

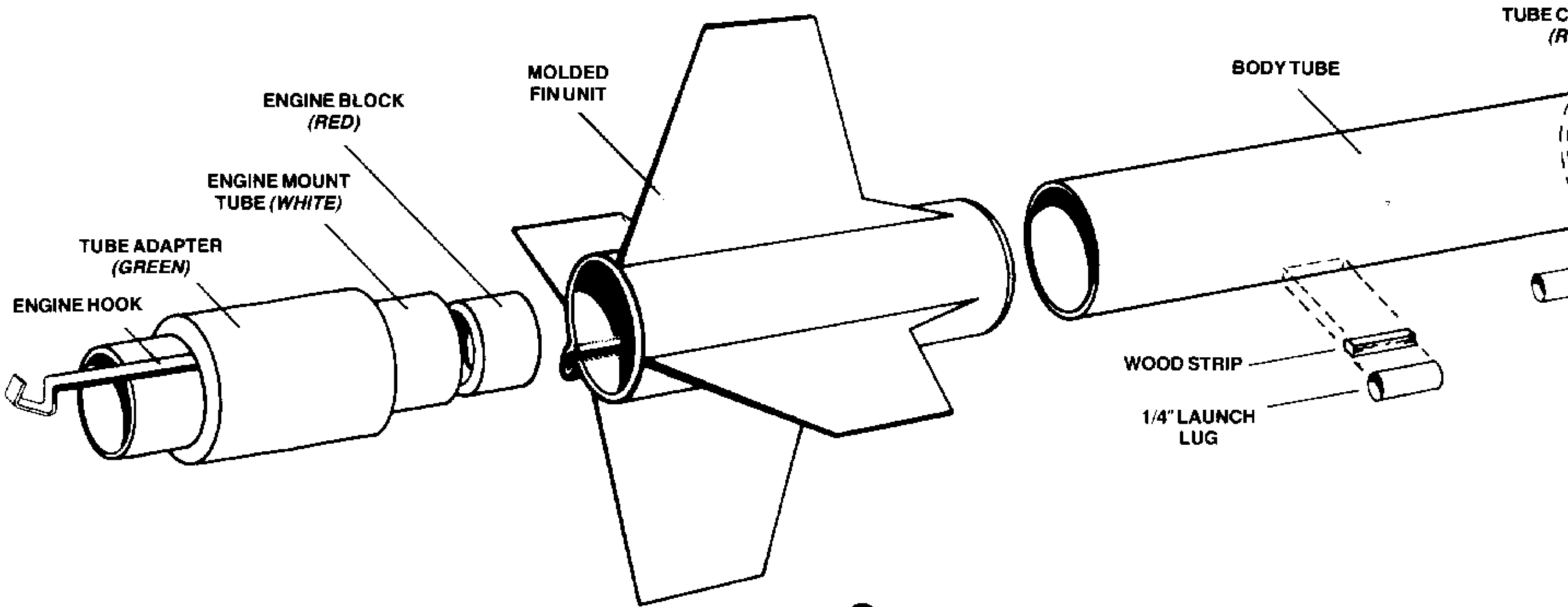
Step 10/13/95
Finished 2/26/95

from Total for Hobbying 1995

Estes Challenge series

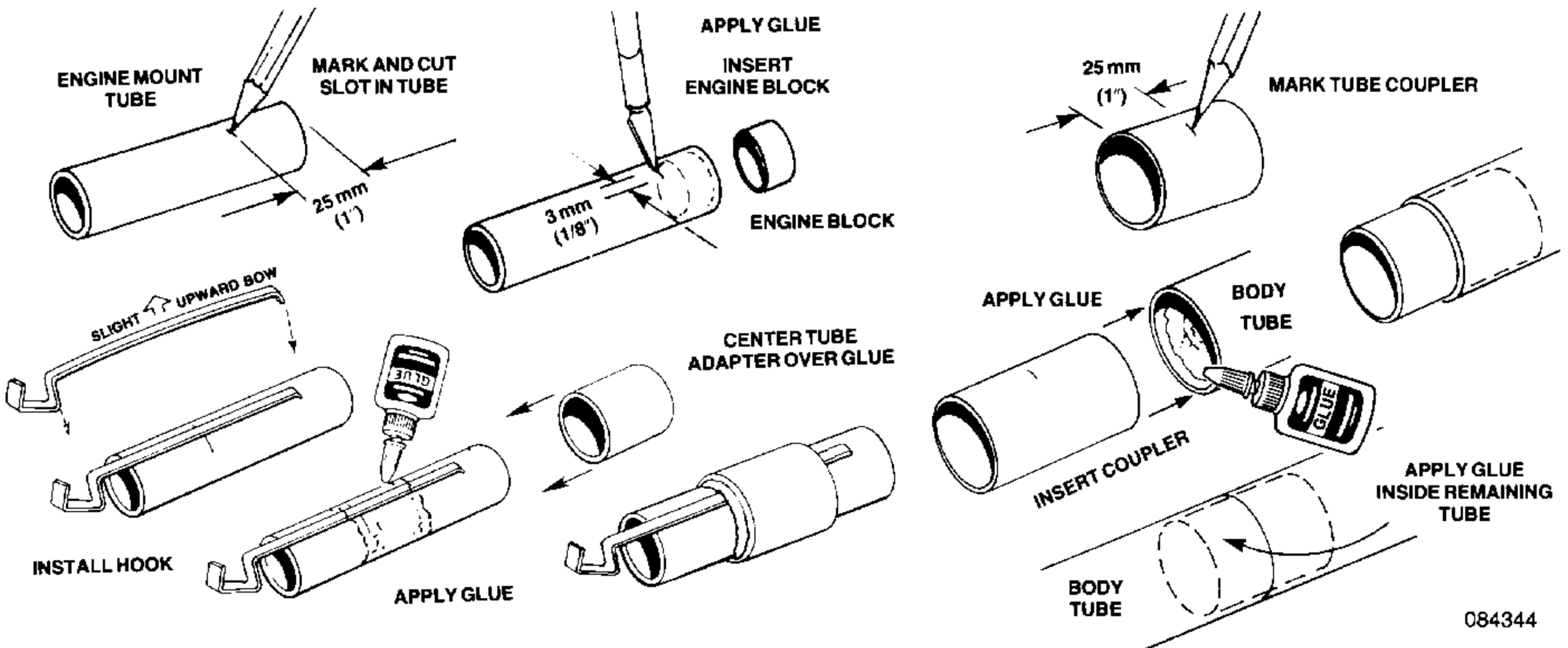
MANIAC™ KIT

In order to complete the assembly of the rocket components supplied in this kit, you will need: a pair of scissors, a pencil, sandpaper, either Titebond Glue or Epoxy (six or ten minute type), a modeling knife and a ruler. Read all instructions carefully and test-fit all parts together before applying any epoxy glue. If there are any parts that do not fit, sand as required for proper fit.

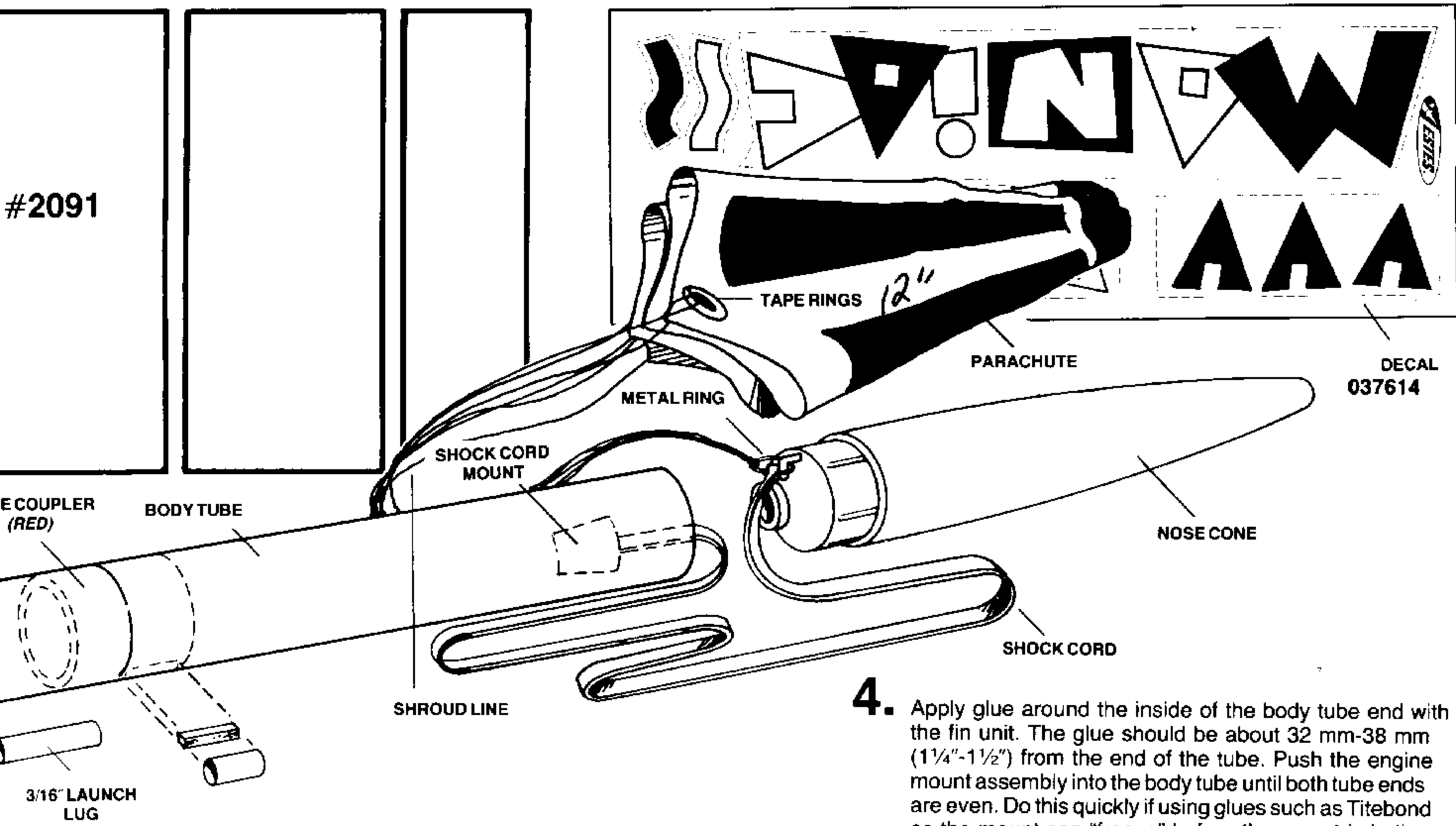


1. Mark the engine mount tube 25 mm (1") from one end. Cut a 3 mm (1/8") wide slot at the mark. Apply glue inside this end of the tube and insert the red engine block until even with the tube end. Insert the engine hook in the slot. Apply glue around the outside of the engine mount tube. Slide the green adapter ring onto the tube and over the glue, centering it on the engine mount tube.

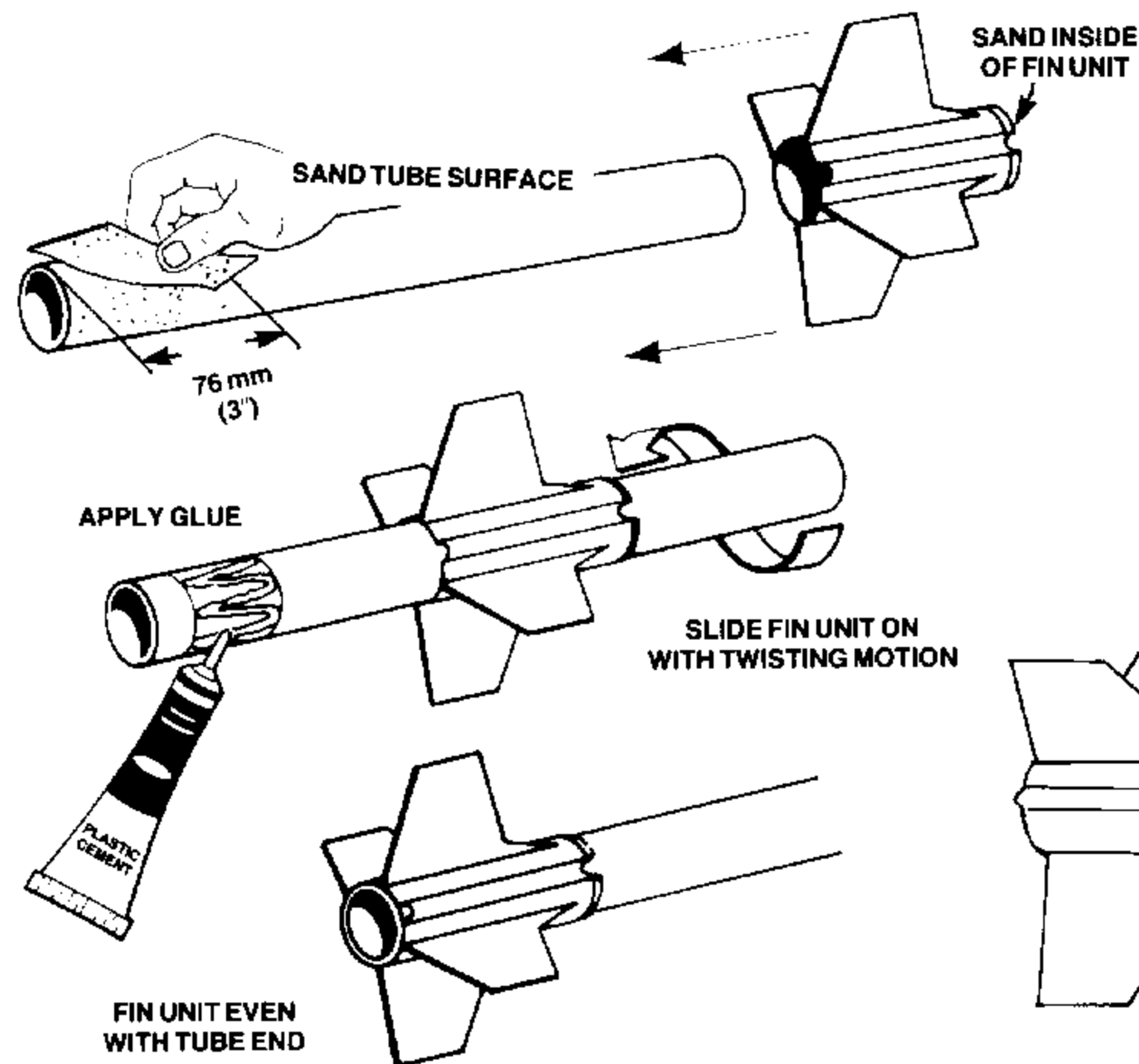
2. Mark the red tube coupler 25 mm (1") from one end. Apply glue around the inside of one end of one body tube. Insert the tube coupler into the tube until the mark is even with the end of the tube. Apply glue around the inside of one end of the remaining body tube. Join the two body tubes checking they are aligned straight. As the glue dries, gently roll body tube over a flat surface (such as a tabletop) to ensure alignment.



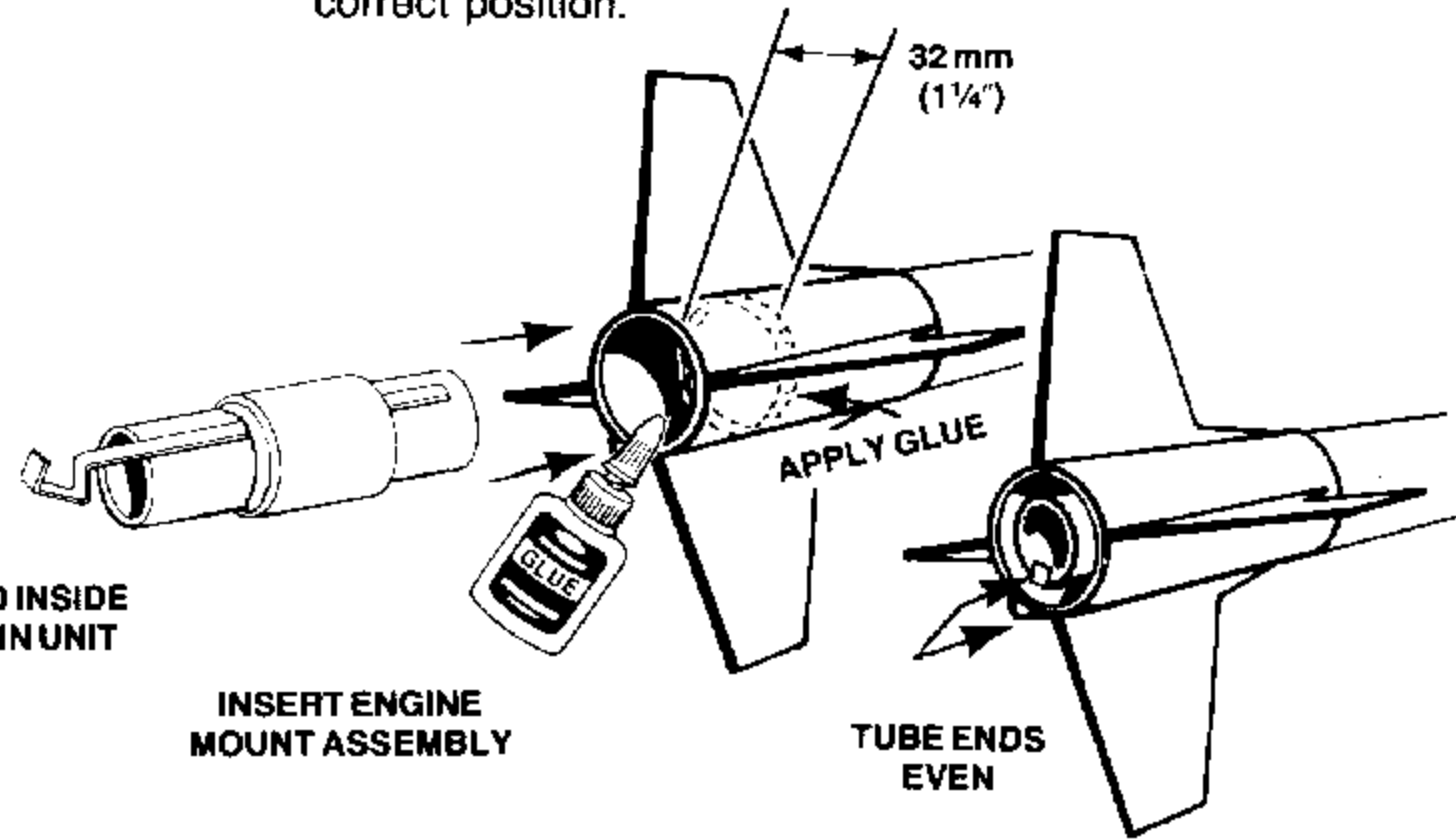
#2091



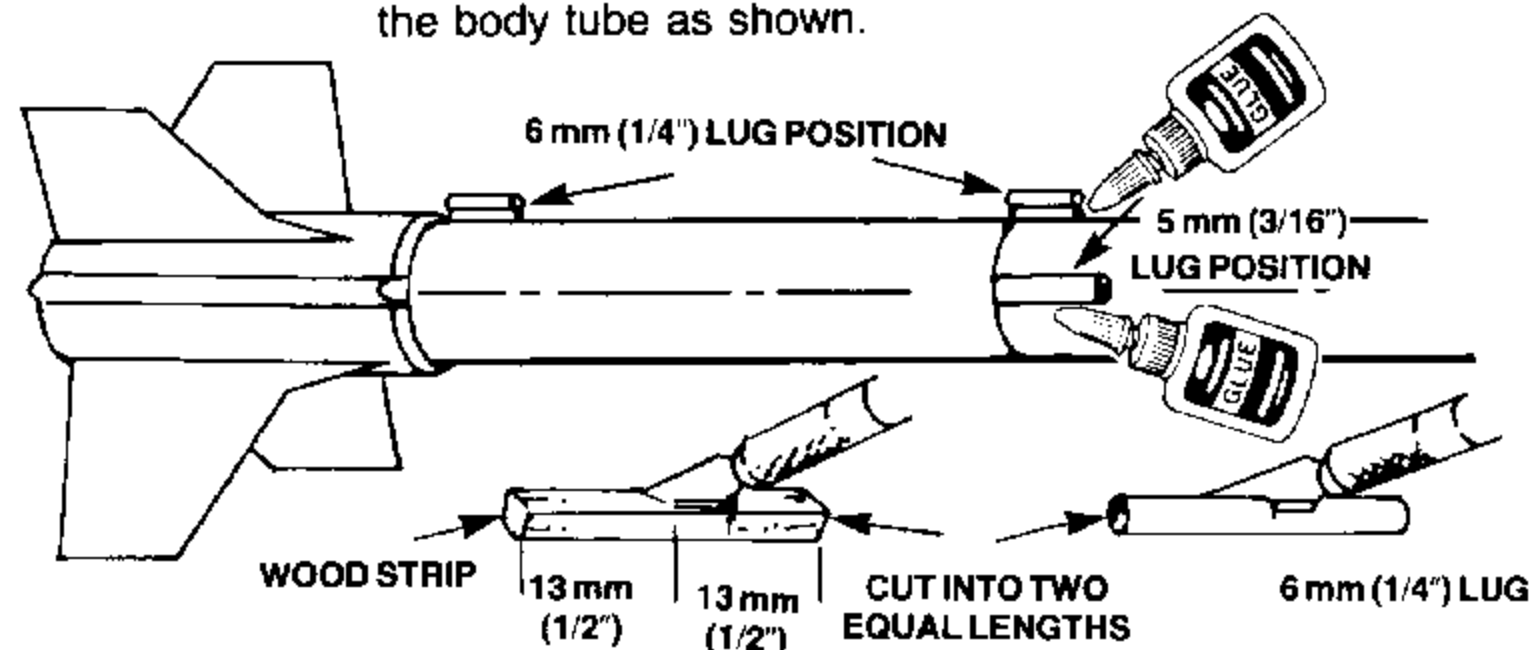
3. Use medium grit sandpaper to roughen 76 mm (3") of the surface of one end of the assembled body tube. Use coarse grit sandpaper to roughen the entire inside of the fin unit. Apply a layer of either tube-type plastic cement or epoxy all around the roughened tube surface. Insert the opposite end of the body tube into the fin unit and slide the unit down the tube with a twisting motion until it is even with the end of the tube as shown.



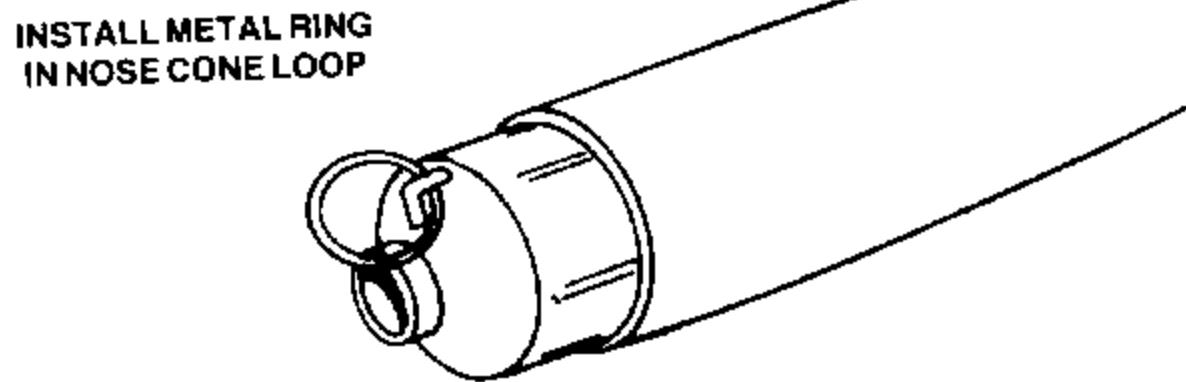
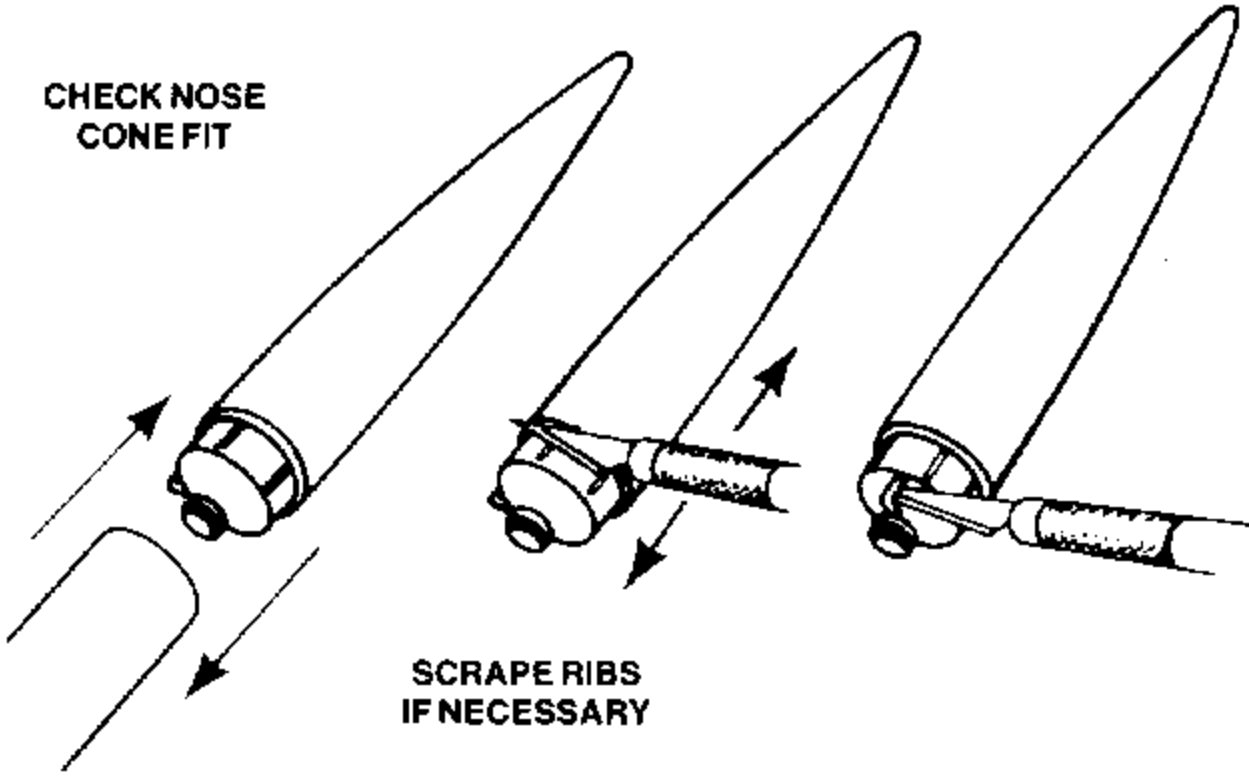
4. Apply glue around the inside of the body tube end with the fin unit. The glue should be about 32 mm-38 mm (1 1/4"-1 1/2") from the end of the tube. Push the engine mount assembly into the body tube until both tube ends are even. Do this quickly if using glues such as Titebond as the mount can "freeze" before the mount is in the correct position.



5. Decide whether to use a 5 mm (3/16") or 6 mm (1/4") launch lug. You can elect to use both. Mount the 5 mm (3/16") launch lug just above the tube joint as shown. Make sure it is aligned with the molded lug in the fin unit. Cut both the wood stand-off material and the 6 mm (1/4") launch lug into two equal lengths. Match the stand-off and lug lengths then glue them together. Mount both the 6 mm (1/4") launch lug assemblies in a straight line on the body tube as shown.

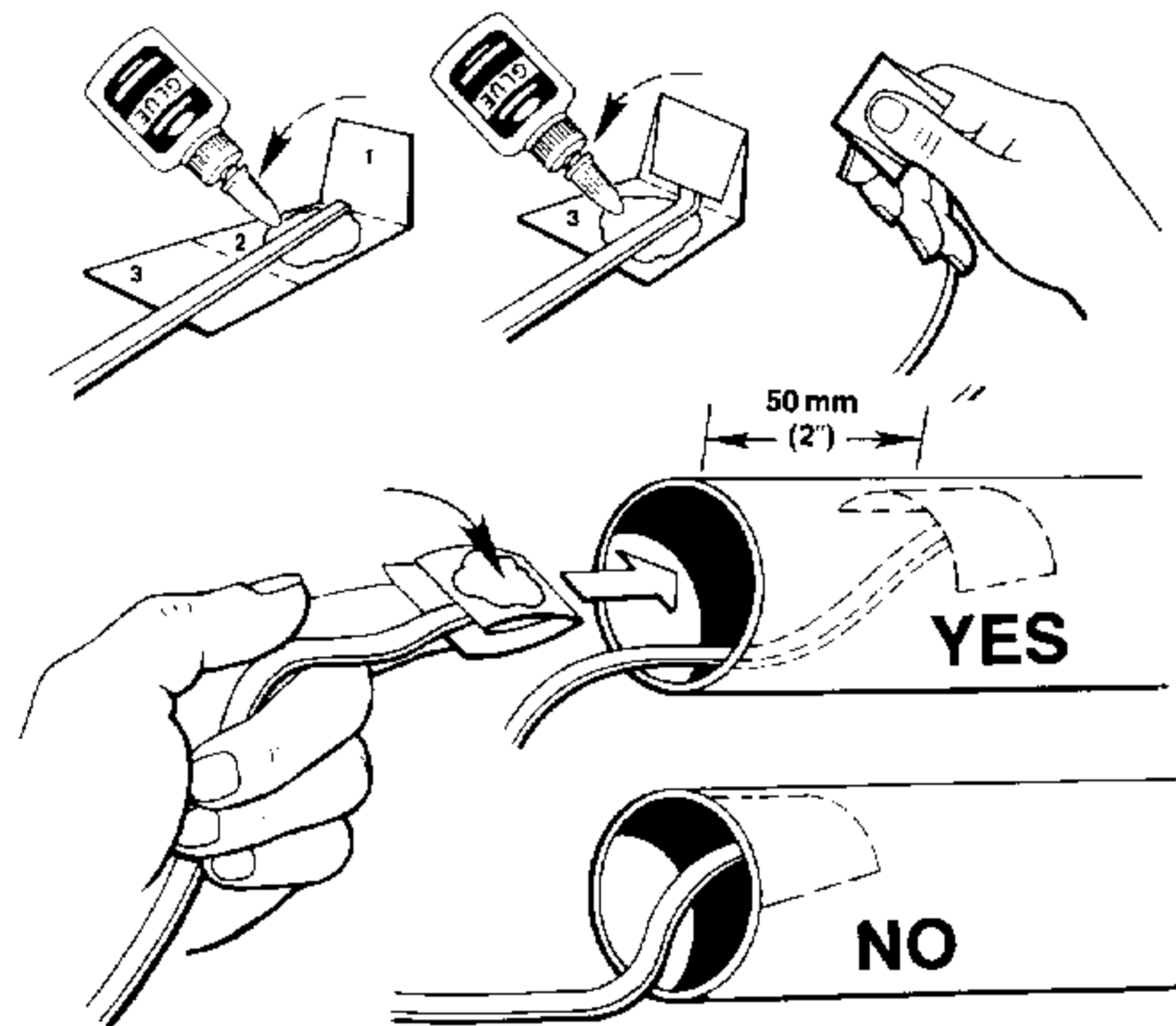


- 6.** Test fit the nose cone into the forward end of the body tube. It should fit smoothly. Scrape the small ribs around the adapter section with a modeling knife if the fit is too tight. If needed, clear out the plastic loop, being careful not to nick the plastic loop and install the metal attachment ring through the loop.



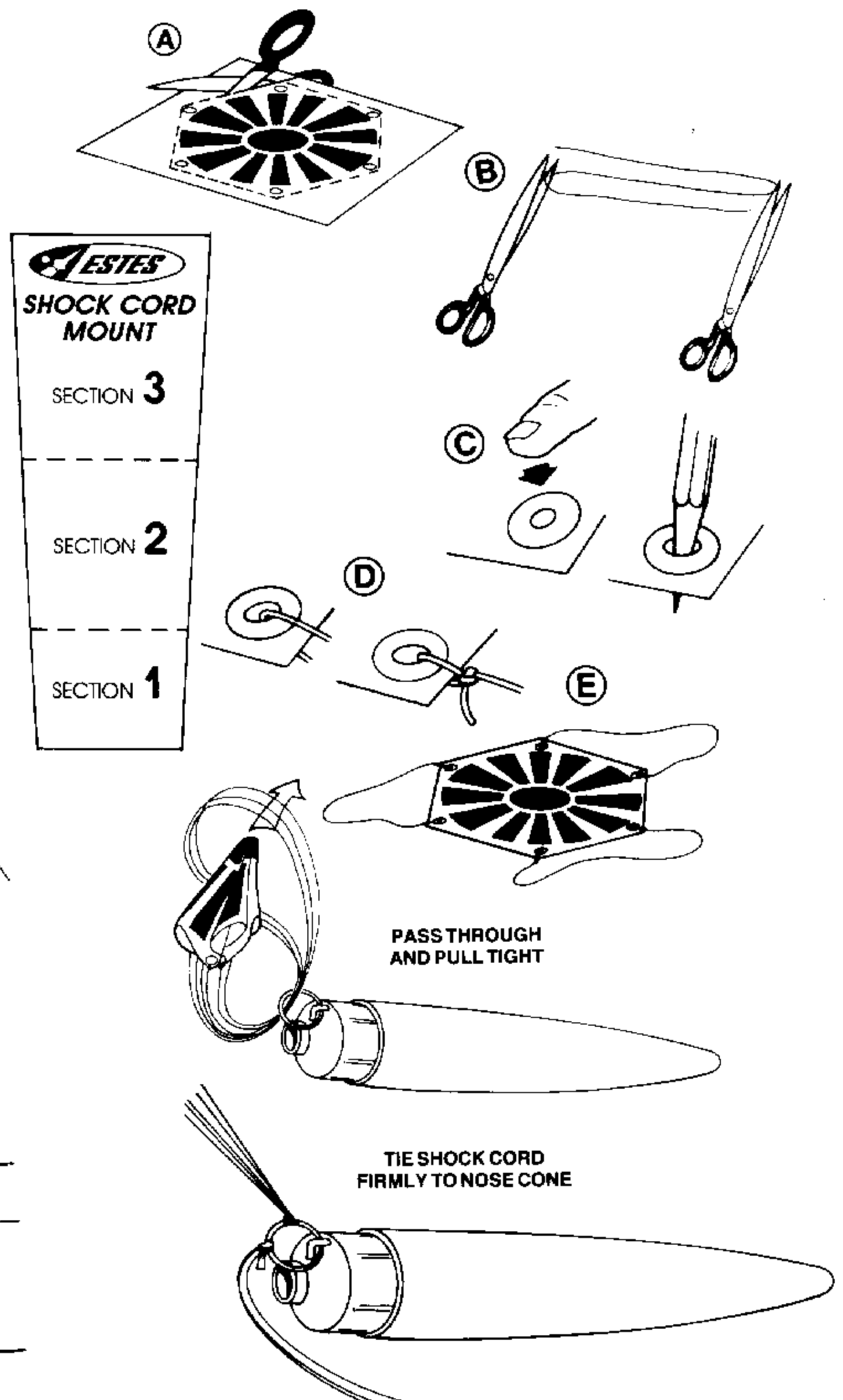
- 7.** Cut out the shock cord mount along the solid black outline. Crease on dotted lines by folding. Spread glue on section 2 and lay end of 76 cm (30") shock cord into glue at a slight diagonal as shown. Fold section 1 forward. Fold forward again. Clamp tightly with your fingers for two minutes until glue dries.

- 8.** Apply glue to shock cord mount and insert into tube. Set the mount back at least 50 mm (2") to allow for nose cone clearance and press mount firmly into glue as shown. Hold until glue sets.



- 9.** Cut out parachute on printed edge lines. Remove tape from shroud lines, fold and cut into three equal lengths. Attach tape rings to top of parachute and press firmly into place. Punch hole through the parachute material with the point of a sharp pencil (do not use a dull pencil or ballpoint pen). Pass shroud line through hole in parachute and tape ring. Tie lines together with a double knot. Attach remaining lines to other corners to complete parachute. Gather the shroud line ends to form a single loop. Pass the shroud line loop through the metal ring and then over the parachute in one operation. Grasp the top of the parachute in one hand and the nose cone in the other and gently pull the cord until the loop ends are tight at the metal rings. Firmly tie the free end of the shock cord to the metal ring using a square or double knot.

- 10.** To apply decals, refer to picture on front of kit package for possible placement.



LAUNCH SUPPLIES

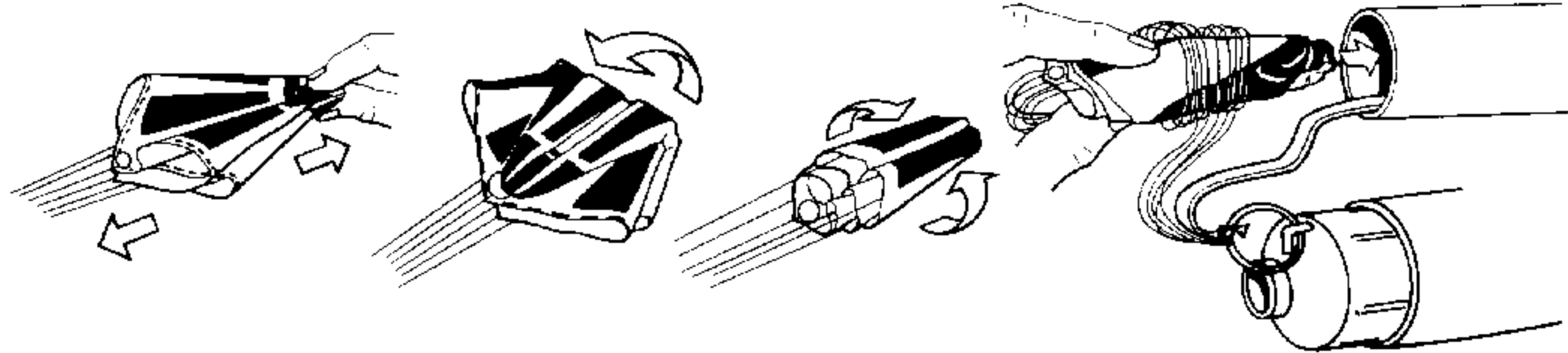
To launch your rocket you will need the following:
Estes electrical launch controller and launch pad with 5 mm (3/16") or 6 mm (1/4") launch rod.
Estes recovery wadding No. 2274

Recommended engines: D12-5 (First Flight), D12-7 and the Estes E15-6 & E15-8 engines.
Use only Estes products to launch this rocket.
Always insert the orange D engine spacer in the engine mount when flying with D engines.

PREPARE ROCKET FOR FLIGHT

1. Hold the recovery system shock cord to one side of the inside of the body tube. Insert 6 to 8 squares of Estes™ recovery wadding into the open end of the rocket body. The wadding should remain loose. NEVER tamp the wadding tightly into the tube.

2. Fold the parachute and wrap the shroud lines around it as shown. The lines should be tight enough so that the parachute will slide easily inside the rocket body. Insert the parachute into the rocket onto the top of the recovery wadding. Then insert the shock cord into the rocket on top of the parachute.



3. Install the nose cone into the forward end of the rocket body. Be certain the fit is neither too loose or too tight. If the nose cone falls out of the rocket body when the model is pointed downward, the fit is too loose. If, while pointed downward, the nose cone can't be shaken out of the tube, the fit is too tight. If too loose, wrap tape around shoulder for snug fit. If too tight, lightly sand the shoulder slightly for looser fit.

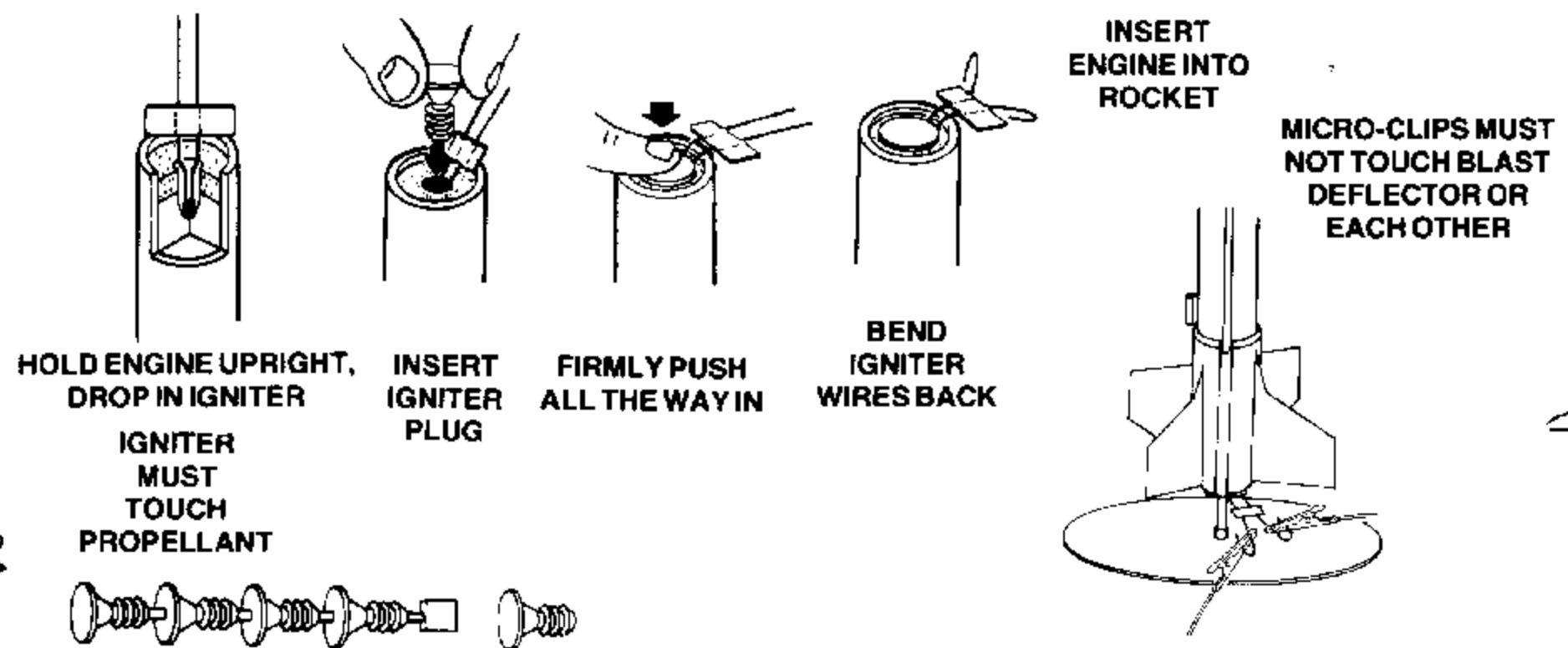
PREPARE ENGINE

NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.

Flying your rocket with a D engine, you will need to first slide the orange engine spacer into the engine tube, then the "D" engine. For the E engine flights, the orange spacer is not needed.

NOTE: With the optional EM2050 (EST 3154) and the orange engine spacer, you can even fly the Maniac™ on a C5-3 or C6-3 engine.

SEPARATE IGNITER AND IGNITER PLUG



LAUNCH SITE SELECTION

Always fly model rockets from large open fields away from power lines, airports, buildings, and trees. The launch site chosen for launching Estes Pro Series™ model rockets should be a minimum of 1/4 mile long on each side. There should never be dried grass or weeds at the site which are easily combustible. Always place the launch pad in the center of the field whenever possible.

LAUNCH PROCEDURE

1. Remove the safety key and launch rod safety cap from the launch rod. **HOLD THE SAFETY KEY AND SAFETY CAP IN ONE HAND.** Carefully align the rocket launch lugs with the launch rod and slide the rocket down the launch rod and onto the blast deflector. Adjust the igniter leads as necessary so that they do not touch the metal blast deflector.
2. MAKE CERTAIN THAT NO ONE IS HOLDING THE LAUNCH CONTROLLER, OR THAT ANY EXTERNAL BATTERY PACKS ARE NOT CONNECTED AT THIS TIME. KEEP SAFETY KEY AND SAFETY CAP IN ONE HAND.
3. Attach the launch system micro clips to the igniter leads. (It is strongly recommended that the inside jaws of the micro clips be cleaned before each launch. This can be done quite easily by simply passing a folded piece of fine sandpaper back and forth between the closed jaws a few times.)
4. Examine the connections carefully. Be certain that the micro clips do not touch one another or the metal blast deflector.
5. Check to be certain the launch controller is at its maximum distance from the launch pad. Move it as necessary so that the sun will be at your back at launch.
6. Give a verbal warning to others that you are ready to launch your rocket and that they need to move back a minimum of 15 feet (5 meters) for a D engine or 30 feet (9 meters) for an E engine from the launch pad. We recommend the Estes Power Plex™ launch pad and Command Control™ launch controller when launching this rocket with E engines.

7. Insert the safety key into the launch controller. The continuity circuit should now indicate the launch circuit is complete.

8. GIVE A SHORT AUDIBLE COUNTDOWN...5...4...3...2...1...LAUNCH!

Press the launch button and hold it down until ignition occurs and the rocket lifts off. Release the launch button as the rocket leaves the launch pad. Remove the safety key from the controller as you follow the rocket skyward.

Do not place another rocket on the launch pad until the continuity circuit has been disconnected at the controller. Return the safety cap to the end of the launch rod as soon as possible.

3. Install the nose cone into the forward end of the rocket body. Be certain the fit is neither too loose or too tight. If the nose cone falls out of the rocket body when the model is pointed downward, the fit is too loose. If, while pointed downward, the nose cone can't be shaken out of the tube, the fit is too tight. If too loose, wrap tape around shoulder for snug fit. If too tight, repeat step 6.