

THOY

Model Rocket Kit

Parunia

Length 30.25"
Diameter 1.00"
Weight 2oz.

Motors: single stage configuration: B6-4 (first flight), C6-5; two stage configuration; first stage: B6-0 (first flight), C6-0, second stage: A8-5 (first flight), B4-6, B6-6, C6-7.

Estimated Maximum Altitude: 1700 feet.

Recommended for ages 10 through adult. Adult supervision for ages twelve and under.

Not included in this kit: finishing supplies, glue, engines, model knife, and launch equipment



THOY 

THURIA



The THOY Thuria is a high flying two stage payload model rocket. It can be flown single-stage also. 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) Nose cone | (1) Body tube, 16" | (1) Body tube, 7 3/4" |
| (1) Body tube, 2 3/4" | (2) Motor mount tubes | (4) Motor mount centering rings |
| (1) Motor block | (1) Launch lug | (1) Shock cord |
| (1) 16" Parachute | (1) Shock cord mount | (1) Screw eye |
| (2) Couplers | (1) Balsa Sheet | (1) Fin template sheet |

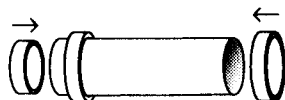
Tools Needed For Assembly

- | | | |
|----------------------------|-----------------------|--------|
| Cyanoacrylate or Wood Glue | Sanding Sealer | Ruler |
| Modeling Knife | Sandpaper (220 - 400) | Pencil |
| Scissors | Masking tape | |

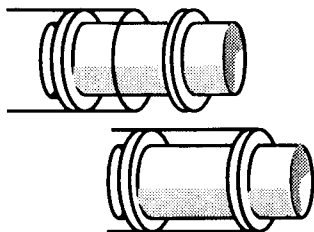
ASSEMBLY

Note: Throughout these instructions are references to using a double glue joint to connect parts to one another. A double glue joint 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 be reinforced with fillets. **This procedure does not apply if you are using cyanoacrylate where you should follow the manufacturers instructions.**

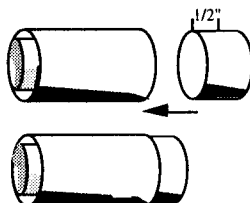
1) Booster motor mount: Take two centering rings and glue each ring 1/2" from opposite ends of one of the motor tubes. Upper stage motor mount: take the remaining two centering rings, motor tube, and motor block. Glue one ring 3/4" from one end and the other flush on the other end. Glue the motor block flush inside the end with the flush centering ring.



2) Apply a generous amount of glue to the inside of the 2 3/4" body tube. Insert the booster motor mount until 1/4" of the motor tube is exposed from the rear of the tube.

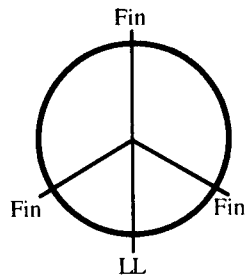


3) Mark the middle of the stage coupler and glue it into the upper end of the booster tube to the mark.



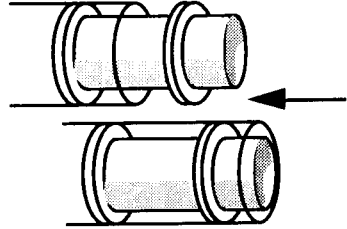
4) Fill the body tube seams if desired. Lightly sand tubes with #400 sandpaper. This helps create stronger glue joints and a better surface for paint to adhere to.

5) Use the fin marking guide to mark the fin and launch lug positions on the upper stage tube. Connect the booster tube to the upper stage. Use small strips of masking tape if necessary to keep the tubes together and straight. Extend the lines on the body tube $2\frac{3}{4}$ " and the entire length of the booster using a ruler or door jamb. Make $\frac{7}{8}$ " marks for the launch lugs $\frac{1}{2}$ " and $9\frac{3}{4}$ " from the stage joint.

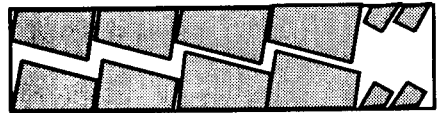


Fin Alignment Guide

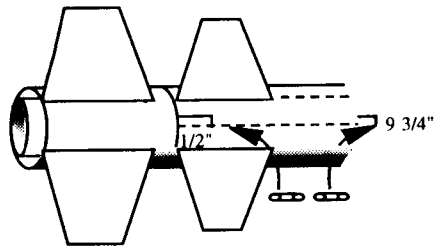
6) Apply a generous amount of glue 1" deep inside the rear of the upper stage tube. Insert the upper stage motor mount, motor block end first and use the booster coupler to push it in to the correct position. Remove the booster immediately so it does not become stuck to the upper stage.



7) Cut out the fin templates and trace copies on to the balsa sheet according to the diagram. Cut out the fins carefully with a hobby knife. Hold similar fins together in three sets and sand each set until the edges are even. When the fin sets are all sanded evenly leave the root edges square and round the other edges.

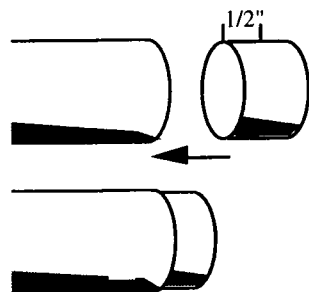


8) Apply a thin layer of glue to the root edge of all the fins. Also, apply a thin layer of glue on the fin alignment lines on the booster and upper stage tubes. Repeat the above procedure and place fins on the alignment marks. Make sure fins project straight away from the body tube and are in line.



9) When the glue has dried thoroughly, apply glue fillets to all of the fin/body tube joints. When fillets have dried, brush on sanding sealer to all wood surfaces and sand between coats until a smooth surface is achieved.

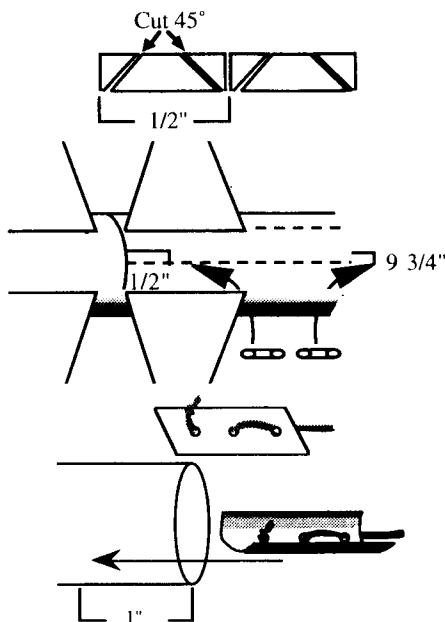
10) Mark the center of the remaining coupler and glue it inside one end of the $7\frac{3}{4}$ " body tube. Screw the screw eye into the bulkhead and apply a drop of glue on both sides. Apply glue to the inside of the coupler about $\frac{3}{16}$ ". Insert the bulkhead so it is slightly recessed inside the coupler. Apply several coats of sanding sealer on the nose cone, sanding between each until a smooth surface is achieved. Insert the nose cone on the other end of the payload tube and ensure a snug fit.



11) Cut tapers to the front and rear of each launch lug. Glue and fillet launch lugs to body tube on the launch lug line. Place the first lug $1/2''$ from the stage coupler and the other $9-3/4''$ from the stage coupler.

12) Thread the shock cord through the shock cord mount and tie a double knot at the end. Roll the shock cord mount so it will fit better against the inside of the body tube. Apply a thin layer of glue to the bottom of the shock cord mount and inside about $1''$ from the front end of the body tube. When glue has dried apply a slightly thicker layer of glue to the shock cord mount and press it into place until the glue sets.

13) Tie the other end of the shock cord to the nose cone and streamer.



14) Paint the Thuria the colors of your choice. If the booster is to be painted separately, mask off the stage coupler.

15) Prepping the Thuria for flight: Insert 4 loosely crumpled squares of recovery wadding into the body tube. Powder the parachute with talcum powder then fold the parachute wrapping the shroud lines loosely around it and insert on top of the wadding. Pack the shock cord above the parachute and put the payload section in place. It should fit snugly, but not too tight.

16) Hold the motors so the nozzle of the upper stage motor is on top of the booster motor. Place a single wrap of cellophane tape around the joint. Friction fit the upper stage motor. Once in place wrap masking tape around the booster motor and slip the booster onto the motor until it is all the way forward. Twist the booster to align the fins.

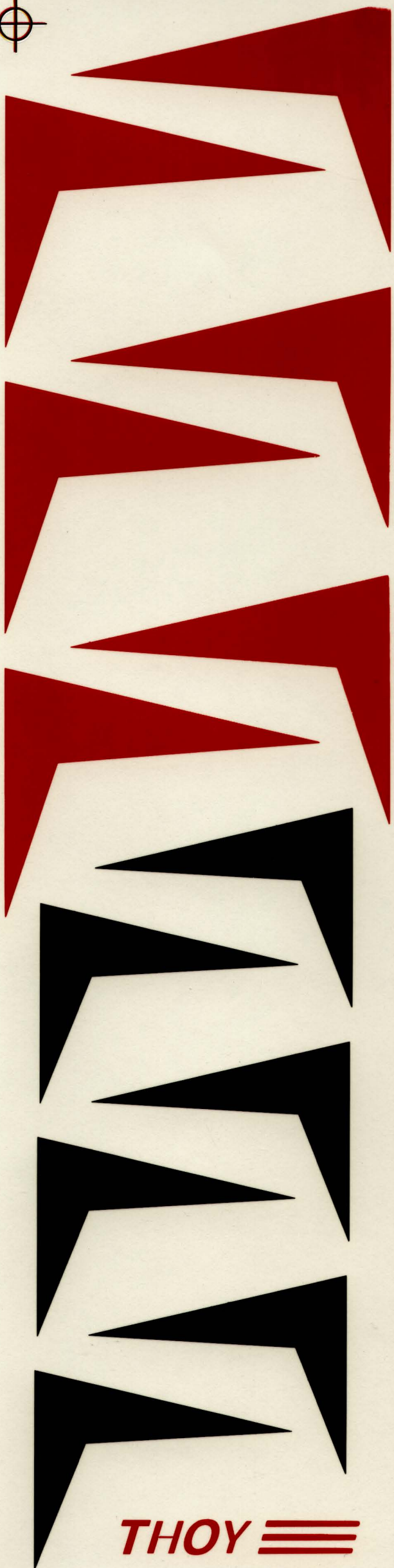
17) Install an igniter per the manufacturer's instructions. Have a friend standing by to observe the booster after staging.

Parachute Assembly

- 1) Carefully cut out the parachute.
- 2) Cut shroud line into four equal lengths of $36''$.
- 3) Apply tape ring to the eight dots on the parachute.
- 4) With a sharp pencil, punch holes in the center of each tape ring.
- 5) Tie each end of the shroud line through each tape ring.
- 6) Attach the parachute to the nose cone.

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Thuria Fin/Shock Cord Mount

