

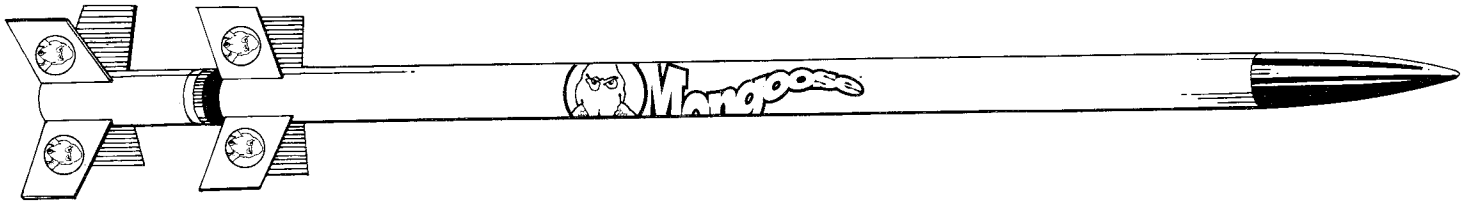


ESTES INDUSTRIES  
1295 H STREET  
PENROSE, CO 81240 USA

**BETA**  
SERIES

**MONGOOSE™**

**FLYING MODEL  
ROCKET KIT #2092**

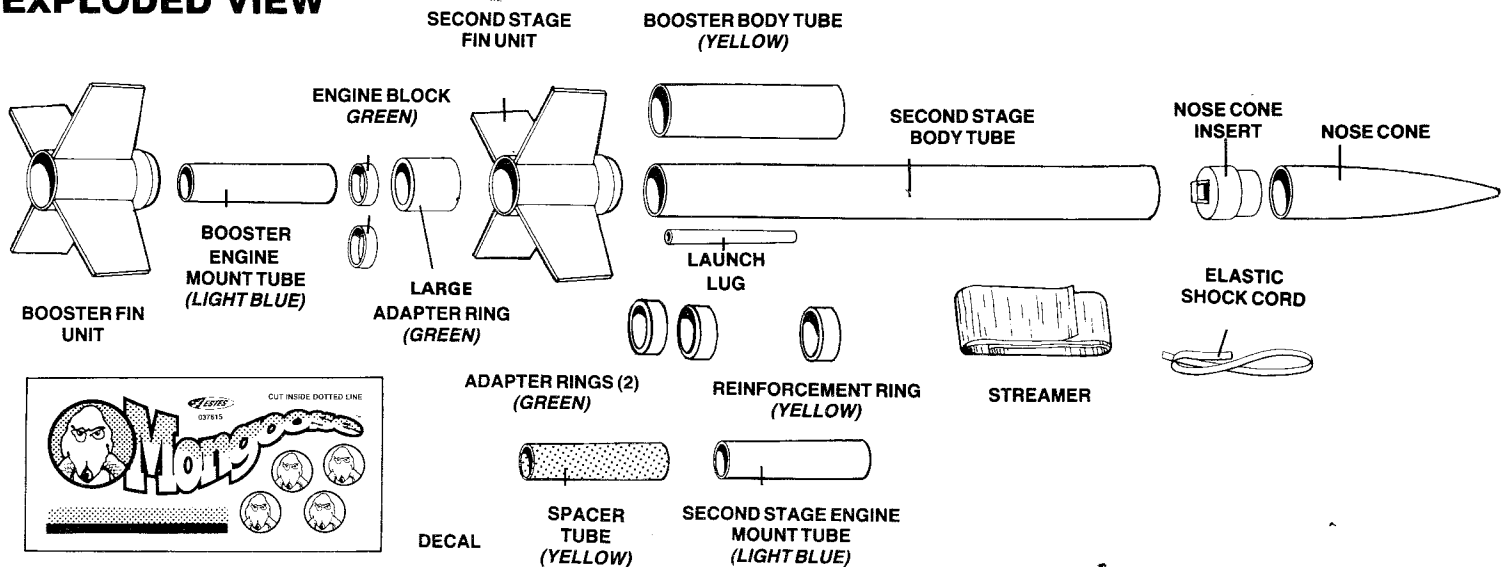


## HOW TO USE THESE INSTRUCTIONS:

### READ ALL INSTRUCTIONS BEFORE STARTING WORK ON THIS MODEL

- A. This rocket, incorporating basic model rocketry construction techniques, will help you in the development of your rocketry modeling skills.
- B. **Read each step first** and visualize the procedure thoroughly in your mind before starting construction.
- C. Lay parts out on the table in front of you. (Check inside tubes for any small parts.)
- D. Use exploded view to match all parts contained in kit.
- E. Collect all construction supplies that are not included in the kit.
- F. Shock cord mount is printed in the instructions and will be found on page 7 in the patterns section.
- G. Test fit parts before applying any glue.
- H. Sand parts as necessary for proper fit.
- I. The construction supplies required for each step are listed at the beginning of each step.
- J. Check off each step as you complete it.

## EXPLODED VIEW



## **EXTREMELY IMPORTANT: THE EXPLODED VIEW IS FOR REFERENCE ONLY! DO NOT USE THIS DRAWING ALONE TO ASSEMBLE THIS MODEL.**

The exploded view is only intended to assist you in locating the parts included in this kit. Refer back to this exploded view as you build your model step by step. This method will help you to put the parts into perspective as you progress through the construction.

## CONSTRUCTION SUPPLIES

In addition to the parts included in your kit, you will need these construction supplies. Each step shows which supplies will be required.



PENCIL



KNIFE



GLUE  
(white or yellow)



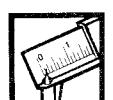
RULER



SCISSORS



PLASTIC  
CEMENT

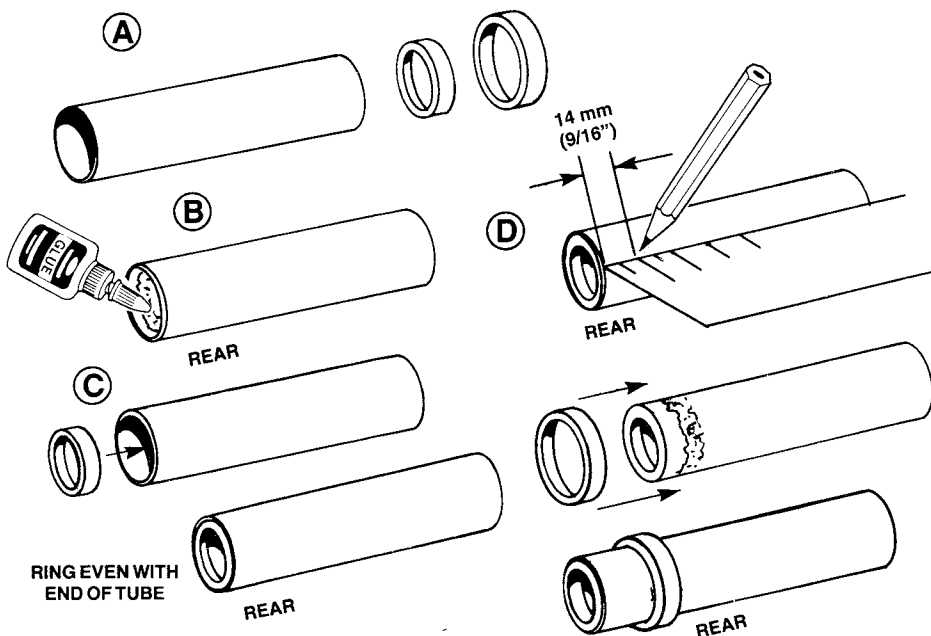


OPTIONAL: ROCKET  
BUILDER'S GUIDE  
EST 2227

## 1. BOOSTER ENGINE MOUNT ASSEMBLY



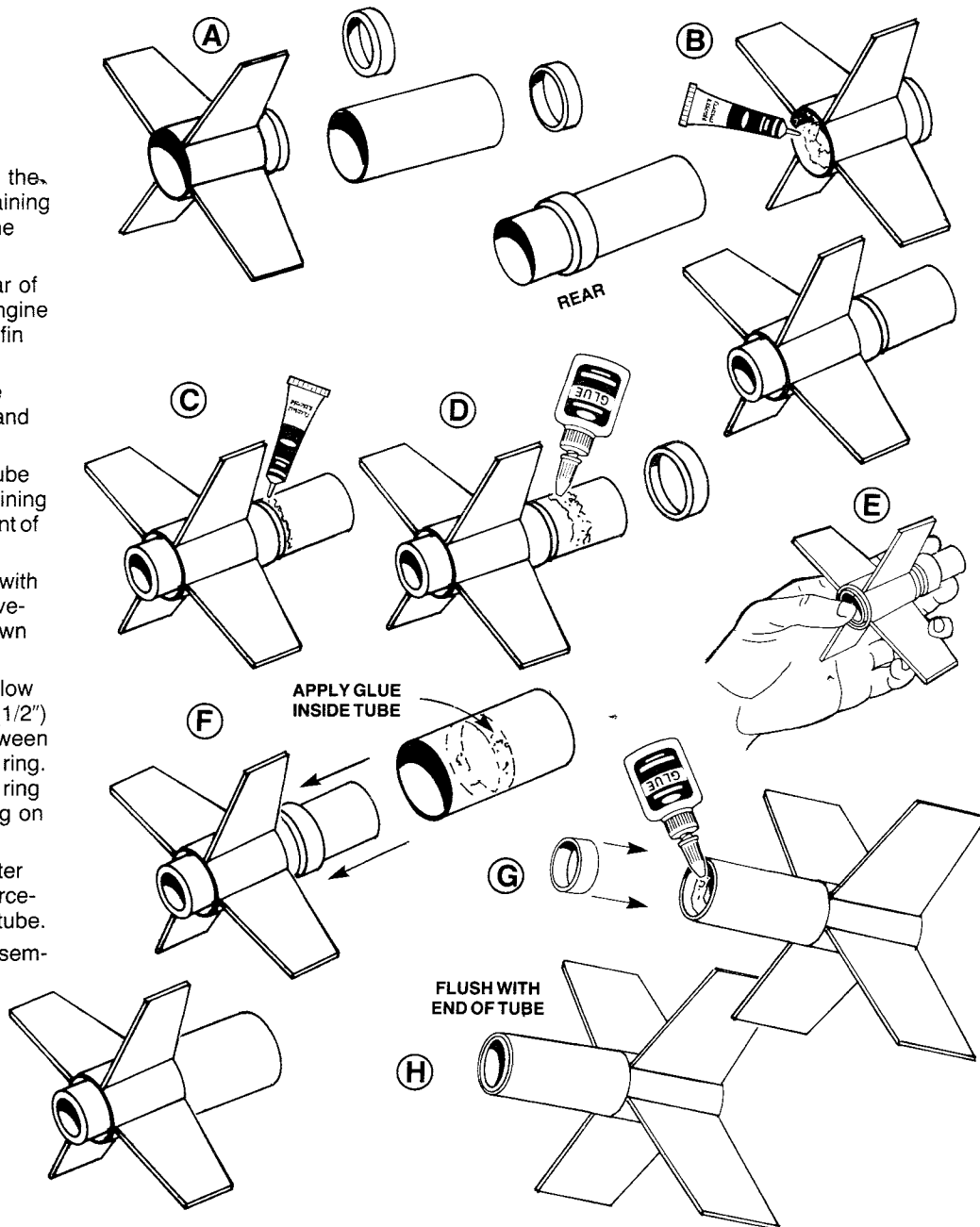
- A.  Locate one of the light blue engine mount tubes, one of the green engine blocks and one of the green adapter rings.
- B.  Apply glue around inside of one end of the light blue engine mount tube.
- C.  Push the green engine block into this end of the engine mount tube until it is even with the end of the tube. This end of the tube is now the rear of the booster engine mount tube.
- D.  Mark engine mount tube 14 mm (9/16") from the rear. Apply glue around end of the tube and slide one of the green booster adapter rings on the end of the tube rear up to 14 mm (9/16") mark.



## 2. BOOSTER FIN ASSEMBLY



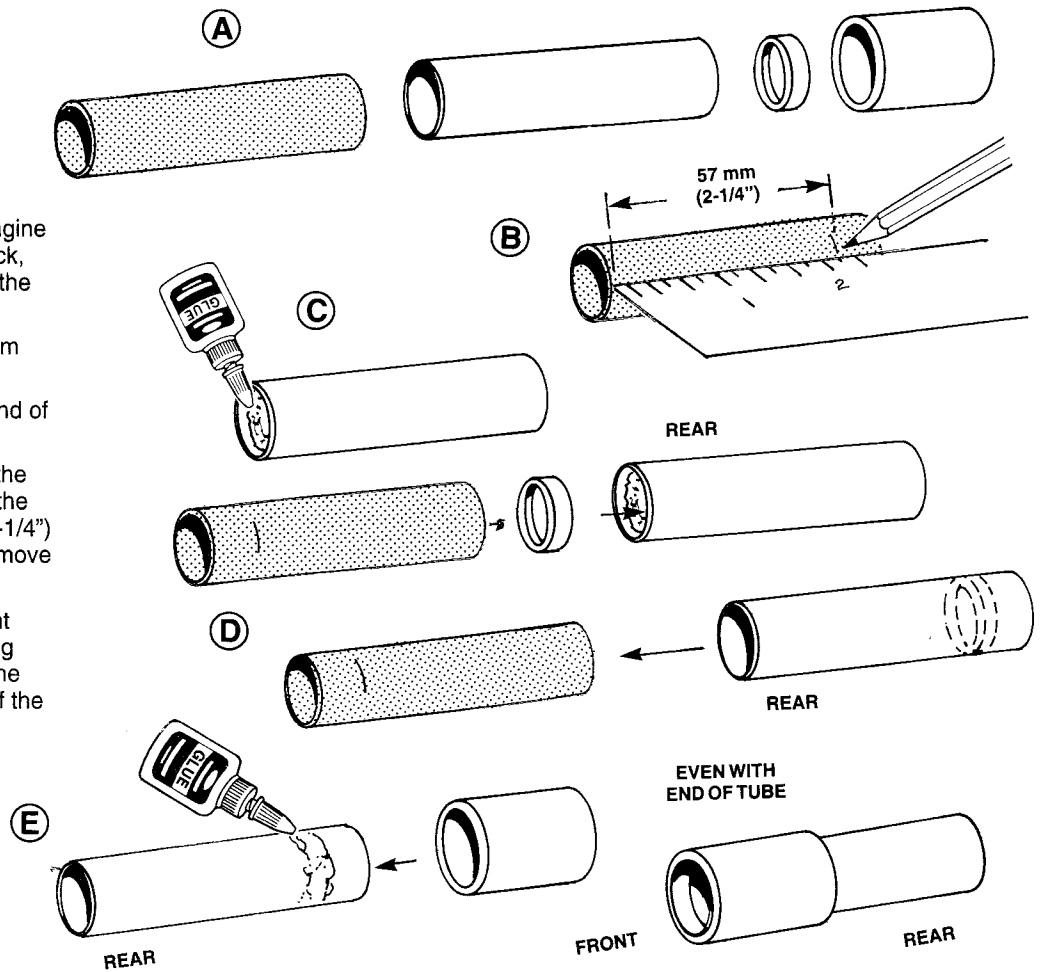
- A.  You will need the booster fin unit, the yellow reinforcement ring, the remaining green booster adapter ring and the yellow booster body tube.
- B.  Apply plastic cement to inside rear of fin assembly. Slide the booster engine mount assembly into the booster fin unit, all the way in.
- C.  Apply plastic cement between the booster engine mount assembly and the booster fin assembly.
- D.  Apply glue to the engine mount tube forward of the fin unit. Slide remaining green booster adapter ring onto front of engine mount tube.
- E.  Hold engine mount tube in place with thumb and in one continuous movement, slide green adapter ring down until it touches the fin unit.
- F.  Apply glue inside one end of the yellow booster body tube about 13 mm (1/2") from end. Apply plastic cement between plastic fin unit and green adapter ring. Push body tube over the adapter ring and fin unit until body tube is snug on fin unit.
- G.  Apply glue to inside front of booster body tube and push yellow reinforcement ring even with end of body tube.
- H.  This now completes the booster assembly. Set aside to dry.



### 3. SECOND STAGE ENGINE MOUNT ASSEMBLY



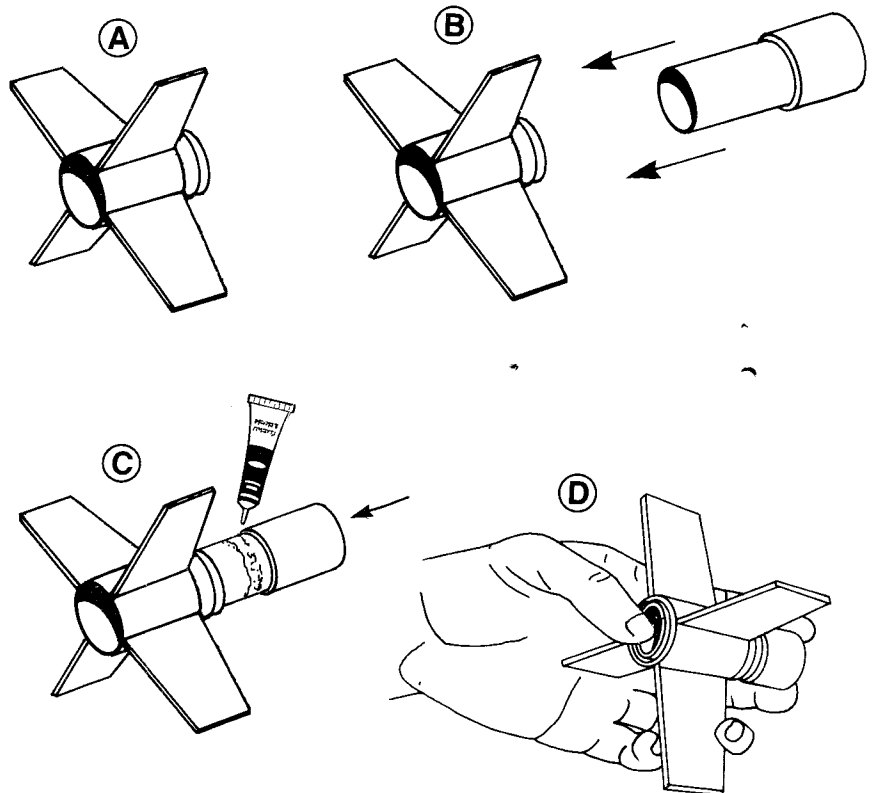
- A.  Locate the remaining light blue engine mount tube, the green engine block, the large green adapter ring, and the yellow spacer tube.
- B.  Mark the yellow spacer tube 57 mm (2-1/4") from one end.
- C.  Apply glue around inside of one end of the light blue engine mount tube.
- D.  Push the green engine block into the light blue engine mount tube with the yellow spacer tube until 57 mm (2-1/4") mark is even with end of tube. Remove spacer immediately.
- E.  Apply glue to front of engine mount tube. Slide large green adapter ring onto the engine mount tube until the front of the ring is even with end of the engine mount tube.



### 4. SECOND STAGE FIN ASSEMBLY

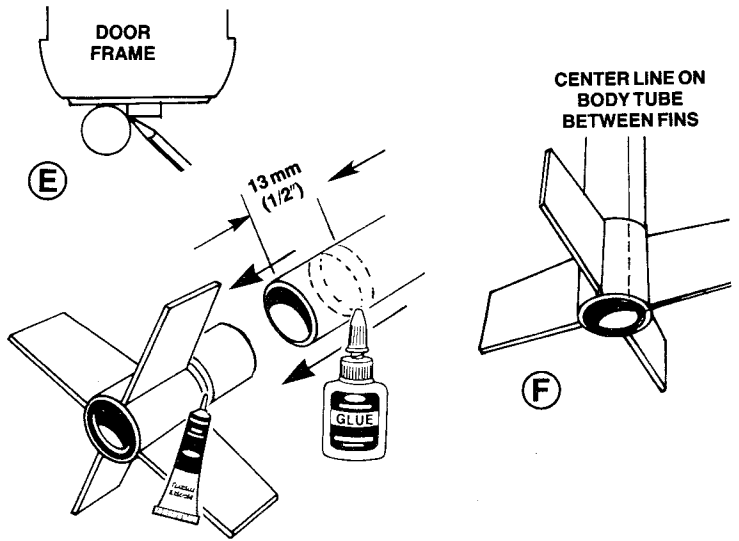


- A.  You will need the second stage fin unit and the second stage engine mount.
- B.  Slide the second stage engine mount assembly into the second stage fin unit, but not all the way in.
- C.  Apply plastic cement between the engine mount assembly and the second stage fin assembly.
- D.  Slide the engine mount assembly all the way into the fin unit until the green adapter ring touches the fin unit. Wipe away any excess cement from joint.





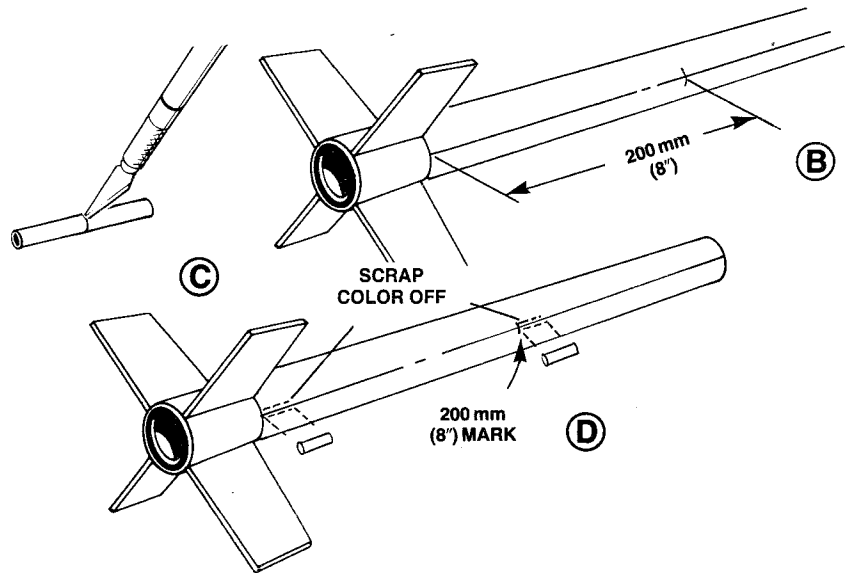
- E.  Using a door frame as a guide, lightly draw a straight line along the entire length of the body tube. You may wish to use Estes' new Rocket Builder's Marking Guide (EST 2227) in place of a door frame.
- F.  Apply glue inside one end of long yellow second stage body tube about 13 mm (1/2") from end. Apply plastic cement between plastic fin unit and green adapter ring. Center the line on body tube between two fins. Push body tube over the green adapter ring and fin unit until body tube is snug on fin unit.



## 5. LAUNCH LUG ATTACHMENT



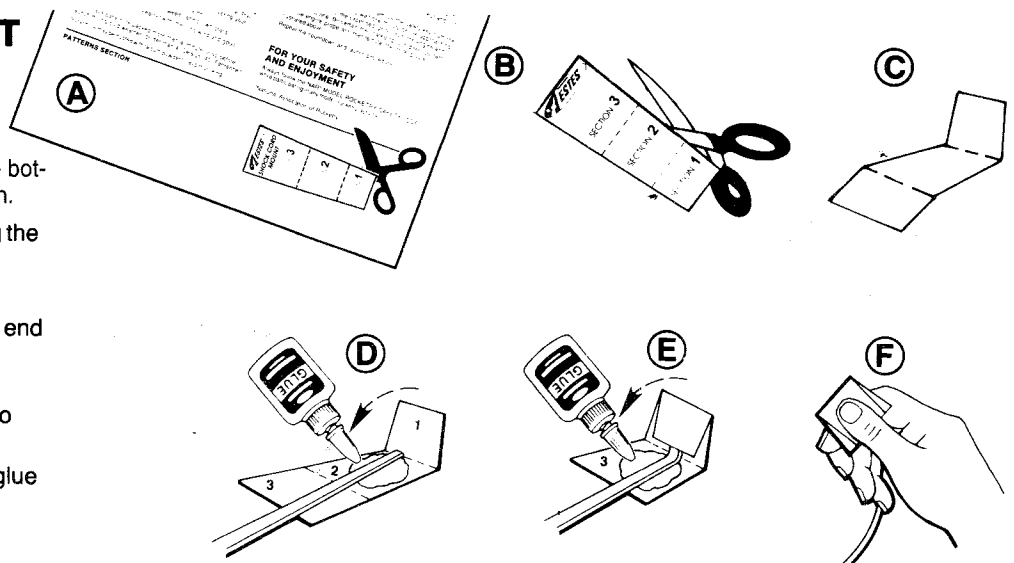
- A.  Cut launch lug into two equal 13 mm (1/2") lengths with a sharp knife paying careful attention not to crush the launch lug.
- B.  Measure approximately 200 mm (8") from fin unit body tube joint along the line you drew down the body tube.
- C.  Scrap color off body tube in the launch lug attachment locations.
- D.  Apply glue to one of the launch lugs and attach it to the body tube at the body tube/fin unit joint. Sight along tube to be sure that the launch lug is straight with body.
- E.  Apply glue to the other launch lug and attach it to the body tube at the 200 mm (8") mark. Sight along tube to be sure that lug is straight with body. After glue is dry, erase any pencil line remaining on tube.



## 6. SHOCK CORD MOUNT ASSEMBLY



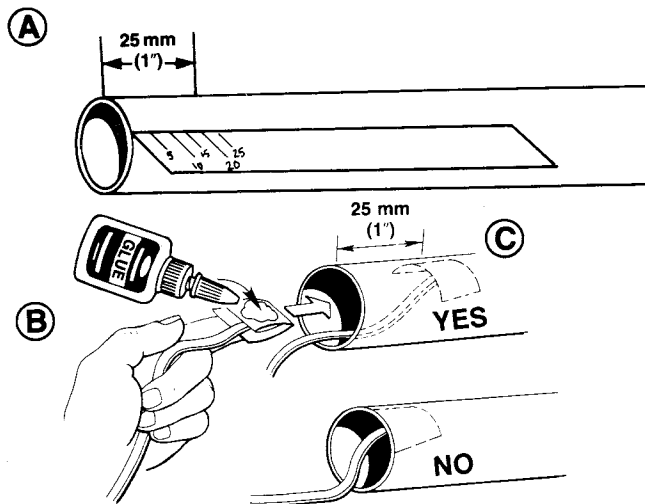
- A.  Locate the shock cord mount on the bottom of page 7 in the patterns section.
- B.  Cut out the shock cord mount along the solid black outline.
- C.  Crease on dotted lines by folding.
- D.  Spread glue on section 2 and lay end of shock cord into glue at a slight diagonal as shown.
- E.  Fold section forward. Apply glue to section 3. Fold forward again.
- F.  Clamp firmly with your fingers until glue dries.



## 7. SHOCK CORD MOUNT ATTACHMENT



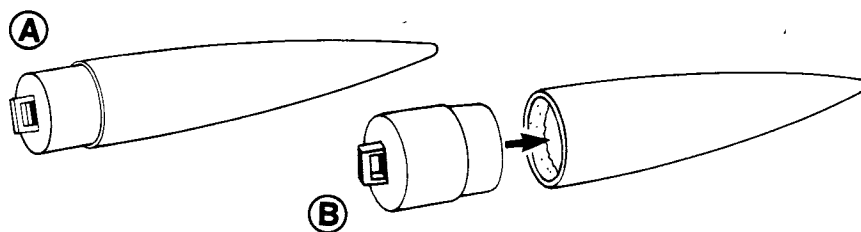
- A.  Measure approximately 25 mm (1") from the front end of the body tube.
- B.  Apply glue to shock cord mount and insert into tube.
- C.  Set the mount back at least 25 mm (1") to allow for nose cone clearance and press mount firmly into glue as shown.
- D.  Hold until glue sets.



## 8. NOSE CONE ASSEMBLY



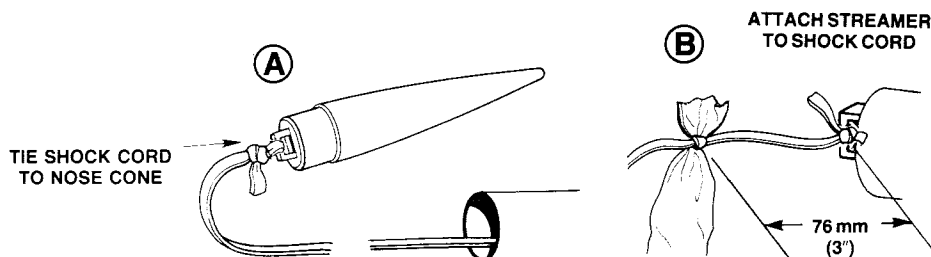
- A.  Test fit the nose cone insert into the nose cone. Do not glue at this time. Remove the insert.
- B.  Apply plastic cement as shown in the illustration and assemble the nose cone and insert pieces. Allow assembly to dry.



## 9. STREAMER AND SHOCK CORD ATTACHMENT TO NOSE CONE

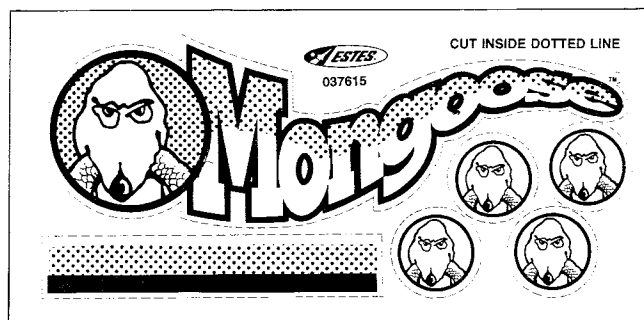


- A.  Tie shock cord to nose cone with a double knot.
- B.  Tie one end of streamer to shock cord approximately 76 mm (3") from nose cone.



## 10. FINISHING YOUR ROCKET

When all glue is completely dry, cut out self-adhesive decals inside of dotted lines. Apply decals to rocket. Refer to illustration on front of the color panel for decal placement.

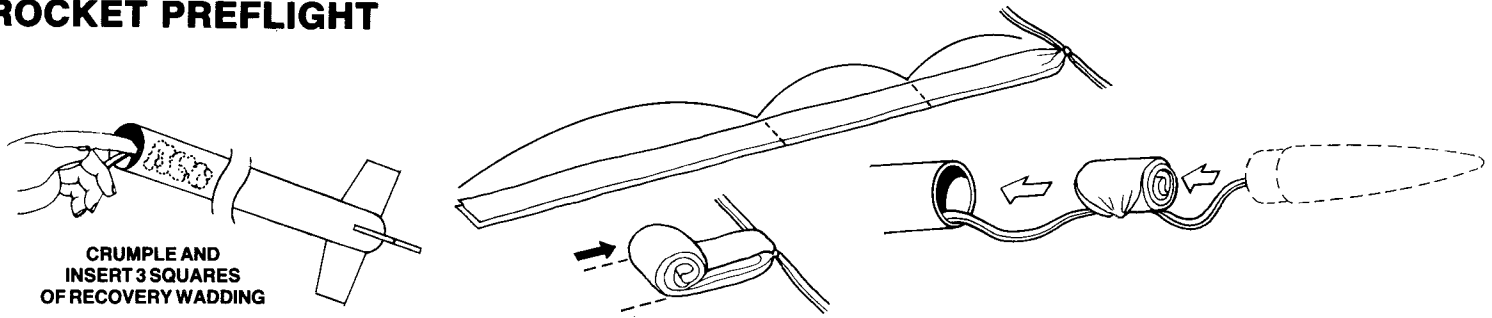


## WHAT TO EXPECT WHEN FLYING YOUR MONGOOSE™ ROCKET

The engines suggested for this kit will give you a wide range of performance. This rocket can be flown single stage with A8-3, B4-4, B6-4, B8-5 and C6-5 engines. The A8-3 (recommended for the first flight) will boost your rocket approximately 76-91 meters (250-300 feet). Expect approximately 305 meters (1000 feet) of altitude on a C6-5. If flown with two stages, the performance will increase dramatically. Remember to "size" your engine selection for the field in which you are flying. "A" engines are ideal for base-

ball fields, whereas "C" engines may require an area twice the size of a football field. If flown two stage, this increases the area needed to twice the size minimum. At apogee (the highest point of your rocket's flight), the streamer will eject. If it is breezy, your rocket may drift a considerable distance. Remember to fly only in light winds. Keep this in mind when you make your engine selection and combinations for two stage flights. In breezy conditions, the two stage rocket may "windcock" (tilt into the wind) during flight.

# ROCKET PREFLIGHT



CRUMPLE AND INSERT 3 SQUARES OF RECOVERY WADDING

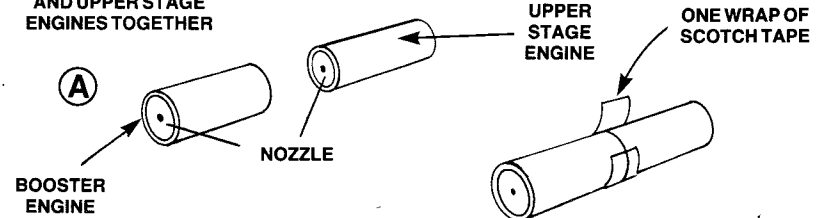
## PREPARE ENGINE

NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.

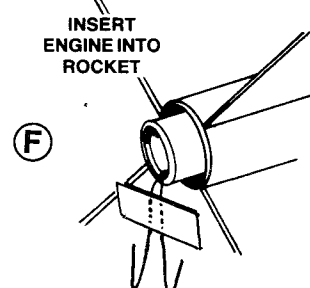
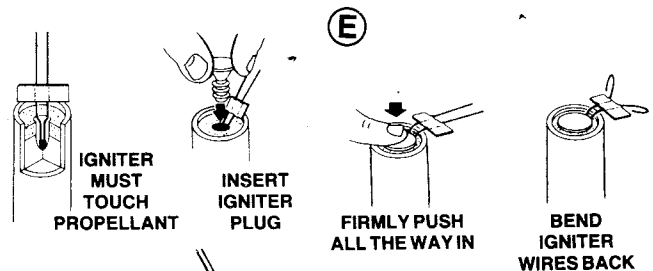
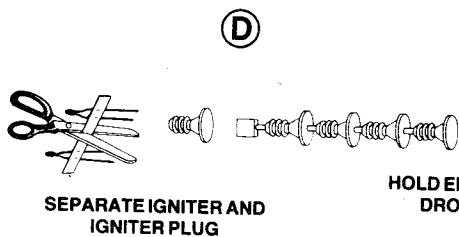
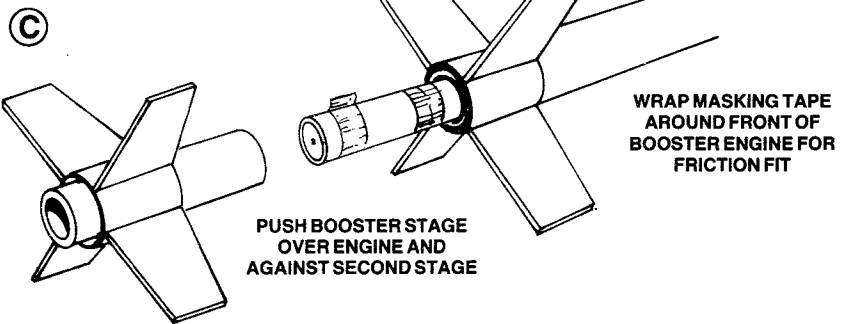
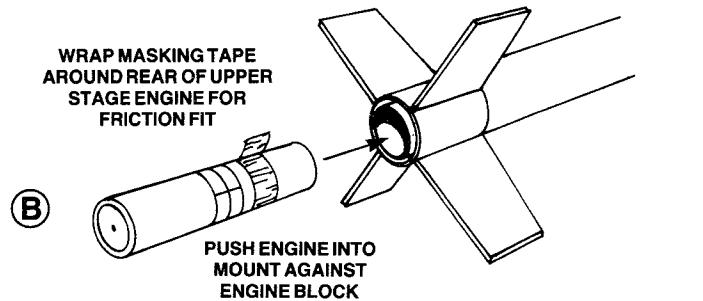


- A. Tape booster engine and upper stage engines together.
- B. Wrap masking tape around rear of upper stage engine for friction fit.
- C. Wrap masking tape around front of booster engine for friction fit.
- D. Separate the igniters.
- E. Insert igniter into booster engine.
- F. Fold over and bend tips.

TAPE BOOSTER ENGINE AND UPPER STAGE ENGINES TOGETHER



WRAP MASKING TAPE AROUND REAR OF UPPER STAGE ENGINE FOR FRICTION FIT



## LAUNCH SUPPLIES

To launch your rocket you will need the following items:

- Estes Electrical Launch Controller and Launch Pad
- Estes Recovery Wadding No. 2274
- Recommended Estes Engines:
  - Single Stage - A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5
  - Two Stage Booster - B6-0 (First Flight), C6-0
  - Second Stage - A8-5 (First Flight), B4-6, B6-6, C6-7

To become familiar with your rocket's flight pattern, use an A8-3 engine for your first flight. **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 76 meters (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 4° Celsius (40° Fahrenheit)].

Streamer may be dusted with talcum powder to avoid sticking.

## MISFIRES

If the igniter functions properly but the propellant does not ignite, keep in mind the following: 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 reinstall the igniter plug as illustrated above. Repeat the countdown and launch procedure.

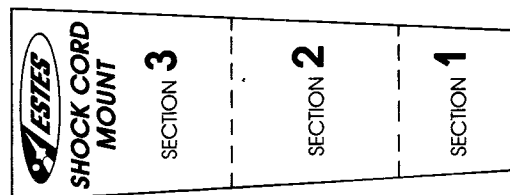
## FOR YOUR SAFETY AND ENJOYMENT

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

\*National Association of Rocketry

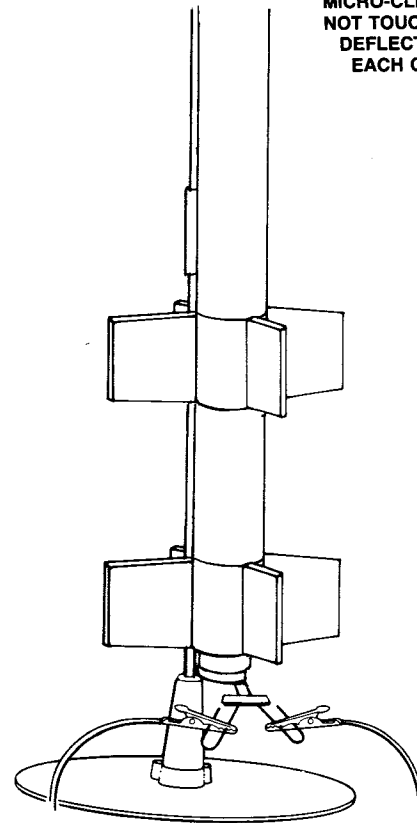
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### PATTERNS SECTION



**SAFETY KEY MUST NOT BE IN LAUNCH CONTROLLER WHEN ATTACHING MICRO-CLIPS TO ENGINE IGNITERS**

**MICRO-CLIPS MUST NOT TOUCH BLAST DEFLECTOR OR EACH OTHER**



## COUNTDOWN AND LAUNCH

- ⑩ BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- ⑨ 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.
- ⑧ 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.
- ⑦ Move back from your rocket as far as launch wire will permit (at least 5 meters - 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 FROM LAUNCH CONTROLLER. KEEP SAFETY KEY WITH YOU OR REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

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**If you use the Estes E2™ or Command Control™ Launch Controllers to fly your models, use the following launch steps.**

- A. After attaching micro-clips, etc., insert the safety key into the controller receptacle. If the igniter clips have been attached properly to the igniter, the audio continuity indicator will beep on and off.
- B. Hold the yellow (left) arm button down. The audio indicator will produce a steady tone.
- C. Verbally count down from five to zero loud enough for the bystanders to hear. Still holding the yellow arm button down, push and hold the orange (right) button down until the rocket ignites and lifts off.

