



TITAN III E™

FLYING MODEL ROCKET KIT #2019 1/73 SCALE KIT



A DAMON COMPANY

ESTES INDUSTRIES
1295 H Street
Penrose, CO 81240

This is a flying scale model of Martin Marietta's commercial launch vehicle. The Titan Satellite Launcher has been the workhorse for the U.S. Air Force Space Program for more than 20 years. This model is 1/73rd of the size of a Martin Marietta Titan III E. The only non-scale part of this model is the plug-in fin units for insured stability during flight. Do Not attempt to fly this model without the fin units in place.

The instruction book is divided into several sections, each of which is a sub-assembly or detailing phase of the rocket's construction, with final assembly after all construction and decor are completed.

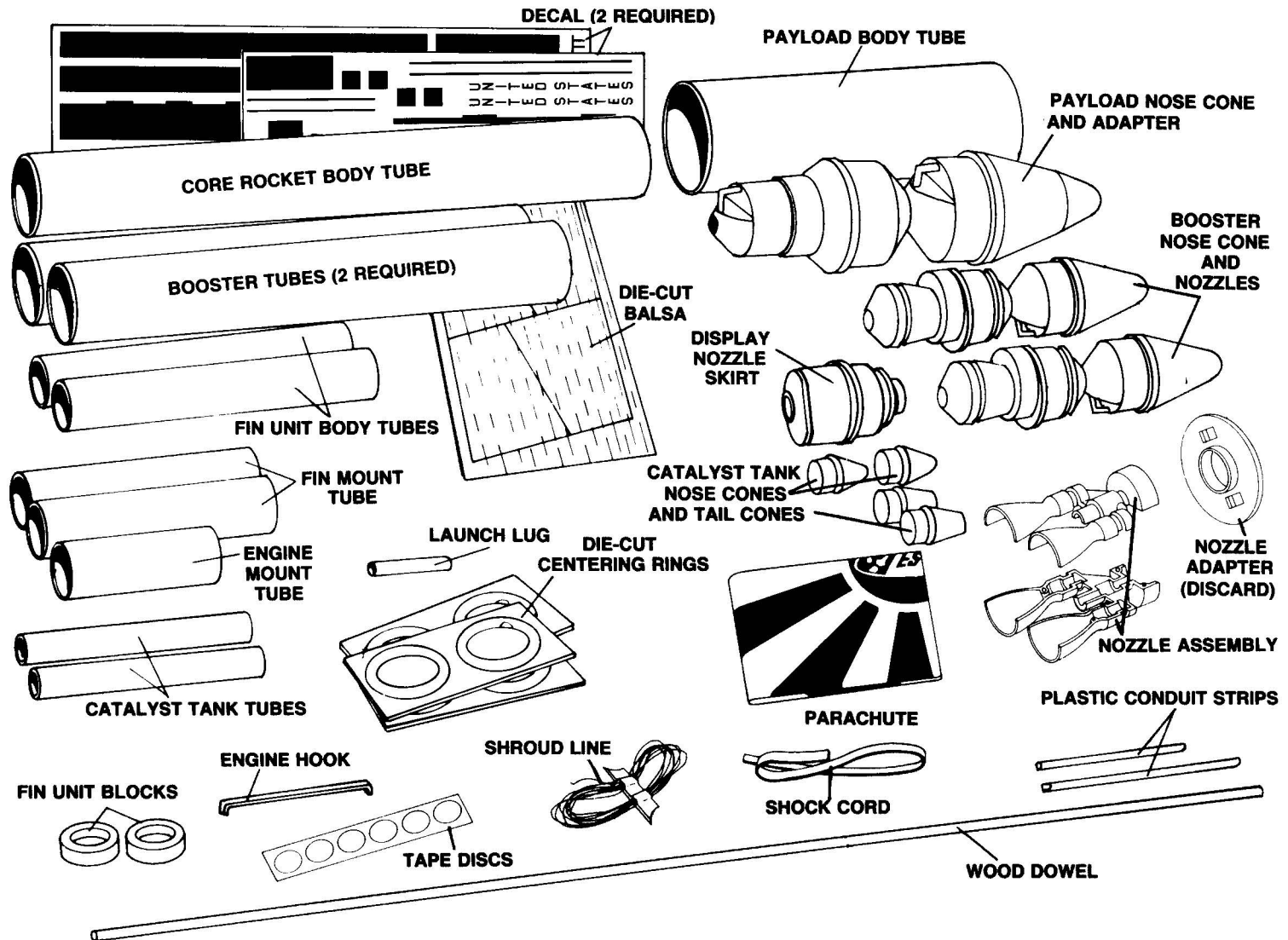
Read all instructions before beginning work on your model. Make sure you have all parts and supplies. Test-fit all parts before applying glue. If any parts don't fit properly, sand as required for precision assembly.

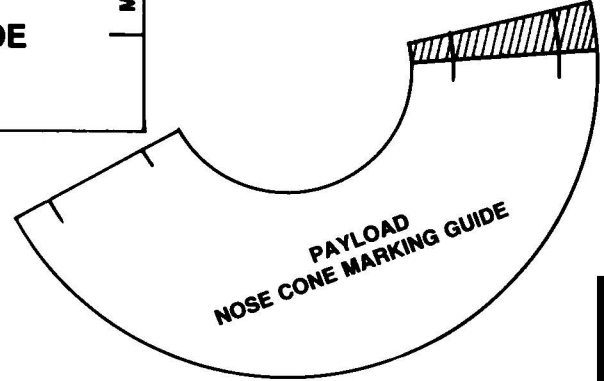
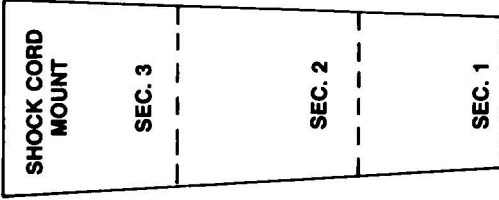
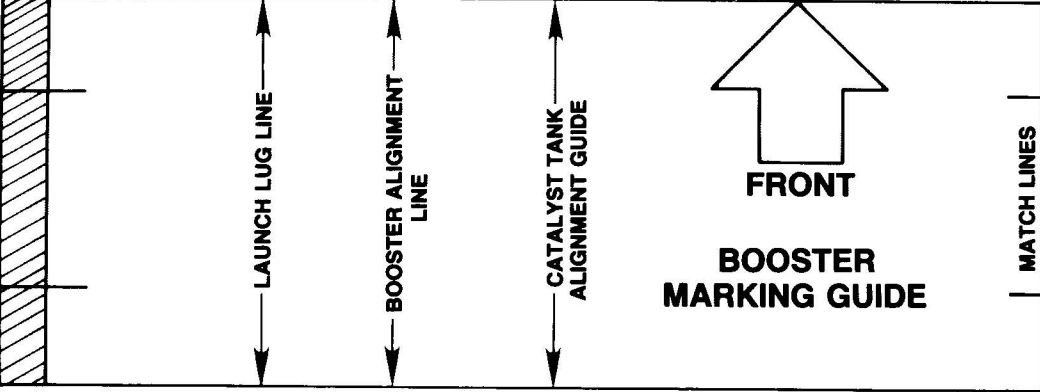
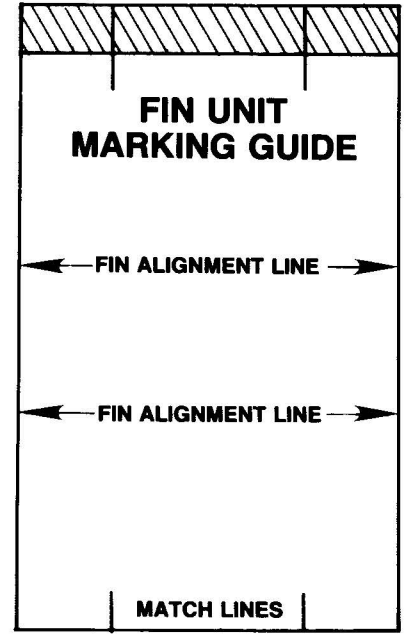
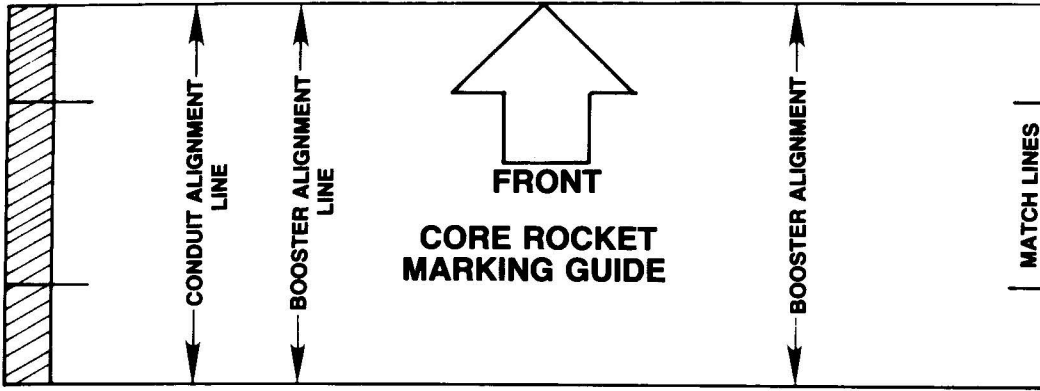
In addition to the parts included in the kit you will also need:

TOOLS: A sharp pencil, scissors, hobby knife with a sharp blade, ruler, sanding block with fine and extra fine grit sandpaper, hobby saw, and small paint brush.

GLUE: Wood glue such as Tite-Bond or Elmer's Carpenter's Glue, contact cement sold at most hardware stores, and plastic model cement.

PAINT AND FINISHING MATERIALS: Balsa sanding sealer, sandable primer (optional), aerosol spray paints (white and silver enamel), small bottles of flat black, flat gray, silver, gold, gloss red enamel paint, and enamel thinner. Do Not use lacquer base paints. Use Testor's Dullcote or Gloss Cote clear spray to protect the finish of the completed model.





1 Inch

1 Inch

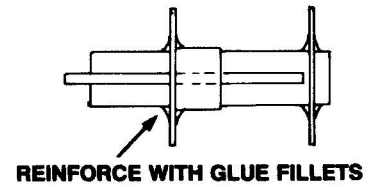
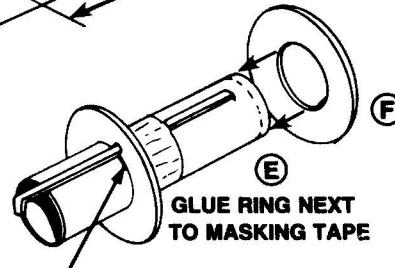
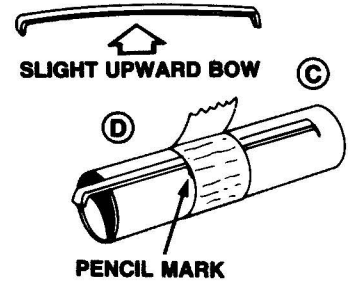
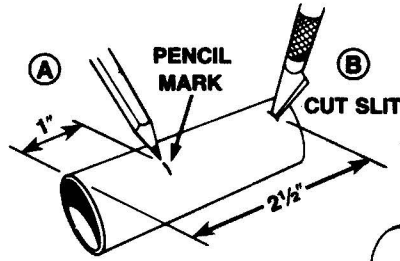
1 Inch

1 Inch

CORE ROCKET ASSEMBLY

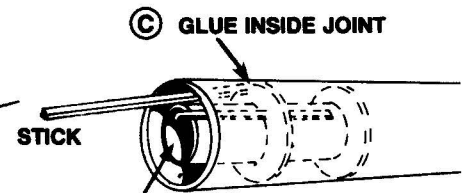
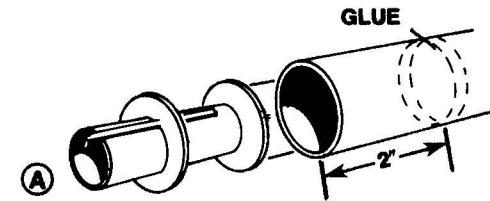
1.

- Mark engine mount tube 1 inch and 2½ inches from one end.
- Cut 1/8 inch long slit at 2½ inch mark.
- Insert one end of engine hook into slit.
- Wrap masking tape around assembly twice at 1 inch mark.
- Slide slotted adapter ring onto rear of tube and up to masking tape. Slot fits over engine hook. Glue both sides of ring/tube joint.
- Slide the second ring onto the front of the tube and position it about 1/16 inch from the end of the tube. Glue ring in place and set aside to dry.



2.

- Using a piece of scrap balsa, smear glue inside body tube 2 inches from one end.
- Push engine mount in until end of engine hook is even with end of tube.
- Using a piece of scrap balsa for an applicator, apply a bead of glue around the rear ring/body tube joint.

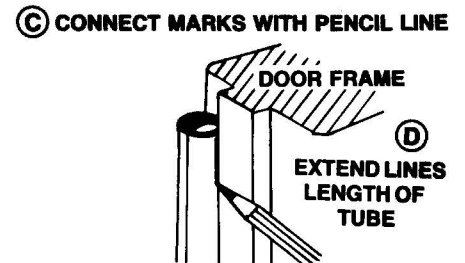
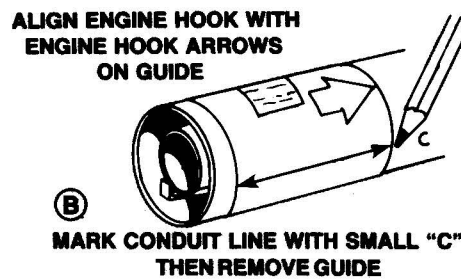


INSTALL ENGINE MOUNT

END OF HOOK EVEN WITH END OF BODY TUBE

3.

- Cut out core rocket tube marking guide from page 2 of instructions.
- Wrap guide around the tube and tape. Mark tube at arrows. Remove guide and save.
- Draw straight lines connecting each pair of marks.
- Extend lines the length of tube.



ALIGN ENGINE HOOK WITH ENGINE HOOK ARROWS ON GUIDE

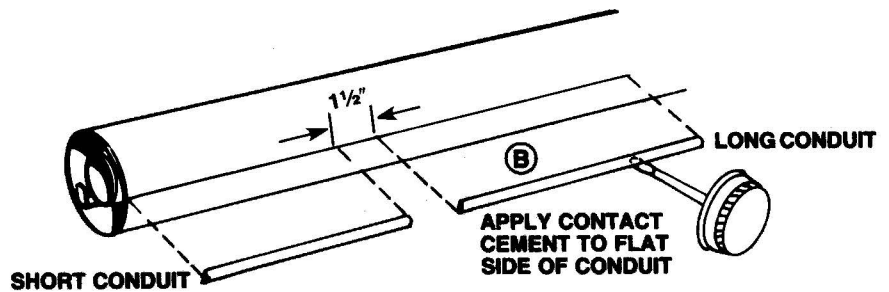
CONNECT MARKS WITH PENCIL LINE

MARK CONDUIT LINE WITH SMALL "C", THEN REMOVE GUIDE

EXTEND LINES LENGTH OF TUBE

4.

- Locate two plastic conduit strips from plastic parts.
- Apply contact cement to flat side of each conduit and align them on their alignment line as shown. Wipe away excess cement and set aside to dry.

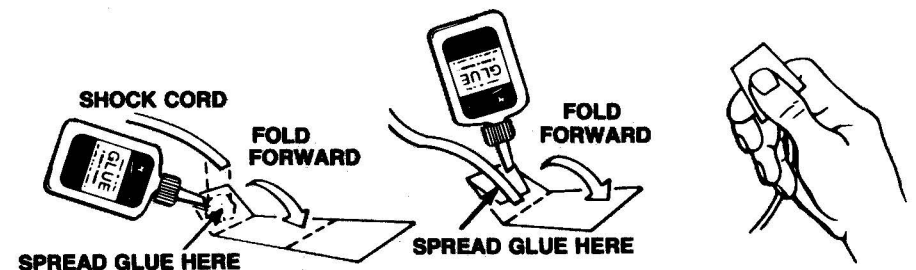


SHORT CONDUIT

APPLY CONTACT CEMENT TO FLAT SIDE OF CONDUIT

5.

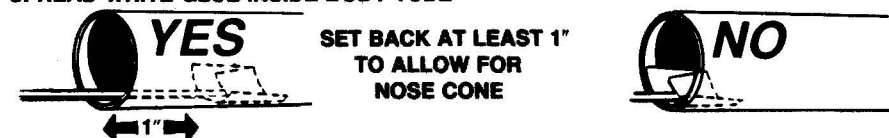
- Cut shock cord mount from page 2.
- Crease on dotted lines by folding. Spread glue on section 1 and lay end of shock cord into glue. Fold over and apply glue to back of first section and exposed part of section 2. Lay shock cord as shown and fold mount over again.
- Clamp unit together with fingers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



SPREAD WHITE GLUE INSIDE BODY TUBE

6.

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



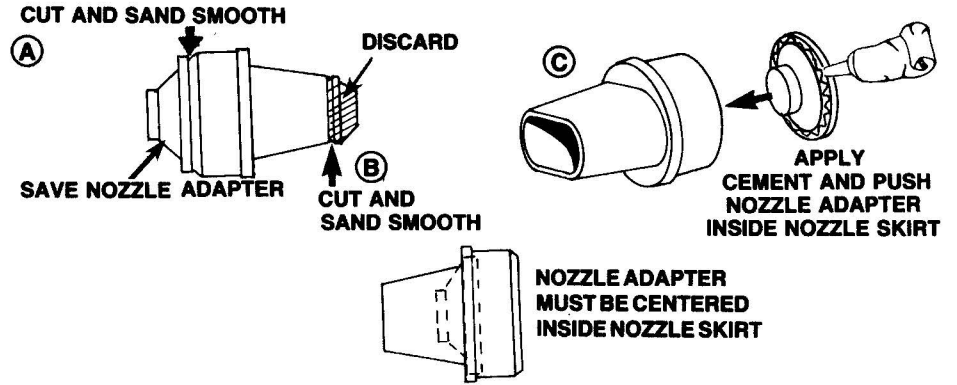
YES

SET BACK AT LEAST 1" TO ALLOW FOR NOSE CONE

NO

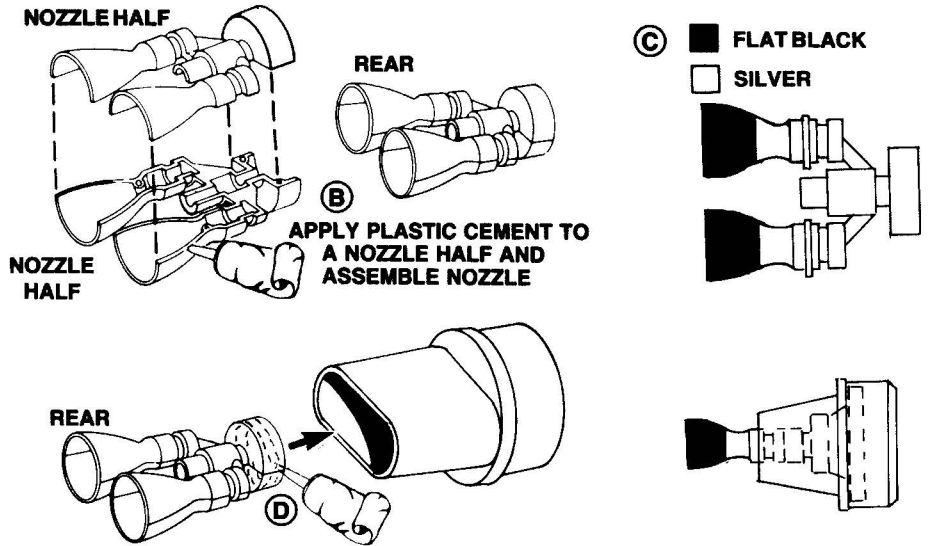
7.

- Cut ends of plastic display nozzle skirt off, as shown, with a hobby saw.
- Sand ends flat and smooth. Trim and sand any excess plastic from inside openings and around sides of skirt.
- Apply plastic cement to nozzle adapter and push it into nozzle skirt. Make sure adapter is centered in skirt opening and in the position shown.
- Paint nozzle adapter gloss white and allow to dry.



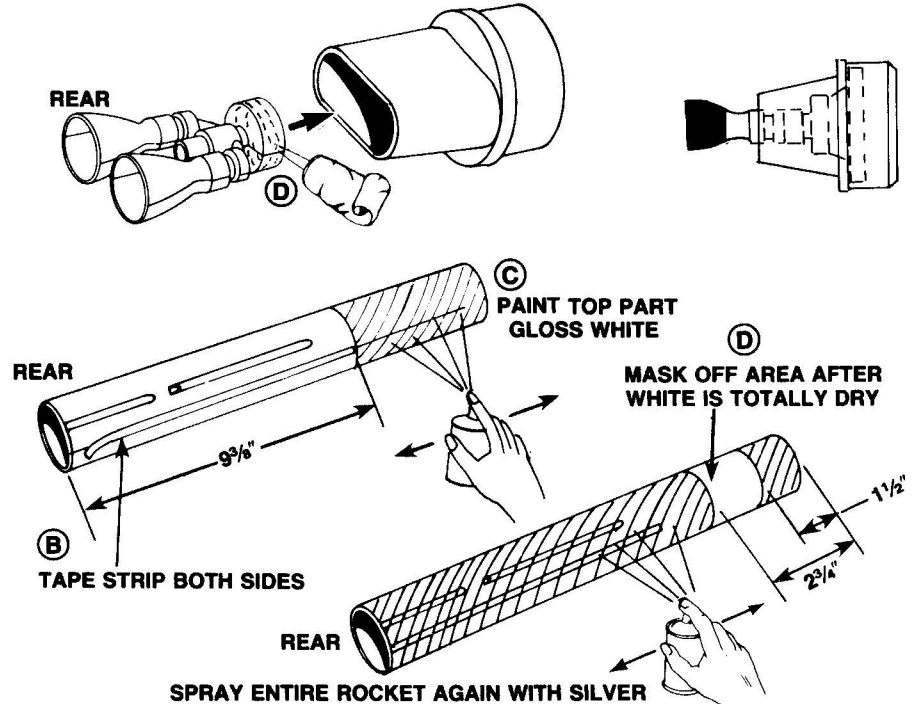
8.

- Trim away excess plastic from plastic display nozzle.
- Assemble nozzle using plastic cement and set aside to dry.
- Paint nozzle assembly as shown.
- Apply plastic cement to inside front of nozzles and mate with the nozzle adapter inside nozzle skirt. Set aside to dry.



9.

- Cut two strips of masking tape 1/8 inch x 9 3/8 inches long.
- Center tape strips on booster alignment lines. Make sure they do not extend beyond 9 3/8 inches and are straight along the tube.
- Paint front portion down to the tape mask gloss white. Allow paint to dry thoroughly.
- Mask off area shown and paint entire model silver. Follow instructions on spray can for best results.
- When paint is dry, remove tape strips and mask.

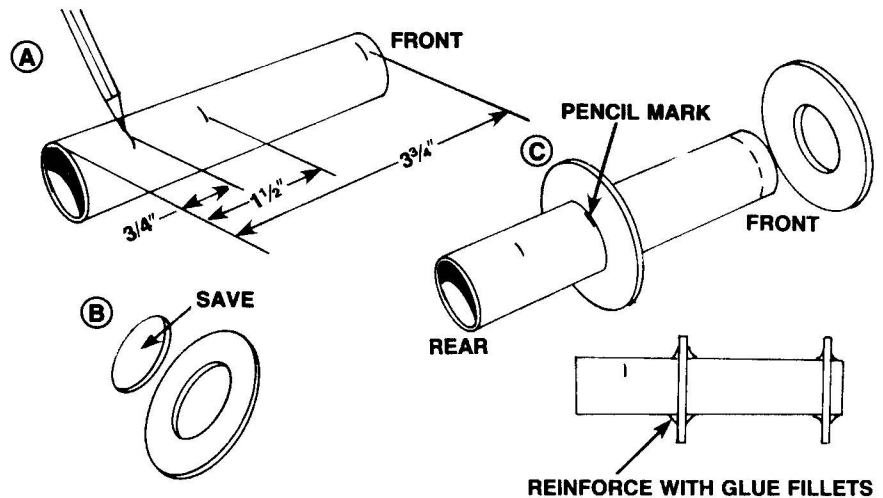


BOOSTER ROCKET ASSEMBLY

There are two solid boosters on this model. **Each step must be performed twice.**

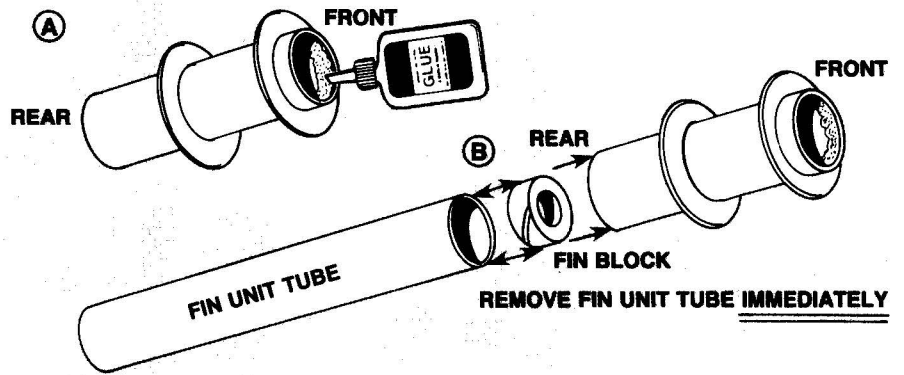
1.

- Mark each fin mount tube 3/4 inch, 1 1/2 inch, and 3 3/4 inch from one end.
- Remove centering rings from each die-cut sheet. Save the center discs. They will be used later.
- Slide rings onto each tube, one at 1 1/2 inch and one at 3 3/4 inches. Apply glue to both sides of each ring.



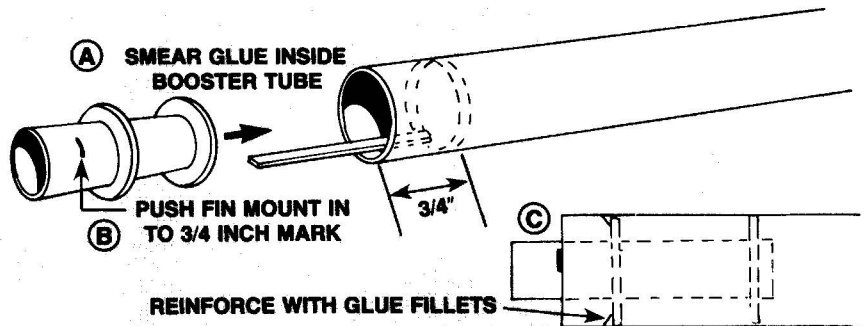
2.

- Apply a small amount of glue to inside front of each fin mount tube.
- Insert fin block into rear of mount. With fin unit tube push block up even with front end of tube. Immediately remove fin unit tube before glue sets.



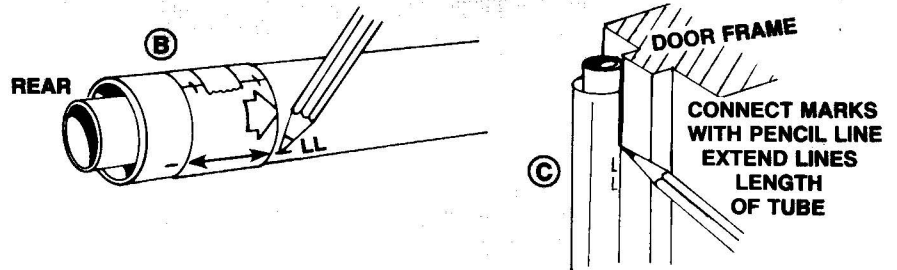
3.

- Using a piece of scrap balsa, smear glue inside each booster body tube 3/4 inches from one end.
- Push fin mount in until 3/4 inch mark on tube is even with end of booster body tube.



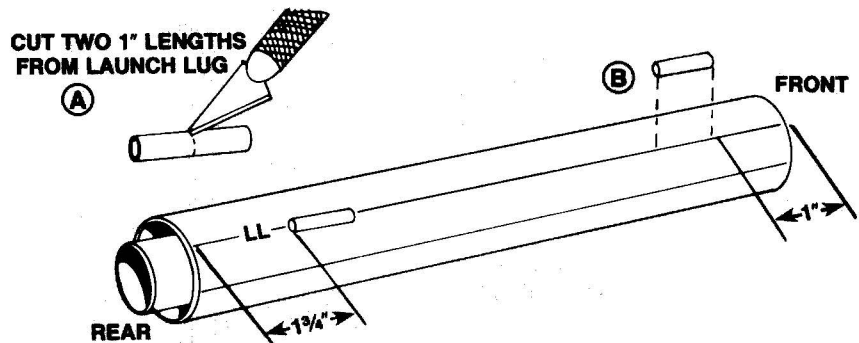
4.

- Cut out booster tube marking guide from page 2 of instructions.
- Wrap booster tube marking guide around the tube and tape. Mark tube at arrows and label marks ("LL" for launch lug, "B" for booster, and "C" for catalyst tank).
- Draw straight lines connecting each pair of marks. Extend lines length of tube.



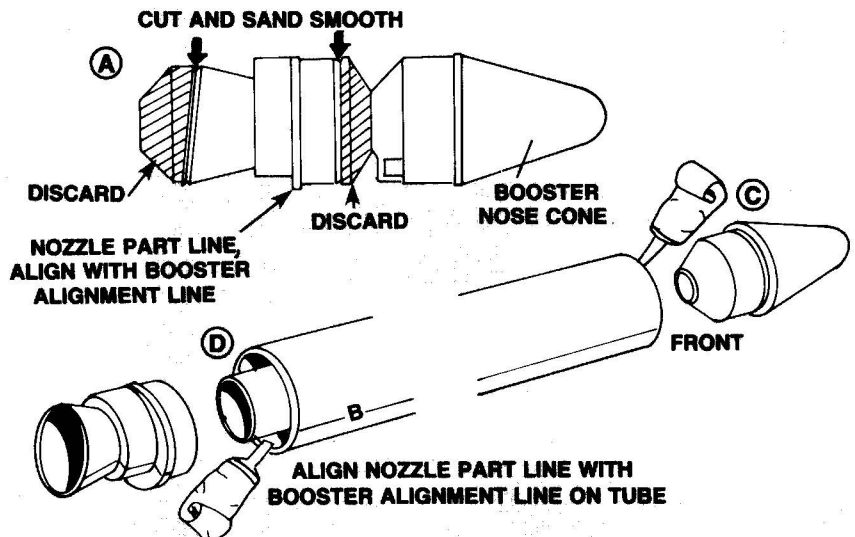
5.

- Cut launch lug into two equal 1 inch lengths.
- Only on one booster, glue one launch lug 1 3/4 inches from rear and the other lug 1 inch from front of tube. Make sure launch lugs are aligned with each other and straight on booster tube.



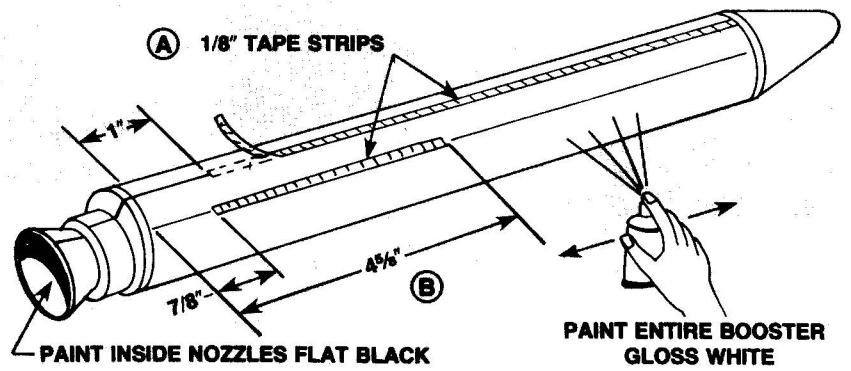
6.

- Cut end of each nozzle and separate nozzle and nose cone with a hobby saw.
- Sand ends flat and smooth. Trim and sand any excess plastic from inside openings and around parts.
- Apply plastic cement to inside front of booster tube and slide nose cone into place.
- Apply cement to rear of booster tube and slide nozzle into place. Twist nozzle and align booster alignment line with mold line on nozzle as shown.



7.

- Cut strips of masking tape 1/8 inch x 9³/₈ inches and 1/8 inch x 3³/₄ inches for each booster.
- Center the 9³/₈ inch tape strips on the booster alignment lines. And the 3³/₄ inch strips on the catalyst tank alignment lines. Make sure they do not extend beyond the dimensions shown for each.
- Paint entire boosters gloss white. When paint is dry remove tape strips and paint inside nozzles flat black.

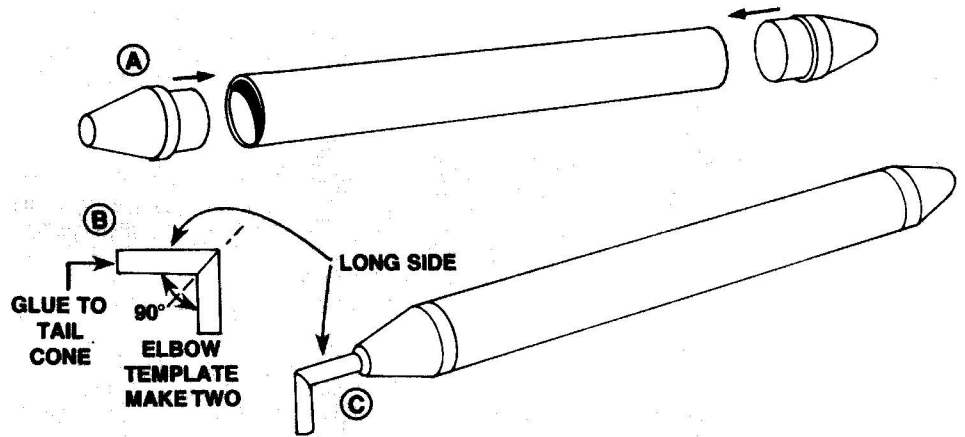


CATALYST TANK ASSEMBLY

There are two catalyst tanks on this model, one on each booster. **Each step must be performed twice.**

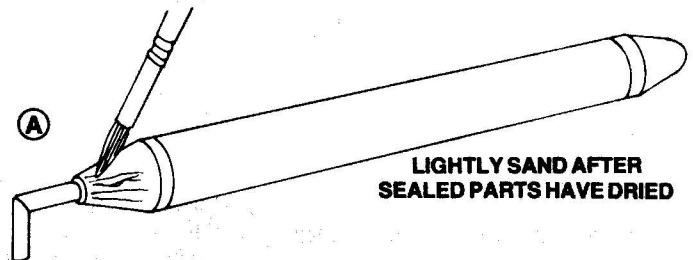
1.

- Glue balsa nose cones and tail cones into each catalyst tank tubes. Sand cones to match diameter of tube.
- Make two elbows from wood dowel to pattern shown.
- Glue one elbow to each tail cone as shown.



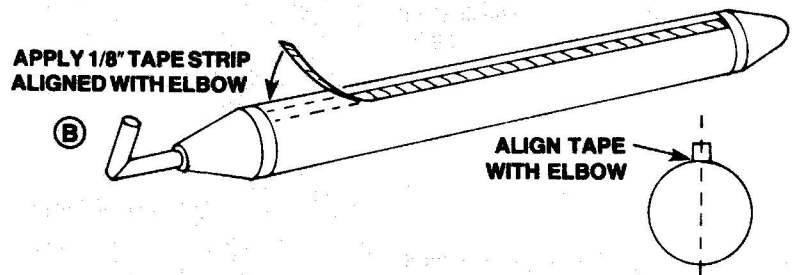
2.

- Apply sanding sealer to all wood parts. When dry, lightly sand. Repeat sealing and sanding until wood grain is filled and smooth.



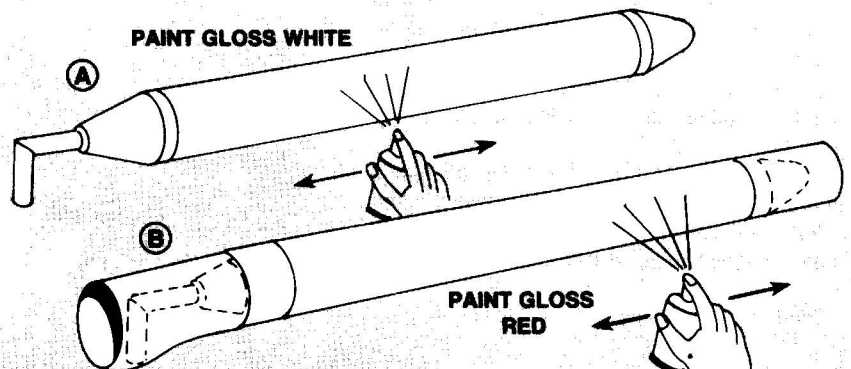
3.

- Cut one strip 1/8 inch x 3³/₄ inches for each tank.
- Center strip down length of tank tube as shown. Tape strip must be straight along tube length.



4.

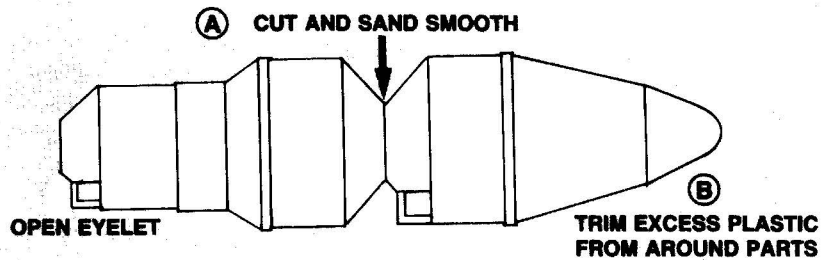
- Paint entire tank gloss white. When paint is dry, mask off nose cone and tail cone of each tank.
- Paint tanks gloss red. When paint is dry, remove mask and tape strips.



PAYLOAD SECTION ASSEMBLY

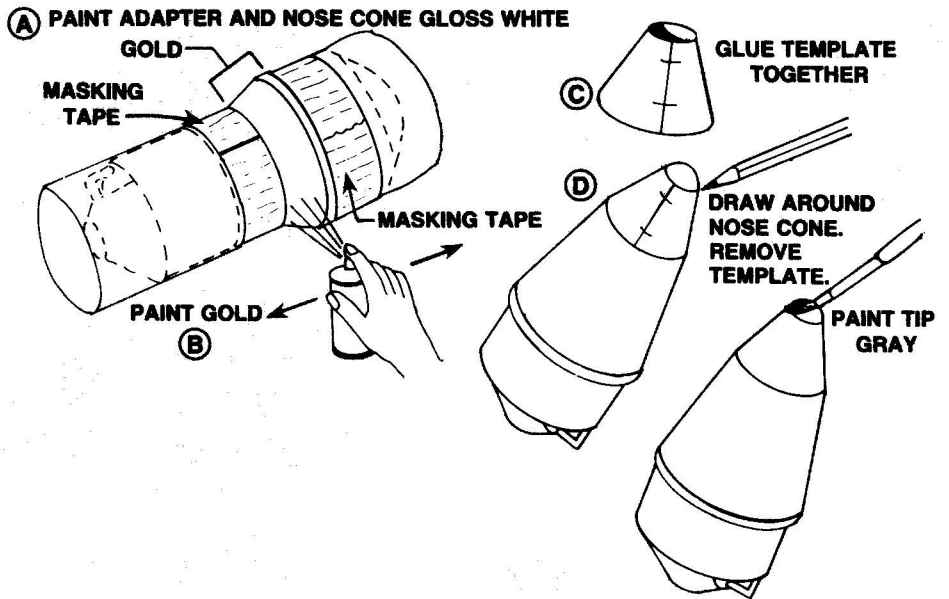
1.

- A. Cut apart nose cone and adapter section with hobby saw.
- B. Clean up excess plastic from around plastic parts. Open molded eyelet at rear of adapter.



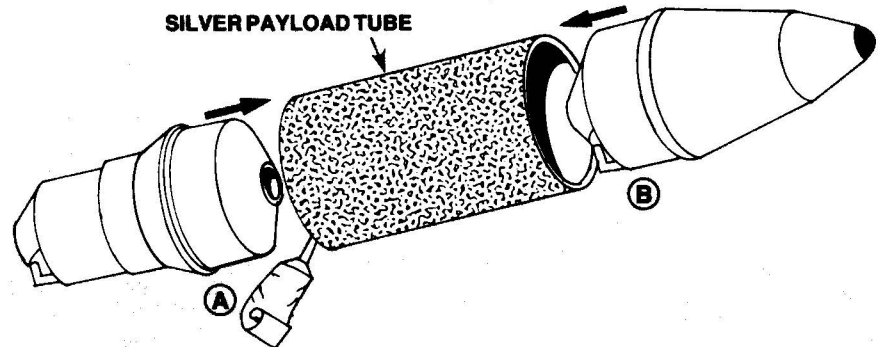
2.

- A. Paint nose cone and adapter gloss white.
- B. When paint is dry, mask off adapter as shown and paint gold.
- C. Cut out nose cone template from instructions. Glue together and hold till glue sets.
- D. Slip template over nose cone tip and draw around template with pencil. Remove template and paint tip flat gray.
- E. Paint payload section body tube silver.



3.

- A. When all paint is thoroughly dry, apply plastic cement to inside rear of tube and slide adapter section into place.
- B. Slide nose cone into place also. You may wish to glue nose cone into tube also, but it is not necessary.

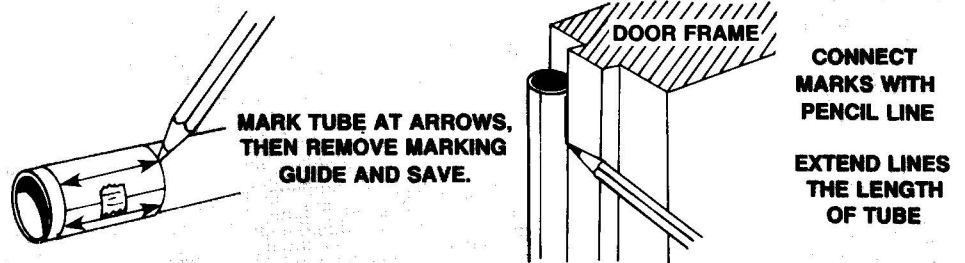


FIN UNIT ASSEMBLY

There are two fin units on this model. **Each step must be performed twice.**

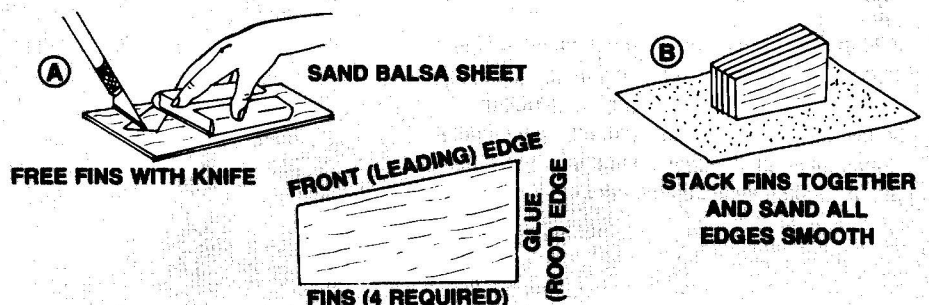
1.

- A. Cut out fin marking guide from instructions.
- B. Wrap guide around each tube and tape. Mark tubes at arrows.
- C. Remove guide and draw straight lines connecting marks and extending length of tubes.



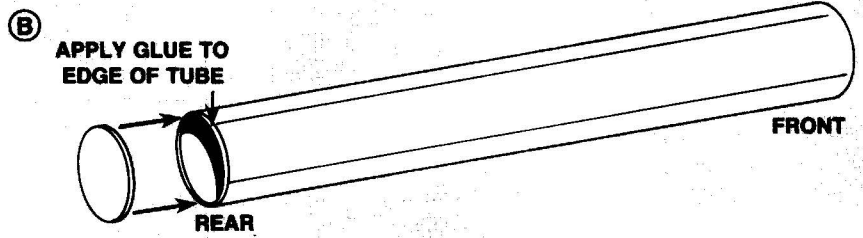
2.

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



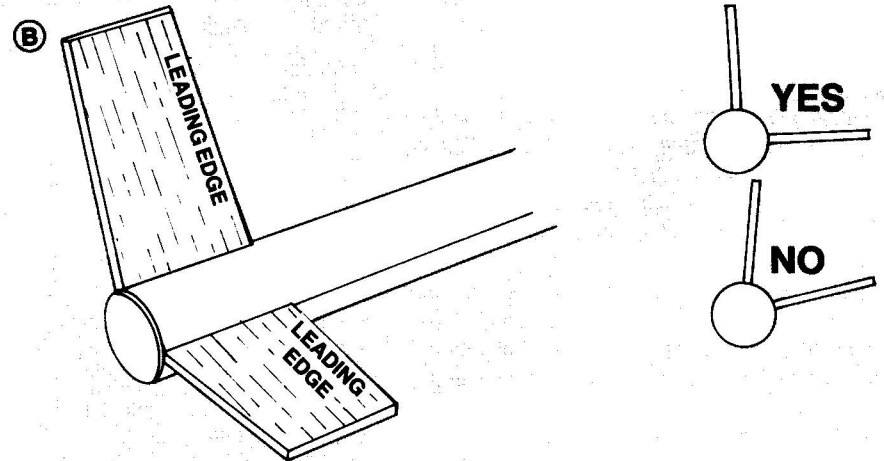
3.

- A. Locate two die-cut discs saved from Step 1 Booster Assembly.
- B. Glue one disc to each tube rear as shown. When glue has dried, sand edges of discs to match the diameter of the tubes.



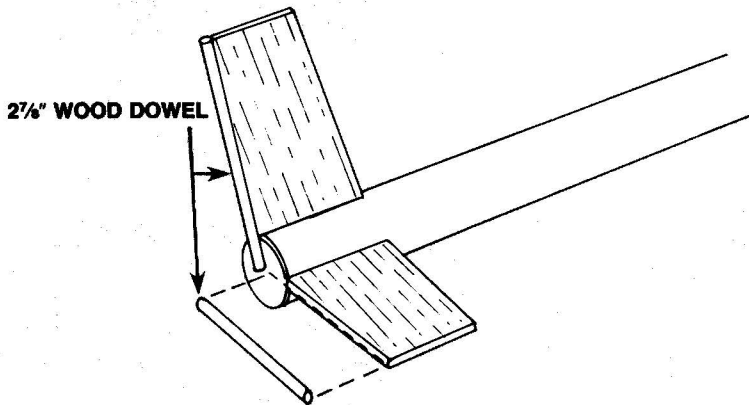
4.

- A. Refer to Step 2 to find gluing (root) and front (leading) edges.
- B. Position and glue fins on alignment lines one at a time. Let each dry several minutes before applying the next.
- C. Adjust fins to project straight out from tube.



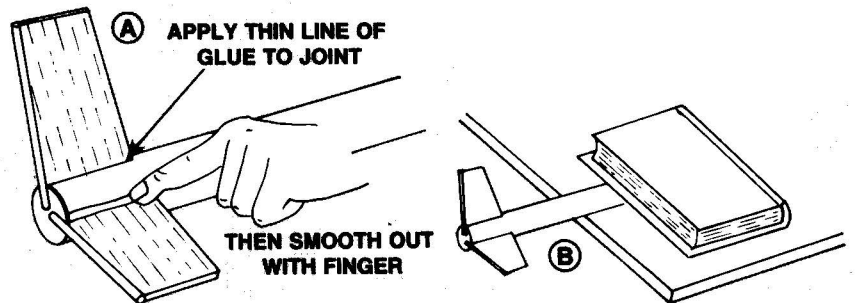
5.

- A. Cut four equal 2 7/8 inch lengths of wood dowel for fin supports.
- B. Glue one support to each fin and disc as shown. Set aside to dry.



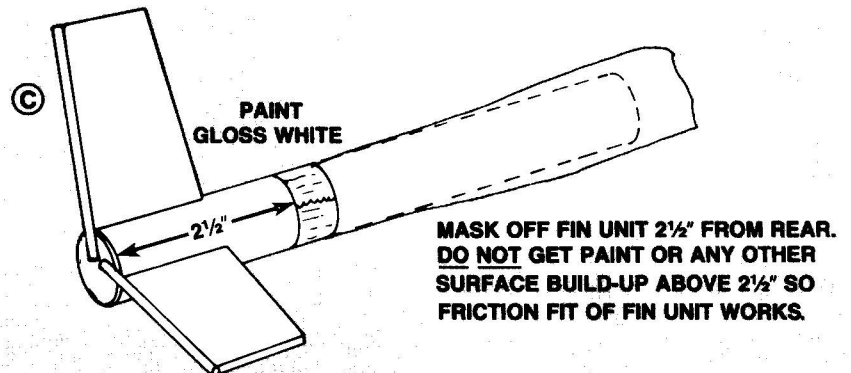
6.

- A. Apply glue reinforcements to each fin/body tube joint and fin support.
- B. Support fin units horizontally until glue dries.



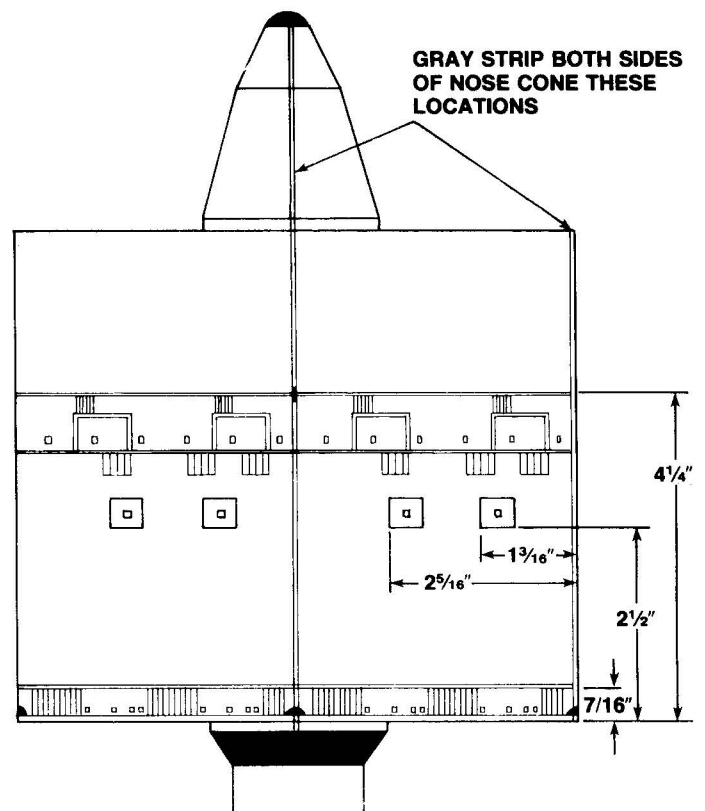
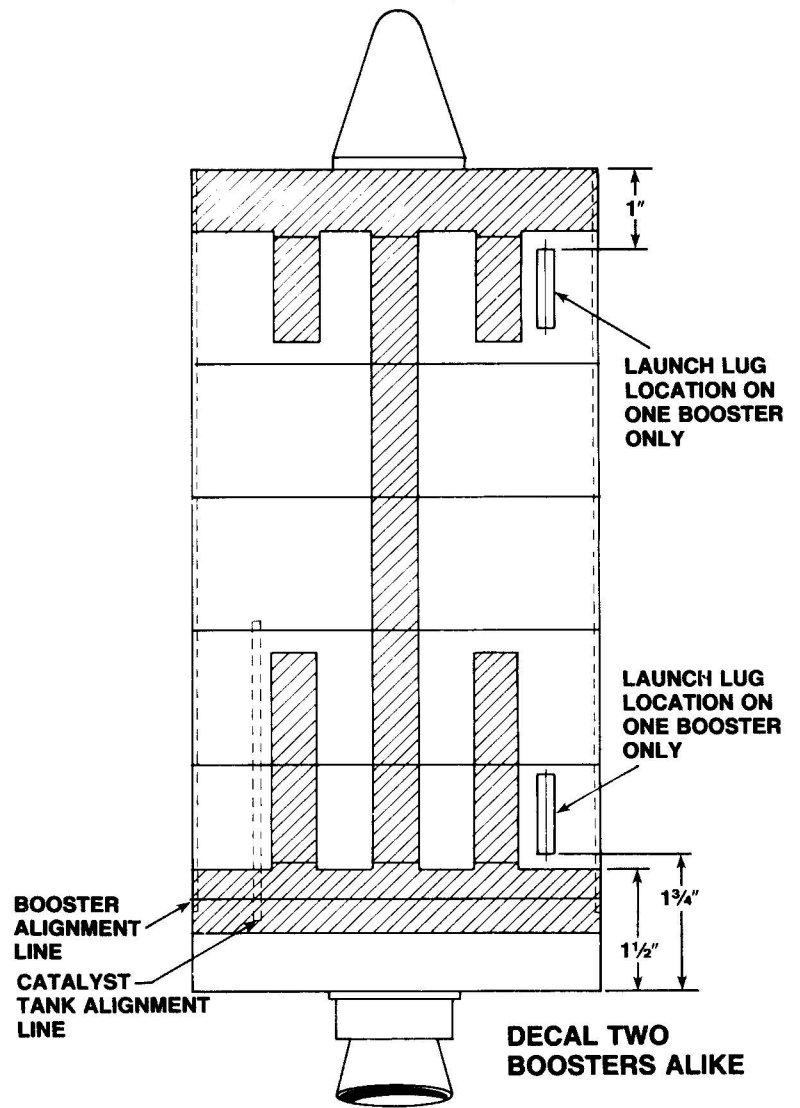
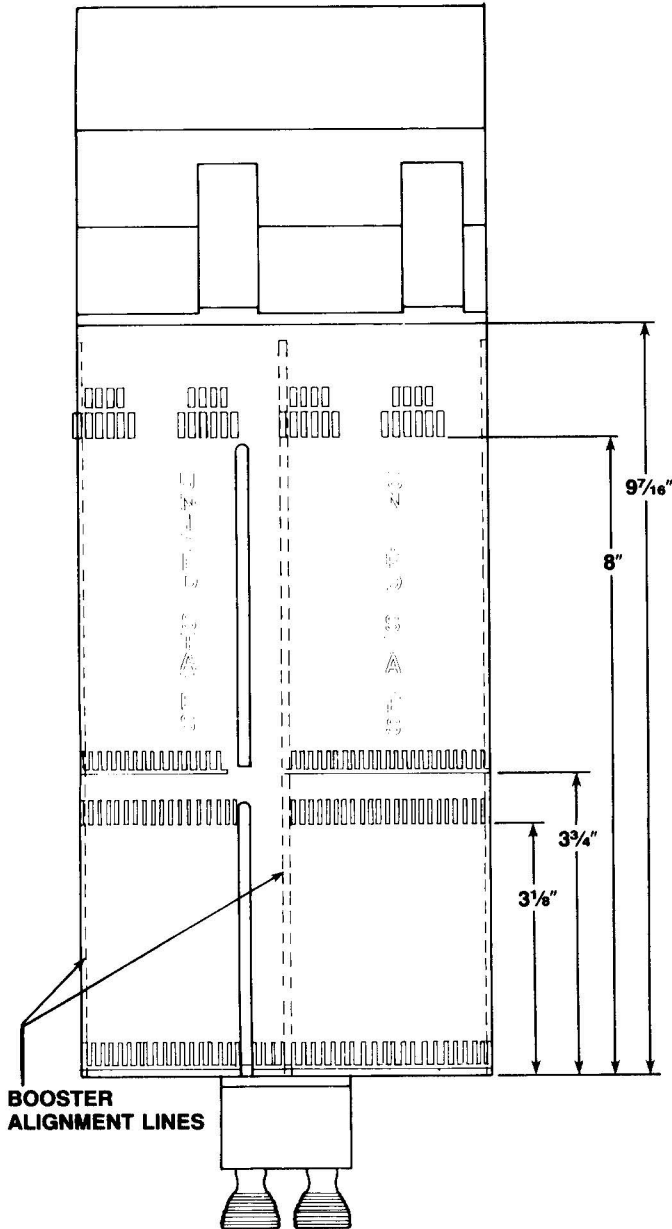
7.

- A. Apply sanding sealer to all wood and disc parts.
- B. When sealer is dry, lightly sand sealed surfaces. Repeat sealing and sanding until wood grain is filled and smooth.
- C. Mask off fin unit as shown and paint lower fins and tube gloss white. When paint is dry, remove masking.



DECAL PLACEMENT

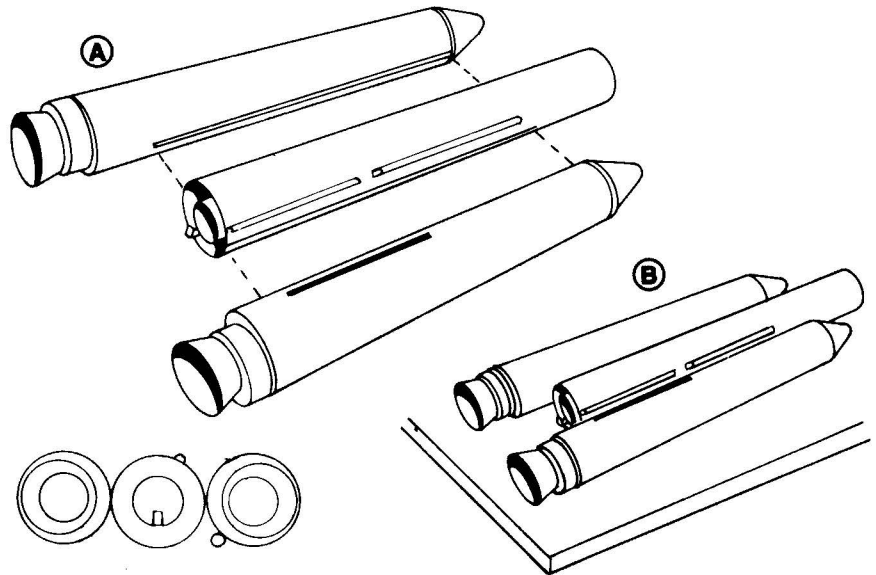
Apply decals using photos as a guide. Cut decals from sheet only as needed. Soak in water 15 to 30 seconds (until decal slides on backing). Transfer decal onto model. Slide decal into final position, then gently blot away excess water. Remove any air bubbles with a soft cloth. If decal "sticks" before it is in final position, brush a little water over it. This will allow it to easily move. After all decals have been applied and are dry, remove parts of decal where it crosses any of the tape strip lines with a sharp modeling knife.



FINAL ASSEMBLY

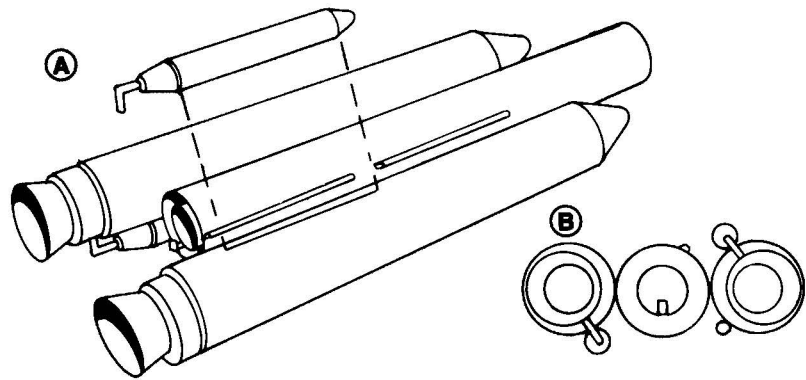
1.

- A. Position and glue boosters to core rocket assembly. Let first one dry several minutes before adding the second to the assembly.
- B. Lay rocket assembly down flat on a table, adjust boosters for alignment and allow to dry.



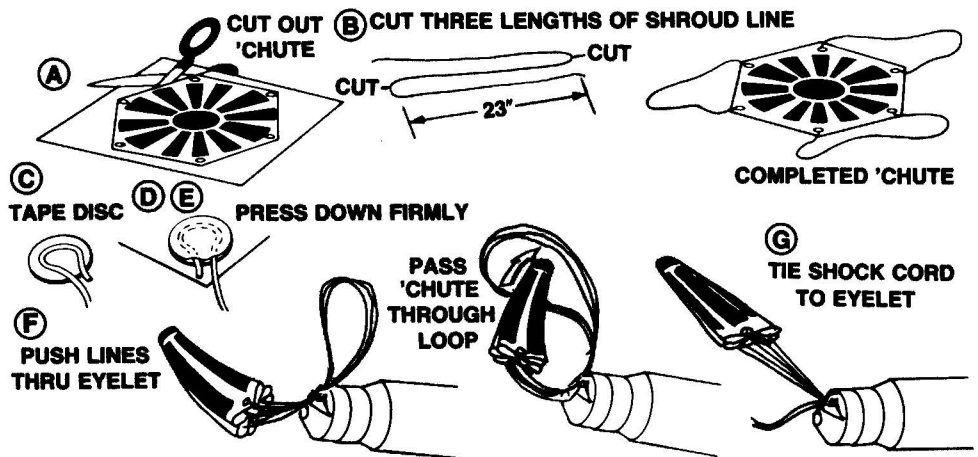
2.

- A. Position and glue catalyst tanks to their alignment lines on boosters.
- B. Let one dry before applying the next. Check alignment and allow to dry.



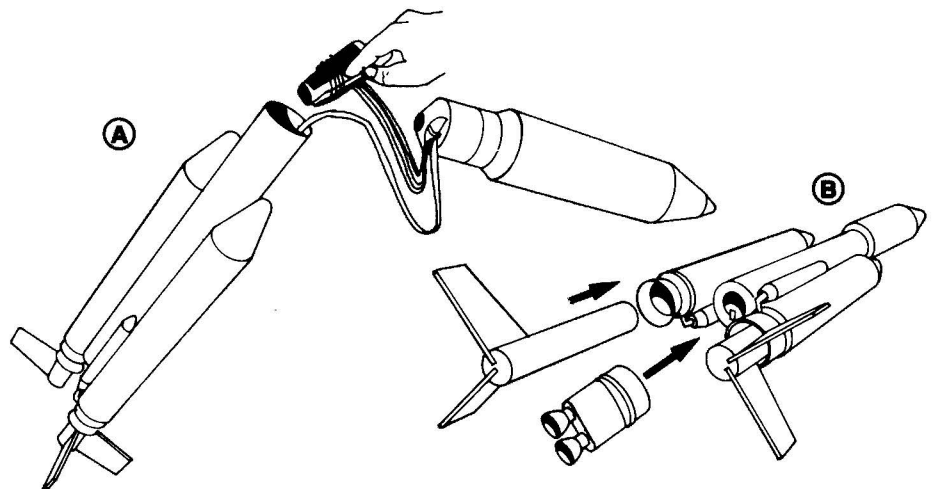
3.

- A. Cut out parachute on edge lines.
- B. Cut three 23 inch lengths of shroud line.
- C. Form small loops with shroud line ends and press onto sticky side of tape discs.
- D. Attach tape discs with line ends to top of parachute as shown.
- E. Firmly press tape discs into place until both tape discs and parachute material are molded around shroud line loops.
- F. Pass shroud line loops through loop on nose cone. Pass parachute through loop on ends and pull lines against the eyelet.
- G. Tie free end of shock cord to eyelet.



4.

- A. Pack parachute into rocket. Slide payload section into place. Position nozzle skirt over engine mount for display.
- B. Fin units can be slid into place or taken out for display. Do Not glue fin units in tubes. They are removable.



FLYING YOUR ROCKET

LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- Estes Electrical Launch System
- A 3/16" Maxi™ Launch Rod (#2244)
- Estes Recovery Wadding (# 2274)
- Estes Engines: D12-3 or D12-5

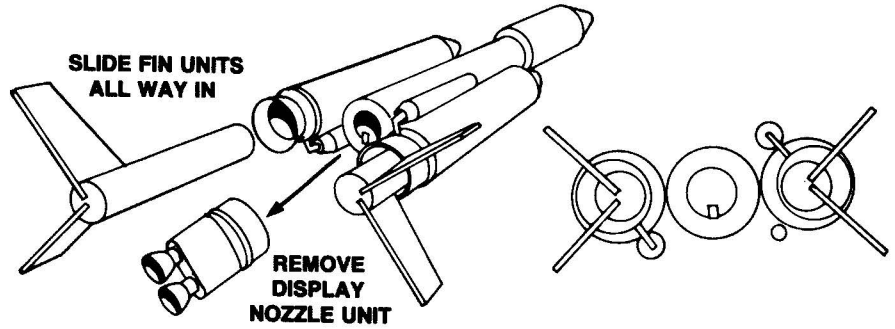
Use an Estes D12-3 engine for your first flight to become familiar with your rocket's flight path.

IMPORTANT NOTE: Do not attempt to launch this rocket from a launch pad smaller than the Estes Porta-Pad (#2217). Do not use a launch rod smaller than 3/16 inch diameter.

Do not attempt to launch this rocket without the use of the fin unit assemblies in place.

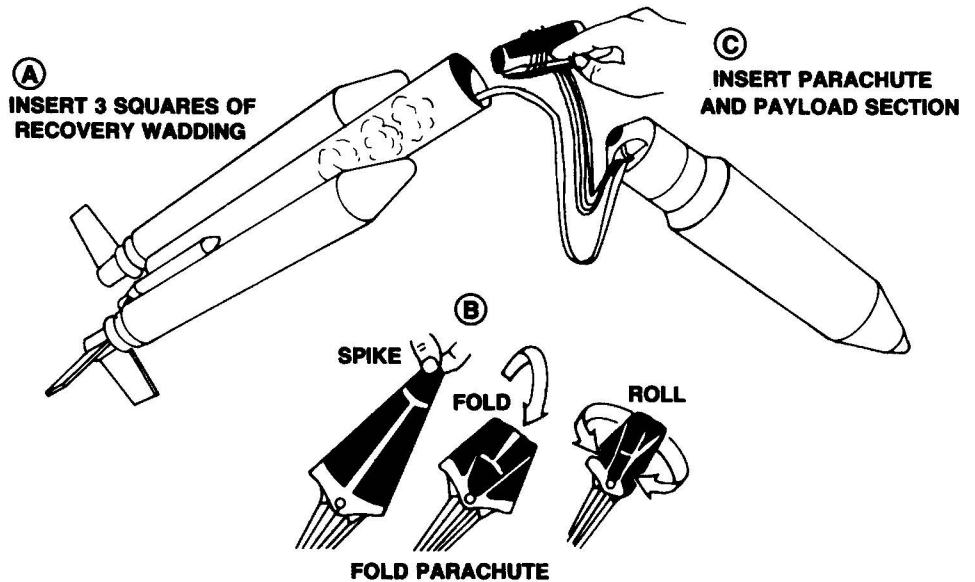
FLYING THE TITAN

NOTE: Remove display nozzle unit. Slide fin unit assemblies into place and position as shown.



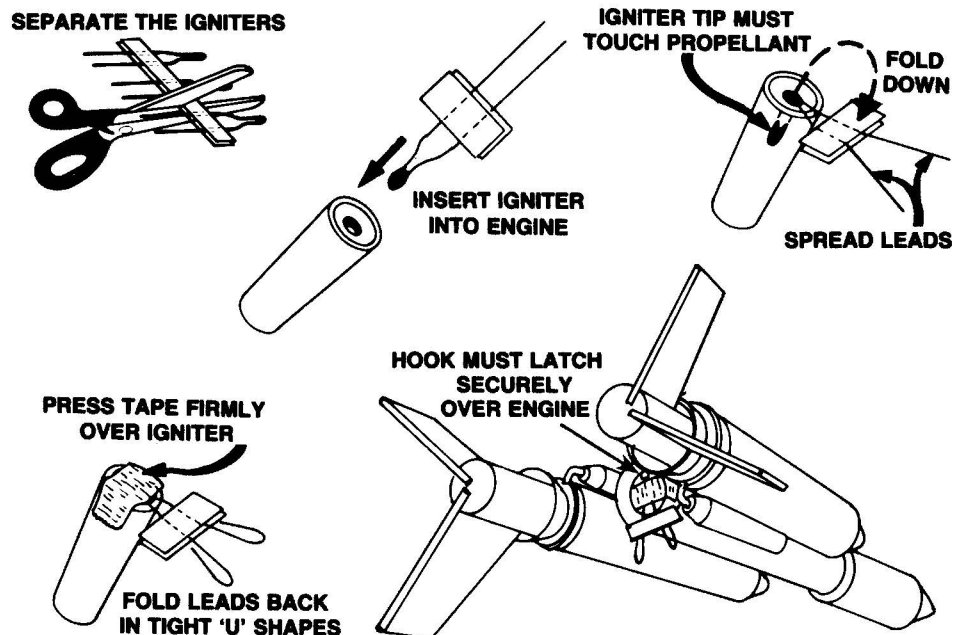
ROCKET PREFLIGHT

- Crumple and insert 3 squares of recovery wadding.
- Prepare parachute. Wrap lines loosely around 'chute.
- Insert parachute into rocket. Install payload section.



PREPARE ENGINE

Insert igniter into engine nozzle. Push in as far as it will go. Fold igniter down flat against end of engine and press firmly into place. It is important that the igniter be held firmly in place. Spread igniter leads and bend them back in tight 'U' shapes to provide more "grip" for micro-clips.



LAUNCH SITE

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 recovery.

The launch area must be free of dry weeds and brown grass. Launch only when wind is calm and visibility is good. If there are other people in the area, make sure they are alerted before you launch. 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.

COUNTDOWN AND LAUNCH

- ⑪ REMOVE SAFETY KEY to disarm the launch controller.
- ⑩ Check fin units position and integrity of all rocket components.
- ⑨ Remove safety cap and slide launch lugs over launch rod to place rocket on launch pad. Make sure the rocket slides freely on launch rod.
- ⑧ Attach micro-clips to 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.
- ⑦ Move back from rocket as far as launch wire will permit (at least 15 feet).
- ⑥ 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.

MISFIRES

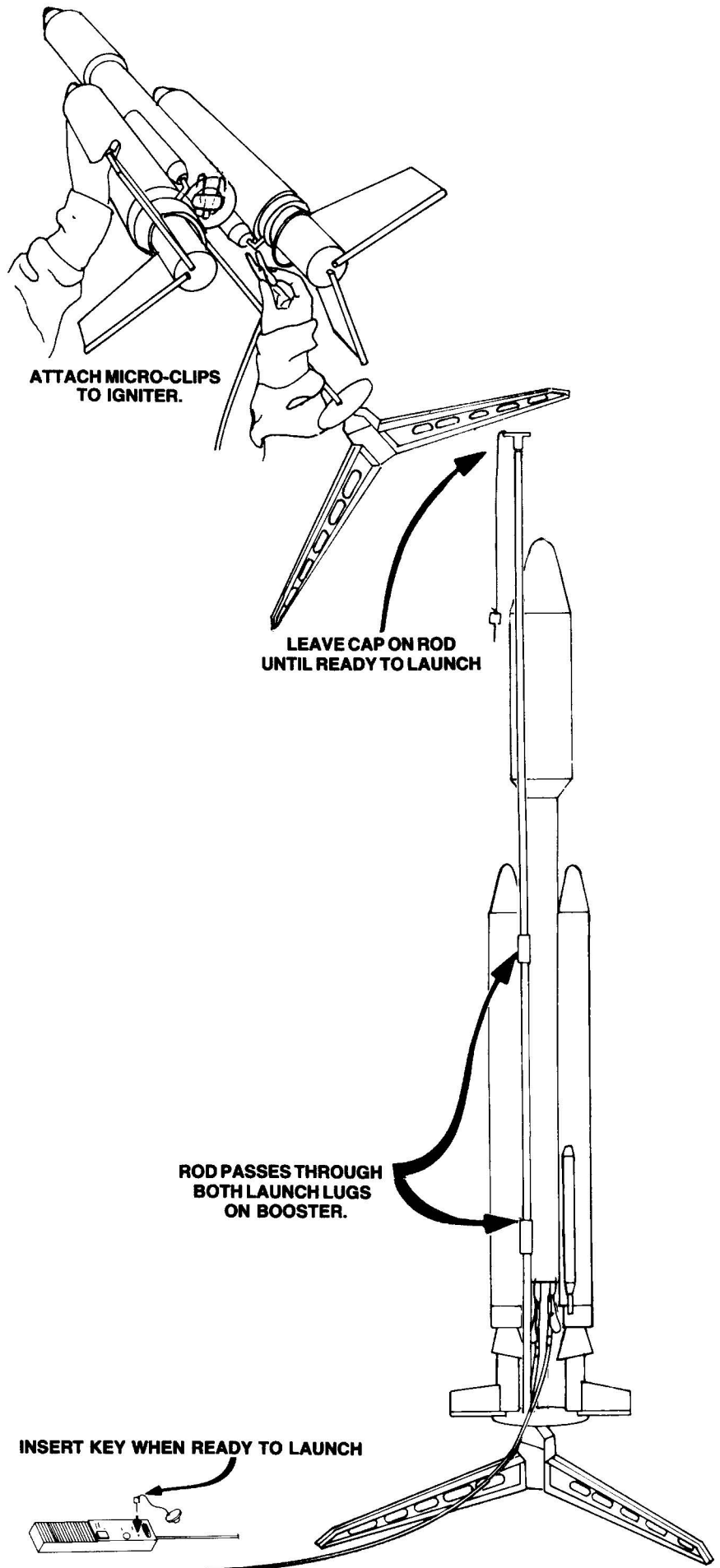
Failure of the model rocket engine to ignite is nearly always caused by incorrect igniter installation. An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

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

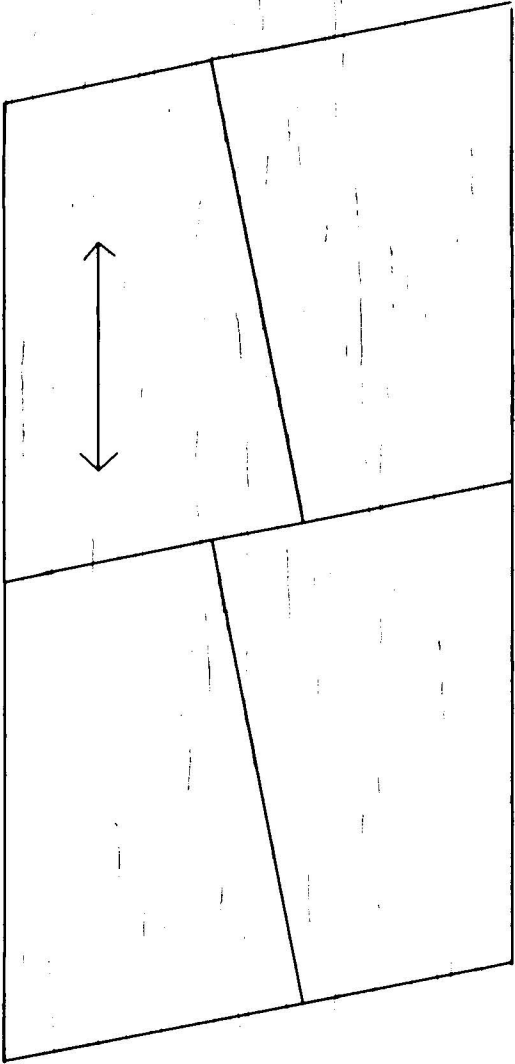


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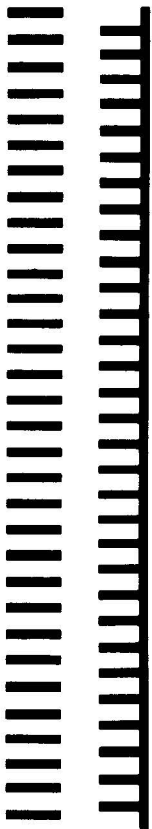
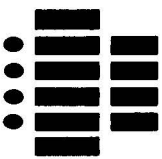
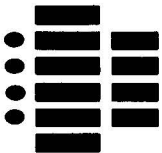
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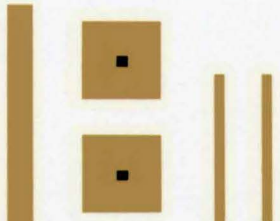
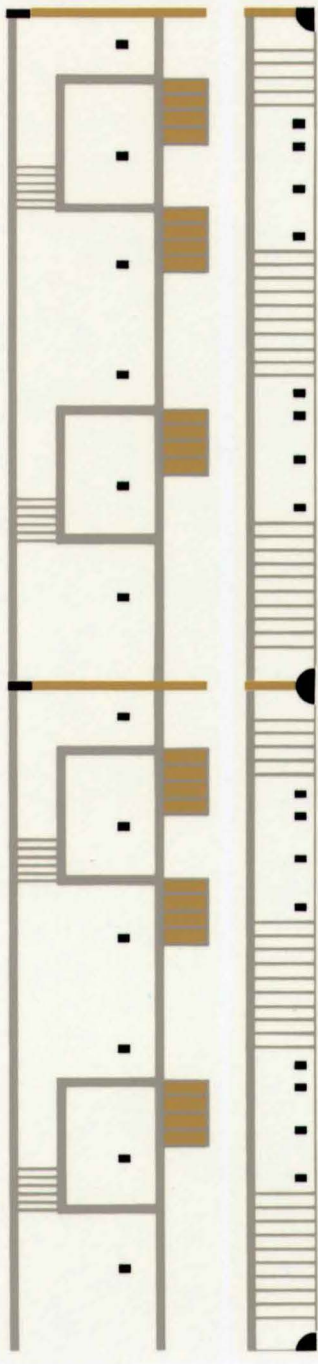
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ESTES PN 37349



ESTES PN 37348



UNITED STATES
UNITED STATES



1 Inch

1 Inch

1 Inch

1 Inch

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1 Inch

TITAN III E

FLYING MODEL ROCKET

SKILL LEVEL 4



1/75 Scale Model of
Marshall Spaceflight Center's Heavy Lift
Space Launch Vehicle
Challenging to Construct
Almost 2 1/2 Feet Tall



Shown "Blow Off" Model is Shown with Plastic Grains Engine
Motors in Place for True Scale Appearance

NOTE: THIS IS A PLASTIC MODEL KIT. IT DOES NOT INCLUDE ANY ENGINE MOTORS OR GRAINS. IT IS A MODEL KIT.

Both Engine Grains and Motors are
Available. A Complete "Blow Off"
Model is Also Available. See
Instructions for Details.

This is a Model of a Heavy Lift Vehicle
Designed and Built by NASA. It is
Not a Rocket and Does Not Fly. It is a
Model.

1. Minimum Age: 14
Minimum Age for Construction
Minimum Age for Construction for Sale
Minimum Age for Construction for Sale
Minimum Age for Construction for Sale

MADE IN THE USA
MADE IN USA



A CORONA COMPANY