):**

Primer (sandable scratch-filler type)

Zynolyte

Dark Gray Primer or other dark gray paint

Krylon or other brand metallic silver -- or Plastikote 7173 or similar

Semi-Gloss or Gloss Black

Testors Model Master Bright Blue (small jar)

White (small jar) or white paint pen

Matte or semigloss clear spray (optional)

## INTRODUCTION [CONTINUED]:

### Tools and other supplies needed:

Sandpaper (320, 400 to 600 grits)  
X-Acto or other brand hobby knife  
Philips screwdriver  
Cyanoacrylate (CA) glue with cure accelerator  
5-minute epoxy glue or epoxy gel  
Auto body spot putty or modeler's putty  
Small detail paint brush  
Masking tape.

If making a movie phaser, you should have a Dremel tool with a bit for making slots or a drill with a 1/8" bit, and some small files.

### Optional tools and materials:

Dremel tool with 1/8" slot cutting bit  
Bondo filler  
Soldering iron and solder  
Hot glue gun  
Pushbutton switch (Radio Shack Momentary Pushbutton Switch part #275-1547)  
Two wires for the pushbutton switch approximately 6 inches long minimum

For a functioning phaser, you will want a slide switch to use in place of the switch casting, also a bi-color (red/yellow) square 4-element LED (Hewlett-Packard manufacture, part #HLMP-2950), and 4 @ rectangular red LEDs 2.5 x 7mm -- all used with a working electronic phaser to replace colored cast substitutes included with the kit.

## ***Obey all materials use instructions!***

Start by washing your resin cast parts with a chlorine-based cleanser like Ajax or Comet to wash away traces of mold release from the surfaces. Also sand away any mold flashing present, and fill in with spot putty...and sand any objectionable holes, scratches, or other areas with 320-400 grit paper.

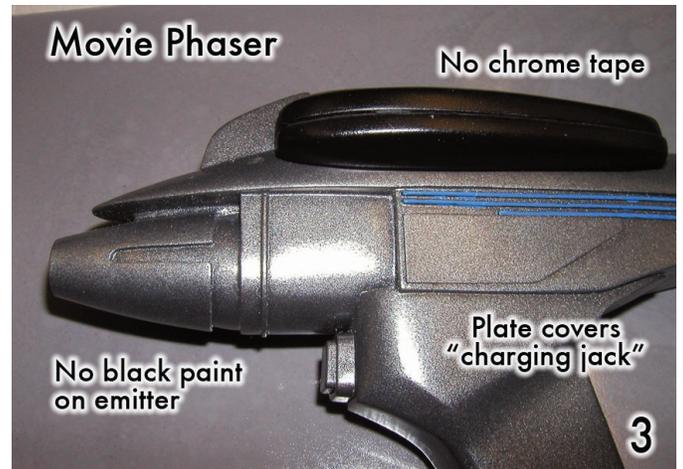
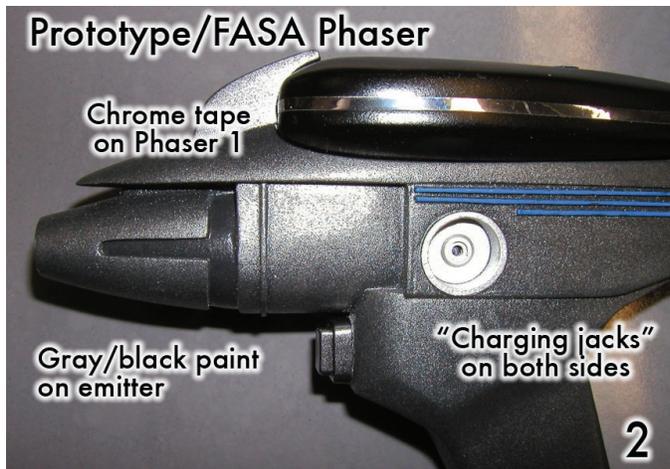
***Do not paint at this time. Test fit your parts to be sure they're working out.***

## ASSEMBLY:

Here are some photos showing the differences between the two phaser versions.

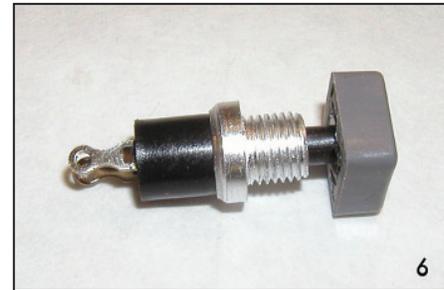
You have a choice of building up either one of the two [Figs. 1 to 3].

**Note the prototype version doesn't allow for electronic upgrades to the Phaser 1 as there were no LED or other surface lighting effects designed into it. There are also two silver details in both sides of the Phaser 2 body which could be thought of as "recharging jacks" or a "dilithium crystal" power source which were covered up on the movie phaser by a couple of detail plates.**



**Step 1 (option A):**

For either the FASA or Movie version Phaser, if you are making a non-functioning dummy prop with a static trigger, glue the trigger on the trigger sleeve and then onto the Phaser 2. Skip to Step 5.

**Step 1 (option B):**

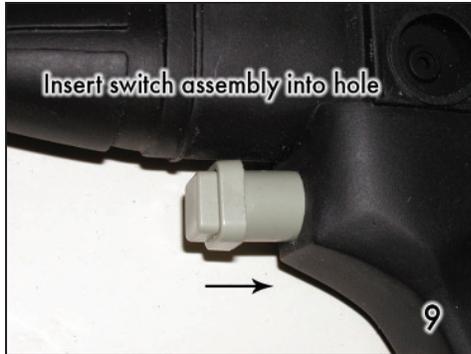
For either the FASA or Movie version Phaser, if you want the trigger to work, or if you're installing an electronics upgrade, purchase a momentary pushbutton switch. The one recommended is listed under Optional Tools and Materials, and it comes as a four-pack [Fig. 4]. Try inserting the switch cap casting into the trigger housing -- this should slide in easily and come back out without it hanging up, and remember the cap will be painted, so take that into consideration. Press on the momentary switch to the switch cap casting [Figs. 5 and 6] -- this may take some doing as it should be a tight fit, so glue should not be necessary. But if it's loose or if you need to enlarge the hole to make it fit, glue it on with a small drop of CA.

**Step 2 (do only if choosing option B):**

Insert the switch into the trigger sleeve, pushing it in as far as needed for the push button action to work, and glue from the back side with 5-minute epoxy or hot glue. To ensure it will be in the right place, press both ends together until the glue is cured [Fig. 7].

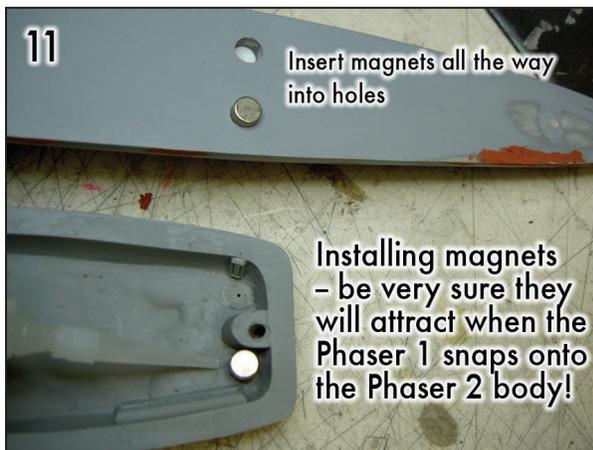
**Step 3 (do only if choosing option B):**

If it will be a functioning phaser either now or sometime in the future, solder a couple of wires to the switch, as you will not be able to get to the switch once inside the phaser body. And make sure you have plenty of length for the wires [Fig. 8].



**Step 4 (do only if choosing option B):**

Glue the switch assembly to the Phaser 2 body and orient it square to the rest of the phaser [Figs. 9 and 10].



**Step 5 (do for all phasers):**

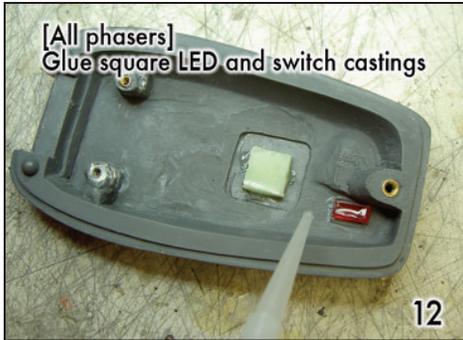
There are four magnets included to aid in keeping the Phaser 1 attached to the Phaser 2 unit. Glue two magnets to the inside of the Phaser 1 bottom shell at the back, the other two to the underside of the Phaser 2 top “banana” casting -- insert them all the way in the holes provided [Fig. 11].

**Very important:**

Be very sure the magnets are attracting each other so you'll have a positive lock when the P1 is inserted in its place -- it will do you no good if the P1 repels the P2 body. This is a very good way to keep the two phaser parts together during normal handling and play, but there's a chance the Phaser 1 can be dislodged off the Phaser 2 by violent shaking of the prop or having it catch on something.

**If making the non-functioning Prototype/FASA Phaser 1, do Step 6.**

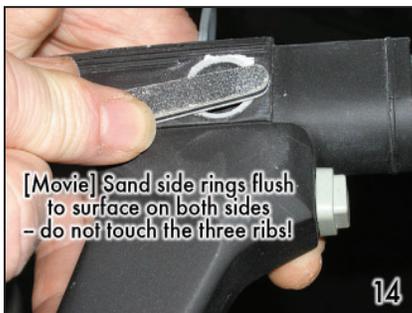
**If making the Movie Phaser and/or a functioning Phaser, skip to Step 7.**



**Step 6 (do if making the non-functioning Prototype/FASA Phaser 1):**

Glue the nonfunctional slide switch casting to the rectangular hole at the right back corner of the Phaser 1. Also glue on the square light green LED casting into the square hole [Fig.12]. Sand or file flat both switch and square LED to their respective surfaces if making the prototype/FASA phaser -- the triangle detail is a smooth surface [Fig. 13].

**If making the non-functioning Prototype/FASA Phaser 1, skip to Step 12.**



**Step 7 (do for Movie Phaser only, not for Prototype/FASA Phaser):**

To modify the parts for the movie phaser, sand the raised detail rings from the two recharging jacks of the Phaser 2 until smooth with the rest of the body surface, and be careful you do not sand the three ribs [Fig. 14]. If you like, you may use Bondo to fill in the two holes and sand until smooth. Then glue on the two side plates with CA glue, being careful you don't use too much -- don't let it ooze out the plate edges [Figs. 15 and 16].



**Step 8 (do for Movie Phaser only, not for Prototype/FASA Phaser):**

With the Phaser 1 top body, remove the dividing line in the center using your knife and/or other tools at your disposal such as a chisel or file, or your Dremel tool [Fig. 17].



[Movie] Mark LED holes on casting

**Step 9 (do for Movie Phaser only, not for Prototype/FASA Phaser):**

Once it's smoothed out, take the force setting plate and place it on the P1 body, then with a pencil or pen trace out the four rectangular LED holes [Fig. 18].



[Movie] Dremel slots for LEDs with 1/8" bit, or drill holes and file to size



**Step 10 (do for Movie Phaser only, not for Prototype/FASA Phaser):**

Cut through all your traced holes with a Dremel tool, or drill and file the holes (the casting is thin at that area), making them large enough for your (real or simulated) LEDs to fit [Figs. 19 and 20].



Glue styrene rectangle onto scribed marker on force setting plate



**Step 11 (do for Movie Phaser only, not for Prototype/FASA Phaser):**

Glue the force setting plate to the Phaser 1 with CA or epoxy. Glue the thin rectangular styrene piece at the scribed rectangle on the main plate [Figs. 21 and 22]. If it will be a non-functioning phaser, glue the red slide switch casting in the small rectangular hole to the back right side. Don't let it stick outside the surface, and do not glue any of the LEDs for now.

## PAINTING:

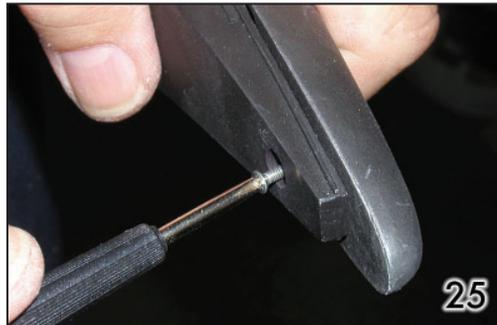


### **Step 12 (All Phasers):**

With masking tape, mask the inside of at least your Phaser 1 top shell in such a way that the interior is protected and the outer edge is exposed. You will see this edge when the phaser is screwed together, and you'll need to glue to the inside of the shell -- glue does not stick well to painted surfaces. Hang your phaser parts with a stiff wire. Spray primer the first coat, let dry. Check for holes or dents you may have missed previously, fill with spot putty, then sand and primer again until it's all smooth.

**[Phaser 1]** Spray your first coat of Semi-Gloss (or Gloss) Black both outside and inside, wet sand with 600 grit paper, then spray a final coat and let dry for several hours or overnight **[Fig. 23]**.

**[Phaser 2]** The recommended paint for the main color is Zynolyte Dark Gray Primer. Since this can be difficult to find, you can use something else that's a very dark, almost black gray, or even black like the semi-gloss black you use to paint the Phaser 1, or a flat black or black primer. A good brand to get if you can find it is World Of Color Dark Primer; this matches almost exactly to the Zynolyte primer color.



### **Step 13 (All Phasers):**

Secure the top "banana" body part to the handgrip with three 2-56 x 3/8" screws so it will be painted as one unit. Note this design allows for interior access to the P2 to change batteries in a working phaser prop **[Figs. 24 and 25]**.

*If this is a non-functioning phaser without electronics, you can either leave the method of attachment as is, or you can glue the two parts together permanently and fill in the screw holes with Bondo, or make sure the screws are sunk in slightly below the surface and fill those in. **Beware that if you do glue the Phaser 2 parts together you won't be able to take them apart later.***

Spray the Phaser 2 with Zynolyte Dark Gray Primer or similar paint, wet sand with 600 grit paper, then spray a second coat of Zynolyte.



**Step 14 (do only if making the Prototype/FASA Phaser 2):**  
Mask the emitter detailing as shown. This area will remain dark gray/black [Fig. 26].



**Step 15 (All Phasers):**

The next step can be somewhat tricky; you'll be spraying a fine mist of metallic silver on the Phaser 2. You should have as new a can of paint as possible, and it should not be a cold can (put it in a warm place such as a sunlit window to warm the can before you try it).

You may substitute Plastikote 7173 or other metallic gray or silver for misting onto the gray/black. The 7173 is recommended if you are painting black as your color. It will help to make the overall finish more like misted regular silver on gray.

Hold the phaser body as far away from you and the paint can as possible, then let loose with a fog of paint [Fig. 27]. The effect is like how mist accumulates on your windshield when driving in a fog or a light misty rain, and you'll end up with a uniform light "sandpaper" finish. **Make sure all Phaser 2 surfaces are misted as evenly as possible.**

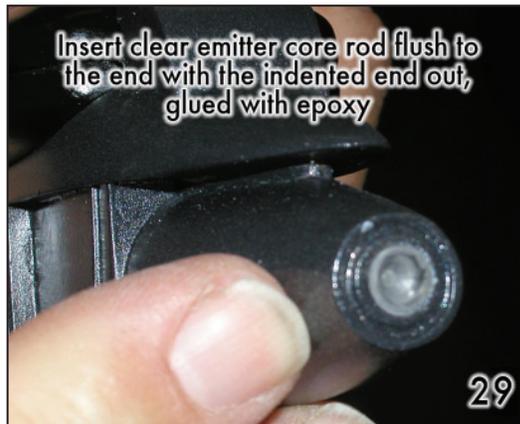
A cold can, or older or used and almost empty can, may produce unwanted large droplets. So if you get larger drops on your phaser, you may have to touch it up with a small paint brush, re-paint your phaser in that spot, or you may have to re-paint the whole thing. When it's good, if you like, you can spray a final coat of matte or semi-gloss clear to protect the misted silver finish. Let the finish cure before proceeding.



**Step 16 (do only if making the Prototype/FASA Phaser 2):**

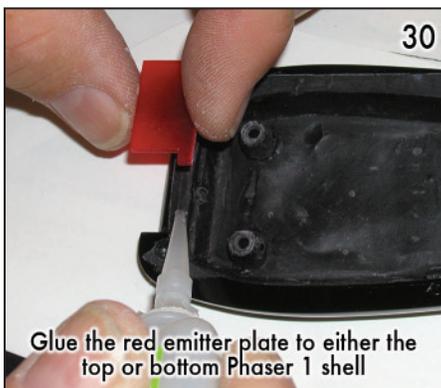
Mask off the Phaser 2 so only the two recharging jacks are exposed to the outer rings, then paint in Metallic Silver or a finish that will simulate machined metal [Fig. 28]. Remove all masking, including the emitter masking.

**FINAL ASSEMBLY:**



**Step 17 (All Phasers):**

Glue the clear emitter rod into the phaser emitter using 5-minute epoxy, with the machined end facing out and flush to the casting [Fig. 29].

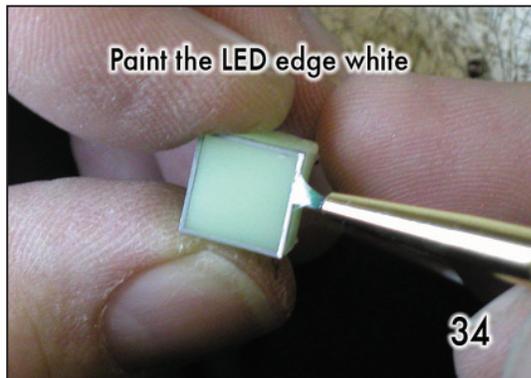


**Step 18 (do only if making the Prototype/FASA Phaser 1):**

On the Phaser 1, glue the red emitter plate in place with 5-minute epoxy to either the top or bottom shell [Figs. 30 and 31]. Screw the two shells together with the 2 @ 2-56 x 3/4" and the 4-40 x 1/2" screws.



**Step 19 (do only if making the Prototype/FASA Phaser 1):** Apply the blue vinyl stickers to the top face where shown [Fig. 32]. Apply the chrome mylar tape around the perimeter of the Phaser 1, and a small strip of mylar tape to cover the lower right rectangular slide switch casting at the top [Figs. 1 and 33].



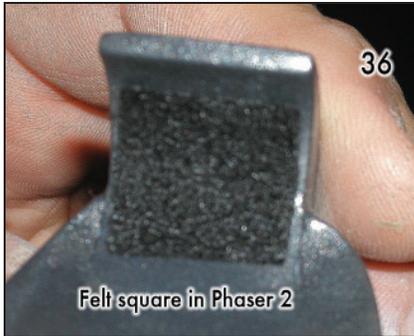
**Step 20 (do for Movie Phaser only, not for Prototype/FASA Phaser)**

If you're not installing working LEDs and are using the castings, paint with a detailing brush the perimeter edge of the green LED casting in white (or use a white paint pen) [Fig. 34], then glue it into the triangle hole as in Fig. 12. Glue the red LED blocks in place with epoxy [Fig. 35]. Note that you can mix in a little baking soda in with the epoxy to make it thicker, and it will help to keep the glue from oozing through the LED holes to the outside. These LEDs may stick out a little, set flush, or be depressed, but be sure you get them all even. Then apply the red and white strips to the rectangle on the force setting plate you glued on earlier. **NOTE:** with the phaser facing forward, the red one is to the right [consult Fig. 1].

If this is a working phaser, glue a working slide switch into the P1 hole at the back right, and be very careful you don't get any glue in the switch, as it is likely you'll be using it to turn on and off your circuit.

Glue the red emitter plate to either the top or bottom shell [Figs. 30 and 31], then screw the Phaser 1 shells together with the 2 @ 2-56 x 3/4" and the 4-40 x 1/2" screws.

If you're making an electronic light-up phaser, note that if you can't find the right size of red LEDs for the force setting plate, you can put in LEDs below the transparent red-cast ones and they should light up just as well. Other HP manufactured square LEDs (.400 x .400" size) may also work for you if you are unable to locate the bi-color ones.

**Step 21 (All Phasers):**

Stick the black felt piece on the Phaser 2 up inside where the Phaser 1 nose is captured to help in keeping the Phaser 1 from getting paint damage [Fig. 36].

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**Step 22 (All Phasers):**

Finally, with your fine detail paint brush, lightly paint the three thin strips on both sides of the Phaser 2 with Testors Model Master Bright Blue [Fig. 37], insert the Phaser 1 into the Phaser 2, and your *Star Trek III: The Search For Spock* Phaser is finished!

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**IMPORTANT NOTES:**

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