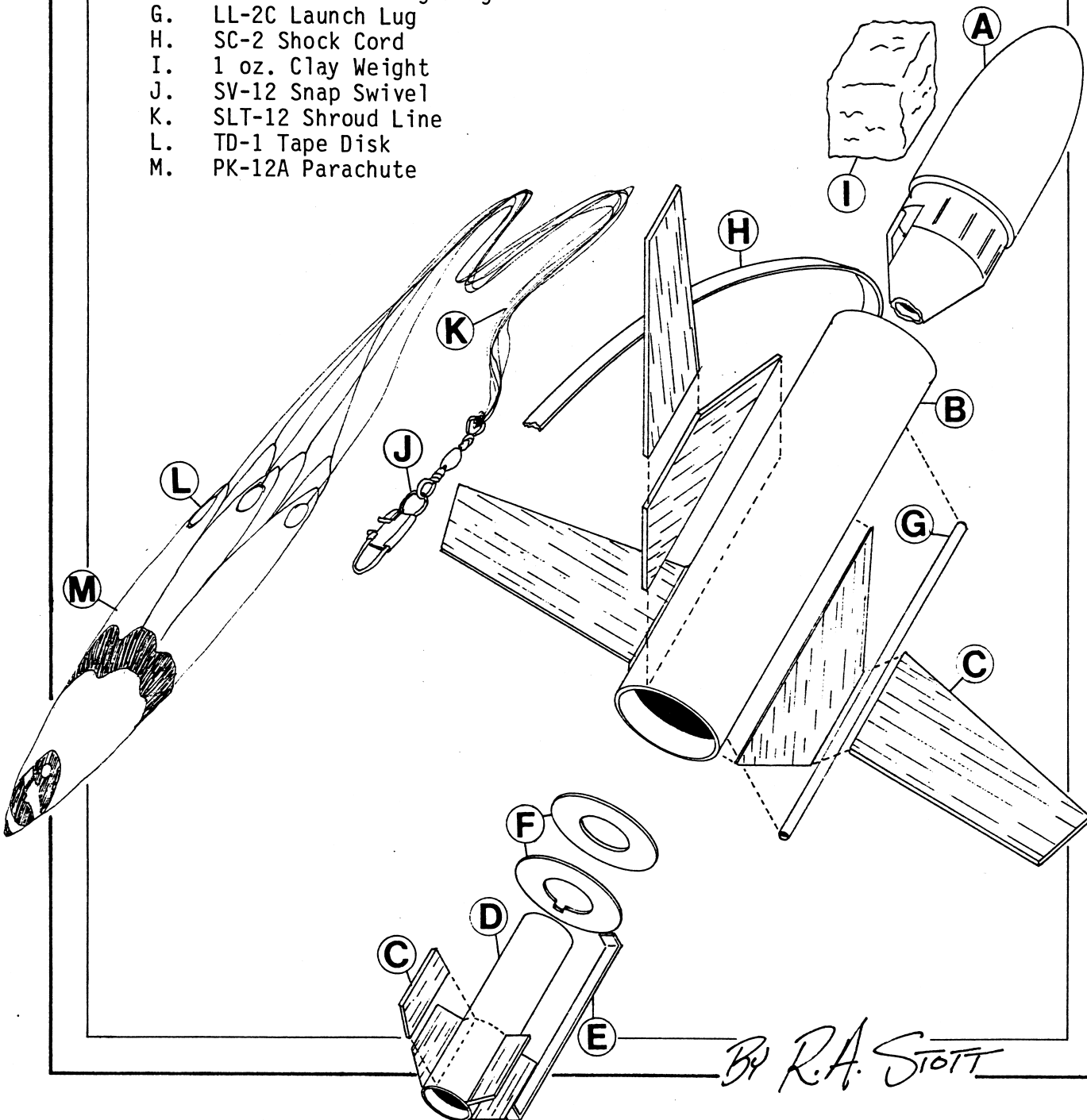


PARA Shuttle

PARA SHUTTLE - Exotic Sport Model

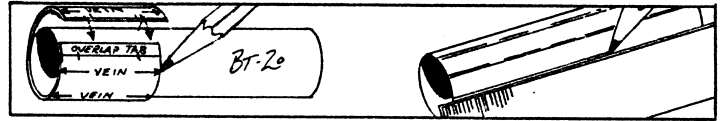
PARTS LIST

- A. PNC-60MS Nose Cone
- B. BT-60 (6") Body Tube
- C. 1/8" Balsa Fin Stock
- D. BT-20J (2-3/4") Engine Tube
- E. EH-2 Engine Hook
- F. RA-2060 Centering Ring
- G. LL-2C Launch Lug
- H. SC-2 Shock Cord
- I. 1 oz. Clay Weight
- J. SV-12 Snap Swivel
- K. SLT-12 Shroud Line
- L. TD-1 Tape Disk
- M. PK-12A Parachute

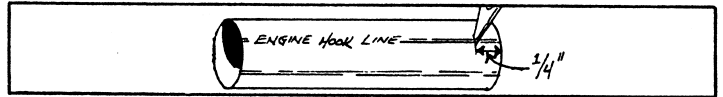


PARA SHUTTLE
By R. A. Stott

1. [] Cut out the Engine Mount Marking Guide. Wrap the guide around the BT-20 engine tube. Mark the tube at the arrows. Remove the wrap and extend the line the length of the tube.



2. [] Measure 1/4" from the top of the engine tube along the engine hook line. Cut a 1/8" slot centered on this mark for the engine hook.



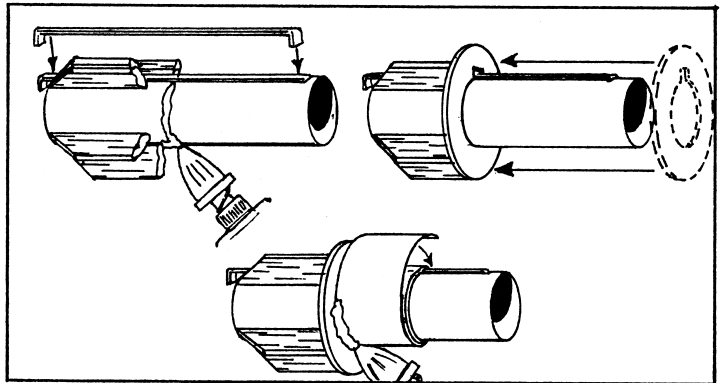
3. [] Cut out the Engine Cooling Veins template. Using the template as a guide, trace and cut out five veins from the balsa fin stock. Sand all edges smooth.



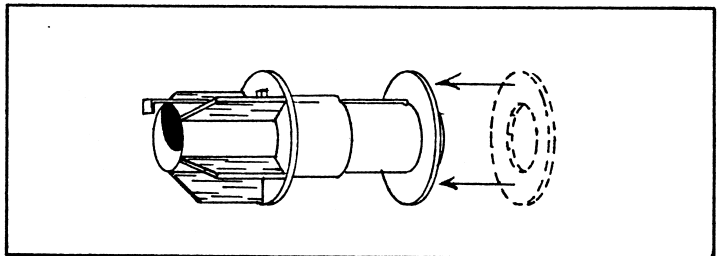
4. [] Apply a bead of glue to the inside edge of the veins and mount them on the engine tube along their alignment lines. Make sure that the beveled end of the veins are even with the thrust end of the engine tube.



5. [] Insert the engine hook into its slot. Apply a bead of glue along the front edge of the veins and the engine tube in front of the veins. From the top, slide the RA-2060 Centering Ring with the key slot over the engine hook making sure the slot is aligned with the hook. Slide the ring down until it is flush with the face of the veins making sure that the engine hook is straight with its line. Wrap masking tape twice around the engine tube in front of the centering ring. This will be the hold down strap for the engine hook. Fillet the seam between the centering ring and the masking tape with glue.



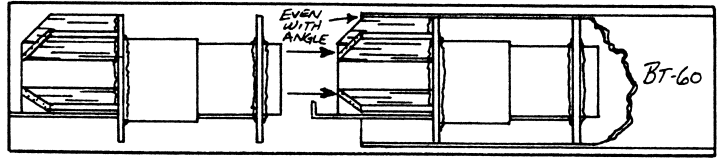
6. [] Run a bead of glue around the engine tube at the top of the engine hook. Slide the other RA-2060 Centering Ring onto the engine tube until it is even with the top of the engine hook. Fillet the rings with glue.



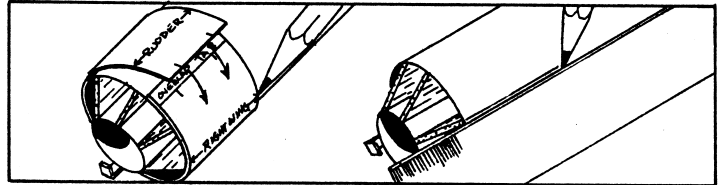
NOTE: You may wish to seal the balsa Cooling Veins PRIOR to installing the engine mount.

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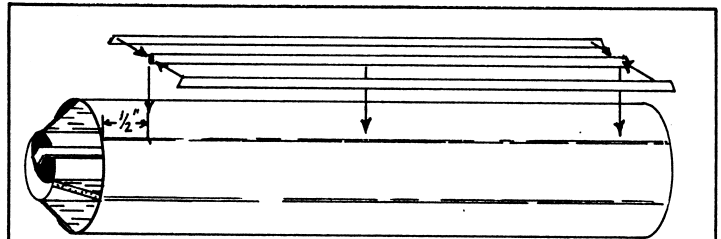
7. [] Run a bead of glue inside one end of the BT-60 Body Tube. Insert the engine mount into the body tube until the outer edge of the bevel on the Cooling Veins are even with the back of the body tube. Let dry.



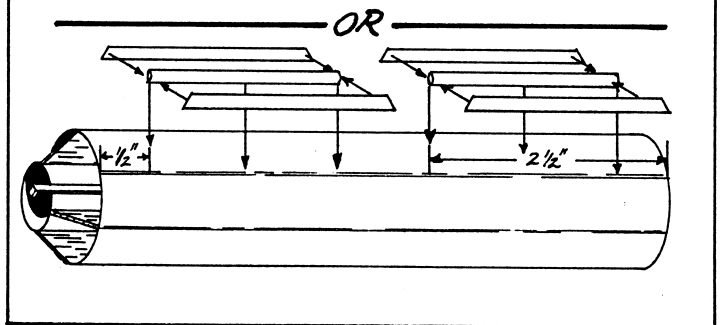
8. [] Lightly sand the body tube with an extra fine sandpaper. Cut out the Fin Marking Guide. Wrap the guide around the body tube, aligning the launch lug line with the engine hook. Mark the body tube at the arrows. Remove the wrap and extend the marks the length of the body tube.



9. [] This model originally used the long 5" launch lug from the Big Bertha. If you can find one of these, measure 1/2" up from the thrust end of the body tube along the launch lug line. Run a bead of glue on the launch lug and attach it to the body along the launch lug line. Finally cut out the two long launch lug fairing strips. Apply these strips along the sides of the launch lug as shown.



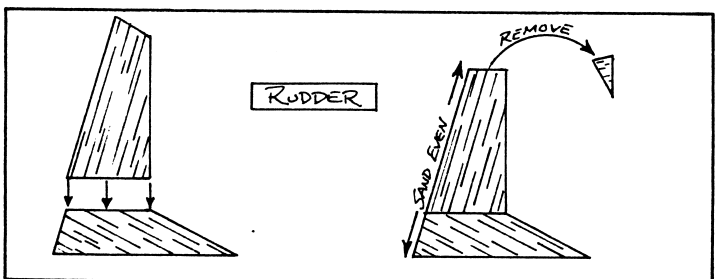
If you can't find a 5" launch lug, use two 2" launch lugs. Measure and mark along the launch lug line 1/2" up from the thrust end and 2-1/2" down from the front end of the body tube. Run a bead of glue along both launch lugs and attach them in FRONT of these marks along the line. Make sure that they are even and won't snag the launch rod when completed. Finally cut out the four short launch lug fairing strips. Apply these strips along the sides of the launch lugs as shown.



10. [] Cut out the two Fin Templates (marked "INNER" and "OUTER"). Using the templates as guides, trace and cut out three fin sections each from the balsa fin stock. Sand all edges square. DO NOT ROUND THE LEADING EDGES.



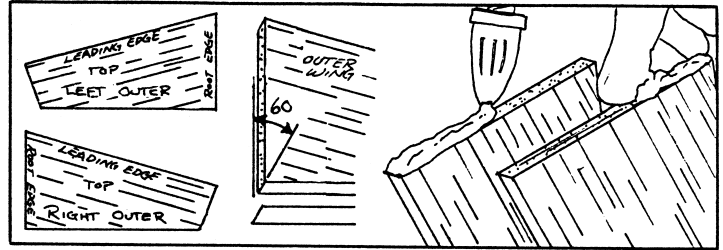
11. [] The first fin to build is the rudder. Take one set of fin halves. On a flat surface place the Outer piece on top of the Inner piece and glue them together (MAKE SURE OF THE DIRECTION OF THE OUTER HALF PRIOR TO GLUING!). Once dry, check to see that the trailing edge of both pieces are even. If not, sand this edge until it is even and smooth. Fill any gap between the two halves.



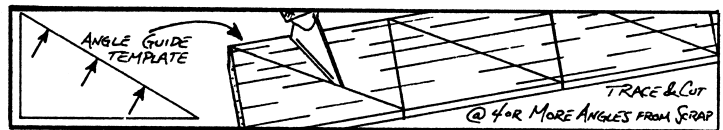
Using the OUTER template as a guide, trim off the tip of the rudder as shown.

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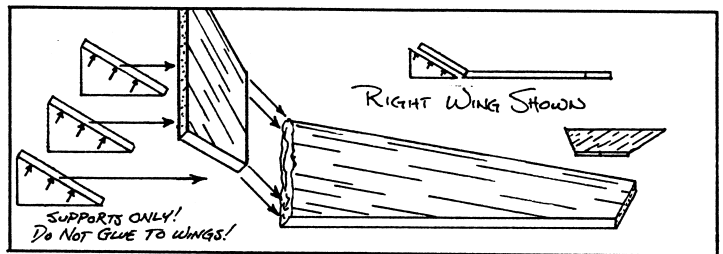
12. [] Mark the remaining two Outer pieces LEFT and RIGHT. Sand bevels into the root edges of these two pieces as shown. Once the angle is correct, run a fine bead of glue down the length of the root edge of the Outer pieces, the root edge and outer edge of the Inner pieces, and the root edge of the rudder. Rub the glue into the grain of these edges and let dry. Once dry, lightly sand off any roughness left by the glue.



13. [] Cut out the Fin Angle Guide Template. Using this template as a guide, trace and cut out at least four units from scrap balsa. Sand edges flat.

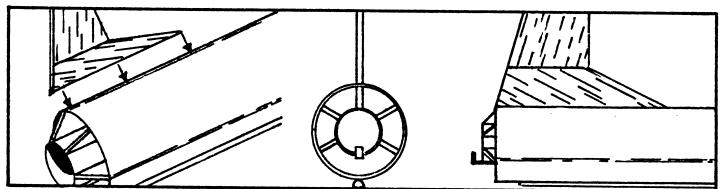


14. [] Lay the Outer fin sections on a flat surface, ANGLE SIDE UP (You might want Waxed Paper on the surface). Run a bead of glue down their root edges. Set the outer edge of the Inner section against the root edge of the Outer sections. Prop the Inner section up from the rear with the Fin Angle Guides. Let dry thoroughly. These are now the Left and Right Wings.

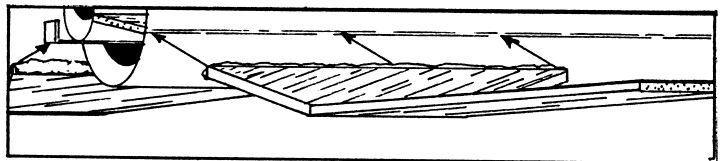


You may need to fillet the wings between the Inner and Outer sections. Make sure that the assemblies are completely dry before filling and gaps (if the gaps are large enough, you may wish to fill with putty rather than glue). Once dry, sand a sharp angle into the fillet to match the angle of the wing surface.

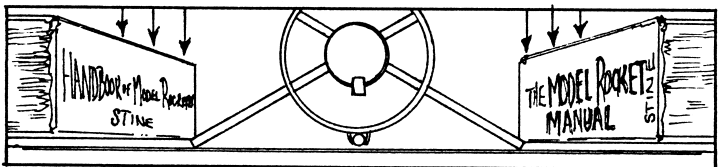
15. [] Run a bead of glue the length of the root edge of the rudder. Attach the rudder to the body tube along its guide line, making sure the back tip of the root edge is even with the edge of the thrust end of the body tube. Let Dry.



16. [] Run a bead of glue down the root edge of the wings. Attach the wings to the body tube along their guide lines, making sure that the back tip of the root edge is even with the edge of the thrust end. Let dry FOR ONLY A FEW MINUTES!

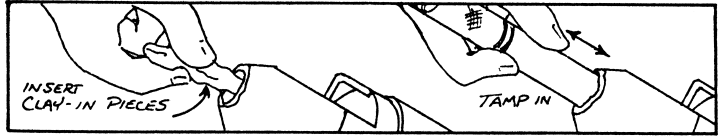


17. [] Now that the glue is tacky, place the model on a flat surface as shown. Place a heavy object on each Outer Wing section so that they are flat against the surface. Make sure that the rudder is straight up. Let the model dry in this position.

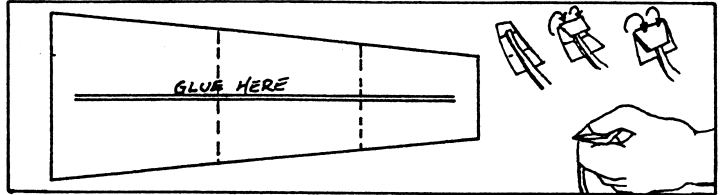


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18. [] To fly correctly, the model will need nose weight. Cut up the 1 oz. of clay into small pieces. Drop these pieces into the nose cone and tamp in with a dowel or the dull end of a hobby knife.



19. [] Cut out the shock cord mount. Crease the paper along the dotted lines. Run a bead of glue down the middle of the mount. Lay the shock cord down the center of the of the mount. Run a bead of glue over the shock cord on the mount. Fold the mount as shown. Hold together until the glue starts to set.



20. [] Apply glue to the back of the shock cord mount. Install the mount inside the front of the body tube, @ 1-1/2" from the front edge. Press firmly against the body tube. Let dry.

21. [] Cut out the parachute shroud from its sheet.

22. [] Cut the shroud line into three even sections. Using the tape disks apply the shroud lines to the parachute shroud.

23. [] Optional. Draw the shroud lines to a point. Feed the lines through the eye of the swivel. Loop over the swivel and pull tight.

The model is now ready for finishing.

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TEMPLATES & MOUNTS

