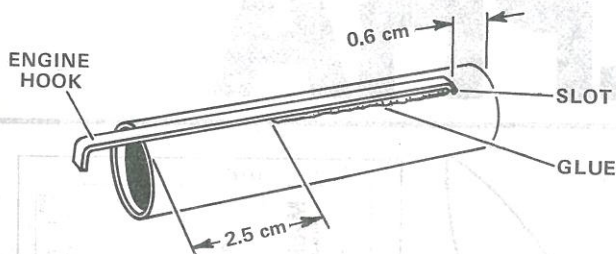
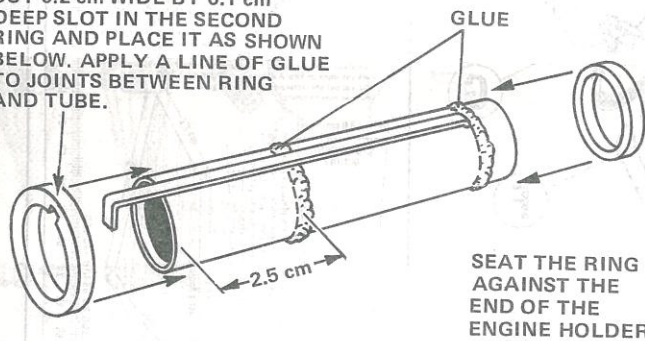


ASSEMBLY INSTRUCTIONS



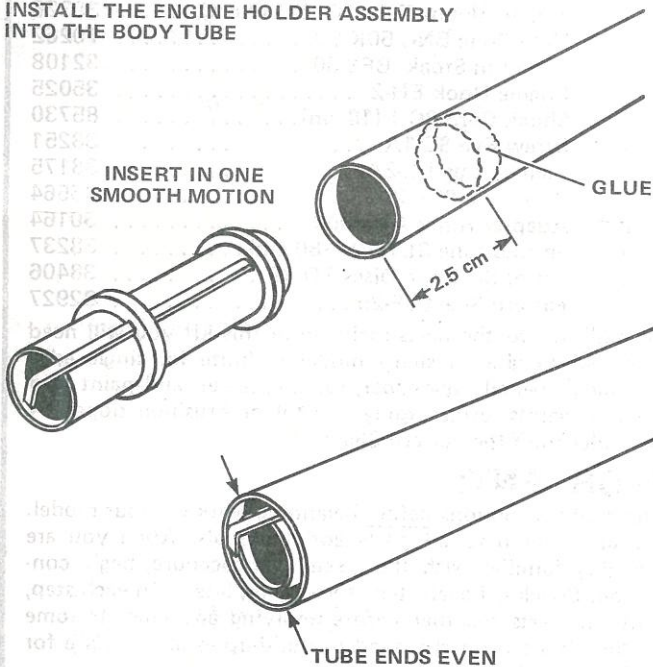
1 Measure 0.6 cm from one end of the engine holder tube and punch a slot for the forward end of the engine hook. Apply glue to the area shown and put the holder into its position. Hold the assembly until the glue has set.

CUT 0.2 cm WIDE BY 0.1 cm DEEP SLOT IN THE SECOND RING AND PLACE IT AS SHOWN BELOW. APPLY A LINE OF GLUE TO JOINTS BETWEEN RING AND TUBE.



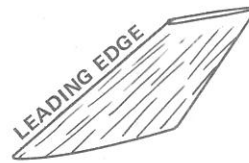
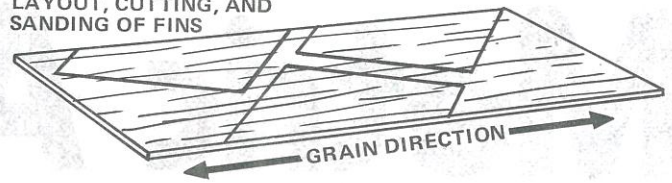
2 Apply a line of glue around the front end of the engine holder tube as shown and slide a ring into place. Smooth out any excess glue. Cut a slot in the other ring as shown. Run a line of glue around the tube 2.5 cm from the rear and slide the slotted ring into place. Apply a line of glue to each joint between ring and tube.

INSTALL THE ENGINE HOLDER ASSEMBLY INTO THE BODY TUBE



3 Apply glue about 2.5 cm up inside the rear end of the body tube. Slide the engine mount unit into place in one smooth motion. The end of the mount tube should be even with the end of the body tube. The engine hook protrudes about 8 mm to the rear.

LAYOUT, CUTTING, AND SANDING OF FIN

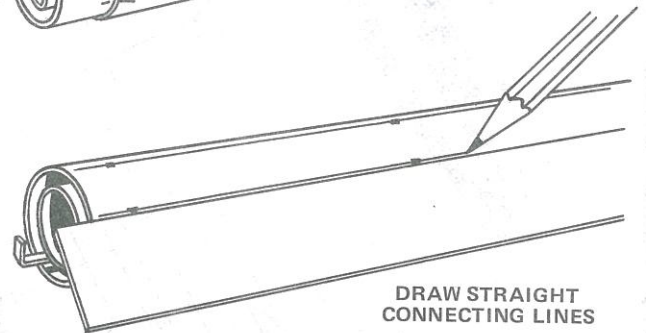
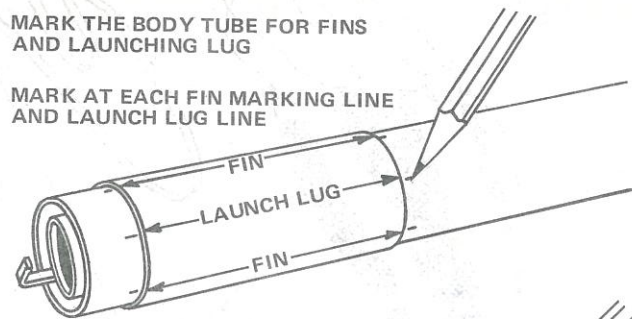


MAKE CERTAIN GRAIN OF BALSA IS PARALLEL TO LEADING EDGE OF FIN AS SHOWN ON FIN PATTERN.

4 Cut the Fin Pattern from the Pattern Sheet and lay out three fins on the fin stock. Cut out the fins and sand them to the shape shown. Leave the root edge flat. Round the leading edges and taper the rear edges.

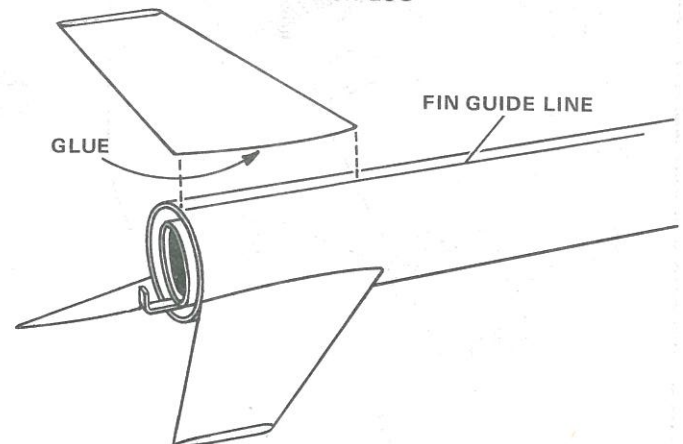
MARK THE BODY TUBE FOR FINS AND LAUNCHING LUG

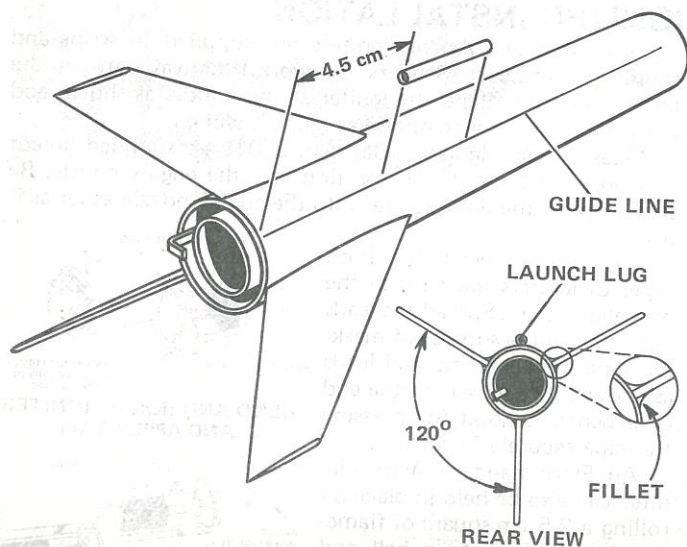
MARK AT EACH FIN MARKING LINE AND LAUNCH LUG LINE



5 Make the Fin Marking Guide as instructed on the Pattern Sheet. Cut the Fin Marking Guide from the Pattern Sheet and wrap it around the body tube as shown. Mark the tube at each point as shown and connect these marks.

ATTACH THE FINS AND LAUNCH LUG

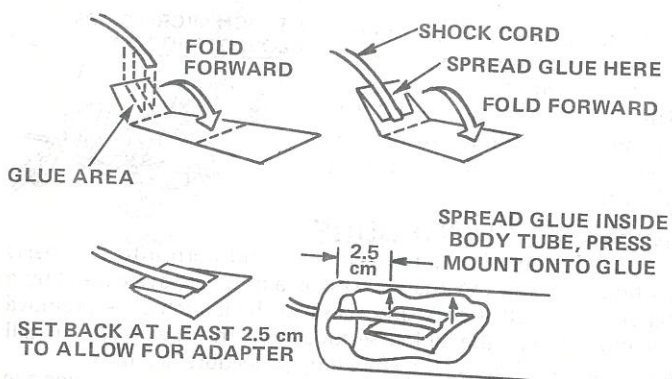




- 6** Apply a line of glue along the root edge of a fin. Carefully align this edge on one side of a guide line so that the fin is parallel to the line and sticks straight out from the body tube as shown in the rear view. Do the same with the other two fins. Apply a line of glue along the launch lug and place it centered between two fins as indicated on the Fin Marking Guide. The rear of the launch lug should be 4.5 cm from rear of the body tube.

Stand this assembly on its forward end and allow to dry.

PREPARE SHOCK CORD HOLDER AND INSTALL SHOCK CORD



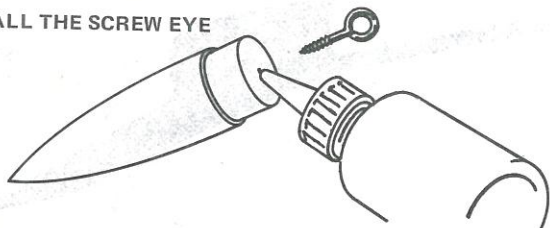
- 7** Complete drawing of Shock Cord Mount on Pattern Sheet as instructed. Cut the completed Shock Cord Mount from Pattern Sheet.

Apply glue to section 1. Lay the end of the shock cord into place. Fold section 1 over section 2 as shown.

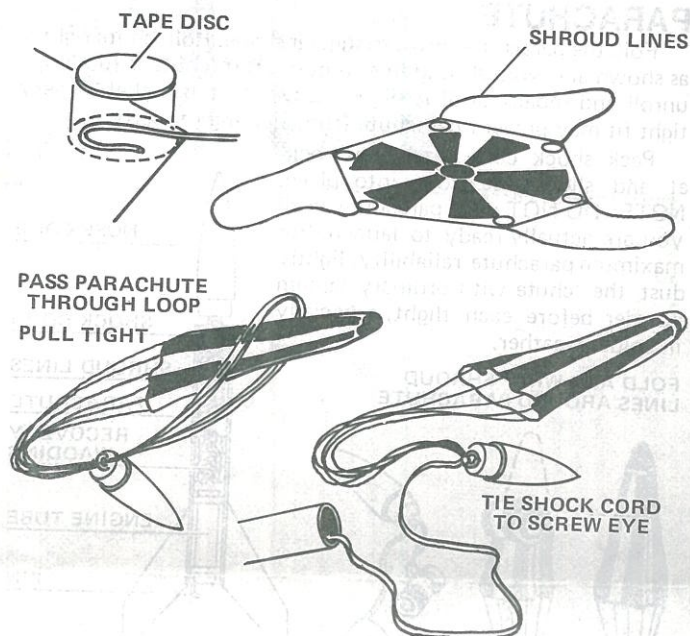
Apply glue over the backside of section 1 and the exposed part of section 2. Lay the shock cord as shown and fold the cord and section 2 over section 3.

Apply glue to the inside of the body tube where the shock cord mount will seat. Hold the shock cord as shown and place the mount into position, pressing it to conform to the inside curve of the body tube.

INSTALL THE SCREW EYE



- 8** Put the screw eye into the base of the nose cone and remove it. Squirt a bit of glue into the hole and reinsert the screw eye.



- 9** Cut out the parachute on its edge lines. Cut three 61 cm lengths of shroud line. Attach line ends to the 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. Tie shock cord securely to screw eye.

PREPARATION FOR BASE COAT

- 10** Apply all fillets to fins and launching lug as shown in Step 6, in the rear view. There will be eight fillets. Let all fillets dry completely. Apply sanding sealer to all balsa surfaces. Allow the sealer to dry and sand it smooth. Repeat this step as many times as needed to fill all the grain lines in the wood.

DOPE FINISH

Butyrate dope may be thinned up to 50% for good brushing qualities. Apply four or more coats of the base color, sanding lightly between coats, until a smooth clean finish is obtained. If a second color trim is to be painted, allow the first color to dry overnight to keep from "bleeding" the base color through the second color as it is applied.

SPRAY ENAMEL

Spray a "mist" coat of base color and let dry. Spray two more "mist" coats, sanding your rocket lightly between coats. The final coat is applied "wet" (gloss just appears) and is set aside to dry. Trim color may be applied with tape, decals, or sprayed on.

PREFLIGHT PREPARATION AND RECOVERY TIPS

WADDING

This material is used to protect your parachute from the heat of the engine's ejection charge. Recovery Wadding (Cat. No. 2274) is flame resistant, thus eliminating the possibility of recovery system failure.

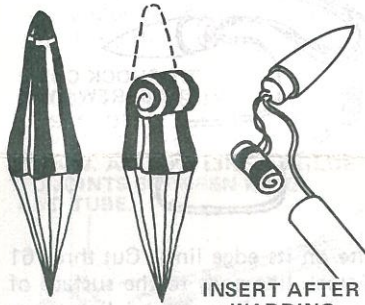
For maximum efficiency use enough wadding to fill the rocket body tube for a distance of twice the body diameter. Usually four or five squares will be adequate for this model rocket. When preparing the rocket for flight, crumple the wadding loosely to get the maximum bulk from it and still obtain a good seal against the wall of the tube. Pack the chute or streamer in over the wadding.

PARACHUTE

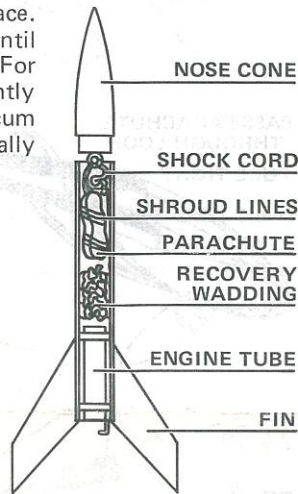
Fold the parachute into a triangular shape. Roll 'chute tightly as shown and wrap shroud lines around it. If 'chute is too large, unroll and repack until it slides easily into the rocket. A very tight fit may prevent parachute from ejecting properly.

Pack shock cord neatly into rocket and slide nose cone into place. NOTE: DO NOT pack parachute until you are actually ready to launch. For maximum parachute reliability, lightly dust the 'chute with ordinary talcum powder before each flight, especially in colder weather.

FOLD AND WRAP SHROUD LINES AROUND PARACHUTE



INSERT AFTER WADDING



NOSE CONE

Nose cone should separate easily from rocket body tube, but not be extremely loose. If fit is too tight, sand inside of body tube end and shoulder of nose cone with fine sandpaper.

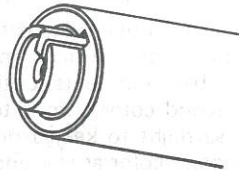
If nose cone is too loose add a wrapping of transparent tape or masking tape to the shoulder of the nose cone.

ENGINE FIT

To activate streamer or parachute recovery gear correctly, the engine MUST be held in place SECURELY.

Make sure the end of the engine hook latches securely over the end of the engine.

ENGINE HOOK MUST LATCH SECURELY



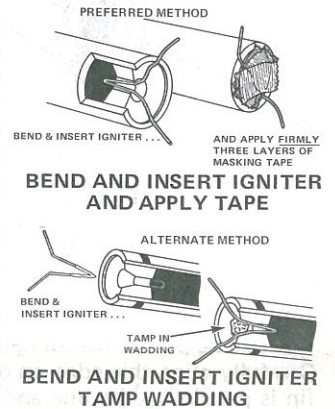
IGNITER INSTALLATION

Estes standard Astron igniters are supplied in strips and should be cut apart (Scissors will work.) midway between the coated sections. Bend the igniter at the middle as shown and push it into the engine nozzle as far as it will go.

Estes "Solar" igniters (Cat. No. 2301) are supplied pre-cut and reshaped for direct insertion into the engine nozzle. Be sure to push the Solar igniter into the engine nozzle as far as it will go.

To operate properly, both types of igniters must touch the propellant grain. Spread the leads and apply three squares of masking tape to the nozzle and leads as shown. The eraser on the end of a pencil is good for pressing the tape securely into place.

An Estes standard Astron igniter can also be held in place by rolling a 2.5 cm square of flame-proof wadding into a ball and inserting it into the nozzle with a pen or pencil to hold the igniter firmly in place.

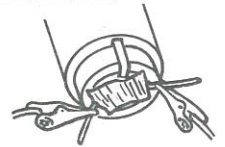


LAUNCHING

Lower the rocket into position on the launch rod or rail. Clean the micro-clips, then clip one to each lead of the igniter. The clips must not touch each other, and the igniter leads must not cross. The rocket may be supported with an empty engine casing to make it easier to attach the clips and to keep the clips from touching the blast deflector plate and short-circuiting.

COUNTDOWN: Give a countdown before launching your rocket. First arm the launch panel. Then begin counting: "5-4-3-2-1-Launch." Press the button and hold it down until the rocket lifts-off.


ATTACH MICRO-CLIPS CLOSE TO NOZZLE



MISFIRE PROCEDURE

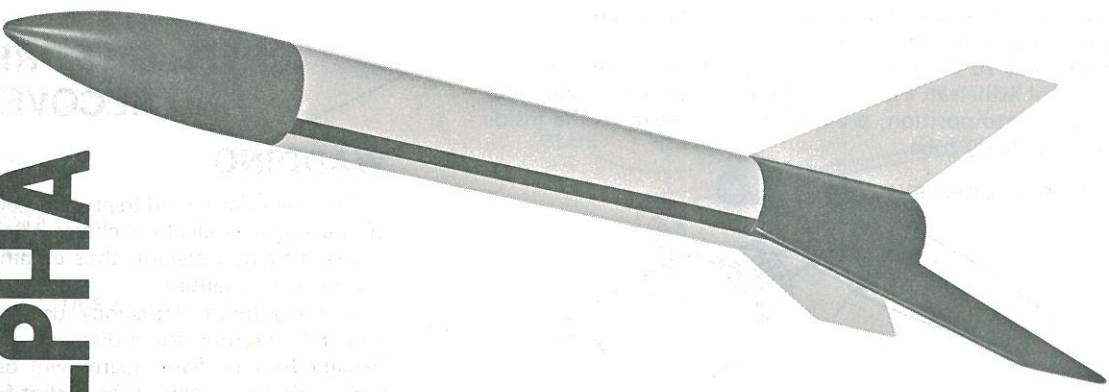
Occasionally the igniter will heat and burn into two parts without igniting the engine. This is almost always caused by a failure to install it correctly. Disarm the launch panel, remove the model, clean the igniter residue from the nozzle, and install a new igniter. Follow the launching procedure again.

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