



ESTES INDUSTRIES (6-97) 84347  
 1295 H Street  
 Penrose, CO 81240 EST 2092

**BETA**<sup>TM</sup>  
**SERIES**  
 SKILL LEVEL 1

# MONGOOSE<sup>TM</sup>

## FLYING MODEL ROCKET KIT INSTRUCTIONS

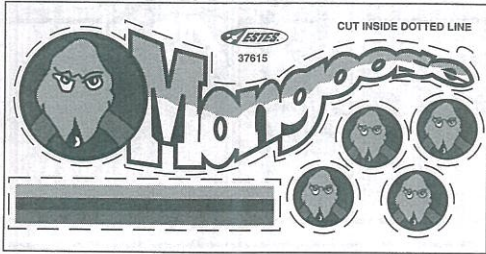
### MATERIALS REQUIRED:

PENCIL, HOBBY KNIFE, WHITE OR YELLOW GLUE, PLASTIC CEMENT, MASKING TAPE, CELLOPHANE TAPE (Scotch<sup>TM</sup>), PAPER TOWEL, RULER, SCISSORS  
 (Scotch is a registered trademark of 3M Company.)

**ALL GLUED AREAS ARE SHADED IN GRAY**

BE SURE TO READ ALL INSTRUCTIONS, TEST FIT ALL PARTS, AND SAND IF NECESSARY BEFORE GLUING

### PARTS LAYOUT



DECAL SHEET (1)  
37615

MAGENTA NOSE CONE 50YR (1)  
72650

NOSE CONE ADAPTER 50YR (1)  
72605

BLUE ENGINE MOUNT TUBES 20J (2)  
30326-1

YELLOW BODY TUBE (1)  
30355

GREEN ADAPTER RING 2050L (1)  
30165-2

YELLOW REINFORCEMENT RING 50S (1)  
30154-4

GREEN CENTERING RINGS 2050 (2)  
30164-2

GREEN ENGINE BLOCK RINGS 520 (2)  
30162-2

LAUNCH LUG LL2A (1)  
38175

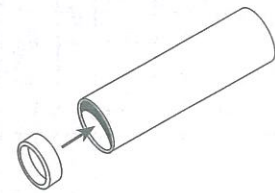
YELLOW BOOSTER BODY TUBE (1)  
30356

MAGENTA FIN UNITS (2)  
72651

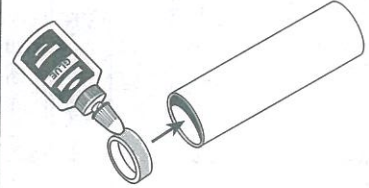
SHOCK CORD (1)  
38374

STREAMER 1/8 x 30 (1)  
38278

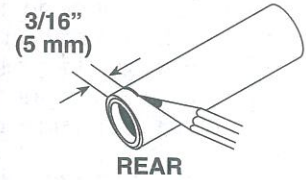
## 1. BOOSTER ASSEMBLY



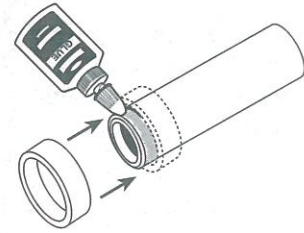
A. Test fit one of the small green engine block rings into the end of one blue engine mount tube. Then remove ring.



B. Apply glue to the outside edge of the green engine ring and slide it onto the blue engine mount tube. Their ends are



C. Mark the rear tube at 3/16" (5 mm) from the rear of the engine block ring.



D. Apply glue around the rear end of the tube and slide one of the green centering rings onto the tube. The glue you can just see. Let dry completely.



TOP VIEW

A. Use a door frame to draw a straight line down the length of the body tube.

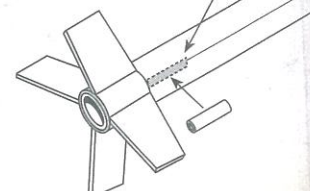


B. Mark the rear of the tube at 8" from the rear of the tube.

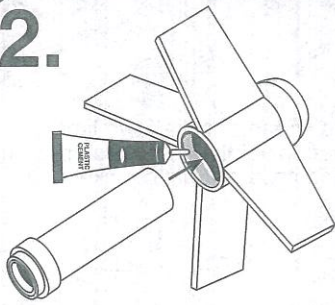


D. Use your hobby knife to cut the launch lug into two equal lengths. Be careful not to crush the launch lug.

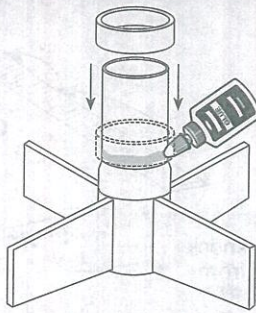
SCRAPE COLOR OFF



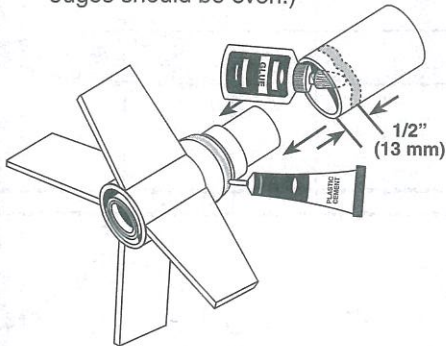
## 2.



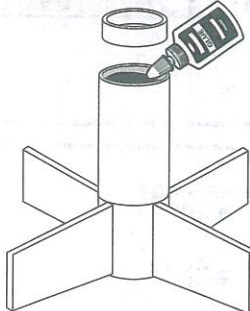
**A.** Test fit the engine mount into one of the plastic fin units from the rear, remove, then apply plastic cement inside the rear of the plastic fin unit and slide the engine mount in as shown until the tube stops (the rear edges should be even.)



**B.** Apply glue to the engine mount just forward of the fin unit. Stand the assembly on a flat surface, and slide the other green centering ring down the tube until it rests snugly against the shoulder of the fin unit. Wipe away any excess glue and let dry.

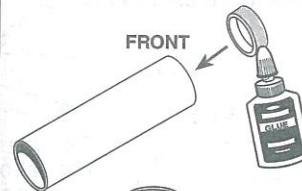


**C.** Apply a ring of glue inside the yellow booster body tube about 1/2" (13 mm) from the end, apply a small amount of plastic cement to the shoulder of the fin unit, and slide the booster body tube down over the shoulder until it touches the fin unit. **IMMEDIATELY WIPE AWAY ANY EXCESS PLASTIC CEMENT.**

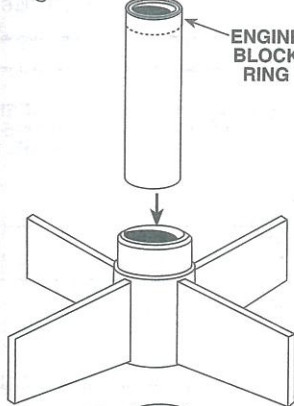


**D.** Apply glue just inside the front of the booster body tube and slide the **yellow** reinforcement ring into the tube until the ends are even. Set assembly aside to dry.

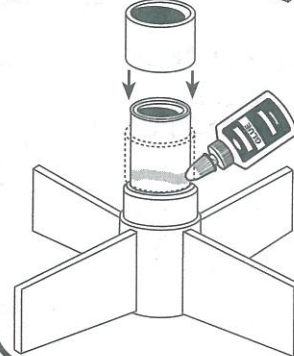
## 3. UPPER STAGE ASSEMBLY



**A.** Test fit the other small green engine block ring into one end of the other blue engine mount tube. Remove the ring, apply glue to the outside edge of the engine block ring, and slide ring into tube until the ends are even. This is now the **FRONT** of the tube.



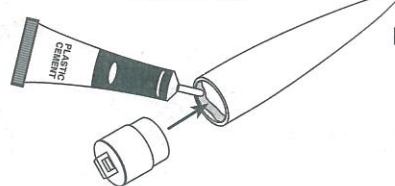
**B.** Set the other fin unit on a flat surface and slide the engine mount into the front of the fin unit as shown until the rear edges are even. **BE SURE TO NOTE THE POSITION OF THE ENGINE BLOCK!**



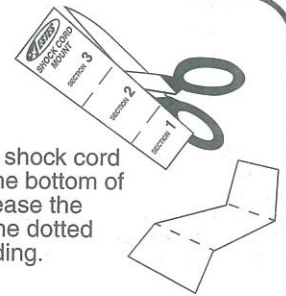
**C.** Slide the long green adapter ring part of the way onto the front of the engine mount tube. Apply glue to the tube as shown and in one continuous motion slide the adapter ring down the tube until it rests snugly against the fin unit. **DO NOT STOP SLIDING THE RING MID-WAY AS IT WILL CATCH IN THE GLUE AND GET STUCK.** Wipe away any excess glue and let dry.

## 5.

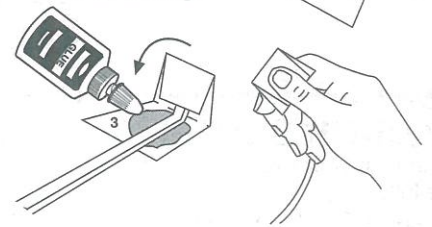
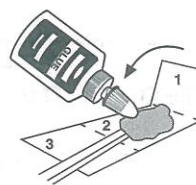
**A.** Apply a ring of plastic cement just inside the nose cone and insert nose cone adapter. Let dry completely.



**B.** Cut out the shock cord mount on the bottom of page 2. Crease the mount on the dotted lines by folding.

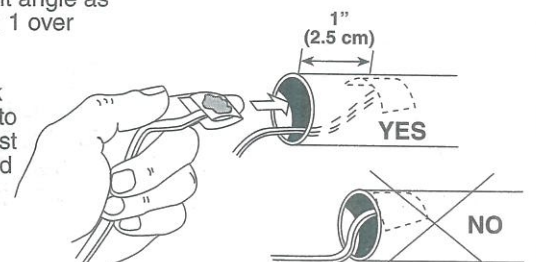


**C.** Spread glue on section 2 of the mount and lay one end of shock cord into glue at a slight angle as shown and fold section 1 over section 2.



**D.** Apply glue to section 3. Fold forward again and clamp firmly until glue sets.

**E.** Apply glue to the shock cord mount and insert into front of body tube at least 1" (2.5 cm) from the end to allow for nose cone clearance. Let dry.



**C.** Apply a small amount of plastic cement to the shoulder of the upper stage fin unit and a ring of glue inside the body tube about 1/2" (13 mm) from the rear. Center the line you drew between two fins and slide the rear of the body tube down over the assembly until it rests snugly against the fin unit. **IMMEDIATELY WIPE AWAY ANY EXCESS PLASTIC CEMENT.**

**E.** Carefully scrape the color off the body tube at the launch lug attachment locations. Apply glue to the launch lugs, and apply where shown. Let glue set, then sight down the body tube to be sure the lugs are straight and aligned. Let dry completely. Gently erase the pencil line.

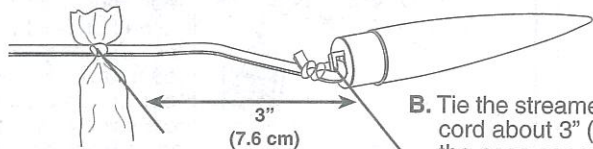
you just  
(20.3 cm) from  
end you  
now the  
tube.



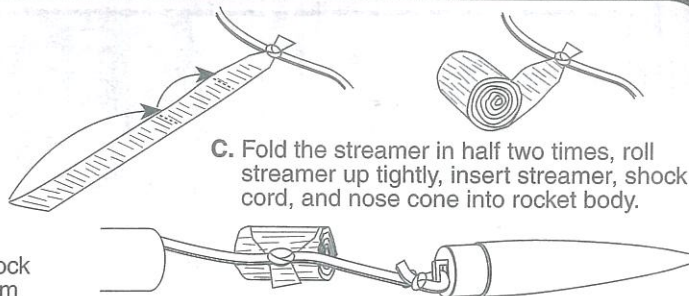
8"  
(20.3 cm)  
MARK

# 6.

A. Tie the shock cord to the nose cone with a double knot.



B. Tie the streamer to the shock cord about 3" (7.6 cm) from the nose cone.



C. Fold the streamer in half two times, roll streamer up tightly, insert streamer, shock cord, and nose cone into rocket body.

# 7. APPLYING DECALS

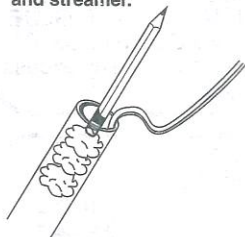
CAREFULLY CUT DECALS OUT JUST INSIDE DOTTED LINES AND REMOVE FROM BACKING SHEET ONE AT A TIME. REFER TO THE FRONT PANEL OF PACKAGE FOR DECAL PLACEMENT. WHEN POSITIONED CORRECTLY, RUB DOWN TO REMOVE BUBBLES.



# 8. FLYING YOUR ROCKET

## ROCKET PREPARATION

Remove nose cone, shock cord and streamer.



Crumple and insert three squares of recovery wadding. Repack and insert streamer, shock cord and nose cone.

## ENGINE PREPARATION

BOOSTER ENGINE

NOZZLE

A. Use cellophane (Scotch™) tape to tape a booster engine and an upper stage engine together as shown.

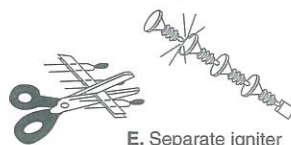
UPPER STAGE ENGINE

NOZZLE

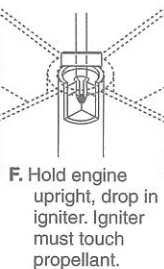
SCOTCH TAPE

B. Wrap masking tape around the rear of the upper stage engine and the front of the booster stage engine for friction fit into the engine tubes.

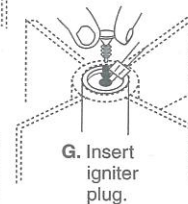
MASKING TAPE



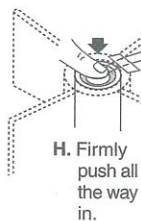
E. Separate igniter and igniter plug.



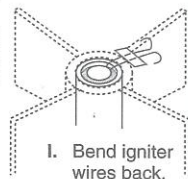
F. Hold engine upright, drop in igniter. Igniter must touch propellant.



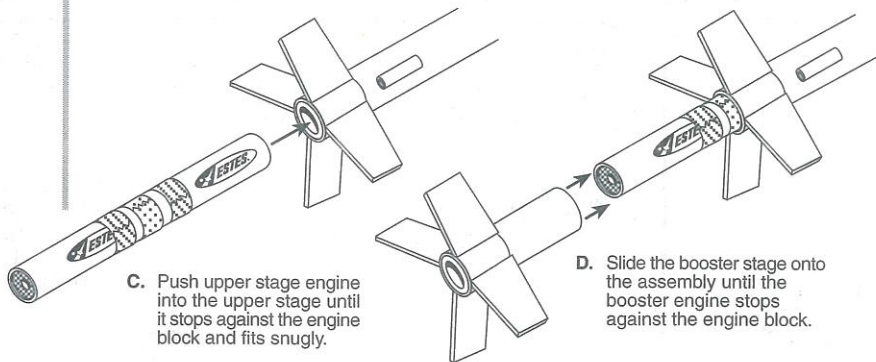
G. Insert igniter plug.



H. Firmly push all the way in.



I. Bend igniter wires back.



C. Push upper stage engine into the upper stage until it stops against the engine block and fits snugly.

D. Slide the booster stage onto the assembly until the booster engine stops against the engine block.

## LAUNCH SUPPLIES

To launch your rocket, you will need the following:

- Launch Pad (Estes Porta-Pad® II)
- Launch Controller (Estes Electron Beam®)
- Recommended Estes Engines: Single Stage Flights - A8-3 (first flight), B4-4, B6-4, C6-5; Two Stage Flights - B6-0 (first flight), C6-0; Second Stage - B6-6, C6-7

Use an A8-3 for your first single stage flight and a B6-0/B6-6 combination for your first two stage flight to become familiar with your rocket's flight pattern. Use only Estes products to launch this rocket.

## PROJECTED ALTITUDES

SINGLE STAGE	FEET	METERS
A8-3	110	34
B4-4	310	95
B6-4	340	104
C6-5	810	247
TWO STAGE	FEET	METERS
B6-0/B6-6	700	213
B6-0/C6-7	1315	400
C6-0/B6-6	1245	380
C6-0/C6-7	1630	497

## TIPS FOR FLYING YOUR ROCKET

- Choose a large field away from power lines, buildings, tall trees, and low flying aircraft. Try to find a field at least 250 feet (76 meters) square. The larger the launch area, the better your chance of recovering your rocket.
- 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 streamer packed more than a minute or so before launch during cold weather (colder than 40° Fahrenheit [4° Celsius]).
- Always follow the National Association of Rocketry (NAR) MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities. The safety code is enclosed with this kit.

ESTES  
SHOCK CORD  
MOUNT

SECTION

SECTION

SECTION