





ESTES Optima™

FLYING MODEL
ROCKET KIT #2035

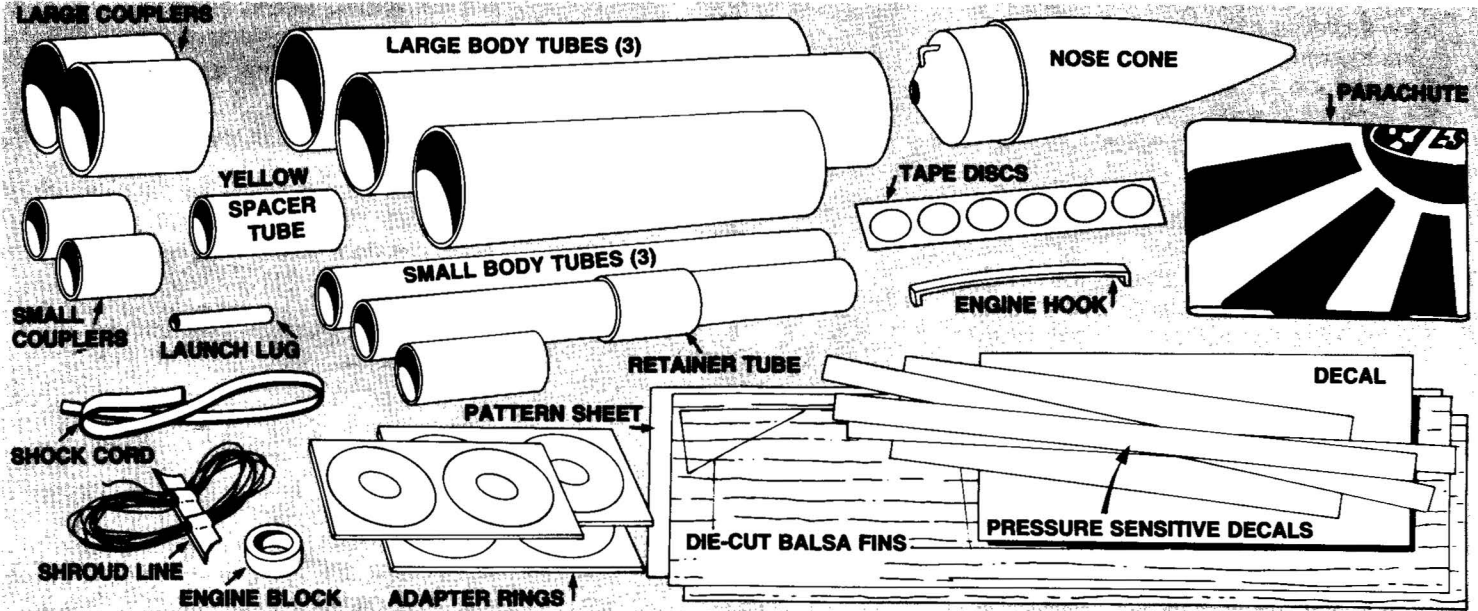
ESTES INDUSTRIES
1295 H Street
Penrose, CO 81240

PARTS AND SUPPLIES

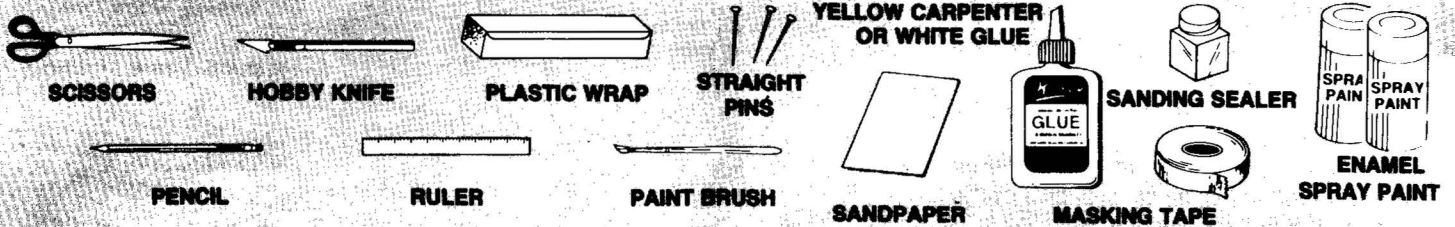
Locate the parts shown below and lay them out on the table in front of you.

ASSEMBLY TIP

Read all instructions before beginning work on your model.

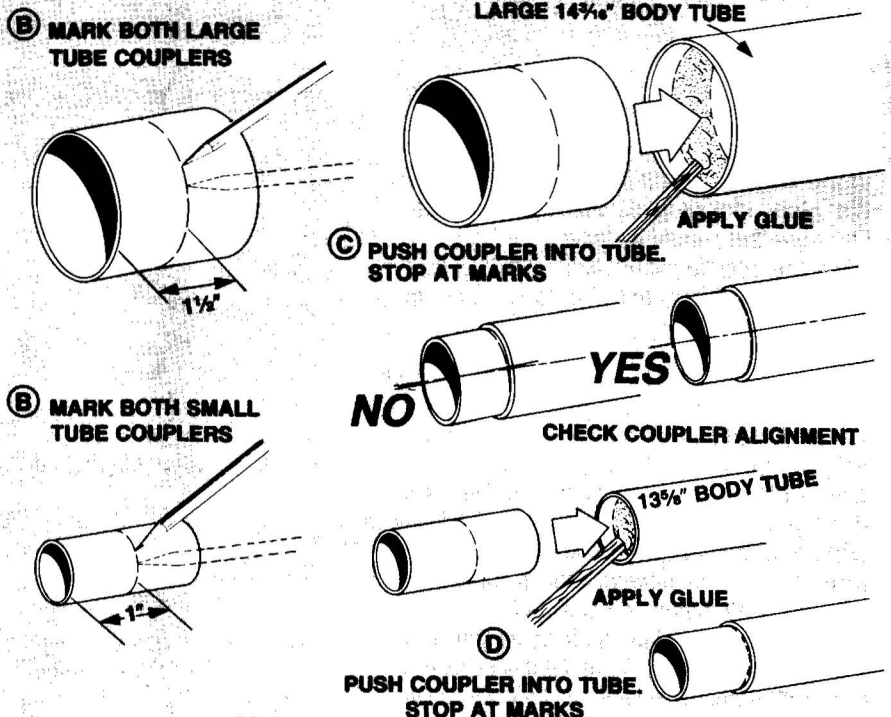


In addition to the parts included in the kit you will also need:



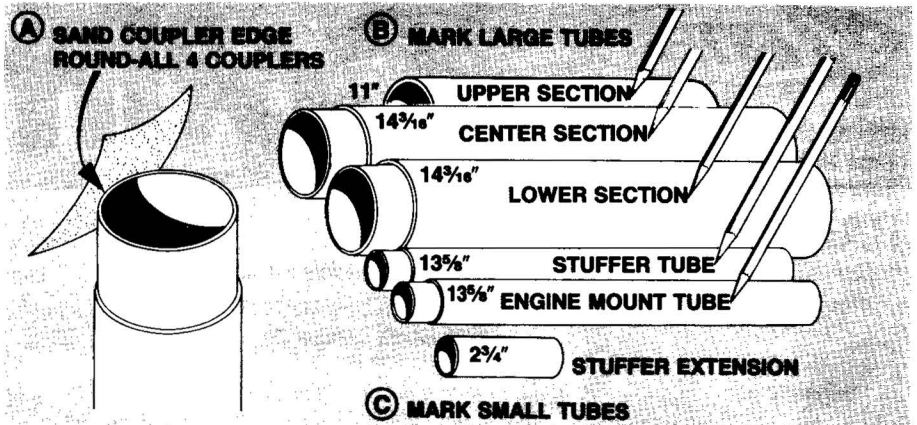
ROCKET ASSEMBLY

1.
 - A. Locate both large and both small tube couplers.
 - B. Mark the large tube couplers 1½ inch from one edge at several places. Mark the small tube couplers 1 inch from one edge at several places.
 - C. Apply a band of glue around the inside edge of one end of one of the large 14³/₁₆ inch long body tubes. Push one of the large tube couplers into the tube until the marks on the coupler are even with the end of the tube. Check that the coupler is aligned properly before the glue begins to set. Glue the remaining large tube coupler into one end of the remaining large 14³/₁₆ inch body tube. Check coupler alignment before the glue sets.
 - D. Glue a small tube coupler into one end of a 13⁵/₁₆ inch long smaller diameter body tube. Check coupler alignment. Glue the remaining small tube coupler into one end of the remaining 13⁵/₁₆ inch long body tube, checking the alignment.



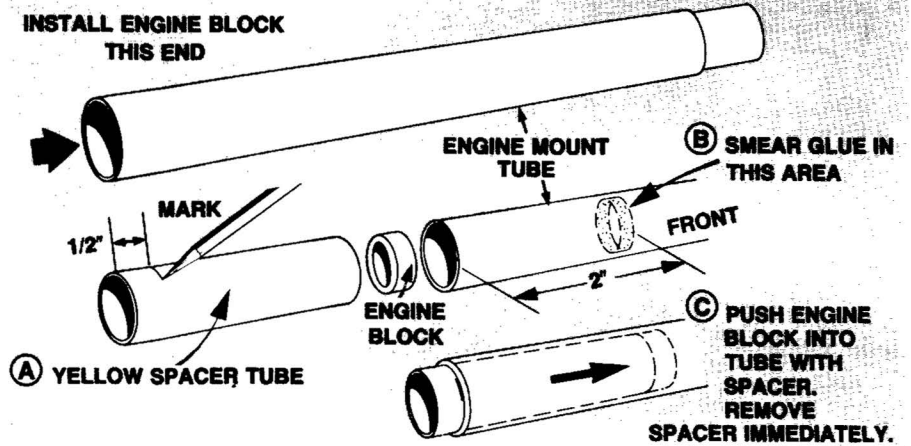
2.

- Sand all exposed tube coupler edges round as shown.
- Use a soft pencil to identify the two large $14\frac{3}{16}$ inch long body tubes. One should be identified as the LOWER SECTION and the other as the CENTER SECTION. Mark the remaining large 11 inch long body tube UPPER SECTION.
- Identify one of the smaller $13\frac{5}{8}$ inch long body tubes as ENGINE MOUNT TUBE. Mark the remaining $13\frac{5}{8}$ inch long smaller body tube as STUFFER TUBE. Mark the remaining small $2\frac{3}{4}$ inch long body tube STUFFER EXTENSION.



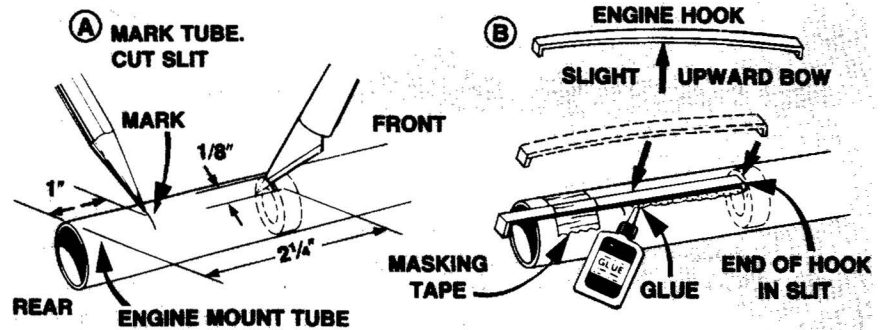
3.

- Mark the YELLOW spacer tube $\frac{1}{2}$ inch from one end.
- Place a band of glue around the inside end shown of the engine mount tube. The glue should be about 2 inches inside the tube.
- Insert the engine block into the tube and push it into place with the YELLOW spacer tube. This operation must be done quickly to avoid the glue 'grabbing' the engine block in the wrong place. Stop pushing when the mark on the spacer tube is even with the end of the engine mount tube. REMOVE and DISCARD the spacer tube immediately.



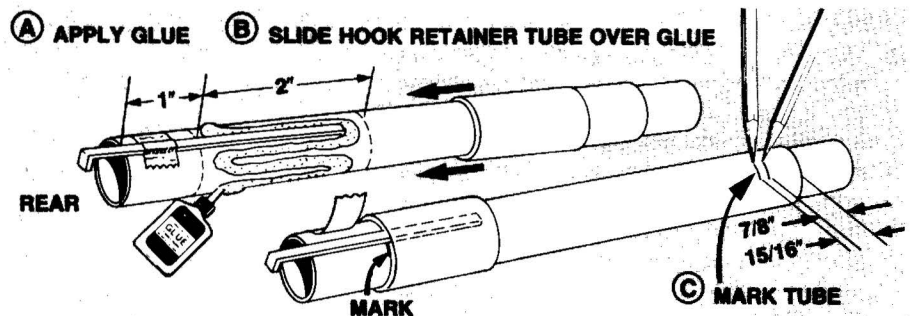
4.

- Mark the end of the engine mount tube with the engine block at 1 inch and $2\frac{1}{4}$ inches. Cut a $\frac{1}{8}$ inch wide slit at the $2\frac{1}{4}$ inch mark.
- Apply a line of glue from the slit rearward to the 1 inch mark. Push one end of the engine hook into the slit and align it straight on the tube. Hold the hook in place with masking tape.



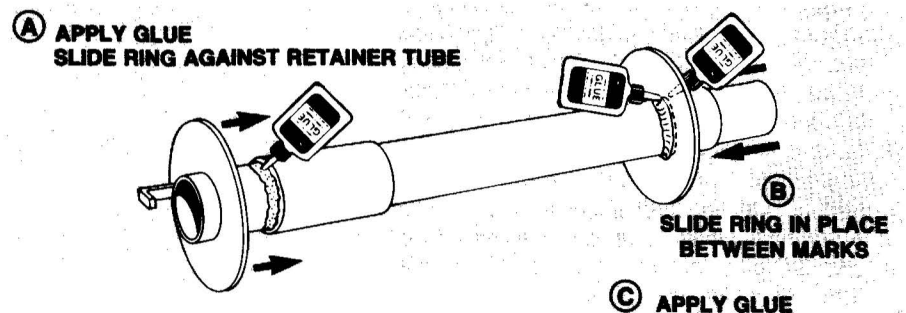
5.

- Apply glue around the engine mount tube as shown.
- Slide the hook retainer tube onto the front of the engine mount tube and down over the glue, stopping at the 1 inch mark. Remove the masking tape.
- Mark the engine mount tube $\frac{7}{8}$ inch and $\frac{15}{16}$ inch from the forward end as shown.



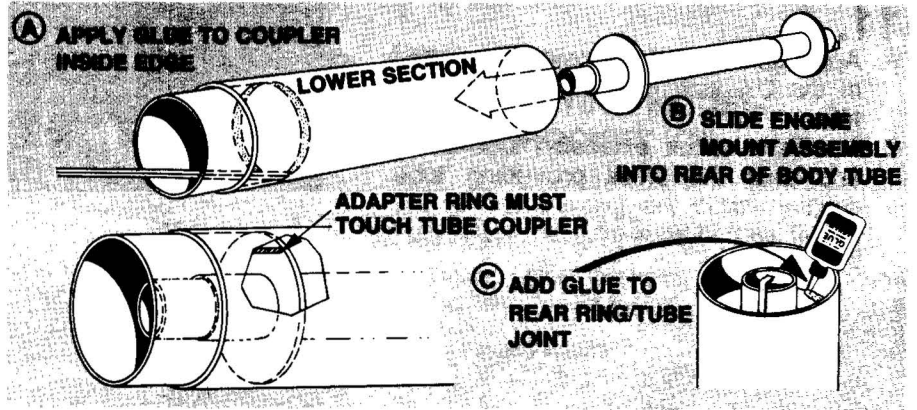
6.

- Apply glue around the engine mount tube just behind the retainer tube. Slide one of the die-cut adapter rings onto the tube and up against the retainer tube.
- Slide another adapter ring onto the forward end of the engine mount tube and position it between the marks.
- Apply glue around both sides of the ring where it touches the tube. Make sure the ring is straight as shown before the glue sets.



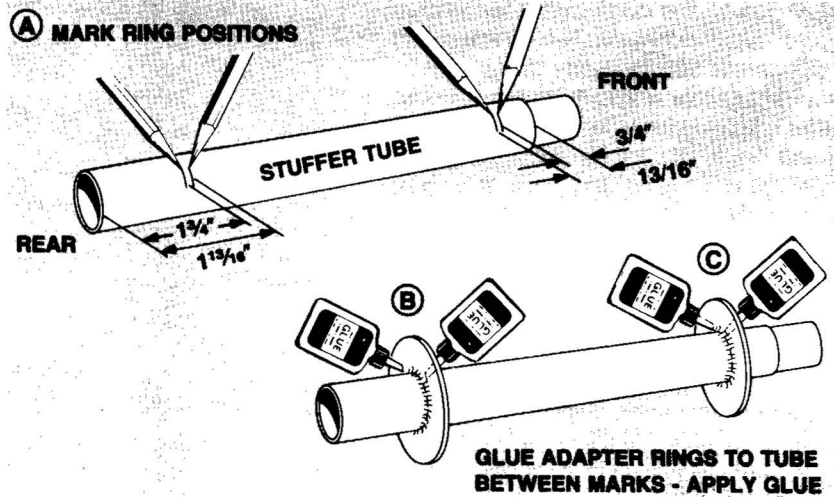
7.

- Apply glue around the inside of the large lower section body tube just behind the tube coupler.
- Slide the completed engine mount assembly into the rear of the lower section body tube and up against the tube coupler. Allow glue to dry.
- Apply glue around the inside of the rear of the body tube where it touches the adapter ring.



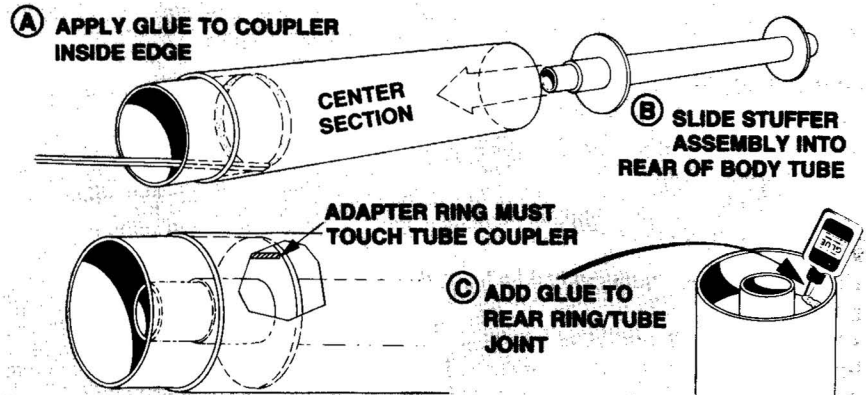
8.

- Mark the stuffer tube $1\frac{3}{4}$ inch and $1\frac{13}{16}$ inch from the rear as shown. Mark the tube $\frac{3}{4}$ inch and $\frac{13}{16}$ inch from the front as shown. Do NOT measure from the end of the tube coupler.
- Slide one adapter ring onto the rear of the tube and position it between the $1\frac{3}{4}$ inch and $1\frac{13}{16}$ inch marks. Apply glue around both sides of the ring where it touches the tube. Be sure the ring is straight. Allow glue to dry.
- Slide one adapter ring onto the front of the tube and position it between the $\frac{3}{4}$ inch and $\frac{13}{16}$ inch marks. Apply glue around both sides of the ring where it touches the tube. Be sure the ring is straight. Allow glue to dry.



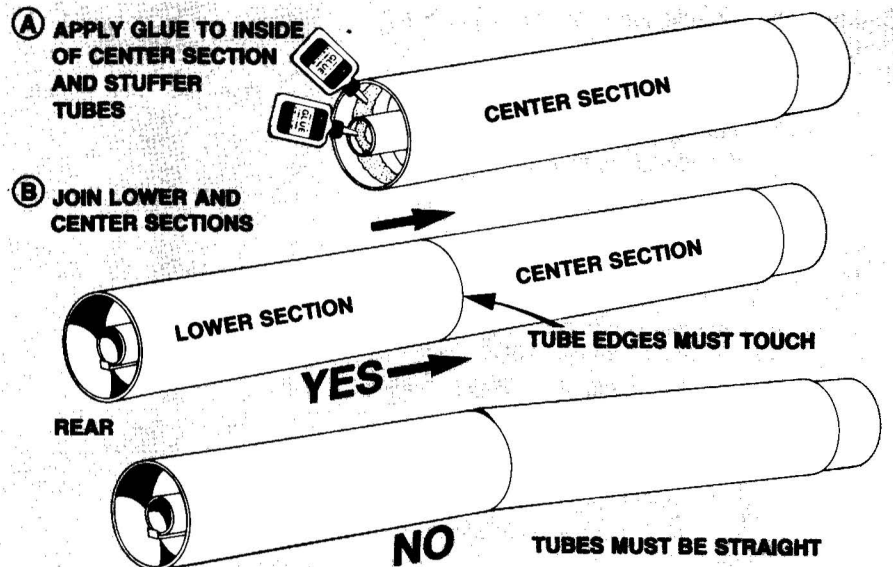
9.

- Apply glue around the inside of the center section body tube just behind the tube coupler.
- Slide the stuffer tube assembly into the rear of the center section body tube and up against the tube coupler as shown.
- Apply glue around the inside of the rear of the body tube where it touches the adapter ring.



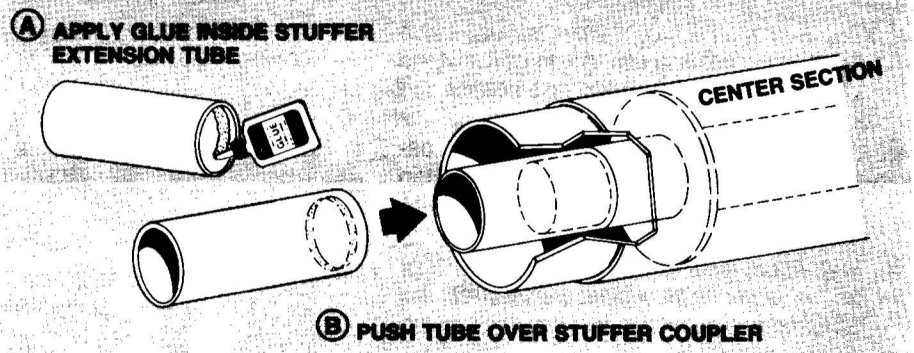
10.

- Apply glue inside the center section and stuffer tube near the end as shown.
- Join the lower and center section body tubes with a twisting motion. Be sure the tubes are aligned straight and the tube edges touch before the glue sets.



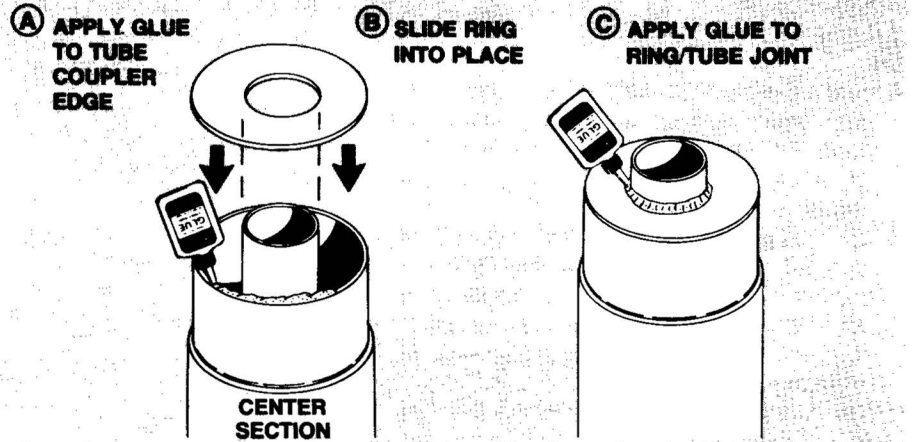
11.

- Apply glue around the inside of one end of the 2³/₄ inch long stuffer extension tube.
- Push the stuffer extension tube down and over the small protruding tube coupler inside the forward end of the center section body tube. Allow the glue to dry.



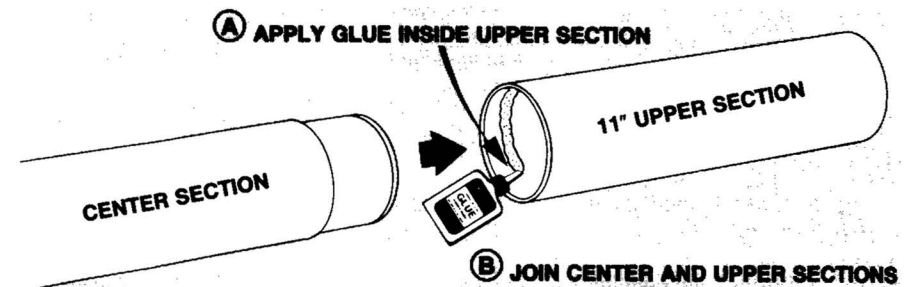
12.

- Apply glue to the edge of the large tube coupler extending from the forward end of the center section body tube.
- Slide an adapter ring onto the protruding stuffer tube extension and seat it all around the tube coupler edge.
- Apply glue around the ring where it touches the tube.



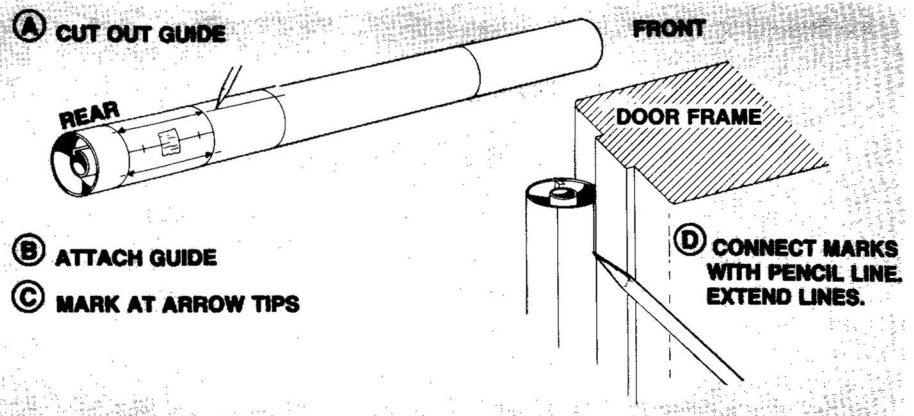
13.

- Apply glue around the inside of one end of the upper section body tube. The glue should be placed about 1 inch from the tube end.
- Join the center section tube and upper section tube with a twisting motion. Be sure the tubes are straight before the glue begins to set.



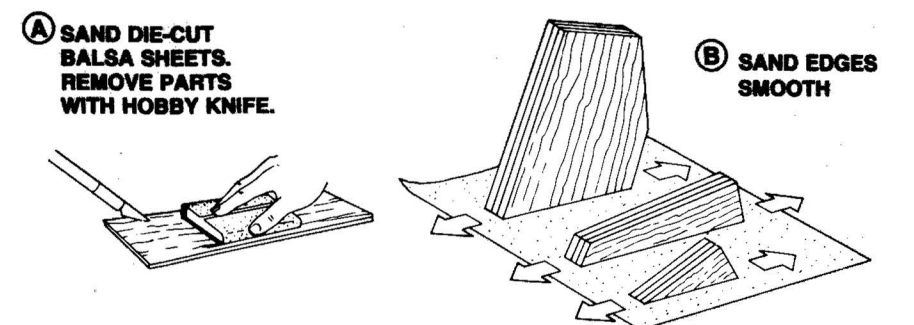
14.

- Cut out the tube marking guide from the pattern sheet.
- Wrap the guide around the lower section body tube near the end as shown. Hold the marking guide in place with a small piece of tape.
- Mark the tube at each arrow point. Remove the marking guide.
- Draw straight lines connecting each pair of marks. The lines should extend from the bottom edge of the tube to the joint made with the center section body tube.



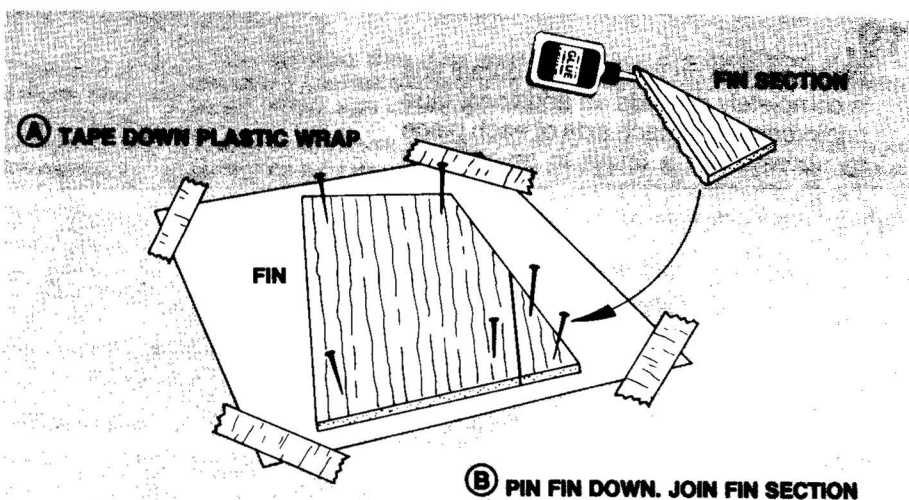
15.

- Fine sand both balsa die-cut sheets. Carefully remove each part by freeing edges with a sharp hobby knife.
- Stack fins, fin sections, and dorsal fins together. Sand all edges smooth.



16.

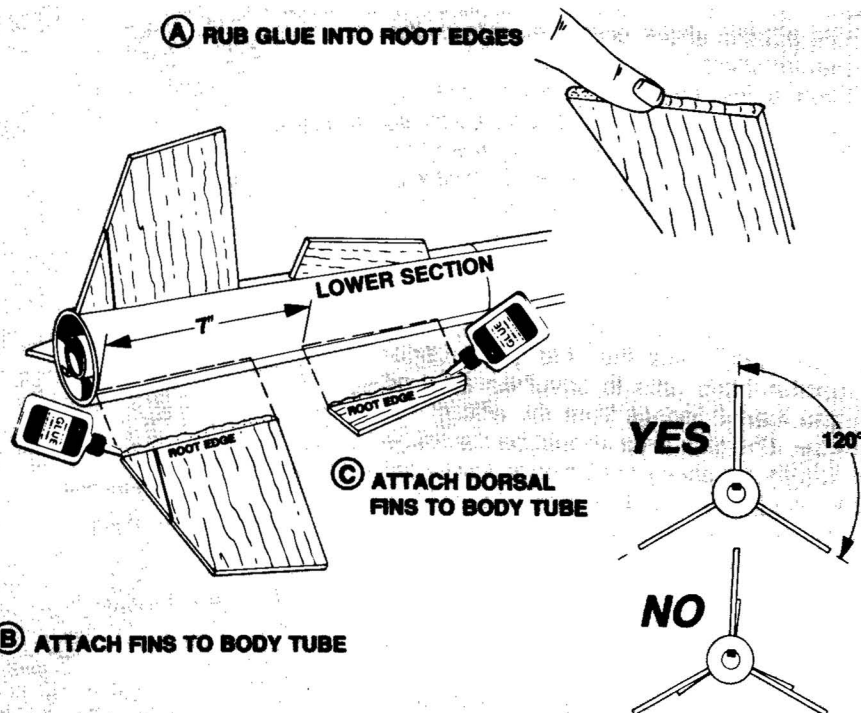
- Lay and stretch a section of kitchen plastic wrap on a work surface. Hold tight using tape at the corners.
- Pin a fin to the plastic wrap. Apply glue to the edge of a fin section. Push the fin section against the fin, align carefully, and pin in place. Be sure the root edges of both the fin and fin section match before the glue sets.
- Glue the remaining fins and fin sections together in the same manner.
- Re-sand completed fin edges after glue has dried if necessary.



17.

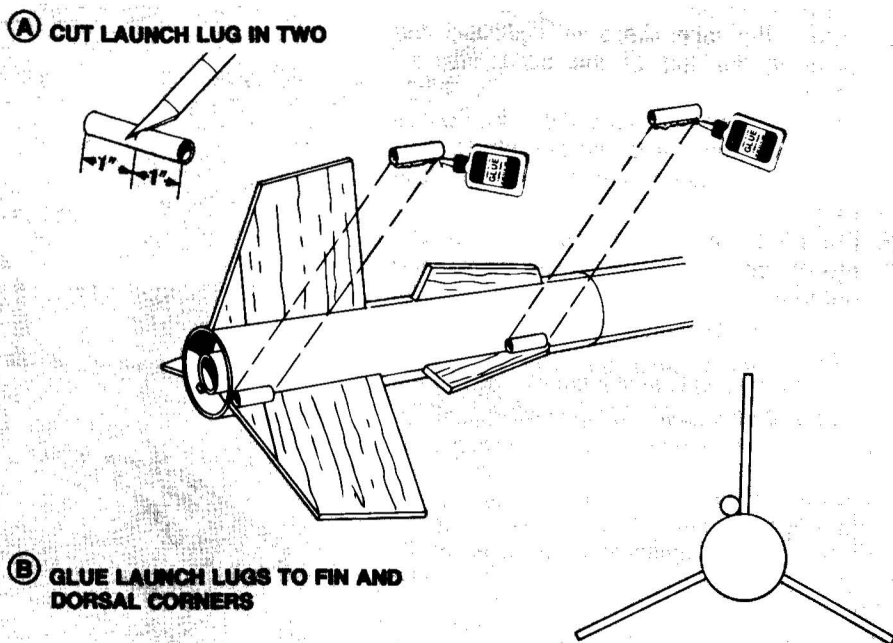
- Apply and rub glue into the root edges of the completed fins and dorsal fins. Allow the glue to dry thoroughly.
- Attach completed fins to the body tube one at a time. Add more glue to the root edge and position the fin on the lower section body tube next to an alignment line as shown. Be sure the trailing edge of the fin is even with the end of the body tube and is aligned straight on the tube before the glue sets. Repeat for other two fins.
- Attach dorsal fins to the body tube one at a time. Add more glue to the root edge and position the dorsal fin on the lower section body tube on the same fin side of the alignment line as shown. Position the dorsal fin 7 inches from the rear edge of the body tube. Make sure the dorsal is aligned straight behind it. Repeat for other two dorsal fins.

FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT



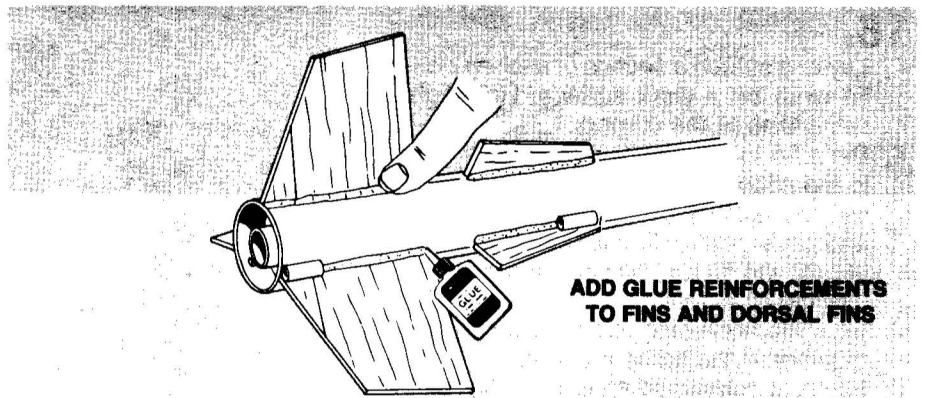
18.

- Cut the launch lug in half to give two equal sections, each 1 inch in length.
- Glue one of the launch lugs at one of the fin/body tube corners even with the rear of the body tube. Glue the other launch lug directly in front of the first, near the forward end of the matching dorsal fin.



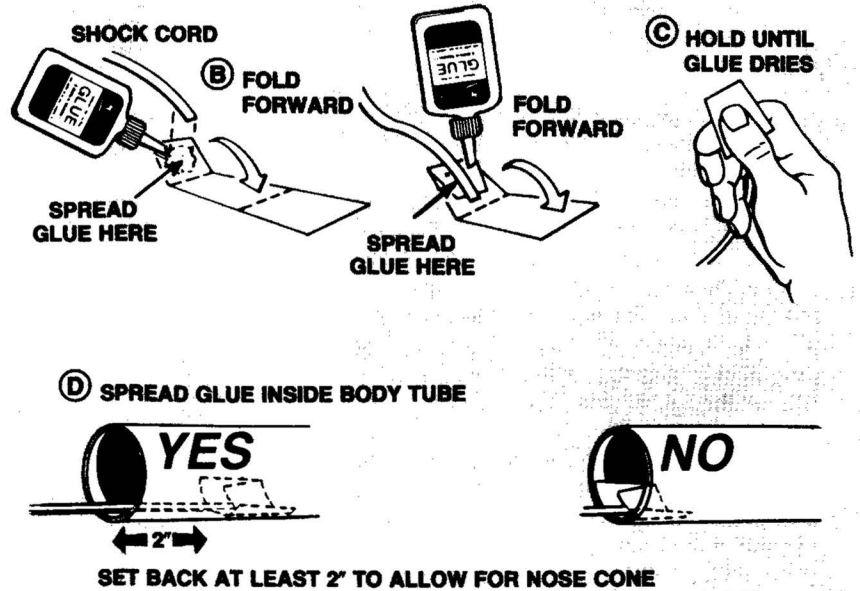
19.

When all glue on the fins and dorsal fins is completely dry, add an additional glue reinforcement to each side of each piece as shown. Use a finger to smooth out the glue before it dries.



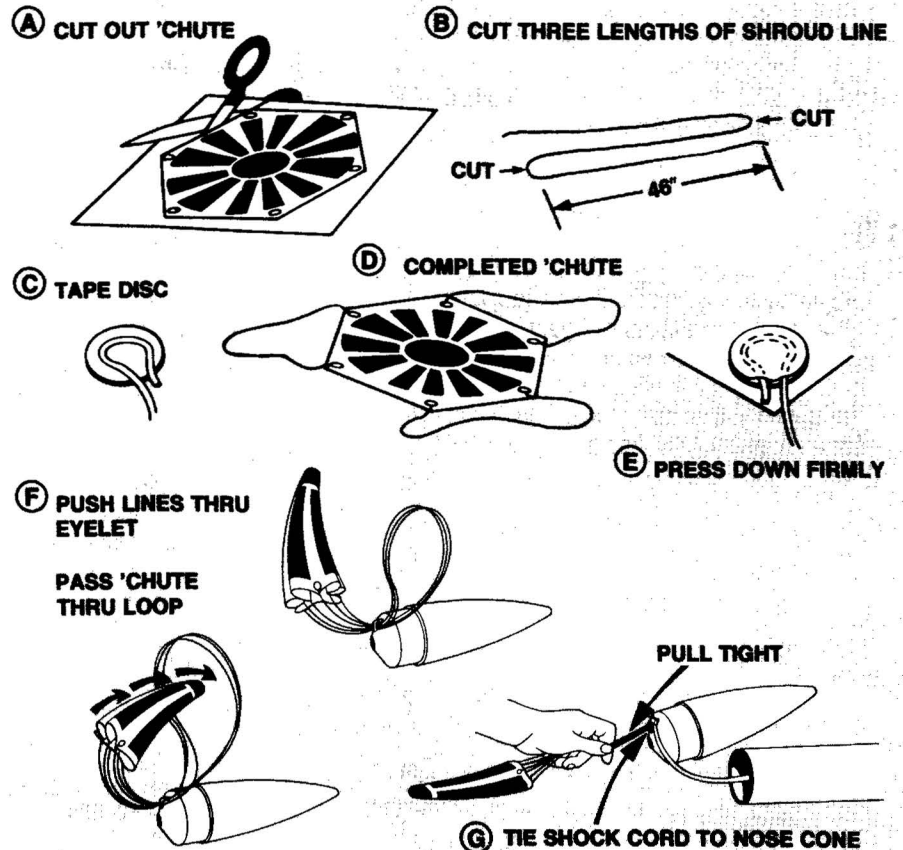
20.

- Cut out the shock cord mount from the pattern sheet.
- Crease the mount on the dotted lines by folding. Spread glue on section 1 and lay the end of the shock cord into the glue. Fold over and apply glue to the back of section 1 and the exposed part of section 2. Lay the shock cord as shown and fold the mount over again.
- Clamp the unit together between two fingers until the glue sets.
- Apply glue inside the front of the upper section body tube to cover an area no less than 2 inches from the end of the tube. The glue area should be the same size as the shock cord mount. Press the mount firmly into the glue and hold in place until the glue sets.



21.

- Cut out the parachute on the printed edges.
- Cut three 46 inch lengths of shroud line.
- Form small loops in the shroud line ends and press onto the sticky side of the tape discs.
- Attach the tape discs with shroud line ends to the top of the parachute as shown.
- FIRMLY** press the tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- Pass the shroud line loops through the eyelet on the nose cone. Pass the parachute through the loop ends and pull the lines tight against the nose cone eyelet.
- Tie the free end of the shock cord to the nose cone eyelet with a double knot.



FINISHING YOUR OPTIMA

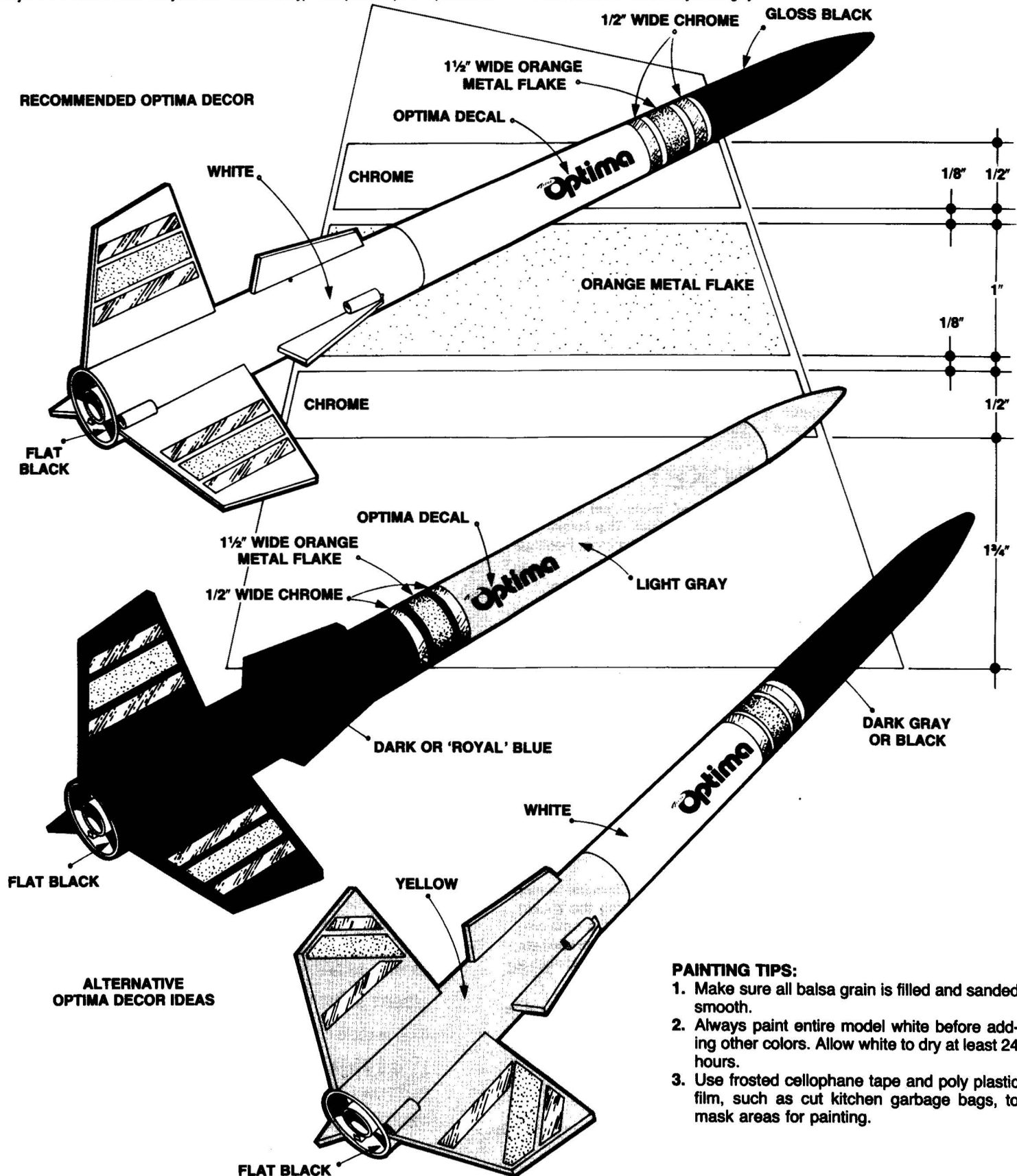
Apply a heavy coat of sanding sealer to all balsa parts and allow to dry. Lightly sand all sealed surfaces. Repeat sealing and sanding until all balsa grain is filled and smooth. When all sanding sealer is completely dry, paint the entire model with white spray paint. Follow the instructions on the spray can for best results. Several light coats may be necessary to achieve a solid bright white. Let the white dry for at least 24 hours before applying or masking for other colors.

Three suggested color schemes are shown below. However, the model may be painted any color or color combination you wish. Use frosted type cellophane tape and plastic film

to mask and protect areas of the model when applying other colors. When all paint is completely dry, add final decoration using the metal flake and chrome self-adhesive materials and OPTIMA water transfer decal included.

To apply the decal, soak in lukewarm water for about 30 seconds. Lay the decal paper backing next to the area where the decal is to be applied, push one end of the decal onto the model, then slowly pull the paper backing out from under the decal. The decal will lay itself on the model during this procedure. Align the decal straight and blot away any excess water. Allow the decal to dry thoroughly.

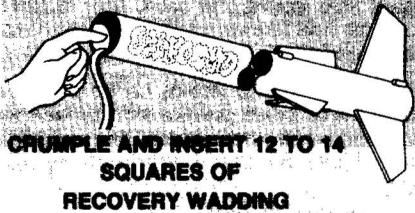
RECOMMENDED OPTIMA DECOR



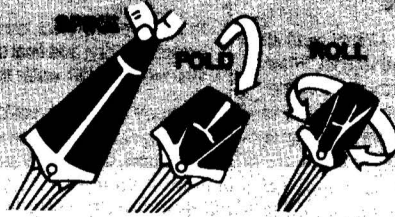
PAINTING TIPS:

1. Make sure all balsa grain is filled and sanded smooth.
2. Always paint entire model white before adding other colors. Allow white to dry at least 24 hours.
3. Use frosted cellophane tape and poly plastic film, such as cut kitchen garbage bags, to mask areas for painting.

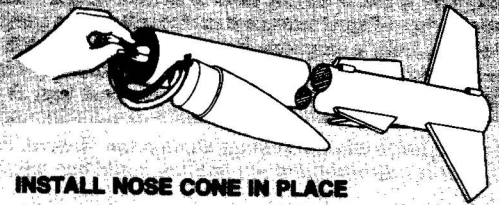
ROCKET PREFLIGHT



CRUMPLE AND INSERT 12 TO 14 SQUARES OF RECOVERY WADDING



WRAP LEADS LOOSELY AROUND CHUTE
INSERT PARACHUTE IN ROCKET

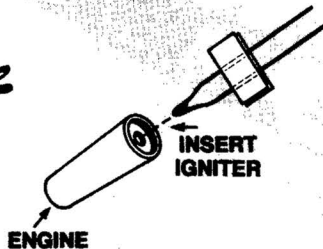


INSTALL NOSE CONE IN PLACE

PREPARE ENGINE



SEPARATE THE IGNITERS



INSERT IGNITER

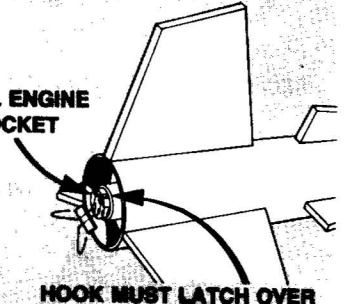
IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING



FOLD OVER AND BEND LEADS



APPLY AND FIRMLY PRESS MASKING TAPE IN PLACE



INSTALL ENGINE IN ROCKET

HOOK MUST LATCH OVER END OF ENGINE

LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- Estes Electrical Launch System and Launch Pad
 - Estes Recovery Wadding No. 2274
 - Estes Maxi-Rod No. 2244
 - Recommended Estes Engines: D12-3 or D12-5
- Use only Estes products with 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 500 feet 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 NO wind and good visibility. Make sure launch rod is pointed straight up.

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.

MISFIRES

Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

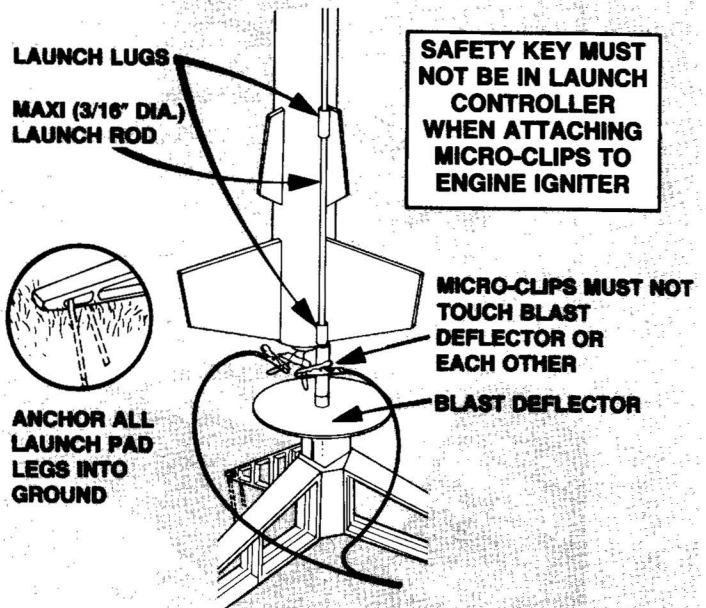
When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then tape the igniter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

FOR YOUR SAFETY AND ENJOYMENT

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

*National Association of Rocketry-The Hobby Industry of America

COUNTDOWN AND LAUNCH



LAUNCH LUGS

MAXI (3/16" DIA.) LAUNCH ROD

SAFETY KEY MUST NOT BE IN LAUNCH CONTROLLER WHEN ATTACHING MICRO-CLIPS TO ENGINE IGNITER

ANCHOR ALL LAUNCH PAD LEGS INTO GROUND

MICRO-CLIPS MUST NOT TOUCH BLAST DEFLECTOR OR EACH OTHER

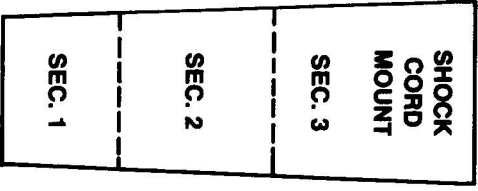
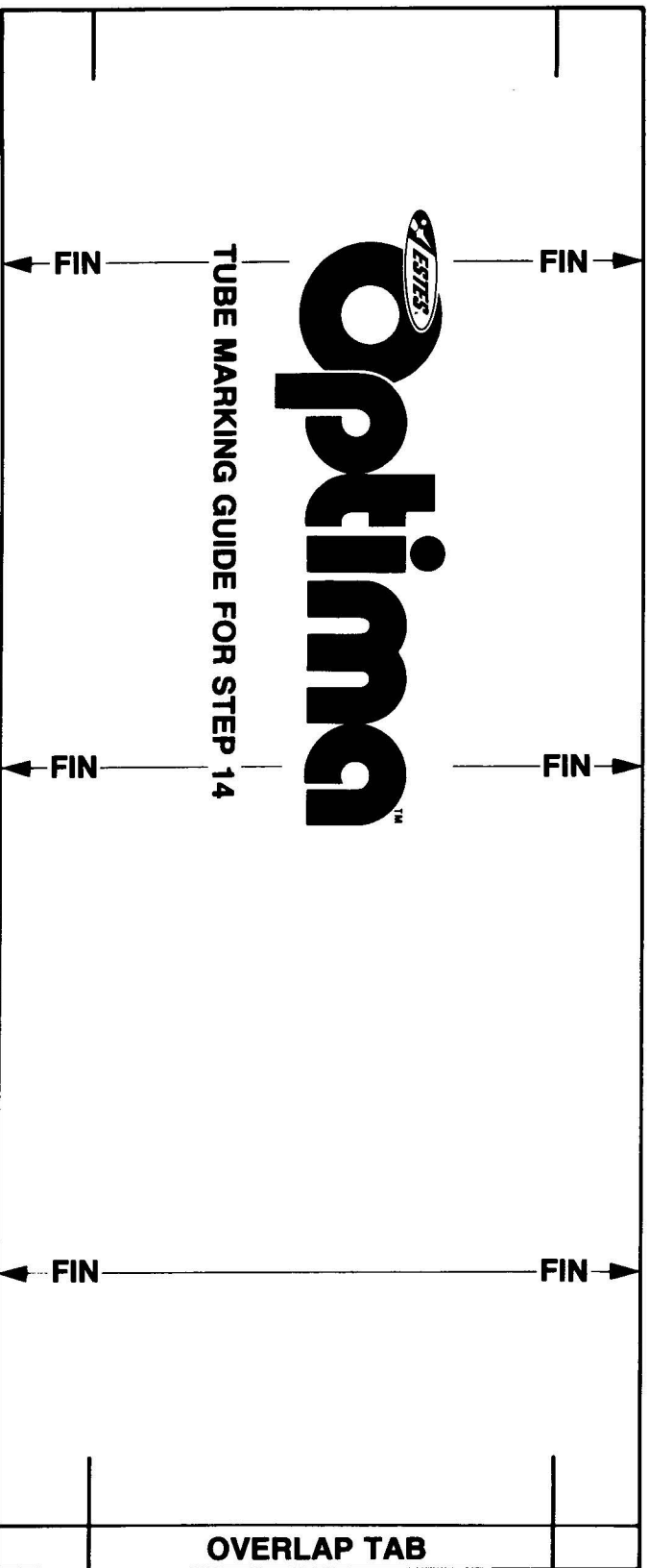
BLAST DEFLECTOR

- ⑩ BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- ⑨ Remove safety cap and slide launch lugs over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
- ⑧ Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
- ⑦ Move back from your rocket as far as launch wire will permit (at least 15 feet).
- ⑥ INSERT SAFETY KEY to arm the launch controller.

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

LAUNCH!!! PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES

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



**FOR
ASSEMBLY
STEP 20**

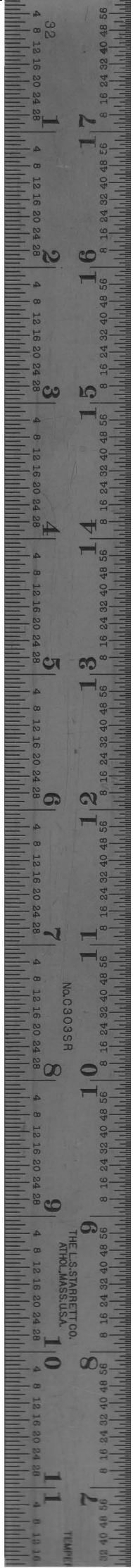
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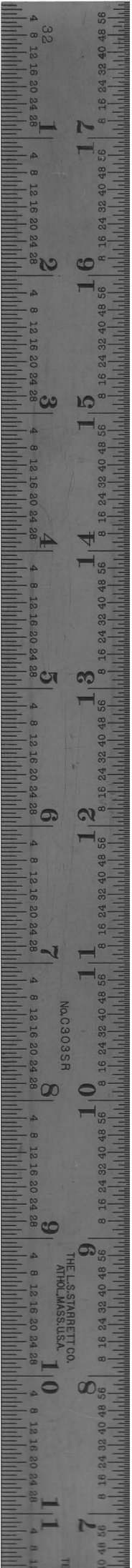
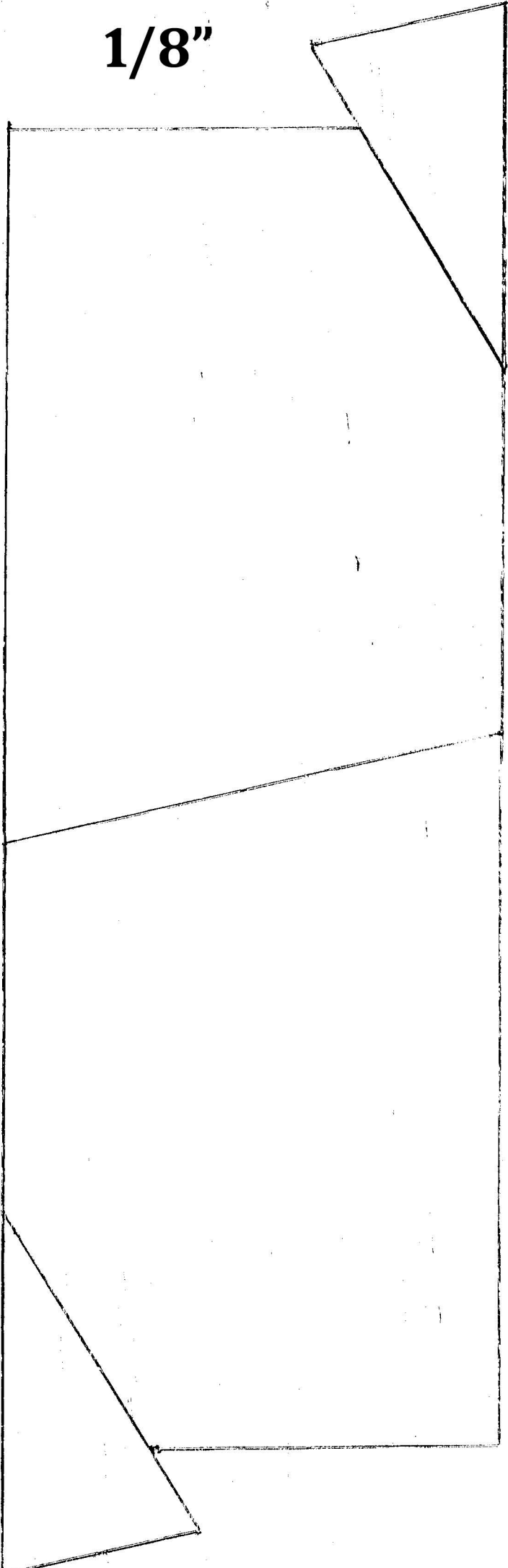
Firearm

TM

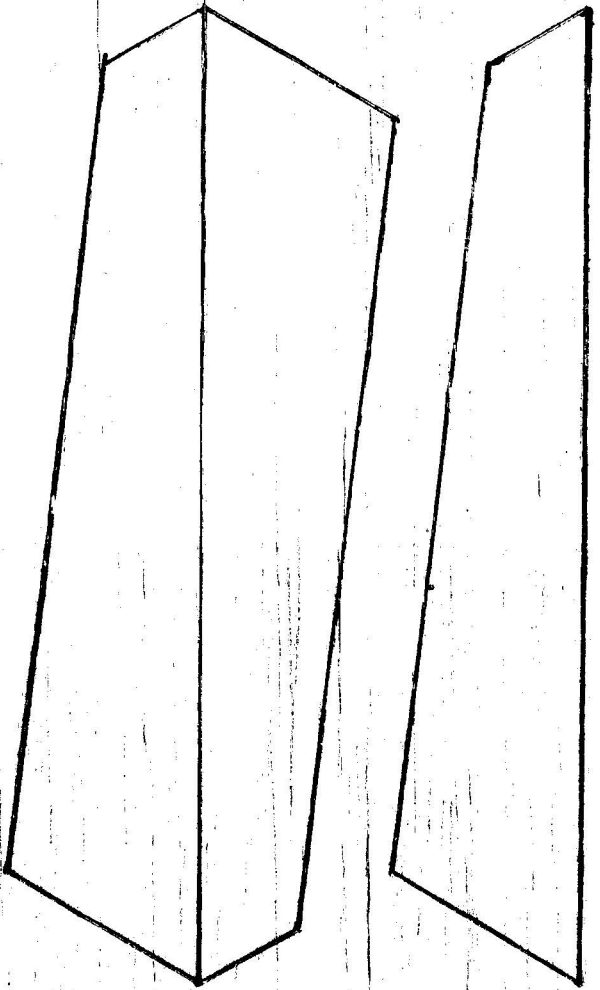
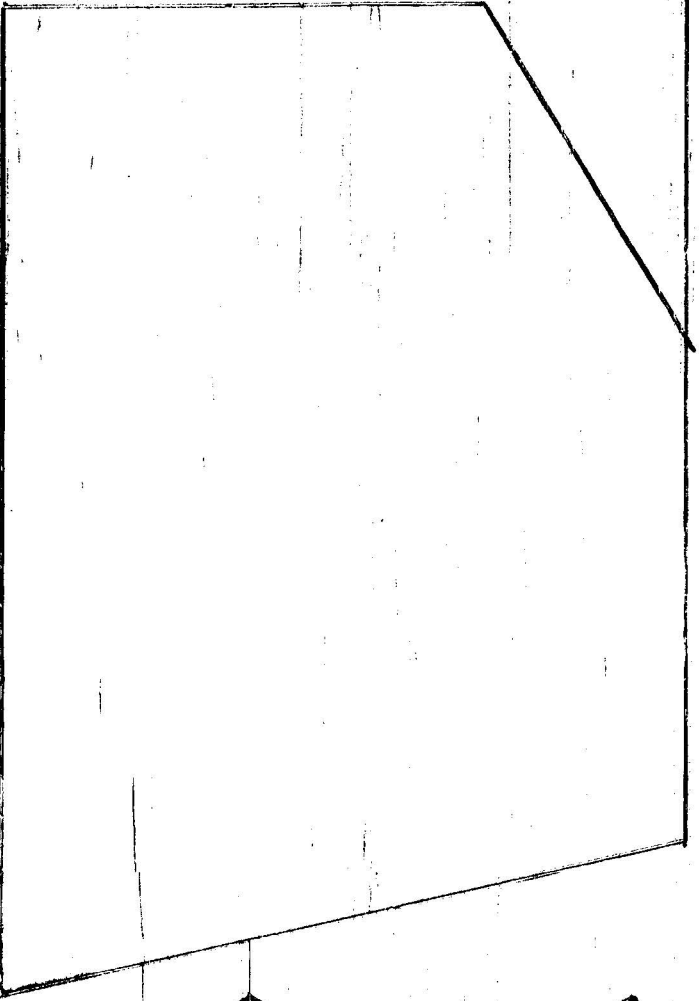
ESTES PN37471



1/8"



1/8"



NO. C3033R

THE L.S. STARRETT CO.
ATHOL, MASS., U.S.A.

PARTS LIST KIT NO.2035							
Quantity	Description	TYPE	NUMBER	Details1	Details2	Details3	Comment
1	Plastic Nose Cone	PNC-80K	071035	8-1/8"	2.555"	1-5/8"	1291 Maxi Alpha 1321 Maxi Alpha III 1326 Colossus 1380 Phoenix 1903 Maxi Alpha III (re-release) 1904 V-2 (re-release) 1926 V-2 1951 Executioner 1970 Der V-3 2035 Optima 2094 Shadow 2188 Canadian Arrow
2	Body Tube	BT-80KD	030433	14-3/16" long	2.560" ID	2.600" OD	
1	Body Tube	BT-80?	030437	11" long	2.560" ID	2.600" OD	
2	Body Tube	BT-50?	?	13-5/8" long	.950" ID	.976" OD	
1	Body Tube	BT-50J	030362	2-3/4" long	.950" ID	.976" OD	
2	Body Tube Couplers	JT-80		3" long	2.50" ID	2.55" OD	
2	Body Tube Couplers	JT-50		2" long	.920" ID	.949" OD	
1	Retainer Tube	BT-52		4" long	.988" ID	1.114" OD	
6	Centering Rings	RA-5080					Card stock
1	Engine Block	AR-2050					
1	Shock Cord	SC-1	85730	1/8" x 18"			Rubber
1	Parachute	PK-24	?				Plastic
1	Shroud Line	SLT-108	38239	108"			
1	Tape Discs Set	TD-3F	38406	1/2" Dia.			Self Stick
1	Engine Hook	EH-2	35025	2-4/5" (2.8")			
6	Trim tape	N/A	N/A	1/2"	13.5"		Self Stick Aluminized Chrome
2	Trim tape	N/A	N/A	1"	12.5"		Self Stick Metal Flake Orange
1	Trim tape	N/A	N/A	1.5"	8-3/8"		Self Stick Metal Flake Orange
1	Launch Lug	?	"	2" long	3/16"		
1	Decal	N/A	37471	6"	17"		Waterslide
2	Balsa	BFS-40		1/8"	3"	12"	

Optima™

FLYING MODEL ROCKET

NEARLY
4 FEET
TALL!

AWESOME



Optima

FLYING MODEL ROCKET

SKILL LEVEL 3

Extra Large Sport Model Rocket Delivers Truly Awesome Launches.

Estimated Maximum Altitude with a D Engine: 390 Feet or 120 Meters.

This is a model of a flying rocket, not a real rocket. It is not to be used as a real rocket. It is not to be used as a real rocket. It is not to be used as a real rocket.

1. ASSEMBLE WITH CARE AND FOLLOW INSTRUCTIONS.

2. LAUNCH WITH CARE AND FOLLOW INSTRUCTIONS.

3. LAUNCH WITH CARE AND FOLLOW INSTRUCTIONS.

4. LAUNCH WITH CARE AND FOLLOW INSTRUCTIONS.

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19. LAUNCH WITH CARE AND FOLLOW INSTRUCTIONS.

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ESTES

Optima

FLYING MODEL ROCKET

SKILL LEVEL 3

NEARLY
4 FEET
TALL!

AWESOME



Optima is a model of a flying rocket, not a real rocket. It is not to be used as a real rocket. It is not to be used as a real rocket.

Optima

FLYING MODEL ROCKET

SKILL LEVEL 3

Length: 42.5" (108 cm)
Height: 39.0" (99 cm)
Weight: 1.1 lb (500 g)

- Plastic Nose Cone
- Die-Cut Balsa Fins
- 24 Inch Diameter Parachute
- Water-Transfer Kit Decal
- Chrome and Orange Metallized Pressure-Sensitive Decals

Recommended Engine: E10 or E15

Recommended Igniter: I10 or I15

Recommended Motor: M10 or M15

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Optima

Optima Model Rocket

SKILL LEVEL 2



OPTIMA™ MODEL ROCKET ROCKET ASSEMBLY

To fit your motor and is based on balsa launch tubes, engine, igniter and recovery system. It is based on the engine, igniter and recovery system to which you fit the rocket. Components are available from your local club or dealer.

1. MOTOR MOUNT ASSEMBLY #3150

2. NOSE CONE #3151

3. PARACHUTE #3152

4. RECOVERY SYSTEM #3153

5. PARACHUTE #3154

6. MOTOR MOUNT ASSEMBLY #3155

RECOMMENDED 1000 ENGINE D10-3 (See Flight or D10-4)

RECOMMENDED MODEL ROCKET LAUNCH AREA:

Minimum Launch Site Dimensions for Clearance Area is 100' x 100' in feet and for Rectangular Area is 50' x 100' in feet.

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ESTES

ESTES INDUSTRIAL, 1005 N. STREET, PHOENIX, AZ 85016

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