



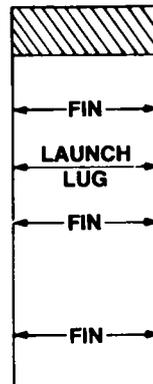


ESTES INDUSTRIES
1295 H STREET
PENROSE, COLORADO 81240 USA

#0870



TUBE MARKING GUIDE



ASSEMBLY TIP

Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts do not fit properly, sand as required for precision assembly.

PARTS AND SUPPLIES

Locate the parts shown below and lay them out on the table in front of you. In addition to the parts included in the kit you will also need:



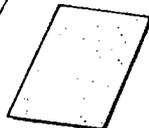
SCISSORS



PENCIL



RULER



SANDPAPER



WHITE
GLUE



PAINT
BRUSH



MODELING
KNIFE



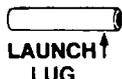
SPRAY
ENAMEL PAINT
(Gloss White)



SANDING
SEALER



MASKING
TAPE



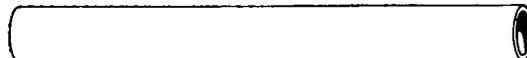
LAUNCH
LUG



ENGINE
BLOCK



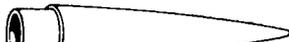
ENGINE SPACER
(Yellow)



BODY TUBE



NOSE CONE
INSERT



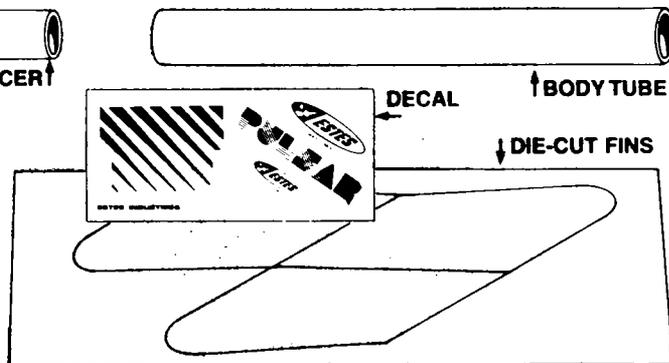
NOSE CONE



SHOCK CORD



DECAL

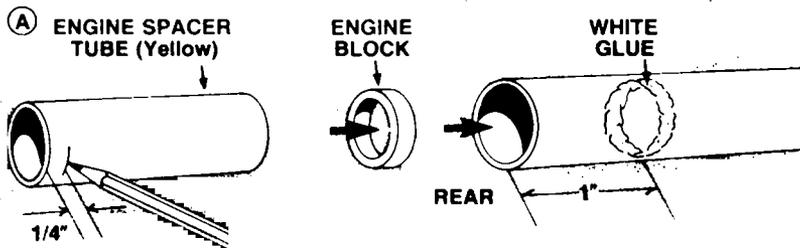


DIE-CUT FINS

ROCKET ASSEMBLY

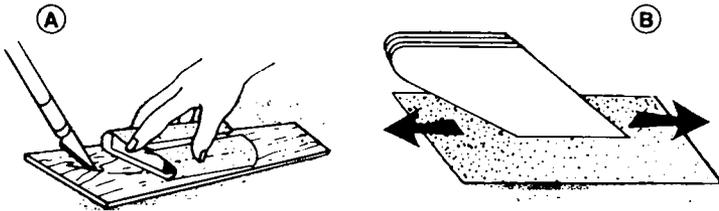
1

- A. Mark the yellow engine spacer tube 1/4 inch from one end.
- B. Apply white glue inside one end of the body tube 1 inch from the end. Using the yellow engine spacer tube, push the engine block up into the end of the body tube with the glue in it until the mark on the yellow engine spacer tube is even with the end of the body tube. Remove the yellow engine spacer tube IMMEDIATELY.



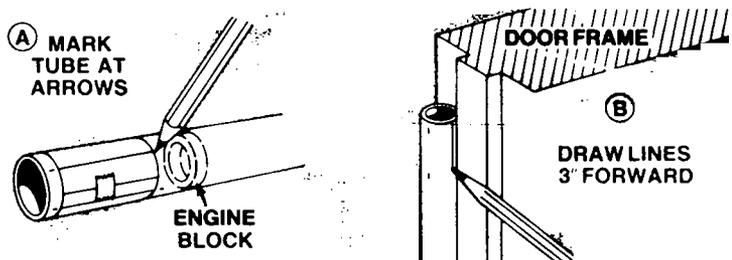
2

- A. Fine sand balsa die-cut sheet. Carefully remove fins by freeing edges with sharp knife.
- B. Stack fins together. Sand all edges smooth.



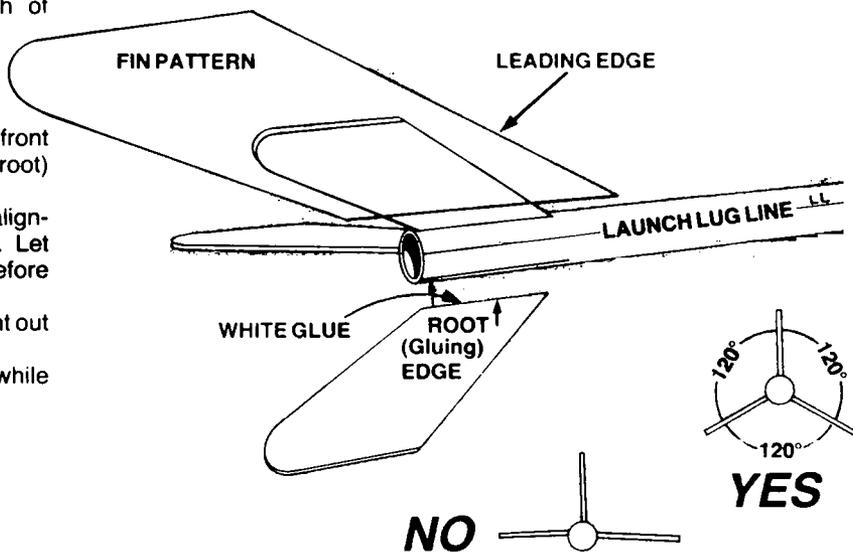
3

- A. Cut out the marking guide from front of instructions and wrap guide around the tube. (Secure with tape.) Mark tube at arrows and remove guide.
- B. Draw straight lines connecting each pair of marks. Extend launch lug line full length of tube.



4

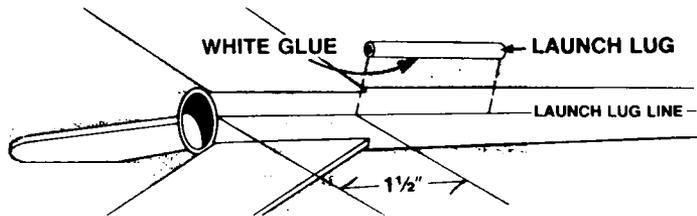
- A. Lay fins on pattern to find front (leading) and gluing (root) edges.
- B. Position and glue fins on alignment lines one at a time. Let each dry several minutes before applying the next one.
- C. Adjust fins to project straight out from tube.
- D. Do not set rocket on fins while glue is wet.



FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!

5

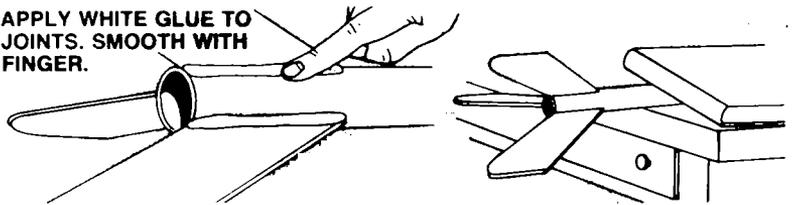
Glue launch lug straight on launch lug line 1½ inches from rear of tube.



6

- A. Apply a glue reinforcement to both sides of each fin/body tube joint and each side of launch lug.
- B. Support rocket as shown until glue dries.

APPLY WHITE GLUE TO JOINTS. SMOOTH WITH FINGER.

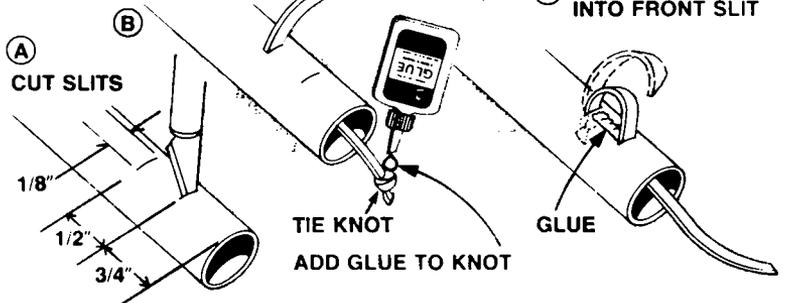


7

- A. Cut two 1/8 inch wide slits in forward end of body tube as shown. Cut both ends of shock cord at an angle.
- B. Insert one end of shock cord into rear slit and pull through forward end of tube about 3 inches.
- C. Tie double knot near end of shock cord. Put drop of glue on knot. Pull shock cord back into tube so knot is tight against slit.
- D. Pass other end of shock cord through forward slit in body tube. NOTE: Be sure shock cord is not twisted.
- E. Run line of glue on body tube between slit and pull cord down onto glue.

INSERT SHOCK CORD INTO REAR SLIT

PUSH OTHER END INTO FRONT SLIT



8

- A. Assemble nose cone and nose cone insert with plastic cement.
- B. When dry, tie free end of shock cord to nose loop with double knot.

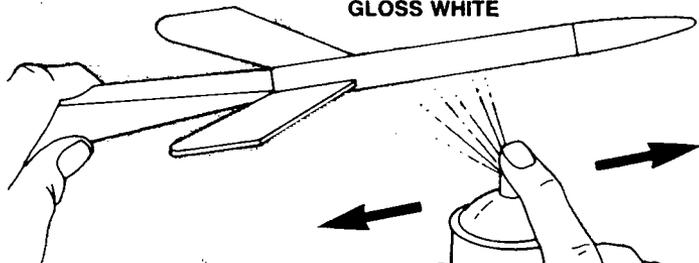
APPLY PLASTIC CEMENT



9

Apply sealer to wood parts with small brush. When sealer is dry, lightly sand all sealed surfaces. Paint entire model with gloss white spray enamel. Follow instructions on spray can for best results. Let paint dry overnight.

GLOSS WHITE



DECALS

To apply decals, cut each out, dip in lukewarm water for 20 seconds, and hold until it uncurls. Refer to photographs for decal placement. Slip decal off backing sheet and onto model. Blot away excess water. For best result, let decals dry overnight and apply a coat of clear spray paint to protect decals.



PREFLIGHT

Insert shock cord and nose cone as shown.

PREPARE ENGINE



SEPARATE THE IGNITERS

INSERT IGNITER

IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING

APPLY AND FIRMLY PRESS TAPE DISC OR MASKING TAPE IN PLACE

WRAP TAPE AROUND REAR OF ENGINE FOR FRICTION FIT.

ENGINE MUST FIT TIGHTLY

LAUNCH SUPPLIES

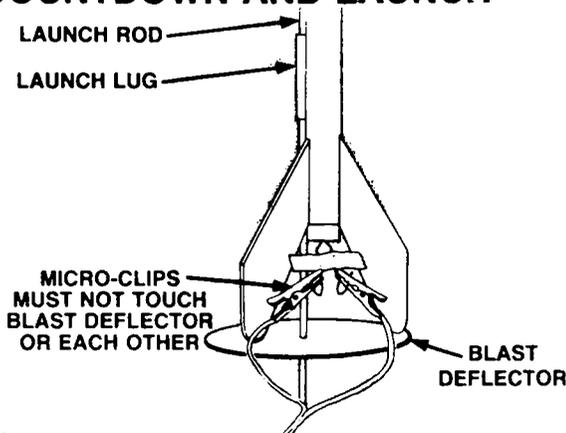
To launch your rocket you will need the following items:

—An Estes model rocket launching system

—Recommended Engines: 1/2A3-2T, A3-4T, and A10-3T

Use 1/2A3-2T engine for your first flight to become familiar with your rocket's flight pattern.

COUNTDOWN AND LAUNCH



FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 250 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 little or no wind and good visibility.

MISFIRES

Failure of the rocket engine to function properly is nearly always caused by a failure to install the igniter correctly. This failure permits the igniter to heat and burn into two pieces without igniting the engine.

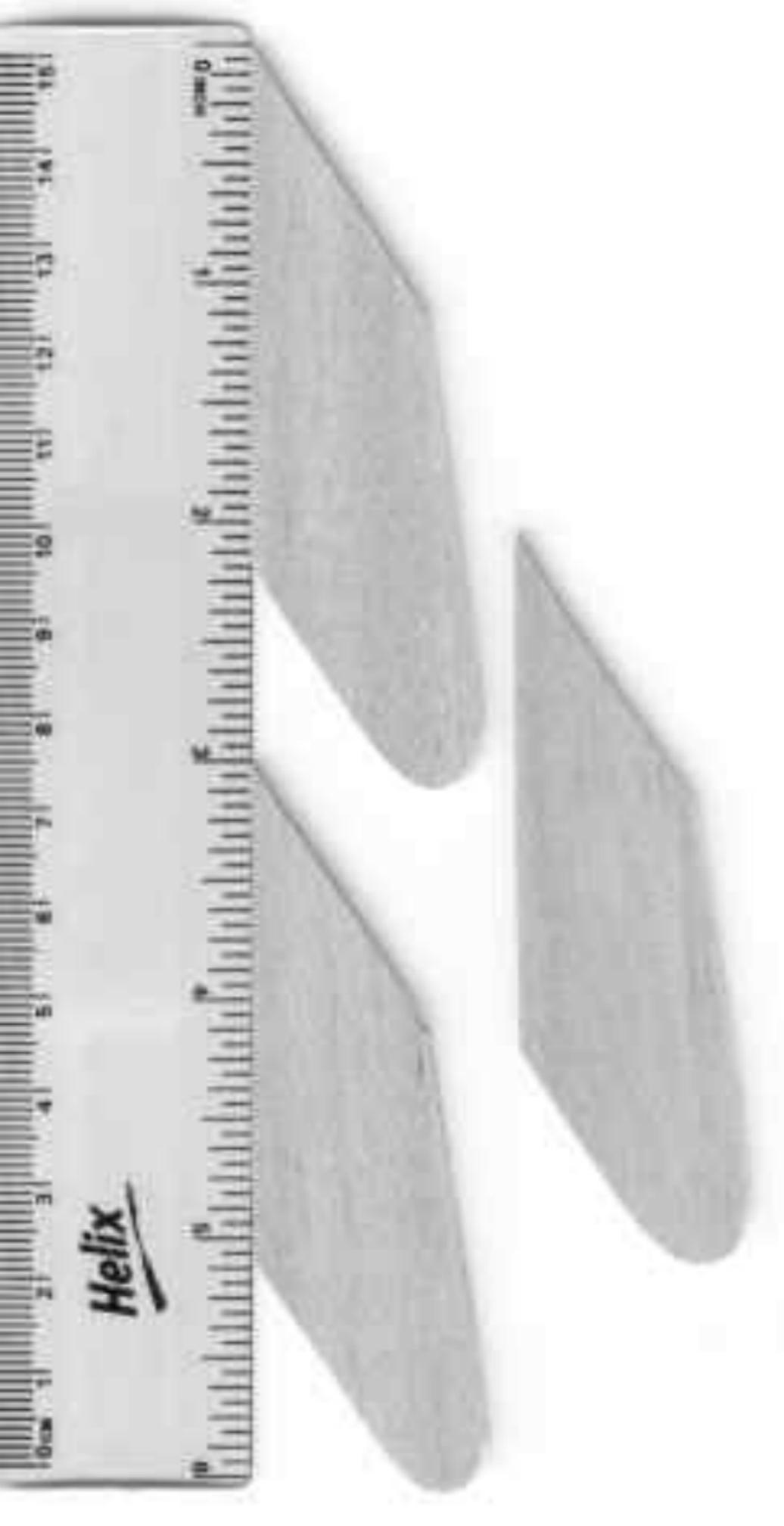
FOR YOUR SAFETY AND ENJOYMENT

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

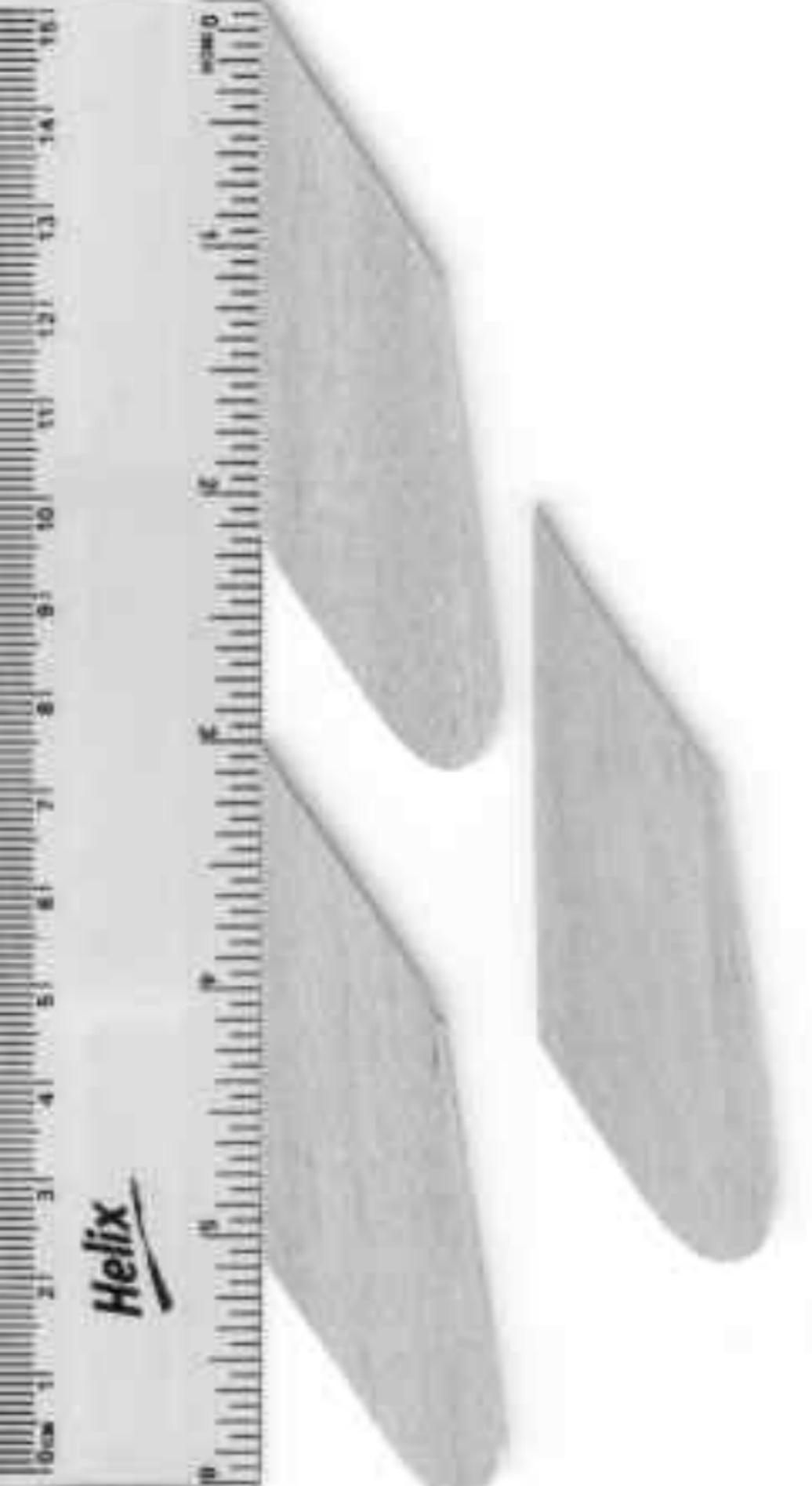
*National Association of Rocketry-The Hobby Industry of America

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- 5 REMOVE SAFETY KEY to disarm the launch controller.
 - 4 Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod.
 - 3 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.
 - 2 Move back from your rocket as far as launch wire will permit (at least 15 feet).
 - 1 INSERT SAFETY KEY to arm the launch controller.
- LAUNCH!!!** PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES
Remove safety key—Replace cap on rod.



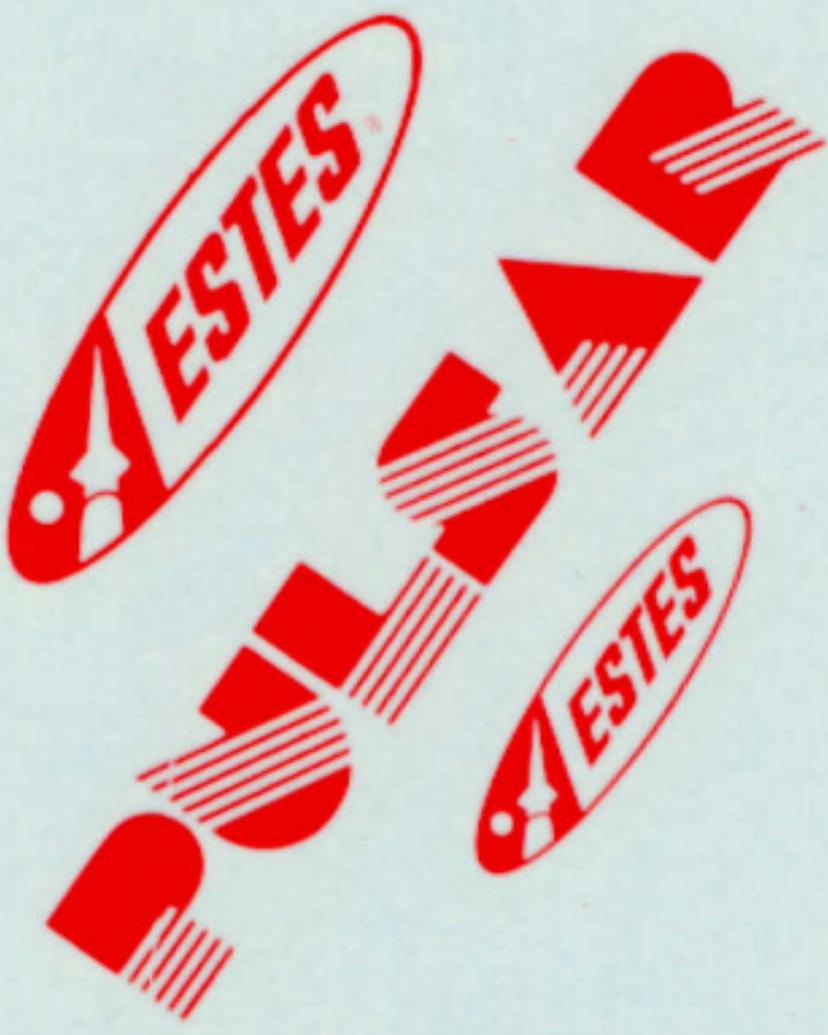
Helix



Pulsar Estes #0870 Parts Measurements List

Quantity	Part Description	Length
1	Main Body Tube	5"
1	Engine Spacer Tube	2 3/4"
1	Engine Block	3/16"
1	Rubber Shock Cord	9 1/4"
1	1/8" Launch Lug	1 1/4"

*Note: Balsa Thickness is 1/16"



ESTES INDUSTRIES PN 37270

PULSTAR™

FLYING MODEL ROCKET

SKILL LEVEL 1

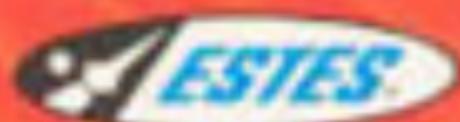
Suggested for beginners

Length: 9in. (22.9cm)

Engine Types:

1-243-2T, (First Flight)

A3-4T, A10-4T



A Estes Company

This is a hobby kit
requiring assembly.
Engines, launch
system, glue and
finishing supplies
are not included.

0870

