

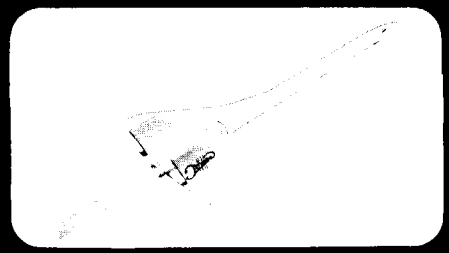
Estes Industries Rocket Plan No. 68

SCORPION

JULY 69 DESIGN OF THE MONTH

by Bob Houston

Freemont, Nebr.



PARTS LIST

1	BODY TUBE	BT-50W
1	NOSE CONE	BNC-50Y
1	ENGINE BLOCK	EB-20A
1	BODY TUBE	BT-20A
3	SPACER RING	AR-2050
3	FIN STOCK	BFS-30L
1	FIN STOCK	BFS-20
1	SCREW EYE	SE-2
1	SHOCK CORD	SC-1
1	PARACHUTE	PK-18
1	NOSE CONE WEIGHT	NCW-1
1	LAUNCHING LUG	LL-2B

ADDITIONAL SUPPLIES

KNIFE, GLUE, PEN, MEDIUM AND FINE SAND-PAPER, BODY PUTTY, PAINT (DOPE OR ENAMEL), STRING OR TAPE, AND 3 PENCILS.

INSTALL ENGINE BLOCK

Apply a line of glue 2-1/2" inside tube. Then place engine block inside end of tube push engine block into place with engine casing.

Engine block will be in place when engine casing is flush with tube

Remove engine casing immediately.

Mark and apply glue on BT-20 tube at 3-7/8", 6", and 8". Position 3 AR-2050 spacing rings with back of rings even with marks. Fillet rings. Position engine block as shown below.

Cut a 0.12 oz. nose cone weight in half. Attach to nose cone with screw eye. Weight area on nose cone should be cut away so weight will fit flush.

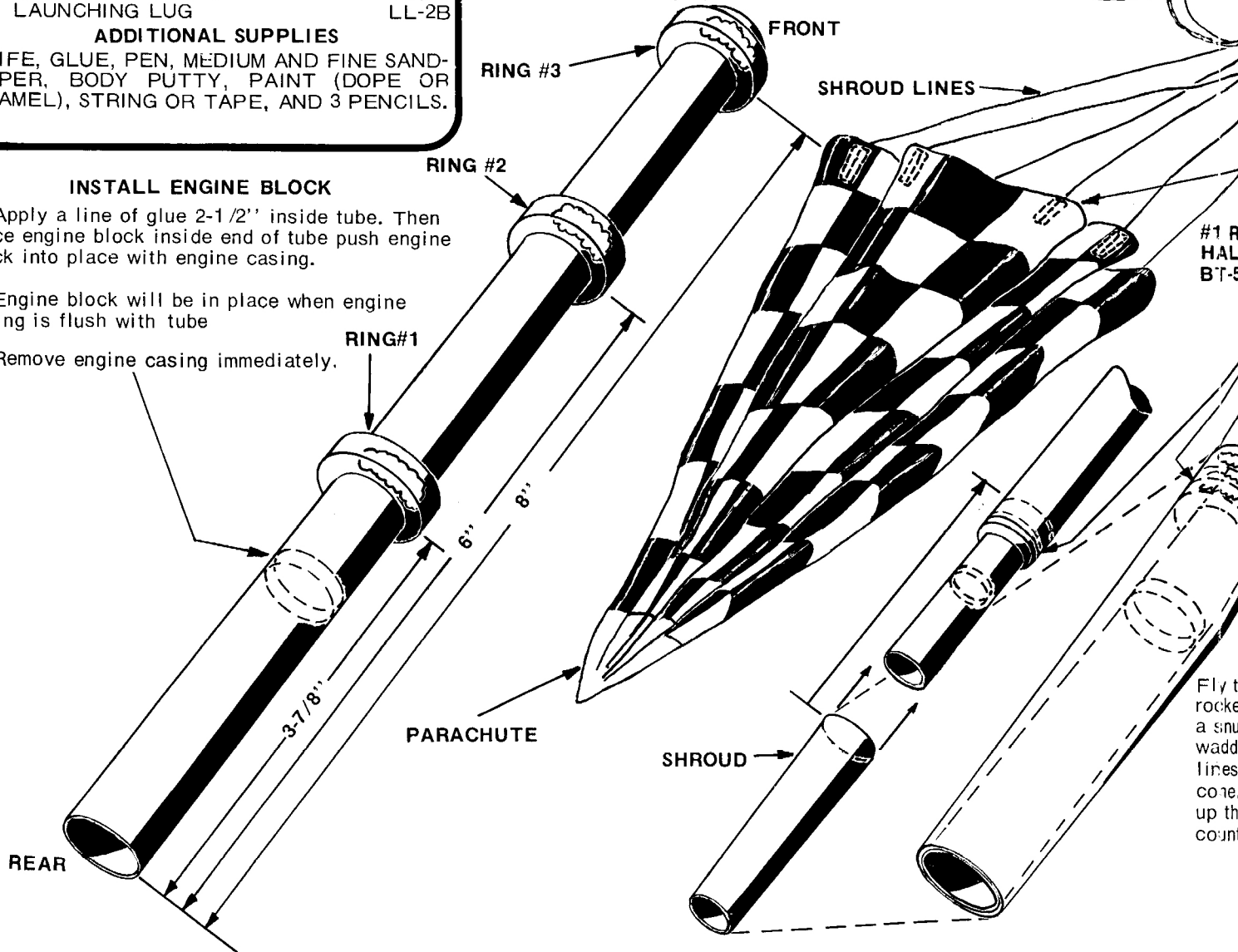
Apply glue inside BT-50 tube. In one smooth motion, slide BT-20 tube into the BT-50 tube, stopping when #1 ring is half way in BT-50 tube.

Engine casings placed inside BT-20 will add support and tube won't buckle.

Transfer shroud pattern to heavy paper. Cut and glue into place.

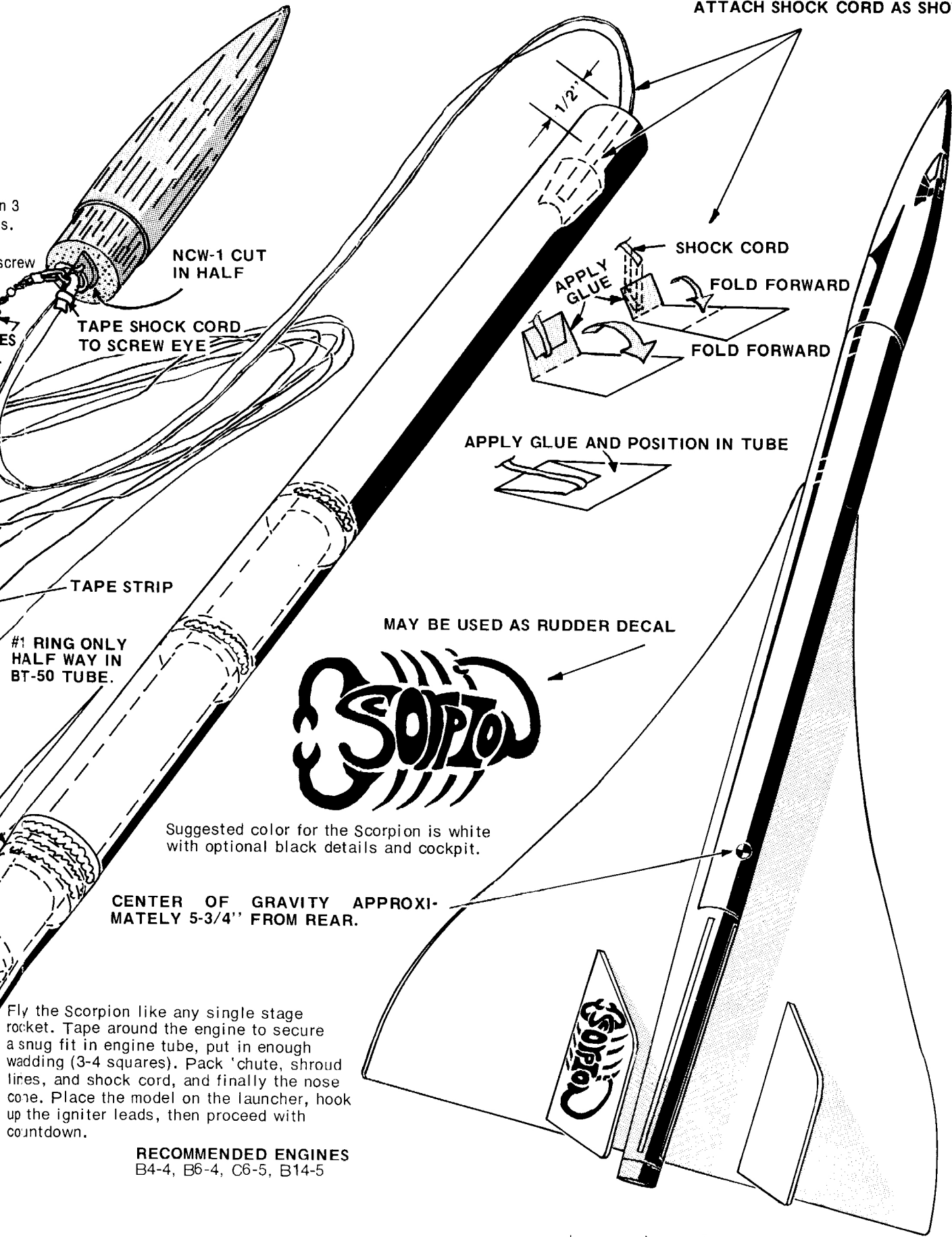
Attach recovery system as shown.

TIE SHROUD LINES TO SNAP SWIVEL



Fly the rocket with a snug wadding of lines. core. up the count

ATTACH SHOCK CORD AS SHOWN



NCW-1 CUT IN HALF

TAPES SHOCK CORD TO SCREW EYE

TAPES STRIP

#1 RING ONLY HALF WAY IN BT-50 TUBE.

APPLY GLUE AND POSITION IN TUBE

MAY BE USED AS RUDDER DECAL



Suggested color for the Scorpion is white with optional black details and cockpit.

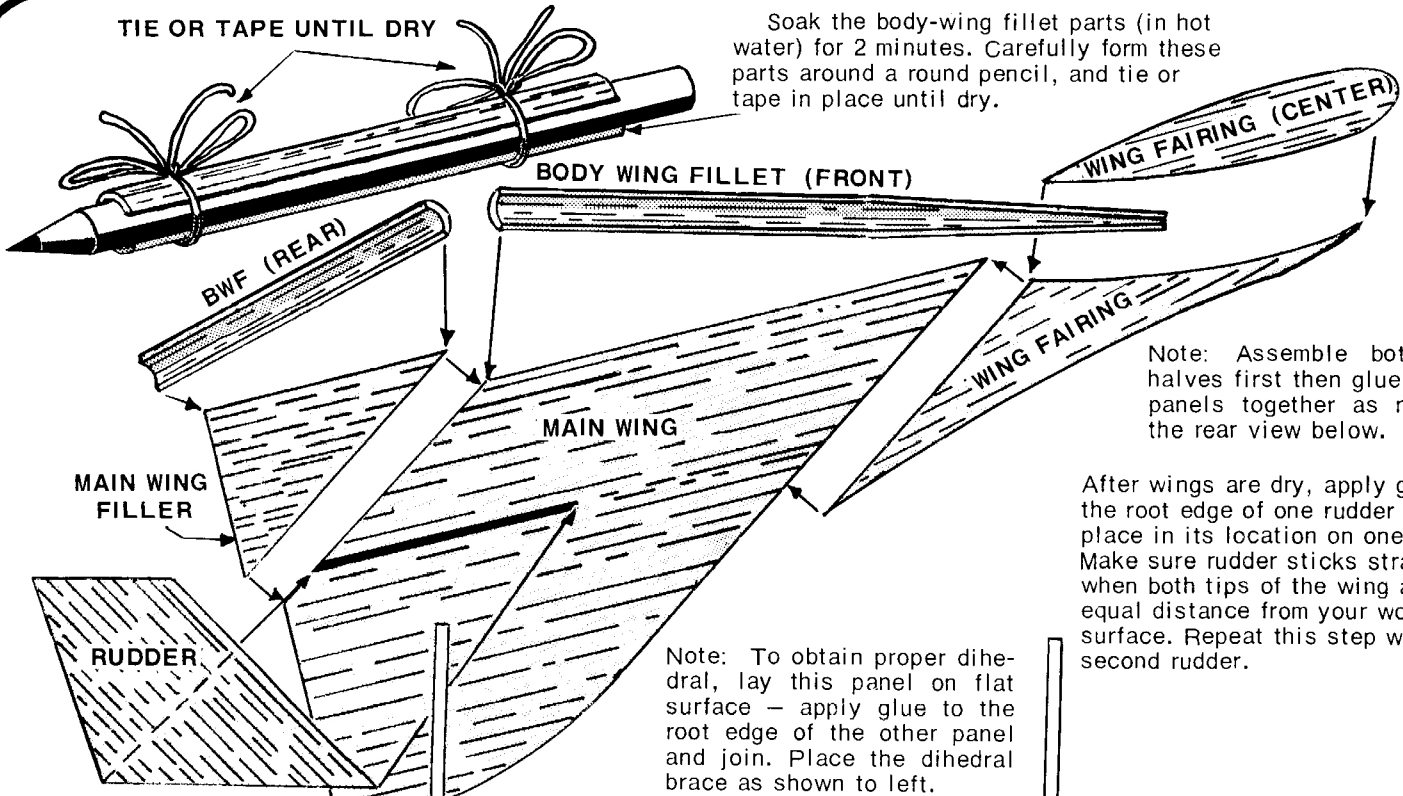
CENTER OF GRAVITY APPROXIMATELY 5-3/4" FROM REAR.

Fly the Scorpion like any single stage rocket. Tape around the engine to secure a snug fit in engine tube, put in enough wadding (3-4 squares). Pack chute, shroud lines, and shock cord, and finally the nose cone. Place the model on the launcher, hook up the igniter leads, then proceed with countdown.

RECOMMENDED ENGINES
 B4-4, B6-4, C6-5, B14-5

TIE OR TAPE UNTIL DRY

Soak the body-wing fillet parts (in hot water) for 2 minutes. Carefully form these parts around a round pencil, and tie or tape in place until dry.



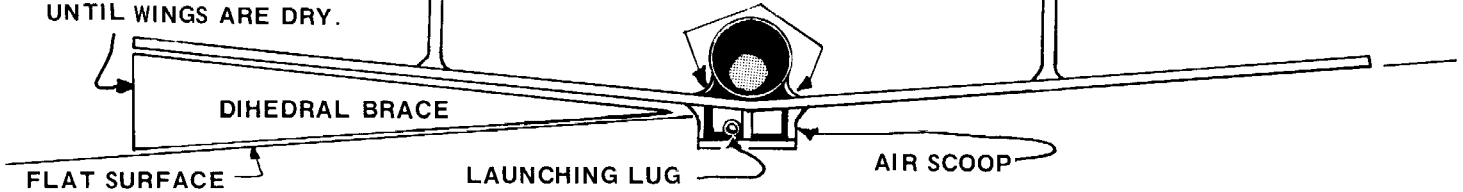
Note: Assemble both wing halves first then glue the two panels together as noted in the rear view below.

After wings are dry, apply glue to the root edge of one rudder and place in its location on one panel. Make sure rudder sticks straight up when both tips of the wing are at equal distance from your work surface. Repeat this step with the second rudder.

Note: To obtain proper dihedral, lay this panel on flat surface - apply glue to the root edge of the other panel and join. Place the dihedral brace as shown to left.

BRACE INTO POSITION UNTIL WINGS ARE DRY.

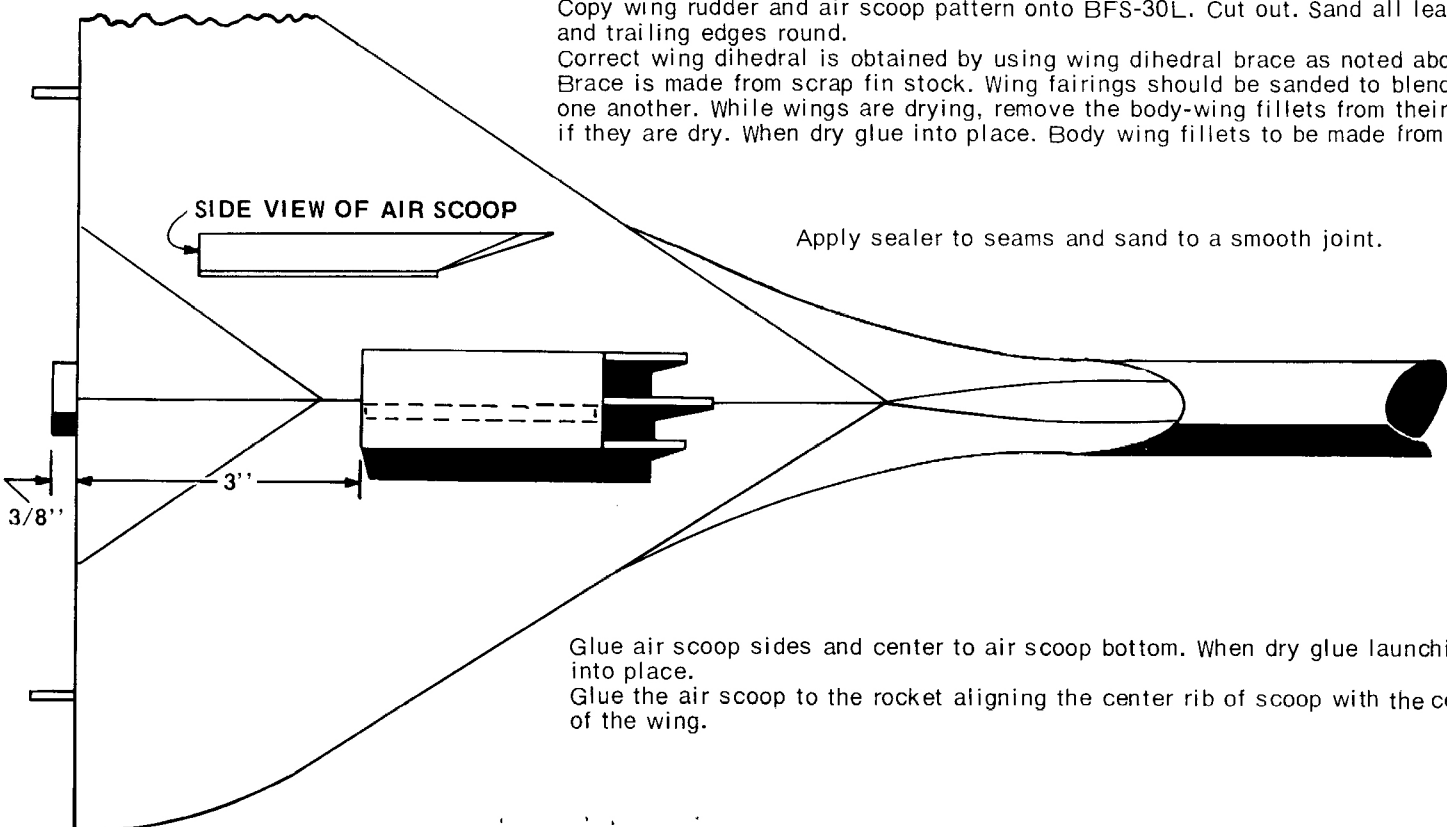
BODY WING FILLET



Copy wing rudder and air scoop pattern onto BFS-30L. Cut out. Sand all leading and trailing edges round. Correct wing dihedral is obtained by using wing dihedral brace as noted above. Brace is made from scrap fin stock. Wing fairings should be sanded to blend with one another. While wings are drying, remove the body-wing fillets from their forms if they are dry. When dry glue into place. Body wing fillets to be made from BFS-20.

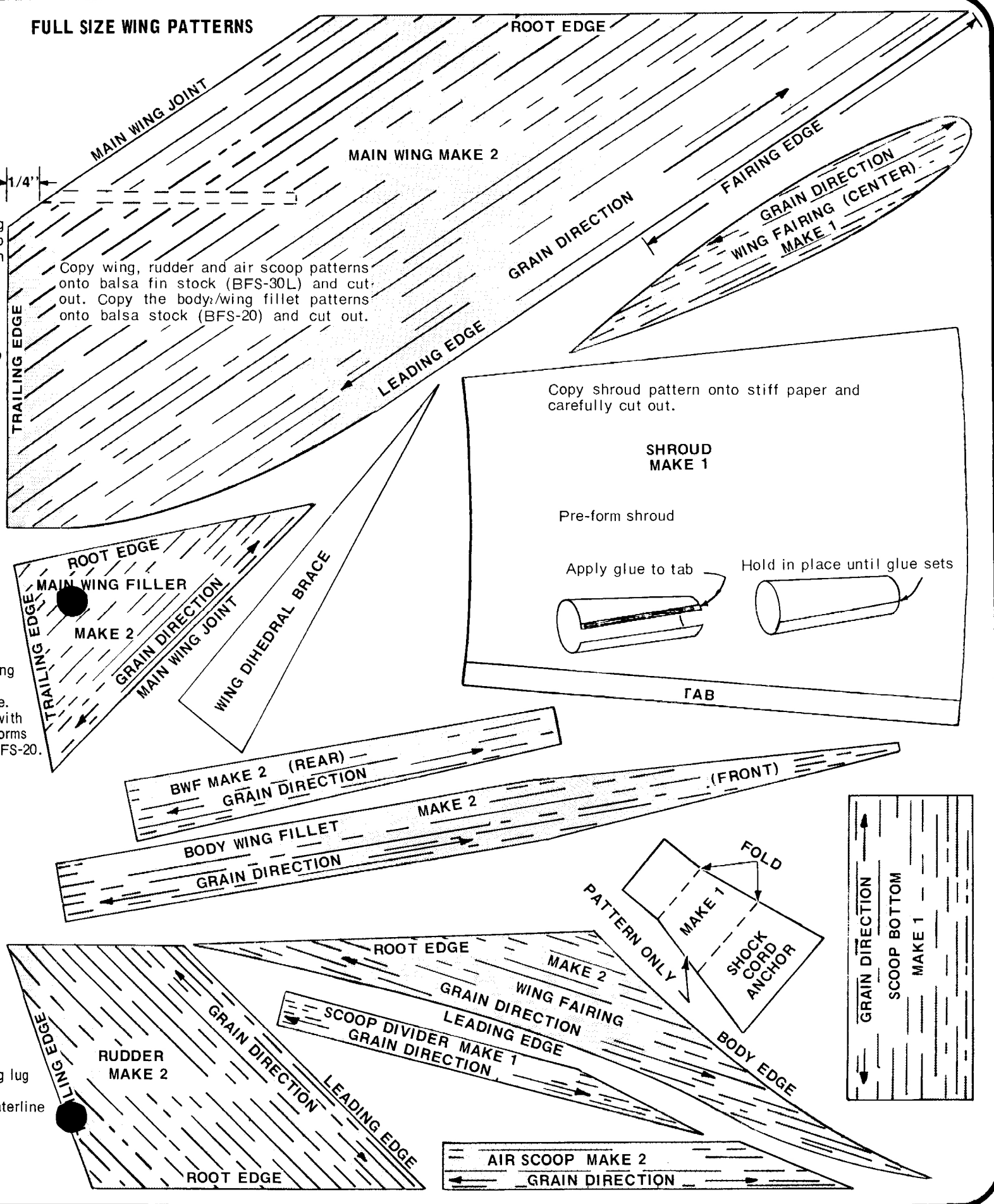
SIDE VIEW OF AIR SCOOP

Apply sealer to seams and sand to a smooth joint.



Glue air scoop sides and center to air scoop bottom. When dry glue launching lug into place. Glue the air scoop to the rocket aligning the center rib of scoop with the centerline of the wing.

FULL SIZE WING PATTERNS



1/4"

ng
 a.
 with
 forms
 FS-20.

g lug
 centerline