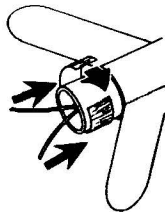




# COUNTDOWN CHECKLIST

**11** Select an engine and install an igniter as directed in the engine instructions. Insert engine into rocket. If necessary, apply a piece of tape to the engine to keep it from falling out of the rocket.



**10** Disarm the launch panel.

**9** Lower the rocket into position on the launch rod or rail. Clean the micro clips, then clip one to each lead of the igniter. The clips must not touch each other and the igniter leads must not cross. The rocket may be supported with a scrap of wood or an empty engine casing to make it easier to attach the clips and to keep the clips from touching the blast deflector plate and short circuiting.

**8** Clear the launch area, alert recovery crew and trackers.

**7** Check for low flying aircraft and unauthorized persons into recovery area.

**6** Arm the launch panel.

**-5 -4 -3 -2 -1 LAUNCH!!**

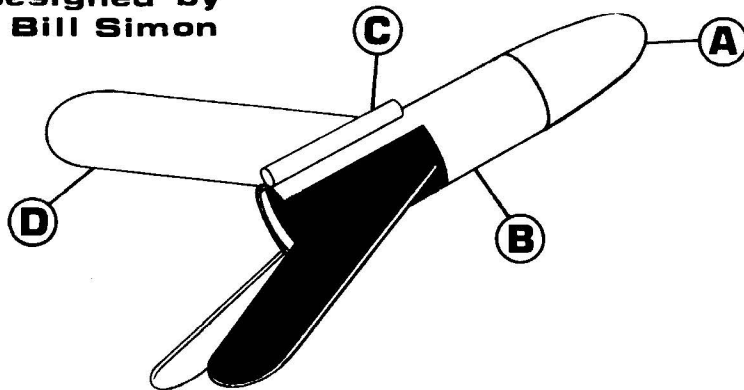
## MISFIRE PROCEDURE

Occasionally the igniter will heat and burn in two without igniting the engine. This is almost always caused by a failure to install it correctly. Disarm the launch panel, remove the model, clean the igniter residue from the nozzle, and install a new igniter. Follow the launching procedure again.



# MOSQUITO TK-1

Designed by  
**Bill Simon**



## PARTS LIST

- A** 1 Nose Cone.....BNC-5V
- B** 1 Body Tube.....BT-5BJ
- C** 1 Launch Lug..... LL-2A
- D** 1 Fin Sheet..... BFS-20B

**In addition to the materials above you will need scissors, a sharp knife or single edge razor blade, white glue, sandpaper and paint or dope.**

## RECOVERY NOTE

The MOSQUITO employs the featherweight recovery system in which the rocket expels its engine at peak altitude. The rocket returns to earth safely because it is very light and has a relatively high frontal area -- its force on landing is approximately equal to that of a one ounce weight dropped from ten inches above the ground. The engine returns in a safe manner since it is not stable and the drag on a tumbling object is quite high.

## ASSEMBLY INSTRUCTIONS

**1** Cut out marking guide and mark body as directed.

**2** Cut out fin pattern. Trace around it to mark 3 fins on balsa as shown. Cut out the fins with a sharp blade. Sand root edge square; sand leading and trailing edges to airfoil shape.

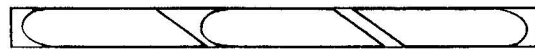
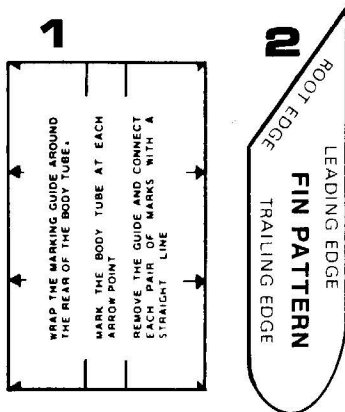
**3** Glue the fins to the body on the lines marked in Step 1.

**4** Glue the nose into the front of the body.

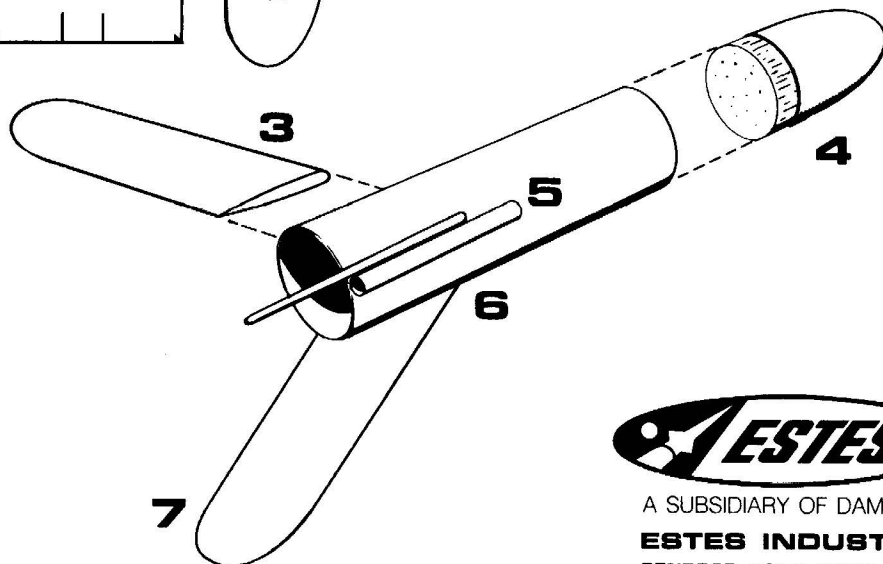
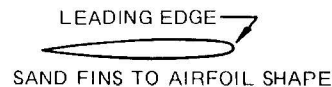
**5** Glue the launch lug to the body and a fin as shown.

**6** After the first glue on the fins has dried, apply a bead of glue to each fin-body corner and smooth out. Support model horizontally while the glue dries.

**7** To finish, apply one or more coats of sanding sealer to balsa surfaces (after all glue is dry), sanding smooth when each coat is dry. Paint your MOSQUITO a bright color.



TRACE PATTERN ON BALSA AS SHOWN



A SUBSIDIARY OF DAMON

**ESTES INDUSTRIES**

PENROSE, COLO. 81240



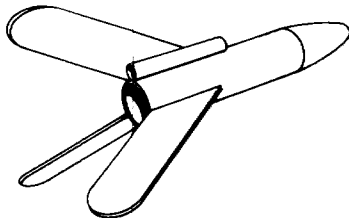


ESTES INDUSTRIES  
1295 H STREET  
PENROSE, CO 81240 USA

# Mosquito™ FLYING MODEL ROCKET KIT EST 0801

(8-94) 82205

## BETA SERIES

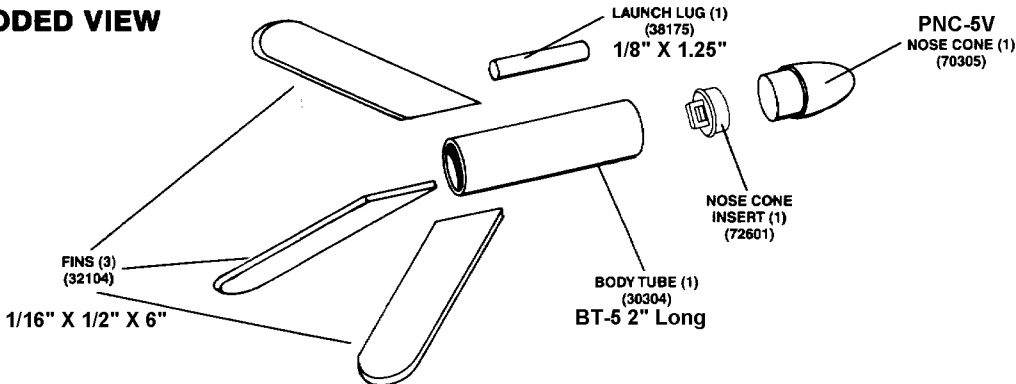


### HOW TO USE THESE INSTRUCTIONS:

#### 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. Fin marking guides and other patterns are printed in the instructions and will be found in the pages following.
- 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.



SCISSORS



PENCIL



HOBBY KNIFE



SANDPAPER



MASKING TAPE



WOOD GLUE  
(white or yellow)



TUBE-TYPE PLASTIC CEMENT



SANDING SEALER



SPRAY PAINT

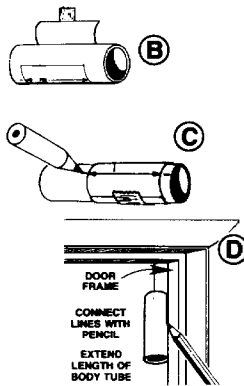
**GLUE IS APPLIED TO SURFACES SHOWN IN RED.**

# 1. TUBE MARKING DETAIL

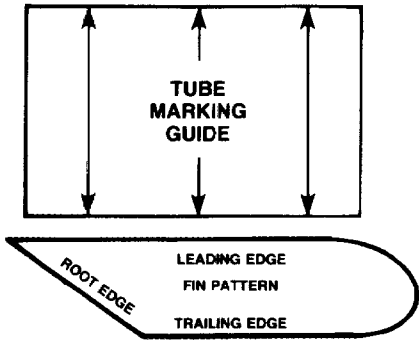


HINT: Fins can be attached easier by lightly sanding the body tube with #600 grit sandpaper. Do this before you mark the tube.

- A.  Locate the tube marking guide on the right in the patterns section. Cut the guide along the outline.
- B.  Wrap the guide around the body tube and tape it in place as shown.
- C.  Mark tube at all arrow locations. Remove marking guide.
- D.  Using a door frame as a guide, draw straight lines connecting each pair of fin marks.



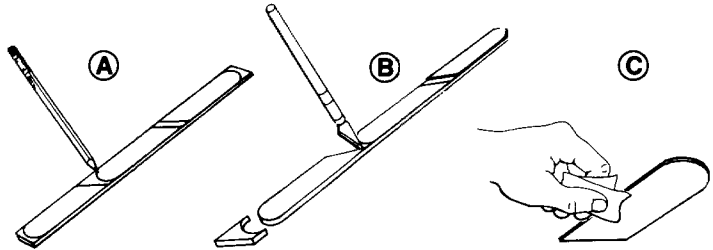
## PATTERNS SECTION



# 2. FIN PREPARATION



- A.  Cut out fin pattern from pattern section. Trace fins onto balsa sheet as shown.
- B.  Cut fins out carefully. Sand edges of fin smooth.
- C.  Optional: For a better-looking and higher-performing rocket, round the leading edges and trailing edges of each fin as illustrated. Sand root edge flat.



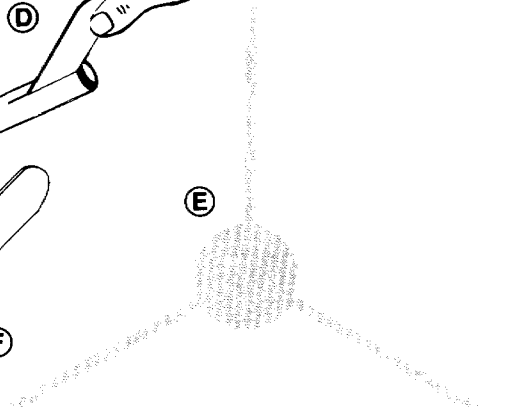
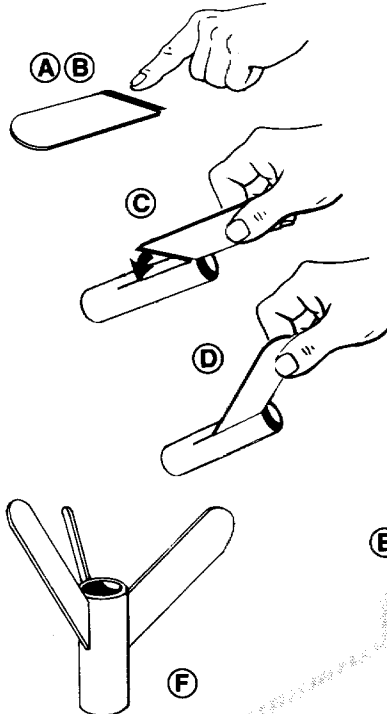
# 3. FIN ATTACHMENT



NOTE: Before gluing the fins, match the fin shape to the fin pattern. Identify the root edge that will be glued to the body tube and the front (leading) edge. This will help you attach your fins correctly.

**Remember:** Fins must be attached correctly for stable flights.

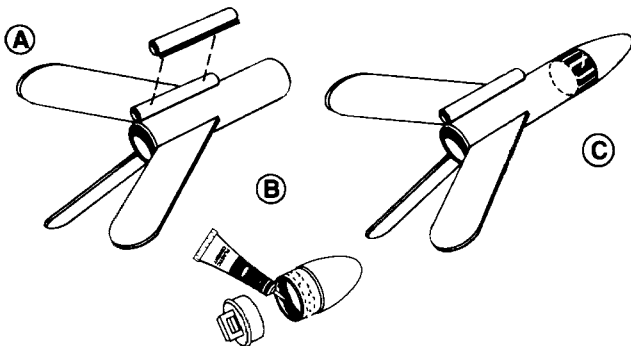
- A.  Rub a thin film of glue onto the root edge of fin. Allow it to set a minute or two to become tacky.
- B.  Apply a second thin film of glue to the root edge of fin.
- C.  Set the rear edge of the fin at end of the body tube. Gently press the root edge along the body tube fin line.
- D.  Carefully adjust the fin, if needed, so it will project straight up from body tube. Work slowly and carefully so as not to disturb the glue joint. Attach remaining fins in same manner. Do not set rocket on fins while glue is wet.
- E.  After all fins are attached, use shaded end view to check proper fin spacing.
- F.  Important: Stand rocket on table as shown. Allow fins to dry for five minutes before proceeding.



#### 4. NOSE CONE/LAUNCH LUG ATTACHMENT



- A.  Glue launch lug to body next to a fin with white glue.
- B.  Apply plastic cement inside the base of nose cone. Insert plastic insert into nose cone.
- C.  Apply plastic cement around the inside of the front of the body and glue nose cone in place.

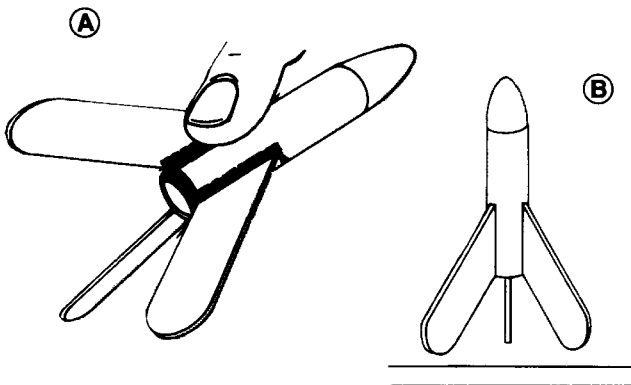


#### 5. GLUE REINFORCEMENT DETAIL



NOTE: Glue joint reinforcements or fillets are important because they help blend the fins, launch lugs or other components into the body tube. This blending improves the looks of your model, allows smoother air flow over your rocket during flight and strengthens the attachment points.

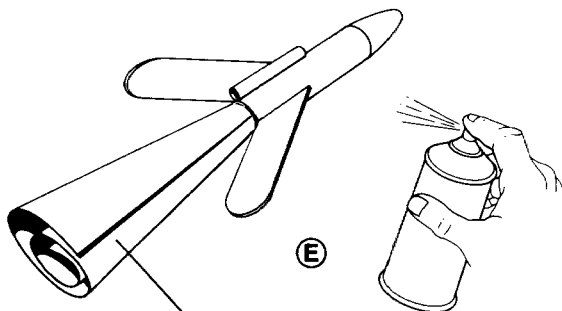
- A.  Reinforce each fin/body tube joint with glue and each side of launch lug as shown. Use your finger to help smooth the glue fillet.
- B.  Stand rocket on table as shown to allow glue to dry for approximately five minutes. Wipe away any excess glue that may run down the side of the body tube. Allow to dry.



#### 6. FINISHING YOUR ROCKET



- A.  Before you sand, seal or paint your rocket, make sure all of the glue joints are completely dry.
- B.  Optional: For increased performance and smoother finish, apply sanding sealer to the fins before painting. When the sealer is dry, sand, then seal and sand again.
- C.  Optional: For a smoother and better-looking finish, spray a coat of automotive primer on your rocket. Do not apply too much. Lightly sand the rocket with a 400 to 600 grit sandpaper. Apply another coat if needed. Sand between coats. The primer will allow the final coats of paint to adhere better to the rocket. Several light mist coats are preferable. Too much paint will add to the rocket's weight.
- D.  Refer to the illustration on the front of the color panel for paint locations.
- E.  Use spray enamel to paint your model rocket.



INSERT ROLLED PAPER INTO REAR OF ROCKET TO HOLD WHILE PAINTING

#### WHAT TO EXPECT WHEN FLYING YOUR MOSQUITO™ ROCKET

The Mosquito™ is Estes' smallest and lightest rocket. Because of its size and weight, it uses featherweight or tumble recovery. The ejection charge ejects the engine, causing a shift in the center of gravity. This allows the rocket and the engine to become unstable, both tumbling lightly and safely to the ground. Even with the smallest recommended engine, a 1/2A3-4T, the Mosquito™ will "buzz" to over 152 meters (500 feet). Painting your rocket bright colors will make it easier to find once it is on the ground.

NOTE: To make the Mosquito™ easier to find once it has landed, paint it with bright or fluorescent colored paints.

## 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.

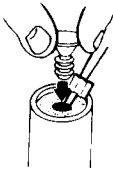


SEPARATE IGNITER AND IGNITER PLUG



HOLD ENGINE UPRIGHT, DROP IN IGNITER

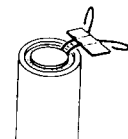
IGNITER MUST TOUCH PROPELLANT



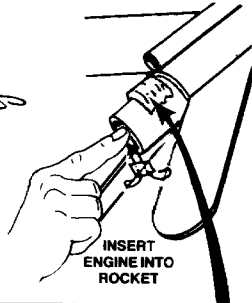
INSERT IGNITER PLUG



FIRMLY PUSH ALL THE WAY IN



BEND IGNITER WIRES BACK



INSERT ENGINE INTO ROCKET

NOTE: If necessary, place a piece of tape on side of engine to friction fit it into body.  
**IMPORTANT:** Engine must not fit too tightly into rocket. When the engine ejection charge fires, The engine is pushed out of the rocket.

## 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: 1/2A3-4T (Flight), A3-4T or A10-3T

To become familiar with your rocket's flight pattern, use a 1/2A3-4T 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.

## MISFIRES

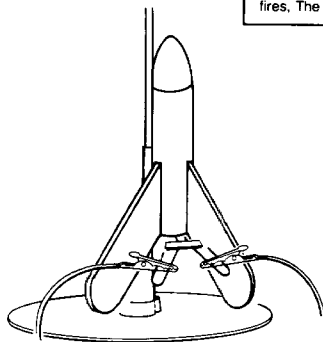
If the igniter functions properly but the propellant does not ignite, keep in mind the following: An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

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



MICRO-CLIPS MUST NOT TOUCH BLAST DEFLECTOR OR EACH OTHER

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

## 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. REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

**If you use the E2™ or Command™ 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 red L.E.D. will now begin to flash on and off and the audio continuity indicator will beep on and off.
- B. Hold the yellow (left) arm button down. The L.E.D. will stop flashing and 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.





# BETA<sup>™</sup>

## SERIES

### MOSQUITO<sup>™</sup>

Flying Model Rocket

SKILL LEVEL 1

-  Flies Up to 305 m (1000 ft)
-  Lightweight Model Tumbles Safely Back to Earth

-  Extremely High Altitudes on Mini Engines

Length: 29 mm (2.3 in)  
Diameter: 13.8 mm (0.54 in)  
Weight: 2.0 g (0.07 oz)  
Recommended Engines:  
TQ240 (see page 40) or  
Aeromax Engines  
(not included). Hobby stock,  
glue, launch or reload, part

MADE IN USA

EST 0801



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