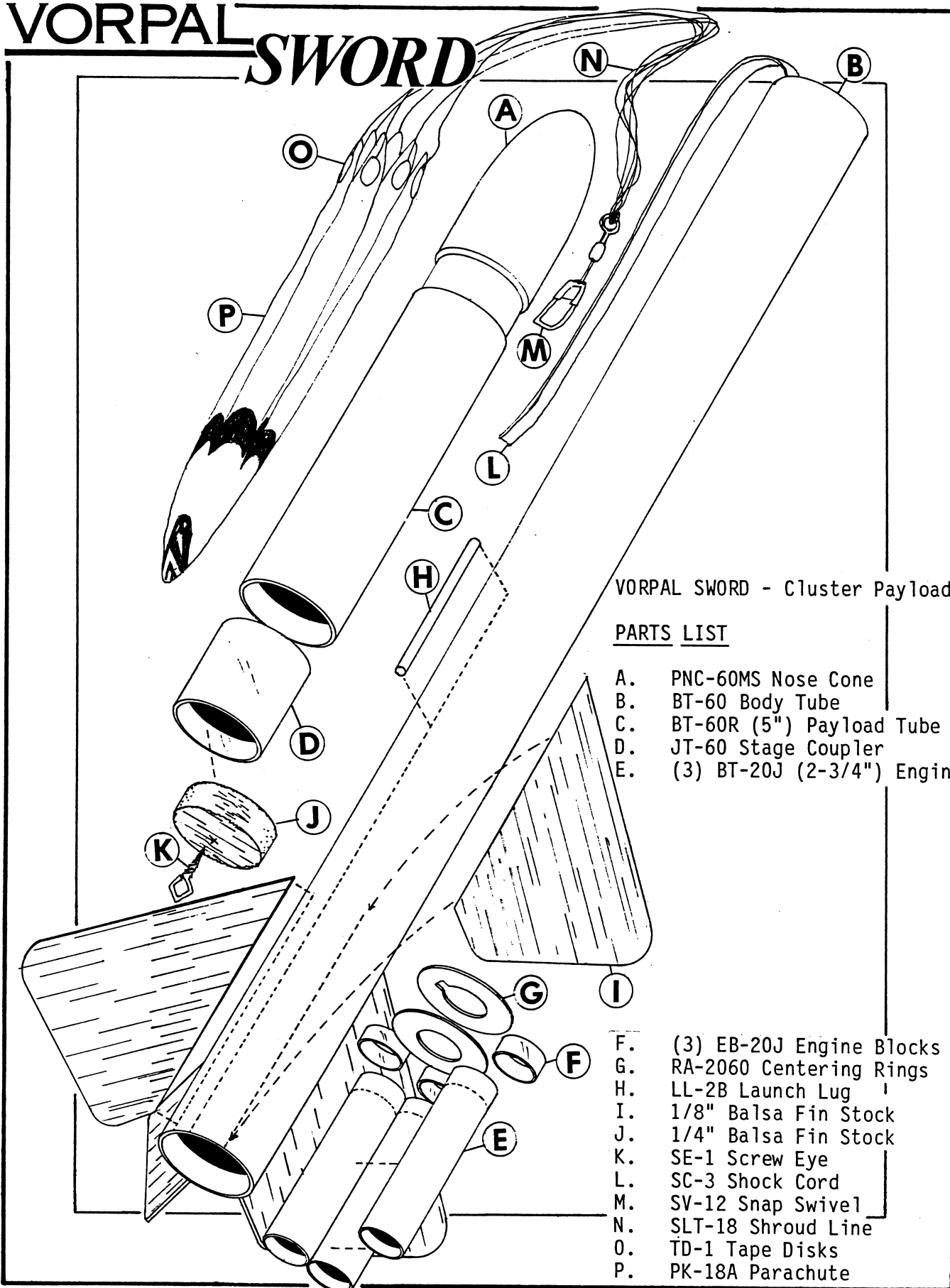


# VORPAL SWORD



VORPAL SWORD - Cluster Payloader Model

## PARTS LIST

- A. PNC-60MS Nose Cone
- B. BT-60 Body Tube
- C. BT-60R (5") Payload Tube
- D. JT-60 Stage Coupler
- E. (3) BT-20J (2-3/4") Engine Tubes
- F. (3) EB-20J Engine Blocks
- G. RA-2060 Centering Rings
- H. LL-2B Launch Lug
- I. 1/8" Balsa Fin Stock
- J. 1/4" Balsa Fin Stock
- K. SE-1 Screw Eye
- L. SC-3 Shock Cord
- M. SV-12 Snap Swivel
- N. SLT-18 Shroud Line
- O. TD-1 Tape Disks
- P. PK-18A Parachute

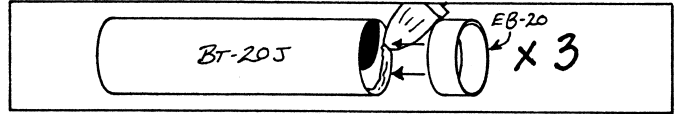
*By William Sullivan*

VORPAL SWORD  
By Bill Sullivan

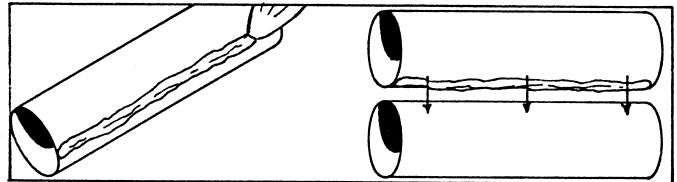
1. [ ] Take two RA-2060 centering rings and glue them face to face. Let dry.



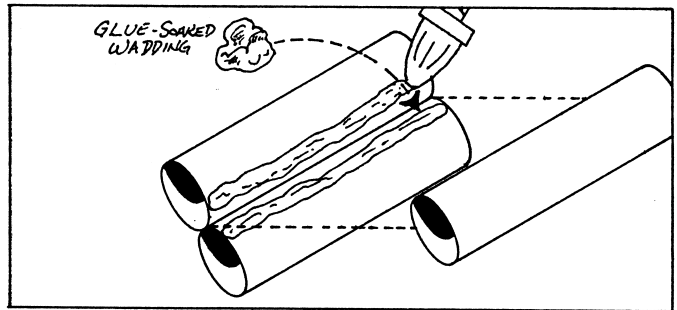
2. [ ] Run a bead of glue inside the top end of the three BT-20 engine tubes. Insert the engine blocks into each tube. Remove any excess glue. Let dry.



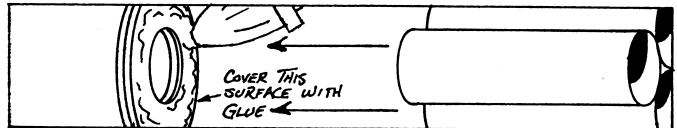
3. [ ] Run a bead of glue from top to bottom along the edge of an engine tube. On a flat surface press the tube with the glue against one of the other engine tubes, making sure that the end of the two tubes are even, and that the engine blocks are facing the same direction. Let dry.



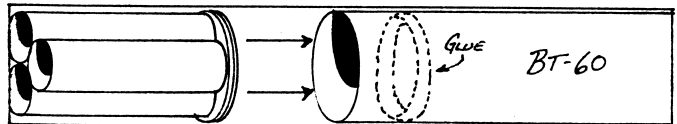
4. [ ] Take a small piece of wadding and soak it in glue. Lay it in the seam between the engine tubes near the engine block end. Run a bead of glue the length of both tubes. Lay the third engine tube into the seam between the first two tubes, again making sure that the ends are even and that the engine block end is facing the correct way. Make sure that there was enough wadding to fill the gap between the three engine tubes, otherwise add more AFTER the first wad dries. Let assembly dry.



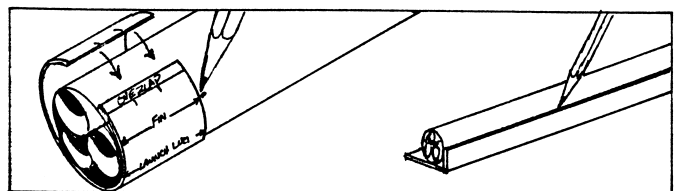
5. [ ] Apply glue to the engine block end of the engine mount cluster. Mount the RA-2060 centering rings to the face of the engine mount cluster. Let dry.



6. [ ] Apply a bead of glue inside the thrust end of the BT-60 Main Body Tube. Slide the engine mount cluster into the body tube until the thrust end of the cluster is even with the base of the body tube.

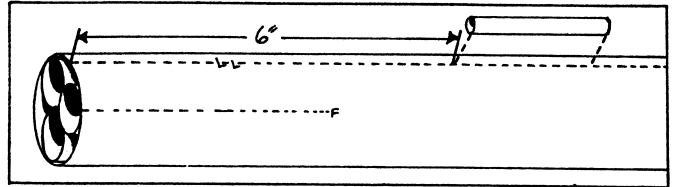


7. [ ] Lightly sand the BT-60 Main Body Tube with extra fine sandpaper. Cut out the fin marking guide. Wrap the guide around the body tube, aligning the launch lug line with a gap between the engine tubes. Mark the body tube at the arrows. Remove the wrap and extend the lines the length of the body tube.

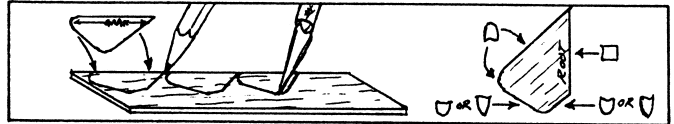


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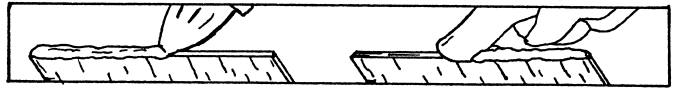
8. [ ] Measure and mark 6" from the thrust end of the body tube along the launch lug line. Apply a bead of glue to the launch lug and mount it even with the top of this mark. (If you are using a Big Bertha kit as a base model for this design, measure 3-3/4" from the thrust end of the body tube.)



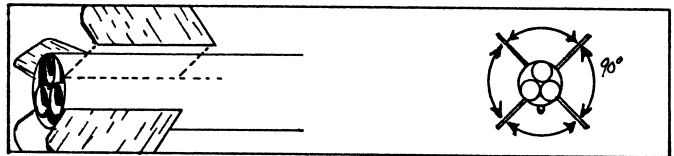
9. [ ] Cut out the fin template. Using the template as a guide, trace and cut out four fins from the balsa fin stock. Sand all edges smooth. If you wish, round the leading edge of the fins.



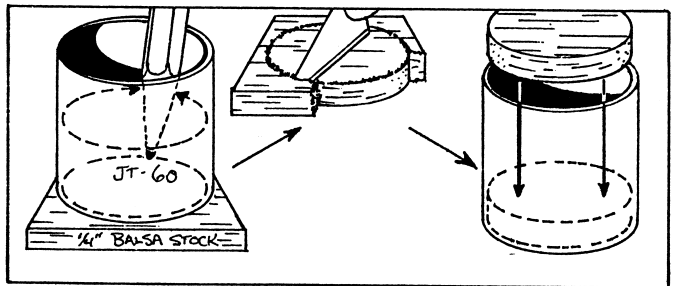
10. [ ] Rub glue into the root edge of the fins. Let dry. Sand any roughness left by the glue smooth.



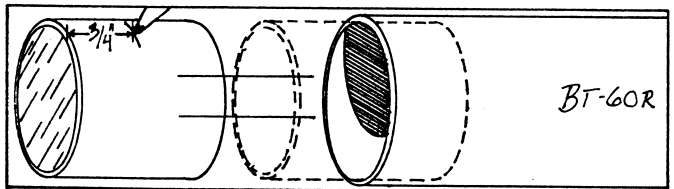
11. [ ] Apply a bead of glue to the fin roots and align them with a guide line on the body tube. The bottom of the fin roots should be even with the thrust end of the body tube. Remove any excess glue.



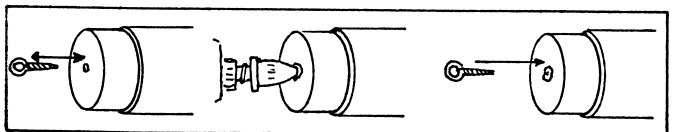
12. [ ] Take the JT-60 Stage Coupler and place it end down on the 1/4" balsa stock. Trace and cut the inside of the coupler from the stock. Run a bead of glue inside one end of the coupler. On a flat surface push the block into the coupler, making sure that it is even with the end face of the coupler. Apply a fillet of glue on the inside of the coupler to make sure that it will keep ejection gases from entering the payload section. Let dry.



13. [ ] Measure and mark the stage coupler 3/4" from the bulkhead end. Run a bead of glue inside one of the ends of the BT-60 Payload Section. Insert the coupler into this end of the payload section, making sure not to go past the 3/4" mark. Also make sure that the coupler is level and straight. Let dry.

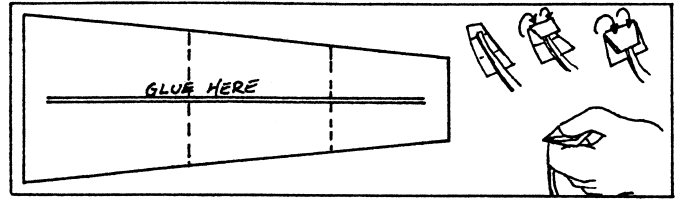


14. [ ] Insert the screw eye in the center of the balsa bulkhead in the stage coupler. Remove the screw eye and shoot some glue into the hole it left. Reinsert the screw eye.



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15. [ ] 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.



16. [ ] Apply glue to the back of the shock cord mount. Carefully slide the mount down the inside the body tube @ 1-1/2" from the front. Press the mount firmly against the inside wall of the body tube. Let dry.

17. [ ] Tie the shock cord to the screw eye. Insert the nose cone into the payload section. If the nose cone is too loose, add tape to the coupler section of the nose cone or add tape to the inside of the payload section.

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

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

20. [ ] 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.

