



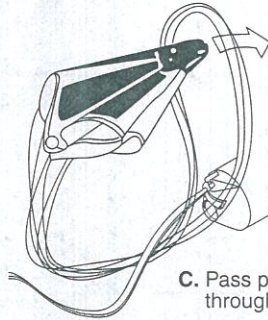
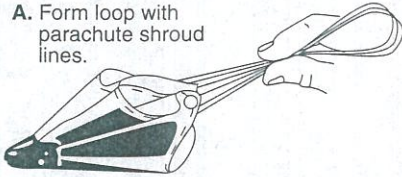
The World Leader in  
Model Rocketry

# Ready-Built™

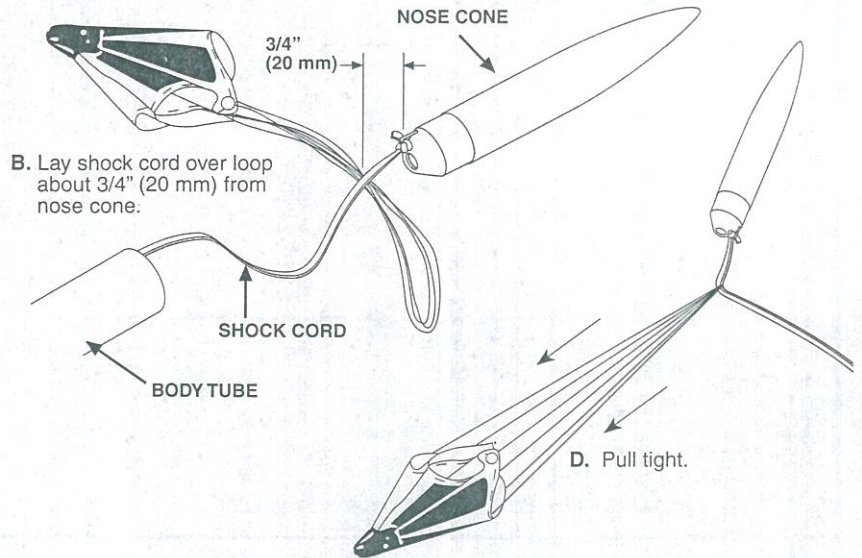
## FLYING MODEL ROCKET INSTRUCTIONS

### 1. PARACHUTE ATTACHMENT

A. Form loop with parachute shroud lines.

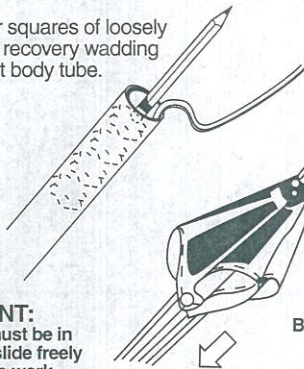


C. Pass parachute through loop.



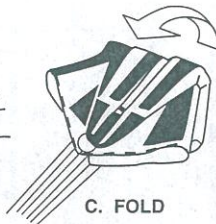
### 2. PREPARE PARACHUTE FOR FLIGHT

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

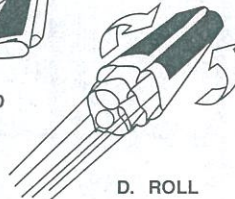


**IMPORTANT:**  
Wadding must be in place and slide freely for rocket to work properly!

B. SPIKE PARACHUTE

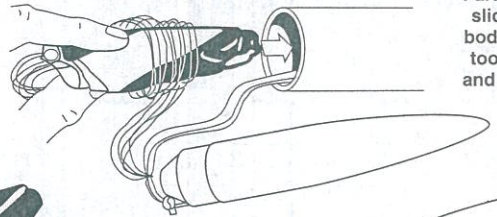


C. FOLD



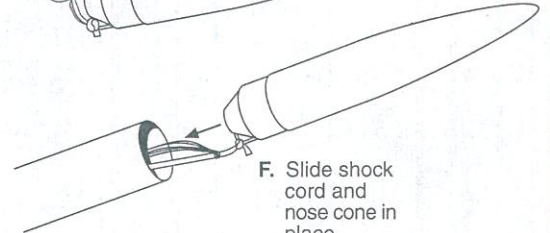
D. ROLL

E. Wrap shroud lines loosely around chute. Insert parachute into rocket.



Parachute should slide easily into body tube. If fit is too tight, unfold and repack again.

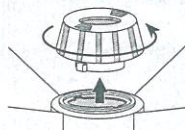
F. Slide shock cord and nose cone in place.



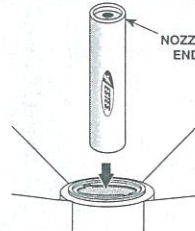
### 3. PREPARE ENGINE FOR FLIGHT

**WARNING: FLAMMABLE**  
Before proceeding read instructions & NAR Safety Code included with engines.

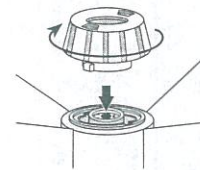
**PREPARE YOUR ENGINE ONLY WHEN YOU ARE OUTSIDE AT THE LAUNCH SITE PREPARING TO LAUNCH!**  
If you do not use your prepared engine, remove the igniter before storing your engine.



A. Twist off plastic engine lock ring at the rear of your rocket.



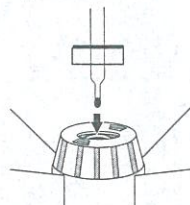
B. Slide engine into rear of rocket as shown.



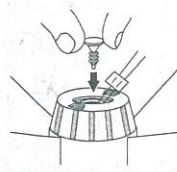
C. Twist plastic engine lock ring into locked position to hold engine in place.



D. Separate igniter and igniter plug.



E. Hold rocket upright, drop in igniter. Igniter must touch propellant.



F. Insert igniter plug.



G. Firmly push all the way in.



H. Bend igniter wires back.

## 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: A8-3, B4-4, B6-4, or a C6-5. Use an A8-3 for your first flight to become familiar with your rocket's flight pattern.
  - Recovery Wadding (EST 302274)
  - Igniters and Igniter Plugs (included with Estes engines.)
- Use only Estes products to launch this rocket.

| ENGINE | PROJECTED ALTITUDE |        |
|--------|--------------------|--------|
|        | Feet               | Meters |
| A8-3   | 100                | 30     |
| B4-4   | 286                | 87     |
| B6-4   | 316                | 97     |
| C6-5   | 811                | 247    |

## 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 parachute packed more than a minute or so before launch during cold weather (colder than 40° Fahrenheit [4° Celsius]). Parachute may be dusted with talcum or baby powder to avoid sticking.
- 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.

## COUNTDOWN AND LAUNCH

### 10... Safety key must not be in launch controller.

The safety cap with safety key attached should already be on the launch rod.

- ### 9... Remove safety cap from launch rod, slide launch lugs over rod. Make sure rocket slides freely and micro-clips are clean for good electrical contact.

- ### 8... Attach micro-clips to the igniter wires. Arrange the micro-clips so they do not touch each other or the metal blast deflector. Attach micro-clips as close to protective tape on igniter as possible.

- ### 7... Move everyone back from your rocket as far as launch wire will permit (at least 15 feet - 5 meters).

- ### 6... Insert safety key to arm the launch controller.

- ### 5... Start audible countdown.

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

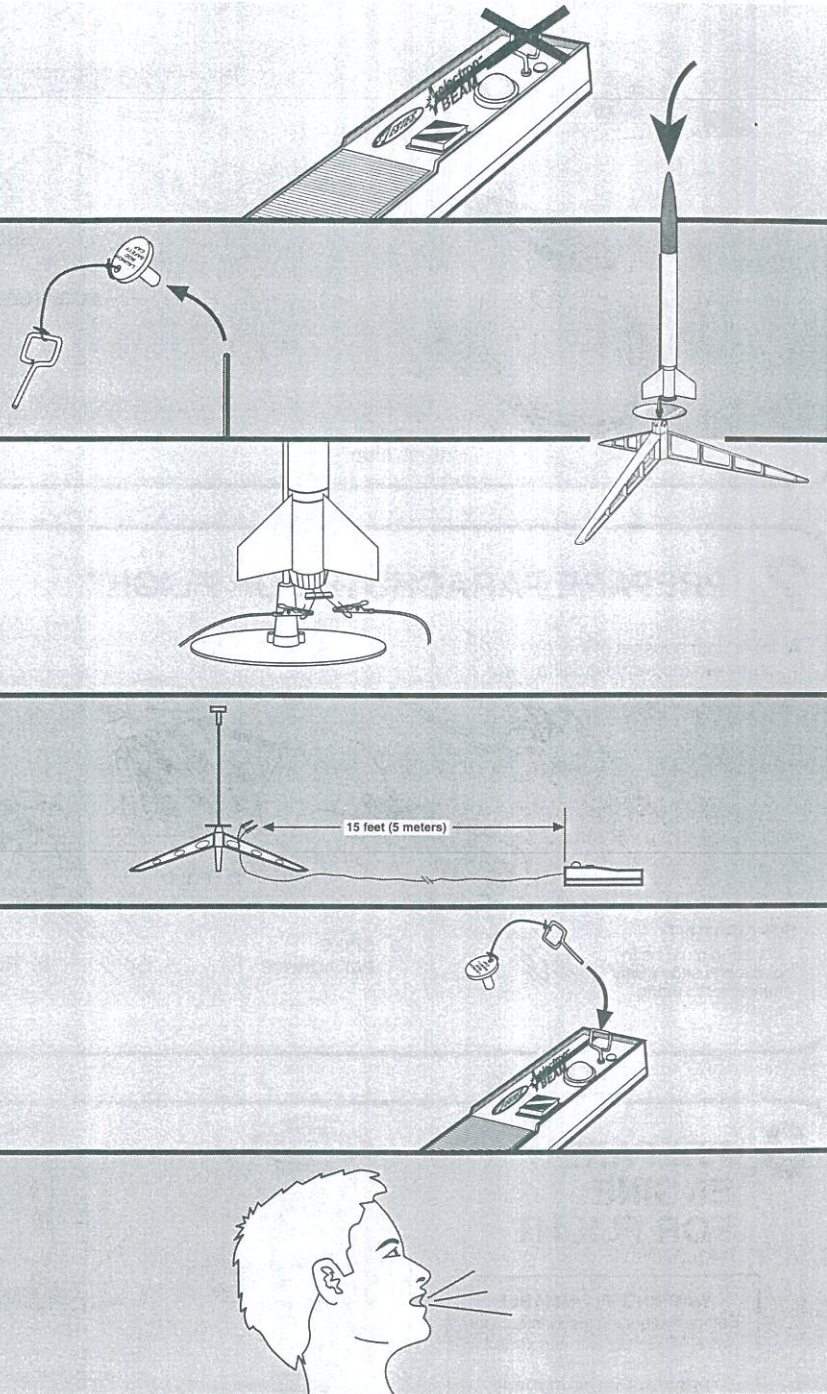
## LAUNCH!

Push and hold button until engine ignites.

**For safety, immediately remove safety key from launch controller and replace safety cap on launch rod.**

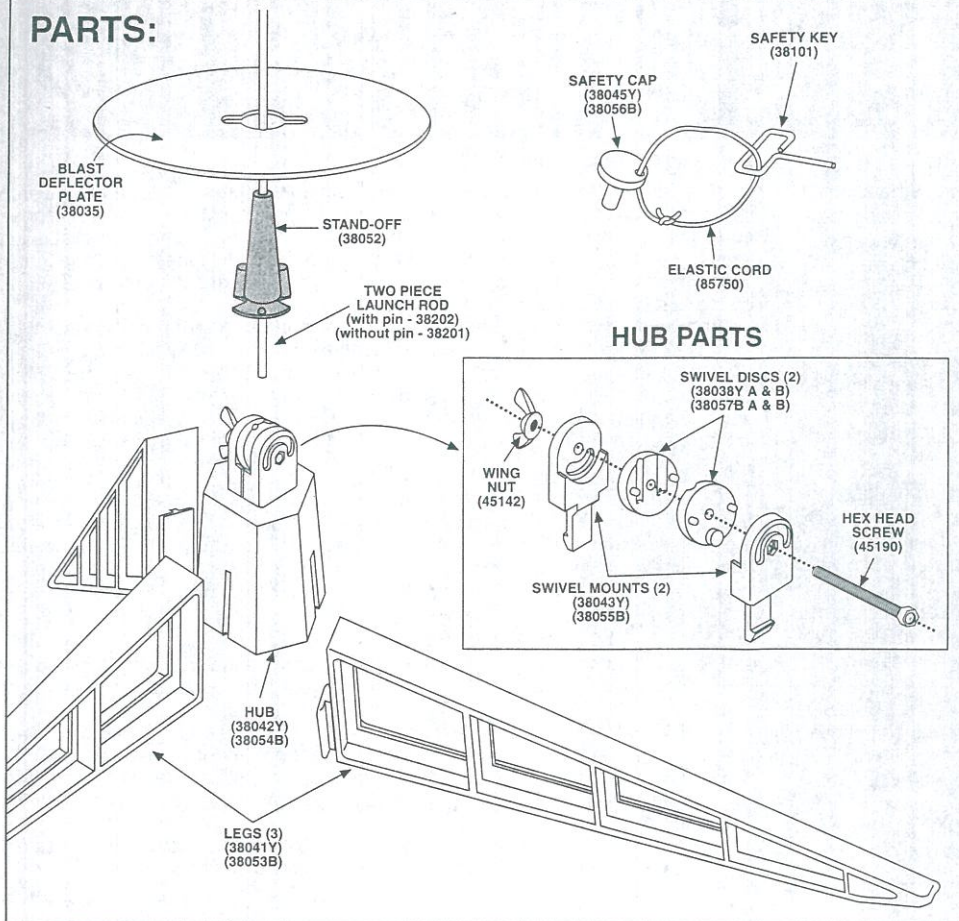
## MISFIRES

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. Broken or chipped coating will not affect the performance of the igniter. Reinstall the igniter plug as illustrated previously. Repeat the countdown and launch procedure.



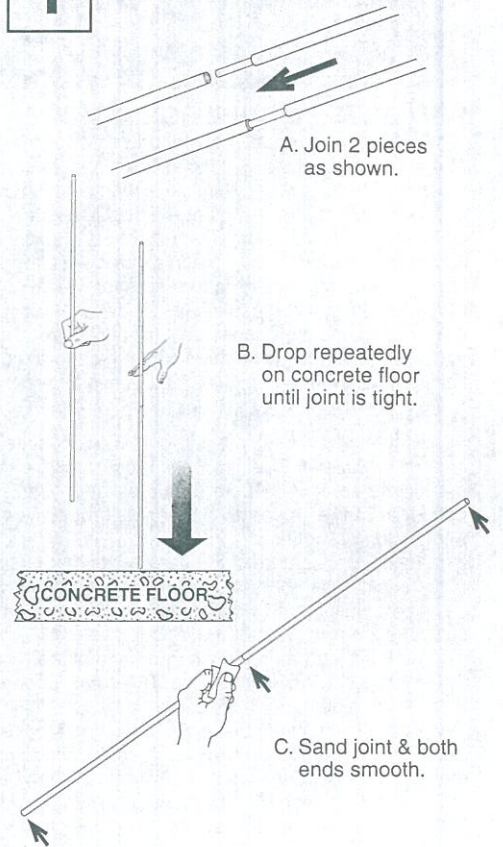
# READY-BUILT PORTA-PAD® II INSTRUCTIONS

## PARTS:

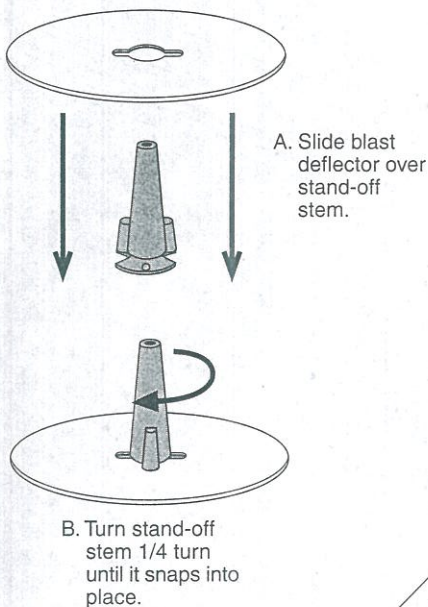


# 1

## Join Launch Rod



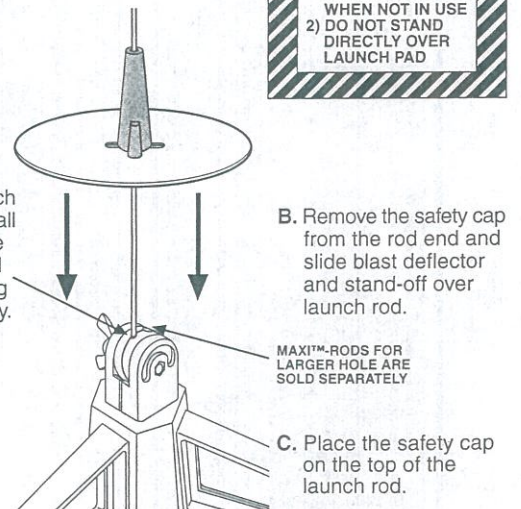
## 2 Attach Launch Stand-off



## 3 Attach Legs

Attach the launch pad legs to the launch pad hub. Legs are seated properly when their tops are even with the top of the hub.

## 4 Attach Launch Rod and Blast Deflector



**SAFETY NOTES**  
 1) ALWAYS REPLACE SAFETY CAP WHEN NOT IN USE  
 2) DO NOT STAND DIRECTLY OVER LAUNCH PAD

*You may adjust the launch angle of your rocket in breezy conditions by loosening the wing nut and tilting the rod. Be sure to retighten the wing nut before launch.*



ESTES INDUSTRIES  
1295 H Street  
Penrose, CO 81240 USA

# WELCOME TO THE EXCITING WORLD OF ESTES MODEL ROCKETRY!

(11-97) 83513

## WHY ESTES MODEL ROCKETRY?

The hobby of model rocketry originated at the dawn of the space age in the late 1950's. Seeing space boosters carry the first artificial satellites into earth's orbit inspired many enthusiastic young people to try to emulate the rocket pioneers by building their own rockets. Unfortunately, these homemade "rockets" usually involved stuffing flammable chemicals into metal pipes, very often with tragic results. Newspapers told of fingers and eyes lost — and all too frequently, of lives lost. What was needed was a safe alternative that would allow young people to experience the thrill of constructing and launching their own rockets and provide them with the opportunity to explore the fascinating science of rocketry. Estes model rocketry is the answer.

## A SAFE PROGRAM

Estes model rocketry is a safe activity because it incorporates three important features. The first is the model rocket engine, a professionally manufactured, low cost, solid-fuel rocket engine. This frees the rocket builder from the inherently dangerous procedures of mixing chemicals and packing propellant.

The second feature is the use of safe materials for constructing the rockets. All model rockets are built using only lightweight materials such as paper, plastic, and wood. Metal parts are never used for the main structural components of the model.

The third feature is the incorporation of the Model Rocket Safety Code into all our flying activities. The safety code provides guidelines for the safe operation of model rockets, such as launching the rockets electrically from a safe distance, and using recovery systems to gently return the model to earth. When the safety code is followed, model rocketry is an extremely safe activity, safer than baseball, soccer, or swimming. Our hobby's excellent safety record spans over 40 years and 300 million rocket launches.

## LAUNCH SAFETY

Only launch model rockets from a large open area. Make sure the ground around the launcher is clear and has no dry weeds or highly flammable materials. **Always carry the cap and key with you to the launch pad!** After sliding the rocket onto the launch rod, place the cap on the rod before hooking up the igniter. The cap protects you from accidental eye injury from the rod. If the cap is not available, put your hand on the end of the rod before leaning over.

**Immediately before launching a rocket, check for low-flying aircraft.** If there are other people in the launch area, announce the launch loudly to get their attention, followed by an audible five-second countdown.

After a successful launch, remember to remove the safety key from the controller and place the cap/key on the launch rod. If the rocket becomes entangled in a power line or other dangerous place, DO NOT attempt to retrieve the model!

## LAUNCH AREAS

Choose a large field away from power lines, buildings, tall trees, and low-flying aircraft. The length of the smallest side of the field should be at least one fourth of the rocket's expected maximum altitude. The Model Rocket Safety Code contains a table of minimum field dimensions for each engine size.

## FOR YOUR SAFETY

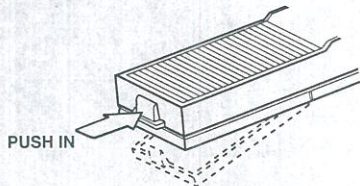
Please note this controller has a safety key that arms the launch system in order to ignite the model rocket's engine. For your safety, follow these simple safety rules:

- A. NEVER** insert the safety key into controller until you and all others are away from the flight-ready rocket and you are ready to count down and launch.
- B. In case of misfire, NEVER** approach or allow anyone else to approach the rocket until you have removed the safety key and waited one full minute to be sure engine is not going to ignite.
- C. Remove the safety key immediately after launch.** Always keep the safety key in your possession or place safety cap/key on launch rod.

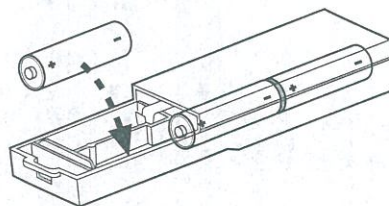
# READY-BUILT ELECTRON BEAM® INSTRUCTIONS

This controller requires four AA alkaline batteries (not included). Only alkaline batteries are recommended. Do not mix old and new batteries or alkaline, standard, and rechargeable batteries in your launch controller.

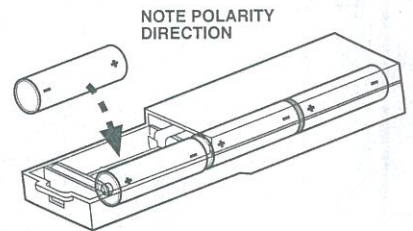
## 1 Install Batteries



A. Open compartment.

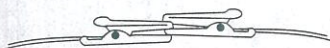


B. Insert three AA batteries in one side.

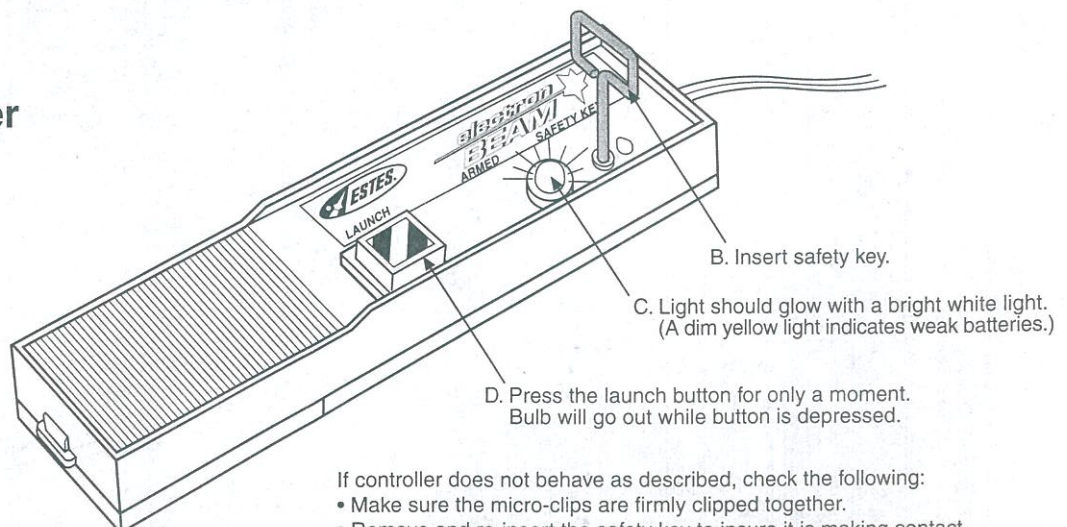


C. Insert one battery in other side.  
D. Close compartment.

## 2 Test the Controller



A. Clip micro-clips together. (Continuity light will not glow without safety key in place. If it does, return your defective controller to Estes for a replacement.)



B. Insert safety key.  
C. Light should glow with a bright white light. (A dim yellow light indicates weak batteries.)  
D. Press the launch button for only a moment. Bulb will go out while button is depressed.

If controller does not behave as described, check the following:

- Make sure the micro-clips are firmly clipped together.
- Remove and re-insert the safety key to insure it is making contact.
- Make sure batteries are correctly inserted as described.