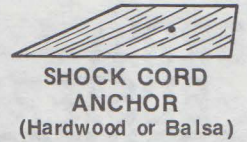


# NiMBUS

SKILL LEVEL 3

HONORABLE MENTION  
 DESIGN OF THE MONTH  
 By BRIAN WHEELER Seminole, Florida  
 ESTES INDUSTRIES ROCKET PLAN NO. 81



★ BUILD THE NIMBUS WITH ESTES HIGH PERFORMANCE PARTS AND ACCESSORIES

**PARTS LIST**

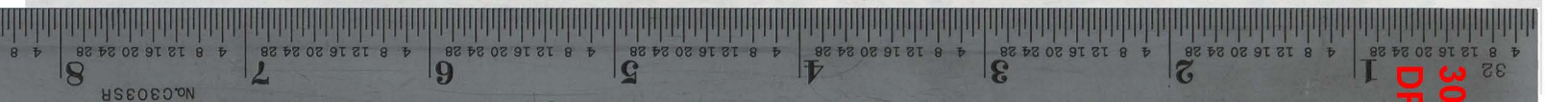
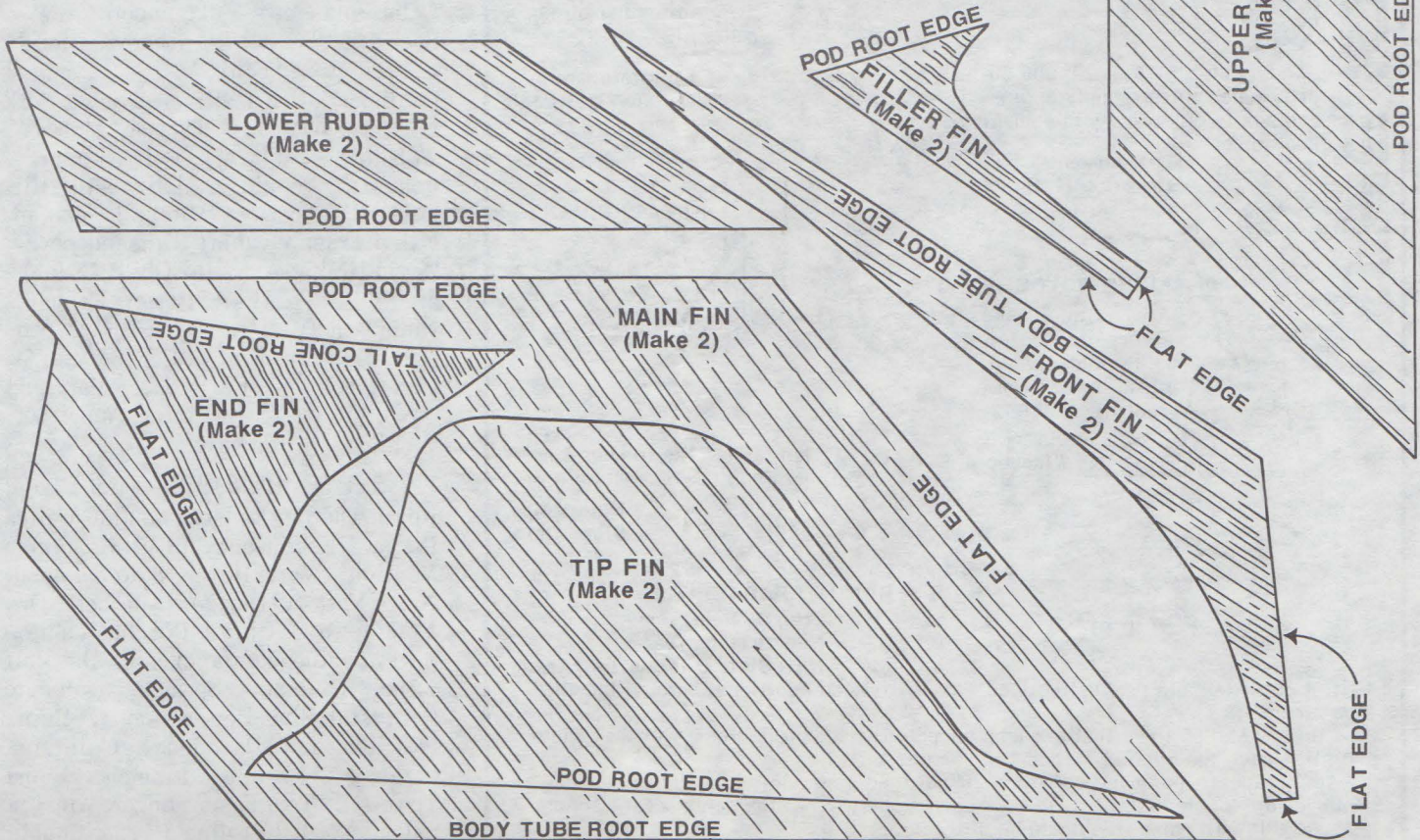
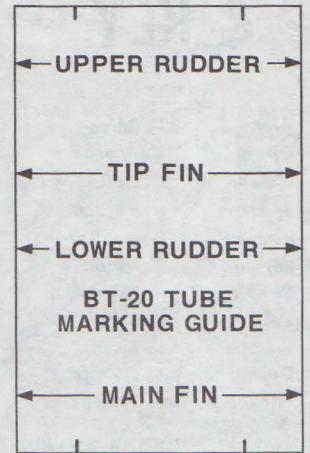
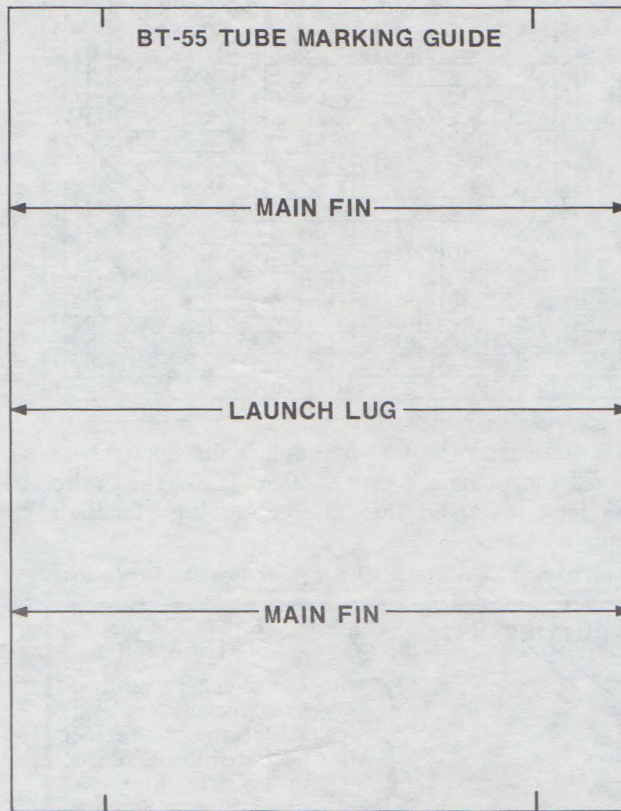
- 1 NOSE CONE - BNC-55AC
- 2 NOSE CONES - BNC-20R
- 1 BODY TUBE - BT-55
- 1 BODY TUBE - BT-20
- 1 TAIL CONE - BTC-55Z
- 1 ENGINE HOLDER TUBE - BT-20J
- 1 ENGINE BLOCK - EB-20A
- 1 PARACHUTE KIT - PK-18
- 1 SHOCK CORD - SC-1
- 2 FIN STOCK - BFS-30W
- 1 SCREW EYE - SE-1
- 2 LAUNCH LUGS - LL-2A
- 1 72" SHROUD LINE - SLT-1
- 1 SPENT ENGINE CASING

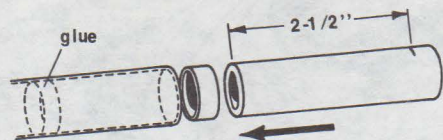
**ADDITIONAL MATERIALS**

- Hobby Knife
- White Glue
- Ruler
- Sanding Material
- Sanding Sealer
- Enamel Paint (Spray)
- Sharp Pencil

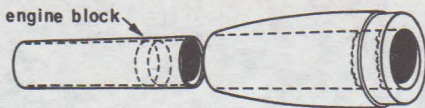
**RECOMMENDED ENGINES**

- B4-2
- B6-4
- C6-3
- C6-5





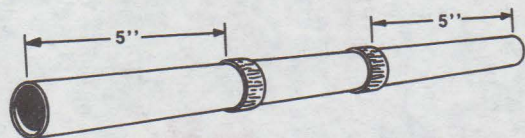
**1** Measure 2-1/2" from one end of the spent engine casing and place a mark. Smear glue around the inside of the engine tube (BT-20G) 3/4" to 1" from one end. From opposite end push in engine block with the spent engine casing up to the mark on the casing. Do not pause or the engine block may freeze in the wrong position. Remove the casing immediately.



**2** Smear glue around the inside of the tail cone near the large end. Let the glue set a minute, then insert the engine holder tube, engine block end first, into the rear of the tail cone. Quickly slide the tube forward until its rear is even with the end of the tail cone.



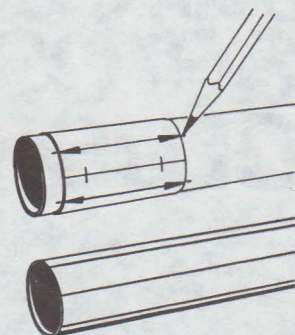
**3** Apply glue to the inside of the body tube (BT-55) 1/2" from the end. Slide the tail cone into this end of the tube and set the assembly aside to dry in a vertical position.



**4** Mark the BT-20 body tube so that you have 2, 5" lengths. To do this, mark the tube with the two measurements, one from each end, then wrap masking tape around the tube at the marks. Make revolutions with a sharp hobby knife until you have the tube cut. Then using fine sandpaper sand the tubes in a circular motion until smooth.



**5** Cut out the fin patterns. Lay the patterns on the balsa fin stock as shown and cut out fins with sharp hobby knife. Sand flat sides of each fin until smooth. Sand the root edges and flat edges square. Sand other edges round.



**6** Cut out the tube marking guides. Mark the BT-55 and the two BT-20 body tubes at arrow points. Connect all marks with straight lines running full length of tubes.

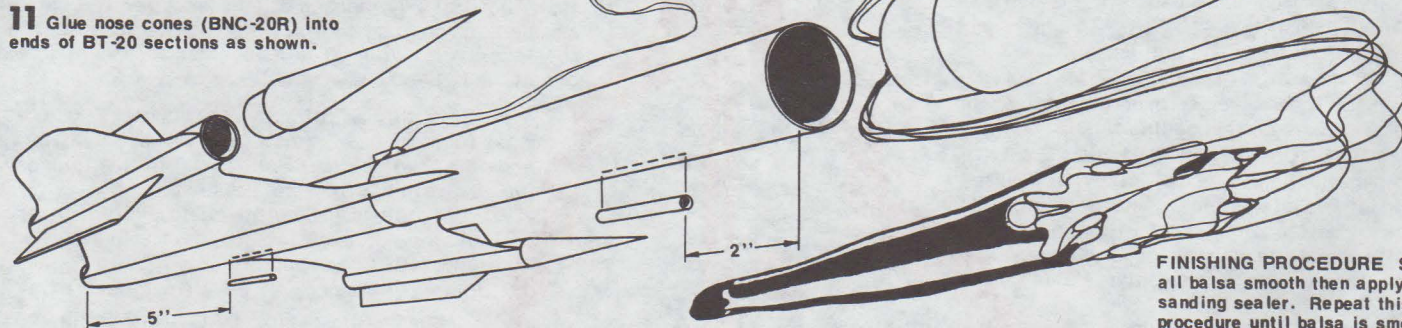


**7** First, glue the front fins, filler fins, and end fins onto the main fins as shown. Then work on the BT-20 outboard fins while main fin sections are drying. Glue upper rudder and tip fins at right angles on BT-20 sections. Glue lower rudder fin at 60° angle to the tip fin on BT-20 sections. Glue completed BT-20 outboard fin assemblies to each main fin tip. After both completed fin assemblies are dry, glue directly to main fin lines on BT-55. See illustration.

**9** Assemble the parachute according to it's instructions. Gather all shroud lines together and tie.

**10** Apply glue fillets to all fin joints.

**11** Glue nose cones (BNC-20R) into ends of BT-20 sections as shown.



**12** Glue one launch lug 5" from the engine end of the model. Glue remaining lug 2" from nose cone end. Be sure to glue lugs on alignment line. See illustration.

**13** Find the balance point or center of gravity of the rocket after all fillets are dry and the spent engine is in place, but without the main nose cone or the parachute attached. After the CG has been found, mark the spot with a pen. Take a pin and make a small hole in each main fin close to the body tube so that the 72" shroud line can pass through them. Take the shroud line, find the middle, and pass it through the two holes in the main fin. See illustration. Next, take a piece of 3/32" balsa and shape it to the shock cord anchor pattern. Put a hole in it and glue it on the BT-55 body tube with the hole right over the CG. See illustration. Pass the shroud line through it. Glue the line in this position by filling the holes in the main fin and the hole in the anchor piece with glue.

**14** Tie a knot and a loop in the end of the two lines that were just assembled. Pass the shock cord through the loop and tie it. Secure both knots with glue.



**8** Insert the screw eye into BNC-55AC nose cone, remove, fill the hole with glue, and reinsert it into the nose cone.

**15** Take a ball-point pen and make a slit in the nose cone from the end that fits into the body tube up to the collar so the shroud line can run inside the body tube without binding against the nose cone. Tie the shock cord and parachute shroud lines onto the nose cone.

**FINISHING PROCEDURE** Sand all balsa smooth then apply sanding sealer. Repeat this procedure until balsa is smooth. Refer to photo for color scheme ideas.

