STARBIRD
Flying Model Rocket

#1954

PARTS AND SUPPLIES

Locate the parts shown below and lay them out on the table in front of you. In addition to the parts included in the kit you will also need:

- Scissors
- Pencil
- Ruler
- Sandpaper
- White glue
- Paint brush
- Modeling knife
- Enamel spray paint (Yellow)
- Plastic cement
- Sanding sealer
- Masking tape
- Waxed paper

ASSEMBLY TIP

Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts don’t fit properly, sand as required for precision assembly.
ROCKET ASSEMBLY

1. A. Mark spacer tube 1" and 2½" from one end.
   B. Cut 1/8" long slit at 2½" mark.
   C. Insert one end of engine hook into slit.
   D. Slide ring onto front of tube and down to 1" mark and glue both sides of ring/tube joint.
   E. Apply glue around front of tube. Slide remaining ring into place.

2. A. Fine sand die-cut balsa sheet. Carefully remove fins by freeing edges with sharp knife.
   B. Stack alike fins together. Sand all edges smooth.

3. A. Cut three 4" long pieces from 12" long wood dowel.
   B. Cover pattern sheet on back of panel with waxed paper and assemble fins and dowels with white glue.
   C. Set fin assemblies aside to dry.

4. A. Using a piece of scrap balsa, smear glue inside body tube 2" from one end.
   B. Push engine mount in tube until ends are even.

5. A. Cut out tube marking guide from front of instructions.
   B. Wrap guide around the tube and tape. Mark tube at arrows. Remove guide and save.
   C. Draw straight lines connecting each pair of marks.
   D. Extend launch lug line full length of tube.

6. A. Lay fins on pattern sheet on back of panel to determine the gluing (root) and front (leading) edges of each fin.
   B. Position and glue fins on alignment lines one at a time. Let each dry several minutes before applying the next one.
   C. Adjust fins to project straight out from tube.
   D. Do not set rocket on fins while glue is wet.

FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!
7. Glue launch lug straight on launch lug line 2 3/4" from rear of tube.

8. A. Cut shock cord mount from tube marking guide.
B. Crease on dotted lines by folding. Spread glue on section 1 and lay end of shock cord into glue. Fold over and apply glue to back of first section and exposed part of section 2. Lay shock cord as shown and fold mount over again.
C. Clamp unit together with fingers until glue sets.

9. A. Apply glue to inside front of body tube to cover an area no less than 1" to 2" from end. The glued area should be same size as shock cord mount.
B. Press mount firmly into glue as shown.
C. Hold until glue sets.

10. A. Apply a glue reinforcement to each fin/ body tube joint and each side of launch lug.
B. Support rocket as shown until glue dries.

11. A. Cement nose cone and nose cone insert together with plastic cement.
B. Push nose cone insert firmly into nose cone end. Let dry.

12. A. Cut out parachute on edge lines.
B. Cut three 23" lengths of shroud line.
C. Form small loops with shroud line ends and press onto sticky side of tape discs.
D. Attach tape discs with line ends to top of parachute as shown.
E. Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
F. Pass shroud line loops through loop on nose cone. Pass parachute through loop ends and pull lines against the nose cone.
G. Tie free end of shock cord to nose cone loop.
FINISHING YOUR ROCKET
Apply sanding sealer to wood parts with small brush. When sealer is dry, lightly sand all sealed surfaces. Repeat sealing, and sanding until balsa grain is filled and smooth. When sanding sealer and glue are completely dry, paint model with yellow spray enamel. Follow instructions on spray can for best results. Let paint dry. To apply decals, cut each out, dip in lukewarm water for 20 seconds and hold until it uncurls. Refer to photograph on front page or on front of panel for decal placement. Slip decal off backing sheet and onto model. Blow away excess water. For best results, let decals dry overnight and apply a coat of clear spray paint to protect decals.

ROCKET PREFLIGHT
- CRUMPLE AND INSERT 3 SQUARES OF RECOVERY WADDING
- SPIKE
- FOLD PARACHUTE
- ROLL
- INSERT PARACHUTE IN ROCKET
- INSTALL NOSE CONE IN PLACE
- WRAP LINES LOOSELY AROUND 'CHUTE

PREPARE ENGINE
- SEPARATE THE IGNITERS
- INSERT IGNITER
- FOLD OVER
- APPLY AND FIRMLY PRESS MASKING TAPE IN PLACE
- HOOK MUST LATCH OVER END OF ENGINE
- INSTALL ENGINE IN ROCKET
- IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING

LAUNCH SUPPLIES
To launch your rocket you will need the following items:
— An Estes model rocket launching system
— Estes Parachute Recovery Wadding (No. 2274)
— Recommended Engines: A8-3, B4-4, B6-4, C6-3, and C6-5
Use A8-3 engine for your first flight, to become familiar with your rocket’s flight pattern.

FLYING YOUR ROCKET
Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 feet square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

Launch area must be free of dry weeds and brown grass.

Launch only during calm weather with little or no wind and good visibility.

MISFIRES
Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

FOR YOUR SAFETY AND ENJOYMENT
Always follow the NAR-HIA* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

*National Association of Rocketry—The Hobby Industry of America page 4