# SPACE SHUTTLE JPZ-3

## HONORABLE MENTION IN SPACE SHUTTLE DESIGN CONTEST

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ESTES INDUSTRIES ROCKET PLAN NO. 76

BUILD THIS FREE PLAN WITH ESTES HIGH PERFORMANCE PARTS & ACCESSORIES

### PARTS LIST

- 2 BODY TUBES – BT-30
- 1 BODY TUBE – BT-60D
- 1 BODY TUBE – BT-50W
- 2 NOSE CONES – BNC-30D
- 1 NOSE CONE – BNC-60L
- 1 NOSE CONE – BNC-50K
- 1 FIN STOCK – BFS-40
- 2 FIN STOCK – BFS-20
- 1 ENGINE MOUNT – EH-2060
- 1 PARACHUTE – PK-12
- 1 SCREW EYE – SE-2
- 1 SHOCK CORD – SC-1
- 1 LAUNCH LUG – LL-2A
- 1 WOODEN DOWEL – WD-2
- 2 WEIGHTS – NCW-1

### ADDITIONAL MATERIALS

Hobby Knife
White Glue
Ruler
320 Grit Mylar Sanding Material
Sanding Sealer
Color Enamel (Spray)
Paint Brush
Sharp Pencil

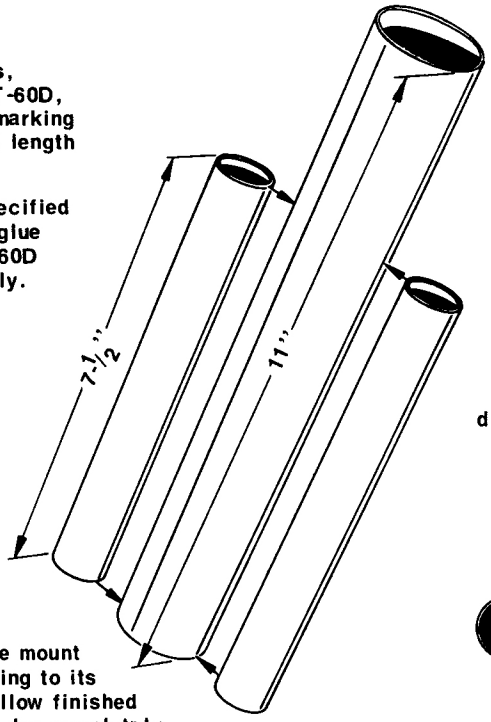
### RECOMMENDED ENGINES

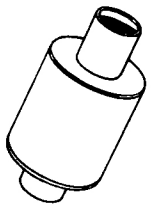
B6-2 C6-3

**1**

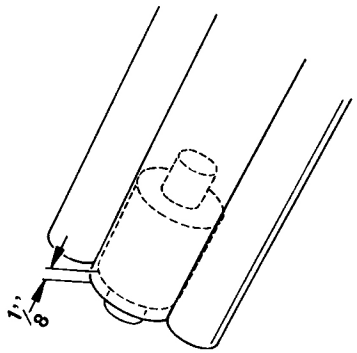
a. Mark body tubes, BT-30's and BT-60D, using the tube marking guide. Mark full length of tubes.

b. Cut tubes to specified lengths. Then glue BT-30's to BT-60D and fillet heavily.

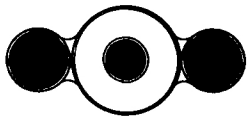


c. Assemble engine mount EH-2060 according to its instructions. Allow finished engine mount to dry completely.



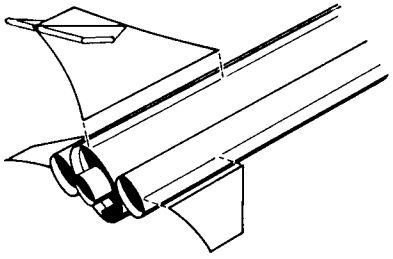

d. Apply ring of glue about 1" inside end of BT-60D and slide engine mount assembly into BT-60D, with one motion, to a depth of 1/8" from the end.



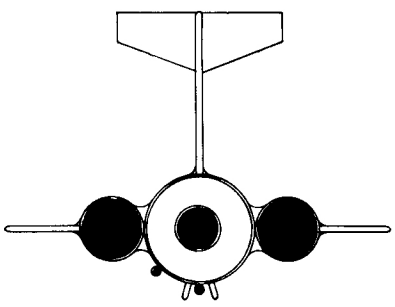
REAR VIEW

**2**

a. Retrace all fin and nozzle patterns onto plain paper. Use only plain paper patterns in assembly.



b. Using patterns, cut out strap-on fins, booster rudder and rudder elevons from balsa sheet BFS-40. Sand fins, rudder and elevons smooth and glue to body tube as shown.
Fillet all joints heavily.

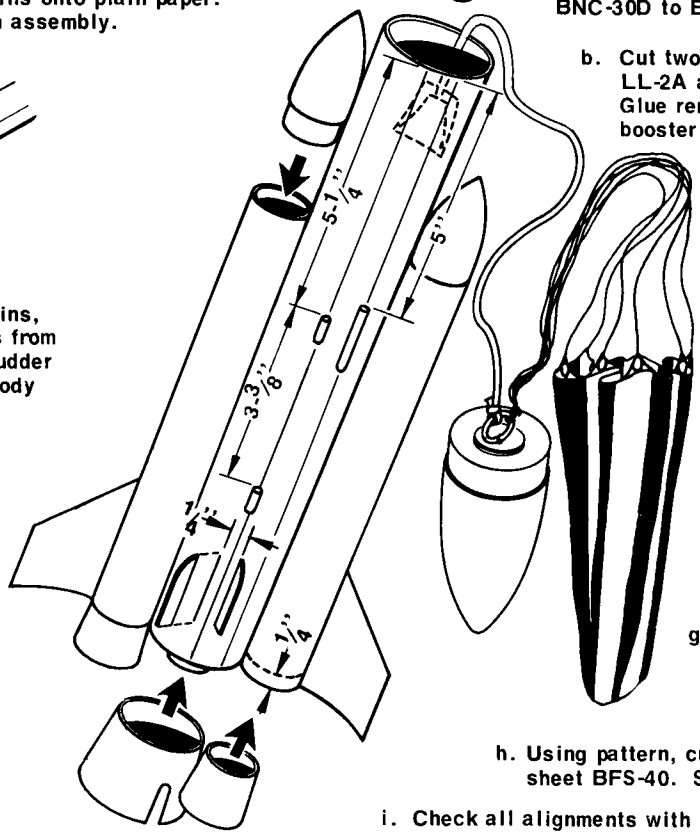


REAR VIEW

**3**

a. Glue nose cones BNC-30D to BT-30's.

b. Cut two 1/4" sections from launch lug LL-2A and glue to BT-60 tube as shown. Glue remaining 3/4" launch lug to booster as shown.




c. Using nozzle patterns, trace nozzles on heavy paper and cut out.

d. When gluing on strap-on nozzles, push nozzles 1/4" into BT-30 tubes, then glue.

e. For booster nozzle, push nozzle into BT-60 1/8" and glue. Be sure to align cut out with launch lug.

f. Assemble shock cord and glue to inside of BT-60 about 1" from the end.

g. Assemble parachute according to it's instructions. Attach parachute, shock cord and weights to screw eye.

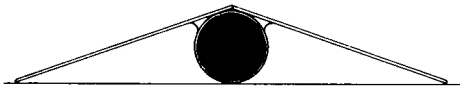
h. Using pattern, cut out booster fenders from balsa sheet BFS-40. Sand lightly and glue as shown.

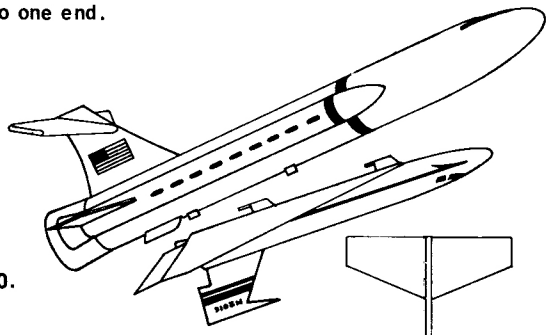
i. Check all alignments with rear view drawing.

**4**

a. Cut body tube BT-50W to 6'' length. Glue nose cone BNC-50K to one end.

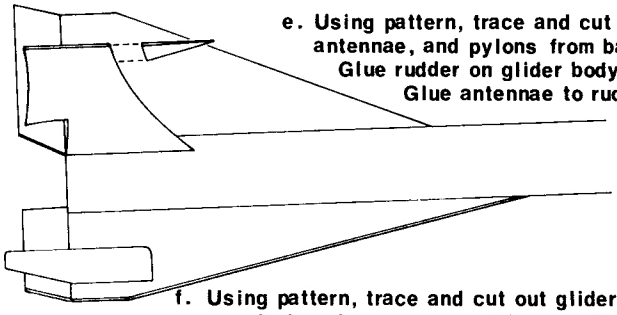
b. Mark body tube BT-50W with glider tube marking guide.



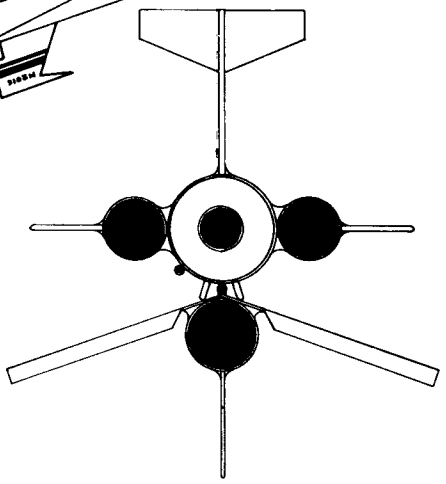


c. Using pattern, trace and cut out glider wings from balsa sheet BFS-20. Glue the two wing sheets together, laying over BT-50 as illustrated. Apply heavy fillet as shown.

d. Using pattern, trace and cut out glider elevons from balsa sheet BFS-20. Glue elevons to glider wings as shown, and check angle with elevon alignment guide.

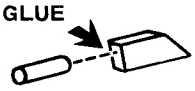


e. Using pattern, trace and cut out glider rudder, antennae, and pylons from balsa sheet BFS-20. Glue rudder on glider body as shown. Glue antennae to rudder.



REAR VIEW

f. Using pattern, trace and cut out glider nozzle from heavy paper. Glue nozzle in glider body as shown.




g. Cut two 1/4'' sections from 1/12'' dowel. Assemble onto pylons and glue to glider body as shown.

h. Check glider alignment on booster body with rear view drawing.