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**BETA**  
SERIES

SKILL LEVEL 1

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# PROWLER™

FLYING MODEL ROCKET KIT INSTRUCTIONS

## MATERIALS REQUIRED:

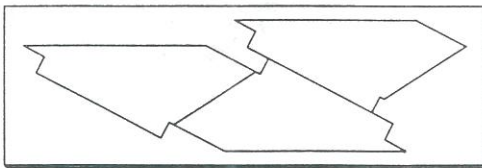
PENCIL, RULER, HOBBY KNIFE, WHITE OR YELLOW GLUE, 3/4" (19 mm) MASKING TAPE, SANDPAPER, AUTOMOTIVE PRIMER, DARK BLUE GLOSS SPRAY PAINT

ALL GLUED AREAS ARE SHADED IN GRAY

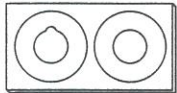
BE SURE TO READ ALL INSTRUCTIONS, TEST FIT ALL PARTS, AND SAND IF NECESSARY BEFORE GLUING.



DECAL (1)  
37608



DIE CUT BALSA FIN SHEET (1)  
32906



CENTERING RINGS  
#2060 (1 CARD)  
30128



RED TUBE COUPLERS  
KJT 60C (2)  
30176-5

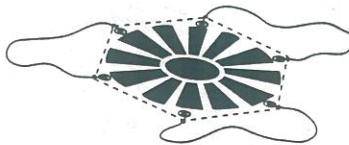
SLOTTED BODY TUBE  
#BT-60 x 12 (1)  
31189

WHITE ENGINE MOUNT TUBE  
#BT-20 (1) 30329

BLACK RETAINER RING KERH 20 (1)  
30170-3

ENGINE HOOK  
EH-2A (1)  
35021

LAUNCH LUGS LL2A (2)  
38175



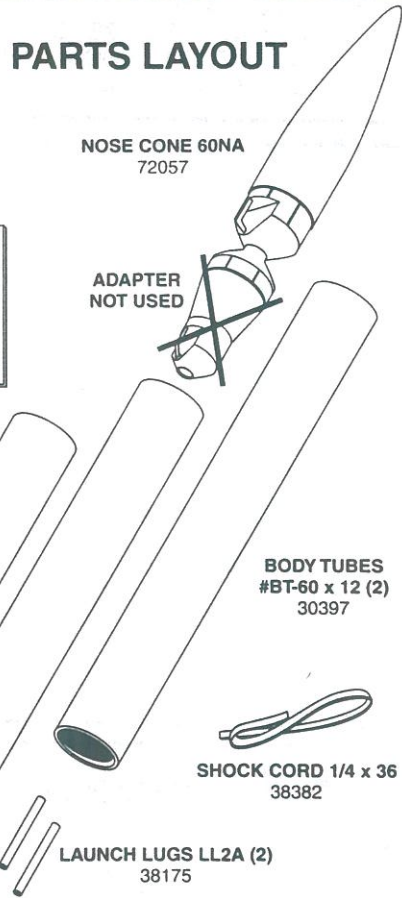
ASSEMBLED PARACHUTE - 24 (1)  
35803

NOSE CONE 60NA  
72057

ADAPTER  
NOT USED

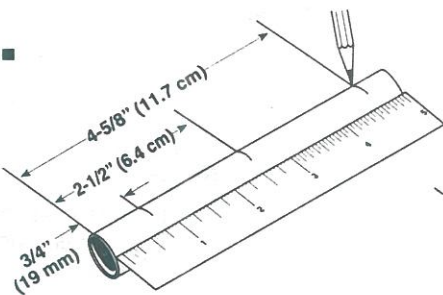
BODY TUBES  
#BT-60 x 12 (2)  
30397

SHOCK CORD 1/4 x 36  
38382

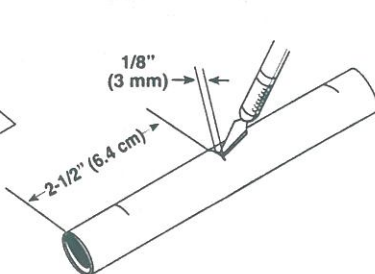


## PARTS LAYOUT

1.



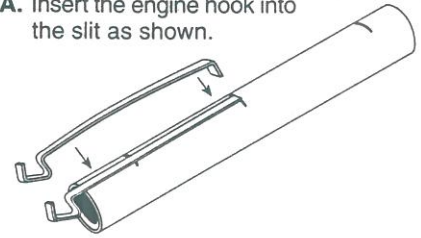
A. Mark the white engine mount tube at 3/4" (19 mm), 2-1/2" (6.4 cm), and at 4-5/8" (11.7 cm).



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

2.

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

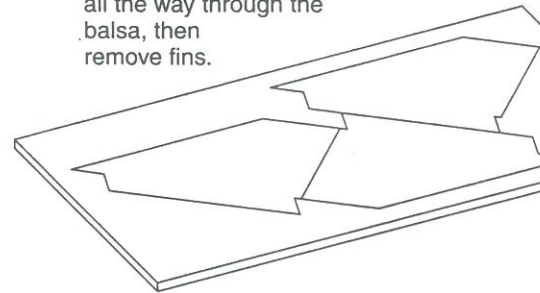


B. Apply a...  
the 3/4"  
the black  
the mar  
the eng

F. Once ring  
apply glue  
of rings,  
and let gl

3.

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



D. Test fit all fins to make sure they contact the centering rings and the engine mount tube. This is necessary for a proper flight.

4.

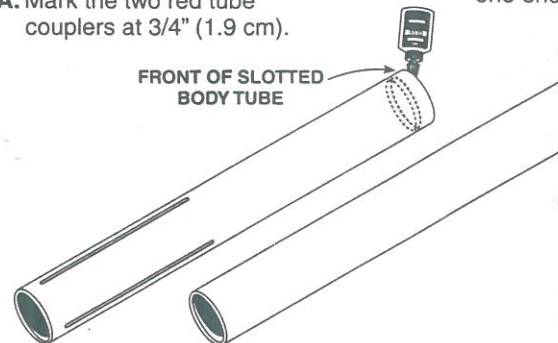
3/4" (1.9 cm)



B. Test fit couplers (one of glue in slots) of one end

A. Mark the two red tube couplers at 3/4" (1.9 cm).

FRONT OF SLOTTED BODY TUBE



line of glue just above 9 mm mark, then slide engine retainer ring down through the glue to this will secure hook.

C. Use a hobby knife to carefully remove the centering rings from their card.

D. Slide the notched centering ring (with notch over the engine hook) onto the rear of the engine mount tube until it fully contacts the black retainer ring.

E. Slide the remaining centering ring over the front of the engine mount tube to the 4-5/8" (11.7 cm) mark.

are in place, round both sides both with finger, dry thoroughly.

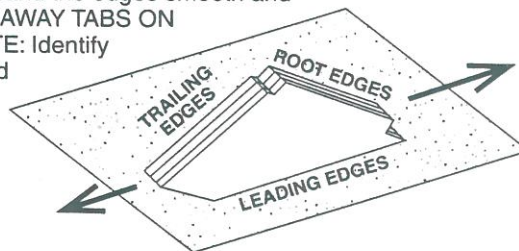
NOTE: YOU MAY NEED TO SAND RINGS FOR PROPER FIT.

isa



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

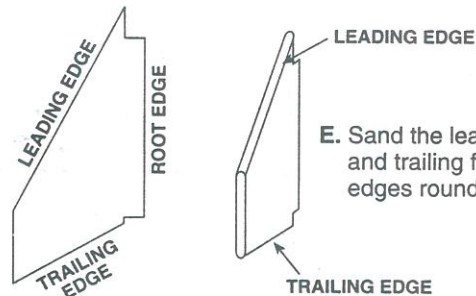
C. Lay sandpaper, rough side up, on table. Stack fins together and lightly sand the edges smooth and flat. DO NOT SAND AWAY TABS ON ROOT EDGES. NOTE: Identify the root, leading, and trailing edges of your fins.



NOTE HOW FIN FITS IN FRONT OF ENGINE RETAINER RING

DO NOT GLUE YET!

they fit between at the tabs tube. Sand as



E. Sand the leading and trailing fin edges round.

ers, then apply a small amount le the FRONT (end without slotted body tube and inside a non-slotted tube.

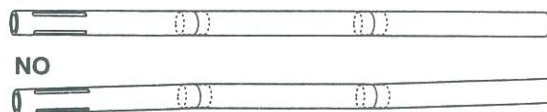
C. Use a twisting motion to insert a red tube coupler into each tube up to their 3/4" (1.9 cm) marks. Let glue dry.

E. While glue is still wet, roll the joined tubes on a flat surface. Allow to dry. (This will ensure the body of your rocket is straight.)

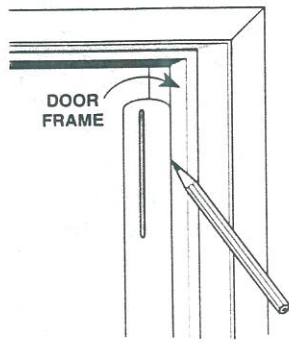
D. Apply a small amount of glue inside each end of the remaining non-slotted body tube, and slide red tube couplers into each end until the tubes are perfectly joined.

YES

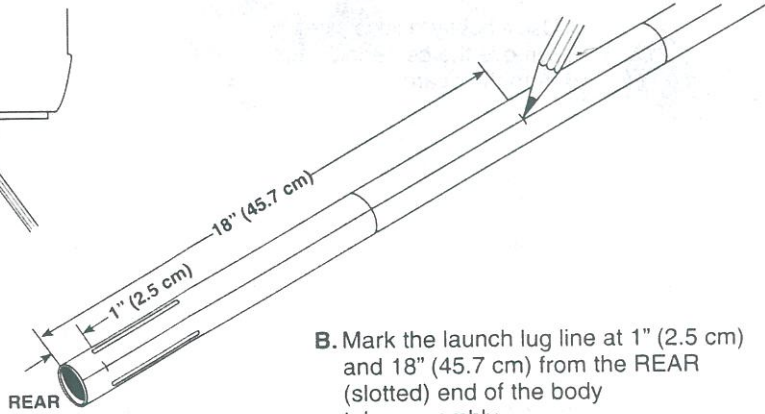
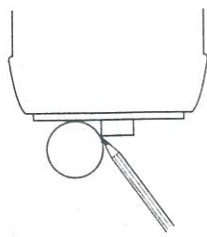
NO



5.



A. Use a door frame to lightly draw a straight line down the length of the body tube assembly between two fin slots. This is your launch lug line.

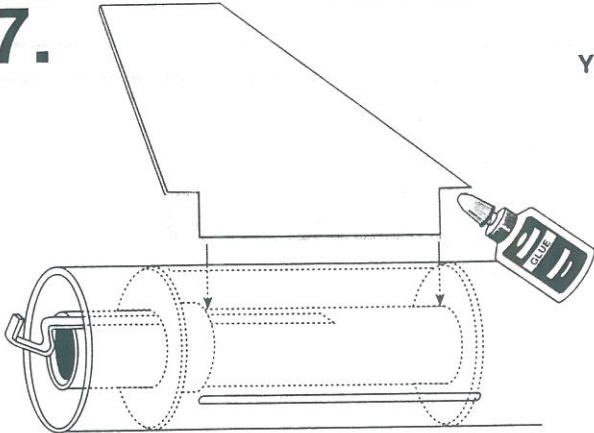


B. Mark the launch lug line at 1" (2.5 cm) and 18" (45.7 cm) from the REAR (slotted) end of the body tube assembly.

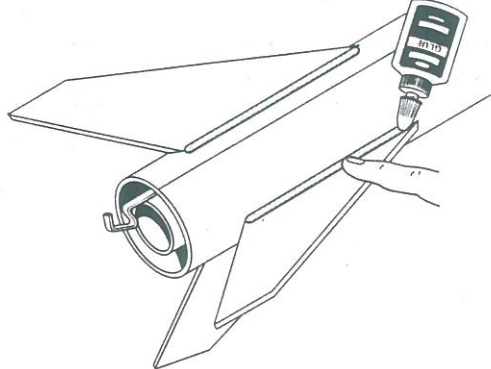
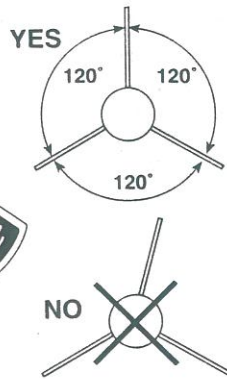
6.

A. Using glue the fr

7.



A. Test fit the fins into the slots. Apply glue to the tab on each fin and along the fin root as shown. Insert the fins into slots. Check alignment to make sure fins are straight. Let glue set. REMEMBER: Fins must be attached correctly for stable flight.

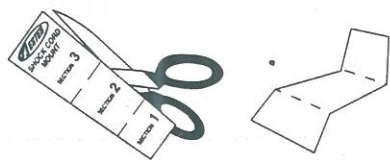


B. Apply a glue fillet (reinforcement) to each fin/tube joint and smooth with finger. Let dry.

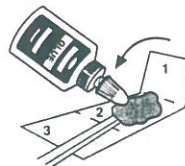
8.

A. Ap sh ma pe

9.



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



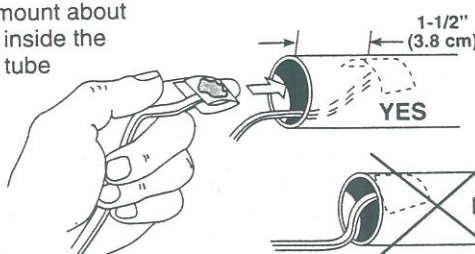
B. Spread glue on section 2 and lay shock cord into glue at a slight angle as shown. Fold forward.



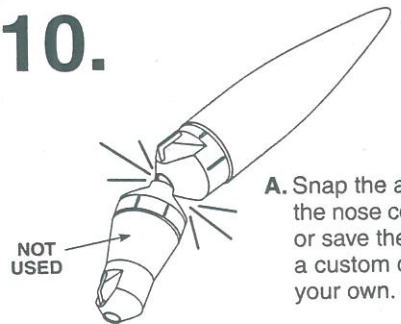
C. Apply glue to section 3. Fold forward again. Clamp firmly until glue sets.



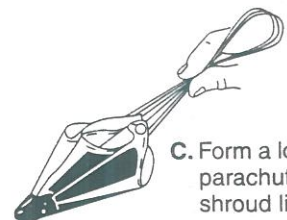
D. Glue the shock cord mount about 1-1/2" (3.8 cm) down inside the front end of the body tube assembly, and press firmly into place. Let dry.



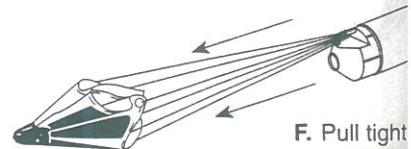
10.



A. Snap the adaptive nose cone. Or save the adaptive nose cone for a custom design of your own.

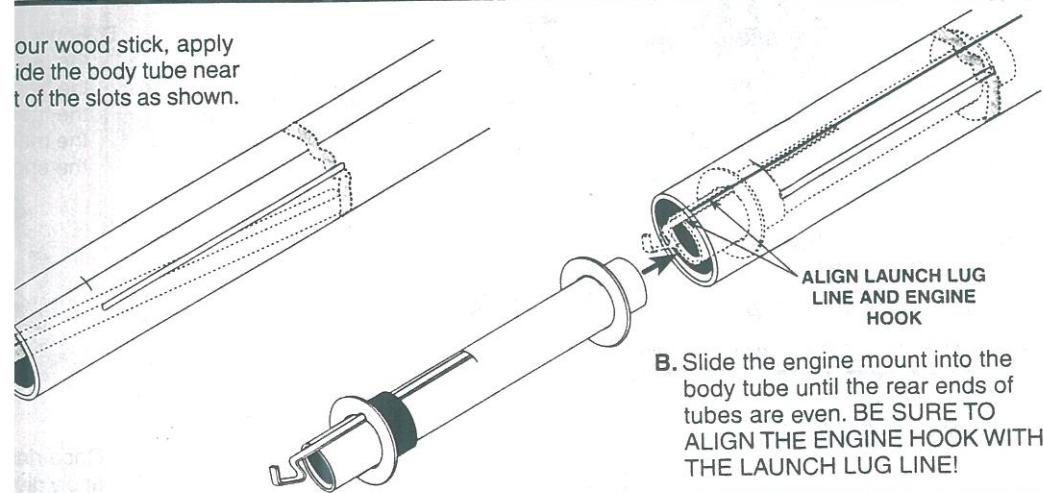


C. Form a loop with parachute shroud lines.



F. Pull tight

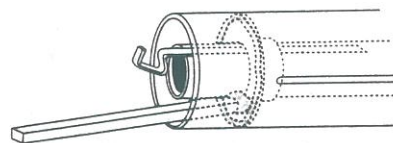
our wood stick, apply  
ide the body tube near  
t of the slots as shown.



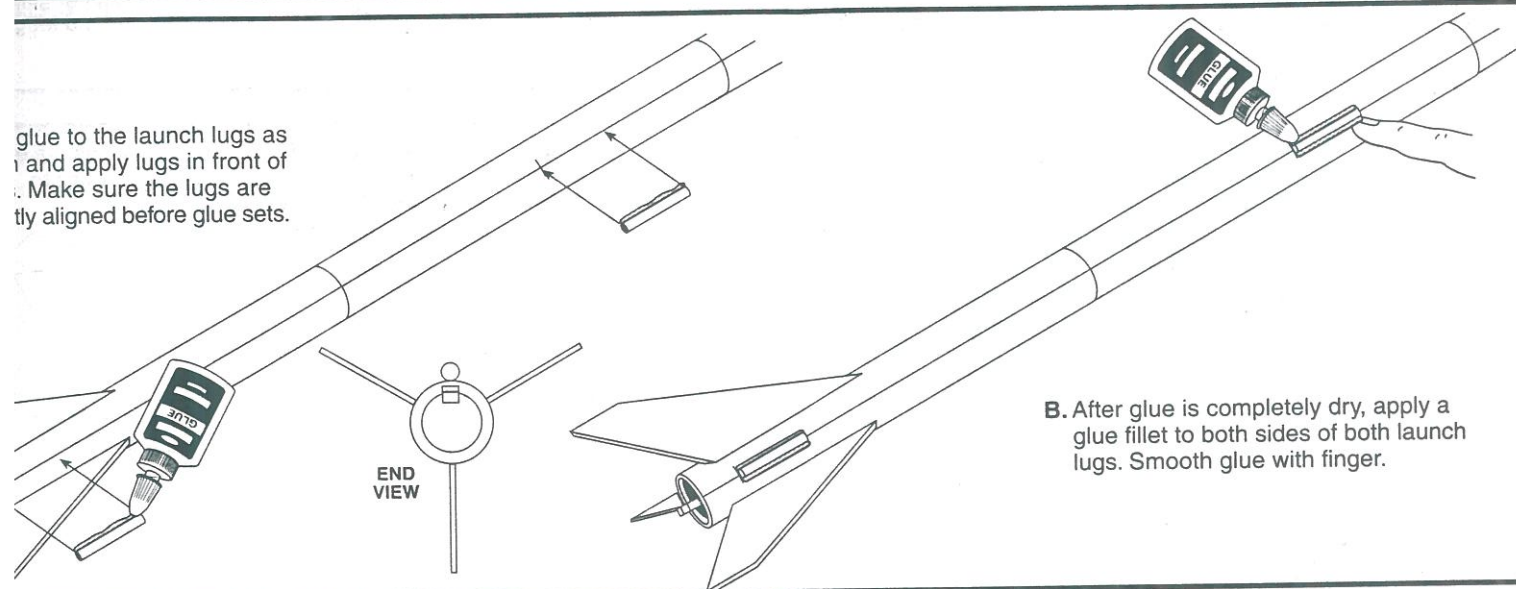
ALIGN LAUNCH LUG  
LINE AND ENGINE  
HOOK

**B.** Slide the engine mount into the body tube until the rear ends of tubes are even. BE SURE TO ALIGN THE ENGINE HOOK WITH THE LAUNCH LUG LINE!

**C.** Apply a glue fillet (reinforcement) around the joint between the body tube and rear centering ring to reinforce it.



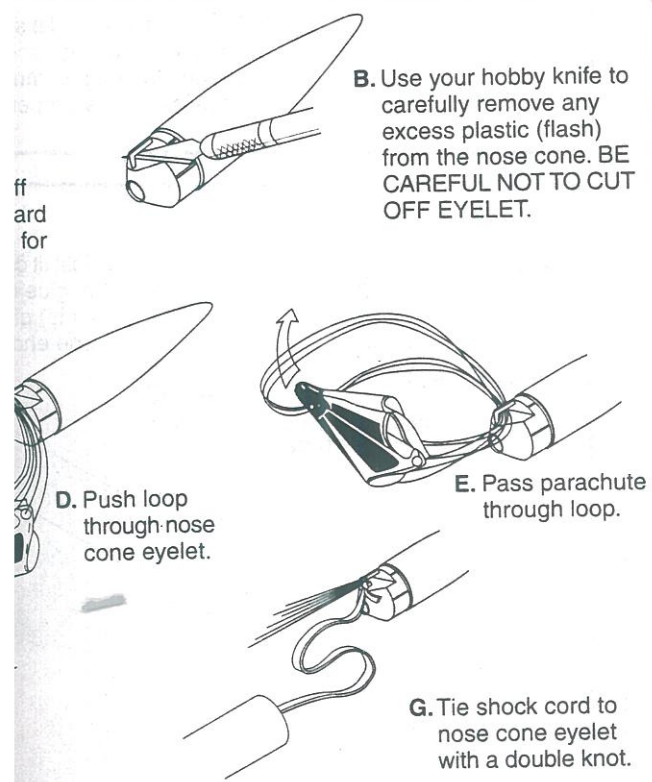
glue to the launch lugs as  
and apply lugs in front of  
. Make sure the lugs are  
tly aligned before glue sets.



END  
VIEW

**B.** After glue is completely dry, apply a glue fillet to both sides of both launch lugs. Smooth glue with finger.

ff  
ard  
for



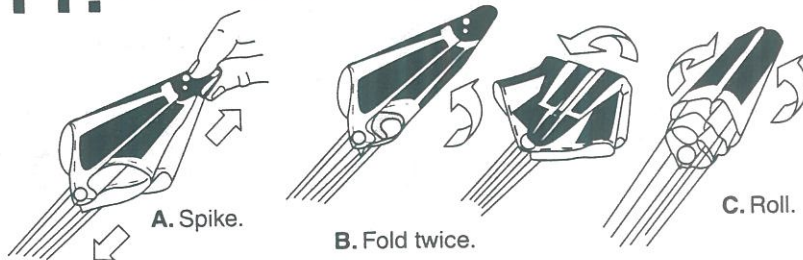
**B.** Use your hobby knife to carefully remove any excess plastic (flash) from the nose cone. BE CAREFUL NOT TO CUT OFF EYELET.

**D.** Push loop through nose cone eyelet.

**E.** Pass parachute through loop.

**G.** Tie shock cord to nose cone eyelet with a double knot.

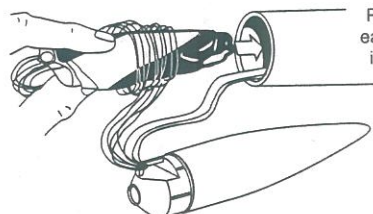
## 11. PACKING PARACHUTE



**A.** Spike.

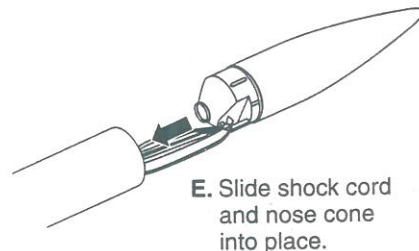
**B.** Fold twice.

**C.** Roll.



**D.** Wrap lines loosely around 'chute. Insert parachute into rocket.

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

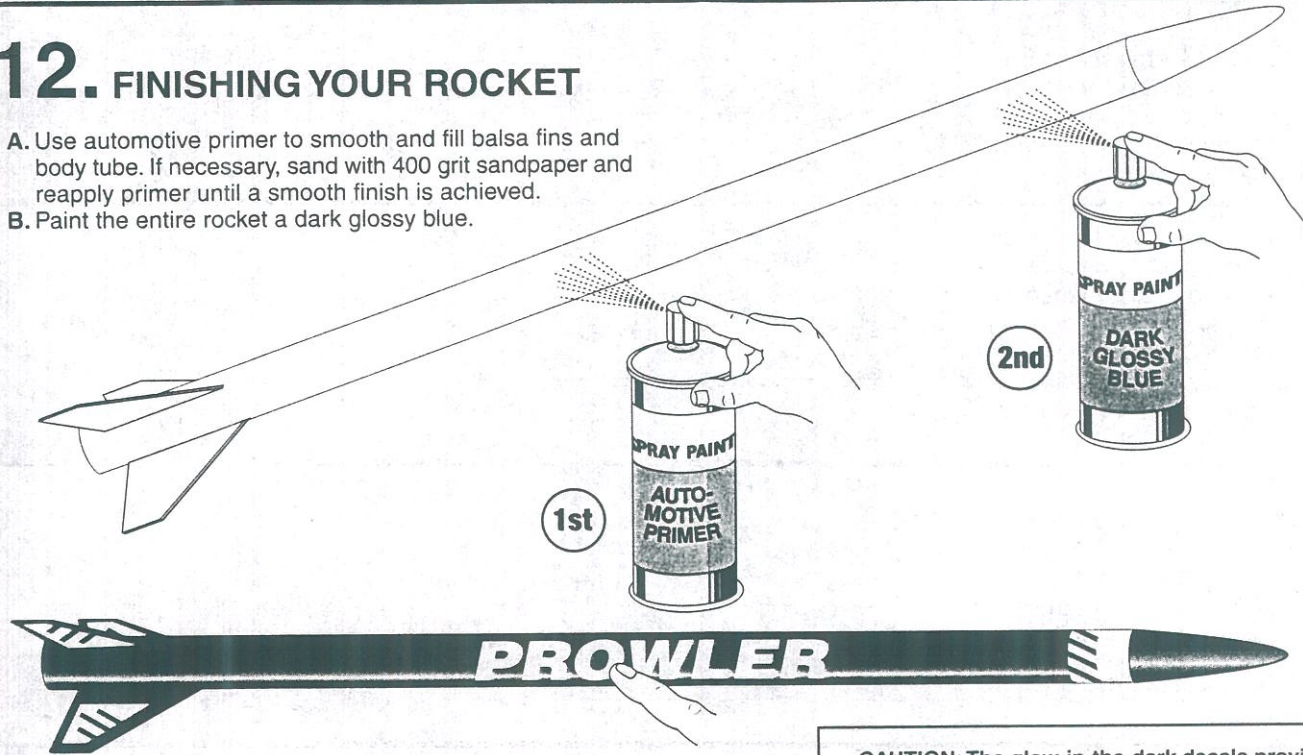


**E.** Slide shock cord and nose cone into place.

**Do not forget to pack recovery wadding in the rocket before flying - see Step 13**

# 12. FINISHING YOUR ROCKET

- 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. Paint the entire rocket a dark glossy blue.



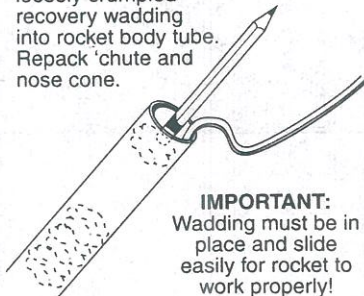
- C. When paint is thoroughly dry, carefully cut out one decal at a time just inside the dotted lines. Remove from backing paper and position on rocket as shown on box.
- D. Once in position, rub decal with finger to remove air bubbles and secure decal to rocket.

**CAUTION:** The glow-in-the-dark decals provided in this model rocket kit are intended for display purposes ONLY! DO NOT LAUNCH IN THE DARK! You could be seriously injured by tripping over or running into unseen objects during recovery!

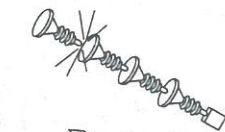
# 13. FLIGHT PREPARATION

## PARACHUTE PREPARATION

- A. Insert four squares of loosely crumpled recovery wadding into rocket body tube. Repack chute and nose cone.



## ENGINE PREPARATION



Separate igniter and igniter plug.



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



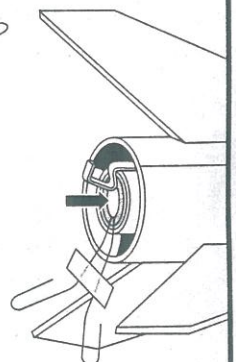
Insert igniter plug.



Bend igniter wires back.



Firmly push all the way in.



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: B4-2, B6-2, C5-3 or C6-3.

Use a B6-2 for your first flight to become familiar with your rocket's flight pattern. Use only Estes products to launch this rocket.

## PROJECTED ALTITUDES

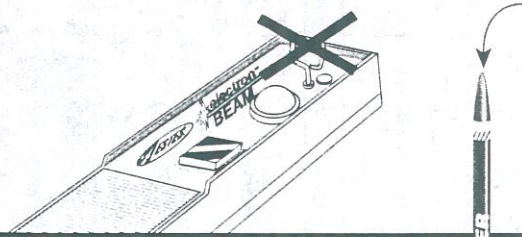
ENGINE	FEET	METERS
B4-2	105	32
B6-2	120	37
C5-3	360	110
C6-3	334	102

## TIPS FOR FLYING YOUR ROCKET

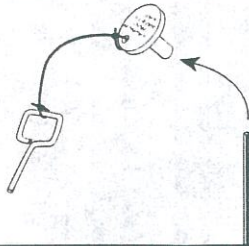
- Choose a large field away from power lines, buildings, tall trees, and low flying aircraft. Try to find a field at least 250 feet (76 meters) square. The larger the launch area, the better your chance of recovering your rocket.
- Launch area must be free of dry weeds and brown grass.
- Launch only 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]).
- 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

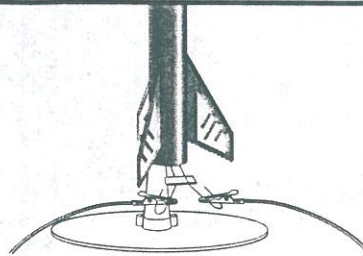
- 10...** Safety key must not be in launch controller.  
The safety cap with safety key attached should already be on the launch rod.



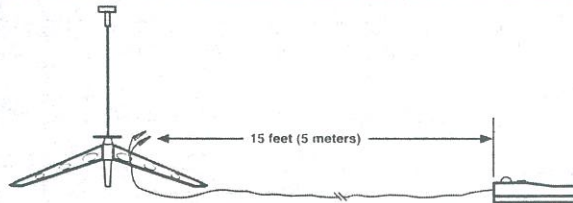
- 9...** Remove safety cap from launch rod, slide launch lugs over rod. Make sure rocket slides freely and micro-clips are clean for good electrical contact.



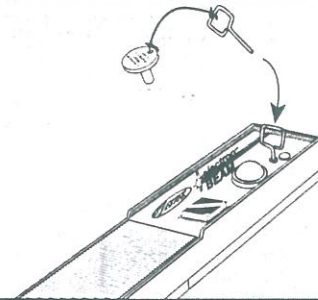
- 8...** Attach micro-clips to the igniter wires. Arrange the micro-clips so they do not touch each other or the metal blast deflector. Attach micro-clips as close to protective tape on igniter as possible.



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

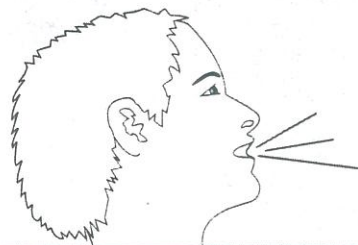


- 6...** Insert safety key to arm the launch controller.



- 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.