

KEEP FOR FUTURE REFERENCE

ASSEMBLY TIP: Read all the instructions before beginning work on your model. TEST FIT all parts before applying any glue. If any parts don't fit properly, sand as required for precision assembly.

SUPPLIES REQUIRED:



PLASTIC CEMENT



CARPENTER'S GLUE



MODELING KNIFE



PENCIL



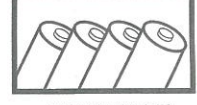
FINE SAND PAPER (#400-600 GRIT)



RULER



MASKING TAPE

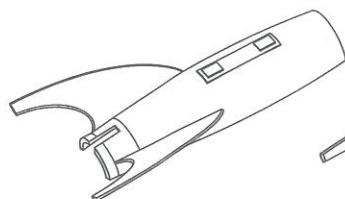
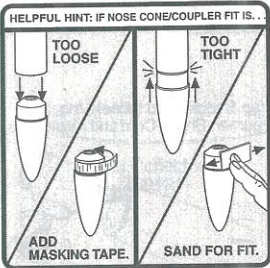


4 'AA' ALKALINE BATTERIES

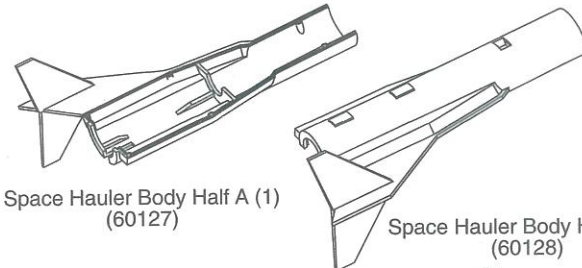
ALL GLUED AREAS ARE SHADED IN GRAY

PARTS LAYOUT:

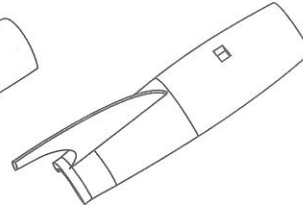
Locate the parts shown below and lay them out on the table in front of you. DO NOT USE THIS DRAWING TO ASSEMBLE YOUR ROCKETS.



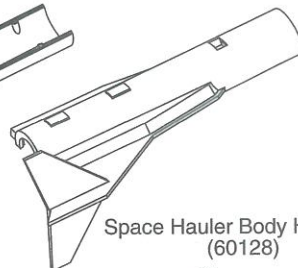
Space Bus Body Half A (1) (60132)



Space Hauler Body Half A (1) (60127)



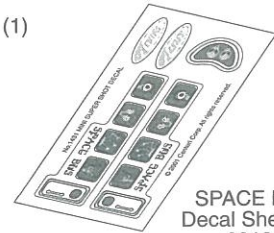
Space Bus Body Half B (1) (60133)



Space Hauler Body Half B (1) (60128)



Launch Lug (1) (60134)



SPACE BUS Decal Sheet (1) 60138

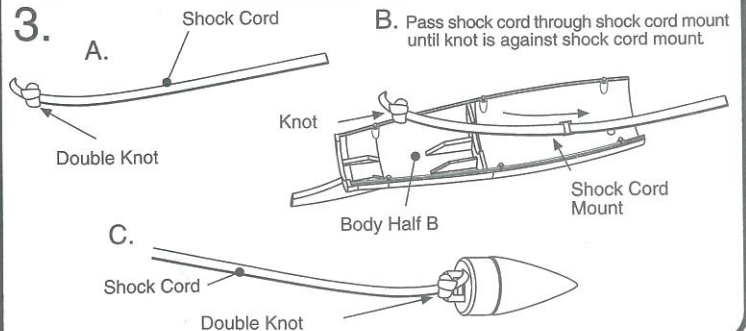
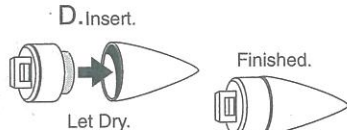
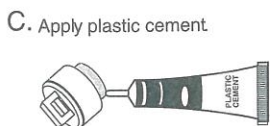
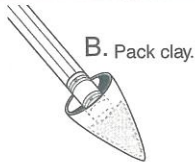
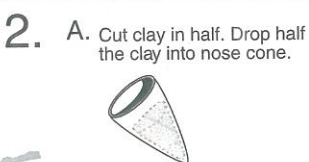
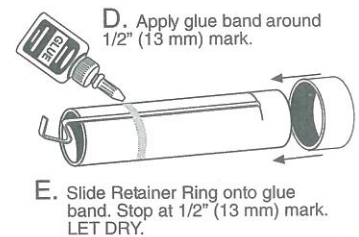
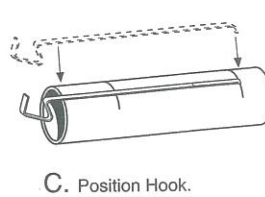
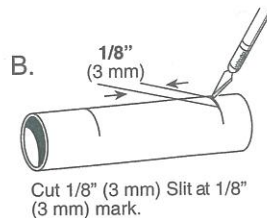
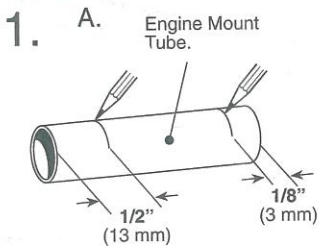


Engine Hook (2) 35023

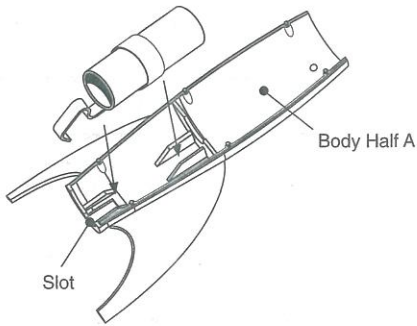


Launch Lug (1) 60129

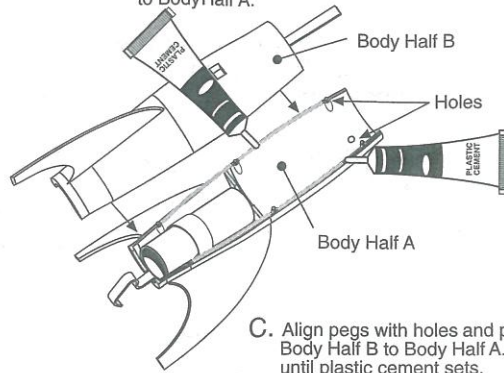
SPACE BUS ROCKET ASSEMBLY: ALWAYS TEST FIT PARTS BEFORE FINAL ASSEMBLY



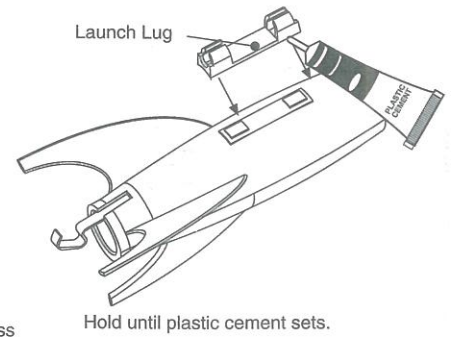
4. A. Align Engine Hook with slot and place Engine Mount inside.



- B. Apply plastic cement to Body Half A.



- D. Apply plastic cement to Launch Lug.

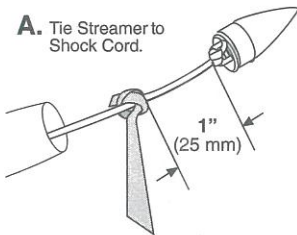


- C. Align pegs with holes and press Body Half B to Body Half A. Hold until plastic cement sets.

FINISH YOUR ROCKET - USE PACKAGE PANEL FOR DECAL PLACEMENT.

ROCKET PREFLIGHT

- A. Tie Streamer to Shock Cord.



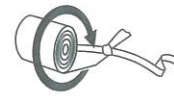
- B. Insert 1/2 loosely crumpled square of recovery wadding.



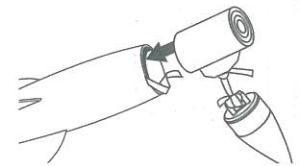
- C. Fold streamer.



- D. Roll.

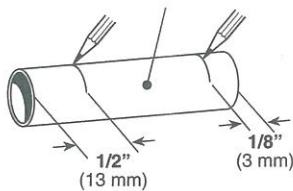


- E. Wrap Shock Cord loosely, insert Streamer, Shock Cord and Nose Cone.

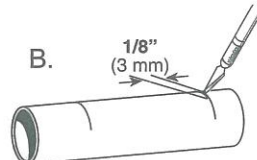


SPACE HAULER ROCKET ASSEMBLY: ALWAYS TEST FIT PARTS BEFORE FINAL ASSEMBLY

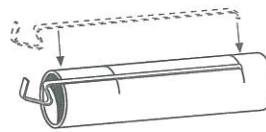
1. A. Engine Mount Tube.



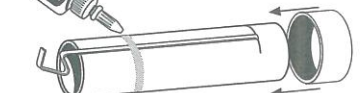
- B. Cut 1/8" (3 mm) slit at 1/8" (3 mm) mark.



- C. Position Hook.



- D. Apply glue band around 1/2" (13 mm) mark.

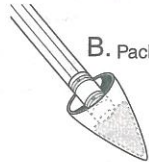


- E. Slide retainer ring onto glue band. Stop at 1/2" (13 mm) mark. LET DRY.

2. A. Drop remaining clay into Nose Cone.



- B. Pack clay.



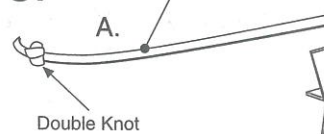
- C. Apply plastic cement.



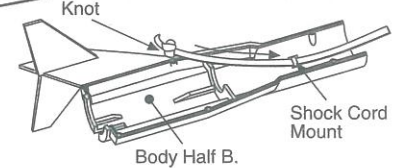
- D. Insert.



3. A. Shock Cord



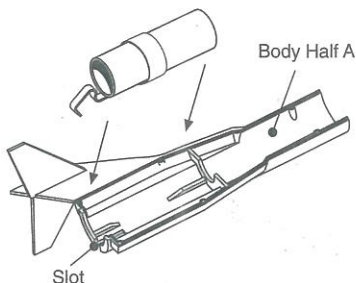
- B. Pass Shock Cord through Shock Cord Mount until knot is against Shock Cord Mount.



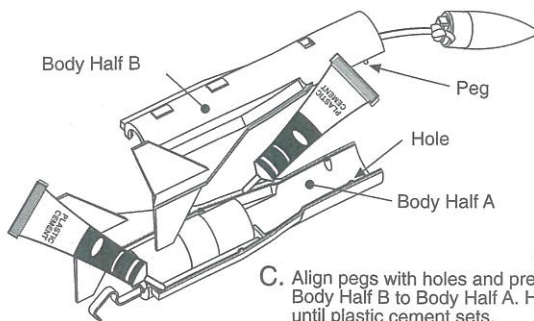
- C. Tie shock cord to nose cone.



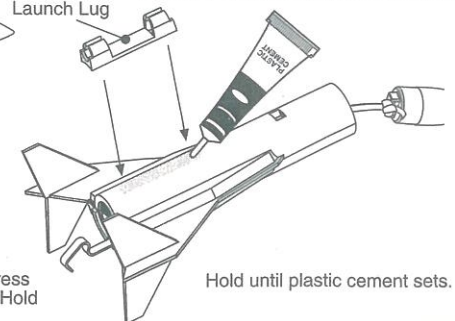
4. A. Align Engine Hook with slot in body half and place Engine Mount inside.



- B. Apply plastic cement to Body Half A.



- D. Apply plastic cement to Launch Lug.

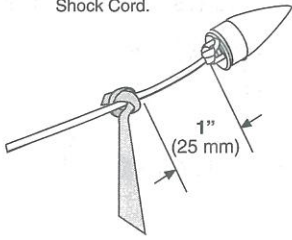


- C. Align pegs with holes and press Body Half B to Body Half A. Hold until plastic cement sets.

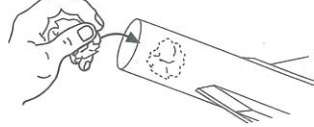
Hold until plastic cement sets.

ROCKET PREFLIGHT

A. Tie Streamer to Shock Cord.



B. Insert 1/2 loosely crumpled square of Recovery Wadding.



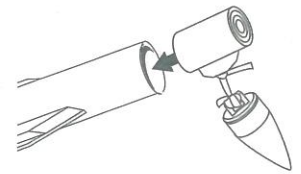
C. Fold Streamer



D. Roll

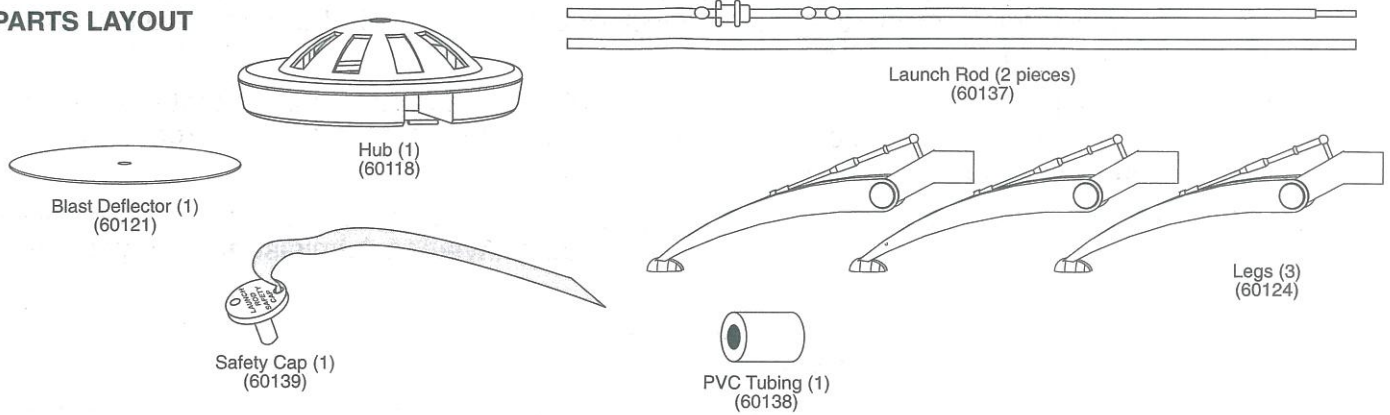


E. Insert Streamer, Shock Cord and Nose Cone into Rocket Body.



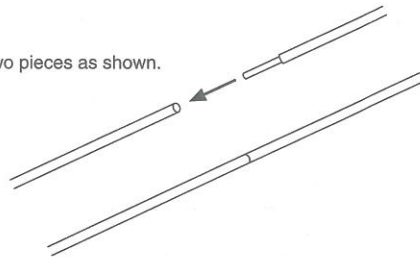
LAUNCH PAD ASSEMBLY (FOR MINI-ENGINE ROCKETS ONLY!)

PARTS LAYOUT

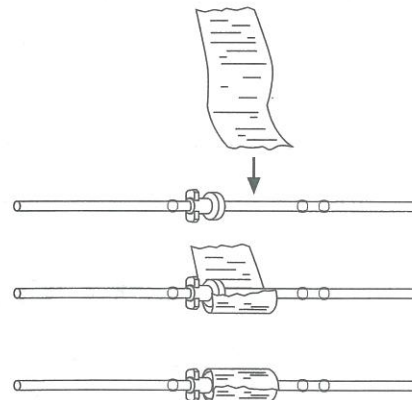


1. JOIN LAUNCH ROD

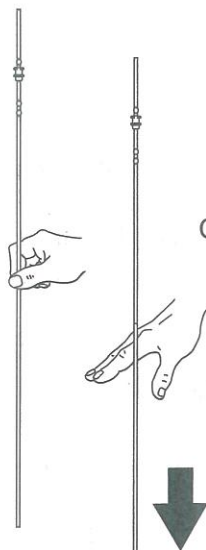
A. Join two pieces as shown.



B. Secure the plastic rod lock with a piece of masking tape as shown to protect it during the next step.

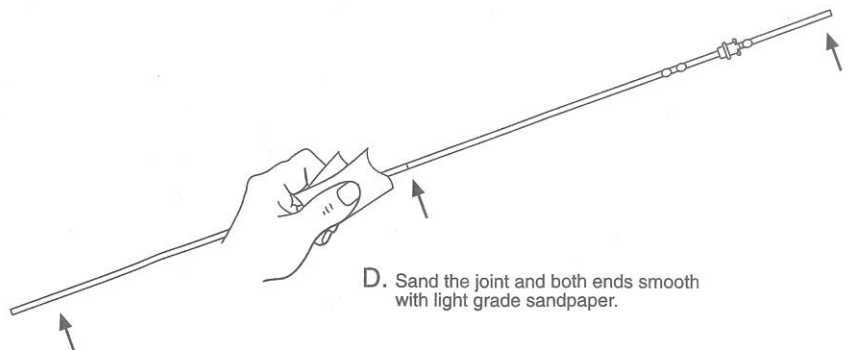


C. Drop rod repeatedly on concrete floor until joint is tight. Remove tape.



CONCRETE FLOOR

D. Sand the joint and both ends smooth with light grade sandpaper.



NAR MODEL SAFETY CODE

(Basic Version, Eff. Feb. 2001)

1. **MATERIALS** - I will use only lightweight, non-metal parts for the nose, body, and fins of my rocket.
2. **MOTORS** - I will use only certified, commercially-made model rocket motors, and will not tamper with these motors or use them for any purposes except those recommended by the manufacturer.
3. **IGNITION SYSTEM** - I will launch my rockets with an electrical launch system and electrical motor igniters.
4. **LAUNCH SAFETY** - I will use a countdown before launch, and will ensure that everyone is paying attention and is a safe distance of at least 15 feet away when I launch rockets with D motors or smaller, and 30 feet when I launch larger rockets.
5. **MISFIRES** - If my rocket does not launch when I press the button of my electrical launch system, I will remove the launcher's safety interlock or disconnect its battery before allowing anyone to approach the rocket.
6. **LAUNCHER** - I will launch my rocket from a launch rod, tower, or rail to ensure that the rocket flies nearly straight up. I will use a blast deflector to prevent the motor's exhaust from hitting the ground, and I will cap the end of my launch rod when it is not in use.
7. **SIZE** - If my model rocket weighs more than one pound (453 grams) at liftoff or has more power than a single G motor, I will check and comply with Federal Aviation Administration regulations before flying.
8. **FLIGHT SAFETY** - I will not launch my rocket at targets or near airplanes, and will not put any flammable or explosive payload in my rocket.
9. **LAUNCH SITE** - I will launch my rocket outdoors, in an open area and in safe weather conditions, (*LITTLE OR NO WIND) and will ensure that there is no dry grass close to the launch pad (*OR IN THE FLYING FIELD).
10. **RECOVERY SYSTEM** - I will use a recovery system such as a streamer or parachute in my rocket so that it returns safely and undamaged and can be flown again, and I will use only flame-resistant or fireproof recovery system wadding in my rocket.
11. **RECOVERY SAFETY** - I will not attempt to recover my rocket from power lines, tall trees, or other dangerous places.

*ADDITIONAL ESTES REQUIREMENTS



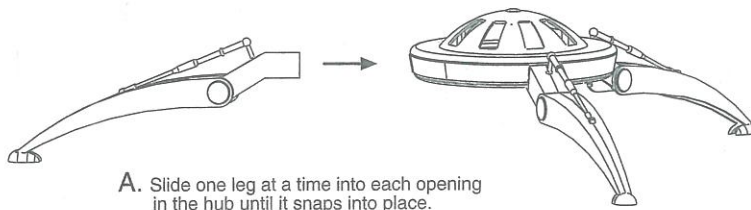
FULL ONE-YEAR WARRANTY

Your Estes® product is warranted against defects in materials or workmanship for one year from the date of the original purchase. If this Estes® product, because of a manufacturing mistake, malfunctions or proves to be defective within the one-year warranty period, it will be repaired or replaced, at Estes®' option and at no charge to you, provided it is returned to Estes® with proof of purchase.

This warranty does not cover incidental or consequential damage to persons or property caused by the use, abuse, misuse, failure to comply with operating instructions or improper storage of the warranted products. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

For repair or replacement under this warranty, please return the defective part of your Estes® product with proof of purchase to: Estes® Industries, Customer Service Department, 1295 H Street, Penrose, Colorado 81240.

2. ATTACH LEGS



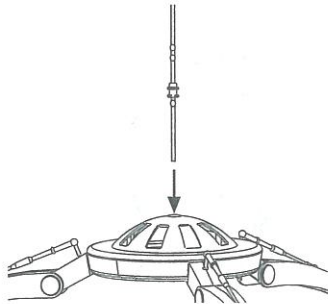
A. Slide one leg at a time into each opening in the hub until it snaps into place.



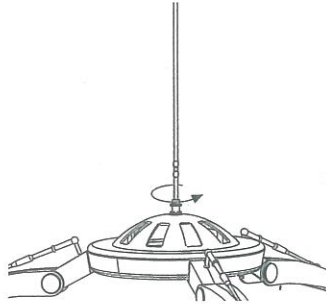
SAFETY NOTES:

1. ALWAYS PLACE SAFETY CAP ON LAUNCH ROD WHEN NOT IN USE.
2. DO NOT STAND DIRECTLY OVER LAUNCH PAD.
3. FLY ONLY ESTES® MODEL ROCKETS THAT USE MINI ENGINES FROM THIS LAUNCH PAD! DO NOT ATTEMPT TO FLY ANY OTHER ROCKETS OFF OF THIS LAUNCH PAD!

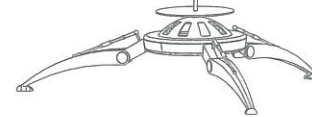
3. ATTACH LAUNCH ROD AND BLAST DEFLECTOR



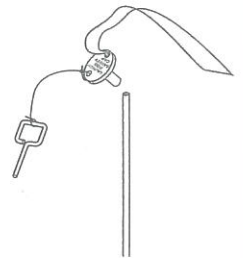
A. Slide the swaged end of the launch rod into the hole in the top of the hub.



B. Twist rod lock into the slot in the top of hub until it stops.



C. Slide the blast deflector down the rod until it rests on top of the hub. Slide the PVC tubing down the rod until it covers the top swage and rests on the second swage. **NOTE:** If fit is too tight, lightly moisten the PVC tubing and launch rod prior to installation.



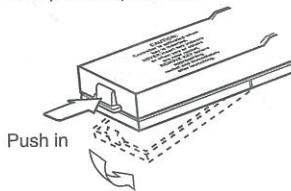
D. Place the safety cap on rod.

LAUNCH CONTROLLER

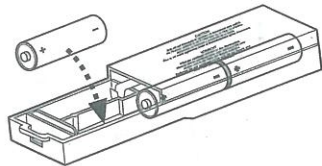
INSTALLING BATTERIES

(REQUIRES 4 - 'AA' ALKALINE BATTERIES SOLD SEPARATELY)

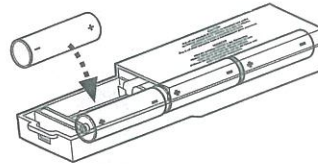
A. Open compartment.



Push in



B. Insert three "AA" batteries in one side. BE SURE TO NOTE POLARITY.



C. Insert one battery in other side. BE SURE TO NOTE POLARITY.

D. Replace the battery compartment door.

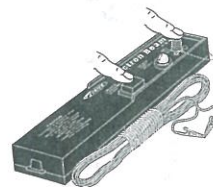
CAUTION: USE ONLY ALKALINE BATTERIES. DO NOT MIX OLD AND NEW BATTERIES OR BATTERIES OF DIFFERENT TYPES.

TEST CONTROLLER

A. Clip micro-clips together. Continuity light will not glow without Safety Key in place and held down. If it does, do not use the controller. Return the controller to Estes® for a replacement.



B. Insert Safety Key. Press in and hold Safety Key down. Continuity light should glow with a bright white light. (A dim yellow light indicates weak batteries. Replace batteries with new ones).



C. While holding the Safety Key down, press and hold down the Launch Button. The continuity light will go out while both buttons are depressed. Test complete.

NOTE:

The small light bulb in the controller signals you when the circuit to your rocket is operational. If you drop the controller, retest it. If the bulb is broken or does not glow, please return the controller to Estes® for a replacement.

FOR YOUR SAFETY

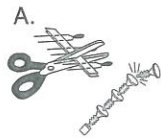
The Electron Beam® Launch Controller has a **Safety Key**. When the Safety Key is inserted into the Electron Beam® Launch Controller, it activates the launch system that ignites the model rocket's engine. To prevent serious injury to yourself and others, always follow these simple safety rules:

1. **NEVER** connect the Electron Beam® Launch Controller to an igniter, a flight-ready engine or a rocket until you are outside at the launch site preparing to launch.
2. At the launch site **never** insert the Safety Key into the Electron Beam® Launch Controller while you or others are near the rocket.
3. Insert the Safety Key into the Electron Beam® Launch Controller only when you and all others are at least 15 feet (5 meters) away from the flight-ready rocket.
4. In case of misfire, never approach the rocket until you have removed the Safety Key from the Electron Beam® Launch Controller and waited one full minute to be sure the rocket's engine is not going to ignite.
5. Remove the Safety Key from the Electron Beam® Launch Controller **immediately** after each and every rocket launch.

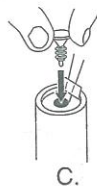
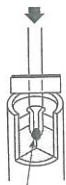
ENGINE PREP

WARNING: FLAMMABLE
Before proceeding 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.



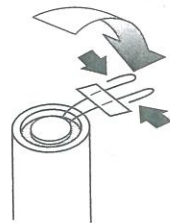
B. Tip must touch propellant.



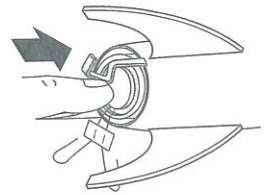
C.



D.



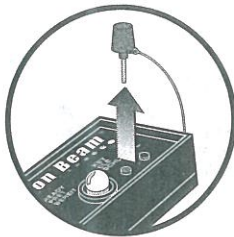
E.



F. Insert engine.

COUNTDOWN AND LAUNCH

RECOMMENDED ENGINES:
1/4 A3-3T, 1/2 A3-4T, A3-4T, A10-3T

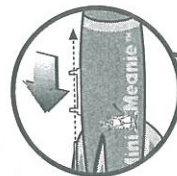


KEY ALWAYS OUT UNTIL FINAL COUNTDOWN!

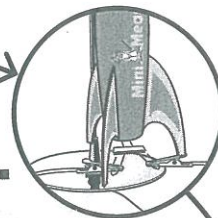
WARNING!

ONLY LAUNCH ESTES® MINI ROCKETS FROM LAUNCH PAD.
NOT FOR USE WITH STANDARD A, B OR C SIZE ROCKETS.

1...



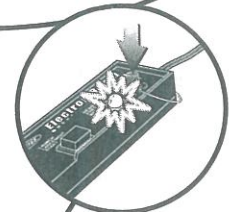
2...



3...



4...

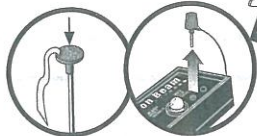


Insert Key, Push down and hold.

5...



Hold key down and press Launch Button until **LIFTOFF!**



Launch Button

PRECAUTIONS

NAR Safety Code



FLYING YOUR ROCKET

Choose a large field (250 ft. [76 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.