

Started 2-13-78
Finished 10-13-78



ESTES INDUSTRIES
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Penrose, CO 81240

BETA
SERIES
Skill Level 1

(7-96) 82123

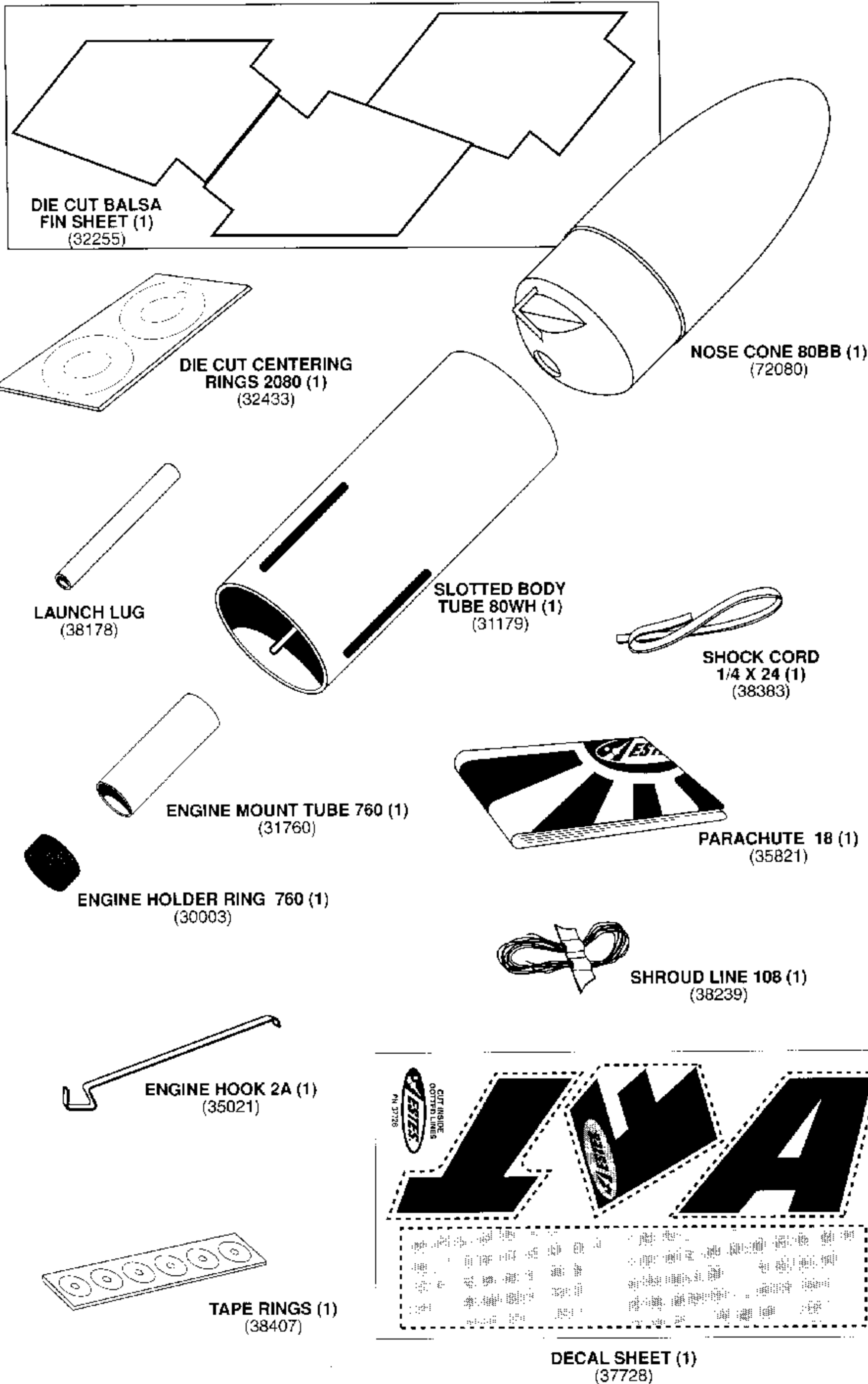
EST 2139

FAT BOY™ MODEL ROCKET KIT INSTRUCTIONS

TOOLS REQUIRED: PENCIL, SANDPAPER, SANDING SEALER, RULER, PAINT BRUSH, HOBBY KNIFE, MASKING TAPE, SCISSORS, GLUE (WHITE OR YELLOW), SPRAY PAINT (ENAMEL GLOSS WHITE, LIGHT BLUE AND RED), ROCKET BUILDER'S MARKING GUIDE (OPTIONAL)

ALL GLUED AREAS ARE SHADED IN GRAY

PARTS LAYOUT



1.

A. Use a pencil to make marks on the engine tube at 13mm (1/2'') and 6.4 cm (2-1/2'').

C. Insert the engine into slit as shown.

3.

D. Apply a glue reinforcement (fillet) to both sides of ring joints and engine holder ring. Smooth with finger.

4.

B. F...
C. Pr...

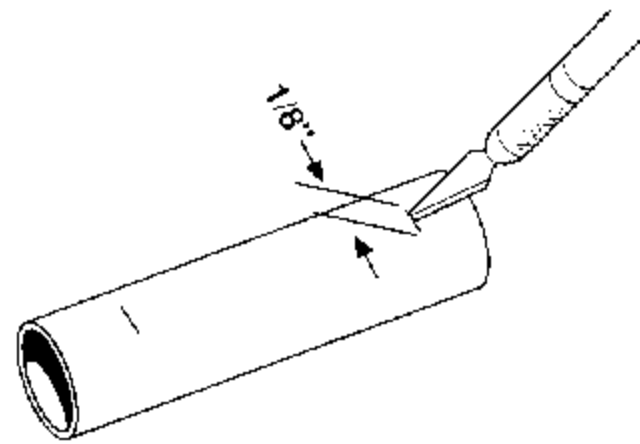
6.

A. Apply glue to shock cord.

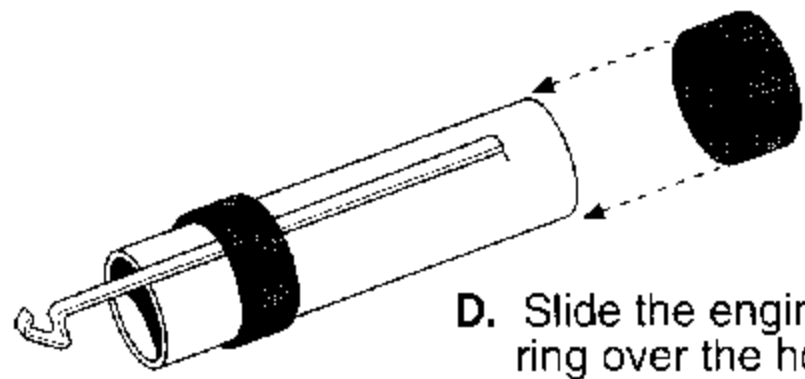
B. Push the shock cord 3.8 cm (1-1/2'') down into unslotted end of the body tube. Press firmly in place against inside wall of the tube. Be glued securely in place.

NO

to make two engine mount (1/2") and at



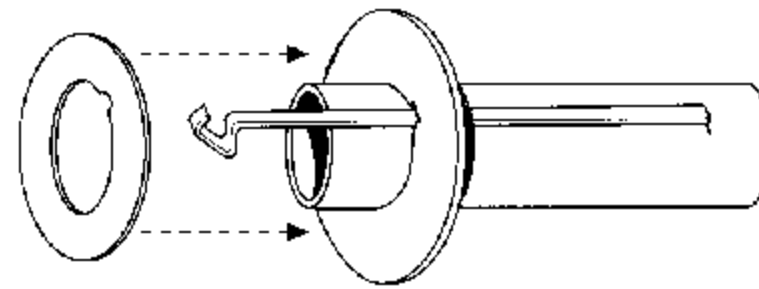
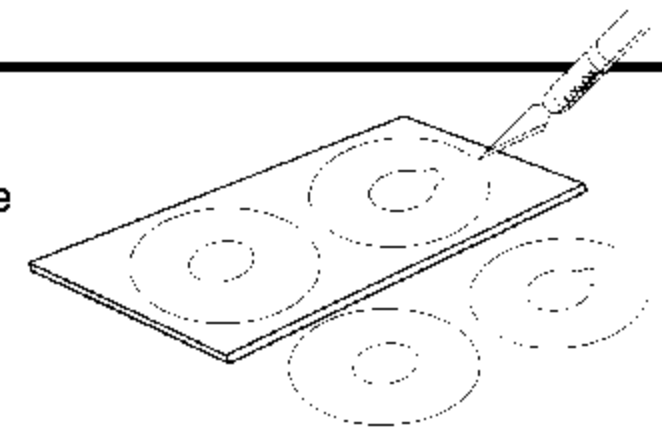
B. Cut a 3 mm (1/8") wide slit (as shown) at the 6.4cm (2-1/2") mark only.



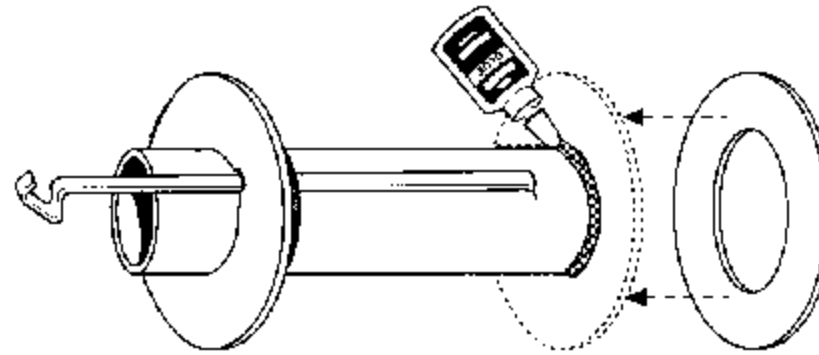
D. Slide the engine holder ring over the hook and onto the engine mount tube to the 13 mm (1/2") mark. This will secure the engine hook.

engine hook shown.

2. **A.** Carefully remove the centering rings from their card. Use a hobby knife to finish the cuts.

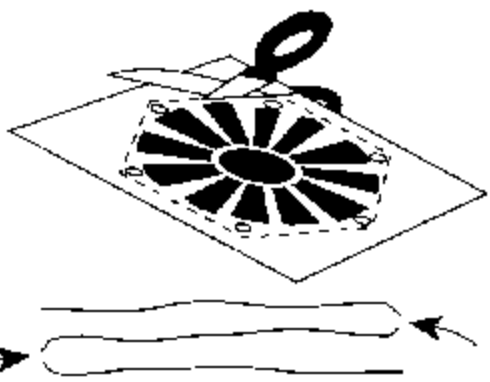


B. Slide centering ring with notch onto the engine mount tube (with notch over engine hook) until the ring is against the engine holder ring.

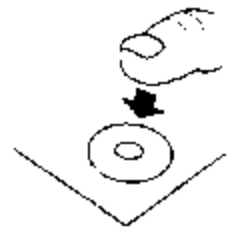


C. Apply glue to end of tube. Slide other ring onto glue. Make ring flush with end of tube.

4. **A.** Cut out parachute on dotted line.



B. Find shroud line material. Remove tape. Using all of the shroud line, fold and cut into three equal lengths.



C. Press tape rings onto marks on corners.

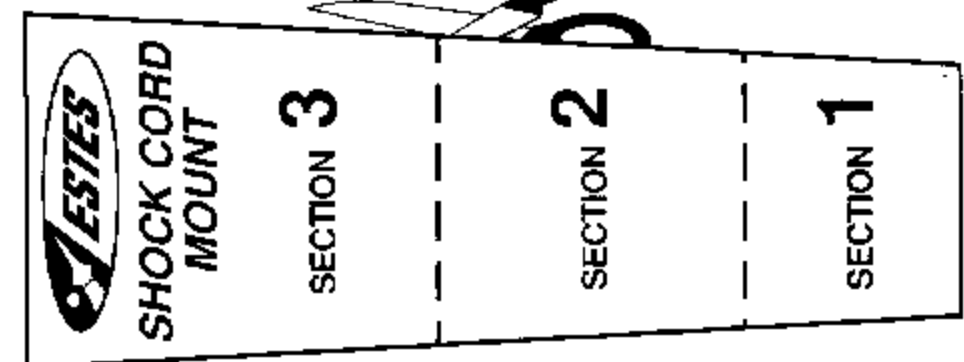
D. Punch holes with sharp pencil.

E. Tie lines off.

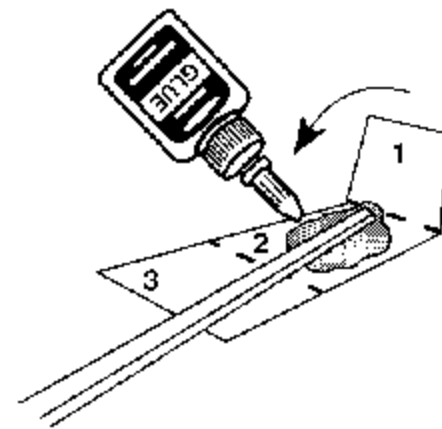


COMPLETED PARACHUTE

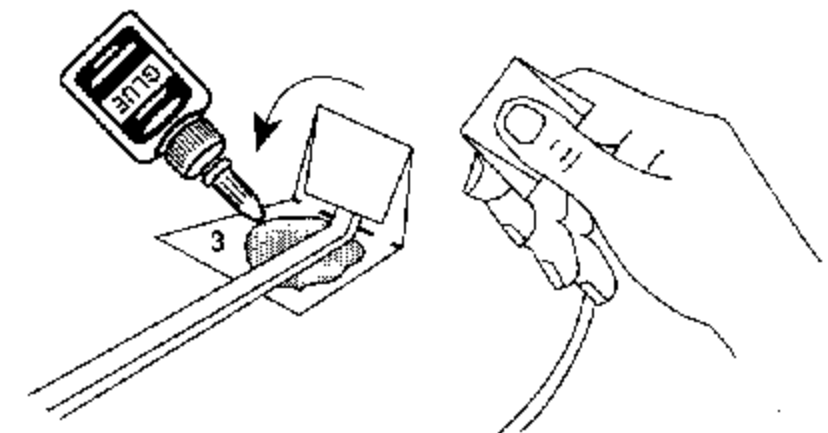
5.



A. Cut out shock cord mount (above) along solid lines. Crease dotted lines.



B. Spread glue on section 2 and lay shock cord into glue at a slight angle as shown.

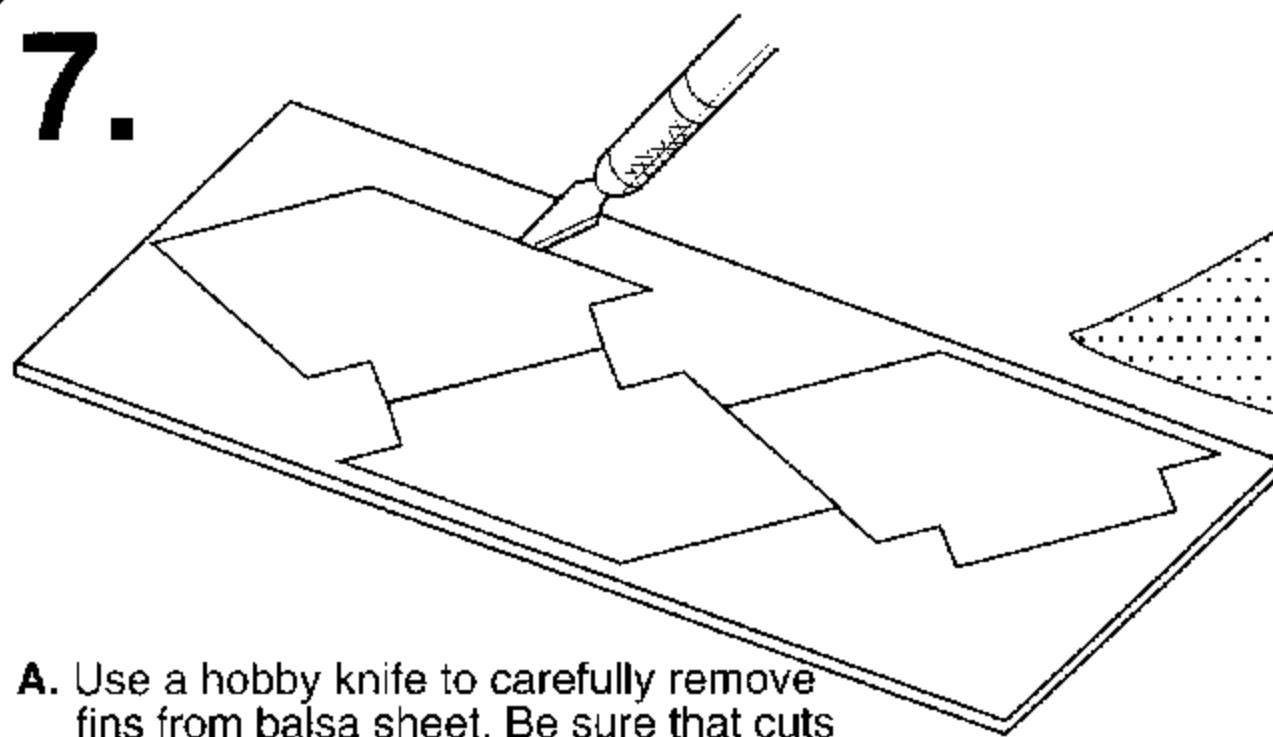


C. Apply glue to section 3. Fold forward again. Clamp firmly until glue sets.

YES

Mount about 1/2" inside the body tube and against the engine. Be sure it is square.

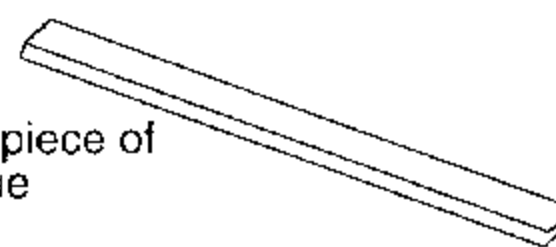
7.



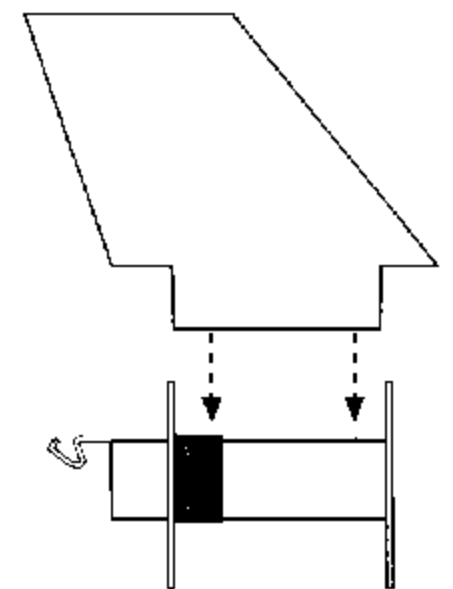
A. Use a hobby knife to carefully remove fins from balsa sheet. Be sure that cuts go completely through the balsa.

NOTE: AS YOU CUT EACH FIN, CUT AWAY FROM ADJACENT FINS SO YOU WON'T DAMAGE THEM.

B. Keep a scrap piece of balsa for a glue applicator.



C. Lightly sand edges square.

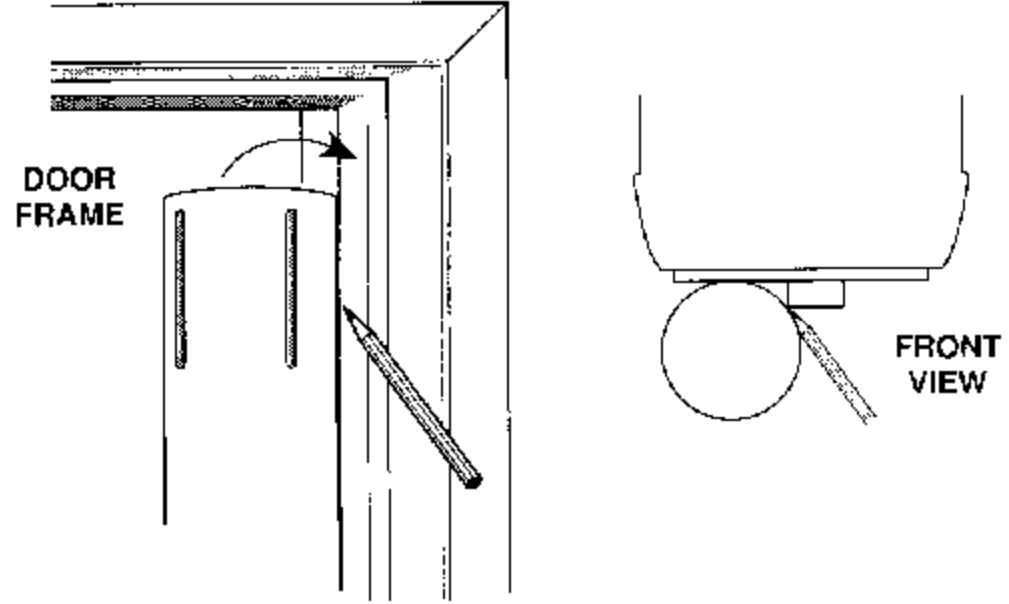


D. When your engine mount is dry, test fit your fins as shown.

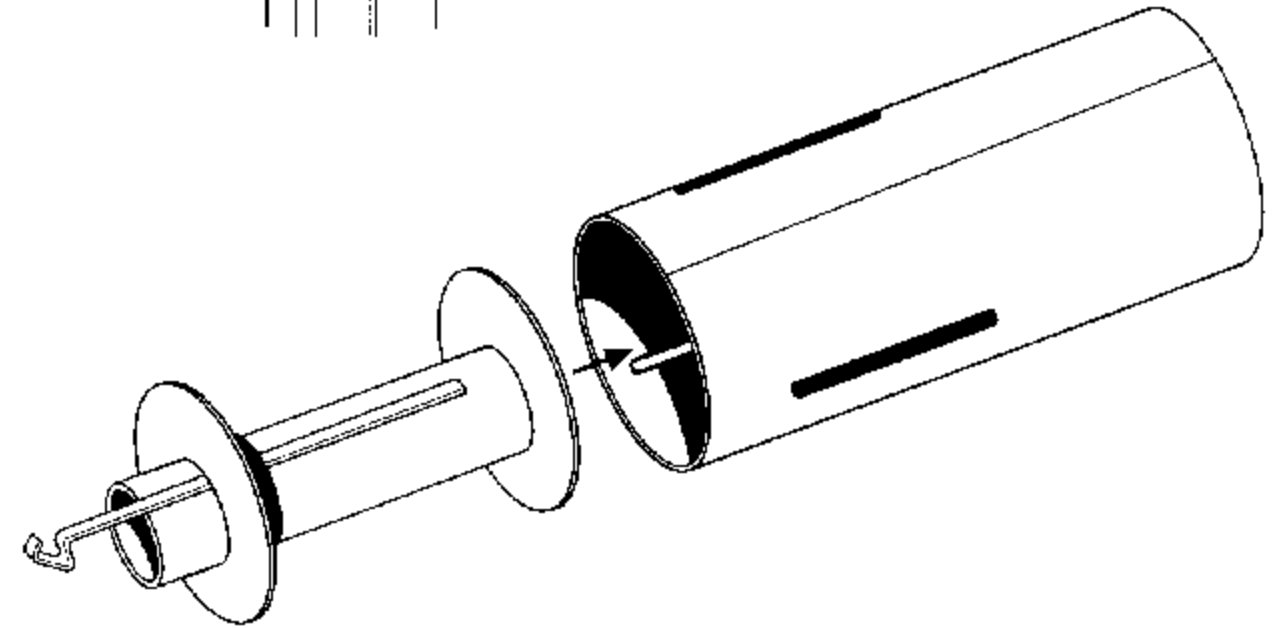
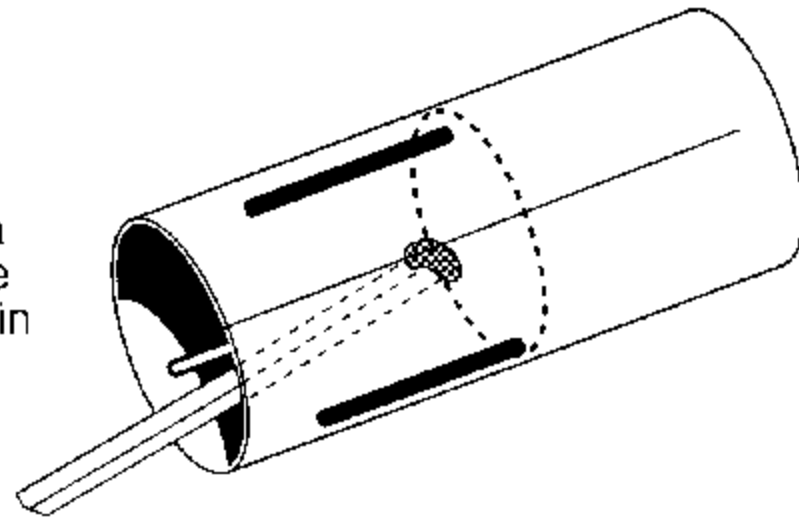
DO NOT GLUE YET!

8.

A. Lightly draw a straight line between two slots down the slotted body tube. A door frame can be used to make the straight line. We recommend the Estes marking guide (EST 302227).

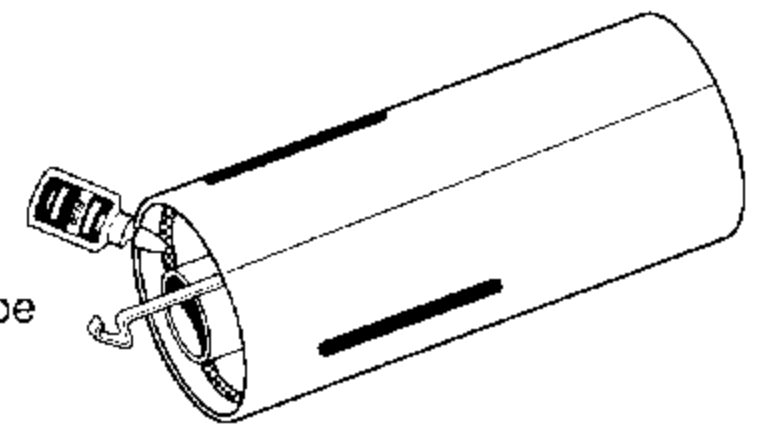


B. Using the scrap balsa stick, apply glue inside rear of body tube just in front of slots.



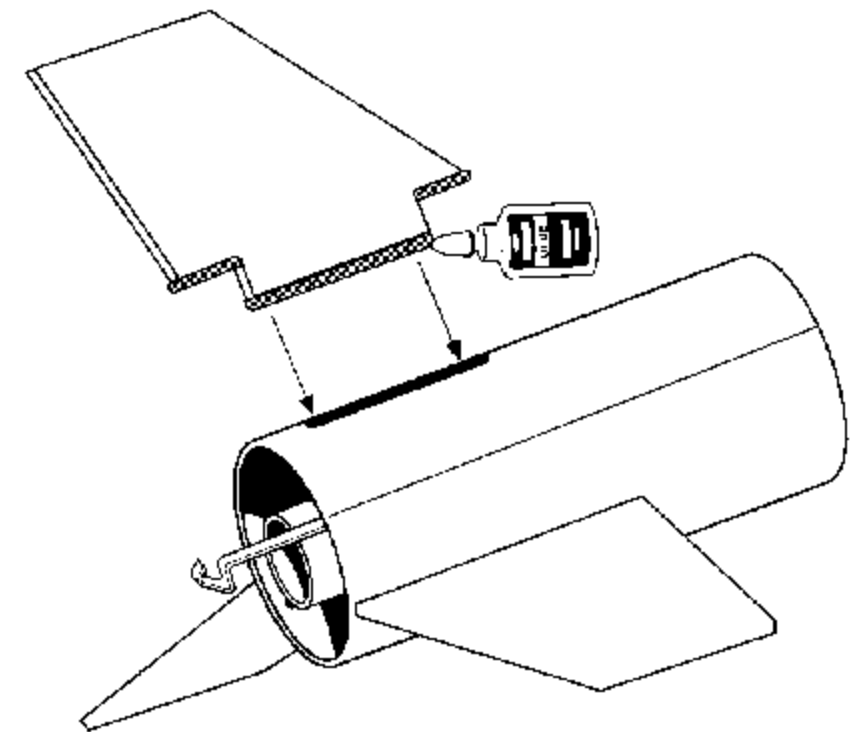
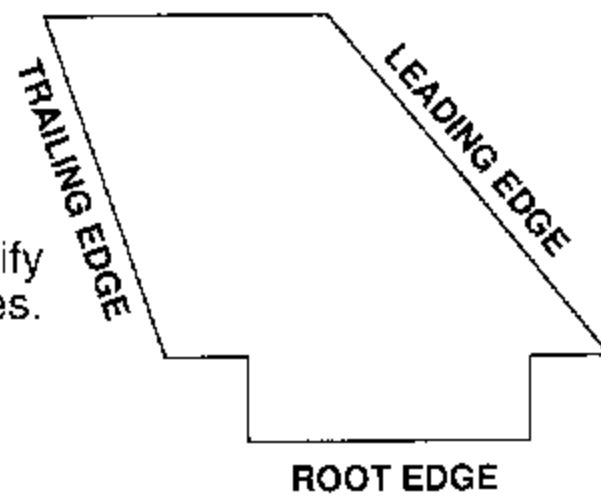
C. Slide engine mount into body tube so that slots are centered between centering rings and engine hook is aligned with the straight line you drew on body tube.

D. Apply glue fillet around the ring/tube joint.



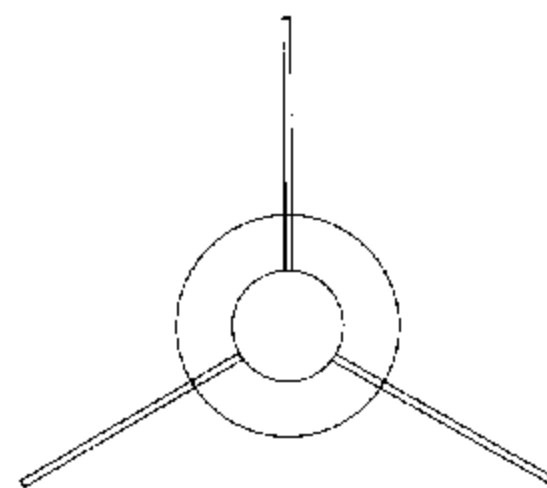
9.

NOTE: Before gluing your fins, identify the root, leading, and trailing edges.
REMEMBER: Fins must be attached correctly for stable flight.

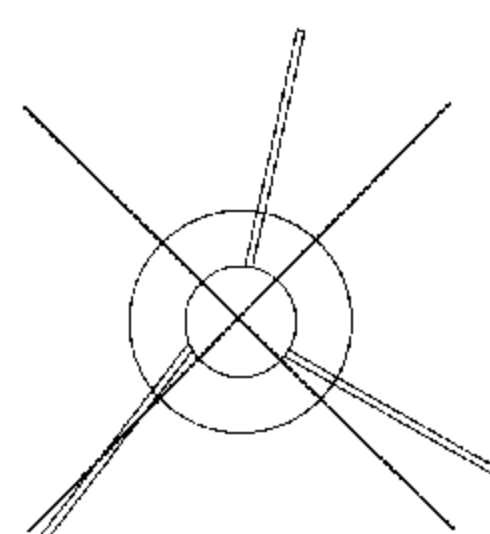


A. Apply glue to the tab on the fins and along the fin root as shown. Insert the fins into the slot, checking alignment to make sure fins are straight.

B. Allow fins to set.



YES

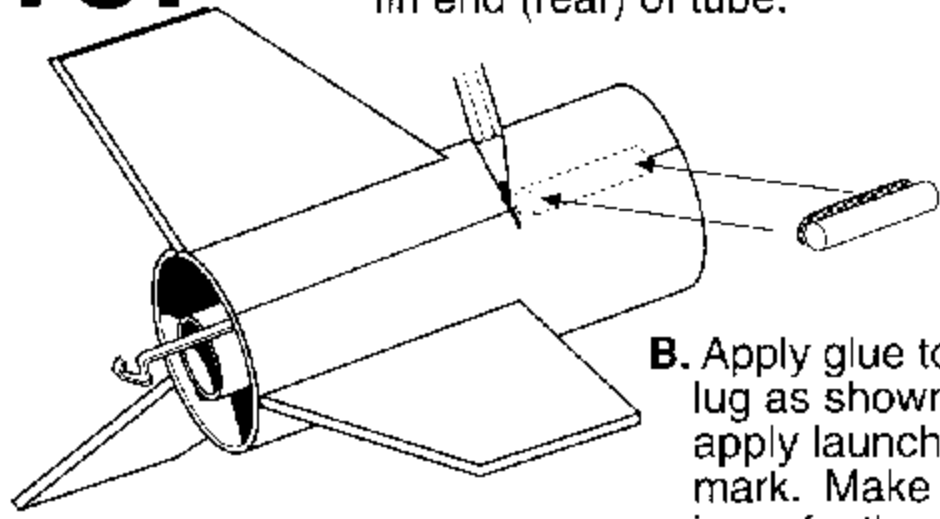


NO

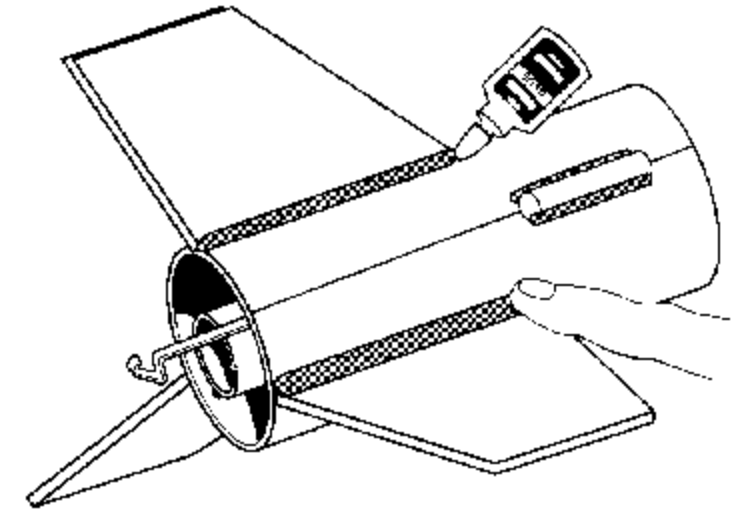
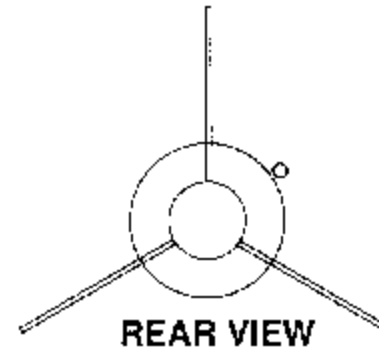
REAR VIEW

10.

A. Mark the straight line on the body tube at 11.4 cm (4-1/2") from the fin end (rear) of tube.



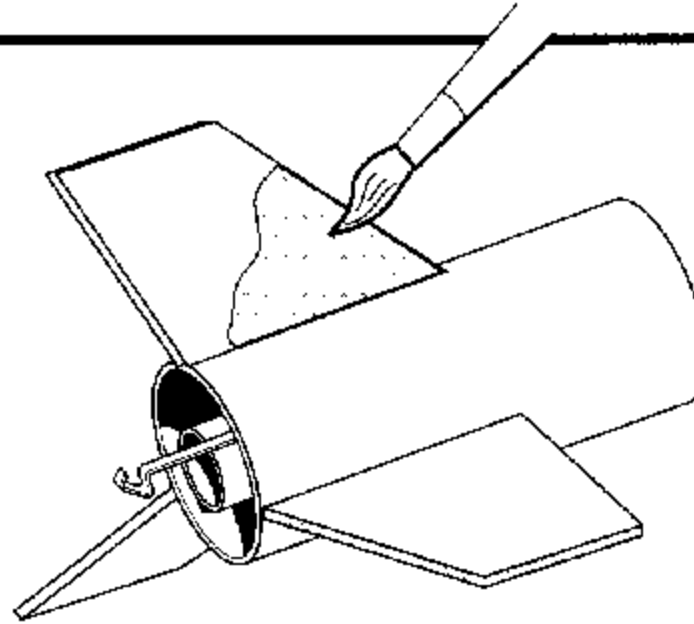
B. Apply glue to launch lug as shown and apply launch lug to mark. Make sure lug is perfectly aligned before glue sets.



C. After glue is completely dry, apply a glue fillet to both sides of launch lug and fins. Smooth glue with finger.

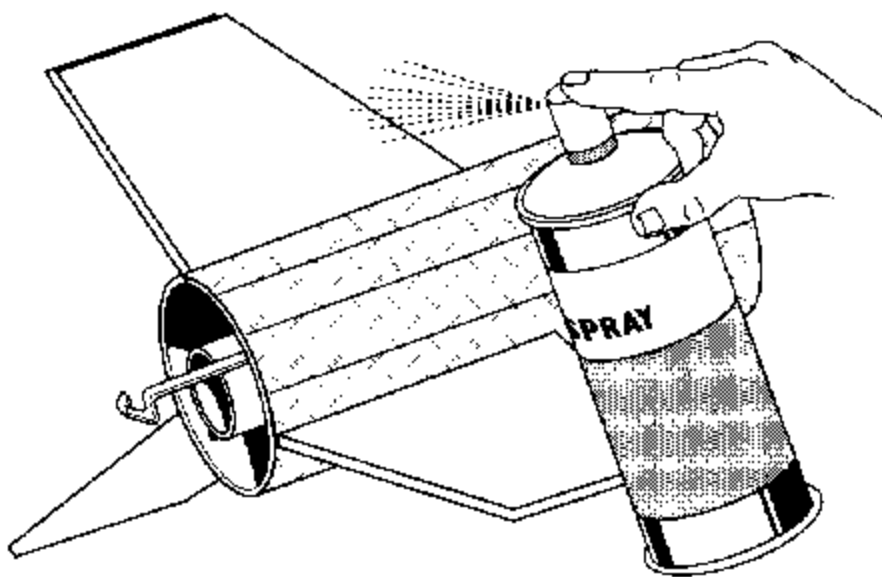
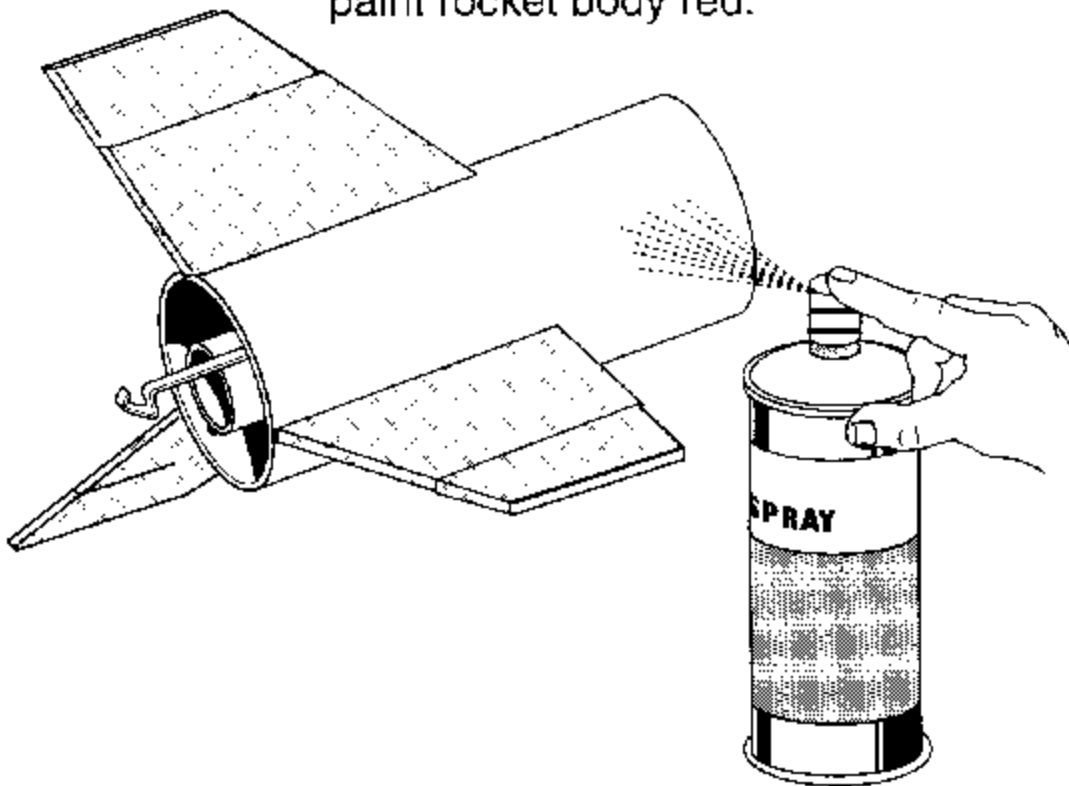
11.

A. Apply sanding sealer to balsa wood fins.
B. When sealer is dry, lightly sand. Repeat sealing and sanding until balsa grain is filled and smooth.



12.

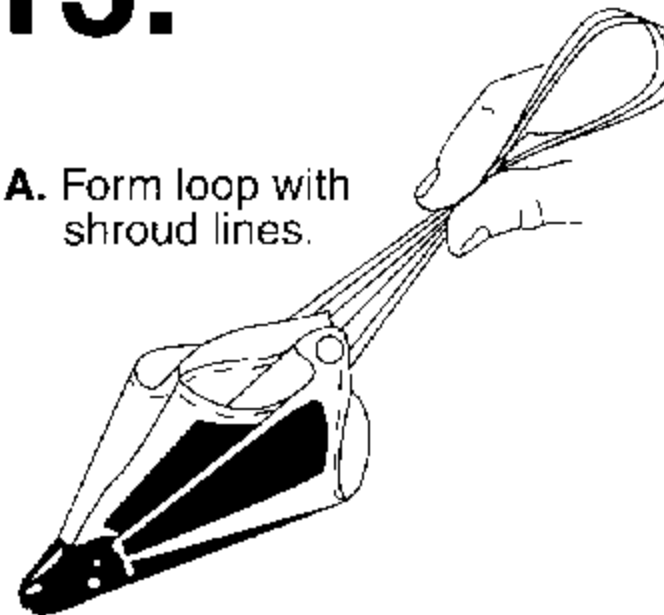
A. Paint entire model with gloss white.
B. After paint is dry, mask off fins and paint rocket body red.



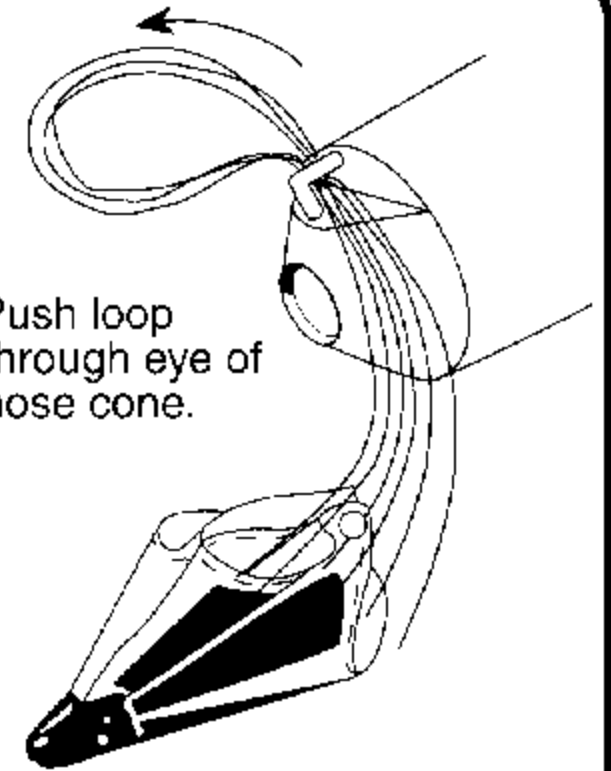
C. When paint is completely dry, remove masking from fins and mask off body. Paint fins light blue.
D. Allow paint to thoroughly dry and remove masking tape.

13.

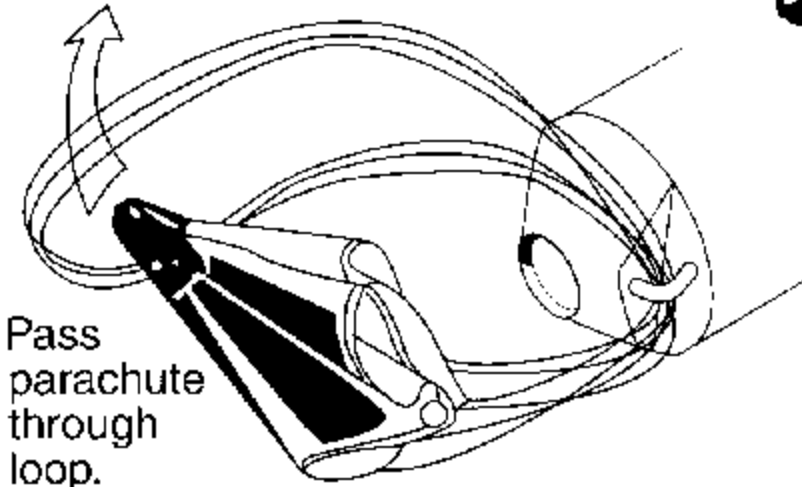
A. Form loop with shroud lines.



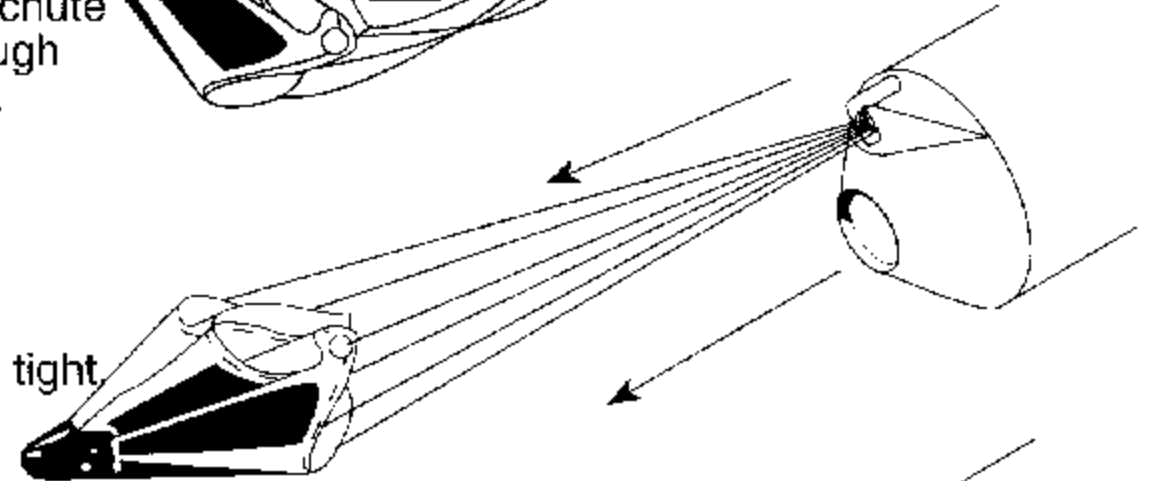
B. Push loop through eye of nose cone.



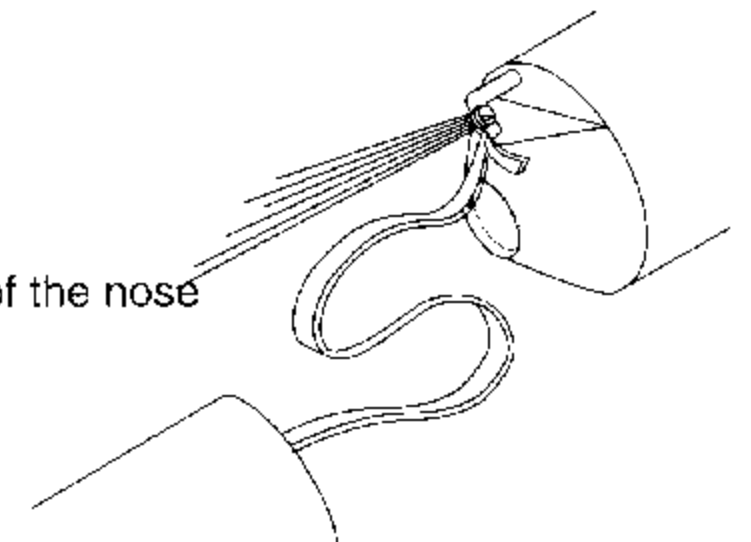
C. Pass parachute through loop.



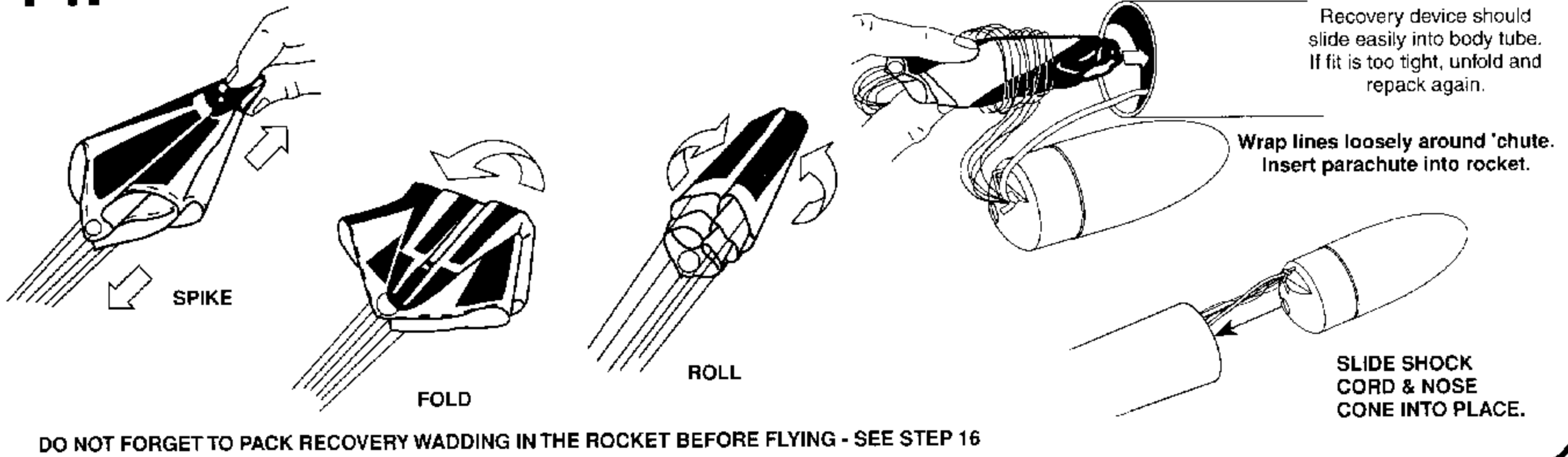
D. Pull tight.



E. Tie shock cord to the eye of the nose cone with a double knot.

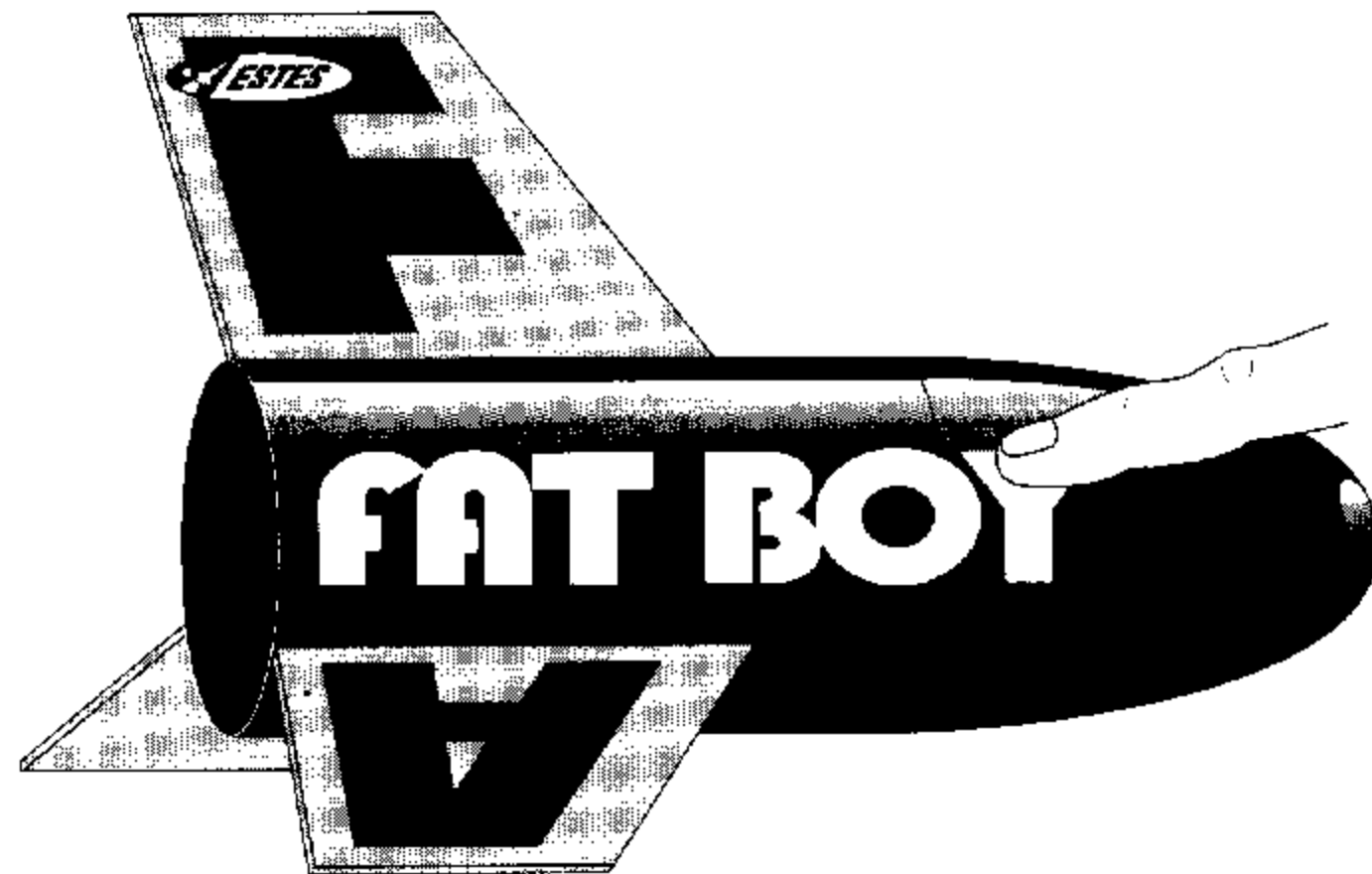


14. PACKING PARACHUTE



15. APPLYING DECALS

- Cut out each decal inside dotted lines. Refer to photo of rocket for decal location.
- Gently separate one decal at a time from backing and lightly lay it down in position on rocket.
- When position is correct, rub decal down with your finger to remove bubbles and to secure decal to rocket.



16. FLYING YOUR ROCKET

ROCKET PREPARATION

Remove nose cone, shock cord and parachute.

Crumple and insert five squares of recovery wadding. Repack and insert parachute, shock cord and nose cone.

ENGINE PREPARATION

Separate igniter and igniter plug.

Hold engine upright, drop in igniter. Igniter must touch propellant.

Insert igniter plug.

Firmly push all the way in.

Bend igniter wires back.

Insert engine into rocket.

LAUNCH SUPPLIES

To launch your rocket, you will need the following:

- Launch Pad (Estes Porta-Pad® II)
 - Launch Controller (Estes Electron Beam®)
 - Recommended Estes Engines: B4-2, B6-2, C5-3 or C6-3. For your first flight, use a B6-2 engine to become familiar with your rocket's flight pattern.
 - Recovery Wadding (EST 302274)
 - Igniters and Igniter Plugs (included with Estes engines)
- Use only Estes products to launch this rocket.

ENGINE	PROJECTED ALTITUDE	
	Feet	Meters
B4-2.....	140.....	43
B6-2.....	150.....	46
C5-3.....	320.....	98
C6-3.....	300.....	91

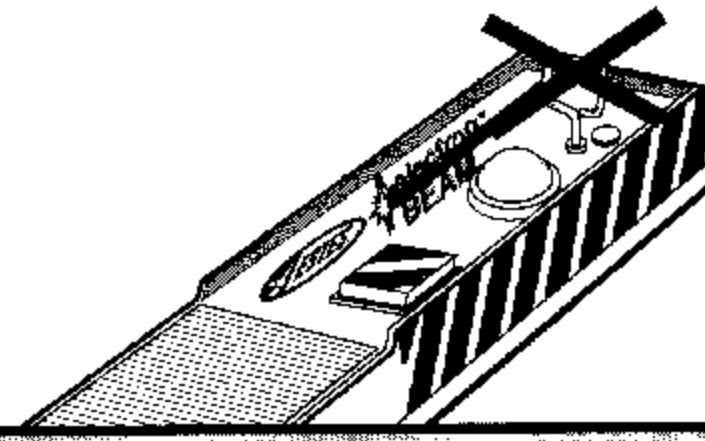
TIPS FOR FLYING YOUR ROCKET

- Choose a large field away from power lines, buildings, tall trees, and low flying aircraft. Try to find a field at least 76 meters (250 feet) square. The larger the launch area, the better your chance of recovering your rocket.
- 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 4° Celsius [40° Fahrenheit]). Parachute may be dusted with talcum or baby powder to avoid sticking.
- Always follow the National Association of Rocketry (NAR) MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities. The safety code is enclosed with this kit.

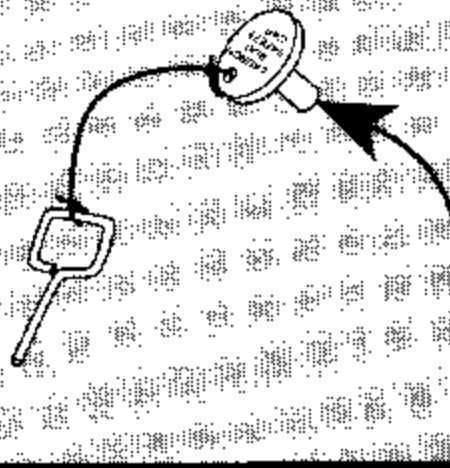
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COUNTDOWN AND LAUNCH

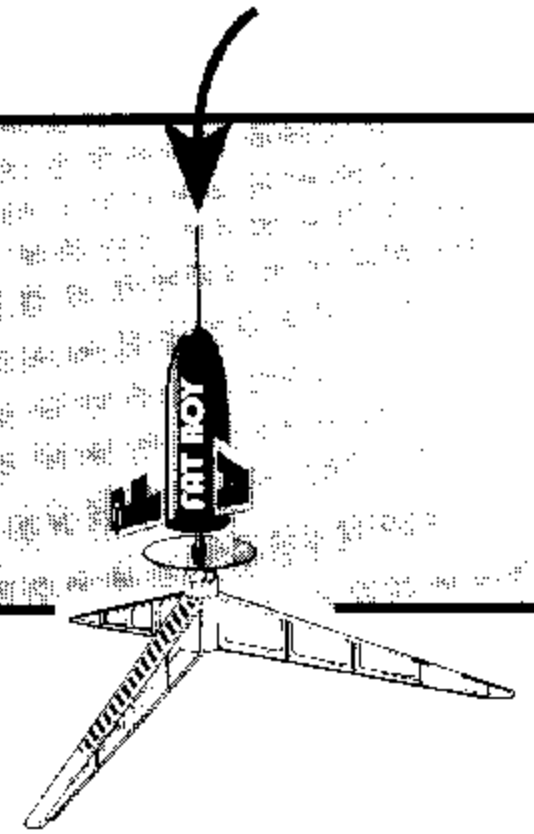
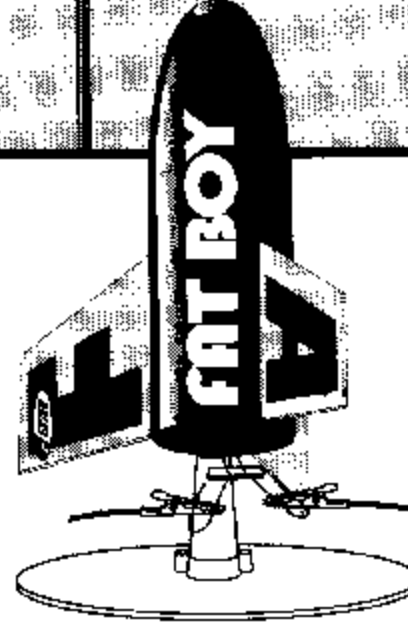
- 10...** Safety key must not be in launch controller. The safety cap with safety key attached should already be on the launch rod.



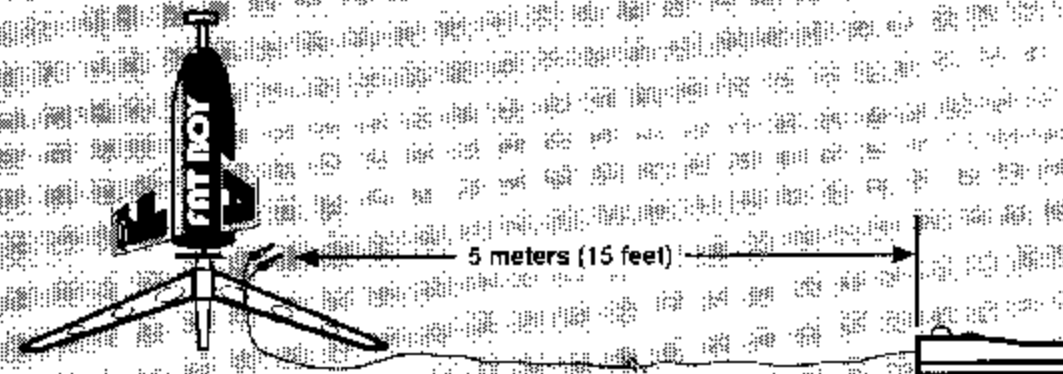
- 9...** Remove safety cap from launch rod, slide launch lug over rod. Make sure rocket slides freely and micro-clips are clean for good electrical contact.



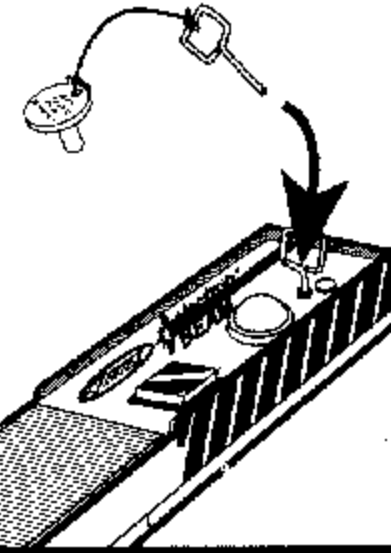
- 8...** Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.



- 7...** Move everyone back from your rocket as far as launch wire will permit (at least 5 meters - 15 feet).

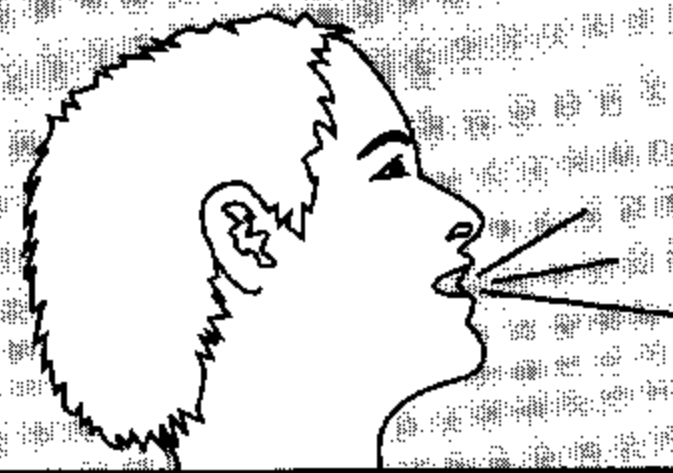


- 6...** Insert safety key to arm the launch controller.



- 5...** Start audible countdown.

4...3...2...1.....



LAUNCH!

Push and hold button until engine ignites.

For safety, immediately remove safety key from launch controller and replace 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. Broken or chipped coating will not affect the performance of the igniter. Reinstall the igniter plug as illustrated previously. Repeat the countdown and launch procedure.