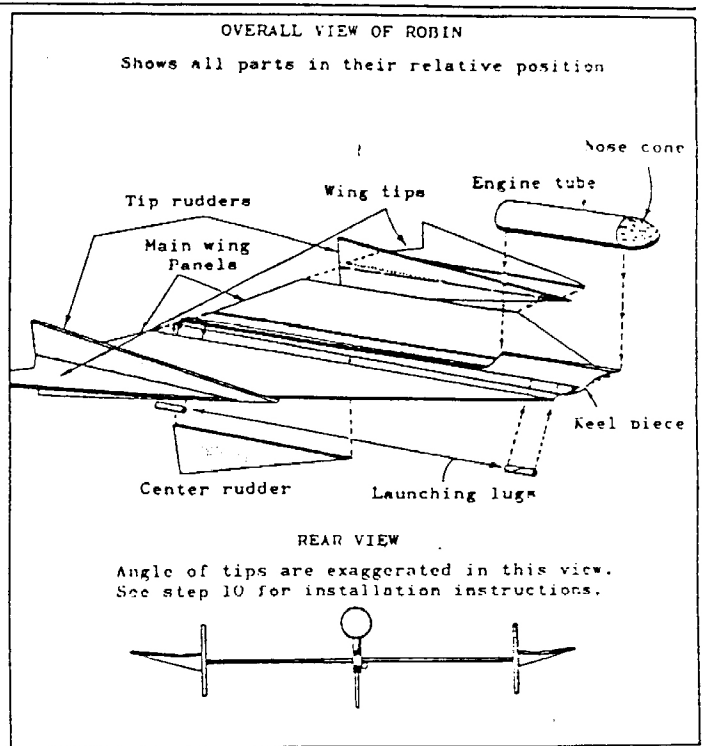
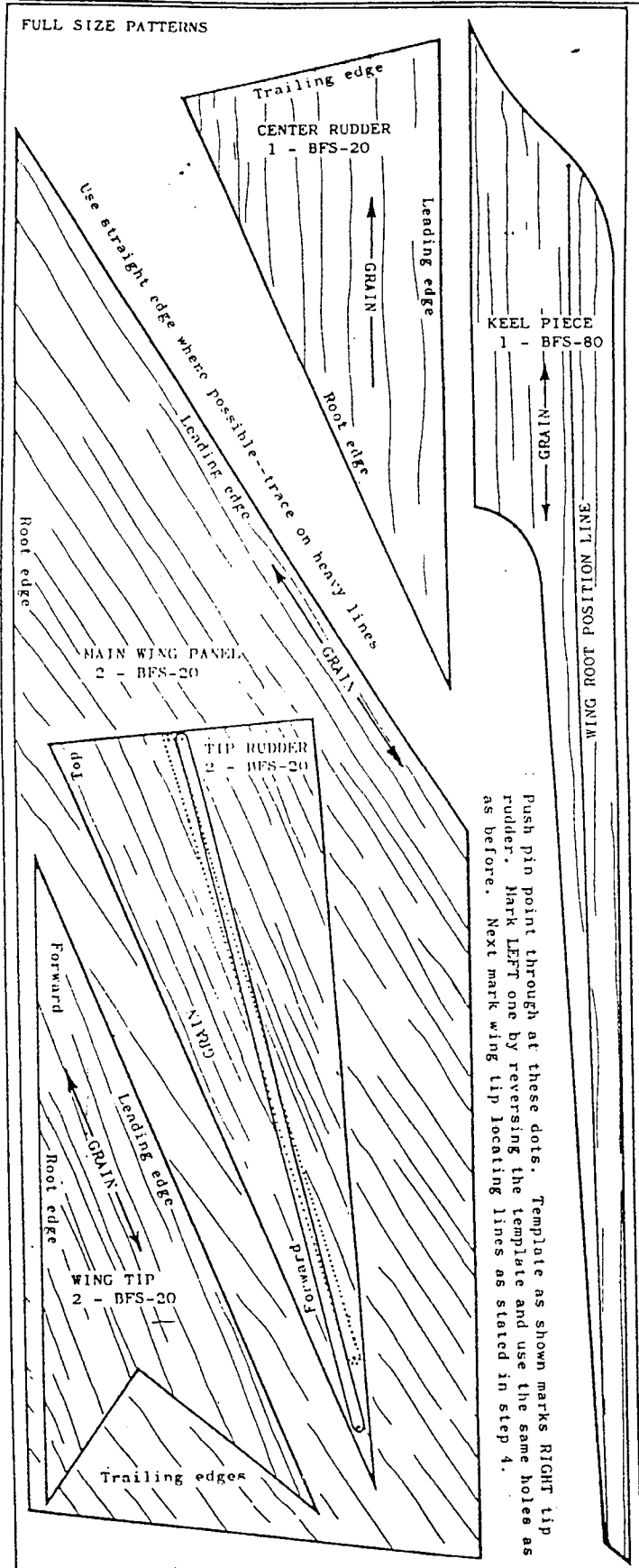


Estes Industries Rocket Plan No. 33

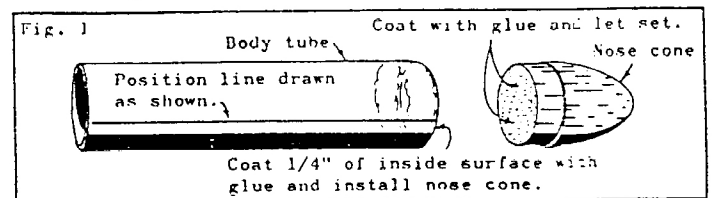
ROBIN By George Jakenta

2nd. Place Winner in the 1964 Boost-Glide Design Contest

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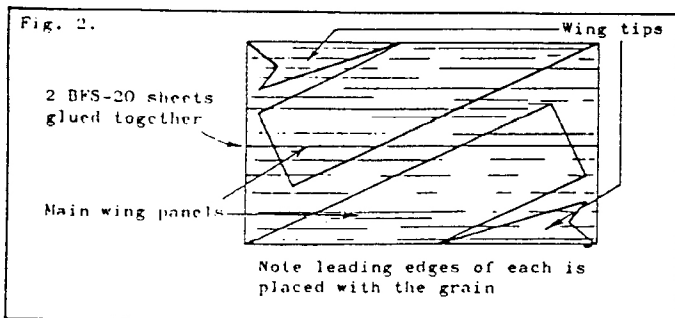
1. Coat the base of the nose cone with white glue and set it aside to dry. Draw a line along the entire length of the engine holder tube parallel to the center line. Coat the inside of the tube on one end with white glue and install the nose cone. Wipe off excess glue from the outside of the tube.



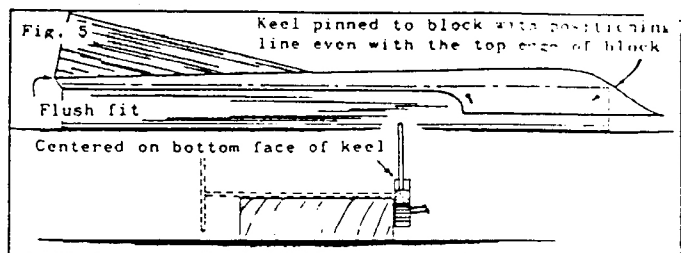
2. Trace the patterns shown in the column to the left onto heavy paper or thin cardboard (such as an empty breakfast cereal box) for use as templates in laying out the parts on the balsa sheets. Note that the patterns for the tip rudder and outer wing pieces are on the main wing pattern. First use the template to lay out the two main wing panels, then cut out the other two templates. (With a model knife and straightedge it is possible to cut out both pieces without destroying the main wing template.) Fig. 2 shows the layout of the main wing panels for proper grain direction and maximum strength.

Parts List

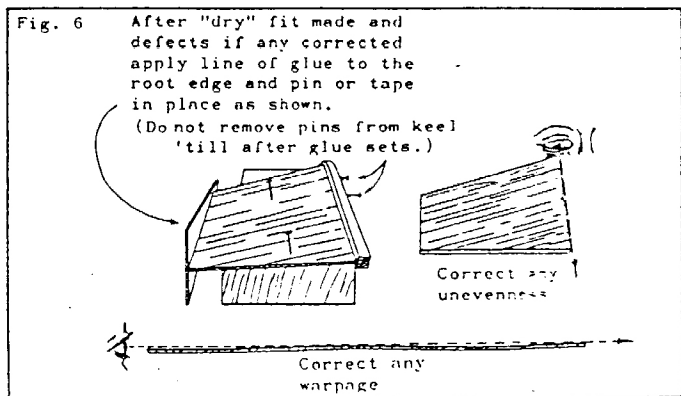
1	NOSE CONE	Stock No. BNC-20A
1	ENGINE HOLDER TUBE	ET-20J
3	SHEETS Balsa FIN STOCK	BFS-20
1	SHEET Balsa FIN STOCK	BFS-80
1	LAUNCHING LUG	LL-1A



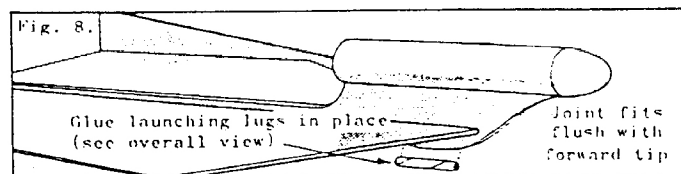
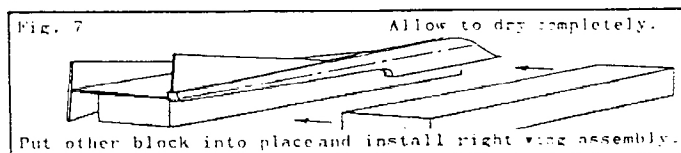
the root edge away from the keel. Pin the keel to the side of a block during this step. Correct any defects found and proceed to step 8. Leave the keel pinned in place.



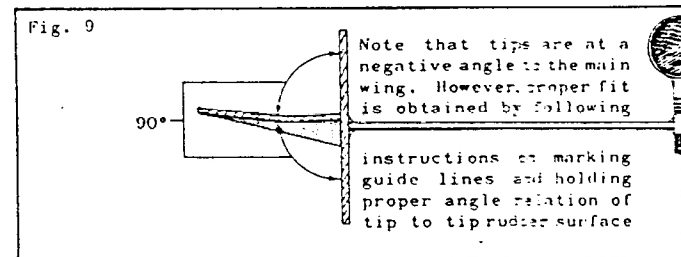
8. Apply a line of glue to the root edge of one wing assembly (the one which rests on the same block as the keel) and place it in its correct position against the keel. Make sure that no glue flows onto the block. Tape or pin the wing to the block while it dries. Remove the pins from the keel and slide the second block



into place to support the other wing assembly as it is installed. With both wing panels in place, allow this assembly to dry completely before proceeding to step 9.



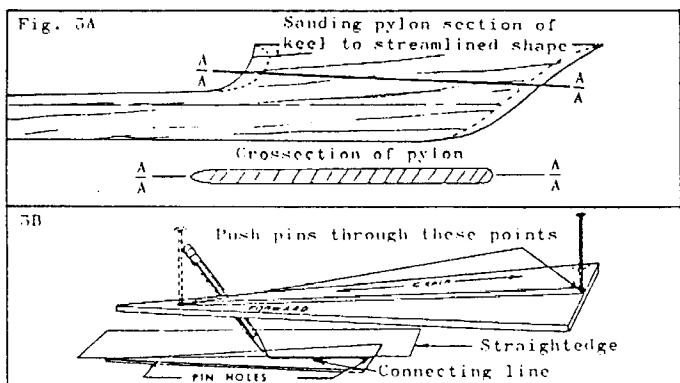
9. Apply glue to the keel pylon and position the engine holder tube, aligning it squarely on top of the pylon and parallel to the centerline. The body tube-nose cone joint should be flush with the forward tip of the pylon. Cut two 1/2" lengths of launching lug and mount them in the "V" of the wing-keel joint as shown in fig. 8.



10. Apply glue to the root edge of one wing tip and set it in place with the upper edge of the root on the location line of the left tip rudder. Hold this piece perpendicular to the outside surface of the tip rudder until the glue has set, then repeat this step to install the wing tip on the right side of the model. When all the joints appear dry, apply a heavy glue fillet to all joints and allow them to dry at least twelve hours. Support the model horizontally while it dries to prevent the fillets from "running."

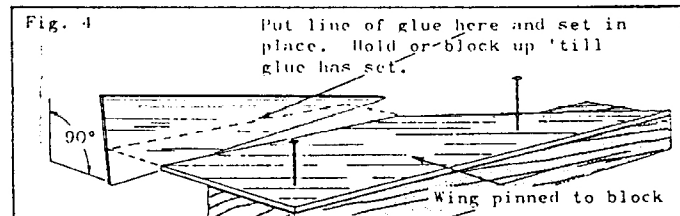
3. Sand all leading and trailing edges round and all root edges flat. Top and bottom sides of the keel piece are sanded flat. The curved front portion may be rounded if the curve is not carried more than 1/8" toward the rear. (See Fig. 3A.) Sand both sides of each piece lightly along the grain.

4. Two of the templates have position lines to be laid out after sanding is completed. Lay the template over the part to be marked and push a straight pin through the tip of the arrow at each end of the line being placed. Remove the template and connect the two pin holes as shown in Fig. 3B. The dotted line indicates the line position for the opposite side of the part as



viewed from the template side. Pin holes are first pre-punched to locate them on the back of the template. Then the part is turned over and marked by using these pre-punched holes. Connect the pin holes with a light line.

5. Apply a line of white glue to the centerline of one tip rudder and place it on the outer edge of one main wing as shown in Fig. 4. Align it carefully, making sure that the trailing edges of the rudder and the main wing are flush with each other and that the rudder is at a 90° angle to the main wing. Support the assembly as necessary to hold proper alignment and allow the glue to dry completely. Attach the other tip rudder to the wing in the same way.



6. Apply a line of white glue to the root edge of the center rudder and place the rudder on the centerline of the keel bottom surface. The trailing edges of both pieces fit flush with the rudder pointing straight away from the centerline. Block the assembly so as to hold this alignment until the glue has set. The rear view in Fig. 5 shows the center rudder in its correct position.

7. Two blocks of at least 3/4" x 2" x 6" size are needed to maintain alignment during the fitting and gluing steps that follow. (A matched pair of NCS-2 blocks will work, or you can cut the blocks from wood on hand. The 2" x 6" surfaces must be perfectly flat and parallel.) "Dry" fit the main wing panels and keel assemblies in their exact positions, checking the root edges for high or low spots that tend to hold other portions of