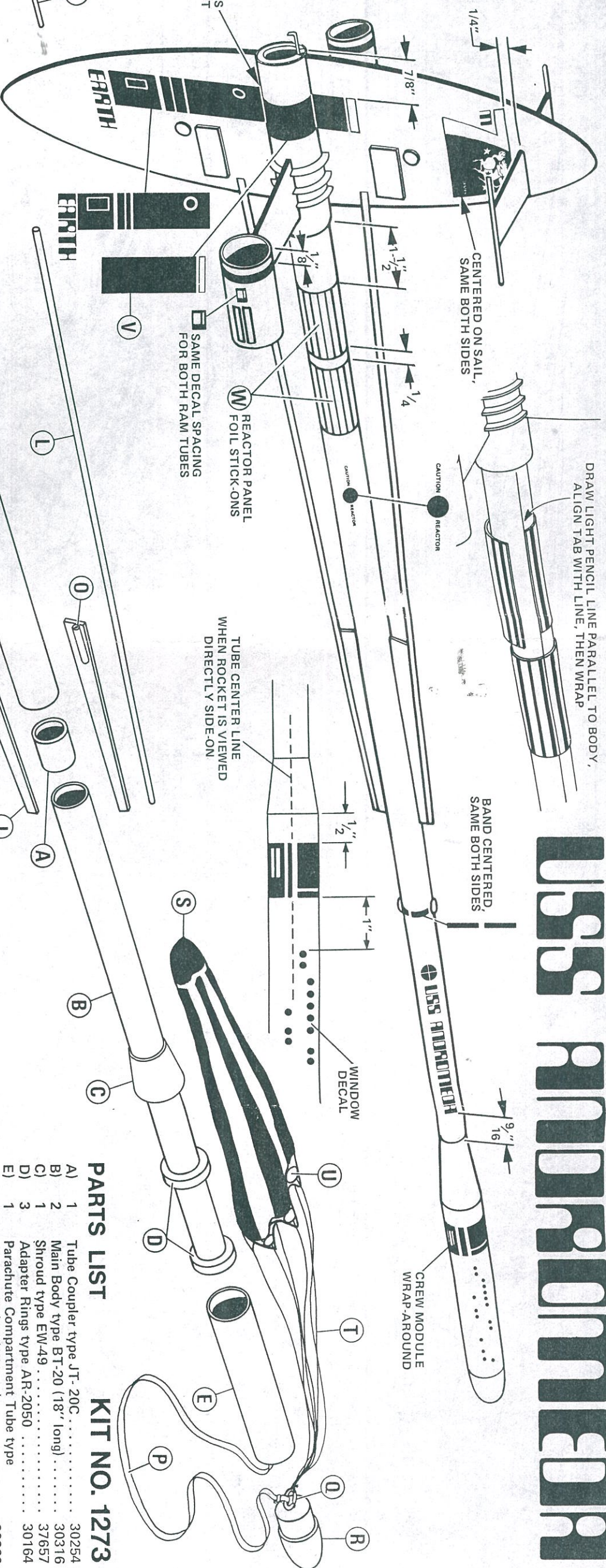


## DETAILING SCHEME

28 When all paint is dry, remove the masking tape and apply the decals (parts W and V). Apply the foil panels first in the positions shown in the illustration. To apply the water-transfer decals (part V), cut out an individual section of the decal and dip in lukewarm water for 10 seconds. When decal slides easily on backing paper, slip it from the backing sheet onto the model. **MASTER MODELER NOTE:** Extra care must be taken to apply decals on a dark painted surface. To minimize decal "clear" shapes from showing, first trim decals close to colored shapes. Wet desired model location slightly with water, then slide decal into desired position. Blot excess water away with damp cloth. Allow decals to dry overnight.



## VEHICLE DESCRIPTION

The USS Andromeda is a 30-man exploration vehicle intended for future long-duration space voyages during the 1980-1990 time period. It is capable of space missions of up to five years without refueling. Assembled in synchronous earth orbit, the Andromeda is a space giant measuring well over 2000 feet (610 meters) long with an overall sail height of 600 feet (183 meters). As an interplanetary exploration ship, it carries a variety of manned lander modules for planetary excursions.

The forward crew module contains gravity living quarters as well as numerous zero-gravity scientific, astronomical, communication and ship control stations. The slender interconnecting body between sail and forward crew module houses all consumables storage bays and ship power units. Several one-man auxiliary spacecraft stored in this section are used for extra-vehicular duties. A small capsule-like tube elevator provides personnel transit to both ends of the ship. A secondary function of the long connecting

## USS ANDROMEDA VOYAGER TO THE STARS

body is to furnish isolation shielding from engine radiation.

Andromeda's propulsion system consists of three rocket engines. The center hybrid engine provides short duration thrust for primary orbit shaping burns. The onboard nuclear ram-type engines provide continuous burn thrust required for transit velocities. Supplementary attitude control rockets perform all other ship axis control functions. The large elliptical sail area may be used to capture Solar wind as an emergency power source. In this power configuration, the ship can 'tack' at slow, coasting speeds much like early sailing vessels. Deep space laser communication array is housed atop the sail structure.

As presently conceived, a typical mission would require a crew complement of 30 astronaut-scientists. Flown by a mission commander and seven astronaut/officers the remainder of the crew would consist of scientific, technical and medical specialists.

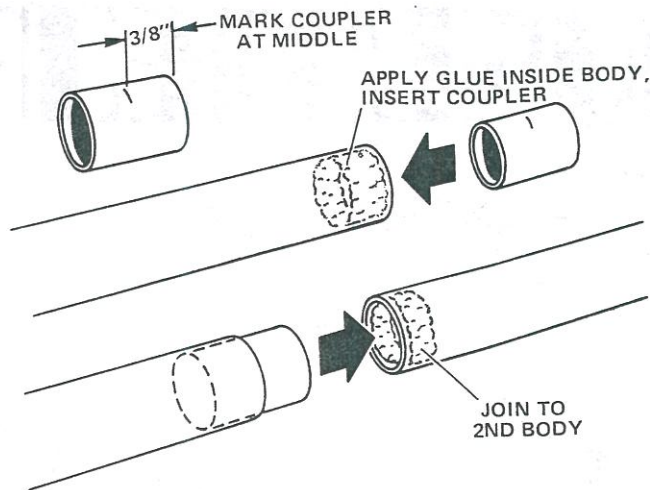
## PARTS LIST KIT NO. 1273

A)	1	Tube Coupler type JT-20C.....	30254
B)	2	Main Body type BT-20 (18" long).....	30316
C)	1	Shroud type EW-49.....	37657
D)	3	Adapter Rings type AR-2050.....	30164
E)	1	Parachute Compartment Tube type BT-50H (7-3/4" long).....	30360
F)	1	Split Adapter Ring type AR-2050S.....	80425
G)	1	Pattern Sheet type SP-73.....	83178
H)	1	Engine Hook type EH-2.....	35025
I)	1	Reactor Body Tube type BT-50S (4" long).....	30368
J)	2	Die-cut Balsa Sheet type BF-73.....	32284
K)	1	Die-cut Card type TA-73.....	30055
L)	2	Conduit Dowels type WD-1 (18" long).....	32056
M)	2	Ram Tubes type BT-50AH (1-7/8" long).....	30356
N)	1	Antenna Dowel type WD-2 (12" long).....	32058
O)	2	Launch Lugs type LL-2A (1-1/8" long).....	38175
P)	1	Shock Cord type SC-1.....	85730
Q)	1	Screw Eye type SE-2A.....	38252
R)	1	Nose Cone type BNC-50J.....	70256
S)	1	Parachute type PK-18A.....	85566
T)	1	108" Shroud Line Cord type SLT-108.....	38239
U)	6	Tape Discs type TD-3F.....	38406
V)	1	Water Transfer Decal type KD-73A.....	37074
W)	1	Bright Metalized Self-Adhesive Decal type KD-73B.....	37075

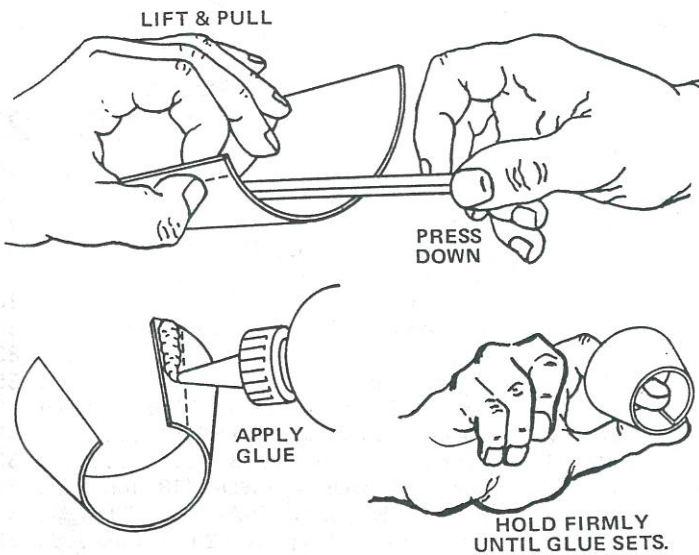
## IMPORTANT:

In addition to the parts included in this kit you will need scissors, sandpaper, white glue, a sharp model knife (or single edge razor blade), masking tape, sanding sealer, and paint. Check to be sure your kit is complete, then read the entire instructions before beginning to assemble your rocket. Check off each step as you complete it.

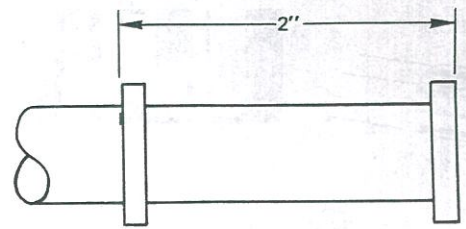
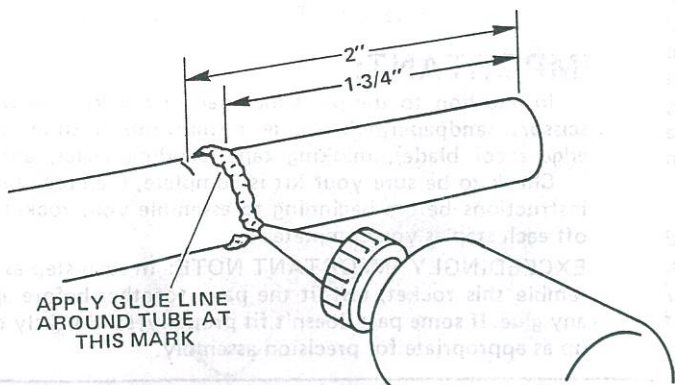
**EXCEEDINGLY IMPORTANT NOTE:** In each step as you assemble this rocket, test-fit the parts together before applying any glue. If some part doesn't fit properly, sand lightly or build up as appropriate for precision assembly.



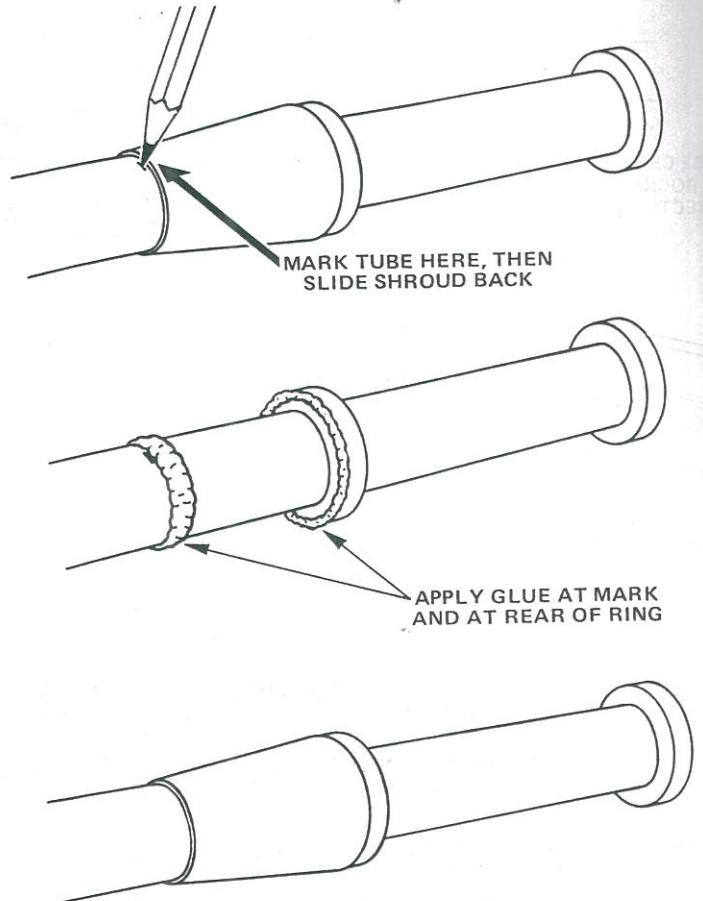
1 Assemble the main body. Mark the tube coupler (part A) at its middle. Smear glue around the inside of one end of an 18" body tube (part B). Insert the coupler into the glued body end so half of the coupler is in the tube. Let the glue set, then smear glue inside one end of the other 18" tube and slide glued end onto the coupler to join the tubes. Lay the assembly on a flat table top and roll gently to make sure the tubes are straight.



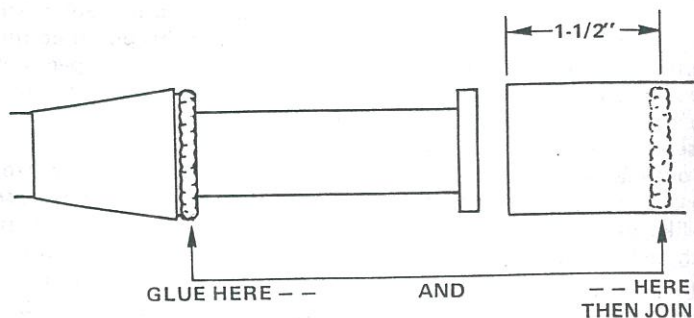
2 Pre-form the shroud (part C) by pulling it under a knife handle or pencil as shown. Pull the shroud under the handle or pencil and up at the same time. Do this several times until the cone can be formed easily. Apply glue to the tab on the cone and press into position exactly as shown. Hold it in place until the glue sets.

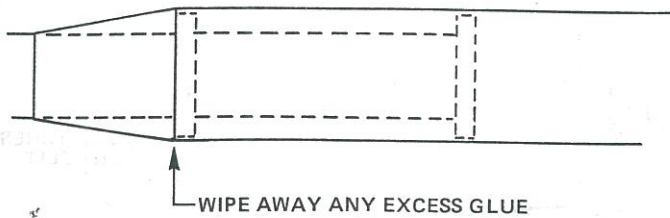


3 Mark the body assembly 2" and 1-3/4" from one end. (This will be the front of the model.) Apply a line of glue around the body at the 1-3/4" mark and slide an adapter ring (part D) onto the tube, over the glue, until it just touches the 2" mark. Glue a second ring on this end of the body so the front edge of the ring and the front edge of the body are even.

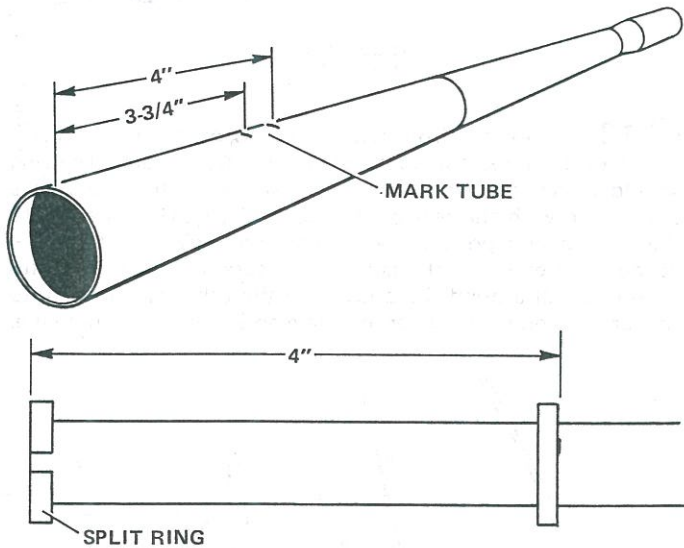


4 Slide the shroud onto the body and up against the first ring as shown. Mark the body where the end of the shroud touches it. Slide the shroud back and apply a line of glue around the body at the mark and around the ring where the shroud will touch. Slide the shroud back into position.

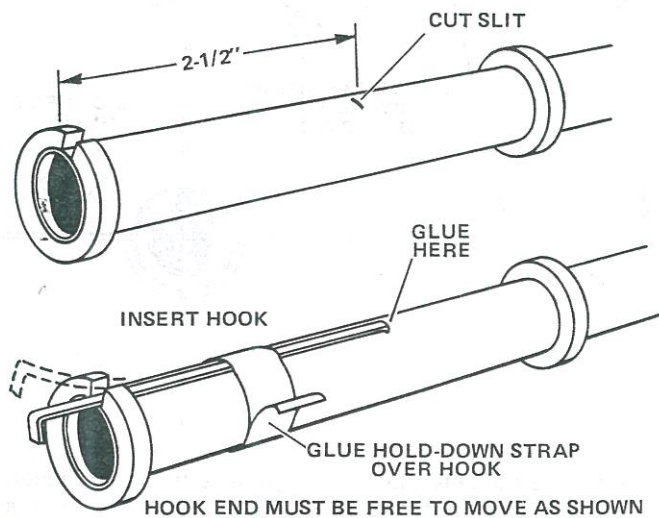




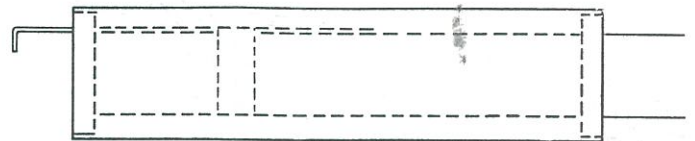
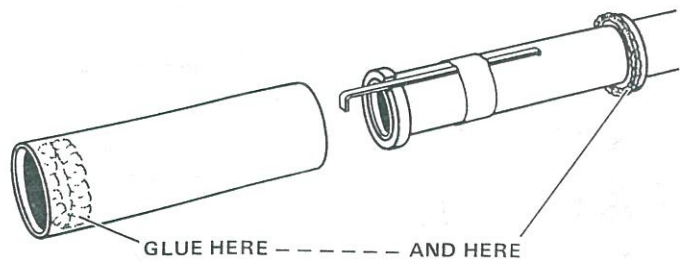
5 Smear a band of glue around the inside of the parachute compartment tube (part E), 1-1/2" inward from one end. Also apply glue to the ring by the shroud as shown. Slide the glued end of the tube onto the rings until the shroud seats against the parachute tube end. Wipe away any excess glue.



6 Mark the rear end of the body assembly 3-3/4" and 4" from the end. Apply a line of glue around the tube at the 3-3/4" mark and slide the remaining adapter ring (part D) onto the tube until the front end of the ring is even with the 4" mark. Wipe away any excess glue immediately. Glue the split adapter ring (part F) to the tube so it is even with the rear end.

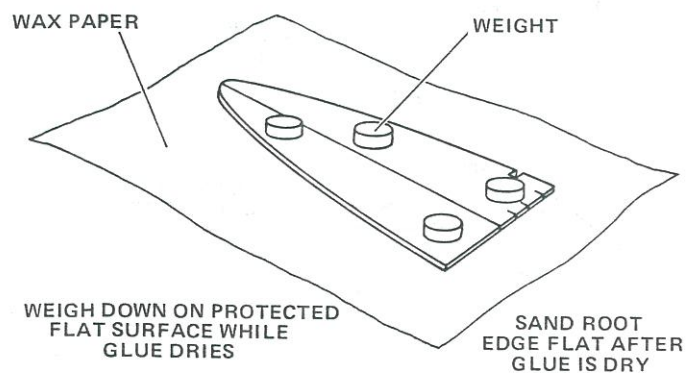
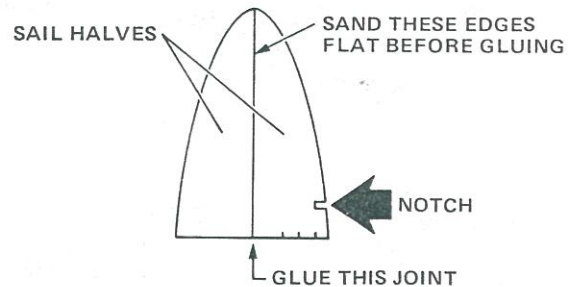


7 Cut a 1/8" slit in the body, directly in line with the gap in the split adapter ring, 2-1/2" from the end of the body. Cut out the hold-down strap from the pattern sheet (part G). Insert one end of the engine hook (part H) into the slit and lay the hook along the body so the other end passes through the gap in the split ring. Smear glue over one side of the hold-down strap and wrap it around the body, centered over the hook. Apply a drop of glue over the forward end of the engine hook.

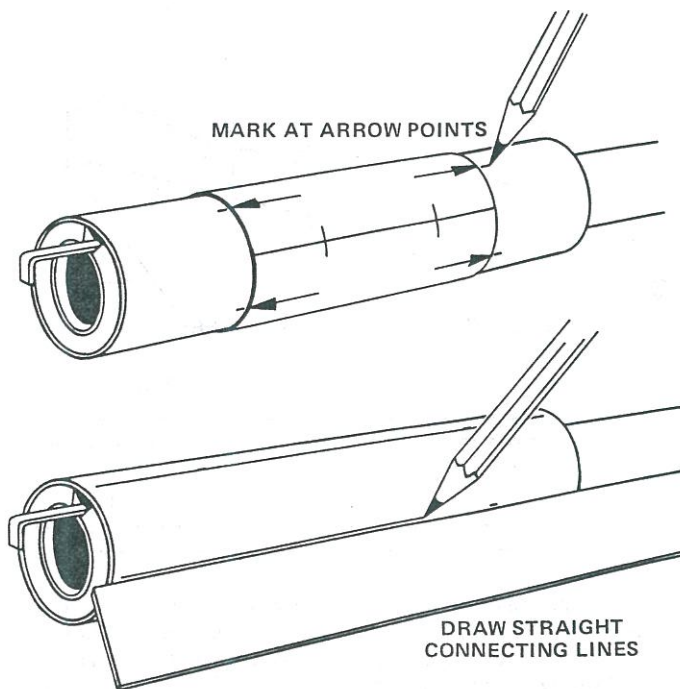


8 Apply a line of glue to the forward adapter ring and the inside of the reactor body tube (part I) as shown. Slide the reactor tube into place, matching its ends with the adapter rings. Wipe away any exposed glue.

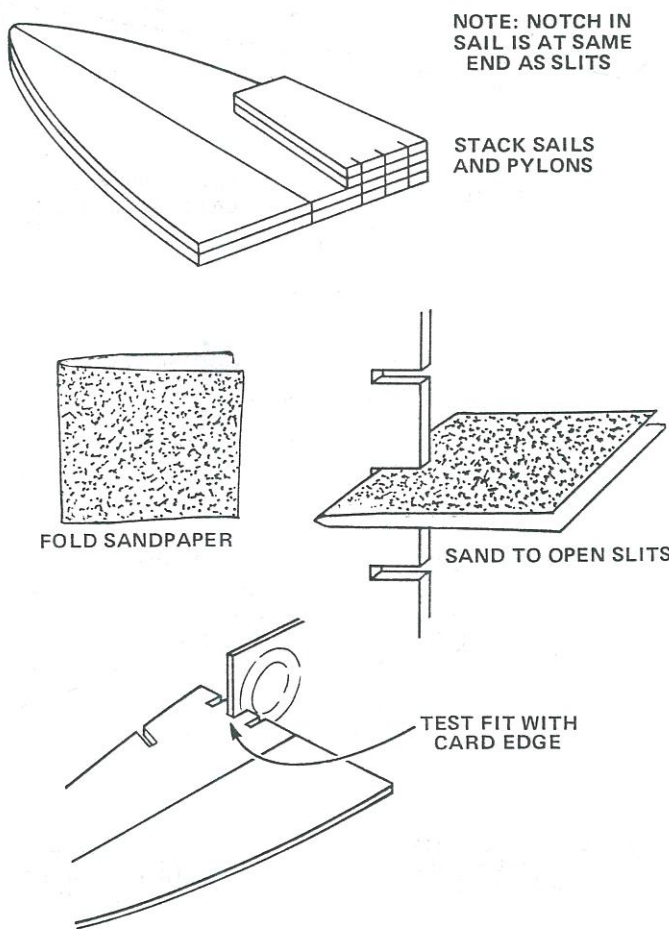
SAND BOTH SIDES OF DIE-CUT SHEET SMOOTH, THEN USE SHARP KNIFE TO HELP REMOVE FINIS



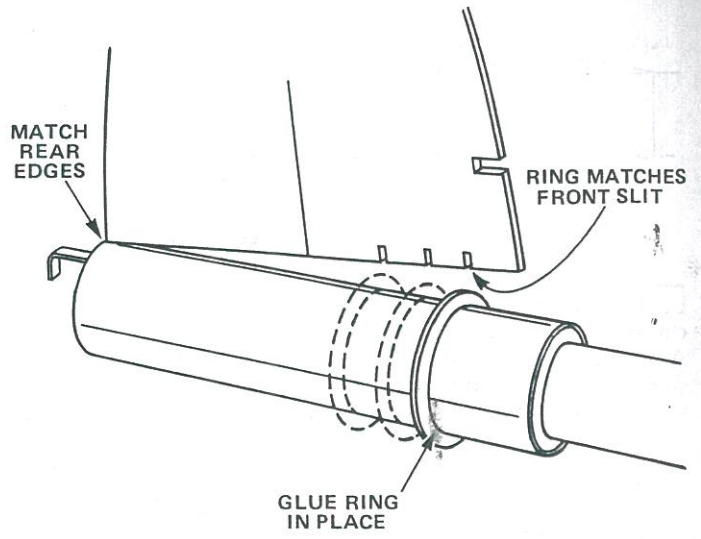
9 Carefully remove the parts from the die-cut balsa sheets (part J). The best method is to first sand both sides of each sheet smooth, then free the parts, where necessary, with a sharp knife. Glue the sails together as shown, making sure you match one notched and one unnotched half. Lay the sail assemblies flat on a piece of waxed paper and weight down to hold in position while the glue dries.



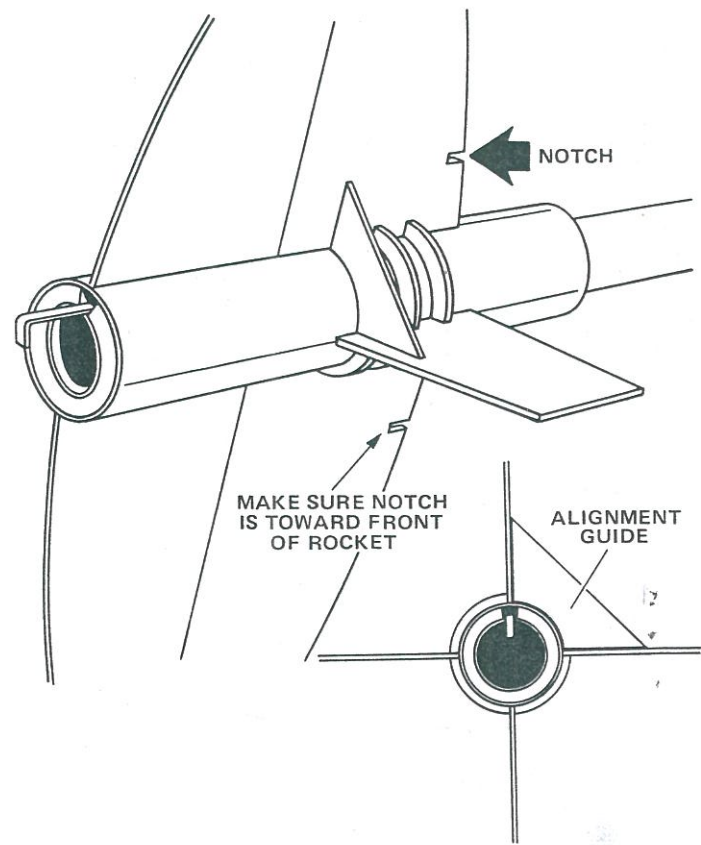
□ 10 Cut out the reactor body marking guide from the pattern sheet. Wrap it around the reactor body and mark at each arrow point as shown. Use a ruler to draw a straight connecting line between each matching pair of marks.



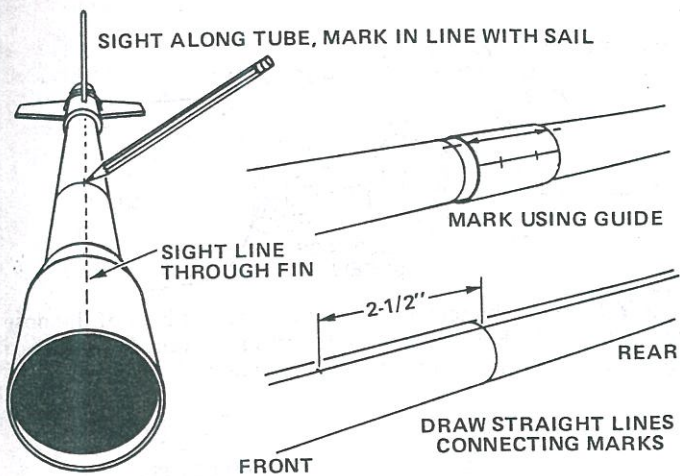
□ 11 The sails and the engine pylons each have three slits die-cut in their root edges. Stack these four parts so the slits match. Fold a piece of extra fine sandpaper and use it to open the slits until the die-cut card material (part K) fits snugly in the slits.



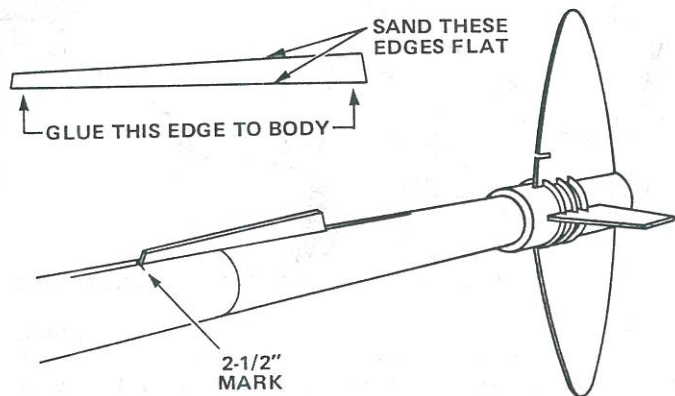
□ 12 Position the front radiator ring (from the die-cut card, part K) on the reactor body using a sail for a guide. The ring should match the front slit on the sail when the rear of the sail is even with the rear of the reactor body. Glue the ring to the body in this position. A drop or two of glue is sufficient--do not over-glue. Use the sail to make sure the ring is correctly positioned all around the body. Slip the other two rings onto the reactor body in their approximate positions, but do not glue.



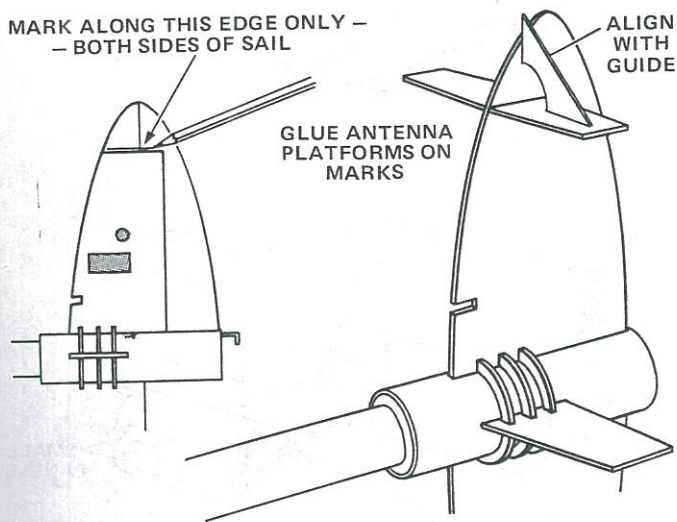
□ 13 Glue the sails and engine pylons to the reactor body. Apply a line of glue to the root edge of a sail and rub it into the wood. Allow glue to set. Apply another line of glue and position the sail on the body with the radiator rings in the slits. Use the alignment guide from the die-cut card (part K) to make sure the sail projects straight out from the body. Install the remaining sail and the engine pylons this way. When the sails and pylons are in position, apply glue to the joints between balsa parts and the body. Let the assembly dry.



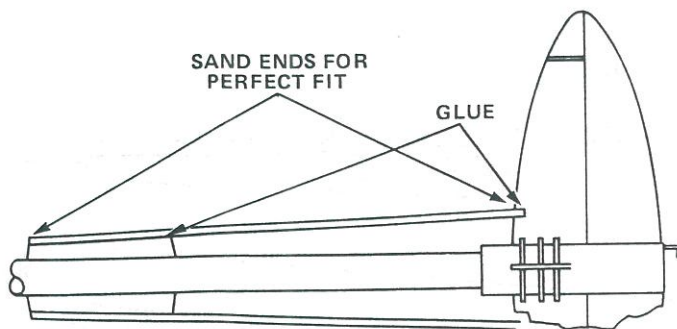
**14** Sight along the main body from the front and mark it at the middle, straight forward from a sail. Cut out the main body marking guide from the pattern sheet and wrap it around the body, matching one arrow point to the mark. Mark at the other three arrows. Use a ruler to draw a straight line connecting matching marks. Extend lines at least 3" on each side of the joint in the main body. Mark each line 2-1/2" ahead of the joint.



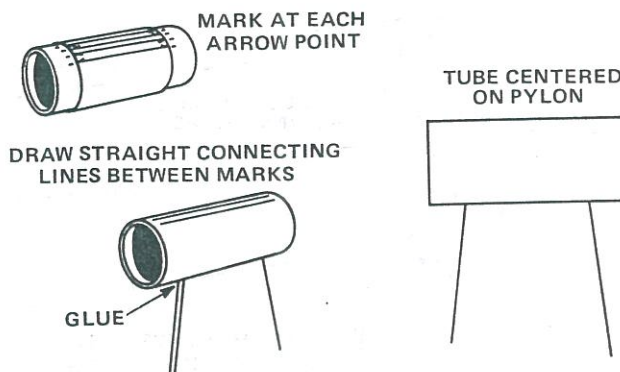
**15** Glue the conduit stand-offs to the main body on the lines drawn in step 14, directly ahead of the sails. The front edge of each conduit stand-off should be on the 2-1/2" mark.



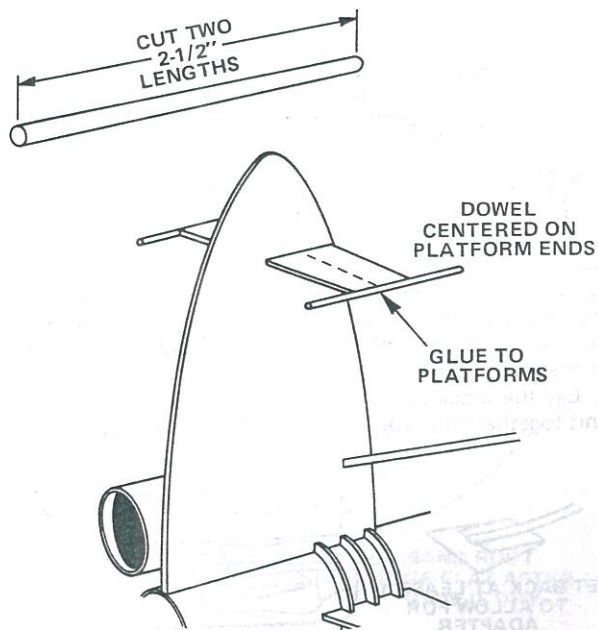
**16** Cut out the antenna platform location template from the pattern sheet. Mark both sides of one sail on the outer edge of the template. Glue the antenna platform pieces to the sail on the location lines. Use the alignment guide to be sure the antenna platforms project straight out from the sail.



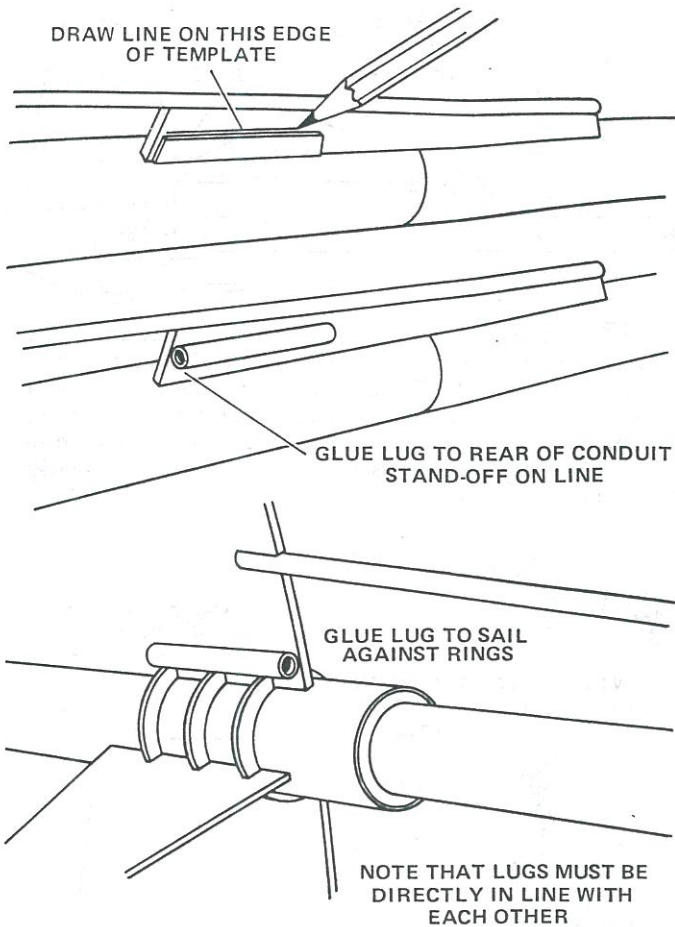
**17** Test fit the conduits (1/8" diameter dowels, part L) between the sails and the conduit stand-offs. Trim the conduits to the correct length. For best result, cut the conduit pieces 1/32" to 1/16" longer than needed and then match to the sail and stand-off by sanding the ends. Glue the conduits to the sails and stand-offs. Use masking tape to hold the conduits in place while the glue dries.



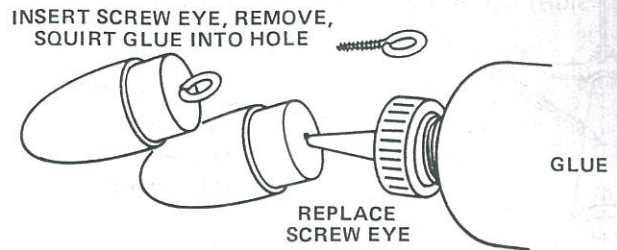
**18** Cut out the ram tube marking guide from the pattern sheet. Wrap it around a ram tube (part M) and mark at each arrow point. Repeat with the other ram tube. Glue the ram tubes to the engine pylons using the pylon position marks. Check alignment of each with the die-cut guide.



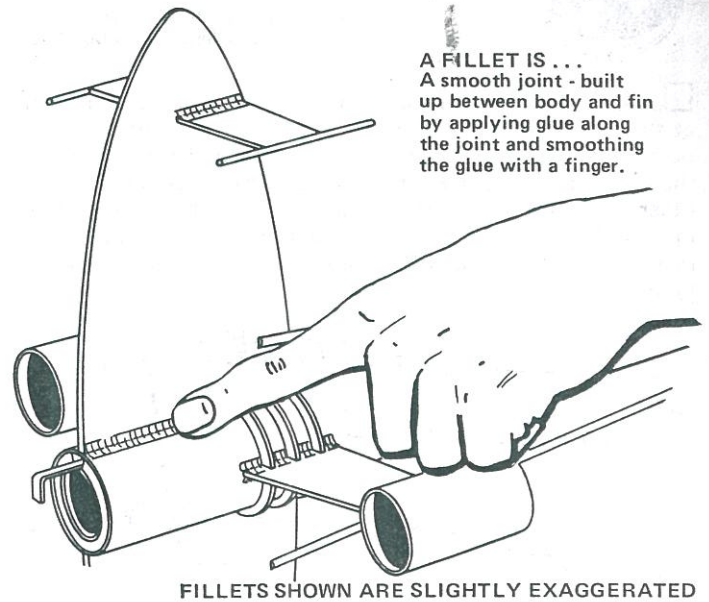
**19** Cut two 2-1/2" long antennas from the 1/12" dia. dowel (part N). Glue the antennas to the antenna platforms. The antennas should be perfectly centered on the ends of the platforms.



- 20 Cut out the launch lug location template from the pattern sheet. Mark the lug location on the conduit stand-off on the same side as the antenna platform. Glue one launch lug (part O) to the conduit stand-off on this mark. Glue the other lug to the sail-against the radiator rings and directly in line with the first lug.



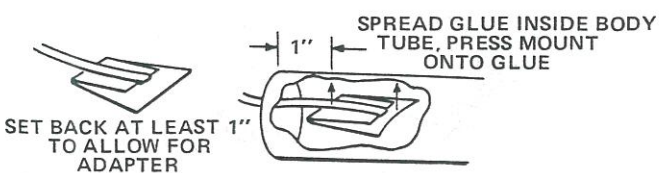
- 23 Insert the screw eye (part Q) into the base of the nose cone (part R). Remove screw eye and squirt a small amount of glue into the hole. Re-insert the screw eye.



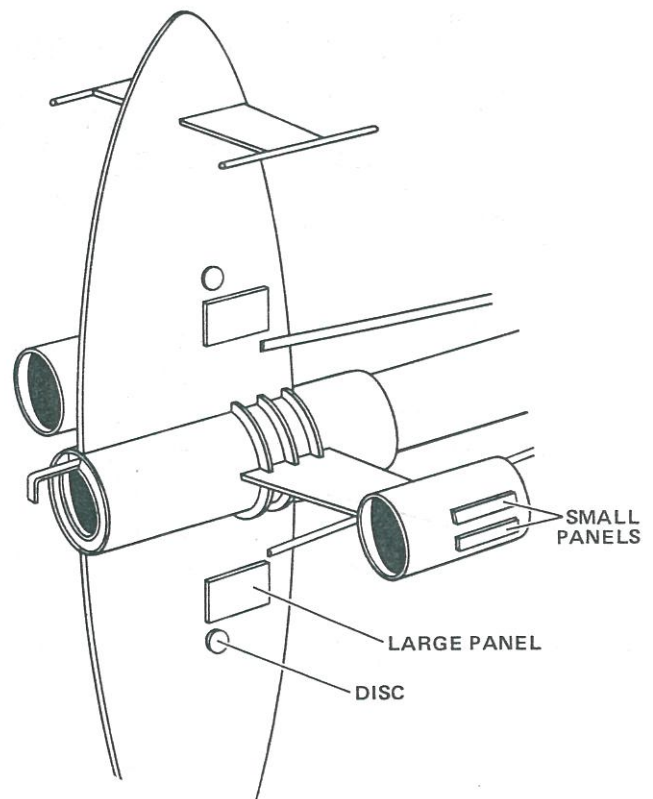
- 24 Apply a glue fillet to each joint where a sheet balsa part connects to another part. Holding the rocket horizontally, apply a line of glue to the joint and smooth it out with your finger. Support the rocket horizontally while the glue dries.

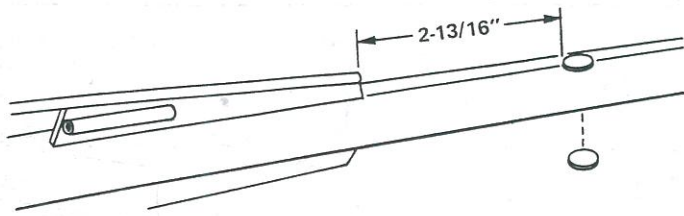


- 21 Cut out the shock cord mount from the pattern sheet. Pre-fold it on the dotted lines. Apply glue to section 1 and lay the shock cord (part P) into the glue. Fold over and apply glue to the back of the first section and the exposed part of section 2. Lay the shock cord as shown and fold over again. Clamp the unit together with your fingers until the glue sets.

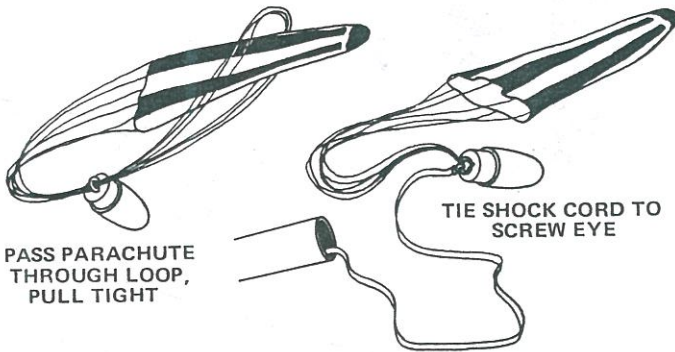
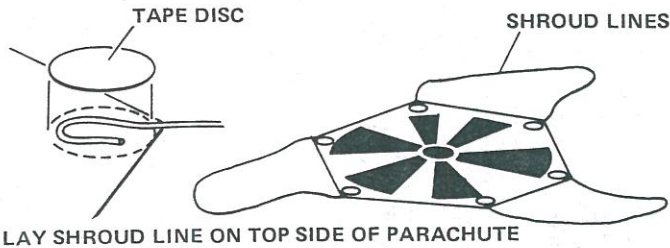


- 22 Apply glue to the inside of the parachute compartment tube at the front to cover an area about 1" to 2" from the front. The glued area should be the same size as the shock cord mount. Press the mount into the glue as shown and hold it until the glue sets.

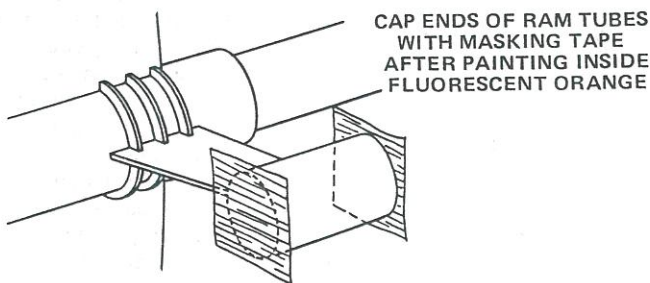




**25** Cut out the shaded areas from the antenna platform location template (from step 16). Mark both sides of both sails in the cutout area. Glue four discs and four large rectangular panels from the die-cut card (part K) to the sails at the points marked. Glue the small rectangular panels to the ram tubes in the locations marked in step 18. Glue the remaining two discs to the main body, centered 2-13/16" directly ahead of the conduit stand-offs.



**26** Cut out the parachute (part S) on its edge lines. Cut three 36" lengths of shroud line (part T). Attach line ends to top of parachute with tape discs (part U) as shown. Pass shroud line loops through screw eye. Pass parachute through loop ends and draw lines tight against screw eye. Set knot with a drop of glue. Tie free end of shock cord to screw eye.

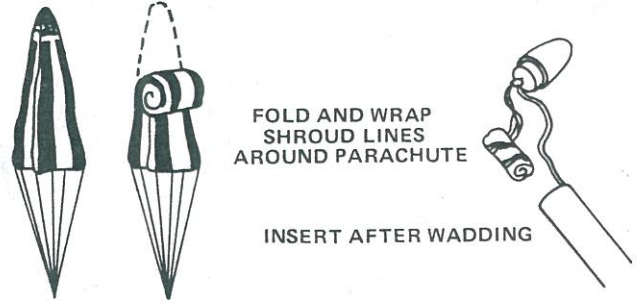


**27** Apply two or more coats of sanding sealer to balsa surfaces. Sand lightly with extra fine sandpaper between coats. Repeat until pores are filled and surfaces look and feel smooth. Paint the insides of the ram tubes white, followed when dry with a coat of bright fluorescent orange paint. Cap the ends of the ram tubes with masking tape and paint all other parts of the rocket flat black.

(See next page for step 28.)

## COUNTDOWN CHECKLIST

**14** Pack four squares of crumpled recovery wadding loosely into body tube.



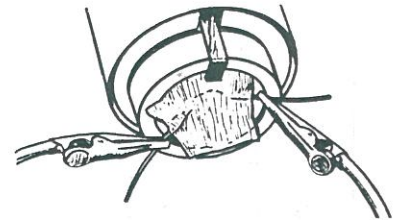
**13** Fold parachute into a triangular shape. Roll 'chute tightly as shown and wrap shroud lines around it. If 'chute is too large, unroll and repack until it slides easily into rocket. A very tight fit may prevent parachute from ejecting properly.

**12** Pack shock cord neatly into rocket.

**NOTE:** DO NOT pack parachute until you are actually ready to launch. For maximum parachute reliability, lightly dust 'chute with ordinary talcum powder, especially in cold weather.

Slide nose cone into place. Nose cone should separate easily from rocket body tube, but should not be extremely loose. If it is too tight, sand inside of body tube and shoulder of nose cone with extra fine sandpaper. If nose cone is too loose, add a wrapping of transparent tape or masking tape to shoulder of nose cone.

**11** Select an engine and install an igniter as directed in the engine instructions. Engines recommended for use with this rocket are B6-4 and C6-5.



**10** Insert engine into rocket. Engine hook must latch securely over end of engine.

**9** Disarm launch panel--remove safety key.

**8** Place rocket on launch pad making sure rocket slides freely on launch rod. Clean micro-clips and attach them to igniter leads.

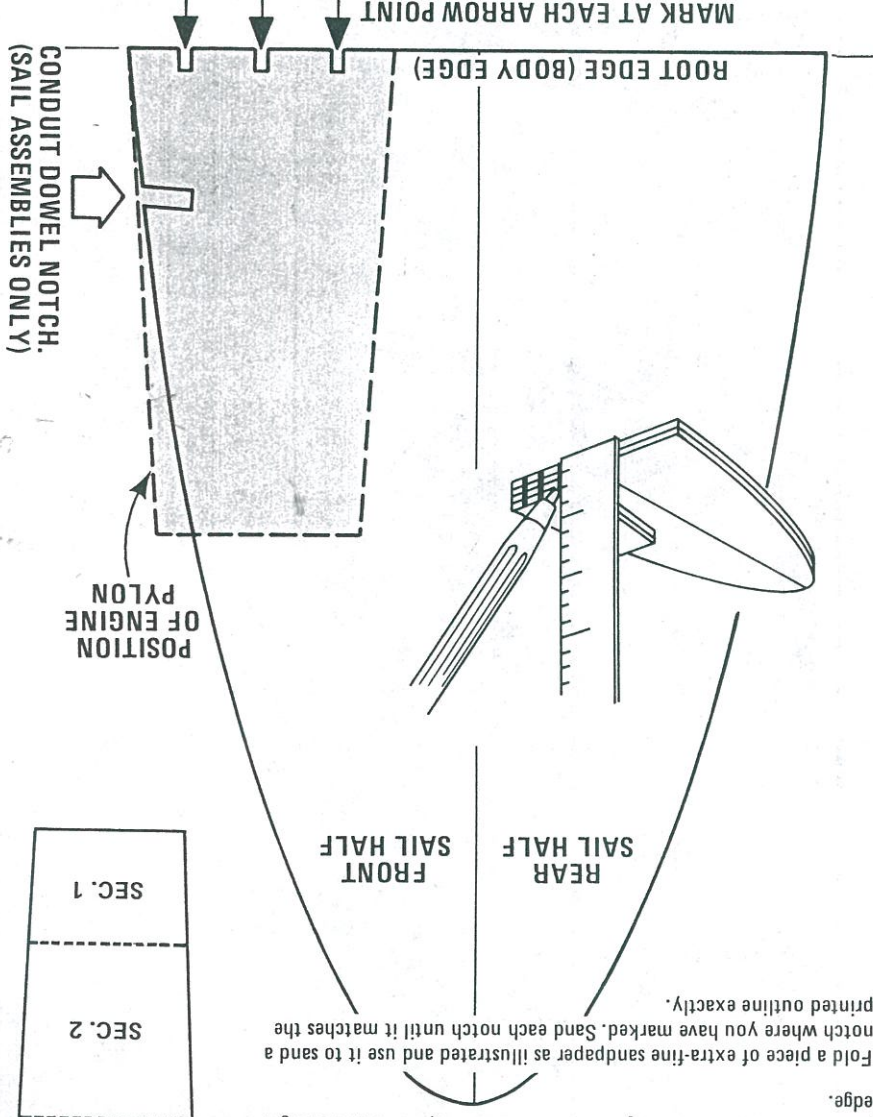
**7** Clear the launch area, alert recovery crew and trackers. Check for low flying aircraft and unauthorized persons in recovery area.

**6** Arm launch panel--insert safety key.

**5 - 4 - 3 - 2 - 1 LAUNCH !!**

## MISFIRE PROCEDURE

Occasionally an igniter will heat and burn in two without igniting the engine. This is almost always caused by a failure to install it correctly. Disarm launch panel, remove the model, clean igniter residue from nozzle and install a new igniter. Follow launching procedure again.

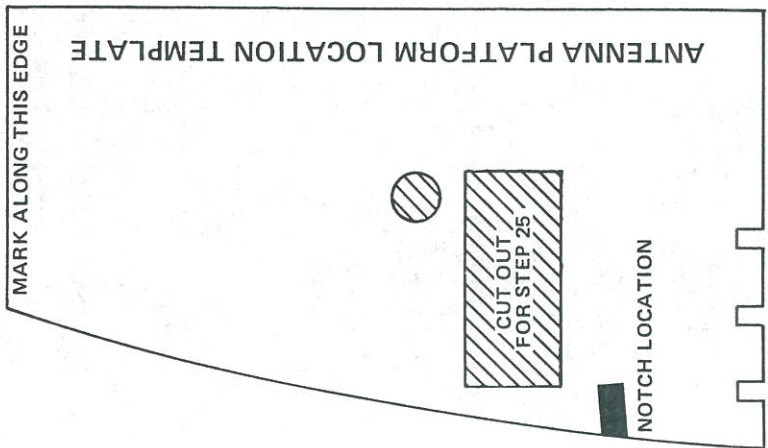
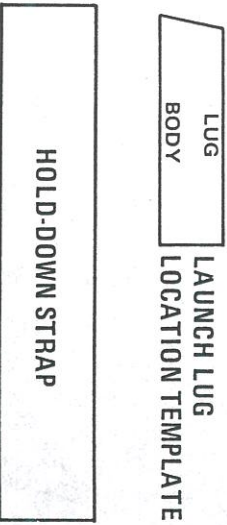
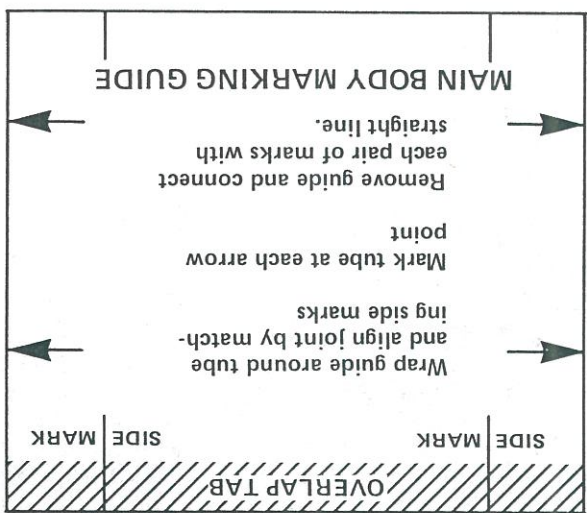
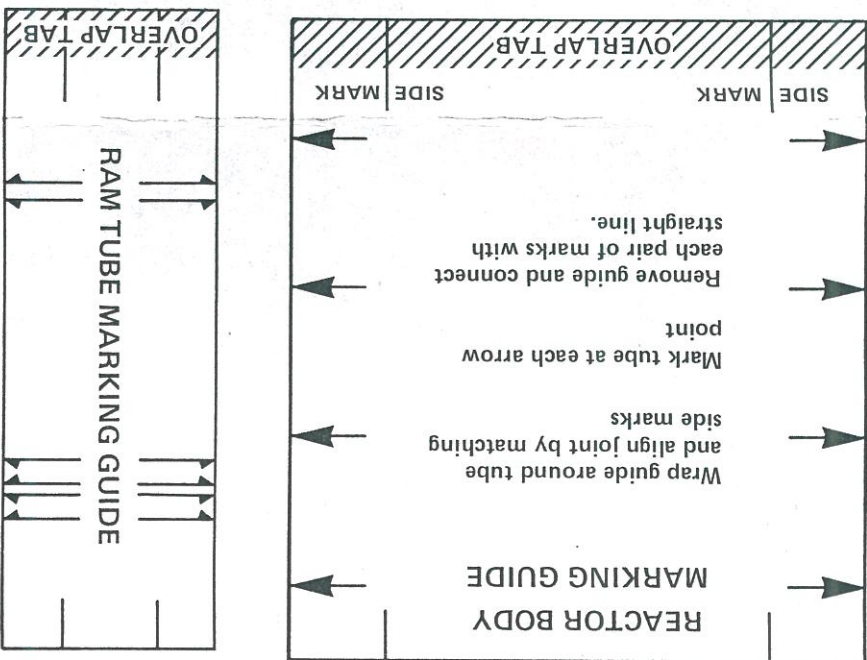


Place pattern sheet on a flat, working surface. Stack the sail assemblies and balsa engine pylons as shown. Position them so they match their printed outlines exactly. Be sure to match the conduit dowel notch on the sail assemblies.

Using a ball-point pen, mark the root edges (body edges) at each arrow point. Use a ruler or the edge of the die-cut card (part K) as a straight-edge.

Fold a piece of extra-fine sandpaper as illustrated and use it to sand a notch where you have marked. Sand each notch until it matches the printed outline exactly.

**FOR STEP #11  
RADIATOR RING NOTCHING GUIDE**





## RADIATOR RING NOTCHING GUIDE FOR STEP #11

Place pattern sheet on a flat, working surface. Stack the sail assemblies and balsa engine pylons as shown. Position them so they match their printed outlines exactly. Be sure to match the conduit dowel notch on the sail assemblies.

Using a ball-point pen, mark the root edges (body edges) at each arrow point. Use a ruler or the edge of the die-cut card (part K) as a straight-edge.

Fold a piece of extra-fine sandpaper as illustrated and use it to sand a notch where you have marked. Sand each notch until it matches the printed outline exactly.

