



www.estesrockets.com

Estes® Industries
1295 H Street
Penrose, CO 81240
Printed In China

U.S. ARMY patriot

M-104

FLYING MODEL ROCKET KIT EST 2056/1248 INSTRUCTIONS

KEEP FOR FUTURE REFERENCE

ASSEMBLY TIP

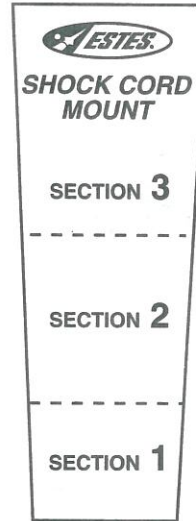
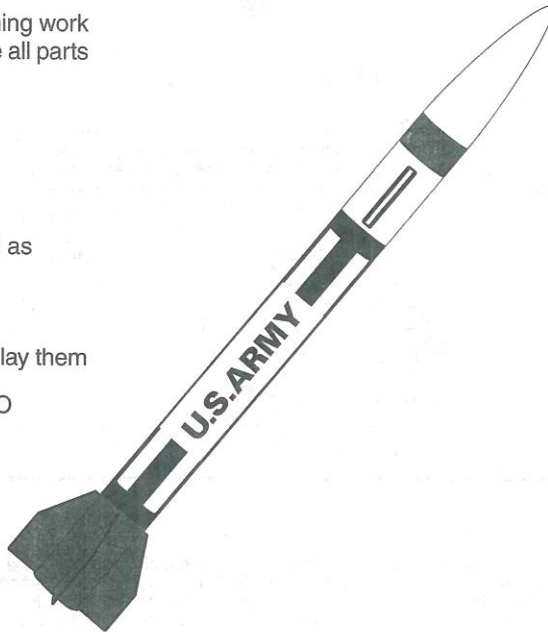
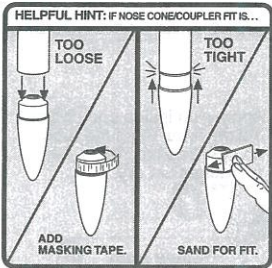
Read all instructions before beginning work on your model. Make sure you have all parts and supplies.

TEST-FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE.

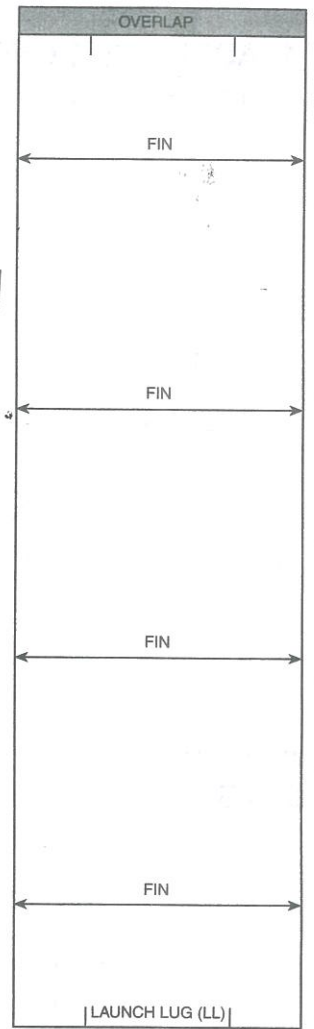
If any parts don't fit properly, sand as required for precision assembly.

PARTS

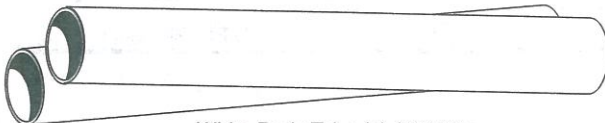
Locate the parts shown below and lay them out on the table in front of you. DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKET.



Shock Cord Mount



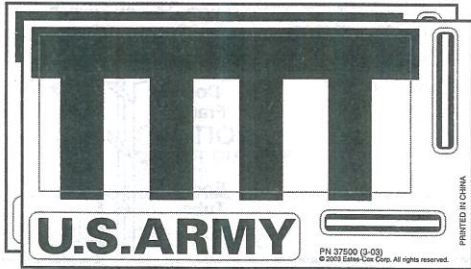
Tube Marking Guide



White Body Tube (2) (30414)



Yellow Body Tube (1) (30426)



Decal Sheet (2) 37500



Blue Engine Mount Tube (1) (30326-1)



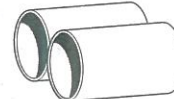
Nose Cone (1) (72057)



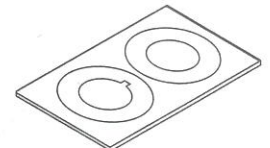
Mylar Retainer Ring (1) (30168)



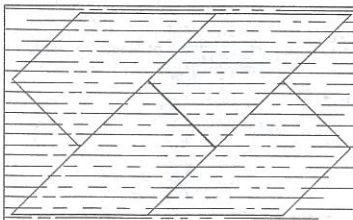
Engine Hook (1) (35021)



Red Tube Coupler (2) (30176-5)



Centering Ring Card (1) (30128)



Die-Cut Balsa Sheet (1) (32220)



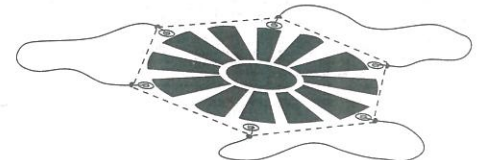
Operation Enduring Freedom Sticker (1) (60586)



Green Engine Block (1) (30162-2)



Shock Cord (1) 1/8" x 18" (38374)



Launch Lug (1) (38178)

Assembled Parachute 12" (30 cm) (1) (35801)

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



SCISSORS



PENCIL



RULER



FINE SAND PAPER (#400-600 GRIT)



CARPENTER'S GLUE



MODELING KNIFE



MASKING TAPE



SPRAY PRIMER (WHITE)



SPRAY PAINT: (RED)

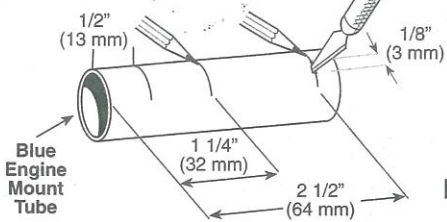


SPRAY CLEAR COAT (OPTIONAL)

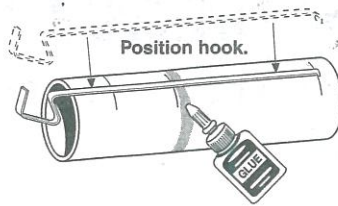
1. ASSEMBLE ENGINE MOUNT

A. Mark Engine Tube.

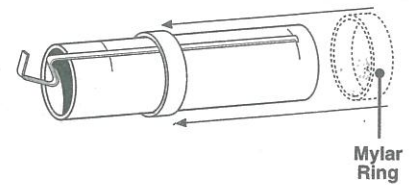
B. Cut 1/8" (3 mm) slit at 2 1/2" (64 mm) mark.



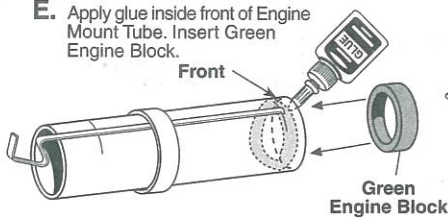
C. Apply glue around tube just ahead of the 1 1/4" (32 mm) mark. Insert engine hook end into slit.



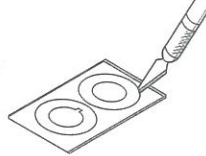
D. Slide Mylar Retainer Ring onto Engine Mount Tube up to 1 1/4" (32 mm) mark.



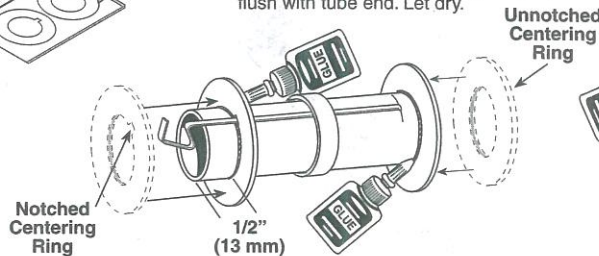
E. Apply glue inside front of Engine Mount Tube. Insert Green Engine Block.



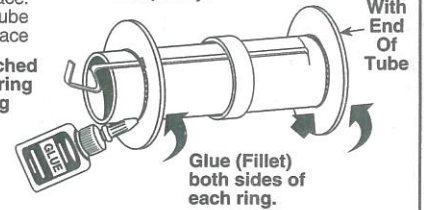
F. Carefully remove Die Cut Rings with a hobby knife.



G. Apply glue around tube at 1/2" (13 mm) mark and slide notched Centering Ring into place. Let glue set. Apply glue around end of tube and slide unnotched Centering Ring in place flush with tube end. Let dry.

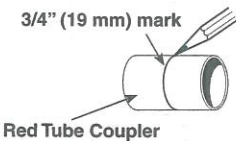


H. Apply glue fillets to both sides of Centering Rings. Let glue dry completely.

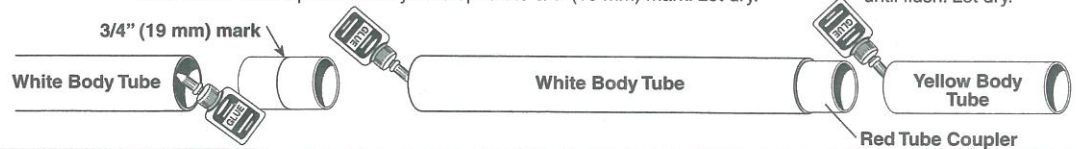


2. ASSEMBLE BODY TUBES

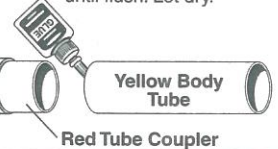
A. Mark red coupler (2) tubes at the 3/4" (19 mm) mark from end.



B. Apply glue inside White Body Tube as shown. Insert red coupler into body tube up to the mark. Let dry. Apply glue inside second White Body Tube as shown and push together until flush. Let dry. Apply glue inside other end of White Body Tube. Insert Red Coupler into body tube up to the 3/4" (19 mm) mark. Let dry.

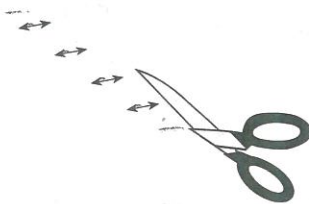


C. Apply glue inside one end of Yellow Tube. Push the tube coupler into the Yellow Tube until flush. Let dry.

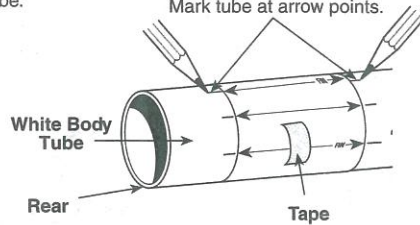


3. MARK FIN AND LAUNCH LUG LINES

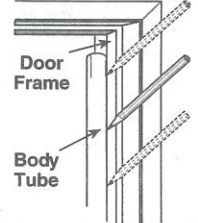
A. Cut out Tube Marking Guide. Wrap and tape around the rear section of the White Body Tube.



B. Mark at arrows, mark Launch Lug Line "LL". Mark tube at arrow points.

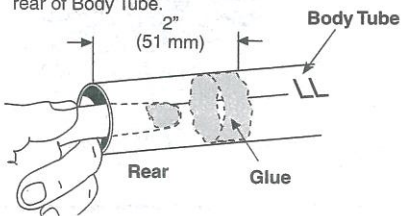


B. Using a door frame as a guide, extend Fin Lines 4" (102 mm) from rear of body. Extend Launch Lug Line 8" (203 mm).

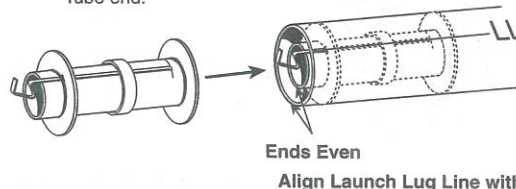


4. INSERTING ENGINE MOUNT

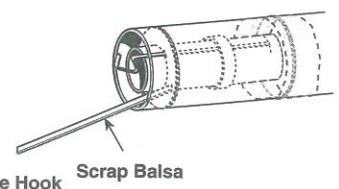
A. Use finger to smear glue 2" (51 mm) inside rear of Body Tube.



B. Align Engine Hook with Launch Lug line and insert Engine Mount until Engine Tube is even with Body Tube end.

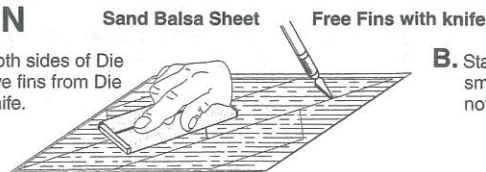


C. Use a scrap piece of Balsa to apply a glue fillet to Centering Ring/Body Tube joint. Let dry.

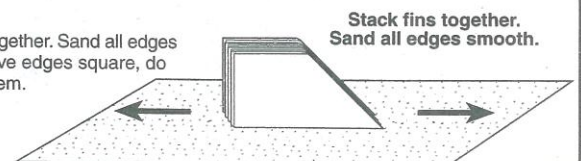


5. FIN PREPARATION

A. Using fine sand paper, sand both sides of Die Cut Fin Sheet. Carefully remove fins from Die Cut Sheet using a modeling knife.

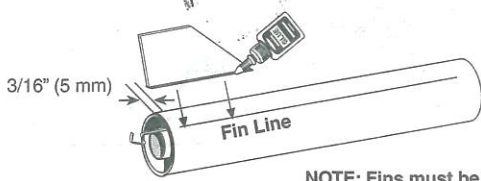


B. Stack Fins together. Sand all edges smooth. Leave edges square, do not round them.



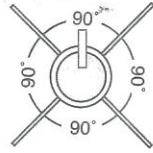
6. ATTACH FINS

- A.** Mark fin lines 3/16" (5 mm) from rear of Body Tube.
- B.** Apply thin layer of glue to edge of Fin, wait one minute. Apply second layer and attach Fin to Body Tube along one of the Fin Lines. Repeat for remaining Fins.



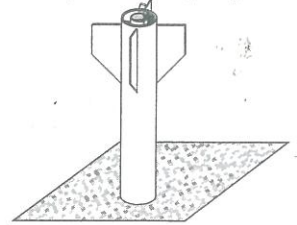
NOTE: Fins must be attached correctly for stable flight.

- C.** Check alignment of fins as shown. Allow glue to set.



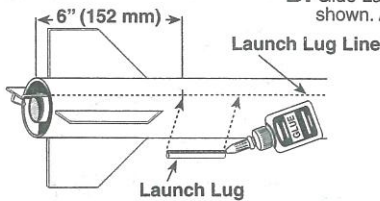
Fins should project straight from the body.

- D.** Stand rocket on flat table until glue dries completely.



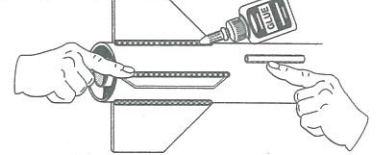
7. ATTACH LAUNCH LUG

- A.** Place a mark on the Launch Lug line 6" (152 mm) from rear of body.



- B.** Glue Launch Lug onto "LL" line where shown. Align straight with tube. Let dry.

- C.** Apply glue fillets to all Launch Lug and Fin/Body Tube joints, smooth each fillet with your finger. Let glue dry completely.



8. INSTALL SHOCK CORD MOUNT

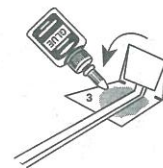
- A.** Cut out Shock Cord Mount.



- B.** Apply glue. Fold forward.



- C.** Apply glue. Fold forward.



- D.** Squeeze tightly and hold for one minute.



Glue Mount 1" (25 mm) inside front of Body Tube. Hold until glue sets. Let dry completely.

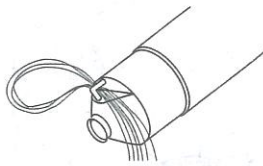
9. ATTACHING PARACHUTE AND SHOCK CORD

- A.** Remove excess flash and clean the eyelet of nose cone using a hobby knife.

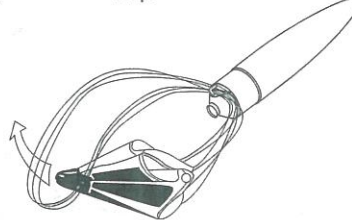


CAUTION:
DO NOT CUT OFF EYELET.

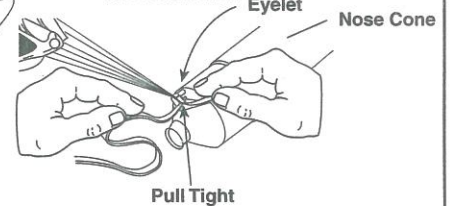
- B.** Push shroud lines of parachute through eyelet.



- C.** Pass 'Chute through loop.



- D.** Tie Shock Cord to Nose Cone in a double knot.



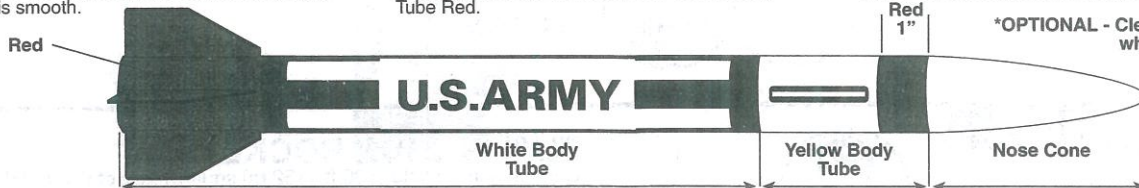
Pull Tight

PAINT SCHEME

- A.** Mask off yellow section of rocket and spray rocket with white primer, let dry and sand. Repeat until rocket is smooth.

- B.** Remove masking and remask off area not painted red. Paint fins and forward end of Yellow Body Tube Red.

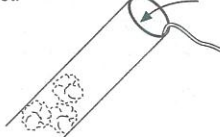
- C.** Peel decals one at a time from backing sheet and apply where shown. Rub down to remove bubbles.



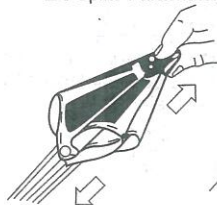
*OPTIONAL - Clear coat entire rocket when complete.

PREPARE PARACHUTE FOR FLIGHT

- A.** Insert 6-8 squares of loosely crumpled recovery wadding into rocket.



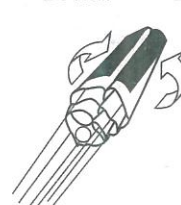
- B.** Spike Parachute.



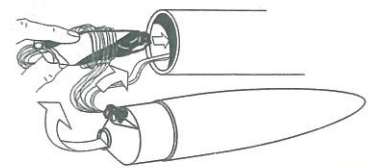
- C.** Fold.



- D.** Roll.



- E.** Wrap lines loosely. Insert 'Chute, Shock Cord and Nose Cone into Body Tube.

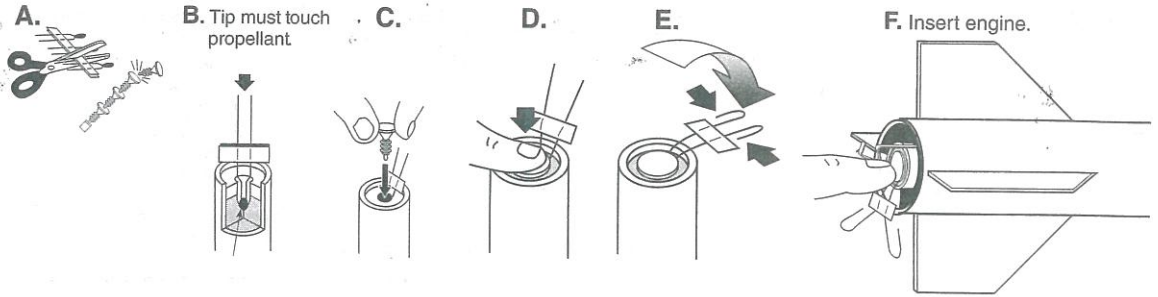


NOTE: Use Estes Wadding (EST 302274) Only.

PREPARE ENGINE

WARNING: FLAMMABLE

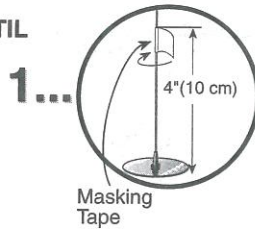
To avoid serious injury, read instructions & NAR Safety Code included with engines.
PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH!
 If you do not use your prepared engine, remove the igniter before storing your engine.



COUNTDOWN AND LAUNCH

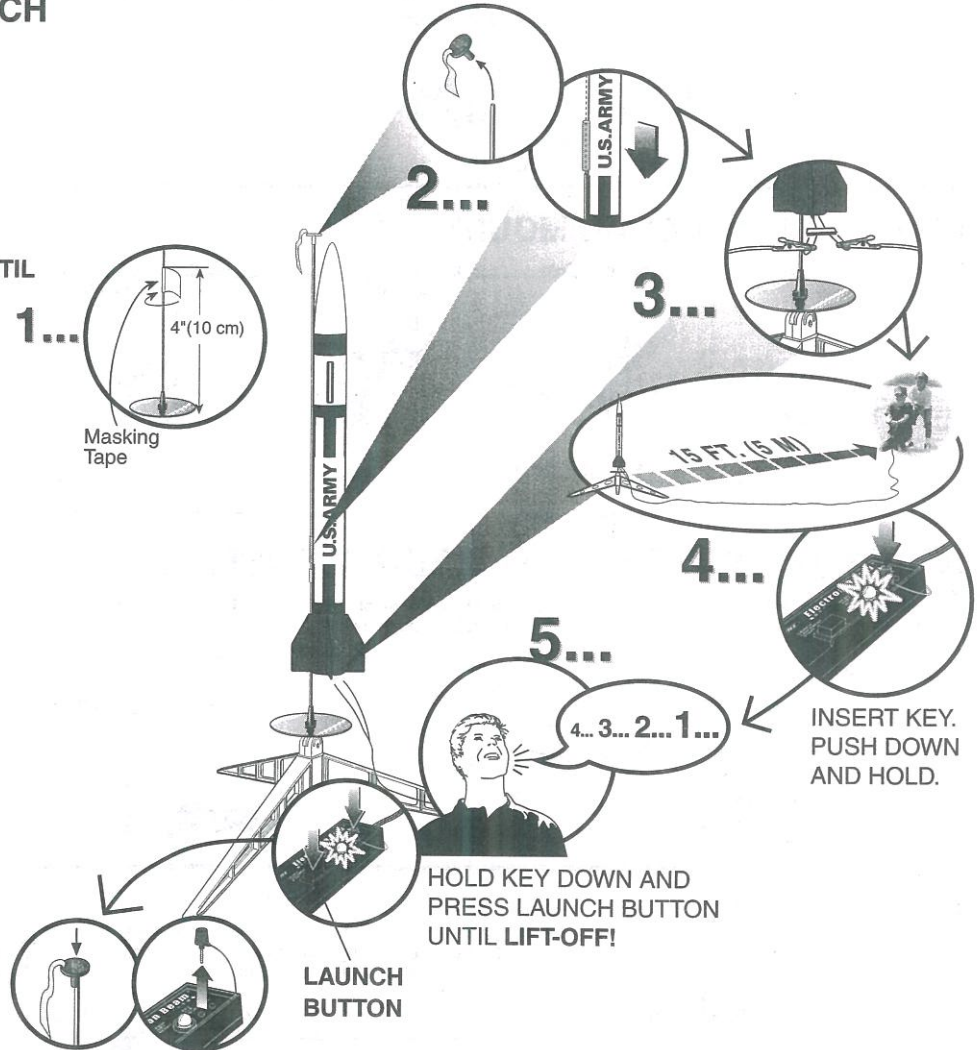


KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!



LAUNCH SUPPLIES

- (Sold Separately)
- Porta Pad® II Launch Pad
 - Electron Beam® Launch Controller
 - Recovery Wadding
 - Igniters (with Engines)
 - Igniter Plugs (with Engines)
 - Recommended Estes® Engines: A8-3, B4-4, B6-4, C6-5



PRECAUTIONS

NAR Safety Code



NO DRY GRASS OR WEEDS

FLYING YOUR ROCKET

Choose a large field (500 ft. [152 m] square) free of dry weeds and brown grass. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great. Launch only with little or no wind and good visibility.

Always follow the National Association of Rocketry (NAR) Safety Code.

MISFIRES

TAKE THE KEY OUT OF THE CONTROLLER. WAIT ONE MINUTE BEFORE GOING NEAR THE ROCKET! Disconnect the igniter clips and remove the engine. Take the plug and igniter out of the engine. If the igniter has burned, it worked but did not ignite the engine because it was not touching the propellant inside the engine. Put a new igniter all the way inside the engine without bending it. Push the plug in place. Repeat the steps under Countdown and Launch.