



STRATOS

Passenger Shuttle Rocket

DESIGN OF THE MONTH WINNER
 BY TIM BARBER
 Deer Park, Washington
 ESTES INDUSTRIES ROCKET PLAN NO. 77

★ BUILD THE STRATOS WITH ESTES HIGH PERFORMANCE PARTS AND ACCESSORIES

PARTS LIST

- 1 BODY TUBE – BT-20J
- 1 BODY TUBE – BT-50
- 1 BODY TUBE – BT-5
- 2 NOSE CONES – BNC-5W
- 1 NOSE CONE – BNC-50Y
- 3 FIN STOCK – BFS-30
- 3 CENTERING RINGS – AR-2050
- 1 ENGINE BLOCK – EB-20A
- 1 LAUNCH LUG – LL-2B
- 1 18" PARACHUTE KIT – PK-18
- 1 SHOCK CORD – SC-1
- 1 ENGINE HOLDER – EH-2
- 1 SCREW EYE – SE-3
- 1 20" LONG SHROUD LINE
- 1 3-1/2" PIECE 1/2" WIDE MASKING TAPE

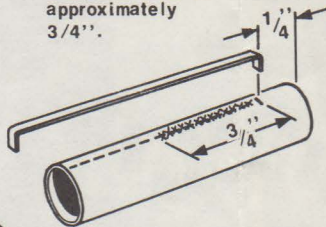
ADDITIONAL MATERIALS

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

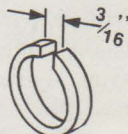
RECOMMENDED ENGINES

- A8-3 B6-4 C6-5

1 Cut a 1/8" slit in the BT-20J, 1/4" from one end. Apply a drop of white glue to the slit and also straight along the tube for approximately 3/4".

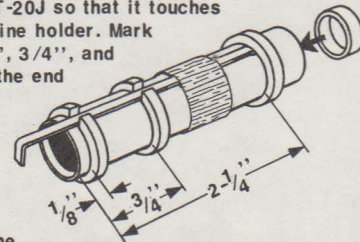


2 Push one end of the metal engine holder into the slit. Press the holder into the glue and align straight along the tube. Wipe away any excess glue.



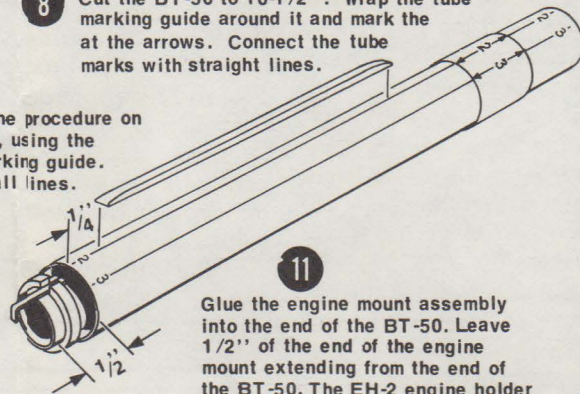
4 Using a sharp hobby knife cut a 3/16" section from 2 of the AR-2050's.

5 Glue the EB-20A engine block into end of the BT-20J so that it touches the EH-2 engine holder. Mark the tube 1/8", 3/4", and 2-1/4" from the end as shown.



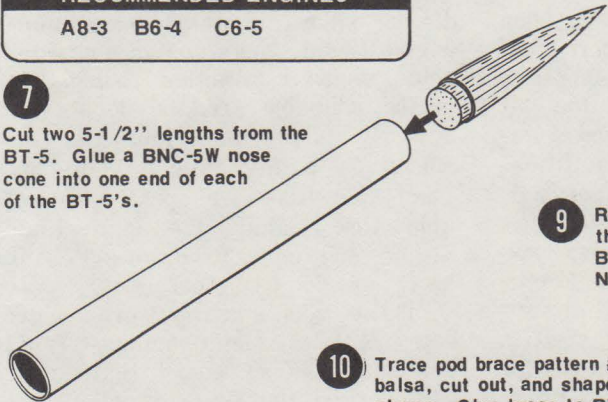
6 Glue the two cut AR-2050's on the forward edges of the 1/8" and 3/4" marks. Glue the final AR-2050 on the forward edge of the 2-1/4" mark.

8 Cut the BT-50 to 10-1/2". Wrap the tube marking guide around it and mark the at the arrows. Connect the tube marks with straight lines.

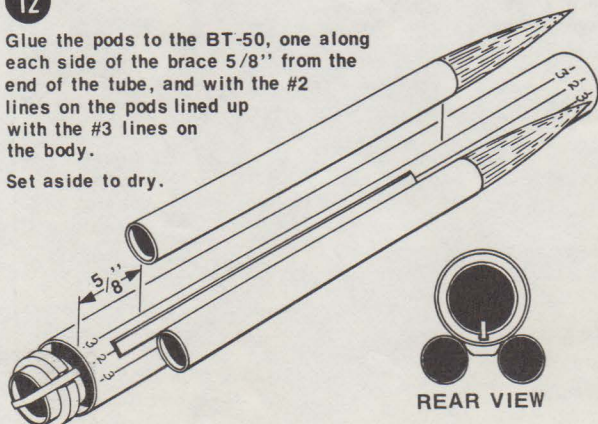


9 Repeat the procedure on the pods, using the BT-5 marking guide. Number all lines.

10 Trace pod brace pattern #2 onto balsa, cut out, and shape as shown. Glue brace to BT-50 straight along line #2, 1/4" from end of the tube.

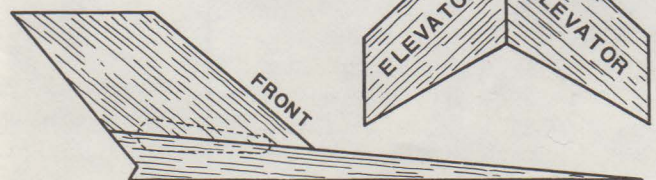


12 Glue the pods to the BT-50, one along each side of the brace 5/8" from the end of the tube, and with the #2 lines on the pods lined up with the #3 lines on the body. Set aside to dry.

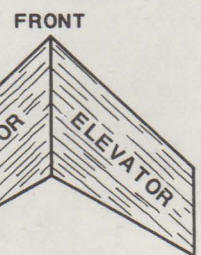


REAR VIEW

13 Trace wings, tail fins, elevators, antennas, radar pod halves, and rudder sections 1 & 2 onto balsa and cut out. Glue the two rudder sections together and the two elevator sections together. Keep parts in line while drying.

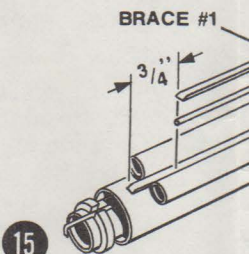
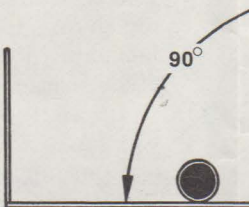


14 When dry, sand all fins and radar pods to shapes shown.

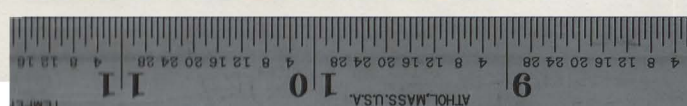


16 Glue radar pod halves, the in the indicated positions antennas flat and glue in

17 Cut two 2-3/4" one to the top of position indicate



15 Glue the launching lug a center line of pod brace 3/4" from the rear of the Cut out brace #1 and sand shape. Glue brace #1 bet the pods over the launch with the rear of the brace with the rear of the launch



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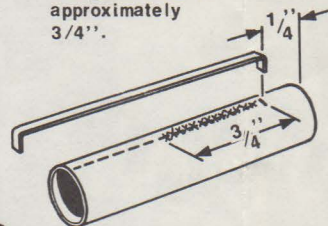
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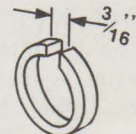
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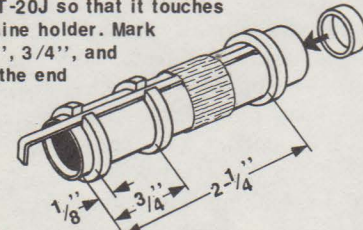


2 Push one end of the metal engine holder into the slit. Press the holder into the glue and align straight along the tube. Wipe away any excess glue.



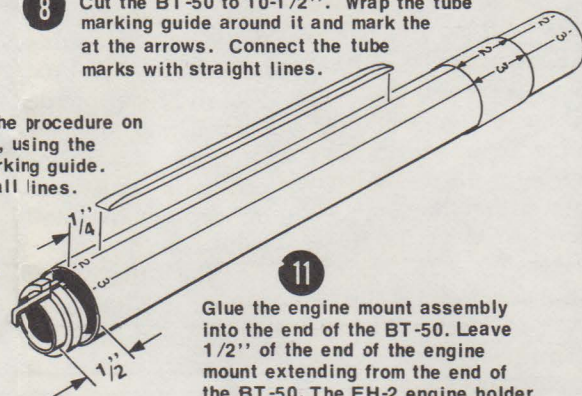
4 Using a sharp hobby knife cut a 3/16" section from 2 of the AR-2050's.

5 Glue the EB-20A engine block into end of the BT-20J so that it touches the EH-2 engine holder. Mark the tube 1/8", 3/4", and 2-1/4" from the end as shown.



6 Glue the two cut AR-2050's on the forward edges of the 1/8" and 3/4" marks. Glue the final AR-2050 on the forward edge of the 2-1/4" mark.

8 Cut the BT-50 to 10-1/2". Wrap the tube marking guide around it and mark the at the arrows. Connect the tube marks with straight lines.



9 Repeat the procedure on the pods, using the BT-5 marking guide. Number all lines.

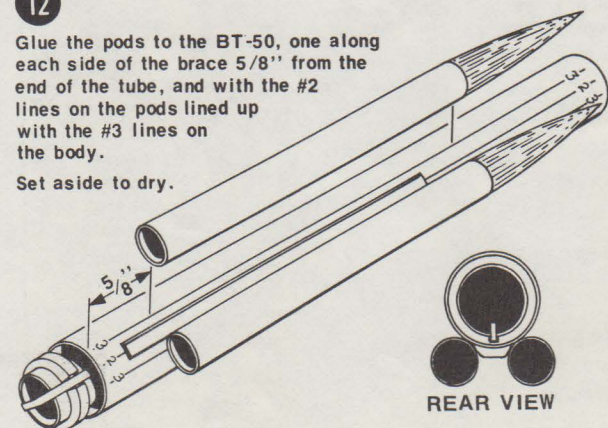
10 Trace pod brace pattern #2 onto balsa, cut out, and shape as shown. Glue brace to BT-50 straight along line #2, 1/4" from end of the tube.

11 Glue the engine mount assembly into the end of the BT-50. Leave 1/2" of the end of the engine mount extending from the end of the BT-50. The EH-2 engine holder must be in line with the brace and line #2.

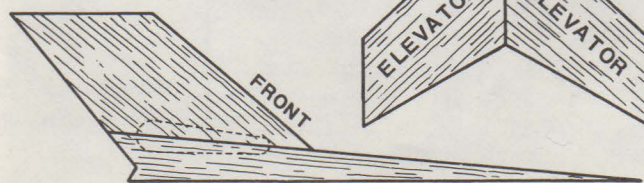
15 Glue the launching lug along the center line of pod brace #2 and 3/4" from the rear of the brace. Cut out brace #1 and sand to shape. Glue brace #1 between the pods over the launch lug with the rear of the brace even with the rear of the launch lug.

7 Cut two 5-1/2" lengths from the BT-5. Glue a BNC-5W nose cone into one end of each of the BT-5's.

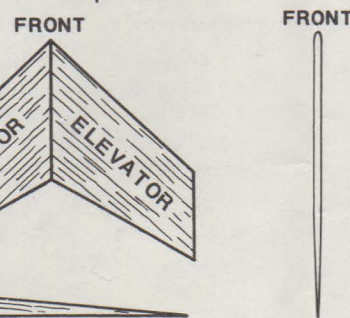
12 Glue the pods to the BT-50, one along each side of the brace 5/8" from the end of the tube, and with the #2 lines on the pods lined up with the #3 lines on the body. Set aside to dry.



13 Trace wings, tail fins, elevators, antennas, radar pod halves, and rudder sections 1 & 2 onto balsa and cut out. Glue the two rudder sections together and the two elevator sections together. Keep parts in line while drying.



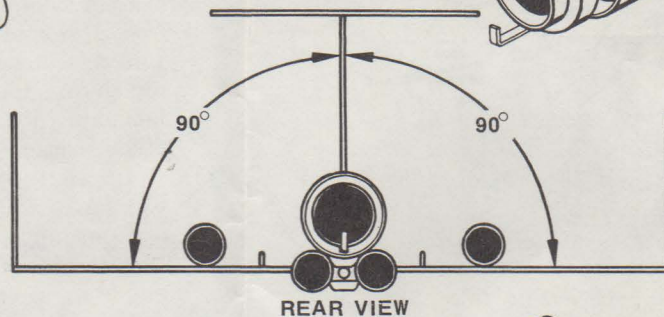
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SKILL LEVEL 3

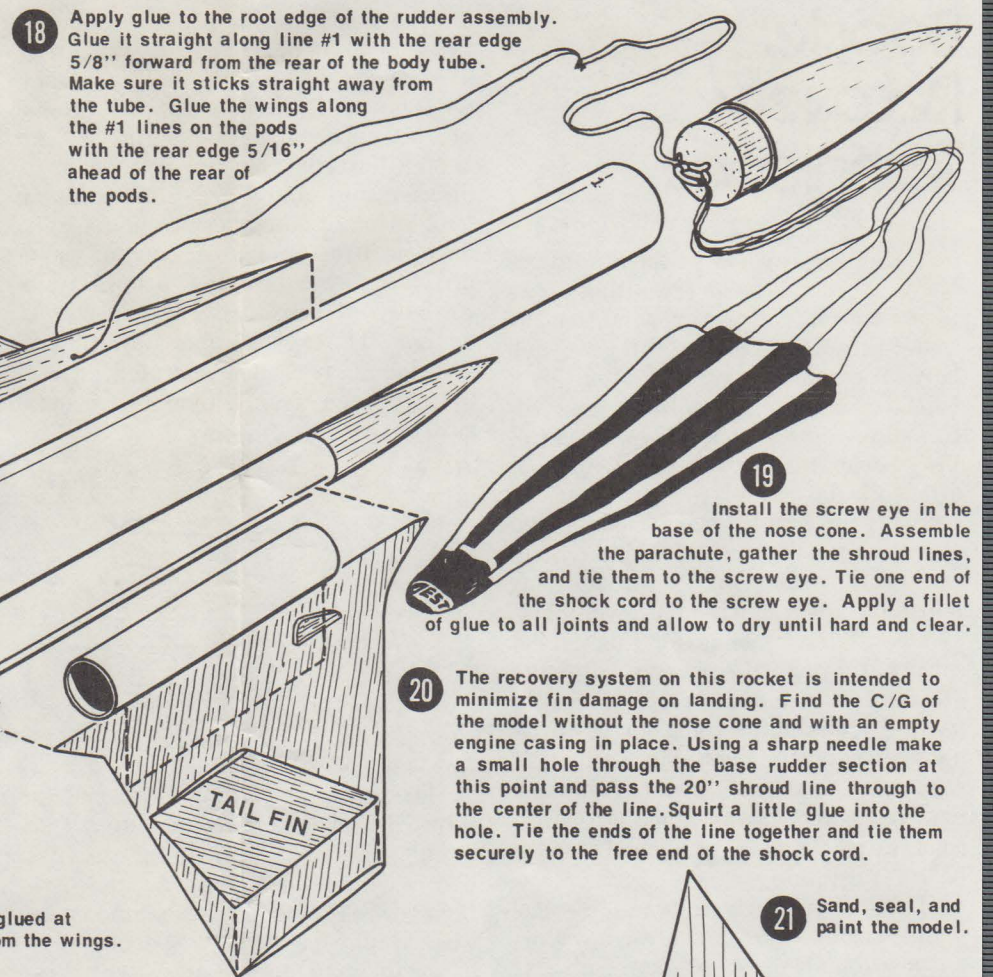
16 Glue radar pod halves, the tail fins, and the elevators in the indicated positions. Sand all edges of the antennas flat and glue in place. Let dry completely.

17 Cut two 2-3/4" lengths of BT-5, glue one to the top of each wing in the position indicated on pattern sheet.



IMPORTANT: The rudder is glued at a 90° angle from the wings. Let dry.

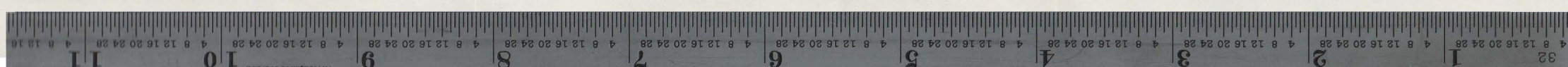
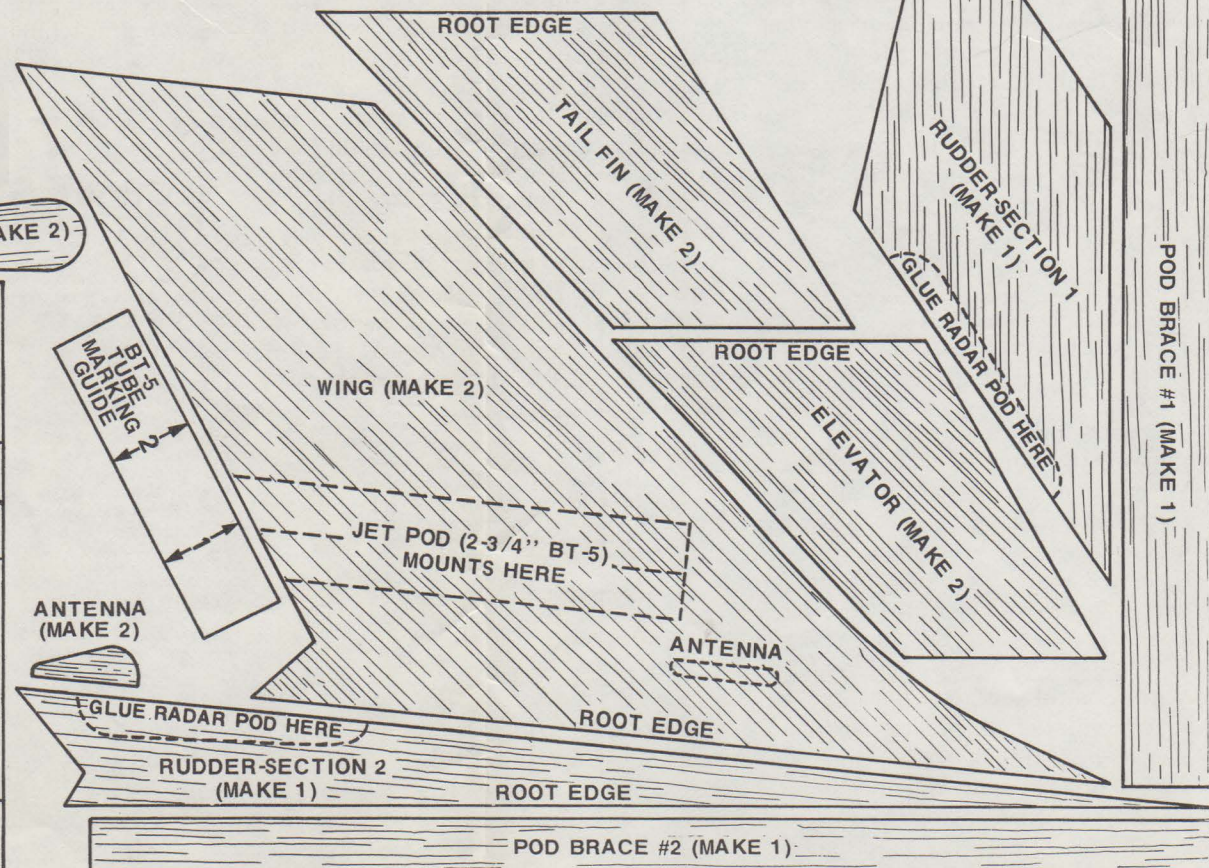
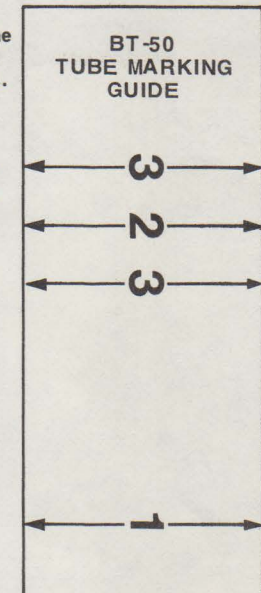
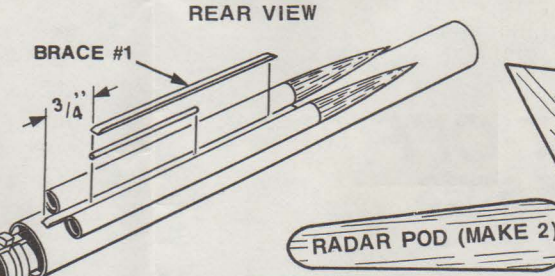
18 Apply glue to the root edge of the rudder assembly. Glue it straight along line #1 with the rear edge 5/8" forward from the rear of the body tube. Make sure it sticks straight away from the tube. Glue the wings along the #1 lines on the pods with the rear edge 5/16" ahead of the rear of the pods.



19 Install the screw eye in the base of the nose cone. Assemble the parachute, gather the shroud lines, and tie them to the screw eye. Tie one end of the shock cord to the screw eye. Apply a fillet of glue to all joints and allow to dry until hard and clear.

20 The recovery system on this rocket is intended to minimize fin damage on landing. Find the C/G of the model without the nose cone and with an empty engine casing in place. Using a sharp needle make a small hole through the base rudder section at this point and pass the 20" shroud line through to the center of the line. Squirt a little glue into the hole. Tie the ends of the line together and tie them securely to the free end of the shock cord.

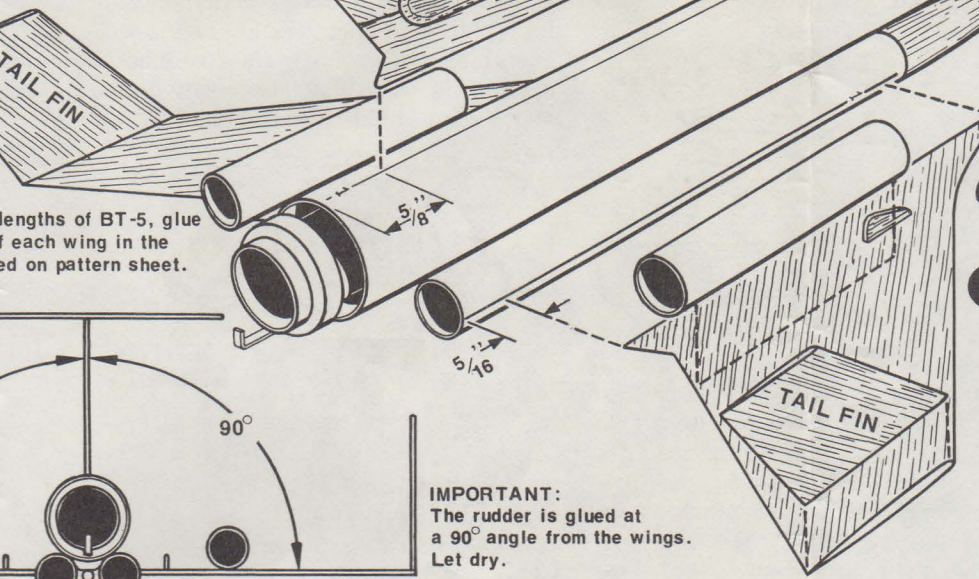
21 Sand, seal, and paint the model.



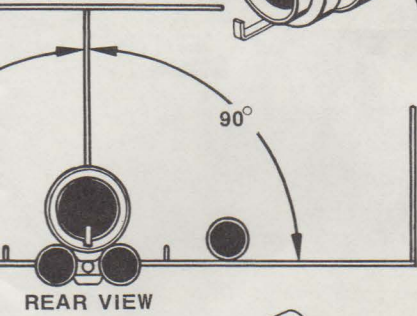


SKILL LEVEL 3

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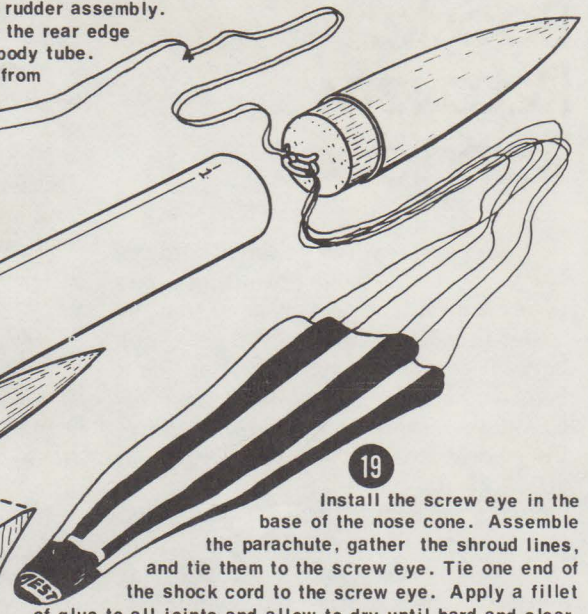


lengths of BT-5, glue each wing in the center on pattern sheet.



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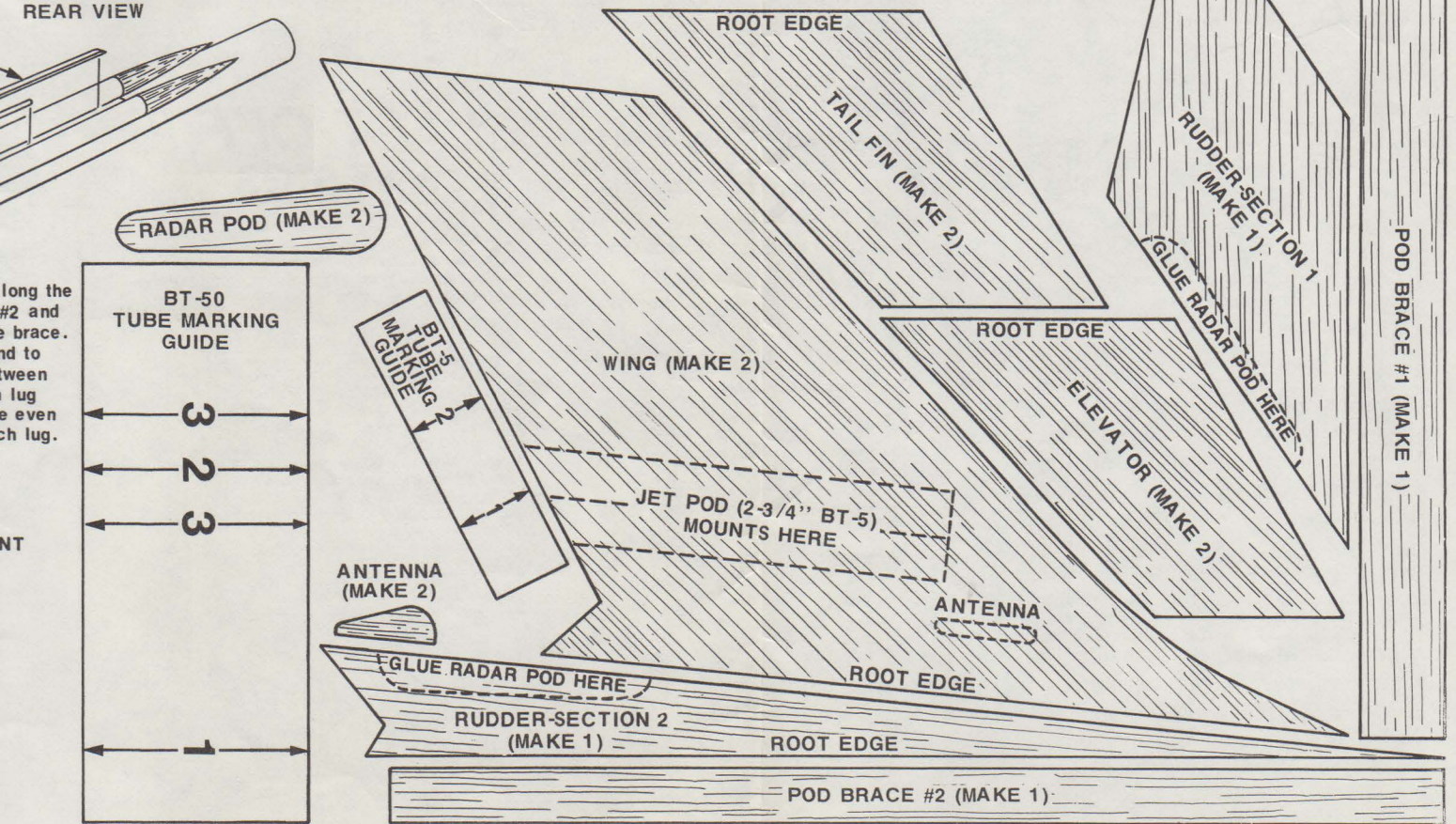
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