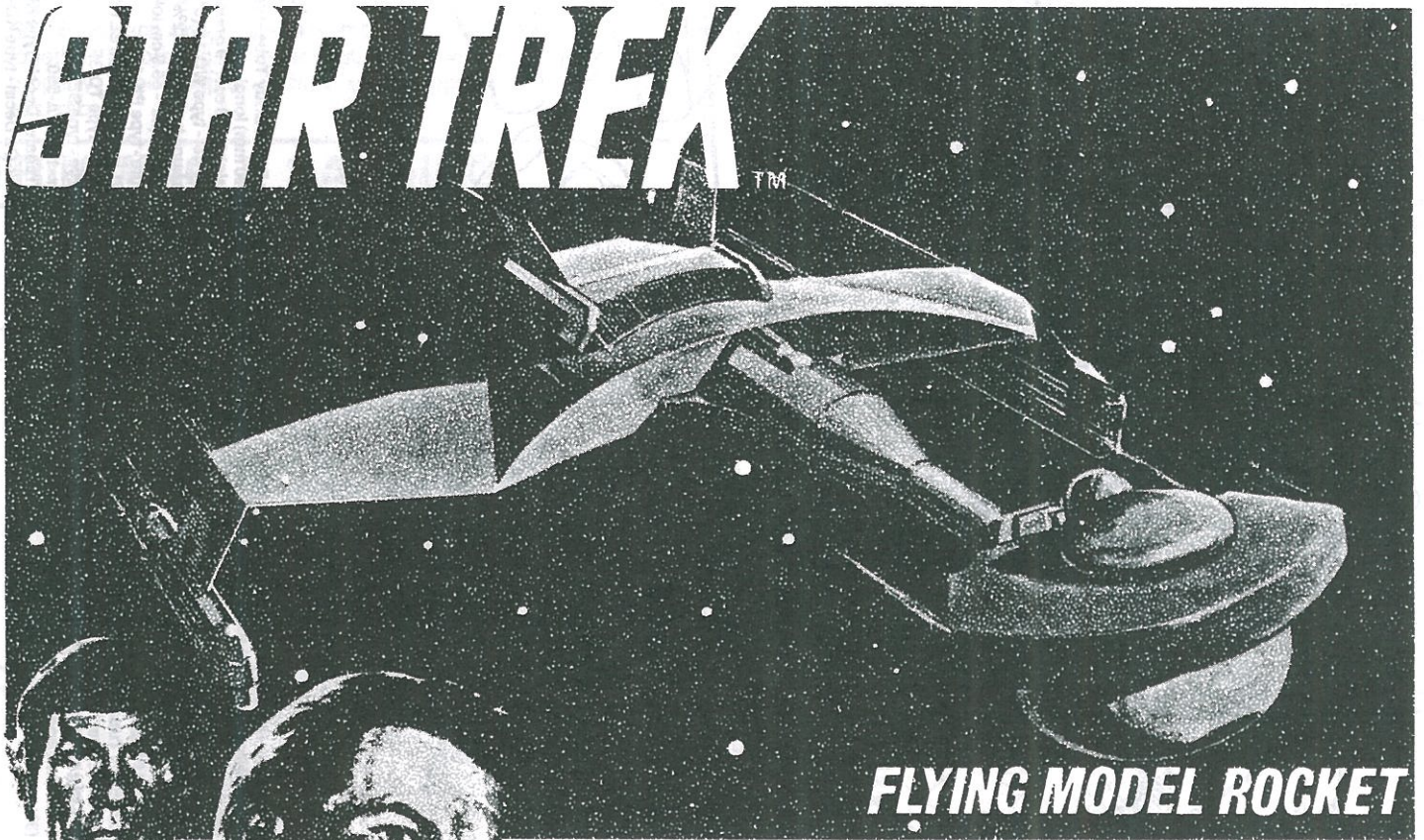




FLYING MODEL ROCKET ASSEMBLY INSTRUCTIONS
 SKILL LEVEL 4 - COMPLEX ROCKET



FLYING MODEL ROCKET

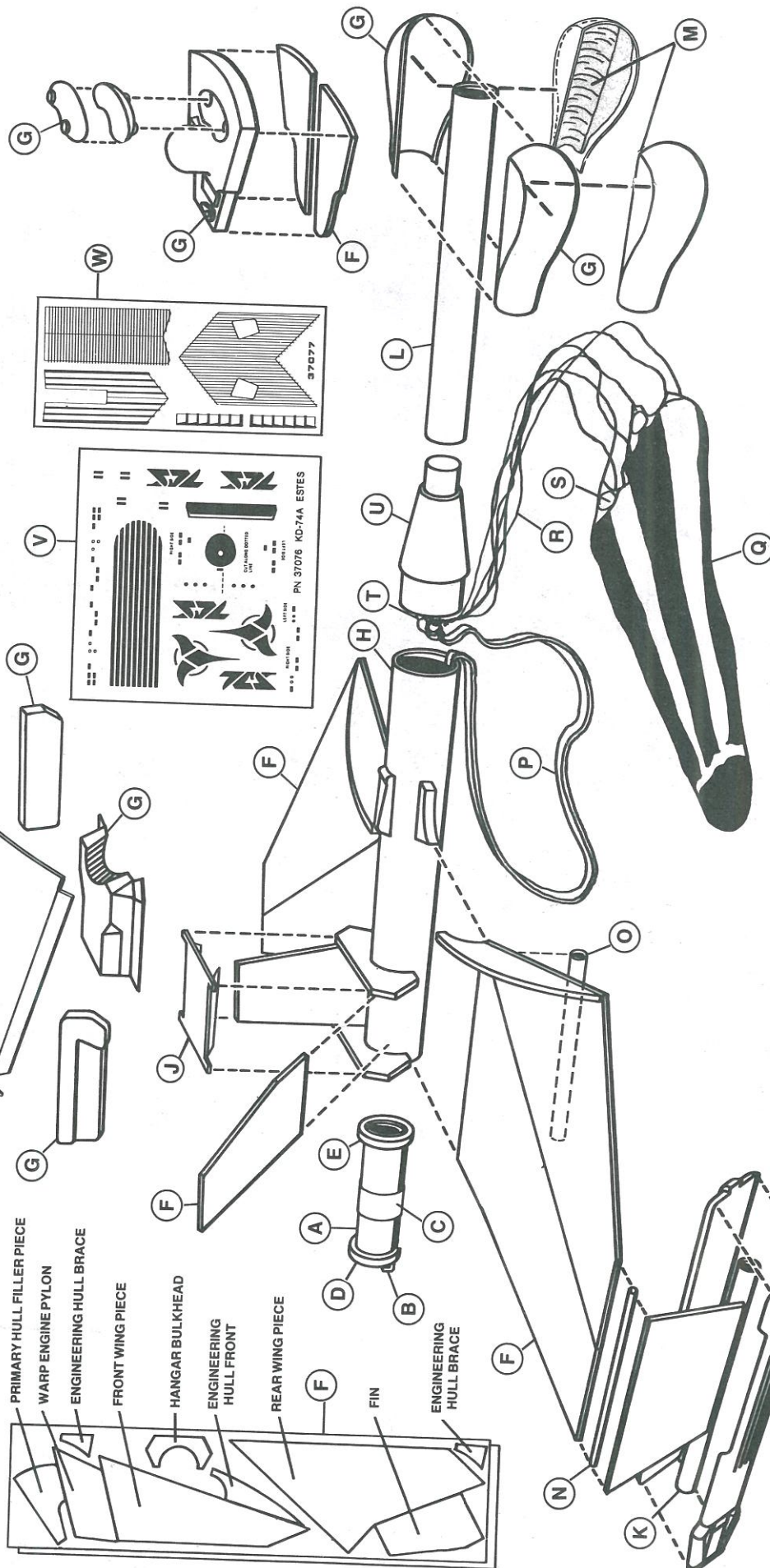
KLINGON BATTLE CRUISER

In addition to the parts in this kit, you will need:

SCISSORS	PENCIL	RULER	PAINT BRUSH	HOBBY KNIFE	SANDPAPER	YELLOW CARPENTER'S GLUE	CYANACRYLATE ADHESIVE (slow-setting instant glue)	LIQUID PLASTIC CEMENT	MASKING TAPE	PLASTIC CEMENT	ENAMEL PAINT (Silver, Black, Red)	ENAMEL SPRAY PAINT (Light Sea Gray)

KLINGON BATTLE CRUISER

PARTS IDENTIFICATION



PRIMARY HULL FILLER PIECE
 WARP ENGINE PYLON
 ENGINEERING HULL BRACE
 FRONT WING PIECE
 HANGAR BULKHEAD
 ENGINEERING HULL FRONT
 REAR WING PIECE
 FIN
 ENGINEERING HULL BRACE

PARTS LIST

QTY	PART NO.	DESCRIPTION
1	A)	Body Tube - type BT-20J (2 3/4" - 70 mm long)
1	B)	Engine Hook - type EH-2
1	C)	Retainer Ring - type HR-20
1	D)	Split Adapter Ring - type AR-20S50S
1	E)	Adapter Ring - type AR-20S0
2	F)	Die-Cut Balsa Sheet - type BF-74
1	G)	Molded Plastic Parts Set - type PF-74
1	H)	Hull Body Tube - type BT-50FE (6 1/2" - 165 mm long)
1	I)	Pattern Sheet - type SP-74
1	J)	Die-Cut Card Sheet - type TA-74
2	K)	Drive Unit Body Tube - type BT-2CB (3 1/4" - 83 mm) long
1	L)	Access Boom Body Tube - type BT-5P (5.1" - 130 mm) long
1	M)	Clay Weight - 2/3 oz. (19 grams)
1	N)	Wood Dowel - type WD-1C (6" - 152 mm long)
1	O)	Launch Lug - type LL-2B (2 3/8" - 60 mm long)
1	P)	Shock Cord - (22" - 55.9 cm long)
1	Q)	Parachute - type PK-18A
1	R)	Shroud Line Cord - type SLT-108 (108" - 274 cm long)
6	S)	Tape Discs - type TD-3F
1	T)	Screw Eye - type SE-2A
1	U)	Adapter - type TA-550
1	V)	Water Transfer Decal - type KD-74A
1	W)	Foil Stick-On Decal - type KD-74B

KIT NO. 1274

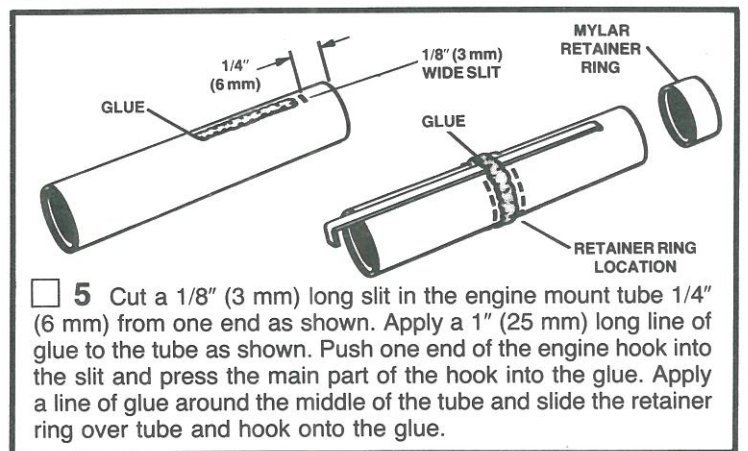
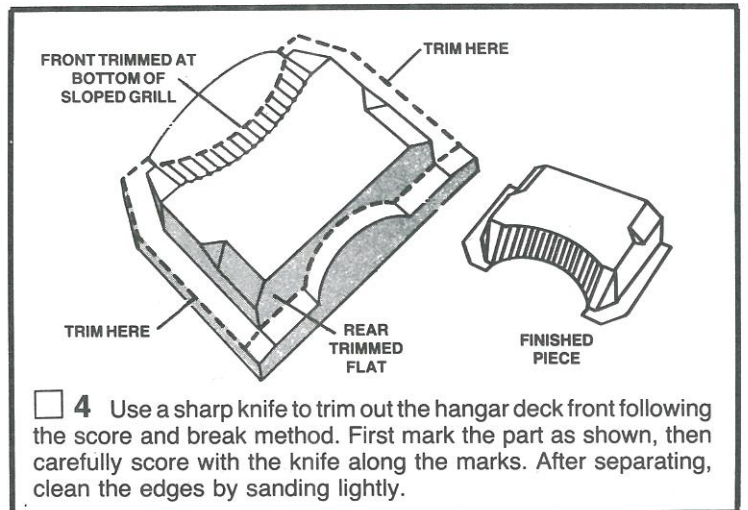
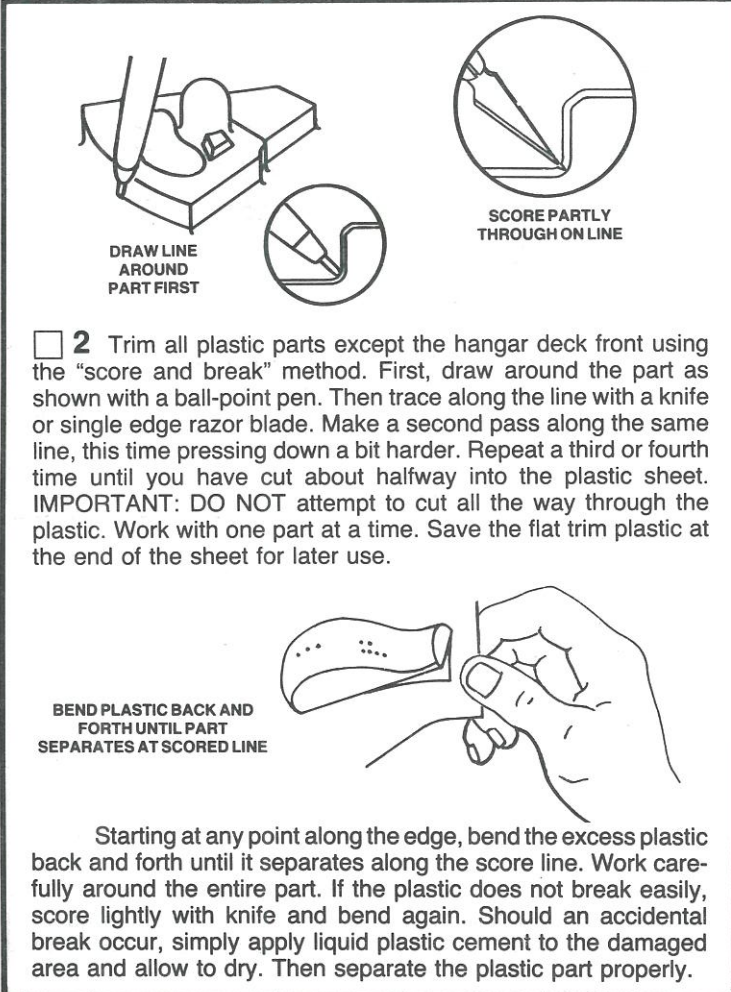
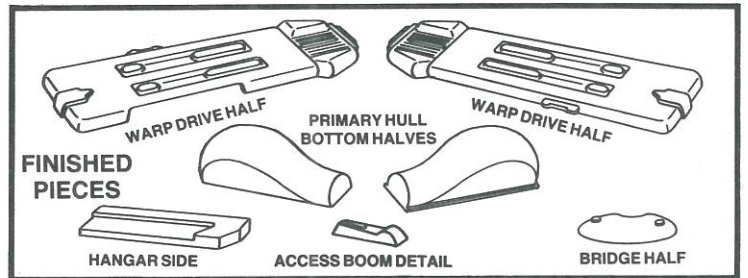
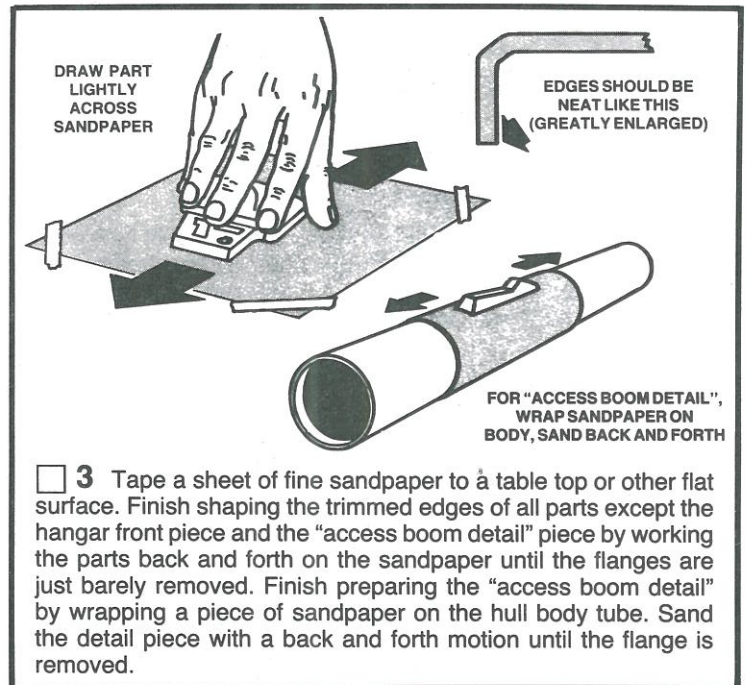
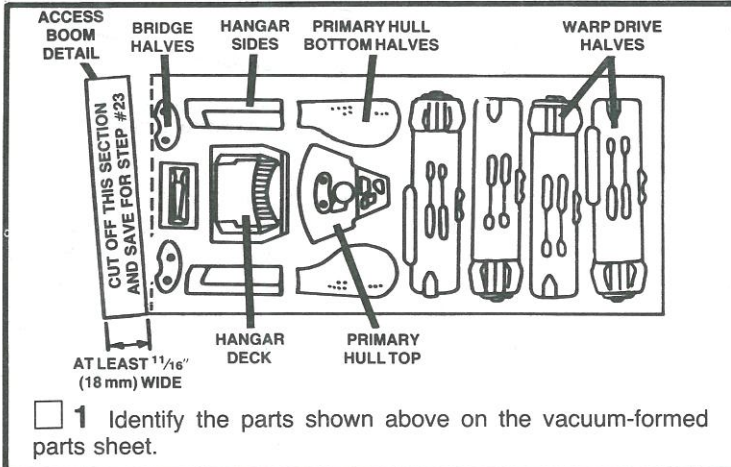
ASSEMBLY INSTRUCTIONS

IMPORTANT:

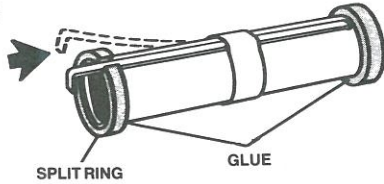
Read all instructions before beginning work on your Klingon Battle Cruiser. When you are thoroughly familiar with the construction sequence, begin construction. Check off each step as you complete it. Use white glue unless instructed to use liquid plastic cement or slow-setting instant glue. To insure a good joint, wash and rinse plastic parts before assembling. Also, be sure plastic parts are completely dry prior to assembly.

NOTE: In each step as you assemble this model, test-fit the parts together before applying any glue. If some part does not fit properly, sand it lightly or build up as appropriate for precision assembly.

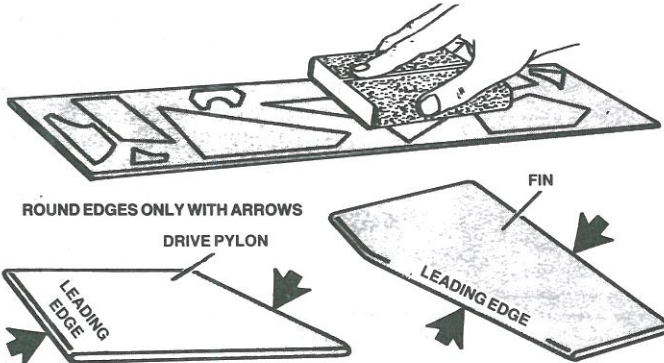
TRIMMING & SANDING



HOOK MUST BE FREE TO RAISE IN SLOT

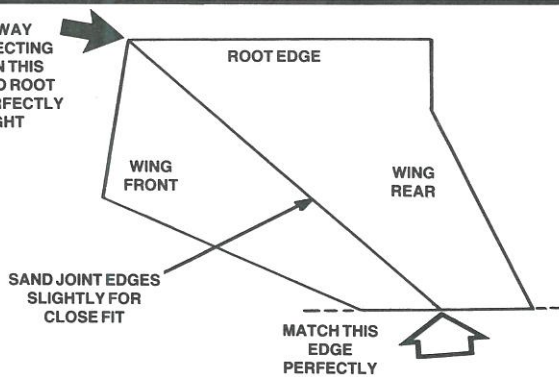


6 Glue the split adapter ring to the engine mount tube even with the rear end (the end with the overhanging hook) so the slot is over the hook. Avoid getting glue in the slot. Glue the other ring to the front of the engine mount against the end of the hook as shown.



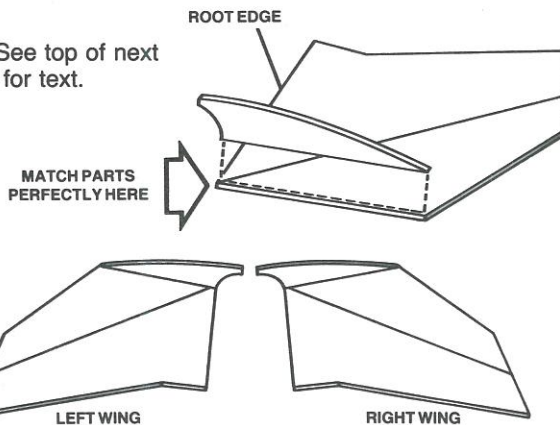
7 Sand both sides of the balsa sheets until smooth using extra fine sandpaper wrapped on a sanding block. Carefully remove the parts from the sheets, using a sharp knife to separate any uncut spots. Round the leading and trailing edges only on the fins and drive pylons.

SAND AWAY ANY PROJECTING BALSA ON THIS CORNER SO ROOT EDGE IS PERFECTLY STRAIGHT



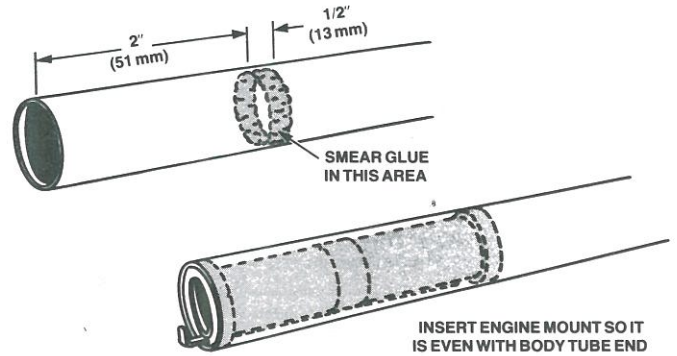
8 Glue the front and rear sections of the wing halves together. Spread a piece of waxed paper on a smooth, flat surface, apply glue to the joint surfaces, and hold the parts together (and flat) by weighting them down. The tip edges of the parts must match.

9 See top of next column for text.

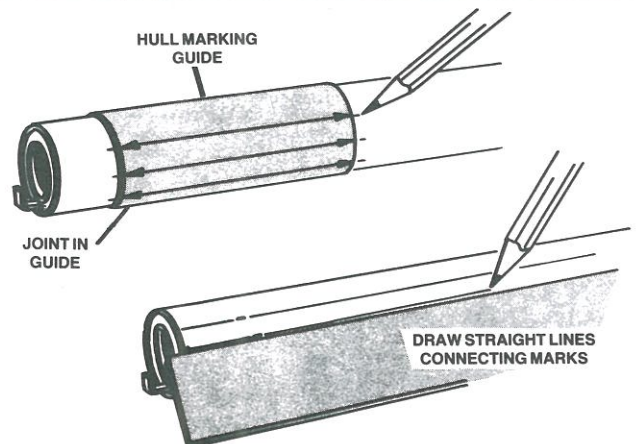


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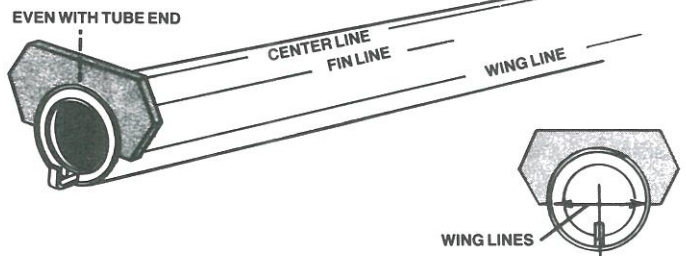
Glue the engineering hull front pieces to the wings, being careful to match the parts perfectly at the root edge. Note that you must have one right hand and one left hand assembly when finished.



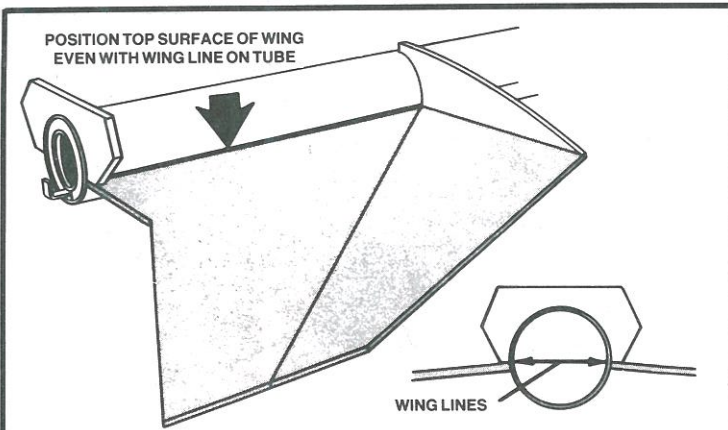
10 Smear glue around the inside of one end of the hull body tube to cover an area about 2" (51 mm) to 2½" (64 mm) from the end of the tube. Immediately insert the engine mount unit, being careful to orient the unit so the engine hook will project from the tube. Push the engine mount in with one smooth motion until the ends of the tube (and the split ring) are even.



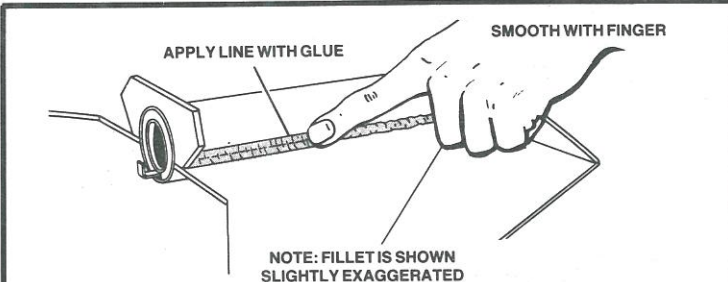
11 Cut out the hull marking guide from the pattern sheet. Wrap the guide around the rear of the hull body tube so the joint in the guide is in line with the engine hook. Mark the tube at each arrow point, front and rear. Draw a straight line connecting each matching front and rear mark. Extend the wing lines and the center line the length of the body.



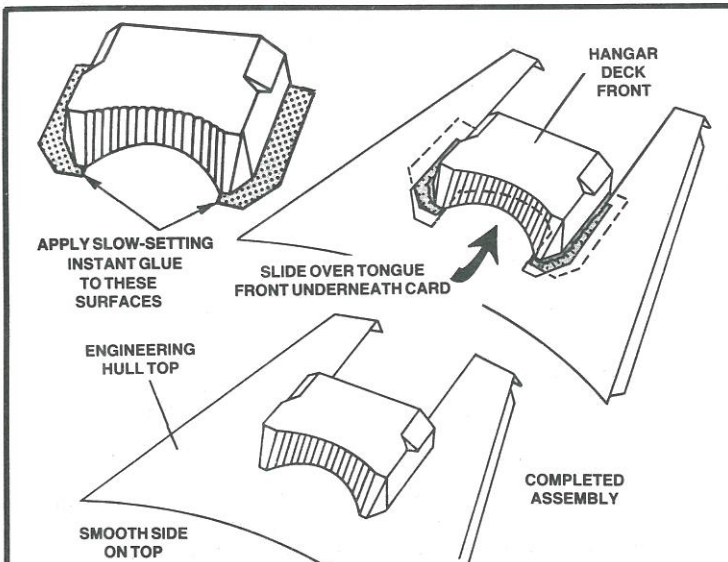
12 Glue the rear hangar deck bulkhead (from the die-cut balsa sheet) to the rear of the hull body tube as shown. The lower edges of the bulkhead should match the wing line on the tube with the bulkhead on the same side of the tube as the fin lines and center line. The rear of the bulkhead must be even with the rear of the tube.



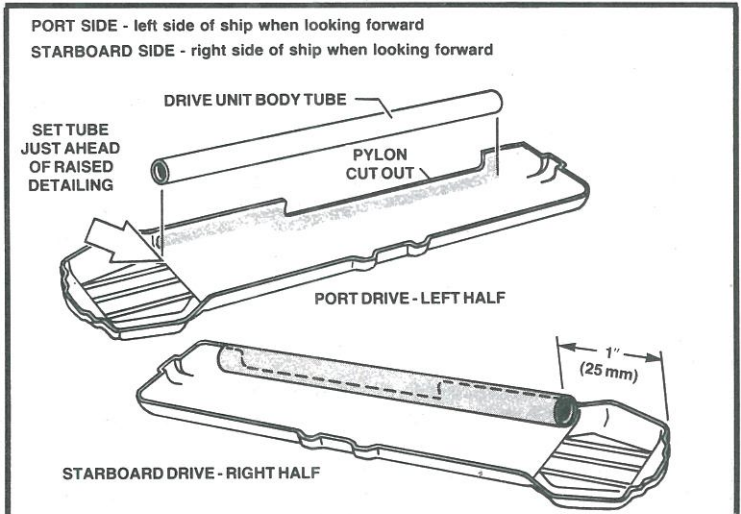
□ **13** Glue the wing pieces to the hull body tube. The top edge of the wing should be aligned on the wing line on the tube. To glue, apply a line of glue to the root edge of a wing half and rub it into the wood. Rub glue also into the area of the engineering hull front pieces which sit on the tube. Allow several moments for the glue to set. Apply another line of glue and position the wing on the tube. The rear of the wing must be even with the rear of the tube. The rear bulkhead and the front pieces should help align and position the wing.



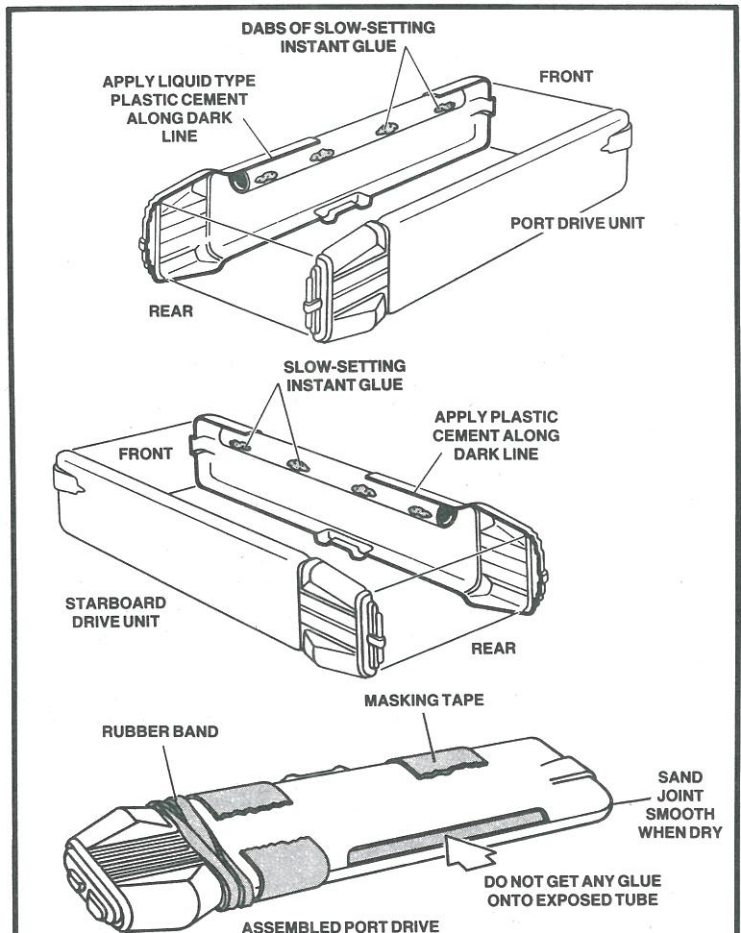
□ **14** Apply a glue fillet to the wing/body joint. Holding the rocket in a horizontal position, apply a line of glue to both sides of each joint and smooth it out with your finger. Support the rocket horizontally until the glue dries.



□ **15** Separate the engineering hull top from the die-cut card. Apply slow-setting instant glue to the upper surfaces of the side flanges on the hangar deck front piece. Note that the card is slightly smoother on one side. The smooth side is the top. Insert the hangar deck front into place from below the card (so the flanges on the hangar deck piece are under the card and the tongue on the card is under the hangar deck). Bow the card slightly to achieve a closer fit and press the glued flanges firmly into place. Hold in place until the glue sets.



□ **16** Apply a continuous line of slow-setting instant glue along the inside of one warp drive half with "pylon cut out", exactly as illustrated. Position a drive unit body tube as shown. Press tube firmly into and against the side and upper walls of the warp drive half. Following the same procedure, glue the remaining drive unit body tube into the other warp drive half with "pylon cut out". Allow a few moments for slow-setting instant glue to set before continuing. Test fit both sets of matching warp drive halves. Halves should align evenly without gaps or openings along joint line. Sand halves for proper fit if necessary.



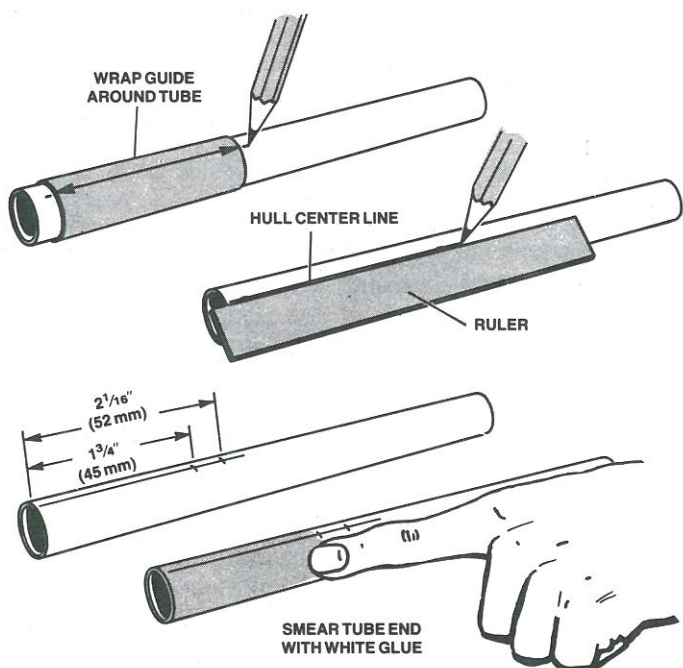
□ **17** Apply several dabs of slow-setting instant glue to one of the drive unit body tubes as shown. Continue immediately by applying a line of LIQUID-TYPE PLASTIC CEMENT around the entire edge of the same drive unit. Quickly join the matching warp drive half. Align halves carefully and gently press the assembled unit together with your fingers. Continue holding the unit together

(Continued on next page)

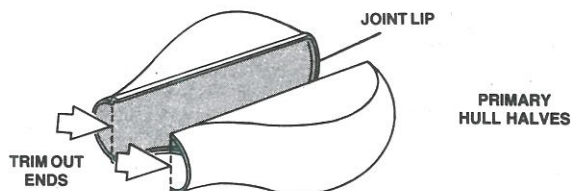
17 (Continued)

until the plastic cement begins to set. You may wish to use a rubber band and short strips of masking tape to hold unit together until dry. Avoid smearing any cement on the surface of the drive unit. Following the same procedure, glue the remaining drive unit body tube and drive halves together. Allow cement to dry. Remove masking tape and rubber bands from assembled warp drive units. Now, working with one unit at a time, brush a second line of LIQUID PLASTIC CEMENT along the entire joint line of one drive unit. Be careful not to smear any excess cement onto the drive unit body tube. Press together any joint openings or gaps which may not have been fully glued earlier. Tape units together as necessary.

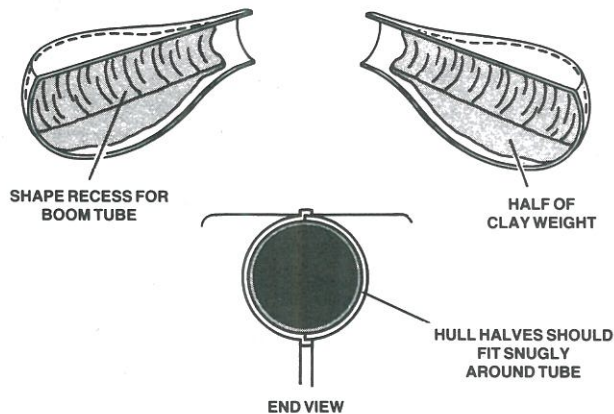
When the drive units are completely dry, sand away any excess flange material until the joint line is almost smooth. A small sanding block or emery board is helpful for this step. A dab of LIQUID PLASTIC CEMENT will quickly reseal small "breaks" along the joint line which might appear during final sanding or later as the result of accidental flight/landing damage.



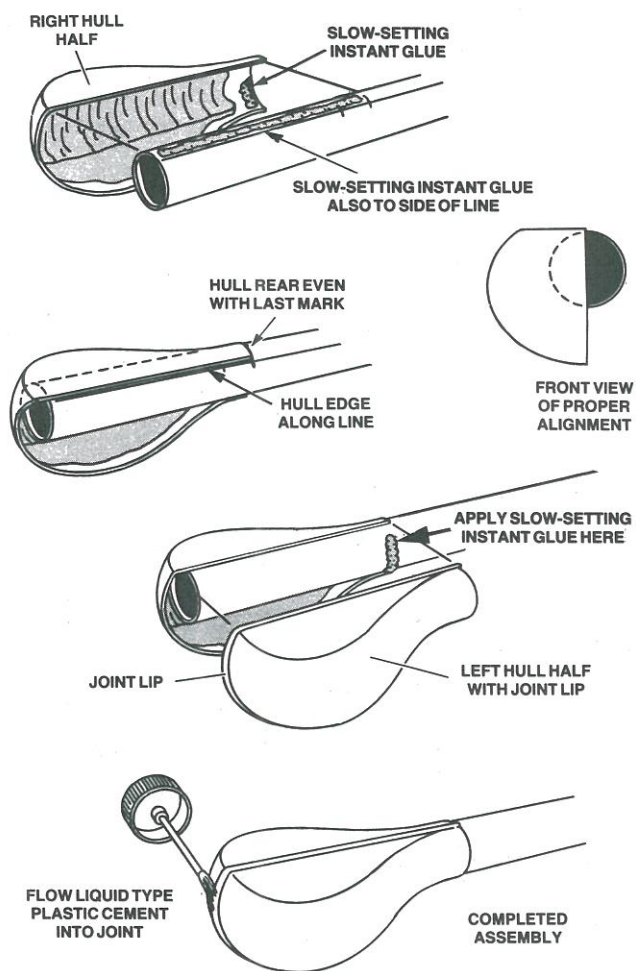
18 Cut out the boom marking guide from the pattern sheet. Wrap it around the access boom tube 1/8" (3 mm) from one end and mark the tube at the arrow points. Draw a straight line (the hull center line) connecting the two marks. Now mark the hull center line at 1 3/4" (45 mm) and 2 1/16" (52 mm) from the tube end. Smear a thin coating of white glue around the entire tube from the end up to the 1 3/4" (45 mm) mark as shown. The glue coating, when dry, will prevent clay oils (step 20) from soaking into the paper tube.



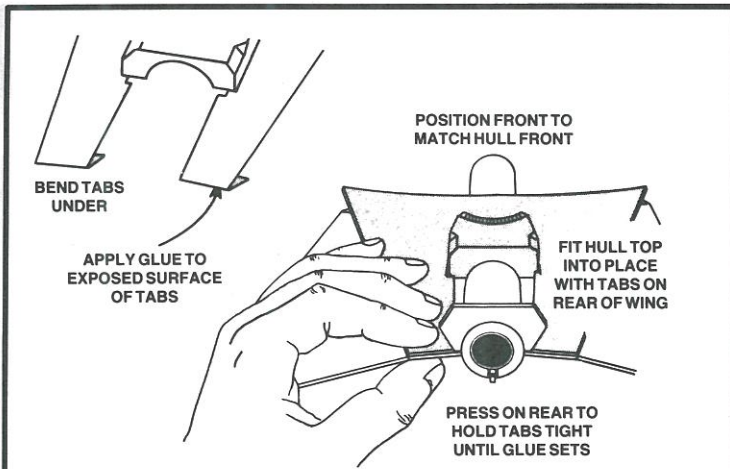
19 Trim out the rear ends in the primary hull halves and test fit them on the access boom tube. If necessary, sand the edges of the piece which does not have a lip until the pieces fit snugly around the boom tube.



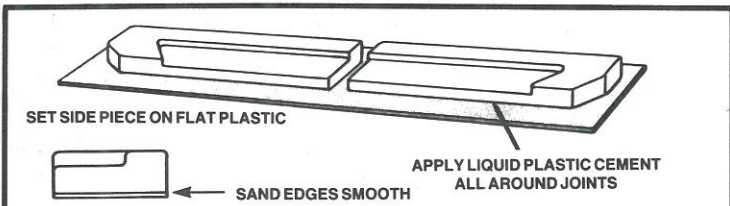
20 Separate the two clay weights into two equal parts. Pack the clay tightly into the primary hull halves, leaving space for the boom tube. Avoid smearing clay on the joint areas of the plastic.



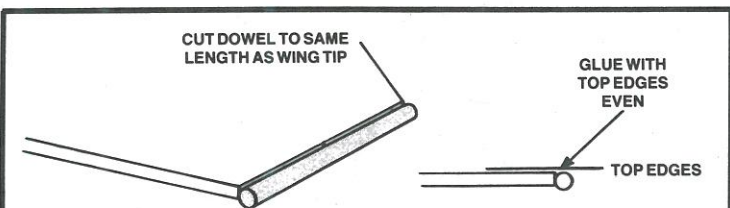
21 Apply a line of slow-setting instant glue along the right side of the hull center line up to the 2 1/16" (52 mm) mark and also to the inside of the RIGHT HULL HALF (the one without the joint lip) at the rear exactly as shown. Glue the top edge of the right hull half to the boom tube along the center line. The rear of the hull half should be even with 2 1/16" (52 mm) mark. Align as shown in the front view. After the adhesive has set for several moments, apply a line of adhesive around the body tube as illustrated. Align the left hull half carefully and press the two halves together. Brush LIQUID TYPE PLASTIC CEMENT into the joint to glue the two halves together. Do not smear any cement onto the surface of the hull.



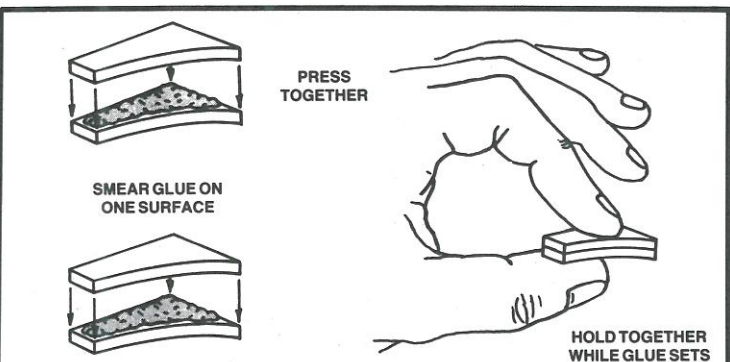
22 Install the engineering hull top on the wing. Pre-fold the tabs under the card piece. Apply glue to the two rear tabs and position the hull top on the wing. Press the glued tabs tightly into place, making sure the piece is perfectly straight on the wing, and hold until the glue sets. Apply glue to the top edge of the engineering hull front pieces and to the side tabs on the hull top piece. Press the hull top down into place and hold in position until the glue sets. Several straight pins and short strips of masking tape may be helpful to hold hull top in place until glue is dry.



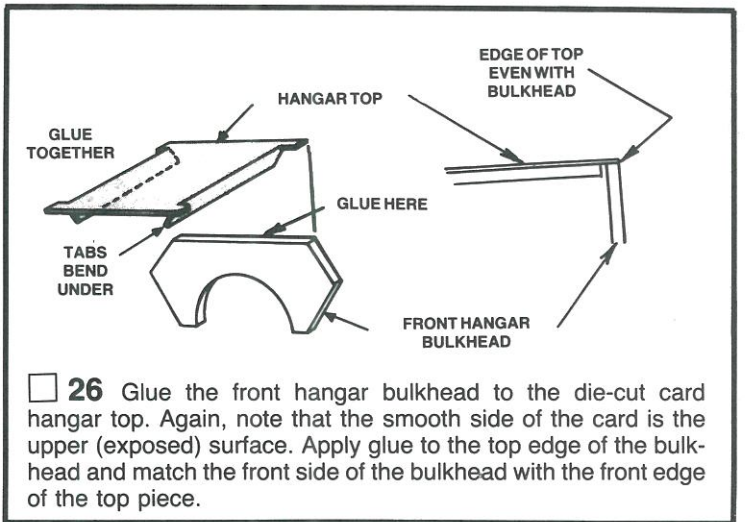
23 Position the two hangar side pieces on the flat trim plastic saved from step 1. Use LIQUID PLASTIC CEMENT to glue the pieces to the flat plastic. When the cement has dried, carefully trim around the parts using the score and break method, then file or sand the edges smooth. If the parts start to separate, apply a small amount of additional cement and let dry a while longer.



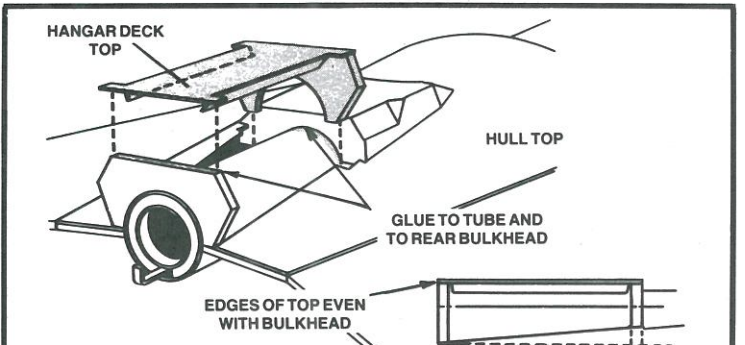
24 Cut two pieces from the dowel to the exact length of the wing tips. Glue these pieces to the wing tips so the top edge of the dowel is even with the top edge of the wing.



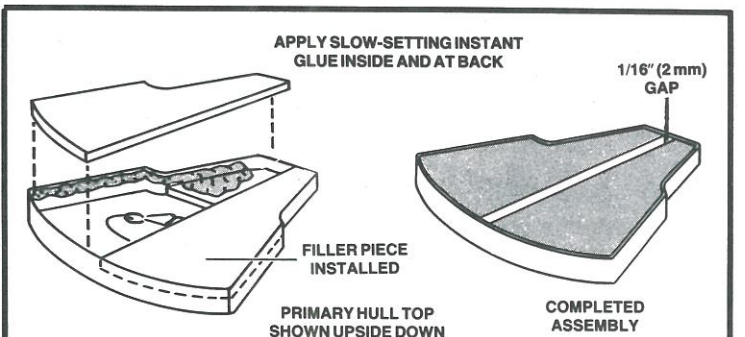
25 Glue the engineering hull brace pieces together to make two brace assemblies. Apply glue to the surface of one piece, press the other piece against it, matching edges, and hold by placing a weight on the assembly.



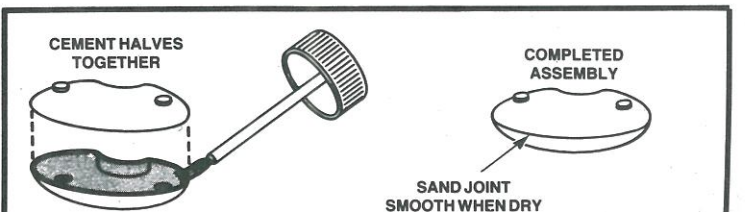
26 Glue the front hangar bulkhead to the die-cut card hangar top. Again, note that the smooth side of the card is the upper (exposed) surface. Apply glue to the top edge of the bulkhead and match the front side of the bulkhead with the front edge of the top piece.



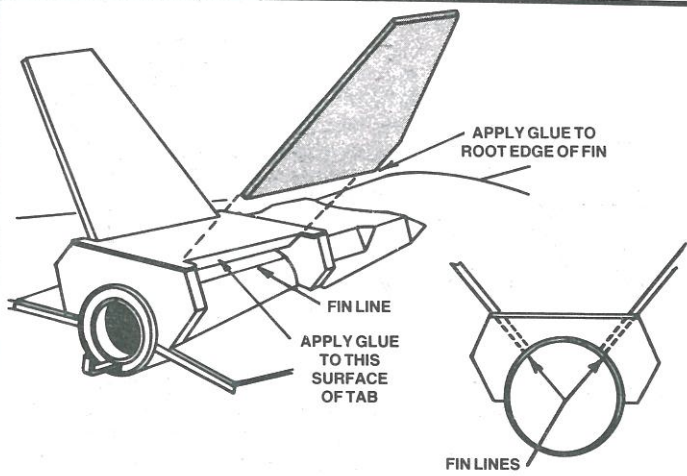
27 Apply glue to the top of the rear bulkhead and to the lower edges of the front bulkhead. Position bulkhead and hangar top on the model and press into place. The rear of the hangar top should be even with the back side of the rear bulkhead and the front bulkhead should be up against the back of the hangar front piece.



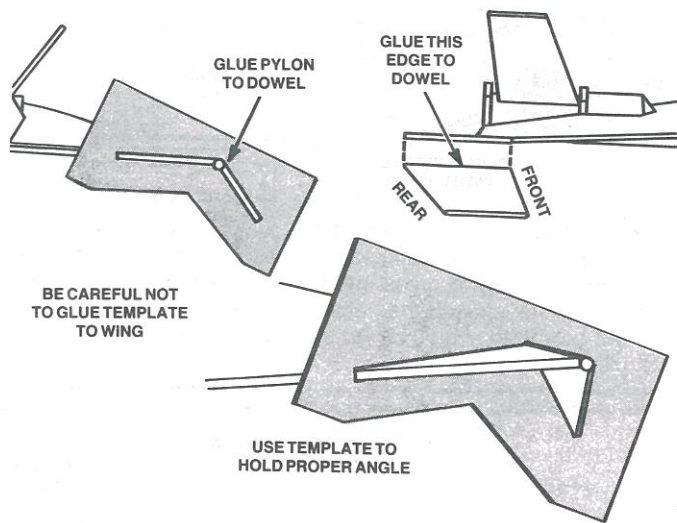
28 Sand and trim the two balsa filler pieces for the primary hull top so they fit precisely in the molded plastic primary hull top piece. Use slow-setting instant glue to glue them in place. The balsa pieces should be flush with the trimmed edge of the plastic part with approximately a 1/16" (2 mm) gap between the two balsa pieces.



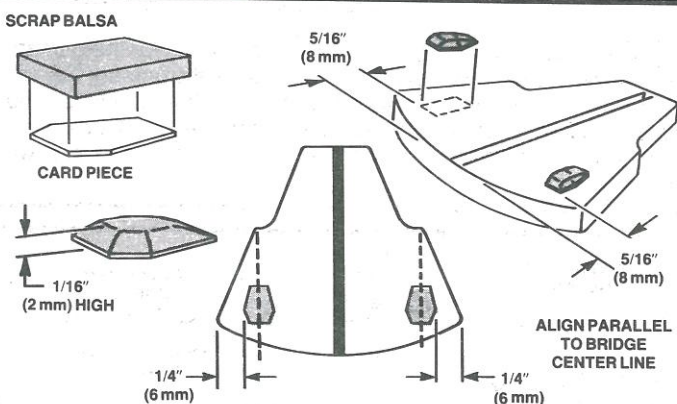
29 Use LIQUID PLASTIC CEMENT to glue the two bean-shaped bridge halves together. Place the parts together and apply cement lightly to the joint.



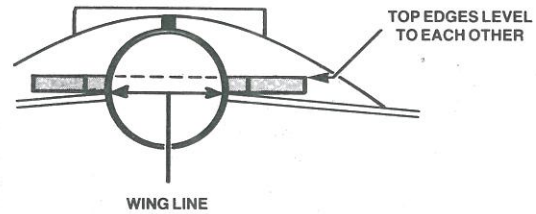
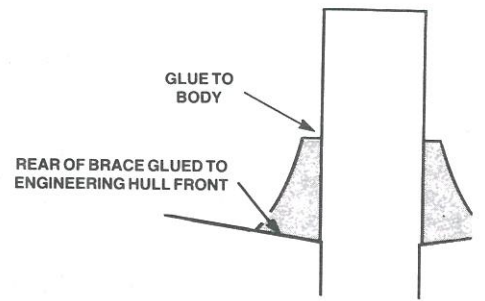
30 Glue the balsa fins to the hull body tube. Check to be sure they fit between the hangar bulkheads, then apply glue to the root edges of the fins and to the tabs on the hangar top. Position the fins so the outer edge of the fin is even with the fin line on the hull body and the bent-down tab is flat against the fin.



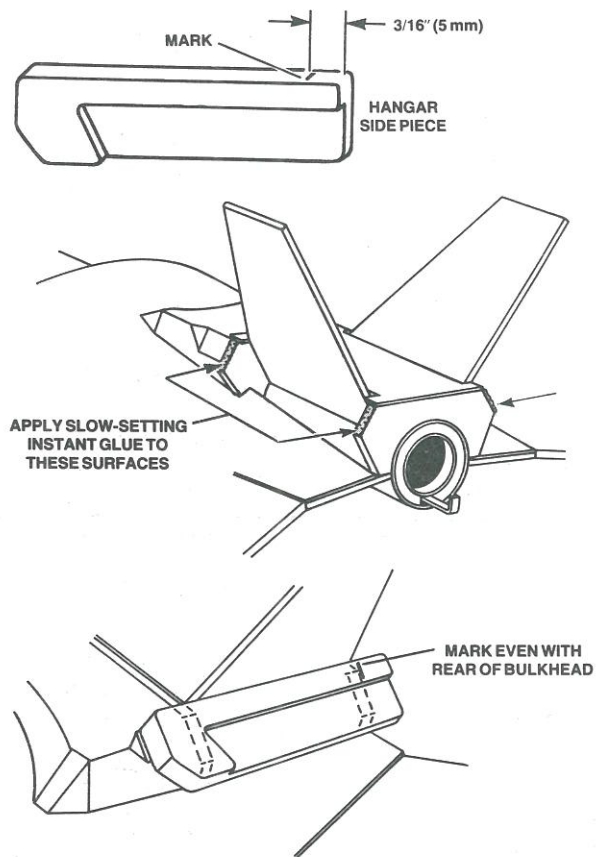
31 Separate the angle template from the die-cut card sheet and punch out the scrap paper from the inside guide. Glue the warp engine pylons to the dowel on the wing tip. Use the template to position one pylon correctly by sliding it onto the assembly from the rear. Keep the template in position until the glue sets, then repeat with the other pylon. Save template for use in step 40.



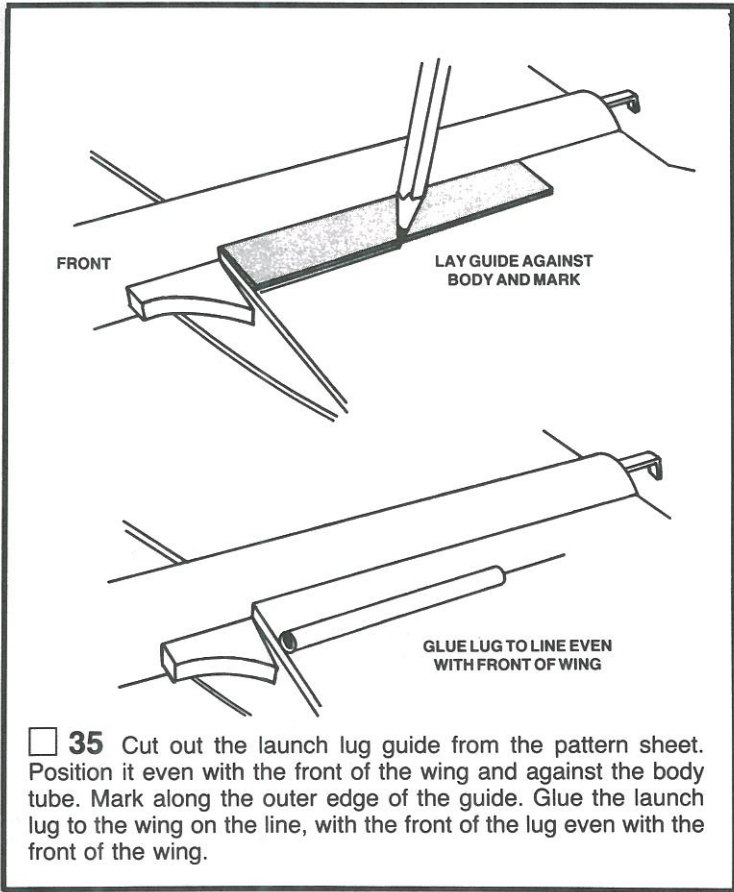
32 Punch out the two small detail pieces from the die-cut card. Glue each flat on a scrap piece of balsa. When the glue sets, trim the balsa even with the edges of the card pieces. Sand the balsa to the tapered, rounded shape illustrated, then glue to the underside of the primary hull at the front as shown.



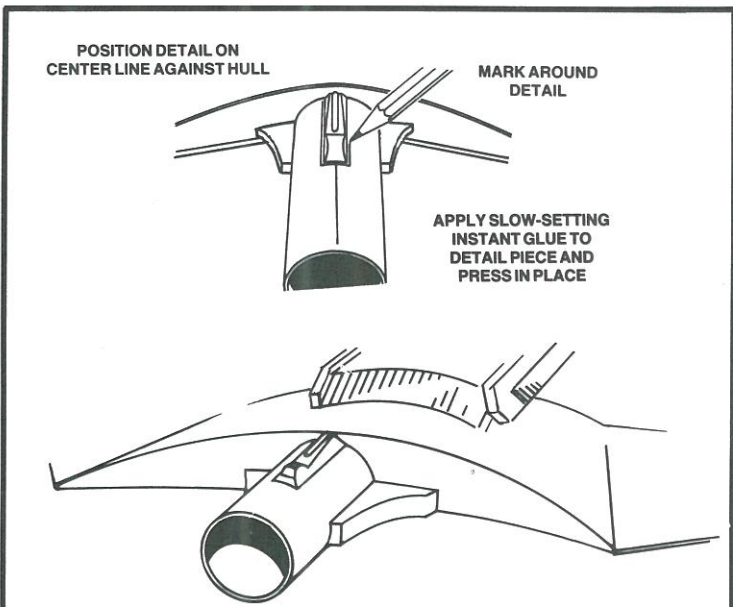
33 Glue the two engineering hull braces (step 25) to the hull body tube and the front of the engineering hull. The lower edge of the braces should be even with the wing line on the body. Make sure the braces are both level (so an imaginary line drawn flat across the top of one brace would match the top of the other brace).



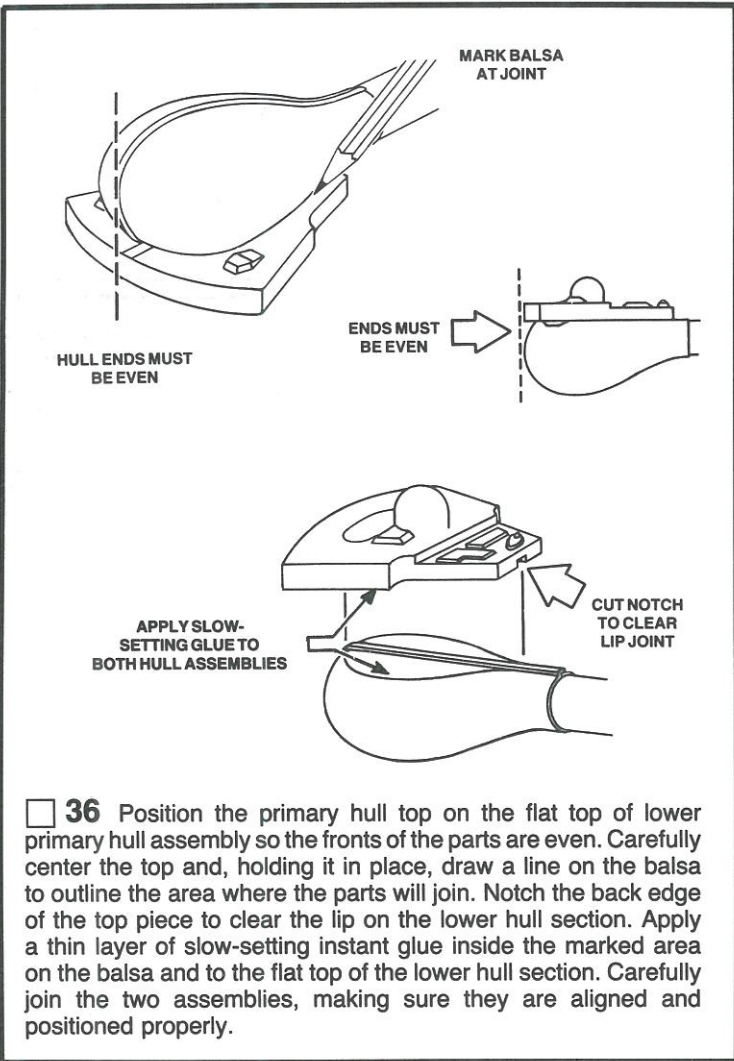
34 Mark the top edge of the hangar side pieces $3/16"$ (5 mm) from the rear on each. Apply slow-setting instant glue to the upper exposed edges of the hangar bulkheads. Press the side pieces into place so the marks are even with the back surface of the rear bulkhead and the side pieces just touch the fins.



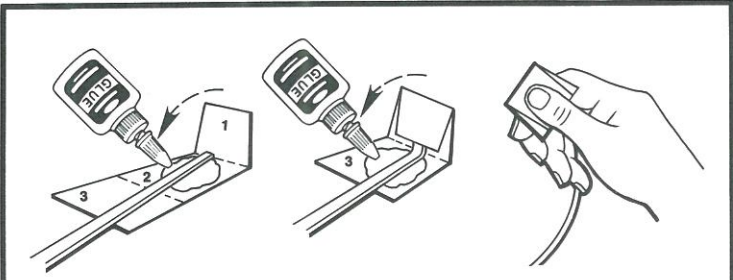
□ **35** Cut out the launch lug guide from the pattern sheet. Position it even with the front of the wing and against the body tube. Mark along the outer edge of the guide. Glue the launch lug to the wing on the line, with the front of the lug even with the front of the wing.



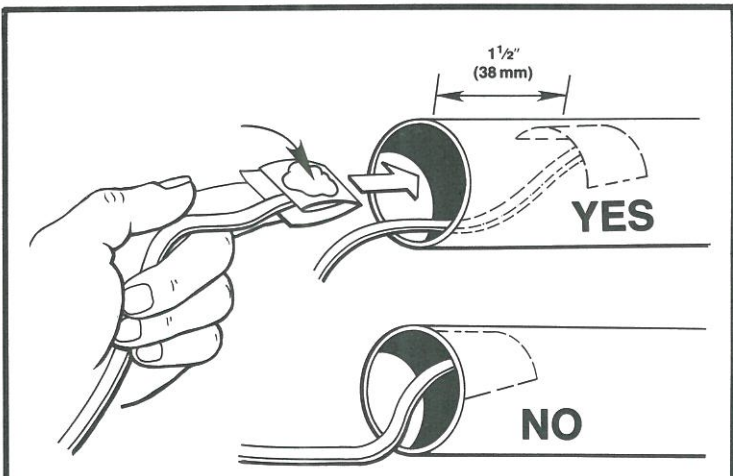
□ **37** Temporarily position the molded access boom detail on the hull body at the front of the engineering hull. Mark around it with a pencil. Remove and carefully apply slow-setting instant glue to the edges of the detail piece which will touch the tube, and reposition the piece into position.



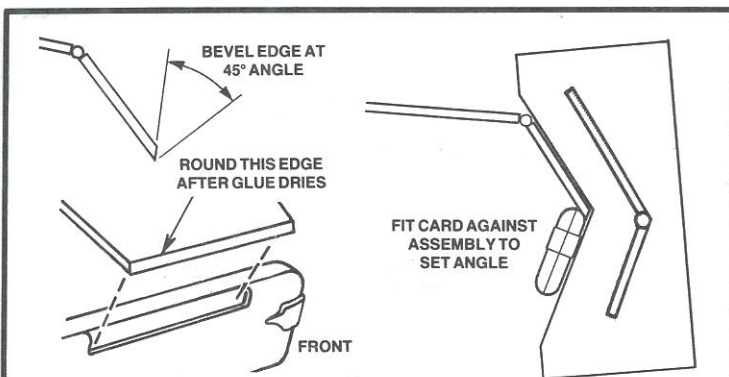
□ **36** Position the primary hull top on the flat top of lower primary hull assembly so the fronts of the parts are even. Carefully center the top and, holding it in place, draw a line on the balsa to outline the area where the parts will join. Notch the back edge of the top piece to clear the lip on the lower hull section. Apply a thin layer of slow-setting instant glue inside the marked area on the balsa and to the flat top of the lower hull section. Carefully join the two assemblies, making sure they are aligned and positioned properly.



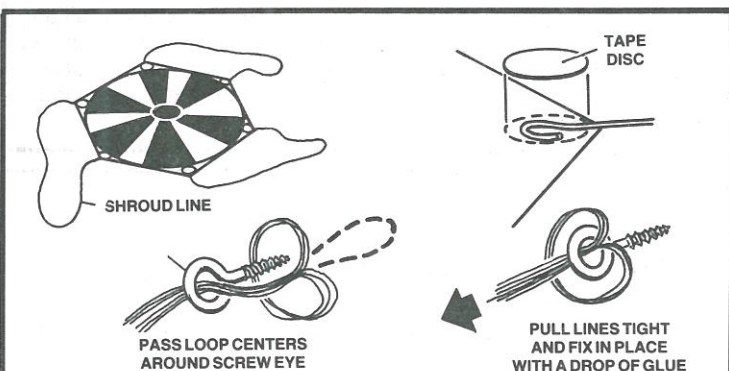
□ **38** Cut out the shock cord mount from the pattern sheet. Crease the mount on the dotted lines by folding. Spread glue on section 2 and lay one end of the shock cord into the glue at a slight diagonal as shown. Fold section 1 forward. Apply glue to section 3. Fold forward again. Clamp the shock cord mount firmly between your fingers until the glue sets.



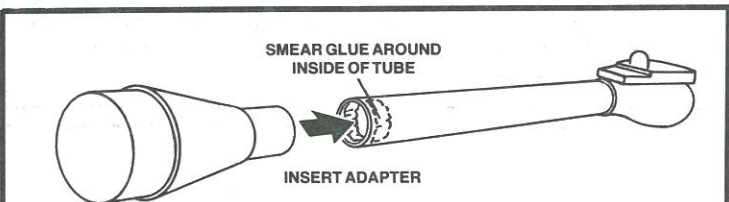
□ **39** Apply glue to back side of the completed shock cord mount. Push the shock cord mount against the inside of the upper stage body tube about 1 1/2" (38 mm) from the forward edge. Make sure all of the mount curves and contacts the tube wall before the glue sets. More glue may be added and rubbed into the shock cord mount for an even stronger bond if desired.



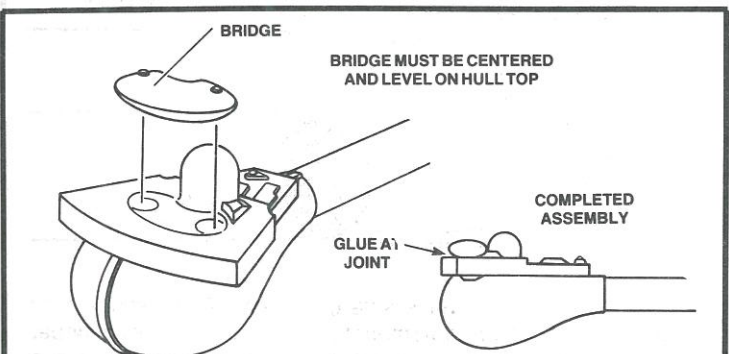
40 Bevel the tip edge of the pylon as shown. Using the notched edge of the pylon template as a guide, glue the warp engines to the pylons. The exposed tube in the warp engine glues to the lower surface of the pylon (not to the tip). It will be necessary to glue these parts one at a time, holding each in position until the glue starts to hold. For best results, use a minimum amount of glue. After the glue has dried, round the tip edge of the pylon slightly.



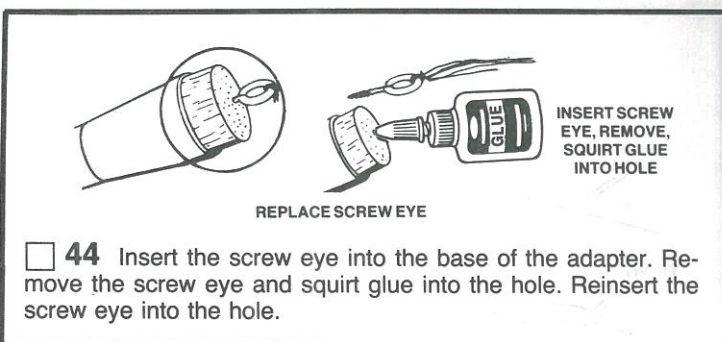
41 Cut out the parachute on its edge lines. Cut three 36" (91 cm) lengths of shroud line. Attach line ends to top surface of parachute with tape discs as shown. Pass shroud line loops through screw eye. Pass eye through loop ends and draw lines tight against screw eye. Set knot with a drop of glue.



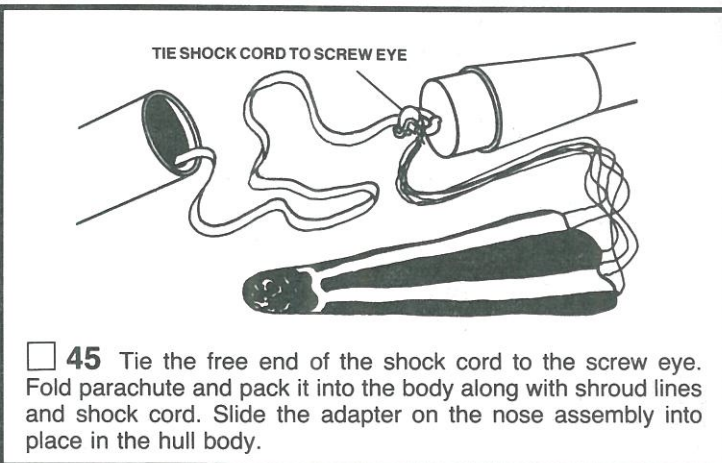
42 Apply a line of glue around the inside of the boom tube at the rear. Insert the small end of the adapter into the hole and press the adapter into place.



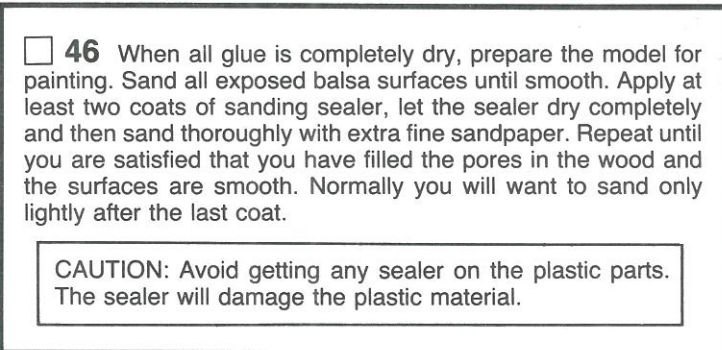
43 Glue the bean-shaped bridge assembly to the primary hull top. Position the bridge on the hull and then flow in a small amount of LIQUID PLASTIC CEMENT at the joint.



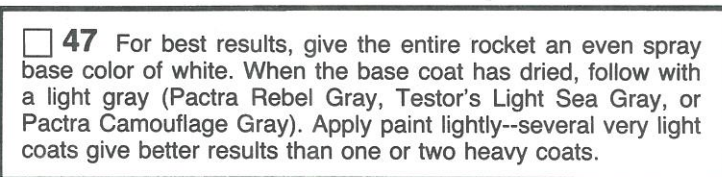
44 Insert the screw eye into the base of the adapter. Remove the screw eye and squirt glue into the hole. Reinsert the screw eye into the hole.



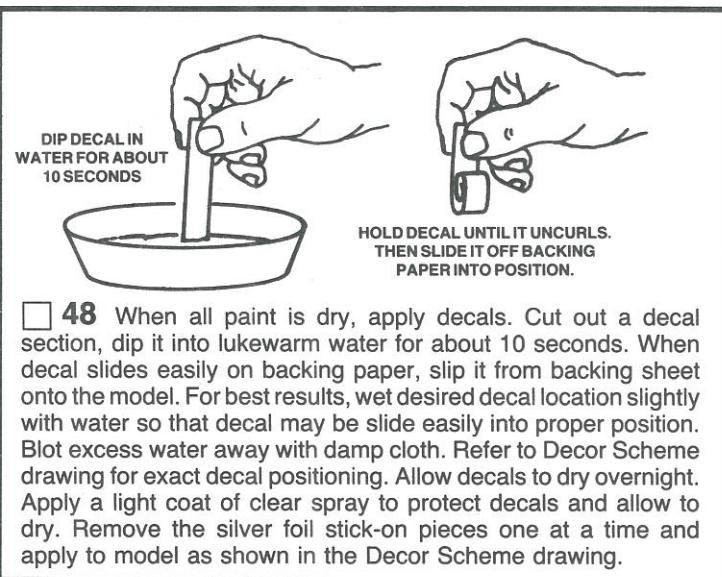
45 Tie the free end of the shock cord to the screw eye. Fold parachute and pack it into the body along with shroud lines and shock cord. Slide the adapter on the nose assembly into place in the hull body.



46 When all glue is completely dry, prepare the model for painting. Sand all exposed balsa surfaces until smooth. Apply at least two coats of sanding sealer, let the sealer dry completely and then sand thoroughly with extra fine sandpaper. Repeat until you are satisfied that you have filled the pores in the wood and the surfaces are smooth. Normally you will want to sand only lightly after the last coat.

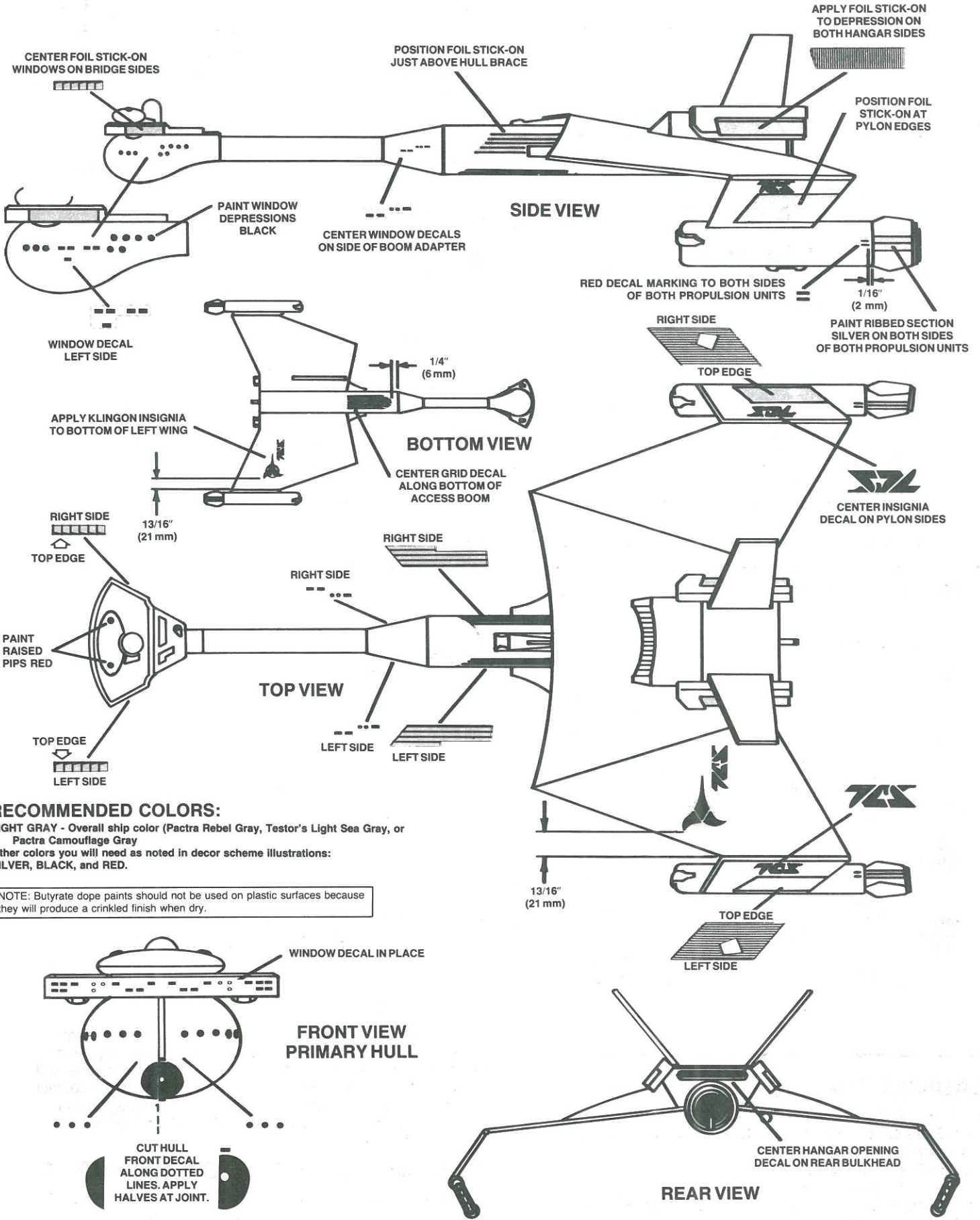


47 For best results, give the entire rocket an even spray base color of white. When the base coat has dried, follow with a light gray (Pactra Rebel Gray, Testor's Light Sea Gray, or Pactra Camouflage Gray). Apply paint lightly--several very light coats give better results than one or two heavy coats.



48 When all paint is dry, apply decals. Cut out a decal section, dip it into lukewarm water for about 10 seconds. When decal slides easily on backing paper, slip it from backing sheet onto the model. For best results, wet desired decal location slightly with water so that decal may be slide easily into proper position. Blot excess water away with damp cloth. Refer to Decor Scheme drawing for exact decal positioning. Allow decals to dry overnight. Apply a light coat of clear spray to protect decals and allow to dry. Remove the silver foil stick-on pieces one at a time and apply to model as shown in the Decor Scheme drawing.

KLINGON BATTLE CRUISER - DECOR SCHEME



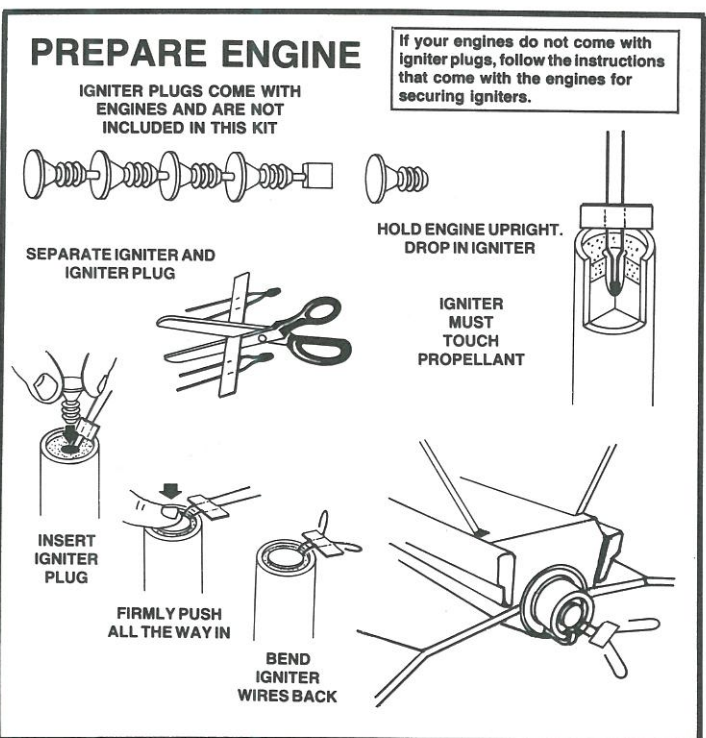
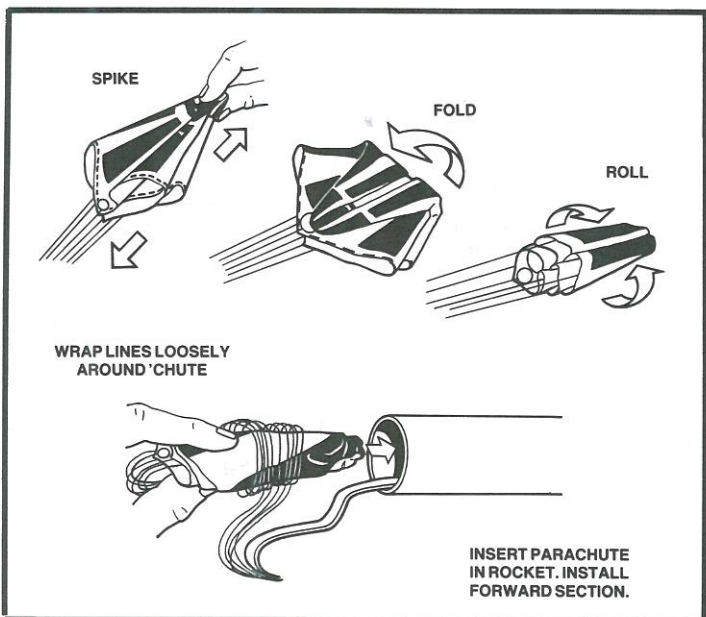
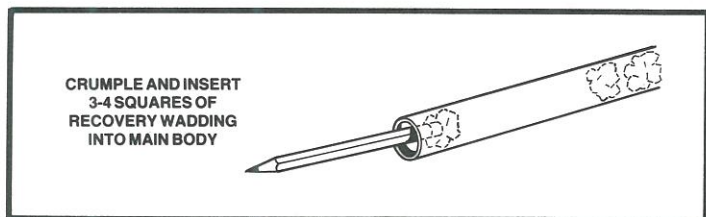
RECOMMENDED COLORS:

LIGHT GRAY - Overall ship color (Pactra Rebel Gray, Testor's Light Sea Gray, or Pactra Camouflage Gray)

Other colors you will need as noted in decor scheme illustrations: SILVER, BLACK, and RED.

NOTE: Butyrate dope paints should not be used on plastic surfaces because they will produce a crinkled finish when dry.

ROCKET PREFLIGHT



LAUNCH SUPPLIES

To launch your rocket you will need the following items:
 —An Estes Launch System and Launch Pad with 1/8" (3 mm) diameter launch rod
 —Estes Recovery Wadding No. 2274
 —Recommended Estes Engines: B4-2, B6-4, or C6-5.
 To become familiar with your rocket's flight pattern, use a B4-2 engine for your first flight.
Use only Estes products to launch this rocket.

FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 feet (76 meters) square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

Launch area must be free of dry weeds and brown grass.

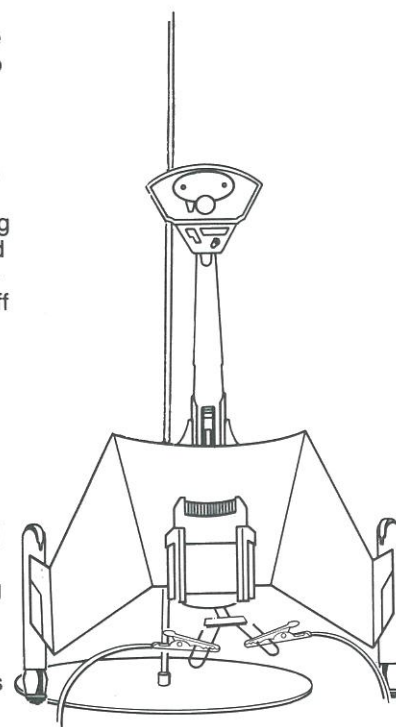
Launch only during calm weather with little or no wind and good visibility.

Don't leave parachute packed more than a minute or so before launch during cold weather [colder than 40° Fahrenheit (4° Celsius)].

Parachute may be dusted with talcum powder to avoid sticking.

COUNTDOWN AND LAUNCH

- ⑩ BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- ⑨ Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Place rocket on launch pad making sure rocket slides freely on launch rod. (A piece of masking tape may be wrapped around the launch lug [and the model] off the blast deflector).
- ⑧ Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the blast deflector. Attach clips as close to protective tape on igniter as possible. A suggested method is to tape the launch wire to the launch rod after attaching the clips, starting just below the clips.
- ⑦ Move back from your rocket as far as launch wire will permit (at least 15 feet - 5 meters).
- ⑥ INSERT SAFETY KEY to arm the launch controller.



Give audible countdown 5...4...3...2...1

PUSH AND HOLD LAUNCH LAUNCH!! BUTTON UNTIL ENGINE IGNITES

REMOVE SAFETY KEY FROM LAUNCH CONTROLLER.
 REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

MISFIRES

When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then press the igniter plug firmly into nozzle of engine as illustrated above. Repeat the countdown and launch procedure.

FOR YOUR SAFETY AND ENJOYMENT

Always follow the NAR* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

*National Association of Rocketry