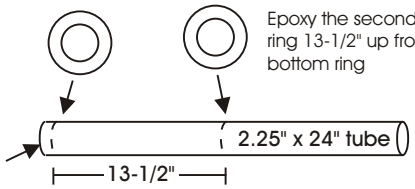
1/2 SCALE PATRIOT

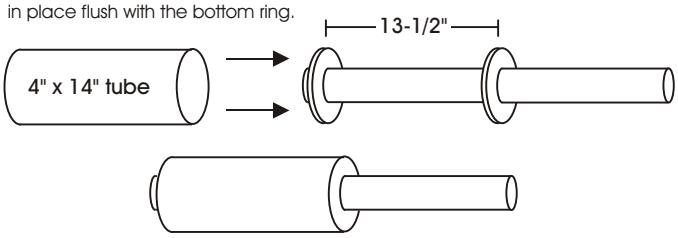
Step 1

Epoxy the second small ring 13-1/2" up from the bottom ring

Epoxy one of the small centering rings 5/8" from the bottom of the motor mount tube.

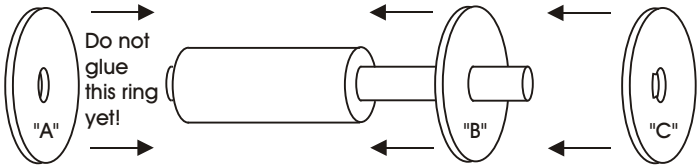


Slide the 4" dia. x 14" long insulator tube over both centering rings and epoxy it in place flush with the bottom ring.

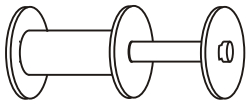


Step 2

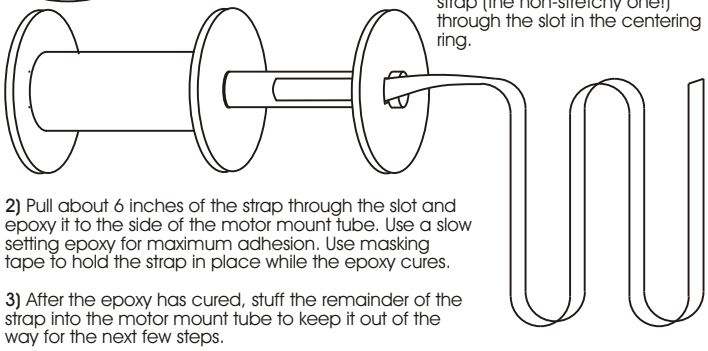
There are three large centering rings included with this kit. One of the rings has a notch along the perimeter of the center hole. This ring is marked "C" in the drawing below and will be mounted near the top of the motor mount tube. But first, epoxy ring "B" in position over the motor mount tube and against the insulator tube. Then epoxy ring "C" 1/2" down from the top of the motor mount tube. Ring "A" should be slid in place at the bottom of the motor mount tube but NOT glued at this time.



At the right of this paragraph is a small drawing of what your complete motor mount assembly should look like. Be sure to apply large epoxy fillets to all the joints



Step 3

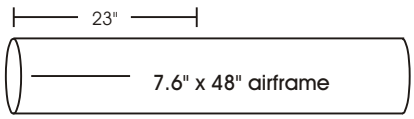


1) Slip one end of the piston strap (the non-stretchy one!) through the slot in the centering ring.

2) Pull about 6 inches of the strap through the slot and epoxy it to the side of the motor mount tube. Use a slow setting epoxy for maximum adhesion. Use masking tape to hold the strap in place while the epoxy cures.

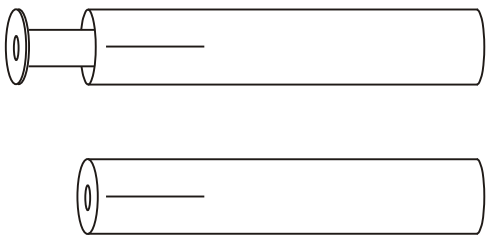
3) After the epoxy has cured, stuff the remainder of the strap into the motor mount tube to keep it out of the way for the next few steps.

Step 4

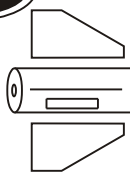


1) Apply a ring of epoxy inside the airframe 23" from the bottom end.

2) Push the motor mount assembly all the way into the airframe. The end with the strap attached goes in first. Make sure the bottom centering ring is still firmly in place. DO NOT GLUE THE BOTTOM CENTERING RING IN PLACE AT THIS TIME.
Stand the airframe upright until the epoxy cures.



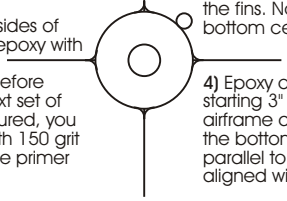
Step 5



1) Apply a bead of epoxy to the root edge of a fin. Push the fin through the slot in the airframe and against the motor mount tube. Make sure that the fin is perpendicular to the airframe. Use tape to hold the fin in position while the epoxy cures. Repeat this process for all four fins.

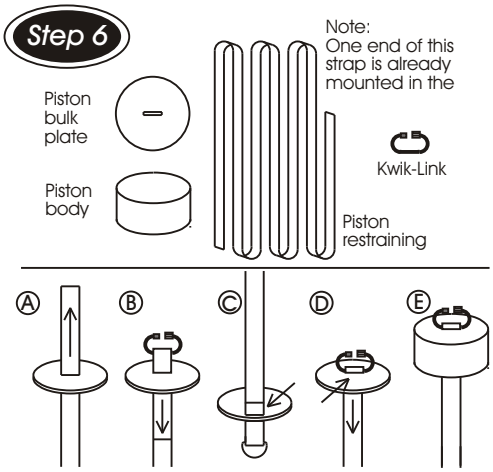
3) Gently pull the centering ring off the end of the rocket. Using a stick, apply an epoxy fillet to the fins at the motor mount tube and the inner airframe wall. Also, apply a liberal amount of epoxy to the middle centering ring just beyond the fins. Now you can epoxy the bottom centering ring in place.

2) Apply an epoxy fillet to both sides of each fin. Carefully smooth the epoxy with your finger before it begins to gel. Allow the epoxy to set-up before rotating the rocket to do the next set of fins. Once the epoxy has fully cured, you should sand the fillet smooth with 150 grit sandpaper. Sanding will help the primer hold better to the epoxy.



4) Epoxy one launch lug in place starting 3" from the bottom of the airframe and the other lug 30" from the bottom. Be sure the lugs are parallel to the airframe, perfectly aligned with one another, and not

Step 6



Do not cut the strap!

A) Pull the free end of the strap through the slot in the piston bulk plate. Slip the metal Kwik-Link over the strap.

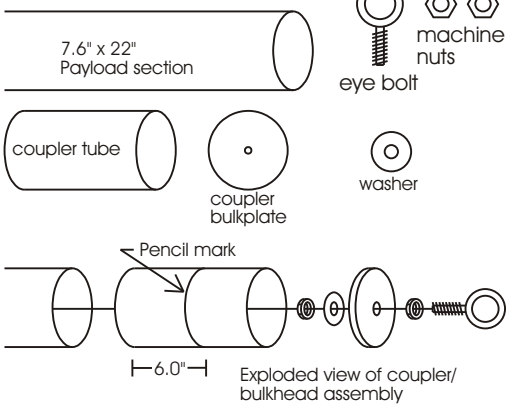
B) Feed the strap back through the slot.

C) Flip the assembly over. Fold the short end of the strap flat against the bulkplate and epoxy in place.

D) When the epoxy has cured, pull the strap until the Kwik-Link is wedged at the slot. Seal the slot with epoxy.

E) Epoxy the bulkplate to the piston body 1/8" from the top. Apply an epoxy fillet to both sides of the bulkplate.

Step 7



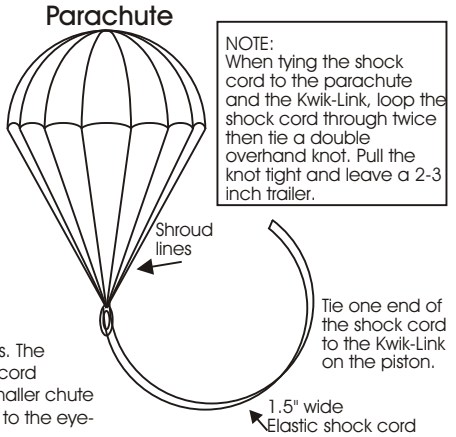
Screw a nut onto the eye bolt. Thread the eye bolt through the hole in the coupler bulkplate. Place the washer over the eye bolt threads protruding through the bulkplate. Tighten the other nut against the washer. Epoxy the bulkplate assembly inside the coupler tube about 1/8" from the end. Apply an epoxy fillet to both sides of the bulkplate.

Draw a pencil mark around the coupler 6.0" from the end opposite the bulkplate. Spread some epoxy inside the payload section to a depth of about 5". Push the coupler into the payload section to the line.

Step 8

Measure off the mid point of each parachute shroud line and mark it with a pen. Gather all the shroud lines making sure they are not twisted or tangled. Keep all the marks on the shroud lines together. Tie the lines together using a simple overhand knot leaving a small loop where all the marks meet. Tie the parachute to one end of the elastic shock cord.

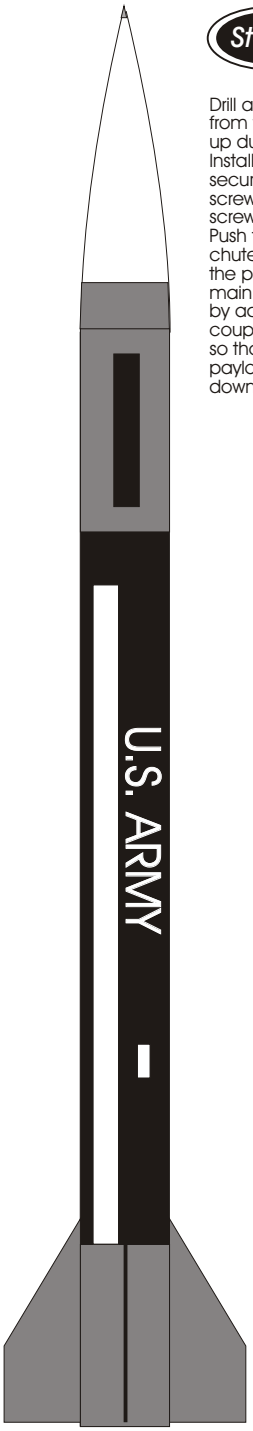
Repeat this step for both chutes. The larger chute and longer shock cord attach to the piston and the smaller chute and shorter shock cord attacth to the eye-



1/2 scale PATRIOT

Public Missiles Ltd

Painting & Detailing



Step 9

Drill a 1/8" hole in the payload section 12" from the top to bleed off air pressure build-up during flight.
Install the nose cone atop the rocket and secure it in place using small pan head screws Pre-drill the airframe when using screws.
Push the piston into the airframe. Fold both chutes and stow them in the rocket. Slide the payload section into position atop the main airframe. Adjust the fit (if necessary) by adding strips of masking tape to the coupler. The fit should be just tight enough so that the rocket can be lifted by the payload section without the booster sliding down.

Important notice!

The Center of Pressure (CP) of this rocket is 70 inches from the tip of the nose cone. After finishing your rocket, permanently mark the Center of Pressure on the airframe.

After loading the rocket with a motor, make sure that the Center of Gravity (balancing point) is forward of the Center of Pressure mark by at least 8 inches. The center of gravity can be moved forward by adding weight to the nose cone.

Minimum motor requirerment for this rocket is an "J" motor with a minumum 415 average newtons of thrust (J-415).

It is impossible to test every rocket with every motor configuration. Therefore, if you are unsure about motor selection for any rocket, consult the motor manufacturer.

Standard thrust rings are not mounted in the motor tube of High Power rockets because of the many various lengths of the motors. Instead, wrap 1/2" wide masking tape around the motor, flush with the nozzle end, to a thickness of about 1/16". For motors bigger than "I" use 3/4" masking tape. Then to friction fit the motor into the mount, place strips of masking tape length wise along the motor just above the thrust ring you created. A tight friction fit is recommended so the motor does not eject itself. Remove the motor from the mount as soon as possible after the flight.
Most reloadable motors already have a thrust ring designed into the nozzle end of the motor, but friction fitting is still required.

WHITE

RED

BLACK

Colored stripes are self-adhesive Mono-Cote available at most hobby shops in 6x36 inch sheets.

Stripes can also be painted on, but this is more time consuming and difficult.