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GBU-24

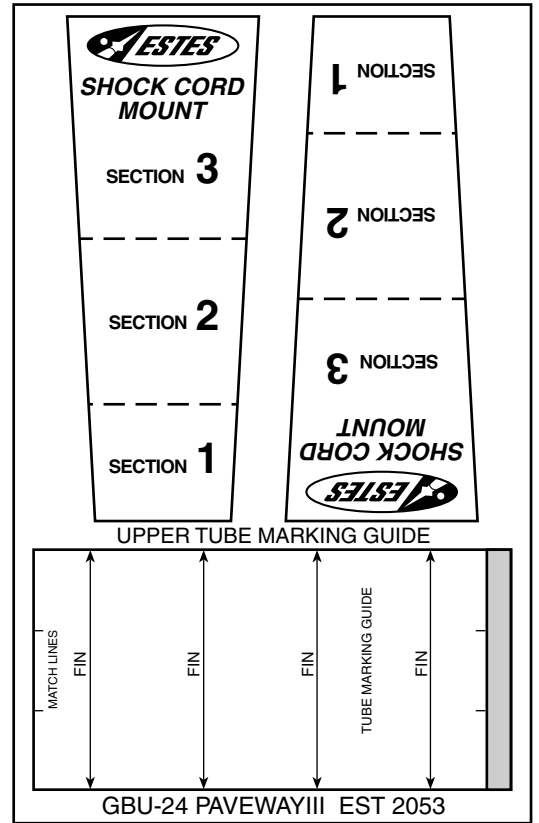
PAVEWAY

III™

EST 1247/2053

FLYING MODEL ROCKET KIT INSTRUCTIONS

KEEP FOR FUTURE REFERENCE.



ASSEMBLY TIP:

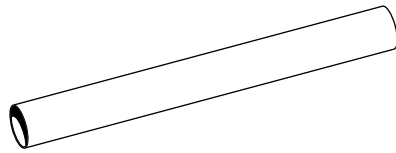
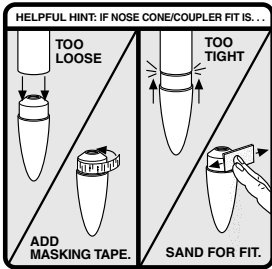
Read all instructions before beginning work on your model. Make sure you have all parts and supplies.

TEST-FIT ALL PARTS TOGETHER BEFORE APPLYING ANY GLUE!

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

PARTS:

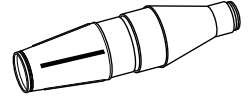
Locate the parts shown below and lay them out on the table in front of you. DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKET.



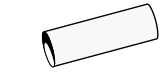
Body Tube BT-55 (1)
(30374)



Nose Cone (1)
(60567)



Plastic Tail Cone and
Adapter (1)
(60568)



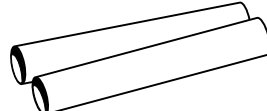
Yellow Spacer Tool (1)
(35003)



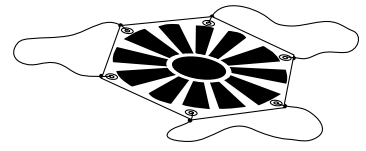
Mylar Retainer
Ring (1)
(30168)



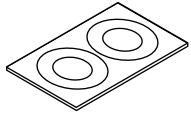
Launch Lug (1)
(38178)



Body Tube BT-20 (2)
(30329)



Assembled 12" (30 cm) Parachute
(35801)



Centering Ring Card (1)
(30126)



Green Engine
Block (1)
(30162-2)



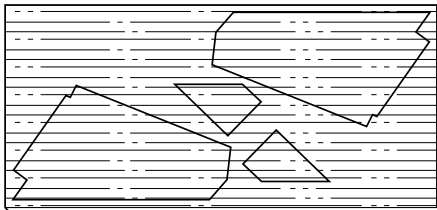
Shock Cord (1)
1/8" x 18"
(38374)



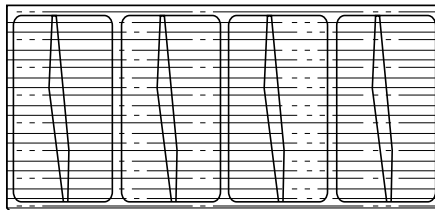
Engine Hook (1)
(35021)



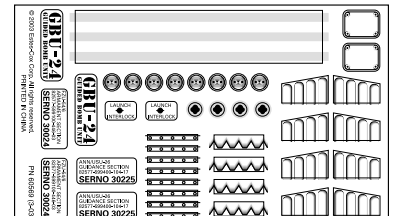
Operation Enduring Freedom
sticker (1)
(60586)



Die Cut Balsa Sheet (2)
(32218)



Die Cut Balsa Sheet (1)
(32219)



Decal Sheet (1)
(60569)

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



PLASTIC
CEMENT



MASKING
TAPE



SPRAY
PRIMER
WHITE



SPRAY PAINT:
WHITE, OLIVE
DRAB, RED



SPRAY
DULL
COAT



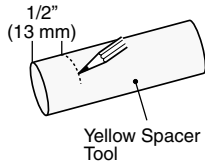
RAZOR SAW



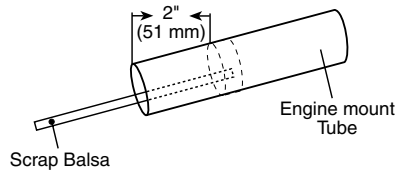
SILVER PAINT
PEN

1. ASSEMBLING ENGINE MOUNT

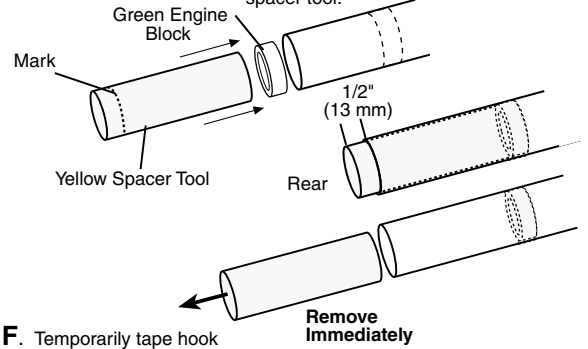
A. Measure and mark Yellow Spacer Tool.



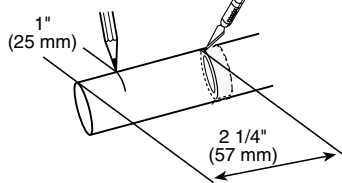
B. Use scrap balsa to smear glue 2" (51 mm) inside engine mount tube.



C. Push engine block into BT-20 engine mount tube with spacer tool up to mark. Remove spacer tool.



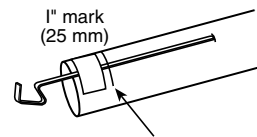
D. Mark engine mount tube at 1" (25 mm) and 2 1/4" (57 mm) from rear end. Cut 1/8" (3 mm) slit at 2 1/4" (57 mm) mark.



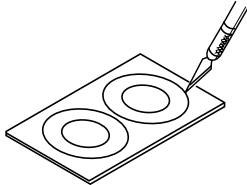
E. Position Engine Hook.



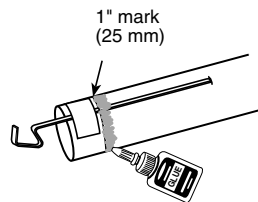
F. Temporarily tape hook into place.



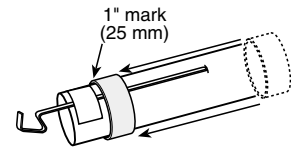
G. Carefully remove rings from card.



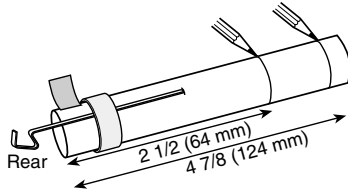
H. Apply glue above the 1" (25 mm) line.



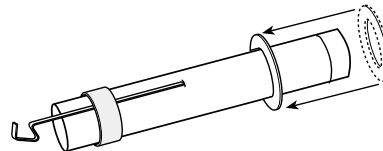
I. Slide mylar retainer ring onto engine mount tube up to 1" (25 mm) mark. Let dry.



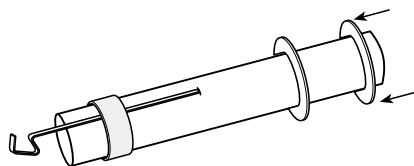
J. Place a pencil mark at 2 1/2" (64 mm) and 4 7/8" (124 mm) from end of engine mount. Remove tape.



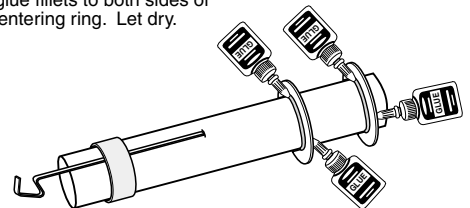
K. Slide a centering ring down to the 2 1/2" (64 mm) mark.



L. Slide a centering ring down to the 4 7/8" (124 mm) mark.

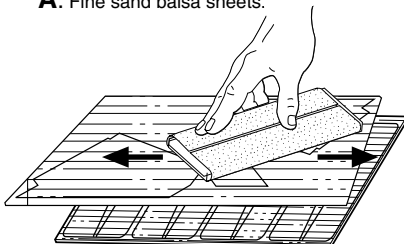


M. Apply glue fillets to both sides of each centering ring. Let dry.

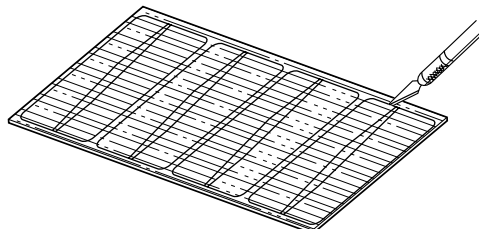


2. PREPARING FINS

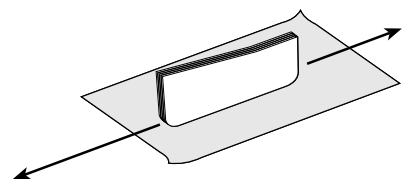
A. Fine sand balsa sheets.



B. Carefully cut parts free with knife.

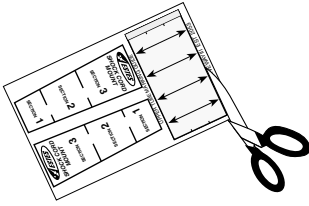


C. Stack like pieces and sand edges smooth. Leave the edges square, do not round them.

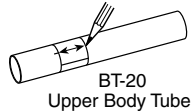


3. MARKING BODY TUBES

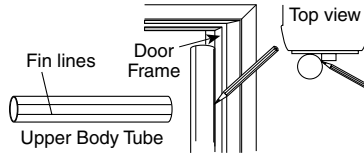
A. Cut out tube marking guide.



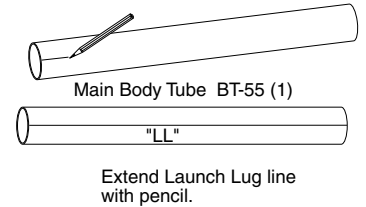
B. Wrap tube marking guide around upper body and mark four places.



C. Extend all lines entire length of tube.

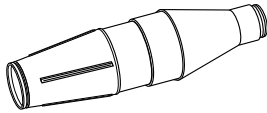


D. Place a pencil mark on the larger tube for launch lug "LL".

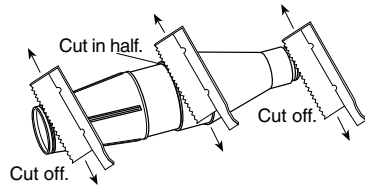


4. PREPARE TAIL CONE AND ADAPTER

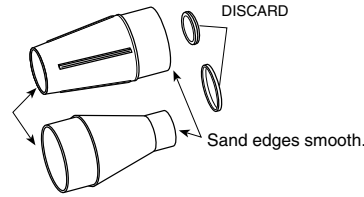
A. Tail Cone and Adapter



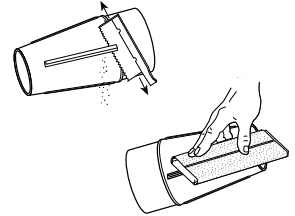
B. Using a razor saw, carefully cut off ends and cut in half.



C. Sand edges smooth.

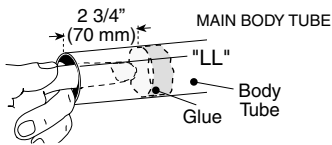


D. Carefully saw off nibs. Sand away excess plastic lip flush with surface.

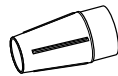


5. ASSEMBLING ENGINE MOUNT AND TAIL CONE

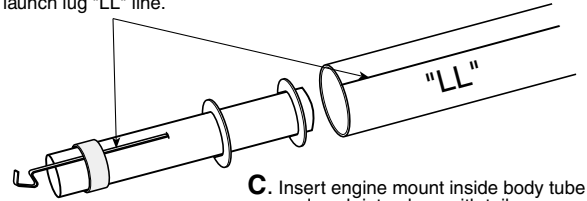
A. Use finger to smear glue 2 3/4" (70 mm) inside rear of body tube.



DO NOT CEMENT TAIL CONE YET!

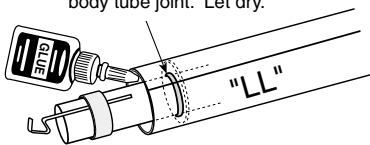


B. Engine hook must line up with launch lug "LL" line.

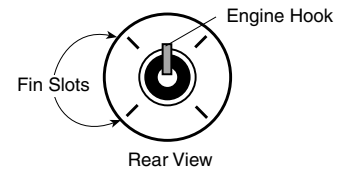
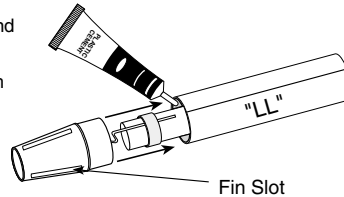


C. Insert engine mount inside body tube and push into place with tail cone. Remove tail cone immediately. Let dry.

D. Apply a glue fillet around ring and body tube joint. Let dry.



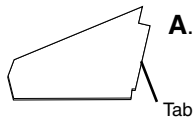
E. Apply plastic cement around inside of body tube. Align Launch Lug line between fin slots on tail cone. Push tail cone into body completely. Let dry.



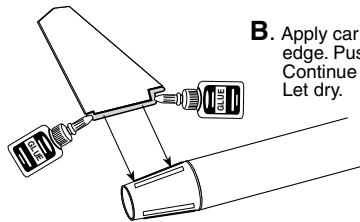
6. ASSEMBLING LOWER FINS

A. Test fit fin tabs in slots. Sand as needed for proper fit.

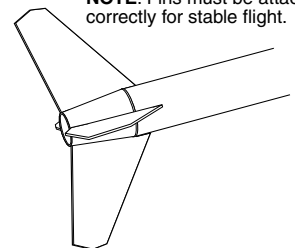
NOTE: Fin shape and tab location.



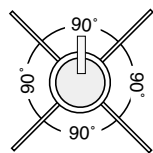
B. Apply carpenter's glue to fin and tab edge. Push fin into tail cone. Let dry. Continue to assemble remaining fins. Let dry.



NOTE: Fins must be attached correctly for stable flight.

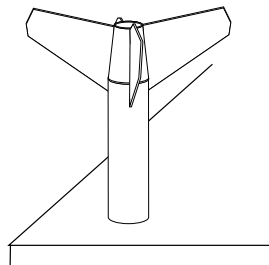


C. Check alignment of fins as shown. Allow glue to set.



Fins should project straight from the body.

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



ASSEMBLING FIN REINFORCEMENTS

A. Align reinforcement with fin. Mark edge with pencil.

B. Smear glue on fin as shown line. Apply reinforcement.

C. Repeat steps A & B and apply reinforcement to other side of fin.

D. Repeat steps to apply reinforcements to remaining 3 fins. Let dry.

COMPLETED FIN ASSEMBLY

NOTE: Fins must be attached correctly for stable flight.

7. ATTACHING SHOCK CORD & ASSEMBLING UPPER BODY TUBE

A. Mark body tube 3/4" (19 mm) from end on each fin line.

B. Cut out shock cord mount.

C. Apply glue. Fold forward.

D. Apply glue. Fold forward.

E. Squeeze tightly and hold for one minute.

F. Apply glue to shock cord mount and place inside end of upper body tube. Press firmly. Let dry.

G. Put a bead of plastic cement in the rear of body tube. Insert adapter. Let dry.

H. Apply Plastic cement to forward end of tube and insert nose cone. Let dry.

I. Tie loop 3" (76 mm) from second shock cord mount.

J. Cut out second shock cord mount. Glue and fold as before. Apply glue to shock cord mount and then insert it into the large body tube. Press firmly. Let dry.

THREAD SHOCK CORD THROUGH ADAPTER.

Second shock cord mount.

8. ASSEMBLING UPPER FINS

A. Apply glue to edge of fin as shown and attach to pencil line at the 3/4" (19 mm) mark. Let dry.

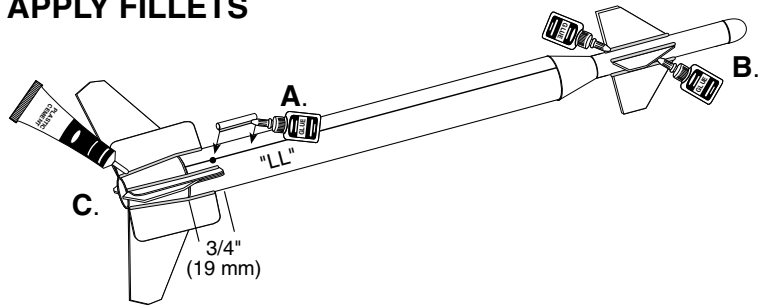
B. Assemble remaining fins. Let dry.

C. Complete assembly.

D. Fins must be straight.

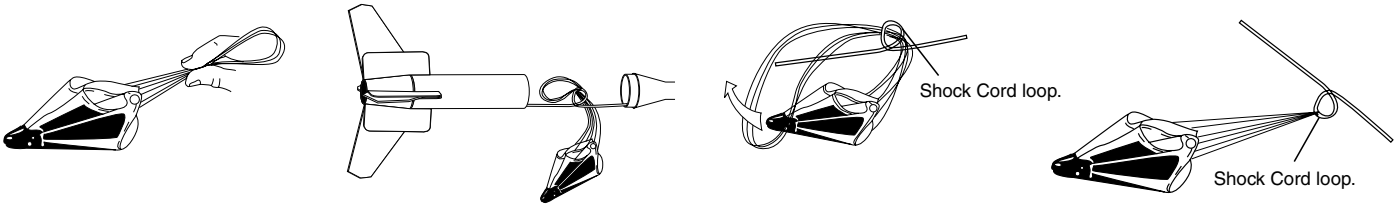
9. ATTACHING LAUNCH LUG AND APPLY FILLETS

- Measure 3/4" (19 mm) from end of body tube and mark. Glue launch lug on the launch lug line "LL".
- Apply glue fillets to all launch lug and fin/body joints. Smooth with finger. Let dry.
- Apply fillets to main fins/ body tube using plastic cement. Smooth with finger. Let dry.



10. ATTACHING PARACHUTE

- Loop shroud lines.
- Push through shock cord loop.
- Loop parachute through shroud lines.
- Pull tightly.



PAINT SCHEME

First spray rocket with white primer, let dry and sand. Repeat until rocket is smooth. Follow the paint scheme on the package.

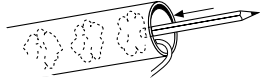
When paint is dry, peel decals one at a time from backing sheets and apply where shown. Rub down to remove bubbles.

*Optional - Spray a dull coat over the entire rocket when complete.

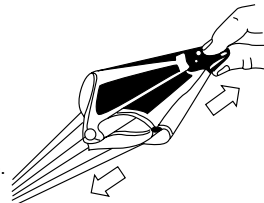


ROCKET PREFLIGHT

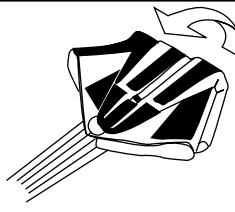
- Insert four squares of loosely crumpled recovery wadding into rocket body tube.



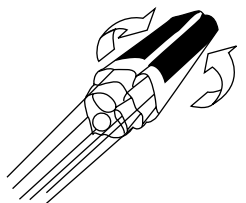
- Spike.



- Fold.

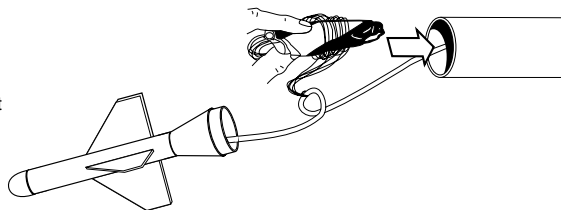


- Roll.



NOTE: Use Estes wadding (EST 302274) only.

- Wrap lines loosely. Insert parachute, shock cord, then upper assembly.



ENGINE PREP

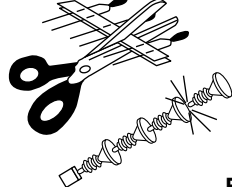
WARNING: FLAMMABLE

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.

-



- Tip must touch propellant



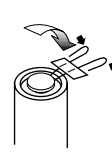
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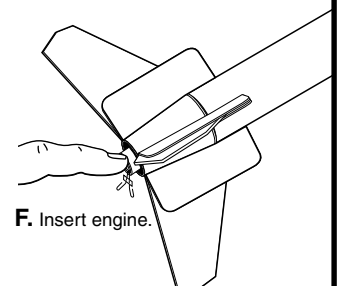
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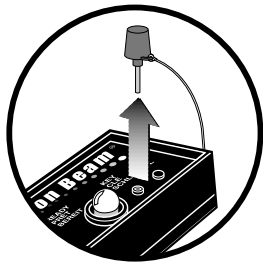
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- Insert engine.

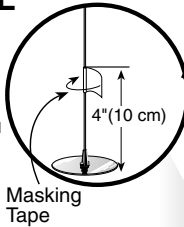


COUNTDOWN AND LAUNCH



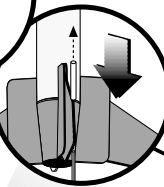
KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

1...

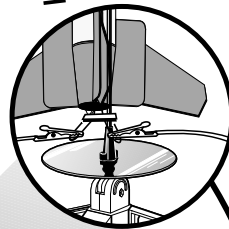


Masking Tape

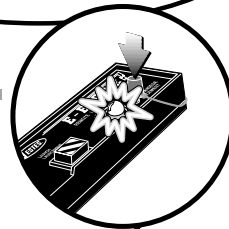
2...



3...



4...



INSERT KEY. PUSH DOWN AND HOLD.

5...

4... 3... 2... 1...



HOLD KEY DOWN AND PRESS LAUNCH BUTTON UNTIL LIFT-OFF!

LAUNCH BUTTON

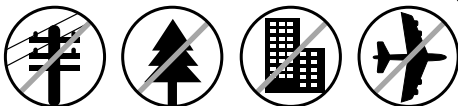
LAUNCH SUPPLIES

(sold separately):

- Porta-Pad® II Launch Pad
- Electron Beam® Launch Controller
- Recovery Wadding
- Igniters (w/ engines)
- Igniter Plugs (w/ engines)
- Recommended Estes® Engines: A8-3, B4-2, B4-4, B6-2, B6-4, C6-3, 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! 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.