Estes Industries Rocket Plan No. 29

Eagle 1964 Boost-Glide Design Contest Winner

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PARTS LIST

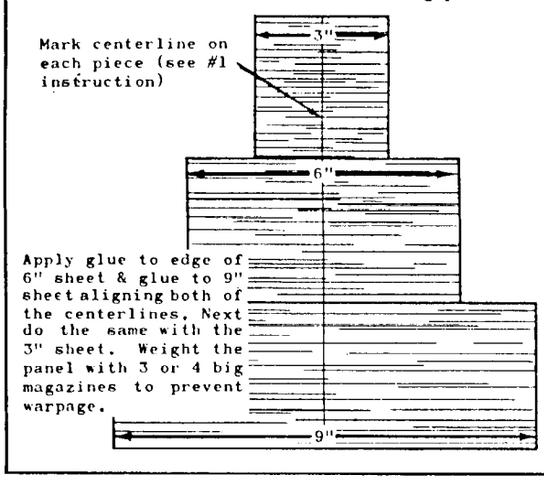
1	Nose Cone, Balsa	BNC-20B
1	Body Tube	BT-20J
3	Sheets Fin Stock	BFS-20
1	Sheet Fin Stock	BFS-40
1	Nose Cone Weight	NCW-1
1	Screw Eye	SE-1
1	Launching Lug	LL-1B

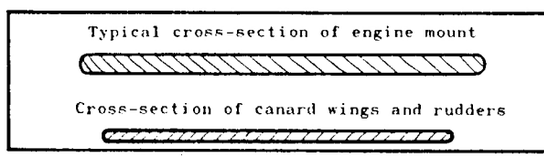
ASSEMBLY PROCEEDURE

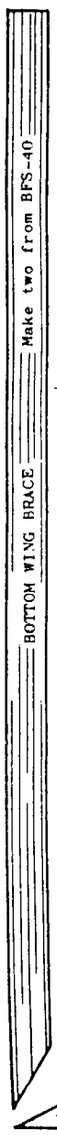
1. Begin construction by selecting two sheets of BFS-20 with nearly the same grain structure. Measure one full sheet to locate and mark a centerline at a 90° angle to one side of the sheet. Measure the second sheet for a 6" piece and cut this off. Measure both pieces and mark a centerline on each as has been done with the first sheet. Glue the pieces

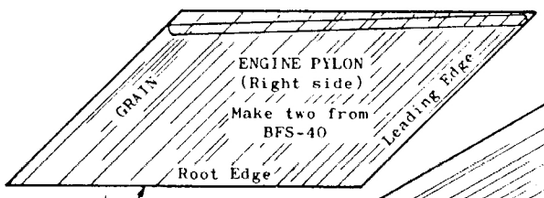
Fig. 1

See instruction #6 for use of the main wing pattern.



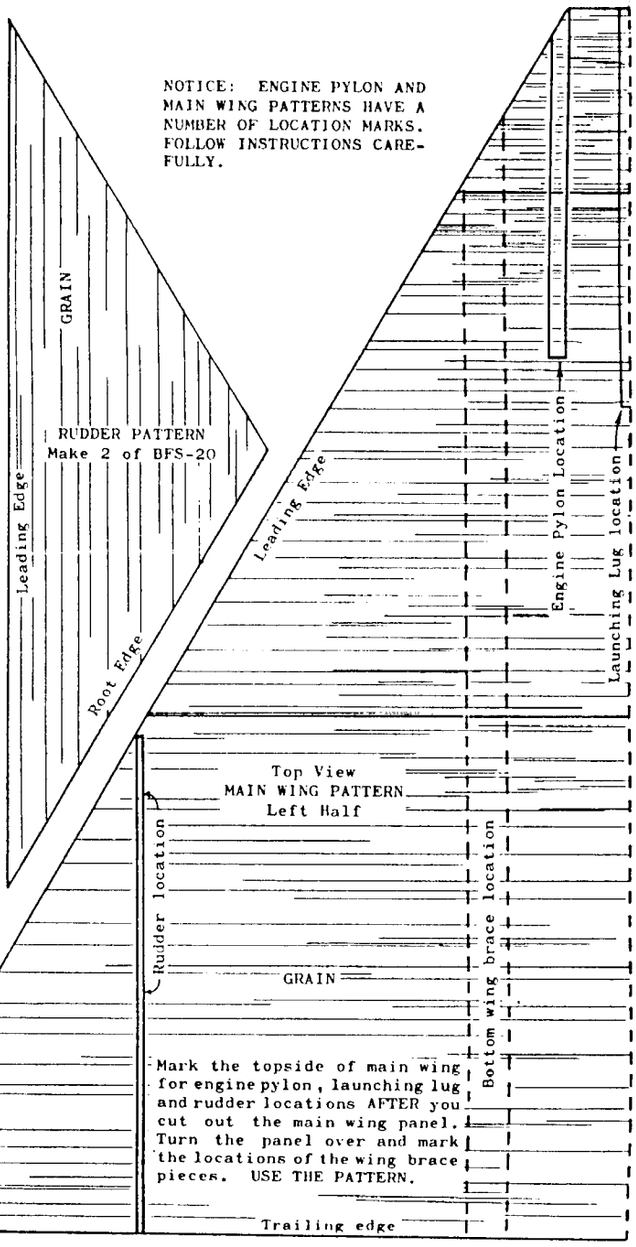






Reverse pattern and retrace for left side

NOTICE: ENGINE PYLON AND MAIN WING PATTERNS HAVE A NUMBER OF LOCATION MARKS. FOLLOW INSTRUCTIONS CAREFULLY.



Mark the topside of main wing for engine pylon, launching lug and rudder locations AFTER you cut out the main wing panel. Turn the panel over and mark the locations of the wing brace pieces. USE THE PATTERN.

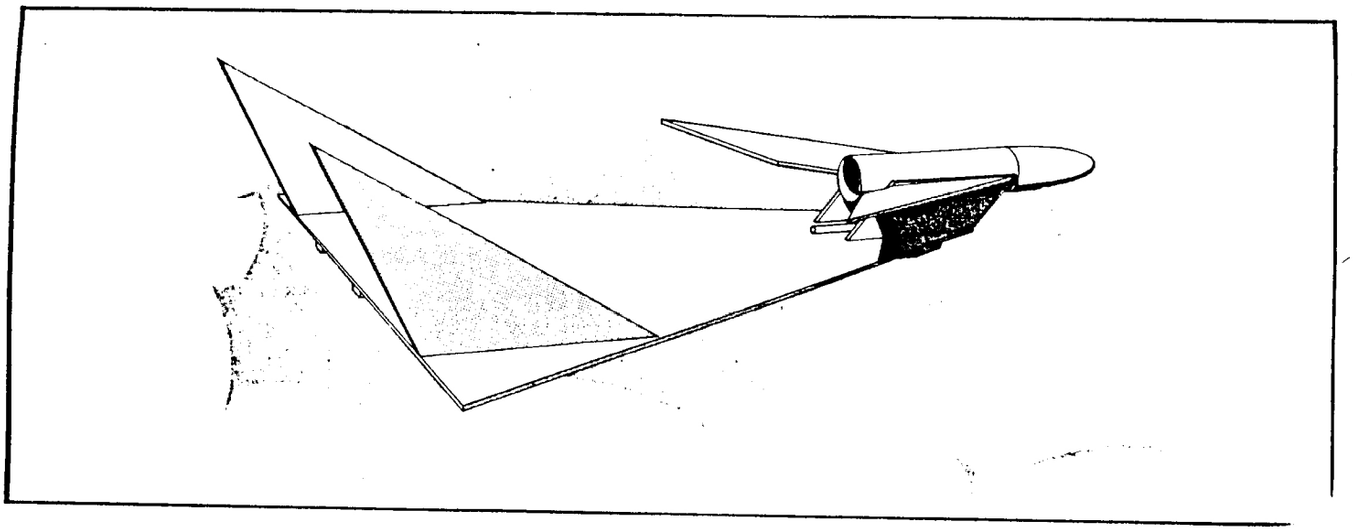
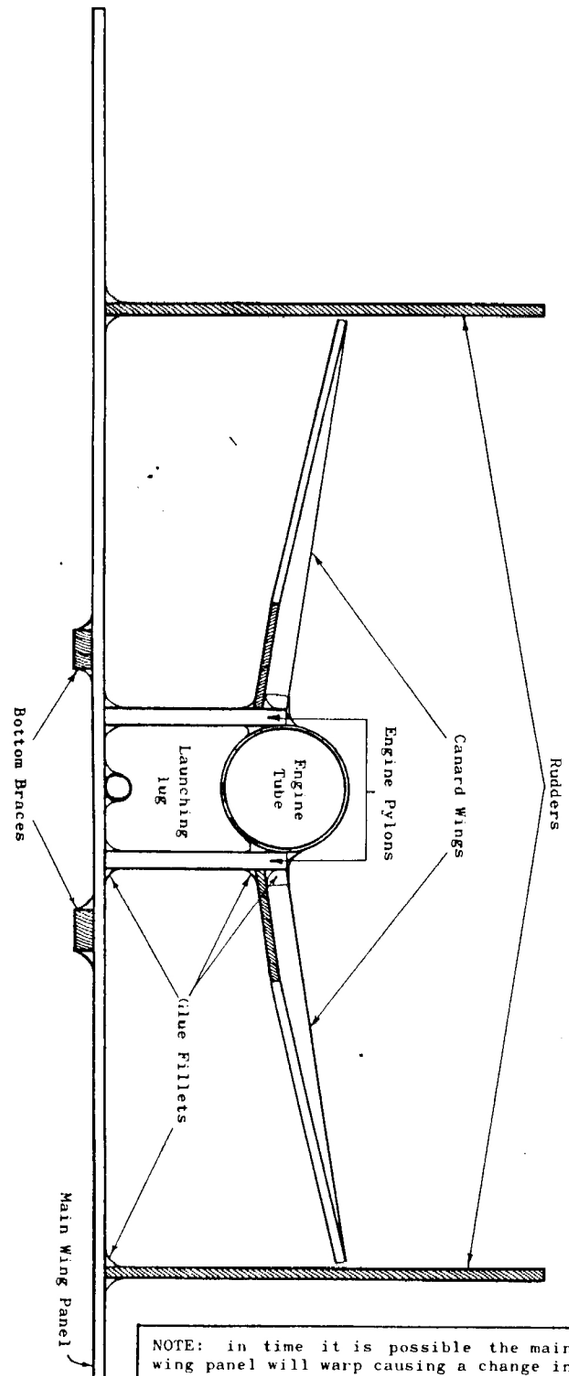
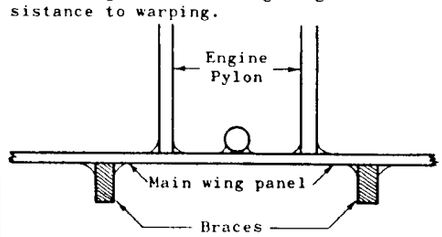


Fig. 2

REAR VIEW



NOTE: in time it is possible the main wing panel will warp causing a change in upward flight. Installing the bottom braces edgewise should give greater resistance to warping.



together edge-to-edge as shown in Fig. 1 and set them aside to dry completely. To prevent warping they should be placed on a sheet of waxed paper laid on a smooth flat surface and weighted down.

2. On a separate sheet of BFS-20, trace out two canard wings and two rudders. Be careful to align the patterns so the grain direction shown on them matches the grain of the balsa. Make a small identification mark on the root edge on each part. Cut out the pieces and sand them.

3. Trace the wing brace and engine pylon patterns onto the sheet of BFS-40, again paying attention to wood grain direction for maximum strength. Cut out the pieces and sand them to shape. (See the cross-sections for the suggested shape of the pieces.)

4. Using the rear view (Fig. 2), mark the engine tube at the tops of the engine pylons. Draw a straight line forward from each mark by positioning the tube in the "V" notch of a drawer and using one edge of the notch as a guide. Apply a line of glue to the top inside edge of the engine pylons and set them into position. You may need to support this assembly until it is dry to insure that both pylons will dry in a perpendicular position.

5. Center the main wing pattern on the centerline of the balsa panel and even with the trailing edge. Draw in the leading edge. Reverse the pattern and complete the main wing outline. If possible, use a metal straightedge as a guide for cutting out the main wing. Draw in the position marks for the other parts shown on the pattern.

6. Glue the braces to the underside of the wing. Place the wing on waxed paper as in step 1 and weight it down until the glue is dry.

7. Apply glue to the root edges of the canard wings and place each on its location mark on the outside edges of the engine pylons. Support the tips so they are parallel to the top of the engine tube (see fig. 2) and allow them to dry thoroughly.

8. Apply glue to the root edges of the rudders and position them on the top of the main wing on the marks. The rudders should stick up at a 90° angle to the wing surface.

9. Apply a line of glue to the launching lug and set it in place exactly on the centerline of the panel in the position shown on the pattern. Apply glue to the root edges of the engine pylons and place this assembly on the location marks at the front of the wing.

10. Check the model. Be sure all parts are in place and are aligned correctly. Set the model aside to dry thoroughly.

TEST GLIDING

11. Place the nose cone in the front end of the body tube. Toss the model lightly into the wind at a slight downward angle. If the model stalls, cut off a sliver of nose cone weight and push it into the back of the nose cone. If the model dives or turns sharply to the left or right, check the alignment of the parts. If everything is aligned correctly and the model still dives or turns, put a sliver of nose cone weight on the underside of the trailing edge in the center to correct for diving or under the opposite wing from the direction of the turn and test glide the model again. Continue adjusting the balance of the model until a good glide has been obtained.

A satisfactory glide should carry the model 25 to 30 feet away when tossed from shoulder height. When a good glide has been obtained, glue the nose cone into place and paint your model with a light base coat of white followed by a bright fluorescent color for easier tracking.

POWERED FLIGHT

12. For the first flights of the Eagle use a ½A.8-2 engine. When you are sure that it is flying properly, larger Series I single stage engines may be used. For maximum duration the B.8-2 engine is best.

SIDE VIEW