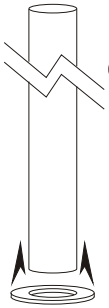
BULL Dog

Assembly instructions

Please read and understand all instructions before continuing!

Stuff you will need:

One set of each 5 and 15 minute epoxy
One sheet of each fine and medium sand paper
Ruler and pencil
12" x 12" piece of wax paper

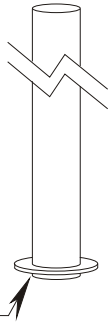


Step 1

NOTE: Be sure to scuff all parts to be bonded using medium sand paper.

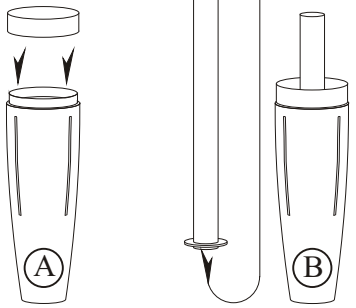
Epoxy the smallest centering ring (CR-14) up 1/2" from one end of the 24" long motor mount tube. Apply an epoxy fillet to both sides of the ring.

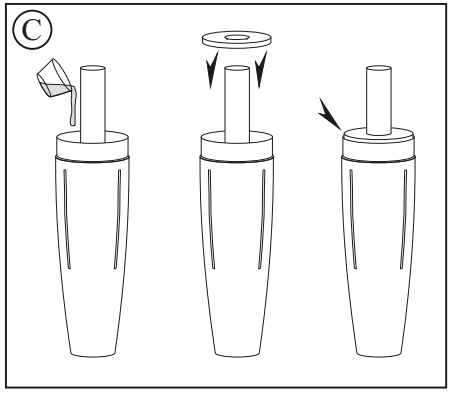
Allow motor mount tube to protrude 1/2"



Step 2

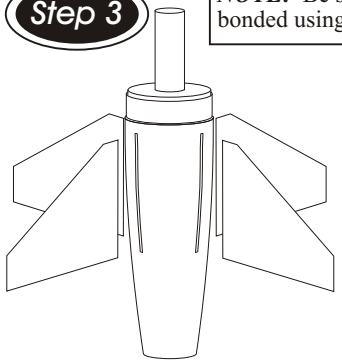
A) Epoxy the 2-1/4" long coupler tube to the fiberglass shoulder of the boat tail. Allow to cure.
B) Holding the boat tail upright, place the motor mount tube (centering ring end down) into the boat tail. The centering ring should wedge slightly into the base of the boat tail before it reaches the bottom.
C) Mix a 1 oz. batch of epoxy and pour it into the boat tail. Spread it over the centering ring so that it bonds to the boat tail. Quickly slip the 5-3/4" centering ring (the smaller of the two remaining rings) over the motor mount tube. Slide the ring down into the boat tail coupler just enough to center the motor mount tube. Leave it sticking out as much as possible because you will need to remove it later. Hold it in place with tape if necessary.





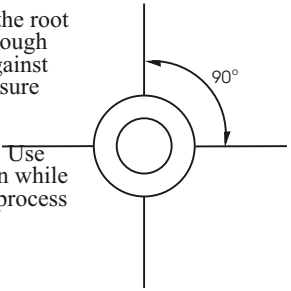
Step 3

NOTE: Be sure to scuff all parts to be bonded using medium sand paper.



1) Apply a bead of epoxy to the root edge of a fin. Push the fin through the slot in the boat tail and against the motor mount tube. Make sure that the fin is

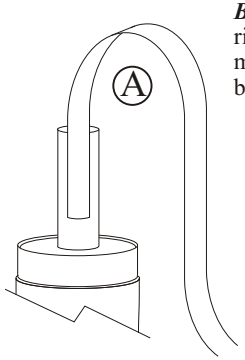
perpendicular to the boat tail. Use tape to hold the fin in position while the epoxy cures. Repeat this process for all fins.



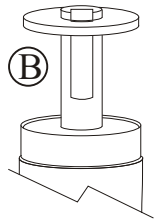
2) Apply an epoxy fillet to both sides of each fin. Carefully smooth the epoxy with your finger before it begins to gel. Allow the epoxy to set-up before rotating the rocket to do the next set of fins. Once the epoxy has fully cured, you should sand the fillet smooth with 180 grit sandpaper. Sanding will help the primer hold better to the epoxy.
3) Carefully remove the upper centering ring from the top of the boat tail. Apply epoxy fillets to the fin attachment points within the boat tail. Epoxy the centering ring back atop the boat tail but this time press it down into the coupler as far as it will go.

Step 4

A) Epoxy one end (approx. 4-5") of the 2" wide piston strap to the outside of the motor mount tube. Use masking tape to hold the strap in place while the epoxy cures. Do not cut the strap. When the epoxy has cured, stuff the free end of the strap into the motor tube to keep it out of the way for the next few steps.

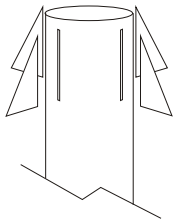


B) Epoxy the notched centering ring 1/2" down from the top of the motor mount tube. Apply a fillet to both sides of the ring.



Step 5

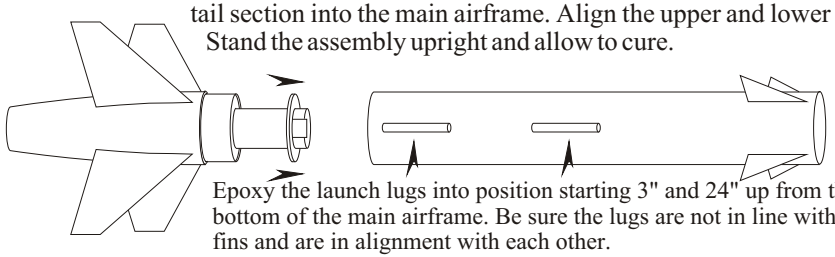
1) Apply a bead of epoxy to the root edge of a fin. Push the fin through the dado groove in the airframe. Make sure that the fin is perpendicular to the airframe. Use tape to hold the fin in position while the epoxy cures. Repeat this process for all fins.



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 180 grit sandpaper. Sanding will help the primer hold better to the epoxy.

Step 6

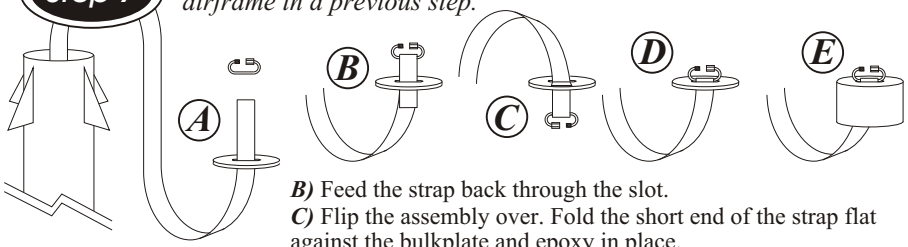
Apply a heavy layer of epoxy to the inside circumference of the main airframe 6" from the bottom end. Push the tail section part way into the main airframe. Apply a heavy layer of epoxy to the inside circumference of the main airframe 1" from the bottom end. Push the tail section into the main airframe. Align the upper and lower fins. Stand the assembly upright and allow to cure.



Epoxy the launch lugs into position starting 3" and 24" up from the bottom of the main airframe. Be sure the lugs are not in line with the fins and are in alignment with each other.

Step 7

The strap referred to in this step is the strap you installed in the airframe in a previous step.

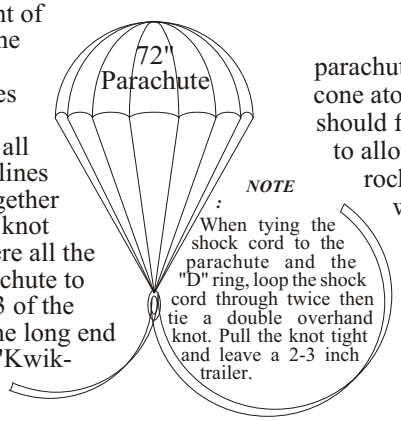


A) Pull the free end of the strap through the slot in the piston bulk plate. Slip the metal "D" ring over the strap.

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 "D" ring is wedged at the slot. Apply epoxy to the strap at the "D" ring.
E) Epoxy the bulkplate to the piston body 1/8" from the top. Apply an epoxy fillet to both sides of the bulkplate.

Step 8

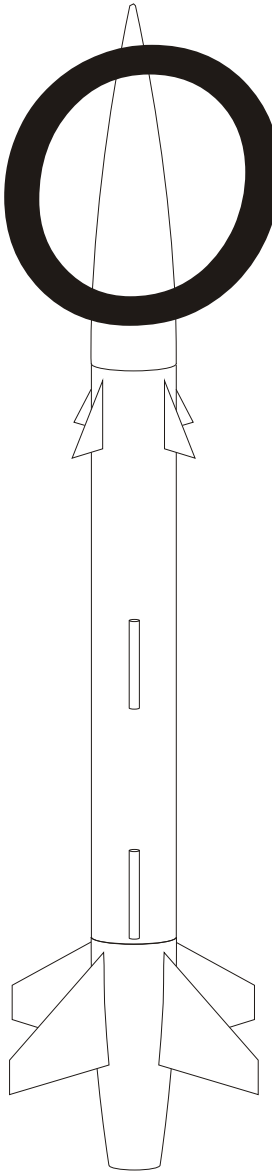
Measure off the mid point of each parachute shroud line and mark it with a pen. Gather all the shroud lines making sure they are not twisted or tangled. Keep all the marks on the shroud lines together. Tie the lines together using a simple overhand knot leaving a small loop where all the marks meet. Tie the parachute to the elastic shock cord 1/3 of the way from one end. Tie the long end of the shock cord to the "Kwik-Link" on the piston. Tie the short end of the shock cord to the eyelet on the nose cone.



Step 9

Slide the piston into the rocket followed by the shock cord and parachute. Place the nose cone atop the rocket. It should fit just tight enough to allow you to lift the rocket by the nose cone without it slipping off. Wrap masking tape around the shoulder of the nose cone for a tighter fit if necessary. Now install the motor and go fly your rocket!

BULL Dog



Public Missiles Ltd.

The BULL Dog kit contains all the parts necessary* to build a flying high power rocket:

1) Pre-slotted main airframe
1) Pre-slotted fiberglass boat tail
1) Fiberglass nose cone w/ bulk plate
4) .093 Main fins
4) .093 Canard fins
1) Piston ejection kit including:
    1) Piston body
    1) Piston strap
    1) Slotted bulk plate
    1) Metal "Kwik-Link"
1) 72" Parachute
1) Motor mount tube (54mm)
1) Notched centering ring
1) Coupler centering ring
1) Base centering ring
1) Elastic shock cord
1) 3/4" launch lugs
2) Couplers (for nose cone & boat tail)
1) Instruction sheet (this one!)

**Epoxy, paint, and motor not included.*

The center of pressure (CP) of this rocket is 56 inches from nose tip. After finishing your rocket, permanently mark the center of pressure on the airframe. Calculations made using RockSim 4.0 program for subsonic flights. After loading the rocket with a motor, make sure that the center of gravity (balancing point) is 6" forward of the center of pressure mark. The center of gravity can be moved forward by adding weight to the nose cone. 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.