



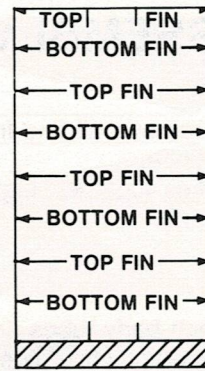


A DAMON COMPANY

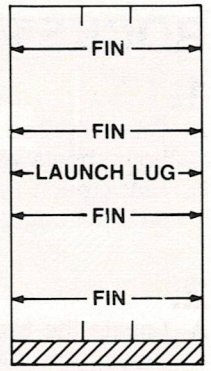
# MINI-SCALE COMBO PAK

Estes Industries  
1295 H Street  
Penrose, CO 81240

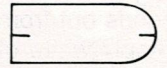
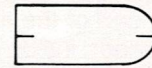
#0874



EXOCET BODY TUBE MARKING GUIDE



TOMAHAWK BODY TUBE MARKING GUIDE



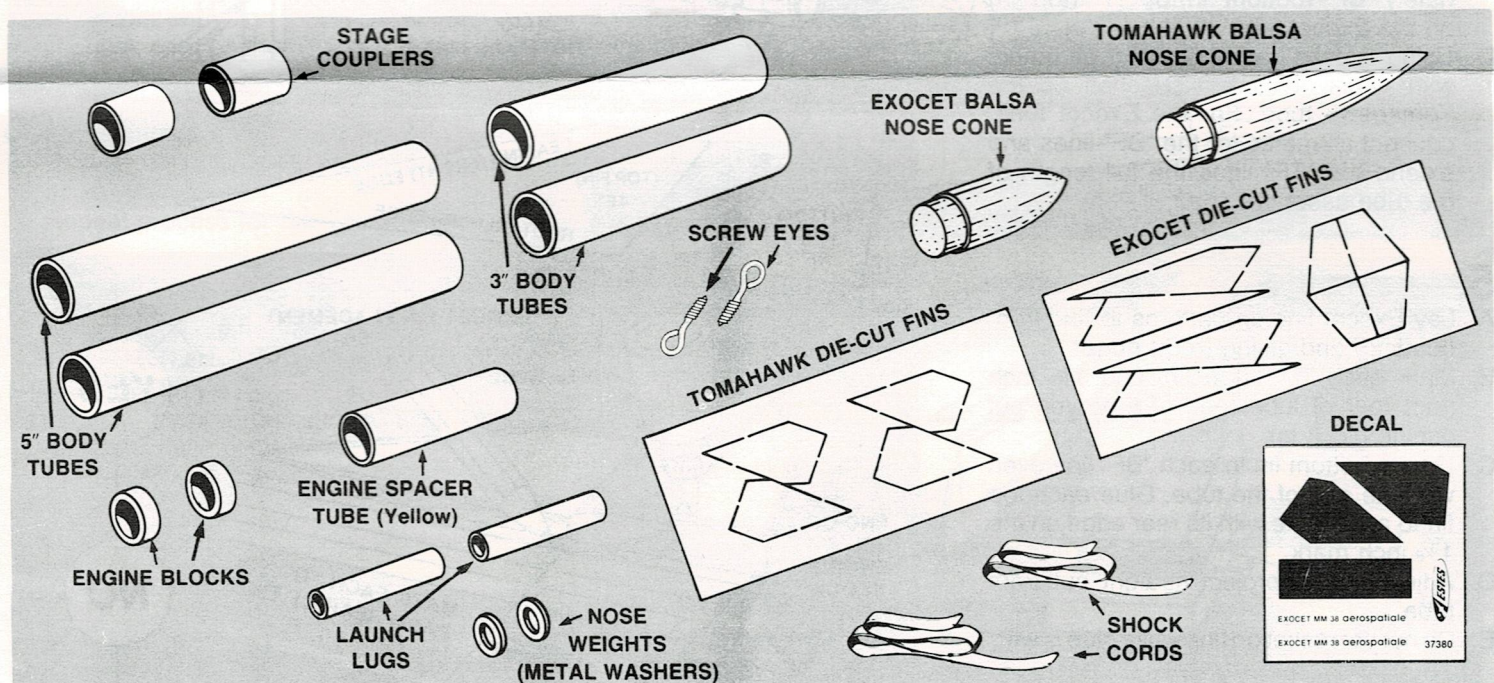
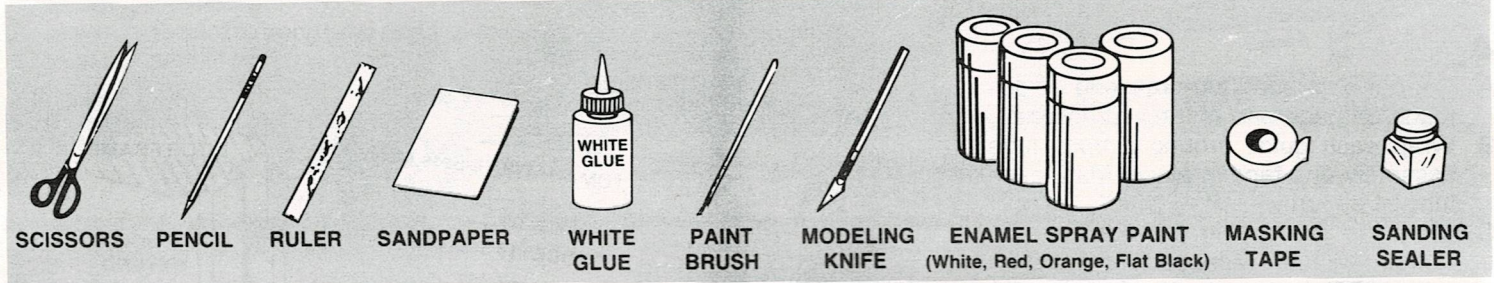
SHOCK CORD ANCHORS

## 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 don't fit properly, sand as required for precision assembly.

## PARTS AND SUPPLIES

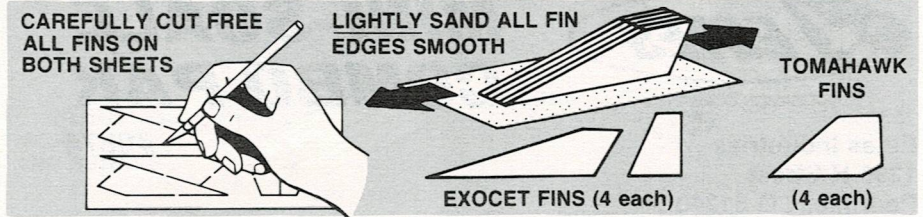
Locate the parts shown below and lay them out on the table in front of you. In addition to the parts included in the kit you will also need:



# ROCKET ASSEMBLY

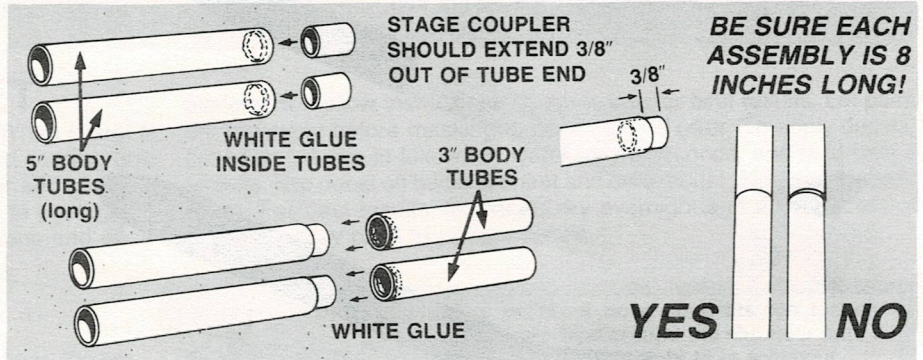
## 1.

- Carefully free and remove all fins from both sheets with a knife.
- Stack each set of fins together. Lightly sand all edges smooth.



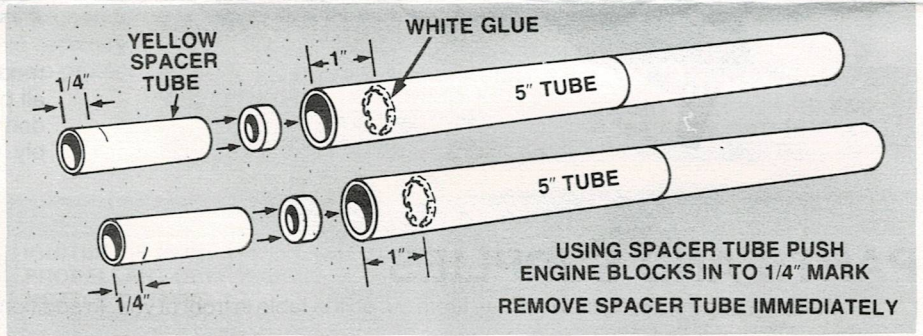
## 2.

- Locate the two 5 inch body tubes (long tubes), and run a bead of white glue inside the end of each.
- Push the stage couplers (gray color) into the ends of the tubes, with the glue, making certain 3/8 inch of each coupler extends out from the end of the tube.
- Apply white glue beads inside one end of each 3 inch (short) body tube and slide these tubes over the exposed ends of the couplers.



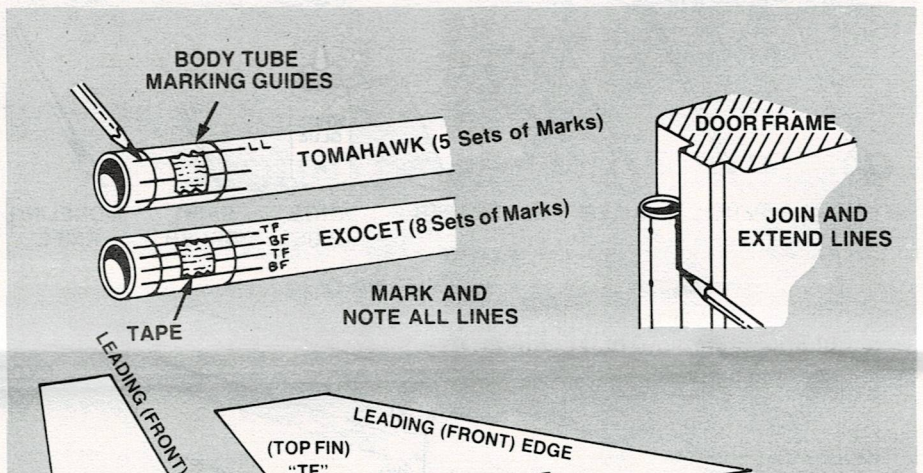
## 3.

- Apply a bead of white glue to the 5 inch tube end of each tube assembly 1 inch from the end.
- Using the engine spacer tube (yellow) push each engine block up into a tube assembly until only 1/4 inch of engine spacer tube is showing. Remove the spacer tube immediately so it does not become glued in place. Repeat process for the other assembly.



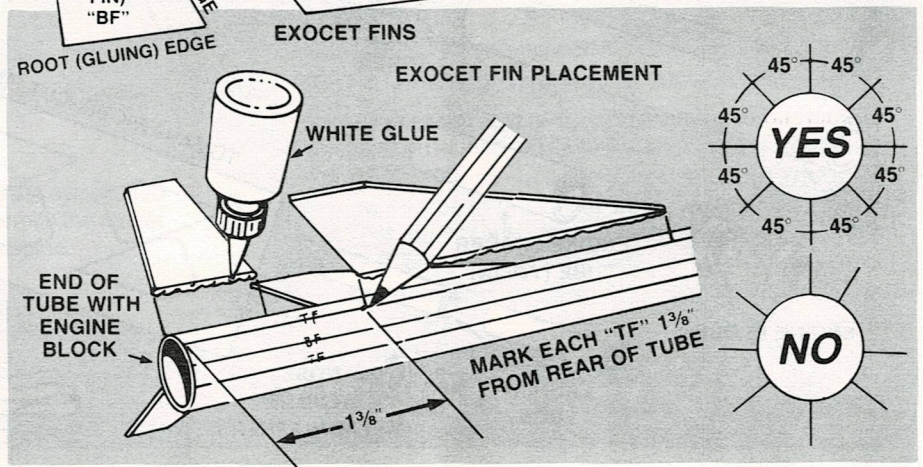
## 4.

- Cut out both body tube marking guides found on page one of the instructions.
- Wrap each guide around a body tube assembly and tape in place. Mark each tube at all arrows.
- Mark the launch lug line (LL) on the Tomahawk tube. Mark each fin line alternately "BF" (bottom fin) or "TF" (top fin) on the Exocet tube.
- Using a door frame, connect all marks with pencil lines for 3 inches up the Tomahawk tube. For the Exocet tube, connect all marks for the "BF" lines and extend the "TF" lines the full length of the tube assembly.



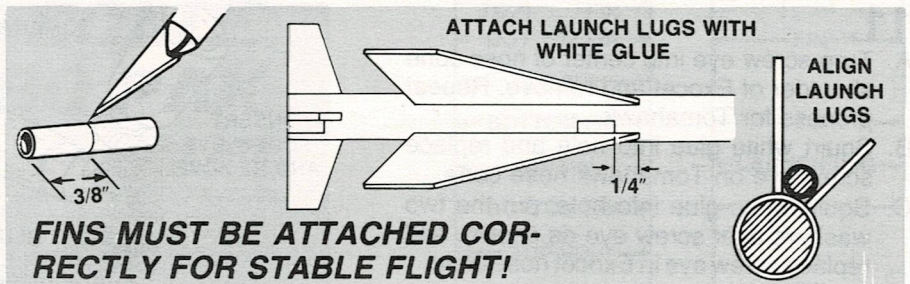
## 5.

- Lay Exocet fins on patterns to find front (leading) and gluing (root) edges.
- Mark each "TF" (top fin) line 1 3/8 inch from rear of tube (end of tube you put engine block in).
- Glue a bottom fin to each "BF" line even with the end of the tube. Glue each top fin to a "TF" line with its rear edge on the 1 3/8 inch mark.
- Adjust fins to project straight out from tube.
- Do not set rocket on fins while glue is wet.



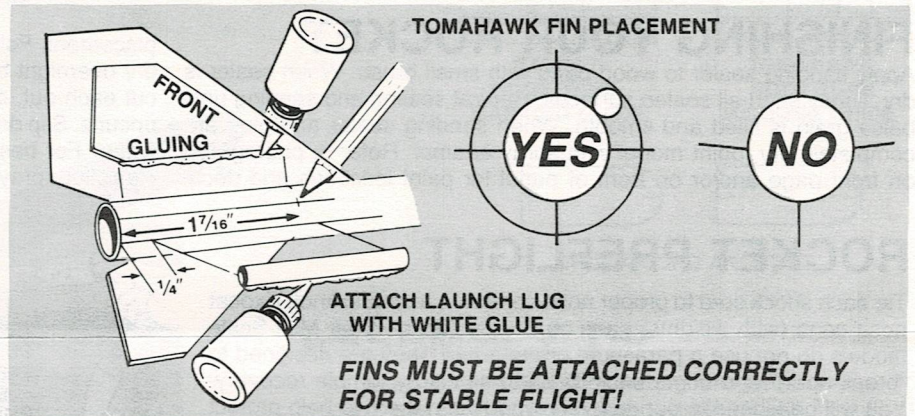
## 6.

- Cut two 3/8 inch pieces of launch lug from one launch lug.
- Glue one piece to the fin/tube joint 1/4 inch below the tip of one top fin.
- Glue the other 3/8 inch launch lug to the fin/tube joint of an adjacent bottom fin.
- Be sure both launch lugs are aligned with each other.



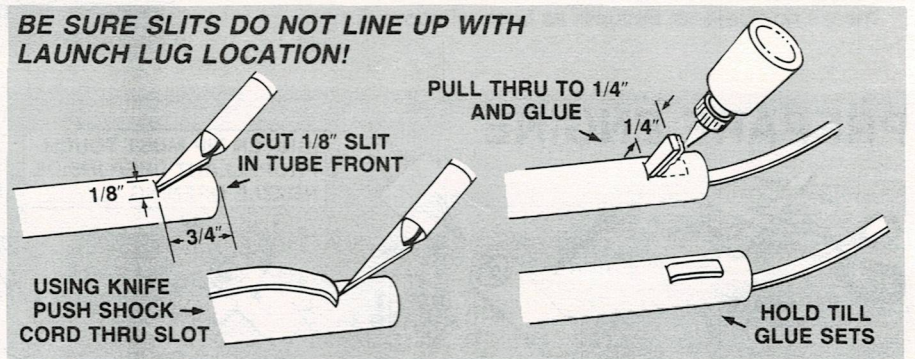
## 7.

- Lay Tomahawk fins on pattern to find front (leading) and gluing (root) edges.
- Mark each fin line 17/16 inch from the rear end of tube (end of tube with engine block).
- Glue fins to fin lines with their front tips at the 17/16 inch marks.
- Adjust fins to project straight out from tube.
- Do not set rocket on fins while glue is wet.
- Glue launch lug on launch lug line 1/4 inch from end of tube.



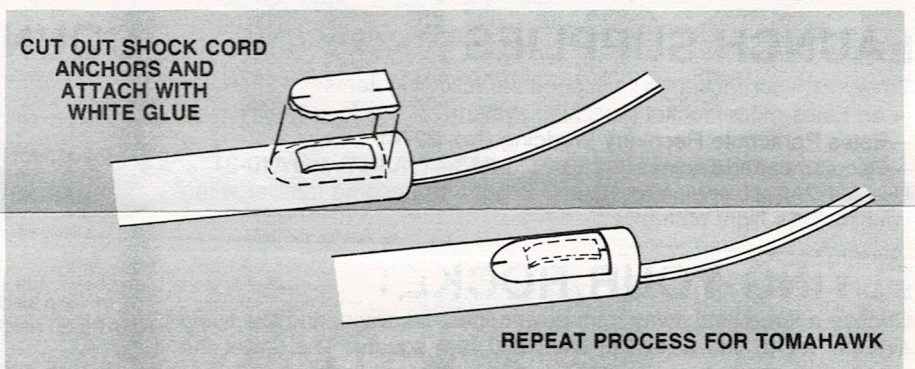
## 8.

- Cut a 1/8 inch wide slit in each body tube 3/4 inch from front end of tube.
- Feed each shock cord thru slit with a modeling knife. Leave 1/4 inch of shock cord extending out of slit.
- Apply white glue to underside of 1/4 inch shock cord pieces.
- Hold shock cord to body tube until it stays in place as shown.
- Repeat process for attaching shock cord to Tomahawk.



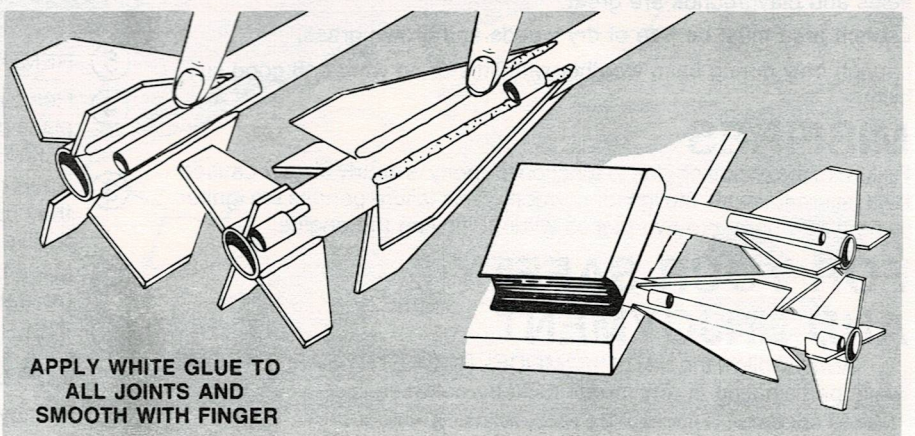
## 9.

- Cut out the two shock cord anchors from page one of the instructions.
- Spread white glue on the back side of an anchor and align it over exposed end of shock cord on the Exocet. Use marks to get anchor straight and centered over shock cord end.
- Press anchor firmly down around shock cord end and hold with fingers until glue dries.
- Repeat process for the Tomahawk.



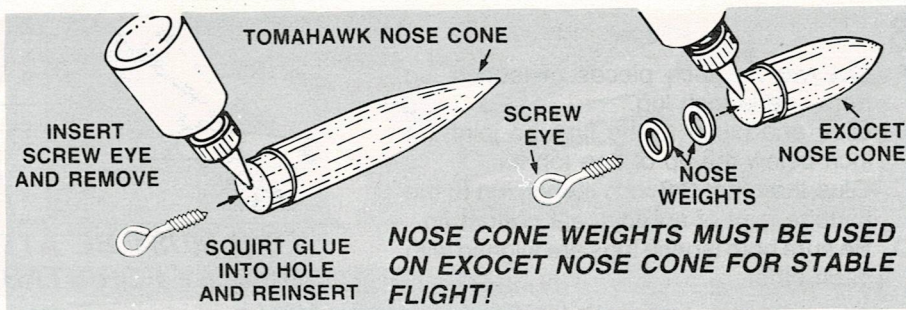
## 10.

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



## 11.

- Turn screw eye into center of nose cone shoulder of Exocet and remove. Repeat process for Tomahawk.
- Squirt white glue into hole and replace screw eye on Tomahawk nose cone.
- Squirt white glue into hole, put the two washers over screw eye as shown, and replace screw eye in Exocet nose cone.



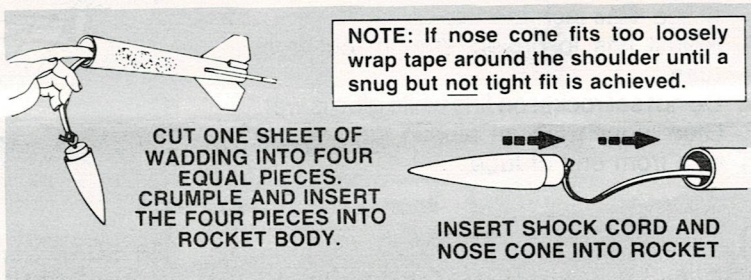
## FINISHING YOUR ROCKET

Apply sanding sealer to wood parts with small brush. When sealer is dry, lightly sand all sealed surfaces. Repeat sealing and sanding until balsa grain is filled and smooth. When sanding sealer and glue are completely dry, paint model with spray enamel. Refer to photograph on front page and/or on front of panel for paint locations and decal

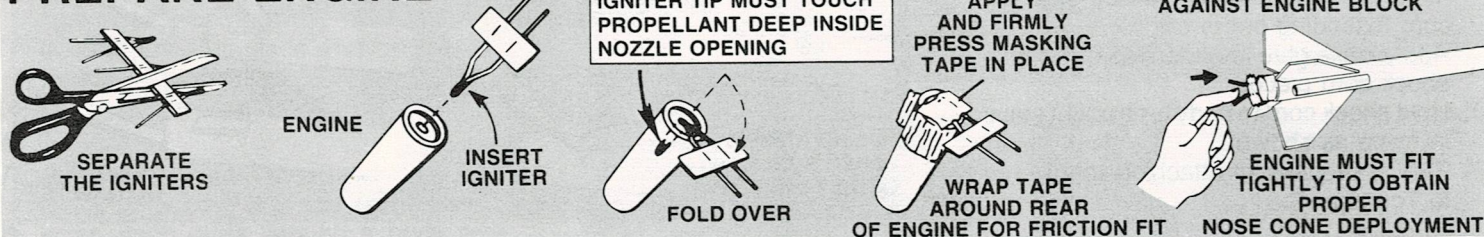
placement. Follow instructions on spray can for best results. Let paint dry overnight before masking to paint second color. To apply decals, cut each out, dip in lukewarm water for 20 seconds, and hold until it uncurls. Slip decal off backing sheet and onto model. Blot away excess water. For best results, let decals dry overnight and apply a coat of clear flat spray paint to protect decals.

## ROCKET PREFLIGHT

Tie each shock cord to proper nose cone with a double knot. Exocet nose cone (with weights) goes on Exocet rocket. Your Mini-Scale models do not use a parachute or streamer. They are designed to "break-apart" and come back to Earth safely by tumble recovery. You will only need to put recovery wadding in them to help protect the shock cord.



## PREPARE ENGINE



## LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- An Estes model rocket launching system
  - Estes Parachute Recovery Wadding (No. 2274)
  - Recommended Engines: 1/2A3-2T, 1/2A3-4T, A3-4T, and A10-3T
- Use a 1/2A3-2T engine for your first flight, to become familiar with your rocket's flight pattern.

## 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.

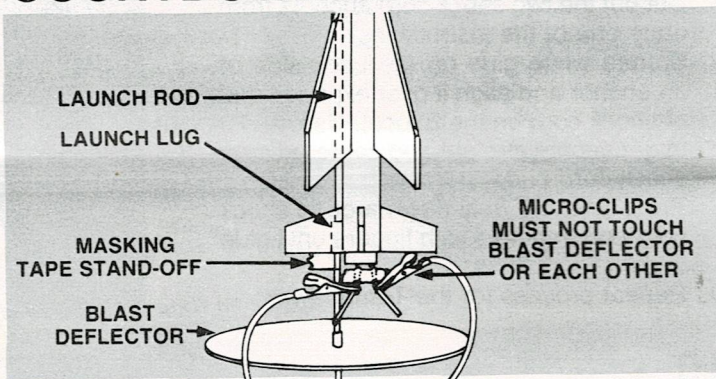
## FOR YOUR SAFETY AND ENJOYMENT

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

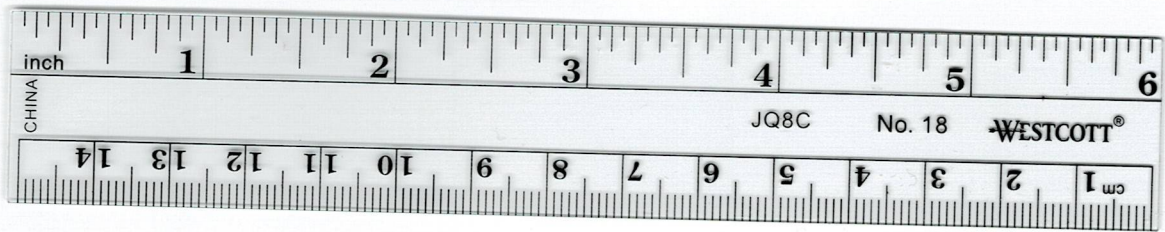
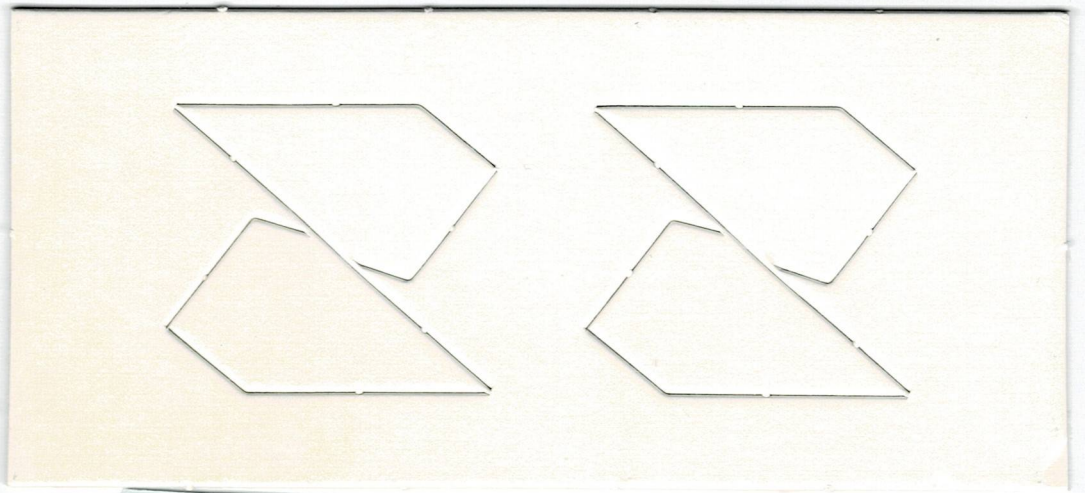
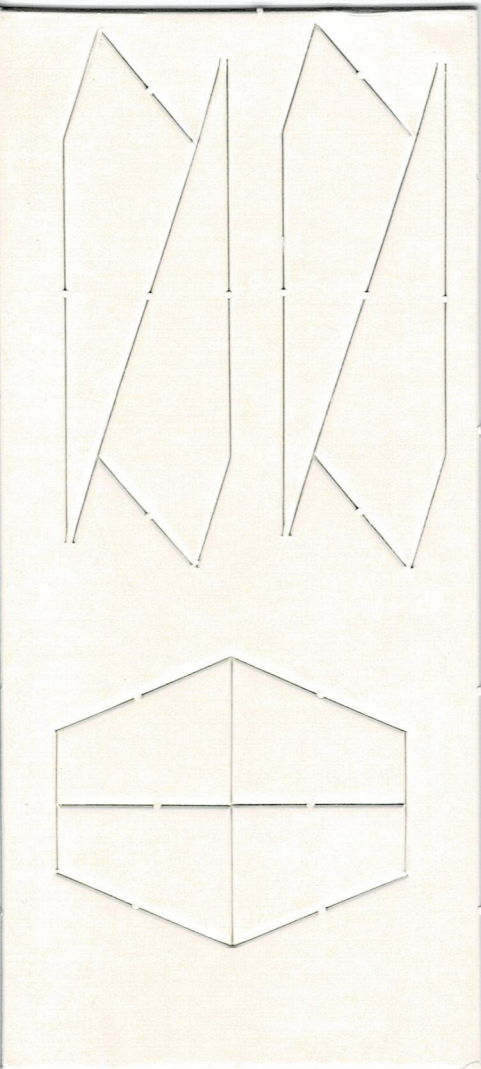
\*National Association of Rocketry—The Hobby Industry of America

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## COUNTDOWN AND LAUNCH



- 5 REMOVE SAFETY KEY to disarm the launch controller.
  - 4 Remove safety cap and slide launch lugs 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. 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.



# MINI-SCALE COMBO PAK

## TWO FLYING MODEL ROCKETS

**SKILL LEVEL 2**

Recommended for the Intermediate Rocketeer

- Mini-Engine Powered
- Die-Cut Fins
- Balsa Nose Cones

### EXOCET Ship-To-Ship Missile

Length: 5.8 in. (24.13 cm)

Dia.: .541 in. (13.74 mm)

Weight: 3-oz. (7.65 g)

This is a model of a ship-to-ship missile. It is not a real missile. It is not to be used as a weapon. It is for hobby use only.

### U.S.Y. TOMAHAWK Sounding Rocket

Length: 10.9 in. (27.7 cm)

Dia.: .541 in. (13.7 mm)

Weight: 25-oz. (6.95 g)

Recommended Engines:

1.2A3-27 (First Flight)

1.2A3-4T, A3-4T, A10-3T



**ESTES INDUSTRIES**  
MONTICELLO, CO. U.S.A.

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