EagleWorks

Tavia

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Tavia – A Buzz Nau Design **SKILL LEVEL THREE**

The EagleWorks *"Tavia"* is a futuristic sport flying model rocket designed to take advantage of low cost 18mm motors. As with building any model rocket, please take your time and read the instructions carefully. The end result will be an impressive, well built model you will be proud to fly and display.

This rocket is designed to be flown only from a standard model rocket launcher with a 1/8" launch rod and an electrical launch control system. Please follow the model rocketeer's safety code thereby making the hobby safe and enjoyable for everyone.

Parts List

(1) Body tube (Semroc ST-10), 16"
(1) Nose cone (Semroc BC-1045)
(2) Pod tubes (Semroc ST-7), 9"
(2) Pod cones (Semroc BC-731F)
(1) Launch lug
(1) Motor mount tube (Semroc ST-7), 2.75"
(2) Centering rings (Semroc CR-710)
(1) Thrust block (Semroc TR-7)
(1) Shock cord
(1) Clay Weight
(1) Parachute, 16"
(1) Shock cord mount
(1) Balsa sheet 3/32"
(1) Fin template sheet

Tools Needed For Assembly:

Cyanoacrylate or Wood Glue
Ruler
Sandpaper (220 - 400)
Wax Paper
Sanding Sealer
Modeling Knife
Pencil
Scissors

ASSEMBLY **Note:** Throughout these instructions are references to using a double glue joint to connect parts to one another. A double glue is stronger than just applying glue to one surface and holding it against the other until it sets up. It also sets up faster allowing quicker construction time. Proceed as follows; when the surfaces to be joined are ready, apply a thin layer of wood glue to both mating surfaces. Smooth the glue out with your finger. When that layer has dried completely apply another thin layer and connect the parts. The parts should hold together within a minute and dry quickly enough to move on to the next step. These joints are not normally strong enough on

their own and should reinforced with fillets always. This procedure does not apply if you are using cyanoacrylate which you should follow the bottle's instructions.

1) Glue the engine block inside one end of the motor mount tube flush with the end. Glue one of the centering rings on the same end of the motor tube flush with the end. Glue the other centering ring 1/4" from the other end of the motor tube. Set motor mount aside to dry thoroughly.

2) Cut out the fin templates and trace copies on to the balsa sheet according to the diagram. Cut out the fins carefully, stack and sand identical sections even.

3) Using the double glue joint method, glue A&B fin sections together. Set fins on a sheet of wax paper to avoid the fins sticking to your work surface. Use a ruler against the root edge of the connected pieces to ensure they are straight. When the glue has dried, sand the root edges square and all other edges round. **NOTE -** The fins that sweep forward are the stabs. The other two fins are the wings.

4) Fill the body and pod tube seams if desired. Lightly sand the body tubes with #400 sandpaper. This helps create stronger glue joints and a better surface for paint to adhere to.

4A) Use a miter box and cut a 45 degree taper at one end of each pod tube.

5) Mark the fin and pod locations on the body tube using the guide. Extend the lines on the body tube using a ruler or door jamb. Mark a line along the entire length of both pod tubes on the longest side.

6) Apply glue in one end of the body tube and insert the motor mount until the aft centering ring is flush with end of the body tube.

7) Use double glue joint method and glue side pods in place with the tapered end flush the rear of the body tube (NOTE: do not glue on the pod cones until step 15).

8) Mark two fin lines between the pods 3/8" from the rear of the body tube (for the wings) and the other two 1" from the rear (for the stabs).

9) Glue the launch lug 3" from the rear of the body tube in a pod/body tube joint above a wing line.

10) Again using the double glue joint method, glue the wings and stabs on their respective lines. When the glue is dry apply glue fillets to all of the fin/body tube joints.

11) Thread the shock cord through the shock cord mount and tie a double knot at the end. Apply a thin layer of glue to the top and bottom of the shock cord mount and

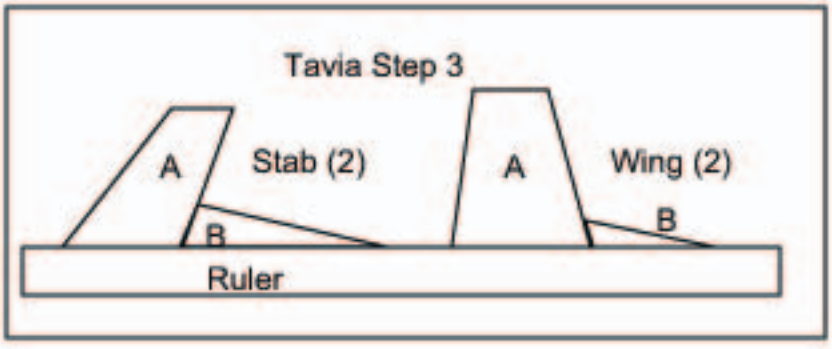
inside about 1" from the front end of the body tube. Roll the shock cord mount so it will fit better against the inside of the body tube. When the glue has dried apply a slightly thicker layer of glue to the shock cord mount and press it into place until the glue sets.

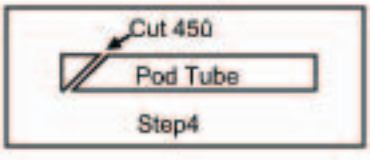
12) Tie the other end of the shock cord to the nose cone and parachute.

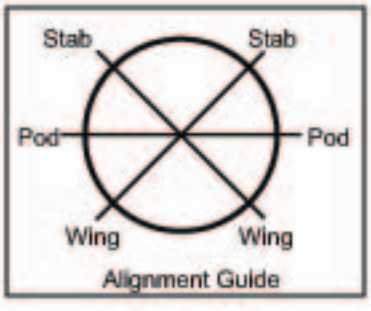
13) Brush on sanding sealer to all wood surfaces and sand in between coats until a smooth surface is achieved.

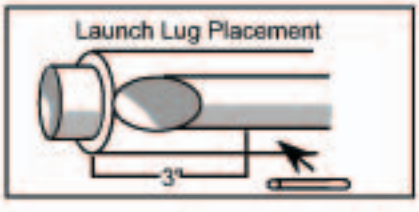
14) Mask the shoulders of the pod cones and paint them separately from the rest of the rocket. When all the paint has dried, glue the pod cones to front end of the pod tubes.

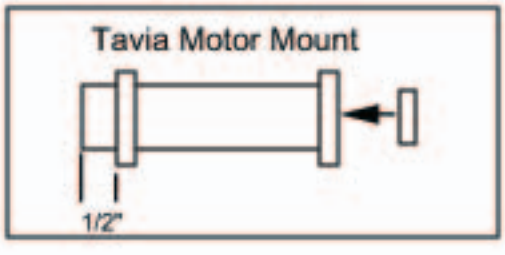
15) Balance the finished model ready for flight (parachute installed), but **without** a motor. Add clay to the base of the nose cone until the model balances 12 7/8” from the tip of the nose cone. Failure to balance the model accordingly may result in an unstable flight.

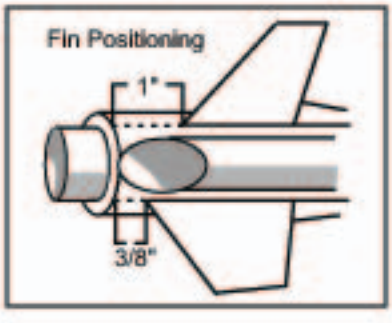

Tavia Step 3
A
Stab (2)
A
Wing (2)
B
B
Ruler

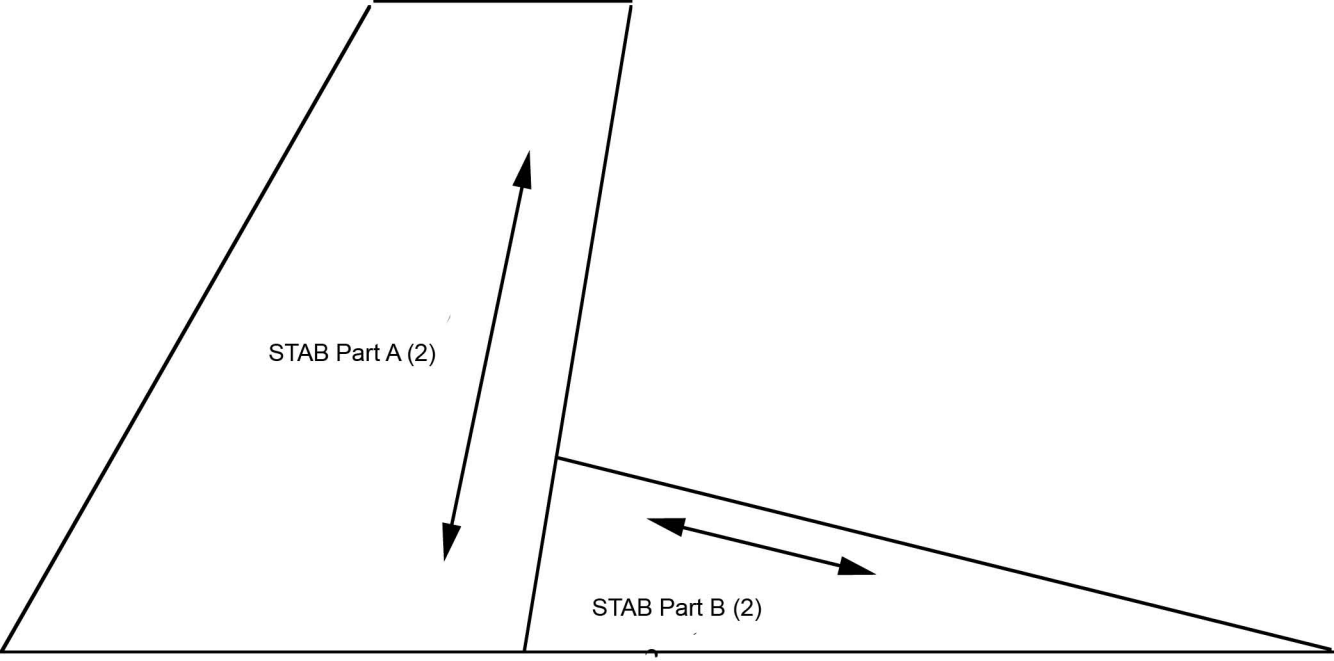

Cut 45û
Pod Tube
Step4

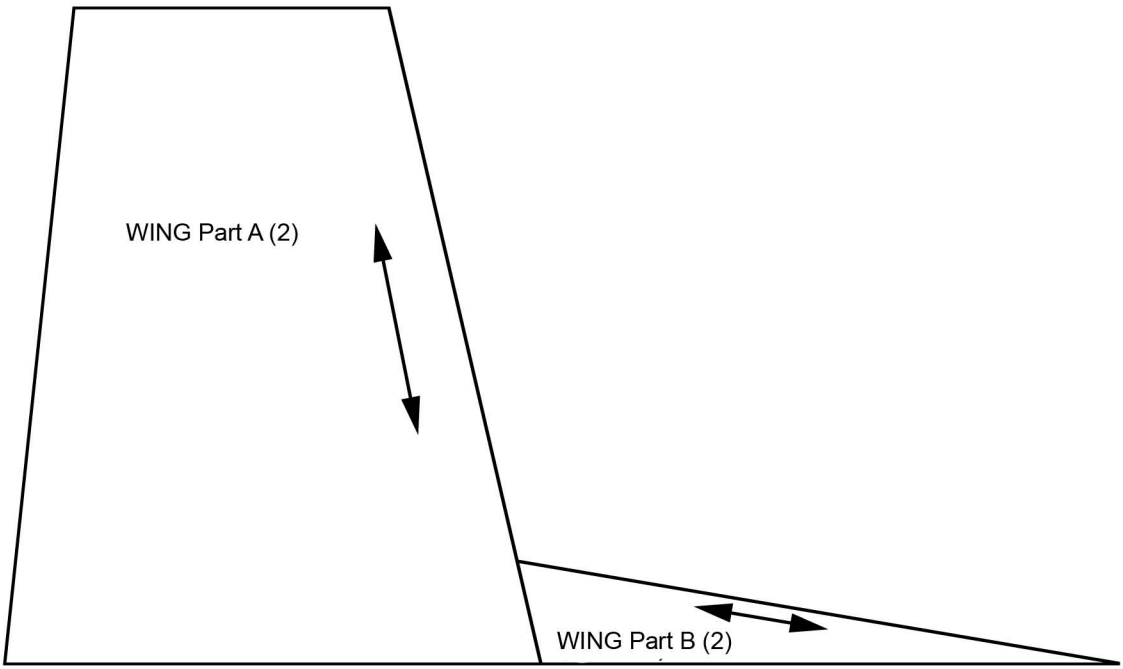

Stab
Stab
Pod
Pod
Wing
Wing
Alignment Guide


Launch Lug Placement
3"


Tavia Motor Mount
1/2"


Fin Positioning
1"
3/8"





Shock Cord Mount