NASA Galactic Explorer

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Parts List

1 BT-55 body tube, 10.5” long
2 BT-5 body tubes, 9” long
1 PNC-55AC nose cone
2 PNC-5W nose cone
1 BT-20 motor tube
2 CR2055 centering rings
1 engine hook
1 1 1/4” launch lug
1 1/8” wide wooden dowel, 2.75” long
1/8” wide elastic shock cord
3/32” thick balsa fin stock
18” diameter parachute
Clay

Construction

1. Assemble engine mount using the BT-20 motor tube, engine hook, and CR2055 centering rings. Make 1/8” wide slit at 1/4” from one end of motor tune. Insert front end of engine hook into the slit. Glue centering rings at 1/4” from each end of the motor tube. Let engine mount thoroughly dry.

2. Using a fin-marking guide, mark the BT-55 body tube at 4 equal distances around one end of the tube. This will be the back end. Using a door jam as a guide, extend each mark 2” up the tube.

3. Using a fin-marking guide, mark each of the BT-5 body tubes at 3 equal distances around one end of the tubes. This will be the back end. Using a door jam, extend one of the marks the entire length of the tubes. Extend the other two marks 1” up the tubes.

4. Trace the fin patterns onto the balsa stock and cut out. Make one each of the top and bottom fins; two of the side struts, and 4 of the strut tube fins.

5. Glue the motor mount into the back end of the BT-55 body tube, such that the end of the motor tube is even with the end of the BT-55 body tube. Align the engine hook such that it is even with one of the lines drawn on the tube. This will be the bottom of the tube.

6. Glue the top and bottom fins onto the BT-55 body tube. The bottom fin is glued to the line that is even with the engine hook. The top fin is glued to the line opposite the engine hook. The top fin is glued such that it is slanting forward.

7. Glue the 2 fin struts to the remaining 2 lines on the BT-55 body tube. The struts are glues such they slant back. After all fins have dried, apply fillets.

8. Using sandpaper, round one end of the dowel. Glue the dowel to the top of the top fin, such that the non-rounded end is even with the back of the top of the fin.

9. Glue 2 strut tube fins to each of the 2 BT-5 body tubes, aligned on the short 1" lines drawn on the tubes. After the fins have dried, apply fillets.

10. Glue each BT-5 body tube to the struts on the BT-55 body tube. Use the remaining long line on the BT-5 tubes as a guide to glue against. The top of each BT-5 tube should be even with the top of the struts.

11. Glue the PNC-5W nose cones into each BT-5 tube.

12. Cut the launch lug in half. Glue on half of the launch lug next to the bottom fin. Glue the other half of the launch lug 5 1/2" from the back of the BT-55 tube and aligned with the back launch lug.

13. Make an Estes-style paper shock cord mount and glue the shock cord into the front end of the BT-55 body tube.

14. Add clay to the nose cone, such that the CG of the rocket (without a motor) is 8" from the tip of the nose.

15. Tie the nose cone to the free end of the chock cord. Attach the parachute to the nose cone.

16. Fill the balsa fins with sanding sealer and sand smooth. Paint the rocket with your favorite colors.

17. Launch the NASA Galactic Explorer with B6-2 and C6-3 motors only.