



A DAMON COMPANY

# FLYING MODEL ROCKET

**Skill Level 4**  
Recommended for the Master Modeler



MADE  
IN  
USA



## GALAXY CLASS CRAFT USED IN EXPLORATION OF DISTANT STAR SYSTEMS

ALMOST 2 FEET LONG THIS  
MODEL IS POWERED BY D12-3  
(First Flight) OR D12-5  
ENGINES AND LANDS VIA  
18 INCH PARACHUTE

This is a model kit requiring assembly.  
Adhesives and finishing supplies,  
launch system and engines for flight are  
not included. 3/16" Maxi™ Rod required  
for launch, not included.

1 MODELE REDUIT Peinture et colle non  
comprises.

USE ONLY WITH ESTES PRODUCTS

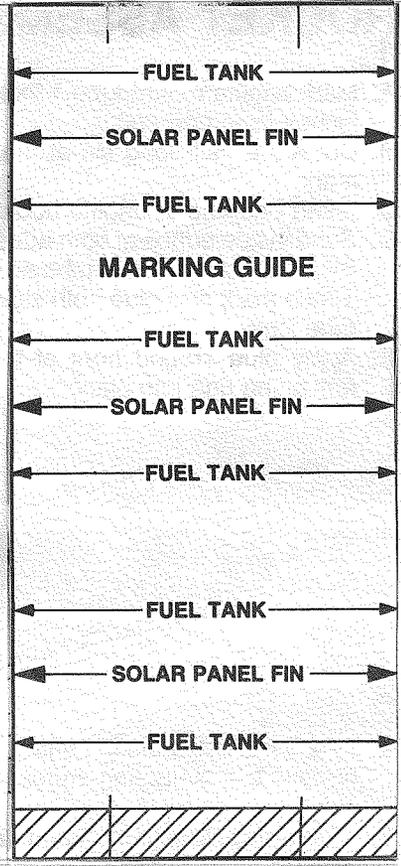
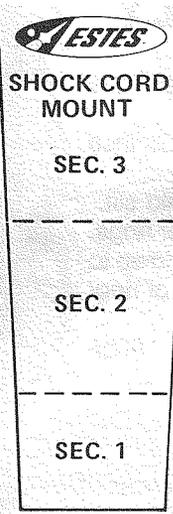
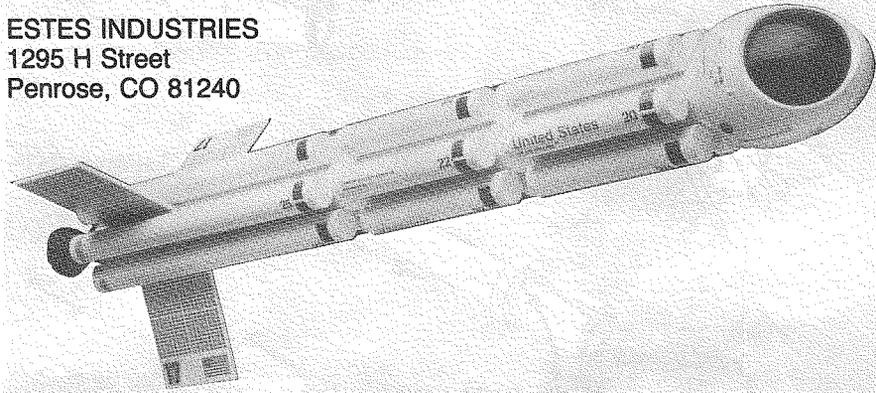
Model rockets are recommended for  
Ages 10 through Adult. Adult Supervi-  
sion Suggested for those under 12 years  
of age.

# EXPLORER AQUARIUS™

#2016 FLYING MODEL ROCKET



ESTES INDUSTRIES  
1295 H Street  
Penrose, CO 81240

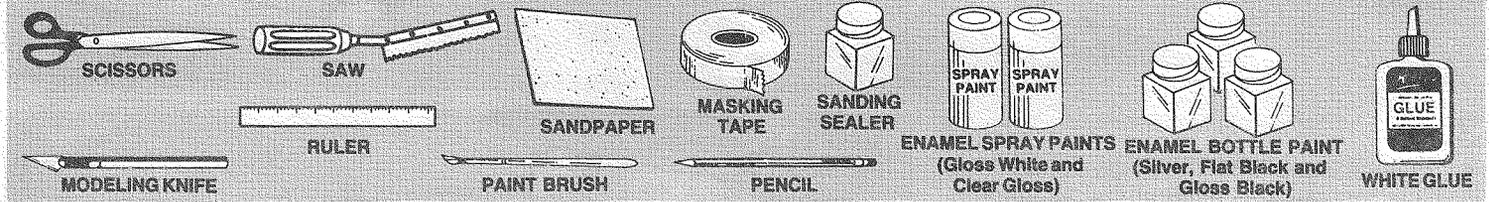


## ASSEMBLY TIP

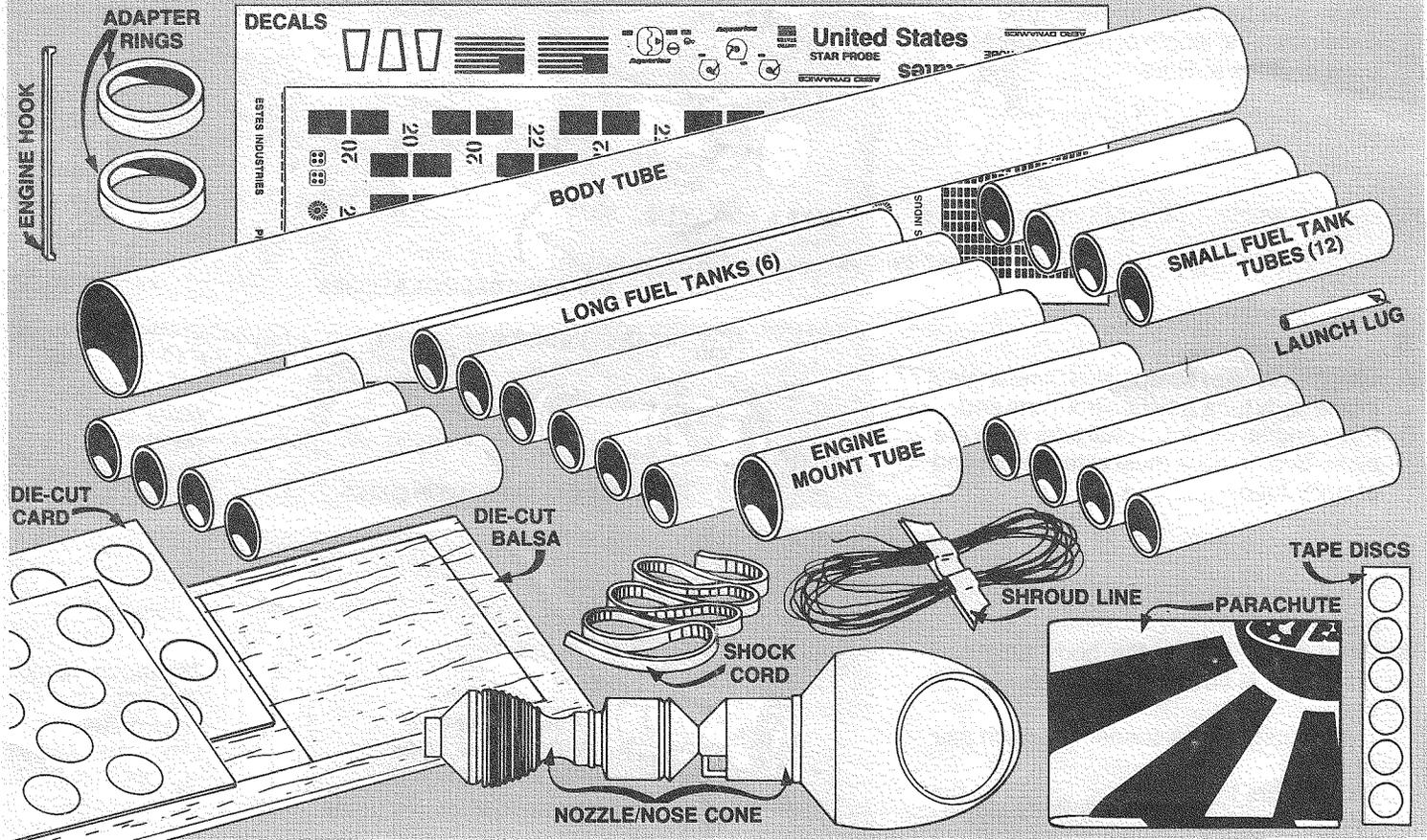
Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts together before applying any glue. If any parts don't fit properly, sand as required for precision assembly.

## PARTS AND SUPPLIES

In addition to the parts included in the kit you will also need:



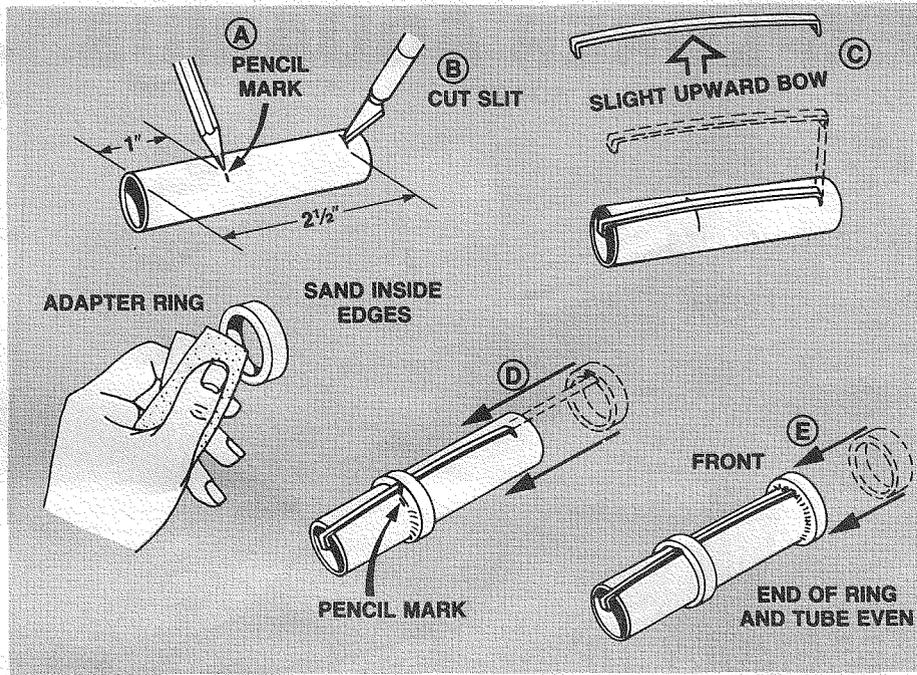
Locate the parts shown and lay them out on the table in front of you.



# ROCKET ASSEMBLY

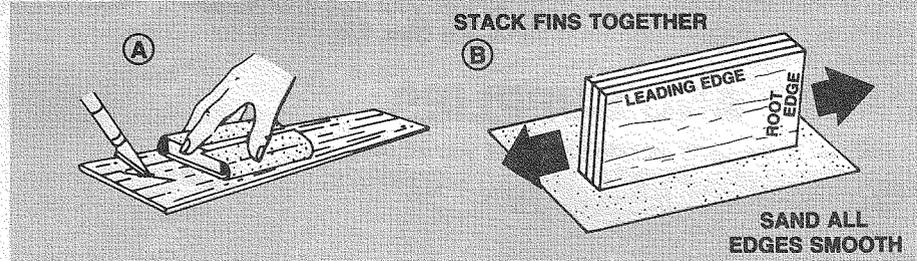
## 1.

- Mark engine mount tube 1 inch and 2½ inches from one end.
- Cut a 1/8 inch long slit at the 2½ inch mark.
- Insert one end of engine hook into slit.
- Sand inside edges at both adapter rings. Slide ring onto front of tube and down to 1 inch mark and glue both sides of ring/tube joint.
- Apply glue around front of tube. Slide remaining ring into place.



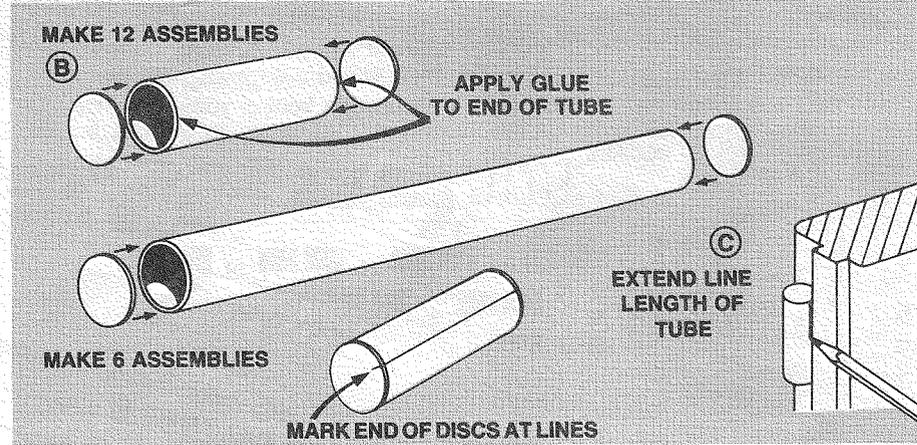
## 2.

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



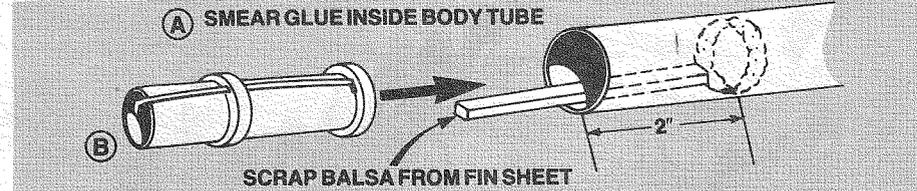
## 3.

- Remove paper discs from die-cut card.
- Glue two discs to each of the 12 small fuel tanks and 6 long fuel tank tubes.
- When glue has dried on each tube draw a line down the length of each tube. Mark ends of discs at lines.



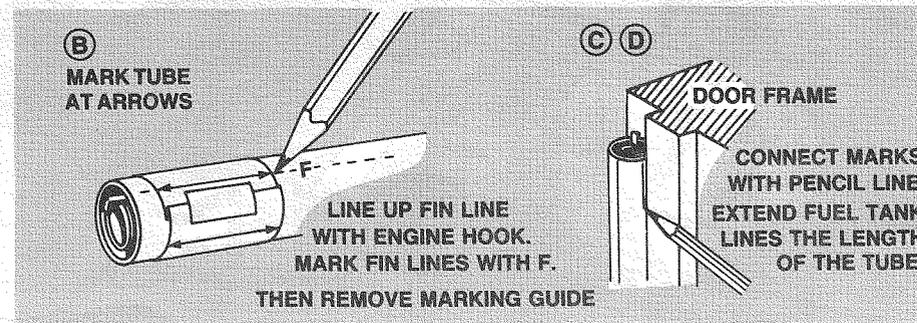
## 4.

- Using a piece of scrap balsa, smear glue inside body tube 2 inches from one end.
- Push engine mount in until tube ends are even. Engine hook must extend from end of body tube.



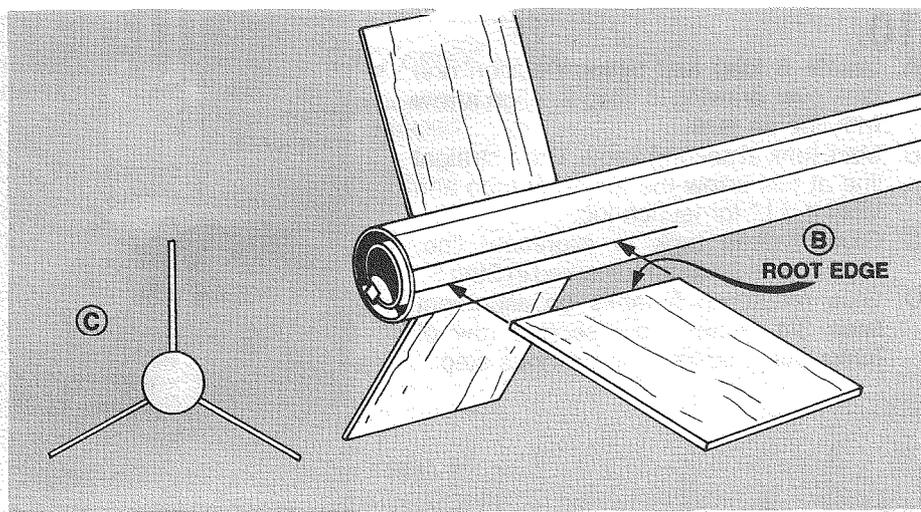
## 5.

- Cut out tube marking guide from front of instructions.
- Wrap guide around the body tube and mark tube at arrows. Remove guide and save.
- Draw straight lines connecting each pair of marks.
- Extend fuel tank lines the length of the tube.

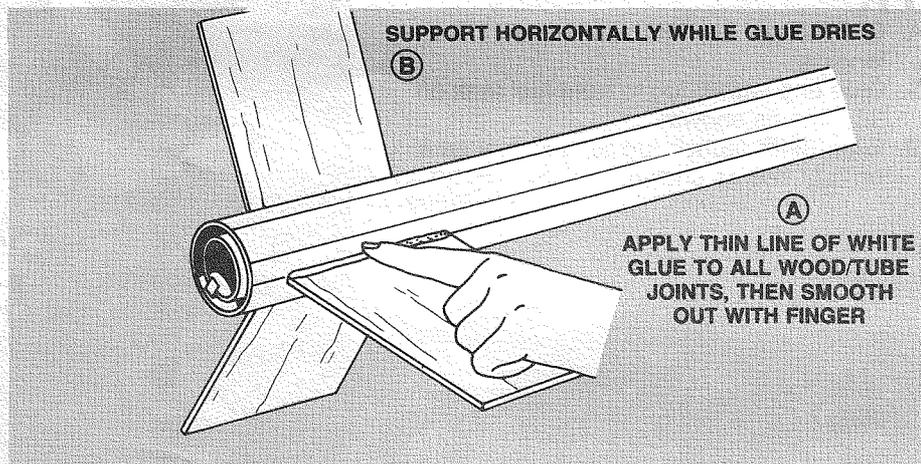


- 6.**
- Refer to Step 2 to determine gluing (root) and front (leading) edges of each fin.
  - Position and glue fins on fin alignment lines. Let each dry several minutes before applying the next one.
  - Adjust fins to project straight out from tube.
  - Do not set rocket on fins while glue is wet.

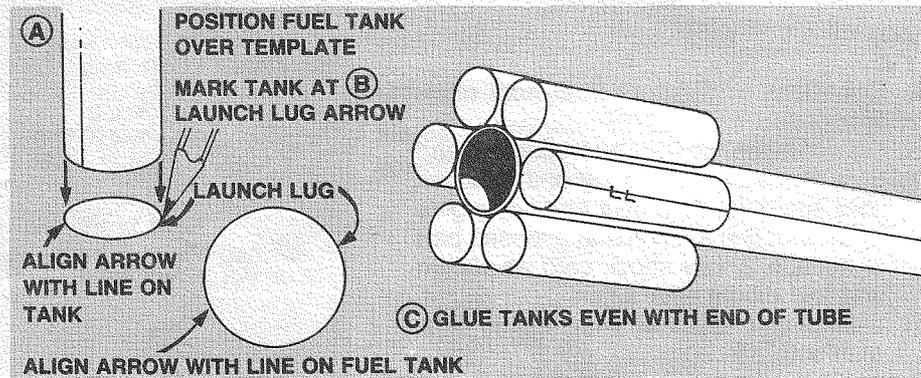
**FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT**



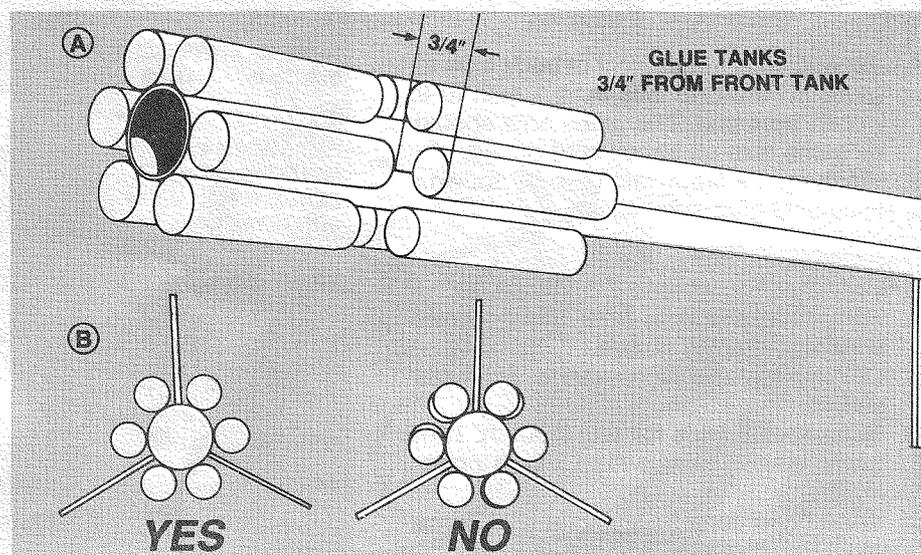
- 7.**
- Apply a glue reinforcement to each fin/body tube joint.
  - Support rocket horizontally until glue dries.



- 8.**
- Locate 6 of the small fuel tanks. Position one tank over drawing and align arrow with line drawn in Step 3.
  - Mark tank at second arrow. Draw a straight line at mark the length of tube and label it "LL" for launch lug.
  - Glue the 6 fuel tanks on tank alignment lines at front of rocket. Tanks should be even with front end of body tube.

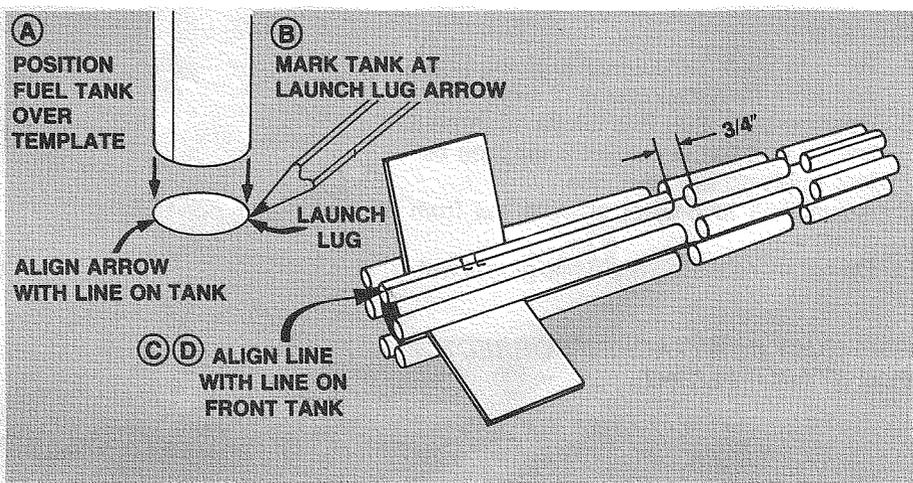


- 9.**
- Glue remaining 6 small fuel tanks on tank alignment lines 3/4 inches from front tanks as shown.
  - Align tanks one in front of the other.



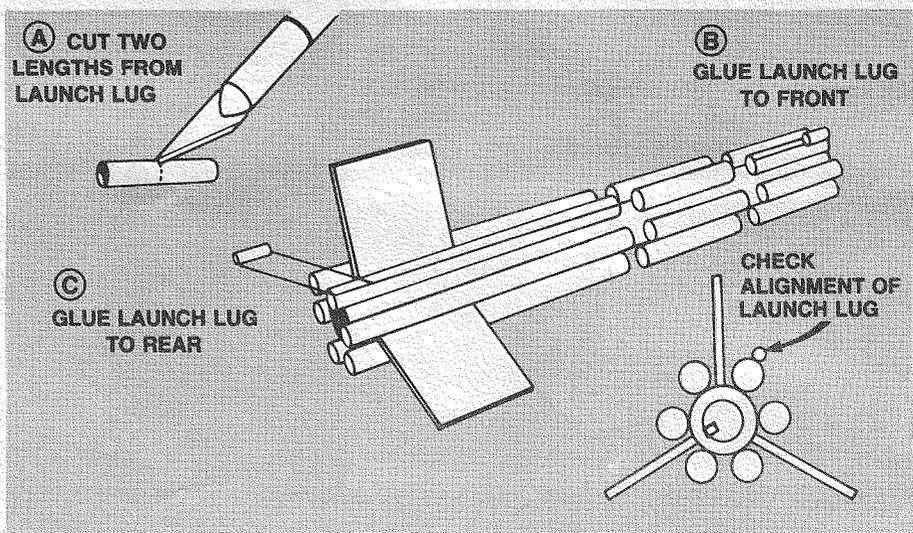
# 10.

- A. Locate 6 long fuel tanks. Position one tank over drawing in Step 8. Align arrow with line on tank.
- B. Mark tank at second arrow. Draw straight line at this arrow the length of tube and label it "LL" for launch lug.
- C. Glue marked tank to alignment line, aligned with small tank marked in Step 8.
- D. Glue remaining 5 tanks on alignment lines 3/4 inches from second row of tanks. Align tanks as in previous step.



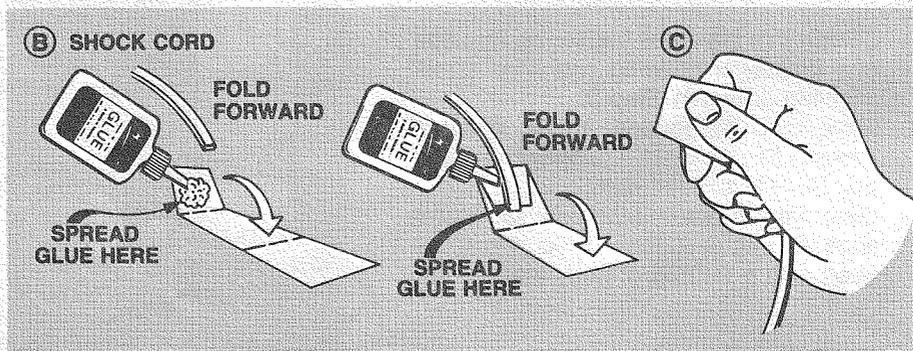
# 11.

- A. Cut launch lug into two equal 1 inch lengths.
- B. Glue one launch lug to front fuel tank on "LL" line as shown.
- C. Glue other launch lug to rear fuel tank on "LL" line as shown.



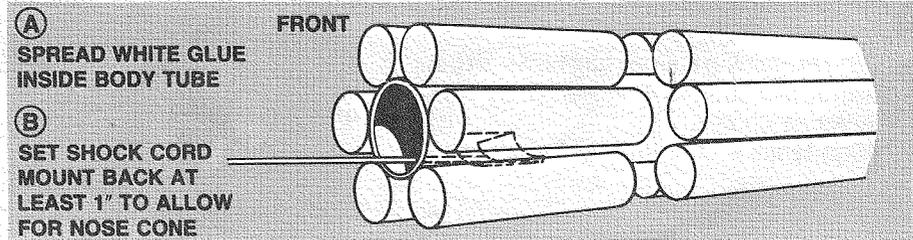
# 12.

- A. Cut shock cord mount from front of instructions.
- B. Crease on dotted lines by folding. Spread glue on section 1 and lay end of shock cord into glue. Fold over and apply glue to back of first section and exposed part of section 2. Lay shock cord as shown and fold mount over again.
- C. Clamp unit together with fingers until glue sets.



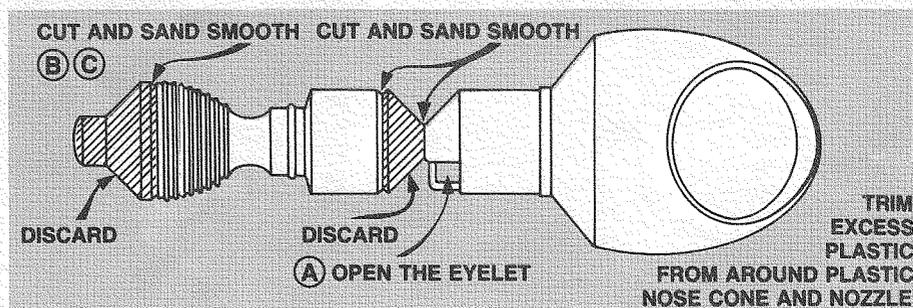
# 13.

- A. Apply glue to inside front of body tube to cover an area no less than 1 inch to 2 inches from end. The glued area should be same size as shock cord mount.
- B. Press mount firmly into glue as shown.
- C. Hold until glue sets.



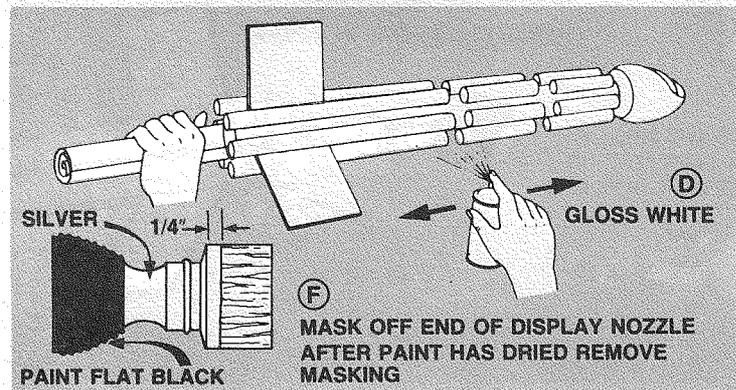
# 14.

- A. Trim excess plastic from around nose cone and display nozzle.
- B. Cut nose cone and nozzle apart as shown.
- C. Sand nozzle ends flat and smooth. Trim away excess plastic from inside openings.
- D. Wipe nose cone and nozzle with damp cloth to remove oil and dirt.



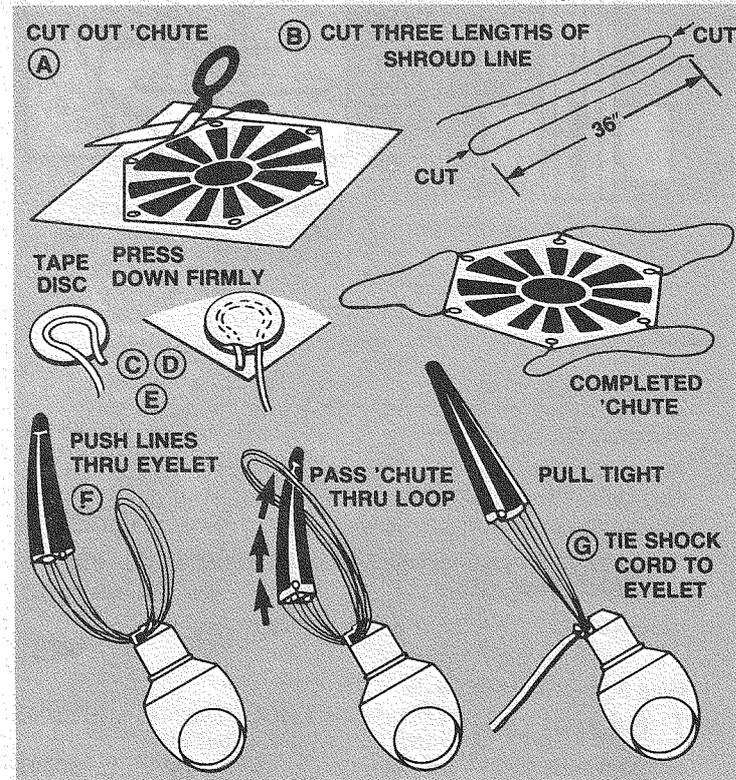
# 15.

- Apply sanding sealer to all wood parts with small brush.
- When sealer is dry, lightly sand all sealed surfaces.
- Repeat sealing and sanding until wood grain is filled and smooth.
- When sanding sealer and glue are completely dry, paint model with gloss white enamel.
- Follow instructions on spray can for best results.
- Let dry overnight. Mask off nose cone around canopy. Paint canopy gloss black. Let paint dry. Carefully remove masking. Refer to box photos for help.
- Paint nozzle silver and black as shown.



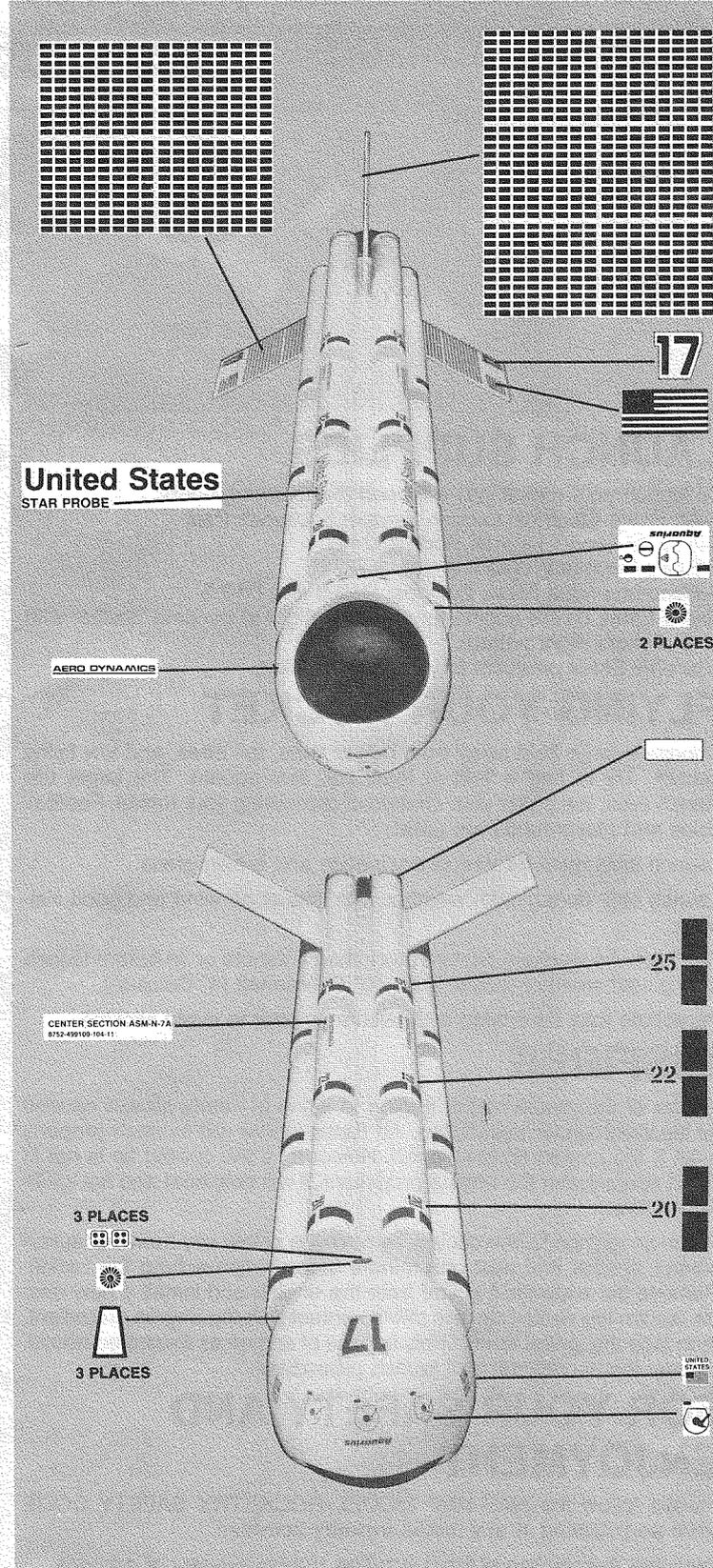
# 16.

- Cut out parachute on edge line.
- Cut three 36 inch lengths of shroud line.
- Form small loops with shroud line ends and press onto sticky side of tape discs.
- Attach tape discs with line ends to top of parachute as shown.
- Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- Pass shroud line loops through eyelet on nose cone. Pass parachute through loop ends and pull lines against the nose cone.
- Tie free end of shock cord to nose cone eyelet.

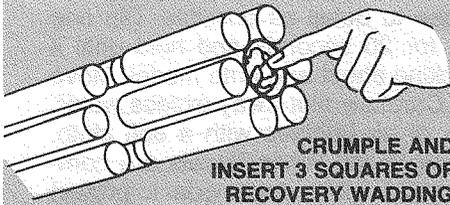


# FINISHING YOUR ROCKET

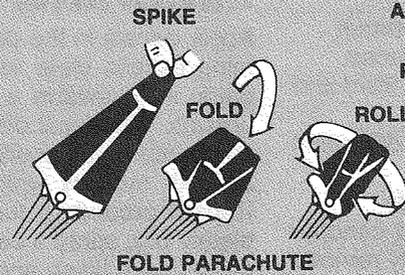
Apply decals in the positions shown. Cut decals apart, trimming excess clear as close to detail as possible. Dip one decal in lukewarm water for 20 seconds and hold until it uncurls. Slip decal off backing sheet and onto model. Move decal into exact position. Carefully blot away excess water. Smooth out any wrinkles or air bubbles with a soft cloth. Repeat procedure for each decal. When decals are completely dry, spray a coat of clear gloss over model to protect the model's finish and decals.



# ROCKET PREFLIGHT



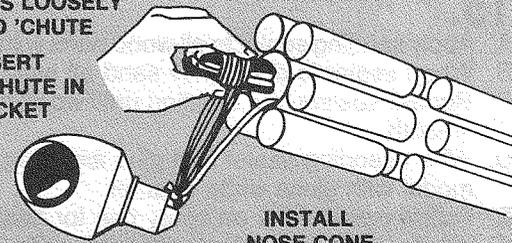
CRUMPLE AND INSERT 3 SQUARES OF RECOVERY WADDING



FOLD PARACHUTE

WRAP LINES LOOSELY AROUND 'CHUTE

INSERT PARACHUTE IN ROCKET

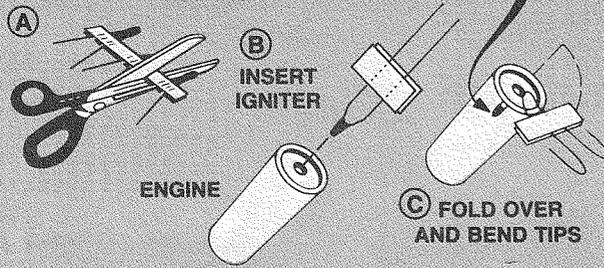


INSTALL NOSE CONE IN PLACE

# PREPARE ENGINE

IGNITER TIP MUST TOUCH PROPELLANT DEEP INSIDE NOZZLE OPENING

SEPARATE THE IGNITERS



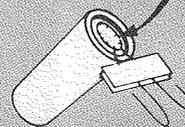
A

B INSERT IGNITER

ENGINE

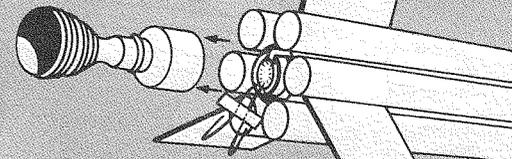
C FOLD OVER AND BEND TIPS

D APPLY AND FIRMLY PRESS TAPE DISC OR MASKING TAPE IN PLACE



E REMOVE DISPLAY NOZZLE

F INSTALL ENGINE IN ROCKET



G HOOK MUST LATCH OVER END OF ENGINE

# LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- An Estes Electrical Launch System & Launch Pad
- A 3/16" Maxi™ Launch Rod (#2244)
- Estes Recovery Wadding (No. #2274)
- Recommended Estes Engines: D12-3 and D12-5

Use a Estes D12-3 engine for your first flight to become familiar with your rocket's flight pattern.

Use only Estes products to launch this rocket.

# 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.

Don't leave parachute packed more than a minute or so before launch during cold weather [colder than 40° Fahrenheit (4° Celsius)].

Parachute may be dusted with talcum powder to avoid sticking

# MISFIRES

Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

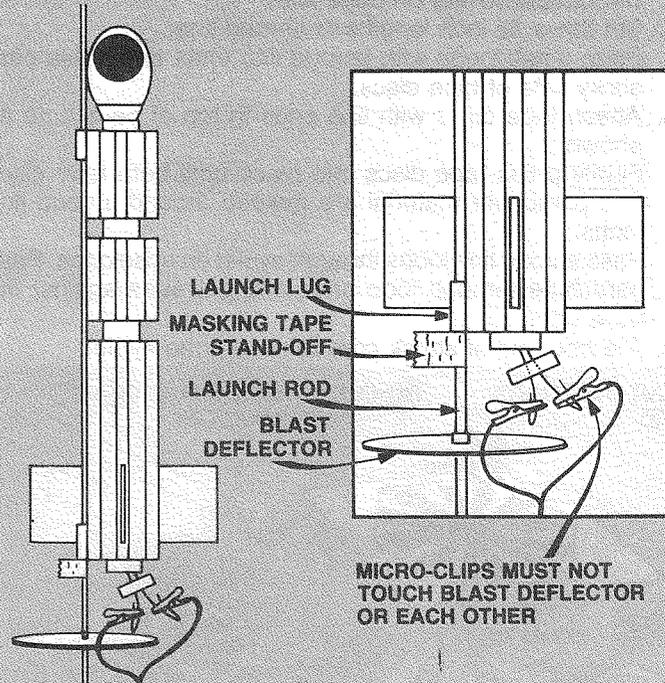
When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then tape the igniter leads firmly to base of engine as illustrated above. Repeat the countdown and launch procedure.

# 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

# COUNTDOWN AND LAUNCH



LAUNCH LUG  
MASKING TAPE  
STAND-OFF  
LAUNCH ROD  
BLAST DEFLECTOR

MICRO-CLIPS MUST NOT TOUCH BLAST DEFLECTOR OR EACH OTHER

- REMOVE SAFETY KEY to disarm the launch controller.
- 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.
- 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.
- Move back from your rocket as far as launch wire will permit (at least 15 feet).
- INSERT SAFETY KEY to arm the launch controller.

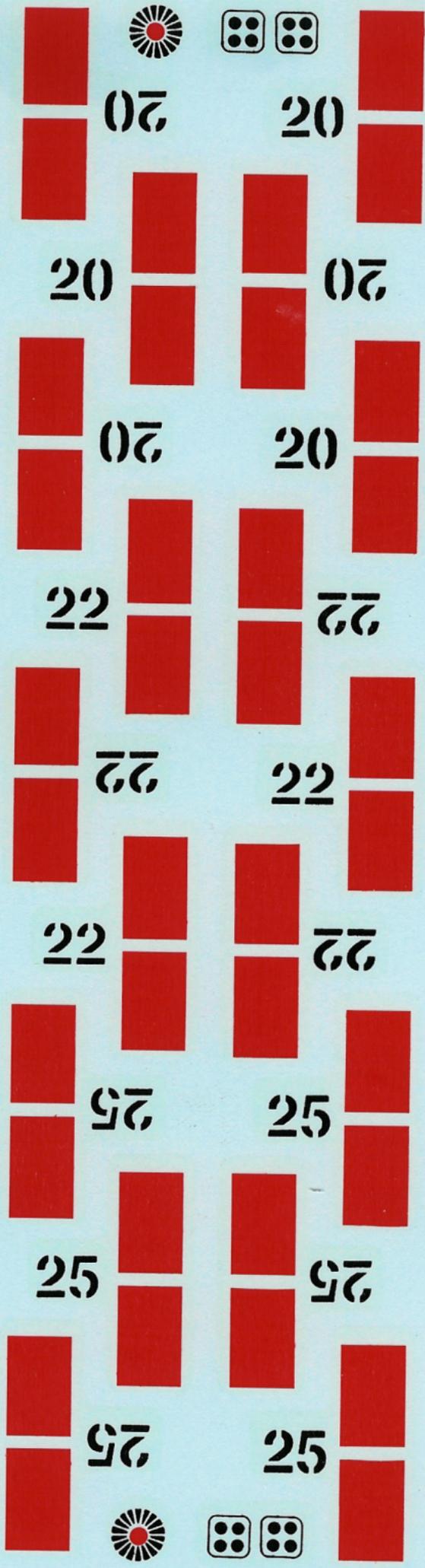
Give audible countdown 5...4...3...2...1

**LAUNCH!!!** PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES

Remove safety key—Replace cap on launch rod.

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**17417**

CENTER SECTION ASM-N-7A

8752-499100-104-11

CENTER SECTION ASM-N-7A  
11-401-001667-2528



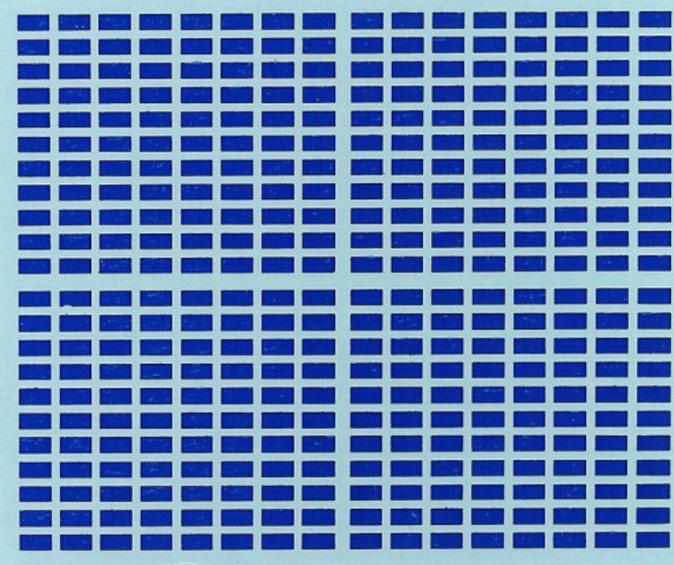
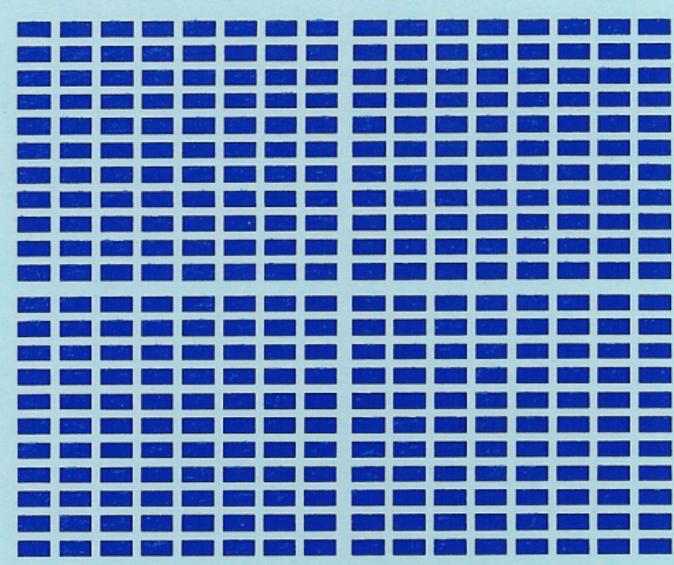
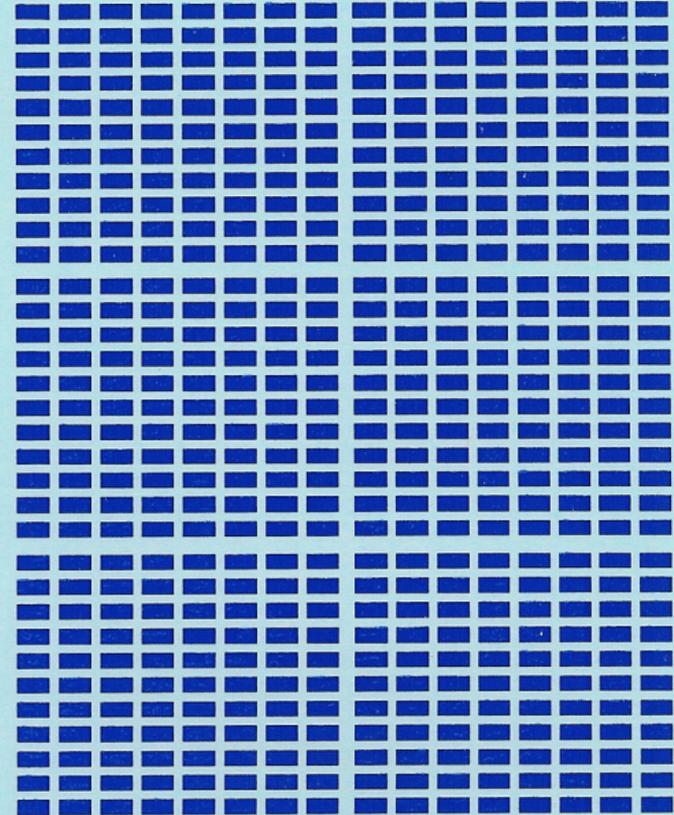
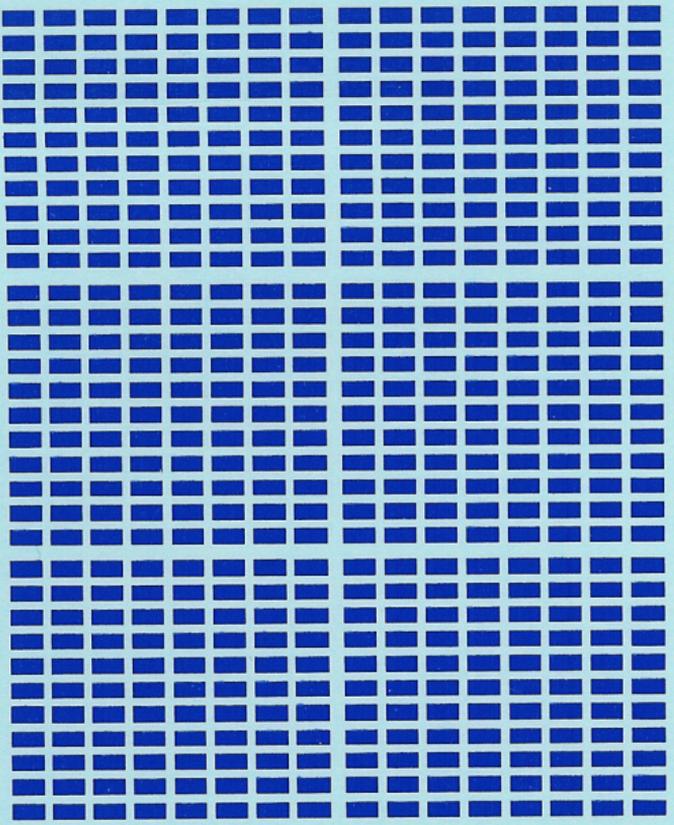
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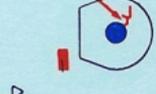
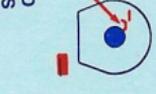


**United States**  
**STAR PROBE**

**AERO DYNAMICS**

**AERO DYNAMICS**

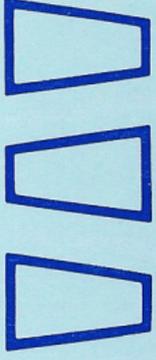
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**STAR PROBE**



**Aquarius**



**Aquarius**



Estes Explorer Aquarius

BALSA WOOD STOCK: 3/32"

FIN DIMENSION: 3 3/8" x 2 5/8"

GRAIN: Grain running with the longer dimension