

Astron Mark Assembly Instructions

Your Astron Mark model rocket kit consists of the following parts as illustrated in the drawing at right:

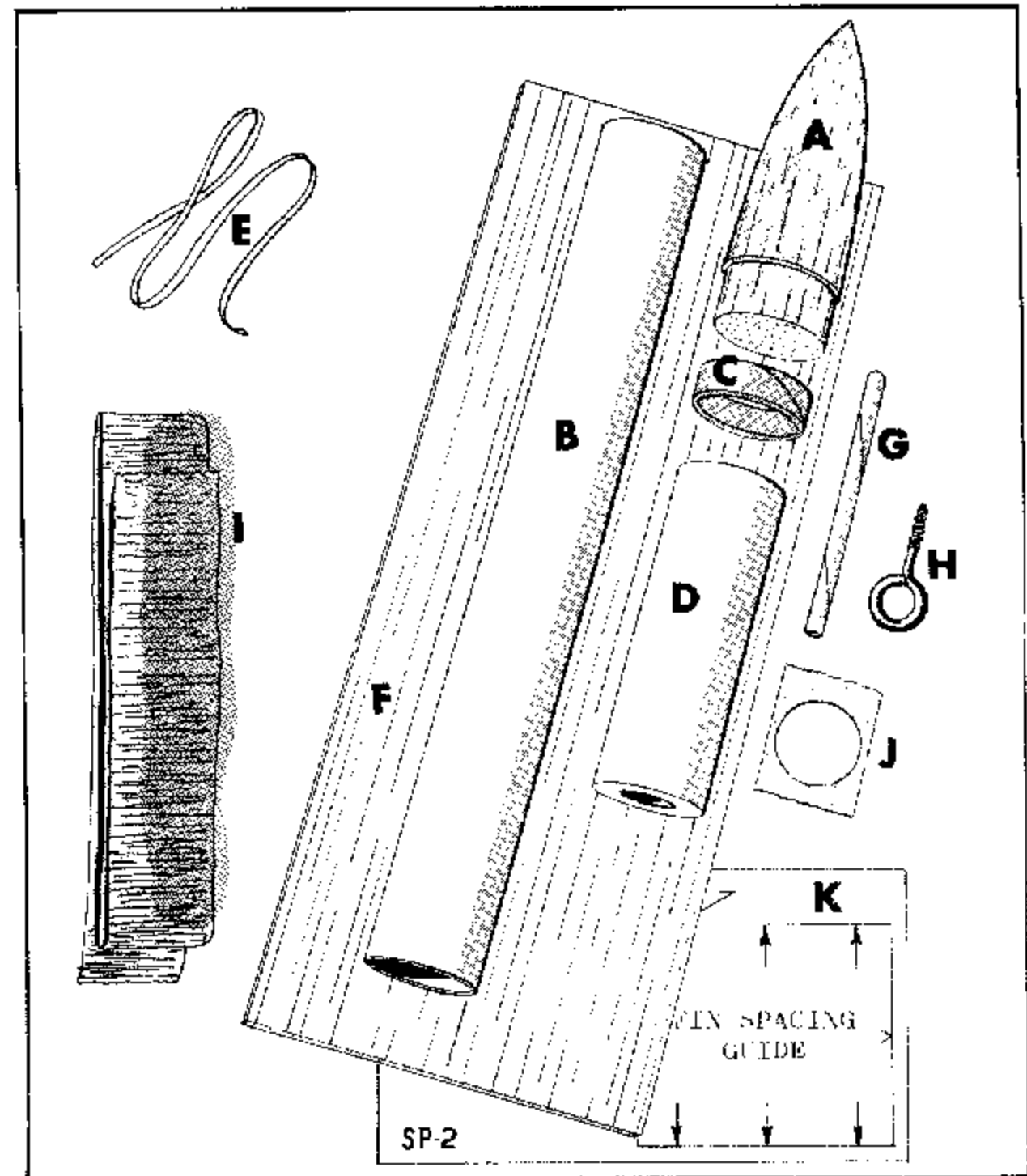
- (A) 1 Nose Cone--Part #BNC-30E
- (B) 1 Body Tube--Part #BT-30B
- (C) 1 Engine Block--Part #EB-30A
- (D) 1 Reject Engine Casing--Part #EC-2
- (E) 1 Shock Cord--Part #SC-1B
- (F) 1 Balsa Fin Stock--Part #BFS-20
- (G) 1 Launching Lug--Part #LL-2B
- (H) 1 Screw Eye--Part #SE-1
- (I) 1 Streamer--Part #SM-1A
- (J) 1 Tape Disc--Part #TD-1A
- (K) 1 Pattern Sheet--Part #SP-2

NOTE: The engine casing provided with this kit is one which has been rejected as unsuitable for use in the construction of a rocket engine. It is provided as a measuring device only, and is not suitable for any other use.

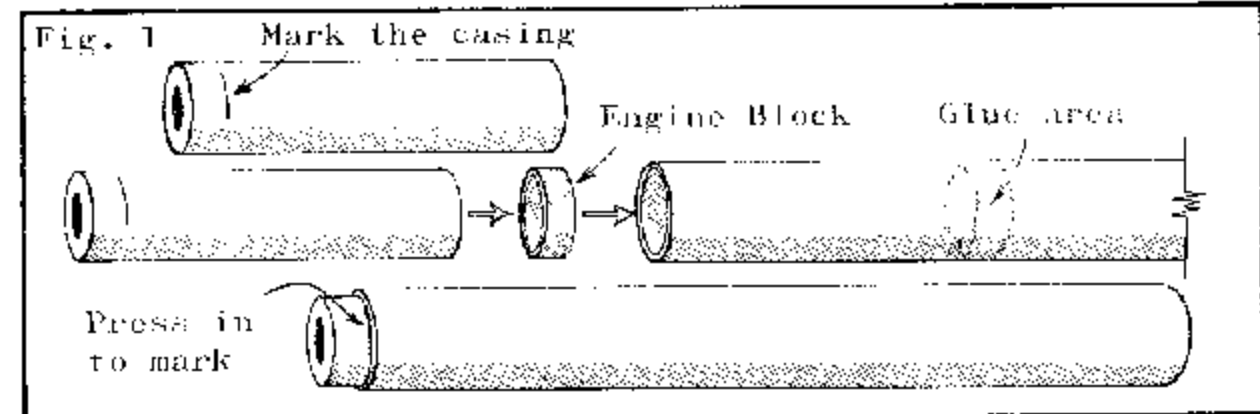
In addition to the materials included with your kit you will also need the following tools and supplies:

- 1) Modeling knife or single edge razor blade
- 2) Scissors
- 3) Extra strong white glue
- 4) Ball point pen or pencil
- 5) Fine and extra fine grit sandpaper
- 6) Sanding sealer and paint or dope

Read the entire assembly instructions carefully before beginning work on your rocket. Then start construction, following each step in order, checking off each step as it is completed.



- (1) To install the engine block, first mark the empty engine casing 1/4 inch from one end. Using your little finger or a brush, smear glue around the inside of the body about 2" from one end. Insert the engine block into this end and push it forward with the casing until the mark is even with the end of the tube (so only 1/4" of the casing projects from the end of the body). Do not pause during this operation or the glue may set with the block in the wrong position. Remove the casing as soon as the block has been positioned.



ASTRON MARK

**SPECTACULAR
HIGH
ALTITUDE
PERFORMANCE**

**STREAMER
RECOVERY**

**EASY
TO BUILD**

**Only
\$1.25**

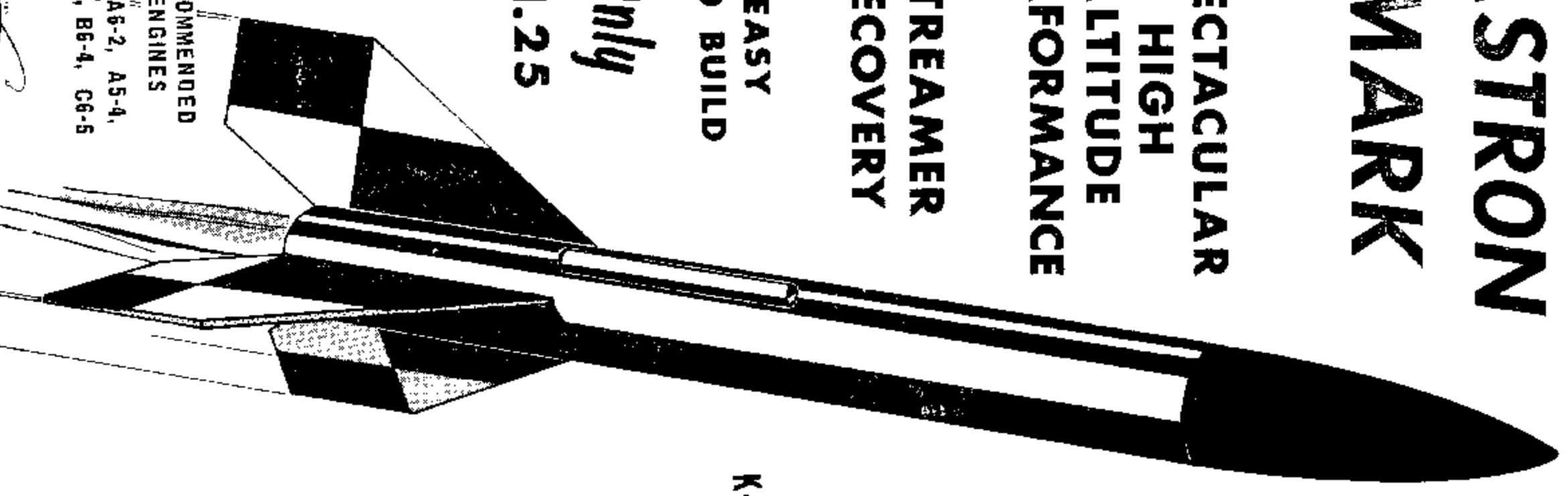
**RECOMMENDED
ENGINES**
1/2A6-2, A5-4,
A8-3, B6-4, C6-5

ESTES

Industries, Inc.

Dedicated to Safety and Education in Rocketry

Box 227, Penrose, Colo. 81240



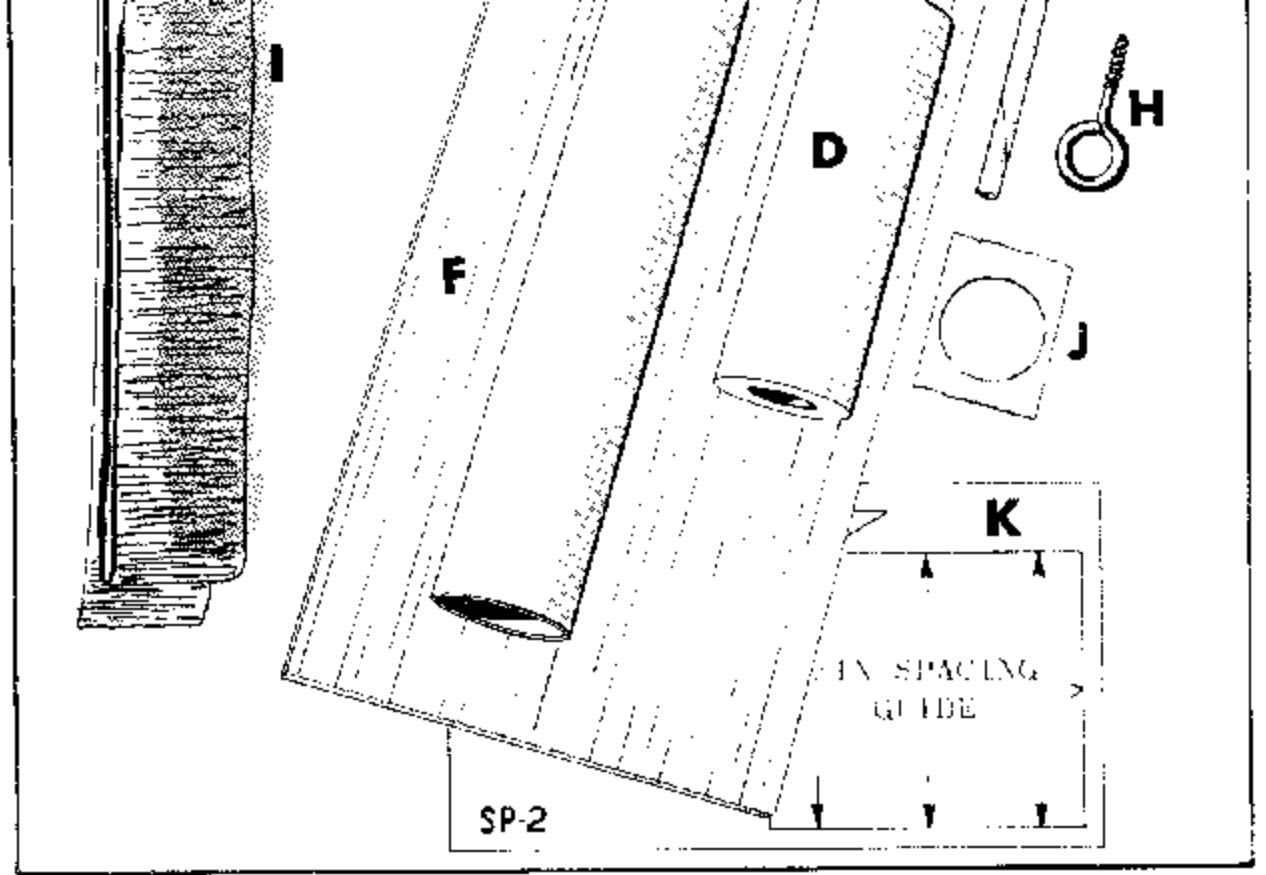
K-2

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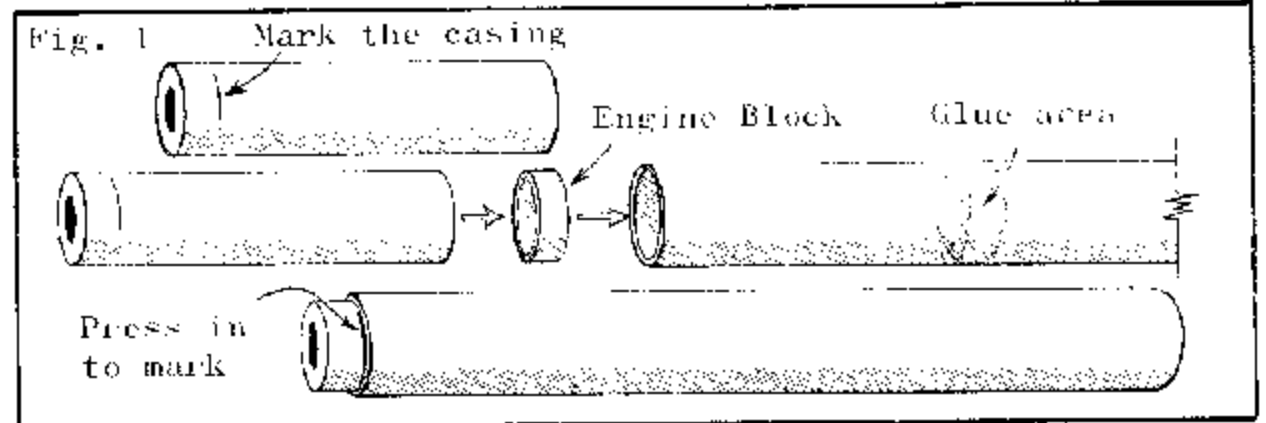
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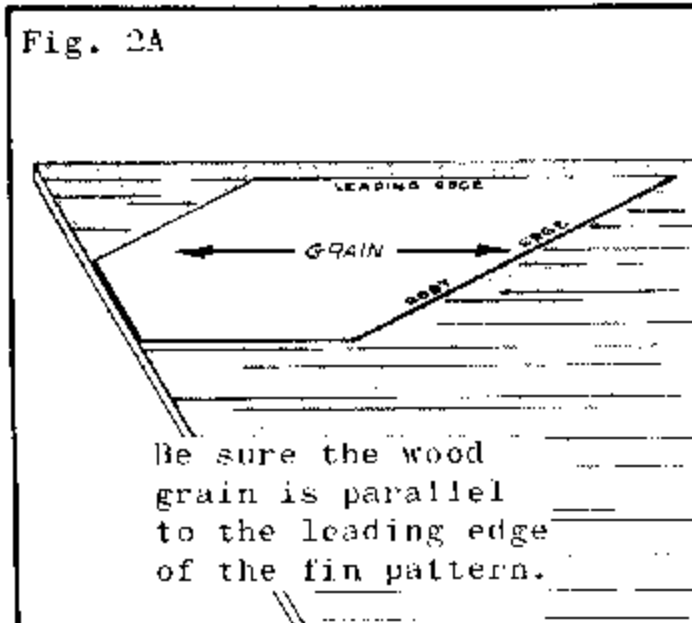
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K-2

RECOMMENDED ENGINES
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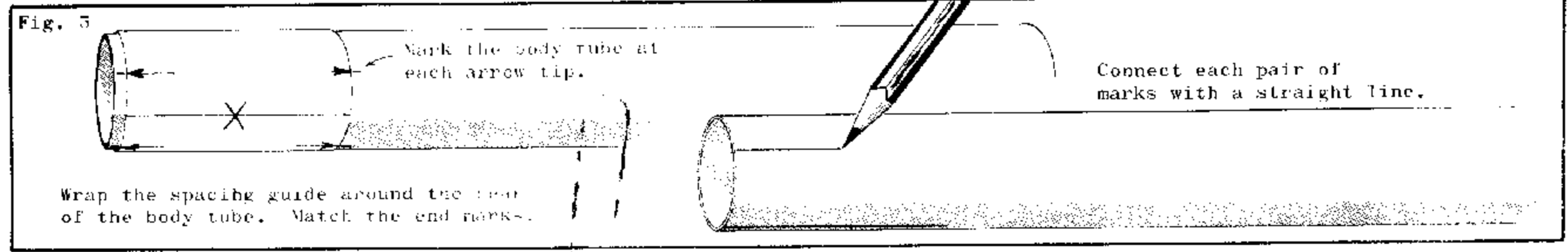
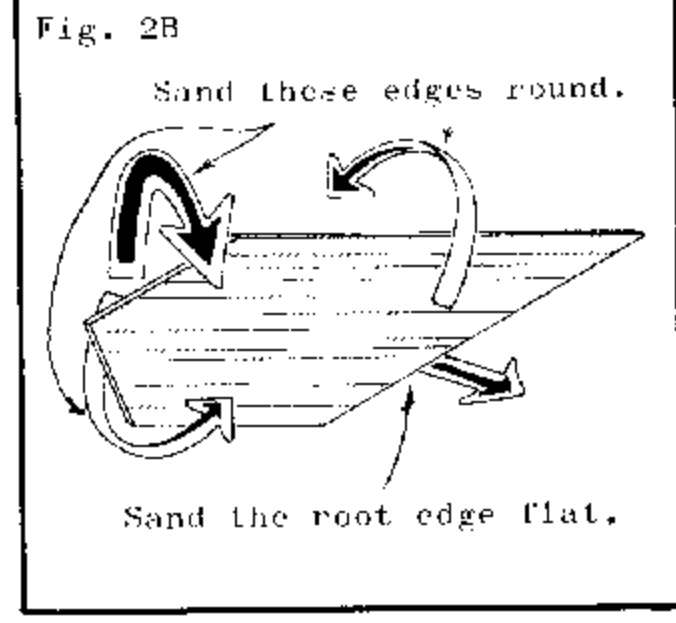
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(2) Cut out the fin pattern. Lay the pattern on the balsa fin stock with the grain of the wood and the grain shown on the pattern matched perfectly. Trace out three copies of the fin. Cut out the fins carefully with a sharp blade. Be especially careful to make straight, clean cuts. Sand the sides of the fins so they are flat and smooth. Round all edges of the fins except the root edge with sandpaper. Sand the root edges so they are flat and square with the sides of the fins.

(3) Cut out the fin spacing guide, wrap it around the rear end of the body and mark the tube at each of the arrow points. Draw a straight connecting line between each matching front and rear mark (fig. 3). Be sure to mark the end in which the engine block was installed.



(4) Apply glue to the root edge of one of the fins. Attach the fin to the rocket's body tube with the edge of the fin along one of the lines drawn in step 3. Align the fin so it projects straight away from the body tube. Following the same procedure, attach the other two fins. Do not set the rocket on its fins while the glue is wet.

(5) Glue the launching lug to the body tube so its rear is even with the front of the fins and is halfway between two fins as shown. Sight along the tube and align the lug so it runs parallel to the body tube.

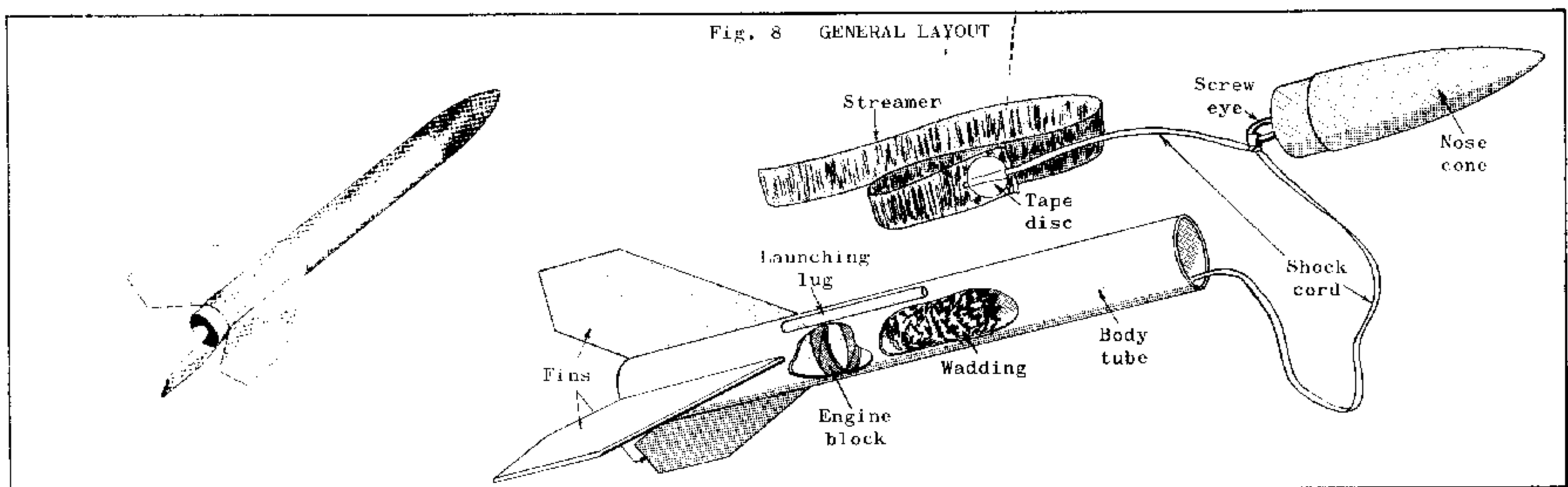
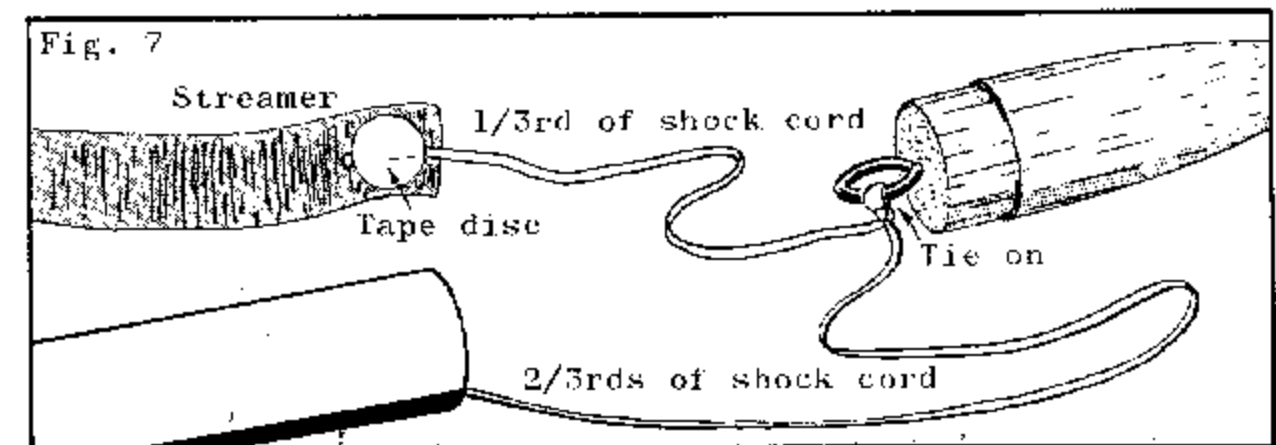
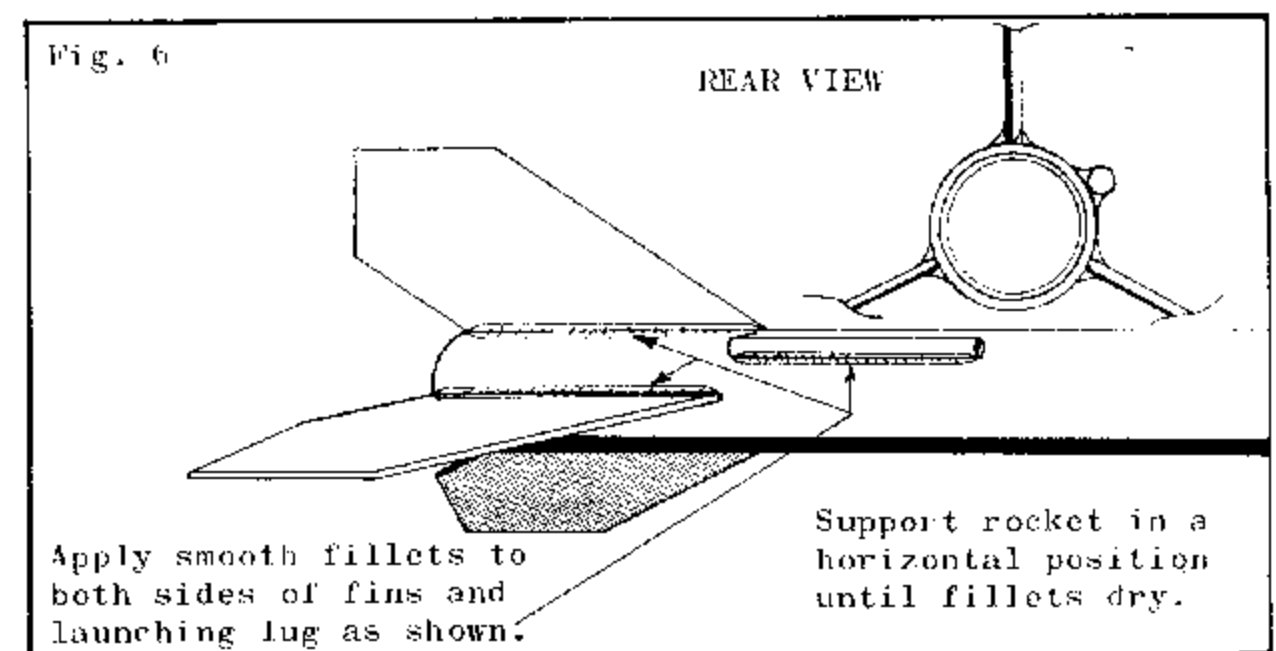
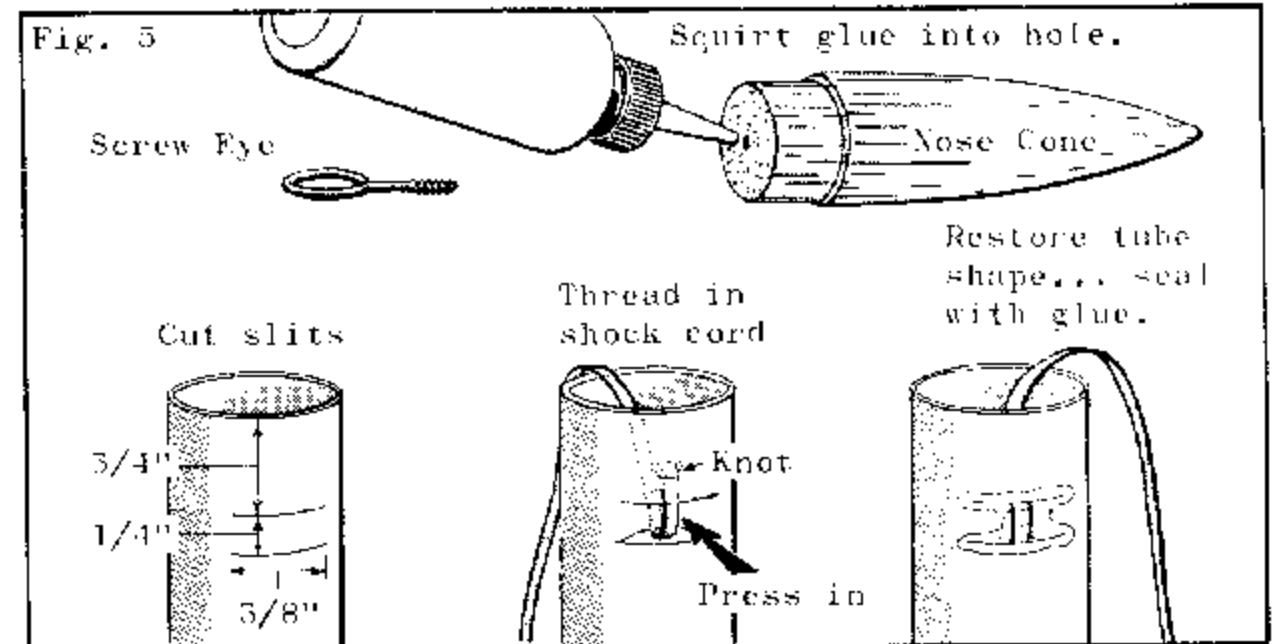
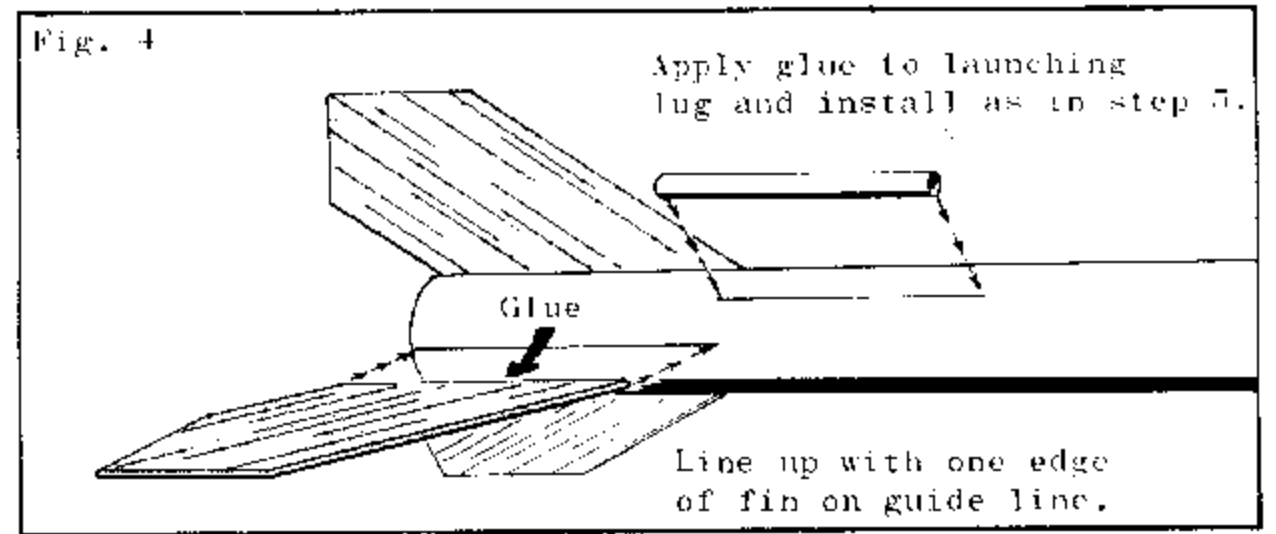
(6) Insert the screw eye into the base of the nose cone. Remove the screw eye, press the nozzle of the glue bottle to the hole and squirt glue into the hole. Replace the screw eye and wipe away any excess glue.

(7) Cut two 3/8" wide slits in the forward end of the body as shown in Fig. 5. Cave in the section between the slits and hook the shock cord through the slits as shown. For an extra secure attachment, knot the inside end of the shock cord. Press the caved-in portion of the tube outward until it is round again and apply glue to the cut edges and to the shock cord to anchor it in place.

(8) When the first glue on the fins and launching lug has become hard, apply a glue fillet to each of the fin-body joints and to the launching lug as shown. The fillets should be smooth and bubble free. Support the rocket horizontally while the glue is drying.

(9) After the rocket has dried sufficiently to be handled, tie the shock cord to the screw eye. Leave about 2/3 of the length of the cord between the screw eye and the rocket body and about 1/3 extending from the screw eye for fastening to the streamer. Unless the glue is thoroughly dry, do not pull on the connection between the shock cord and the body tube. Attach the streamer to the shock cord as shown in the drawing.

(10) Before finishing let all the glue on the outside of the rocket dry so it is hard and clear. Cover all balsa surfaces with a coat of sanding sealer. Let it dry completely and sand lightly with extra fine sandpaper. Apply a second coat, sand and apply still another coat until all the pores in the balsa are filled and the surfaces look and feel smooth. Give the rocket at least one clean base coat of glossy white paint or dope, let dry and follow with a high visibility color such as red or fluorescent orange to aid in tracking and retrieving.



General Information

The engine types recommended for use in the Astron Mark are these: 1/2A6-2, A5-4, A8-3, B6-4 and C6-5. For the first test flights 1/2A6-2 or A5-4 engines should always

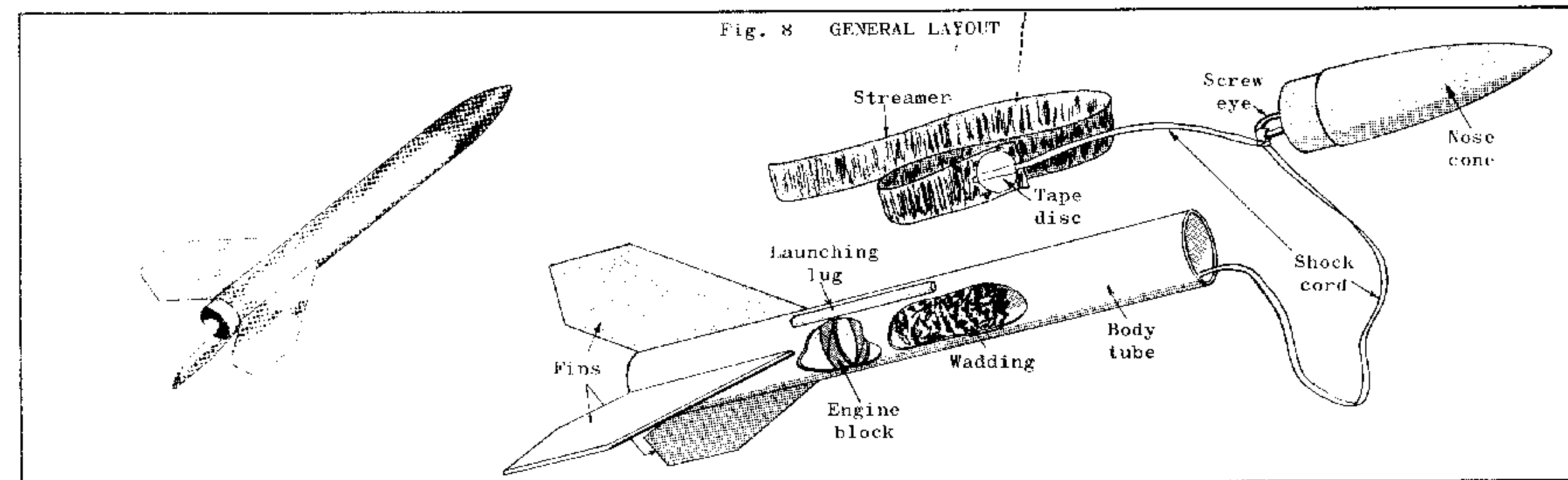
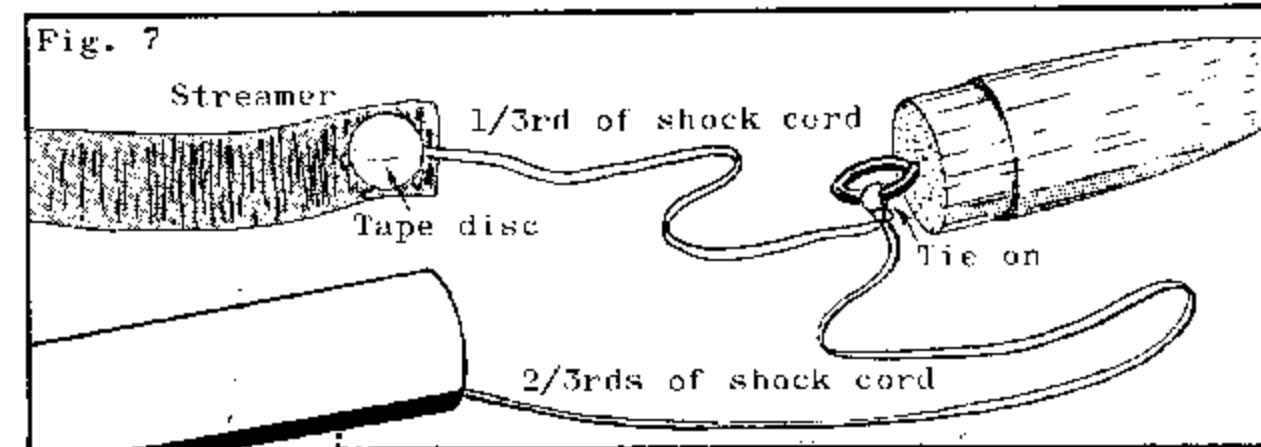
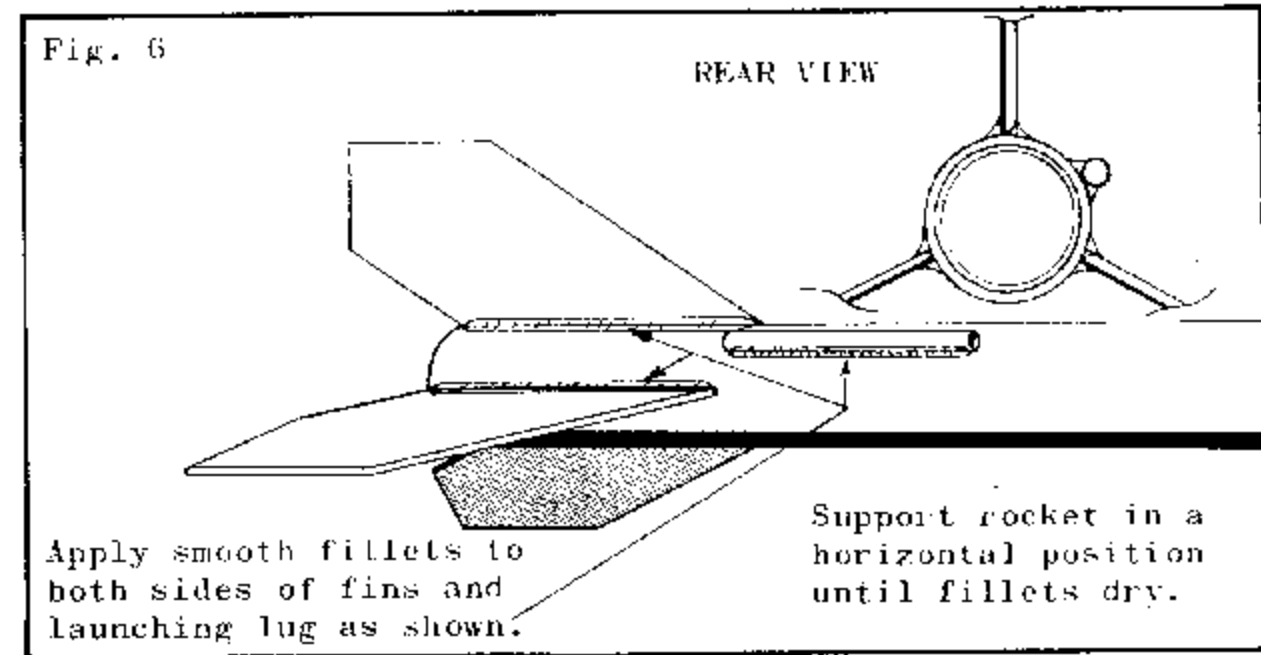
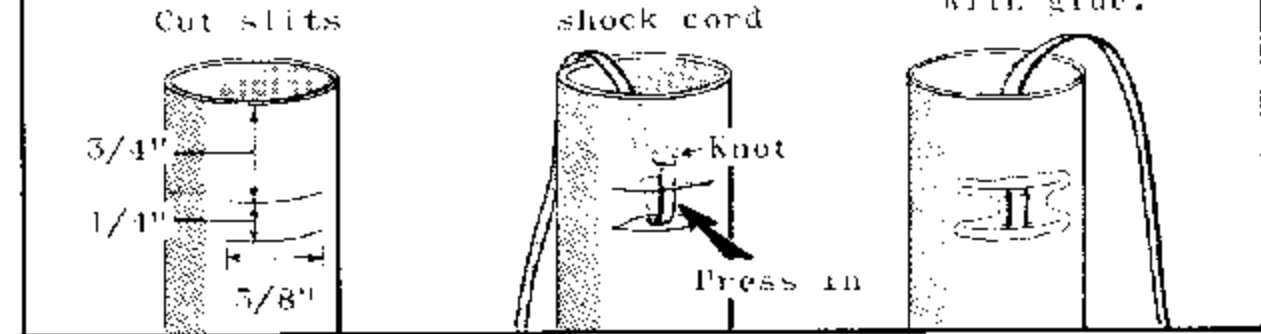
be used. For best results, fly the Mark on calm, clear days. Launch the rocket using a standard electrical launching system with a 1/8" diameter guide rod at least 36" long.

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Countdown Checklist

-13- Pack flameproof recovery wadding into the body tube from the top. The wadding should fill the tube for a distance of about 1-1/2 inches and seal along the sides of the tube. Roll the streamer into a cylindrical shape, beginning at the loose end. Push the rolled streamer down into the tube on top of the wadding and pack the shock cord in on top of it. Slide the nose cone into place.

-12- Select an engine. Install an electrical igniter in the engine as directed in the instructions which came with it.

-11- Wrap the engine with masking tape until it makes a tight fit in the rocket body tube. This fit must be tight so the engine will not blow out when the ejection charge is activated. Insert the engine into the body so the rear of the engine projects 1/4" from the rear of the rocket.

-10- Remove the safety interlock or key from the launch control panel. (If a simple spring switch is used, install the protector around the spring.) Carry the key or interlock on the person of the launch control officer.

-9- Place the rocket on the launcher. Check to be sure the panel is disarmed. Clean the micro-clips and attach them to the igniter.

-8- Clear the launch area, alert the recovery crew and trackers.

-7- Check for low flying aircraft and unauthorized persons in recovery area.

-6- Arm the launch panel.

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