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**BETA**<sup>TM</sup>  
**SERIES**  
SKILL LEVEL 1

# WILDFIRE<sup>TM</sup>

FLYING MODEL ROCKET KIT INSTRUCTIONS

## MATERIALS REQUIRED:

PENCIL, HOBBY SAW, RULER, HOBBY KNIFE, WHITE OR YELLOW GLUE, 3/4" (19 mm) MASKING TAPE, SANDPAPER, AUTOMOTIVE PRIMER, RED AND BLACK GLOSS SPRAY PAINT

ALL GLUED AREAS ARE SHADED IN GRAY

BE SURE TO READ ALL INSTRUCTIONS, TEST FIT ALL PARTS, AND SAND IF NECESSARY BEFORE GLUING.

### PARTS LAYOUT

DECAL (1) ✓  
37756

DIE CUT Balsa FIN SHEET (1) ✓  
32105

NOSE CONE  
50BB (1)  
✓71027

TAIL CONE  
NOT USED

SLOTTED BODY  
TUBE #BT-50 (1)  
31168

SHOCK CORD 1/8 x 12  
38373 ✓

LAUNCH LUG  
LL2A (1)  
✓38175

GREEN ADAPTER  
RINGS #2050 (2)  
✓30164-2

STREAMER 1-3/16 X 18 (1)  
38272

BLUE ENGINE  
MOUNT TUBE 20J (1)  
30326-1 ✓

ENGINE HOOK  
EH-2A (1)  
35021 ✓

ASSEMBLED PARACHUTE - 12 (1)  
35801 ✓

### 2.

A. Insert the engine hook into the slit as shown.

B. Slide one of the 1/2" (13 mm) rings through the grommet as just see 1

### 3.

A. Use a hobby knife to carefully cut fins out of balsa sheets. (Always cut away from other fins to avoid damage.) Be sure cuts go all the way through the balsa, then remove fins.

### 4.

DOOR FRAME

END VIEW

CENTERED BETWEEN TWO SLOTS

A. Lightly draw a straight line down the length of the tube centered between two fin slots. This is your launch lug line. **NOTE:** A door frame can be used to do it but we recommend the Estes® Rocket Builder's Marking Guide (EST 302227)

### 1.

A. Mark the blue engine mount tube at 1/2" (13 mm) and at 2-1/2" (6.4 cm).

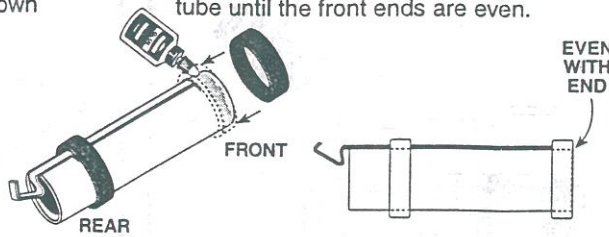
B. Use a hobby knife to make a 1/8" (3 mm) wide slit at the 2-1/2" (6.4 cm) mark only.



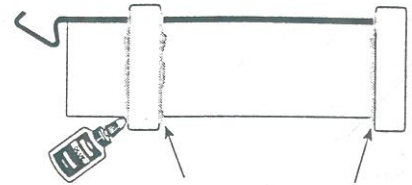
Apply a band of glue just in front of the mark, then slide the ring down until you reach the mark.



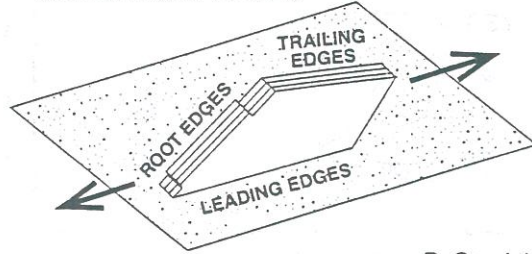
C. Apply glue around front end of tube and slide the remaining adapter ring onto the tube until the front ends are even.



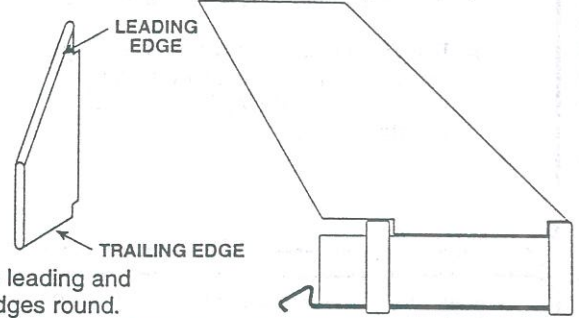
D. Once rings are in place, bead glue where shown and smooth with your finger. Let assembly dry thoroughly.



C. Lay sandpaper, rough side up, on table. Stack fins together and lightly sand the edges smooth and flat. DO NOT SAND AWAY TABS ON ROOT EDGES.



E. Test fit all the fins to make sure they fit between the centering rings and that the tabs contact the tube. Sand as necessary for a proper fit.



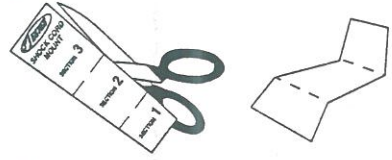
B. Keep a stick of scrap balsa to use as a glue applicator.



D. Sand the leading and trailing edges round.

# 5.

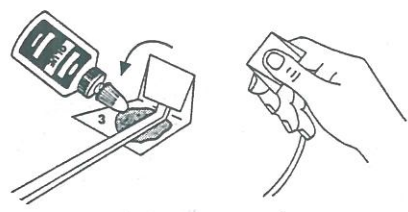
A. Cut out shock cord mount below along solid lines. Crease on dotted lines.



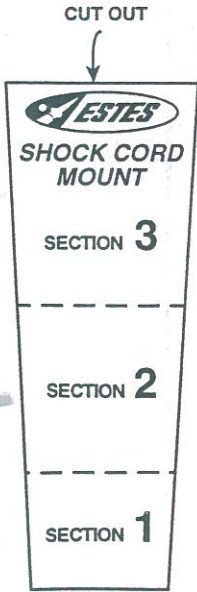
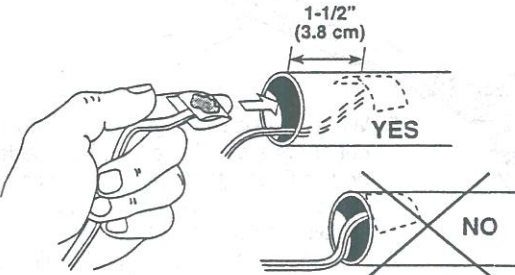
B. Spread glue on section 2 and lay shock cord into glue at a slight angle as shown. Fold forward.



C. Apply glue to section 3. Fold forward again. Clamp firmly until glue sets.

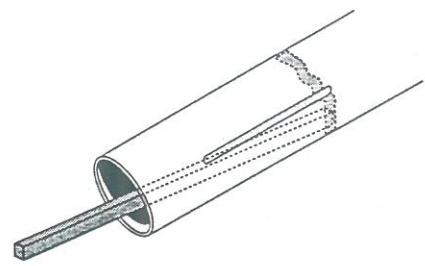


D. Glue the shock cord mount about 1-1/2" (3.8 cm) down inside the front end (without slots) of the body tube, and press firmly into place. Let dry.

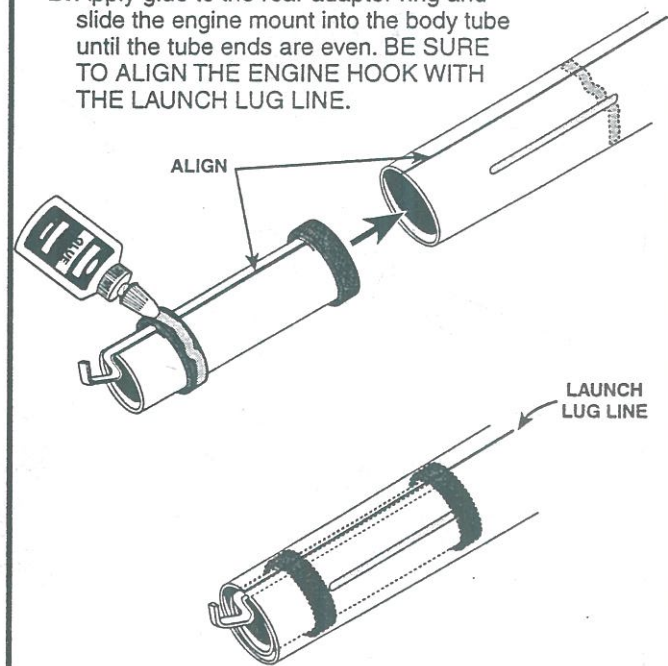


# 6.

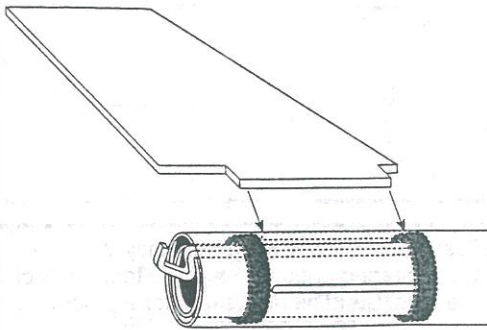
A. Using your wood stick, apply glue inside the body tube near the front of the slots as shown.



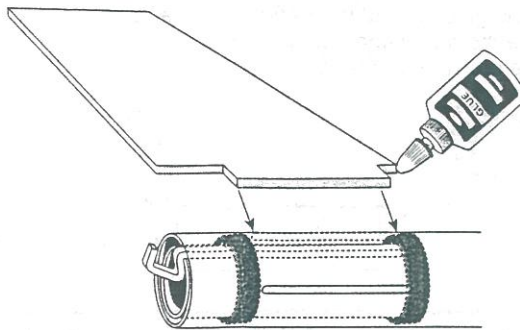
B. Apply glue to the rear adapter ring and slide the engine mount into the body tube until the tube ends are even. BE SURE TO ALIGN THE ENGINE HOOK WITH THE LAUNCH LUG LINE.



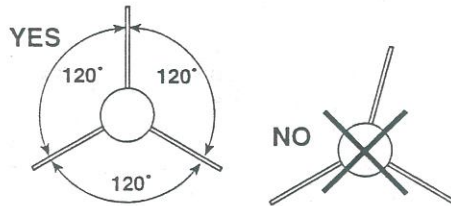
# 7.



A. Test fit each fin into a slot on the body tube and sand as necessary to achieve a proper fit. REMEMBER: Fins must be attached correctly for stable flight.

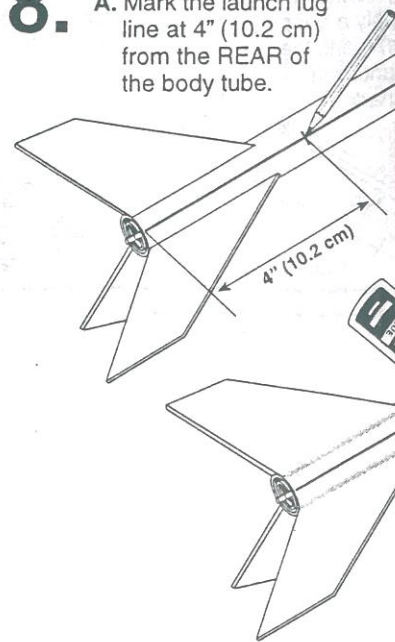


B. Apply glue to the tabs on the fins and along the fin root edges as shown. Insert the fins into slots, checking alignment to make sure fins are straight.



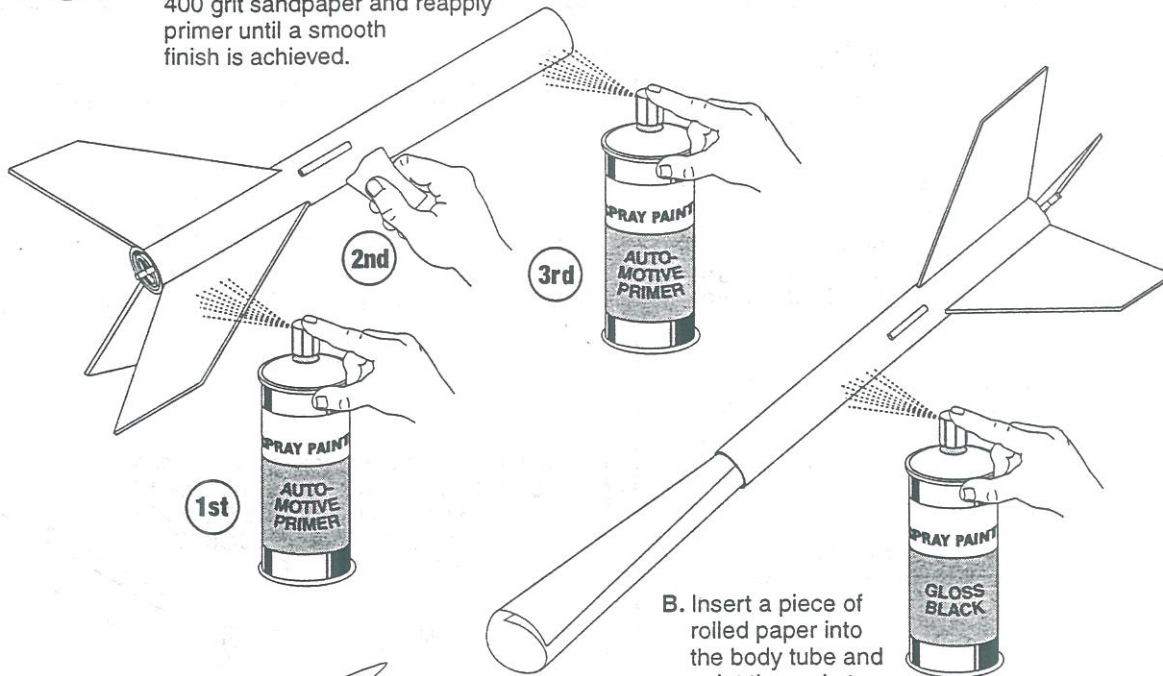
# 8.

A. Mark the launch lug line at 4" (10.2 cm) from the REAR of the body tube.

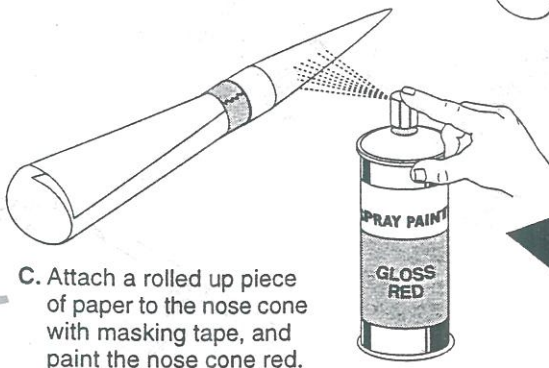


# 10.

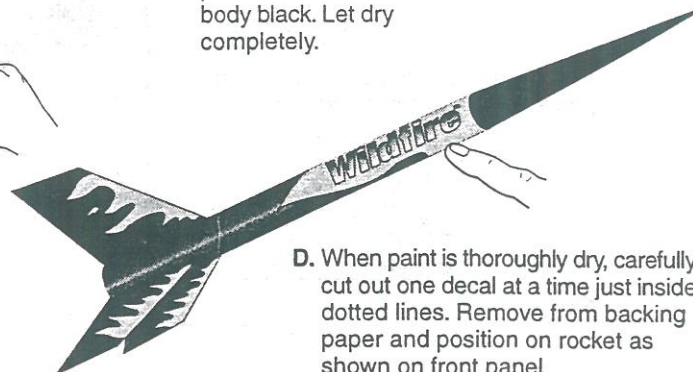
A. Use automotive primer to smooth and fill balsa fins and body tube. If necessary, sand with 400 grit sandpaper and reapply primer until a smooth finish is achieved.



B. Insert a piece of rolled paper into the body tube and paint the rocket body black. Let dry completely.



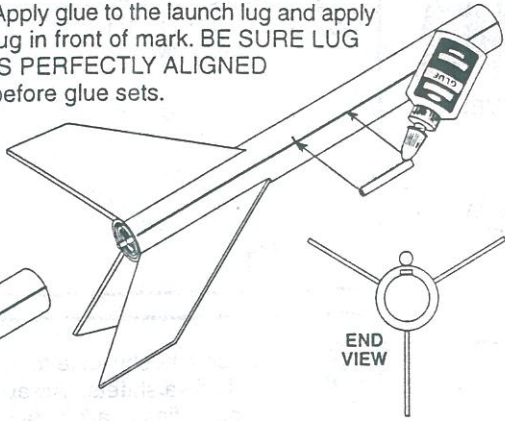
C. Attach a rolled up piece of paper to the nose cone with masking tape, and paint the nose cone red.



D. When paint is thoroughly dry, carefully cut out one decal at a time just inside dotted lines. Remove from backing paper and position on rocket as shown on front panel.  
 E. Once in position, rub decal with finger to remove air bubbles and secure decal to rocket.



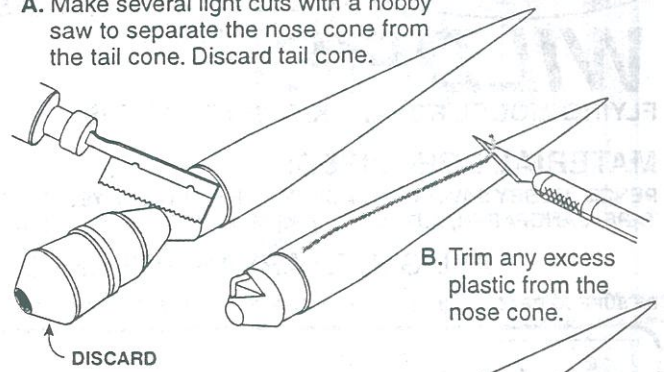
B. Apply glue to the launch lug and apply lug in front of mark. BE SURE LUG IS PERFECTLY ALIGNED before glue sets.



After glue is dry, apply a glue reinforcement (fillet) to both sides of the launch lug and fins. Smooth with finger.

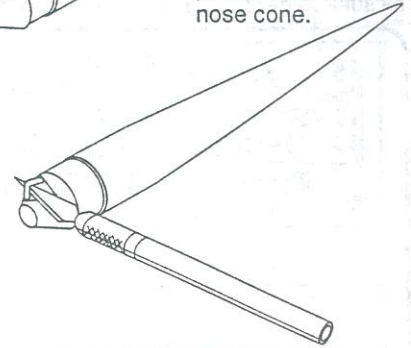
9.

A. Make several light cuts with a hobby saw to separate the nose cone from the tail cone. Discard tail cone.

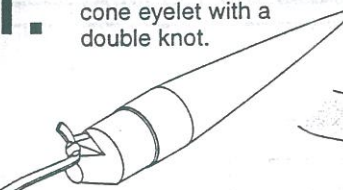


B. Trim any excess plastic from the nose cone.

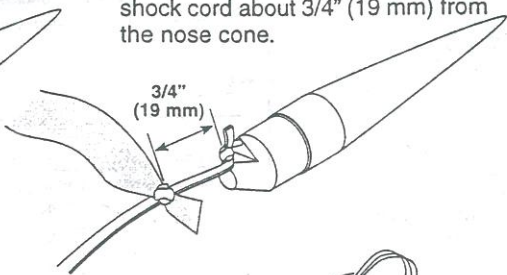
C. Carefully remove any excess plastic from the nose cone eyelet. BE CAREFUL NOT TO CUT OFF EYELET!



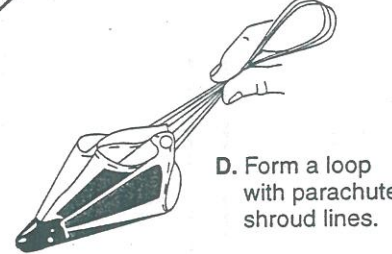
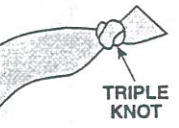
1. A. Tie shock cord to nose cone eyelet with a double knot.



B. Tie one end of the streamer to the shock cord about 3/4" (19 mm) from the nose cone.

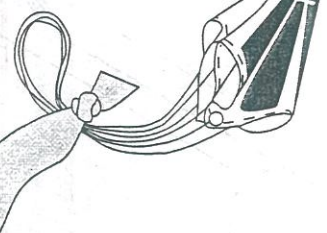


Tie a triple knot at the free end of the streamer.

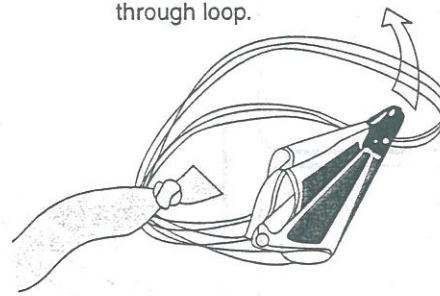


D. Form a loop with parachute shroud lines.

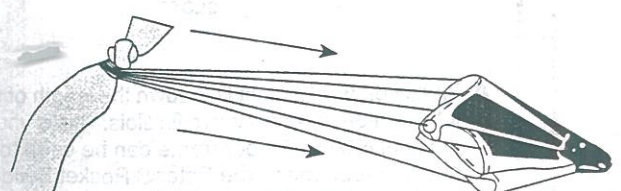
Lay streamer knot over loop.



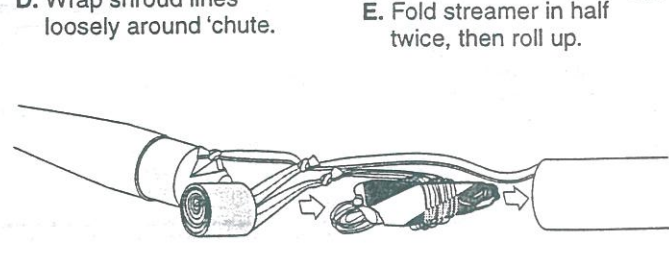
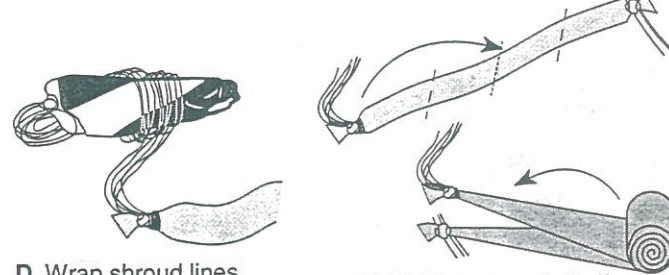
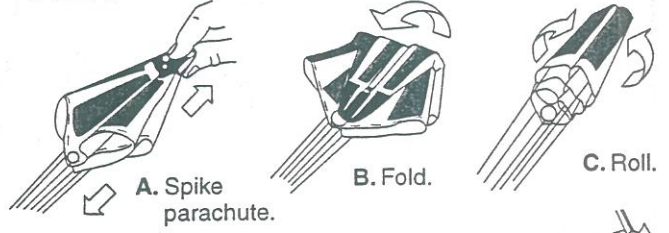
F. Pass parachute through loop.



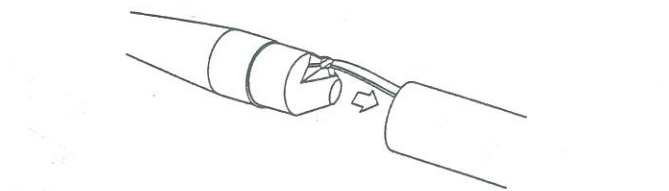
G. Pull tight.



## 12. PACKING PARA-STREAM



F. Insert parachute then streamer. Para-stream should slide in easily, if not repack again.



G. Slide shock cord and nose cone into place.

**DO NOT FORGET TO PACK RECOVERY WADDING IN THE ROCKET BEFORE FLYING - SEE STEP 13**

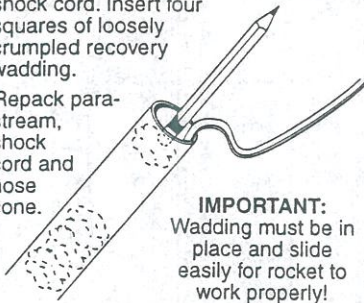


# FLIGHT PREPARATION

## PARA-STREAM PREPARATION

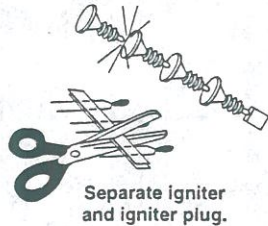
A. Remove nose cone, para-stream and shock cord. Insert four squares of loosely crumpled recovery wadding.

B. Repack para-stream, shock cord and nose cone.



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

## ENGINE PREPARATION



Separate igniter and igniter plug.



Hold engine upright, drop in igniter. Igniter must touch propellant.



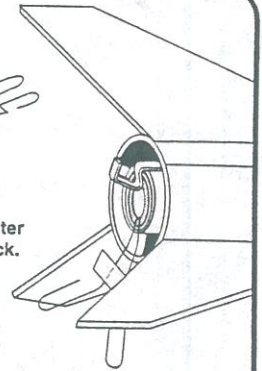
Insert igniter plug.



Firmly push all the way in.



Bend igniter wires back.



Insert engine into rocket.

# 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: 1/2A6-2, A8-3, B6-4, B6-6, C6-5 or C6-7.

Use an A8-3 for your first flight to become familiar with your rocket's flight pattern.

Use only Estes products to launch this rocket.

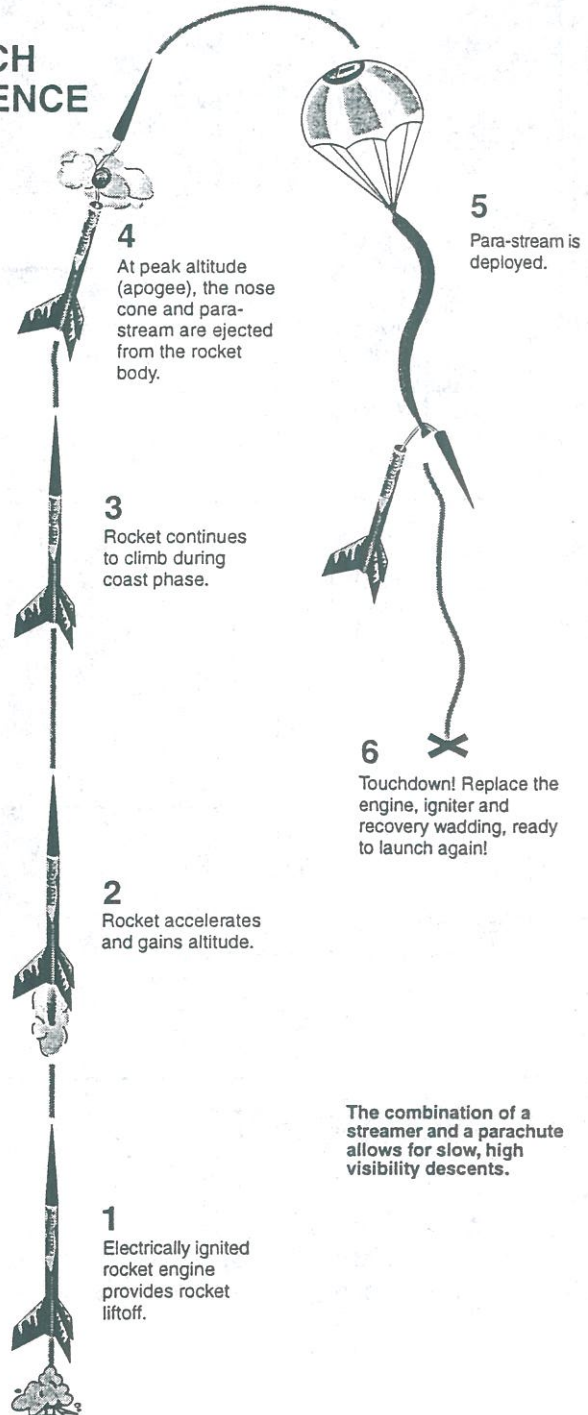
## PROJECTED ALTITUDES

ENGINE	FEET	METERS
1/2A6-2	93	28
A8-3	279	85
B4-4	570	174
B6-4/B6-6	589	180
C6-5/C6-7	1027	314

# 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 parachutes or streamer 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.

# LAUNCH SEQUENCE



**4**  
At peak altitude (apogee), the nose cone and para-stream are ejected from the rocket body.

**3**  
Rocket continues to climb during coast phase.

**2**  
Rocket accelerates and gains altitude.

**1**  
Electrically ignited rocket engine provides rocket liftoff.

**5**  
Para-stream is deployed.

**6**  
Touchdown! Replace the engine, igniter and recovery wadding, ready to launch again!

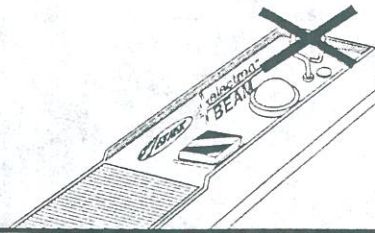
The combination of a streamer and a parachute allows for slow, high visibility descents.



## COUNTDOWN AND LAUNCH

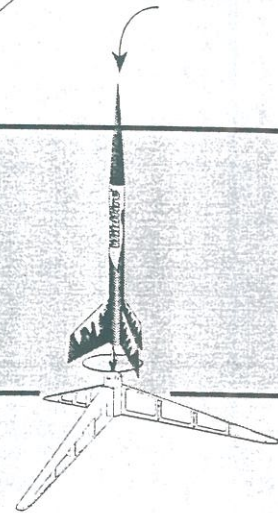
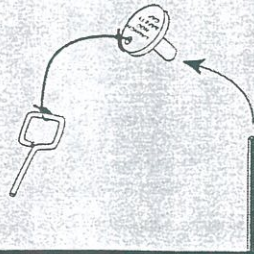
10...

Safety key must not be in launch controller. The safety cap with safety key attached should already be on the launch rod.



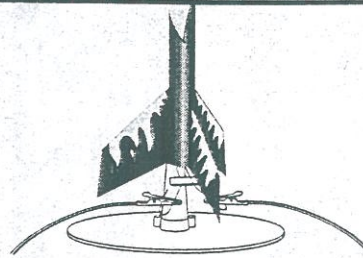
9...

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



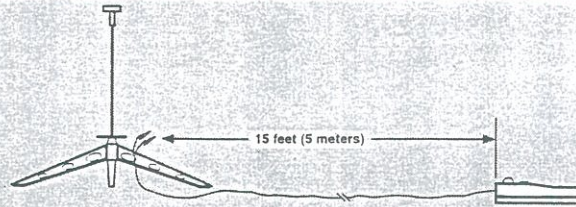
8...

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.



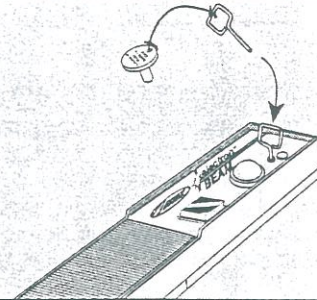
7...

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



6...

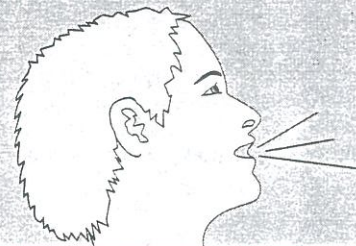
Insert safety key to arm the launch controller.



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.

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