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BETA
SERIES
SKILL LEVEL 1

BIG DAWG™

FLYING MODEL ROCKET KIT INSTRUCTIONS

MATERIALS REQUIRED:

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

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)
37334

DIE CUT Balsa FIN SHEETS (2)
32991

CENTERING RINGS #2055 (1)
30125

BLUE ENGINE MOUNT TUBE #BT-20J (1)
30326-1

ENGINE BLOCK RING #520 (1)
30162-2

ASSEMBLED PARACHUTE-12 (1)
35801

NOSE CONE #55AC (1)
71070

WHITE BODY TUBE SLOTTED #BT-55 (1)
31167

LAUNCH LUG LL2A (1)
38175

ENGINE HOOK #EH-2A (1)
35021

SHOCK CORD - 1/8 x 18 (1)
38374

1.

A. Mark the blue engine mount tube at 1/2" (13 mm), 1" (2.5 cm), 2-1/2" (6.4 cm) and 2-5/8" (6.7 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 hook as shown.

D. Slide the centering ring onto the tube.

E. Slide the other centering ring onto the tube.

1/2" (13 mm)
2-5/8" (6.7 cm)

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.

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.**

5.

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

C. Apply glue to shock cord mount. Clamp firmly up.

D. Glue the shock cord (3.8 cm) down inside slots of the body into place.

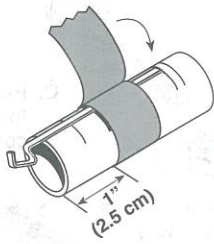
ESTES SHOCK CORD MOUNT

SECTION 3

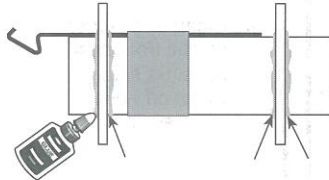
SECTION 2

SECTION 1

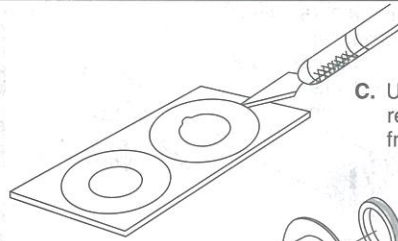
the engine into the slit down.



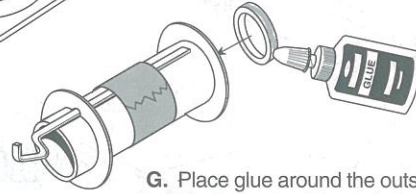
B. Wrap **TWO** layers of masking tape around the engine mount tube at the 1" (2.5 cm) mark as shown.



F. Once rings are in place, apply glue around both sides of rings, smooth with finger and let glue set.

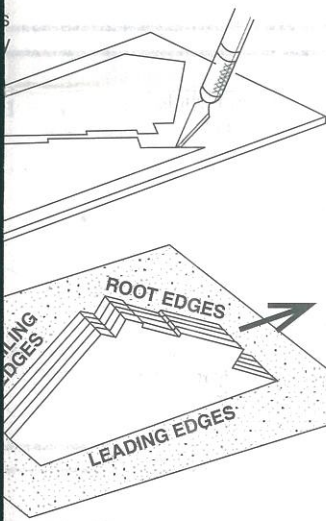


C. Use a hobby knife to carefully remove the centering rings from their card.



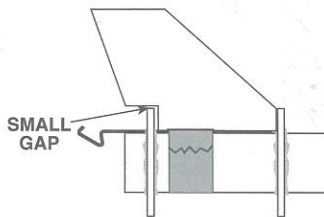
G. Place glue around the outside of the engine block ring and insert into front of engine mount tube until it hits the engine hook. Let assembly dry thoroughly.

the notched centering ring to the 1/2" (13 mm) mark on the rear of the engine mount tube with the notch over the engine hook. Slide the remaining centering ring to the front of the engine mount tube to the 2-5/8" (6.7 cm) mark.



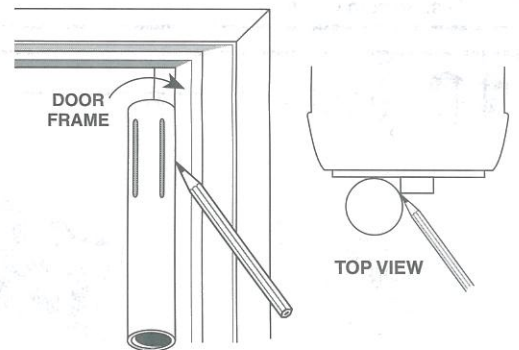
SCRAP BALSA

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



D. 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.

4.



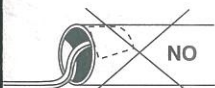
A. Lightly draw a straight line down the length of the body tube between any two fin slots. This is your launch lug line.

NOTE: A door frame can be used to do this, but we recommend the Estes® Rocket Builder's Marking Guide (EST 302227)

B. Spread glue on section 2 and lay shock cord into glue at a slight angle as shown. Fold section 1 forward.

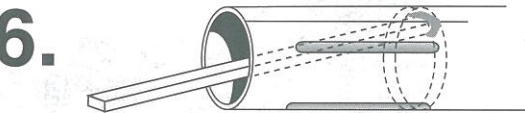


Section 3. Fold forward again. All glue sets.

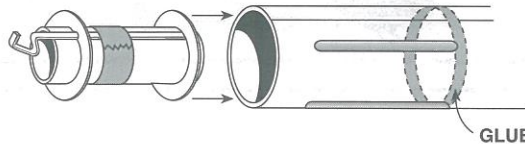


Slide the front end (without the tube, and press firmly

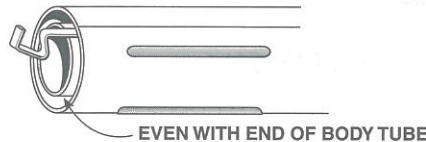
6.



A. Using your wood stick, apply glue **inside** the body tube at the top of the slots as shown.

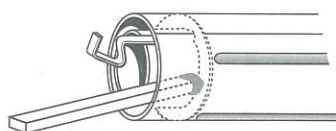


GLUE



EVEN WITH END OF BODY TUBE

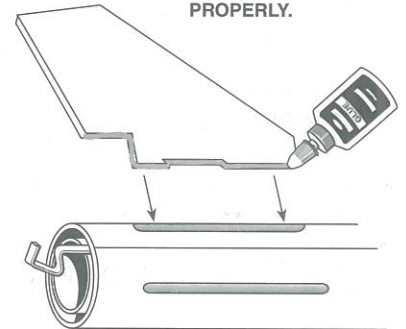
B. Slide the engine mount into the body tube until their ends are even. **BE SURE TO ALIGN THE ENGINE HOOK WITH THE LAUNCH LUG LINE.**



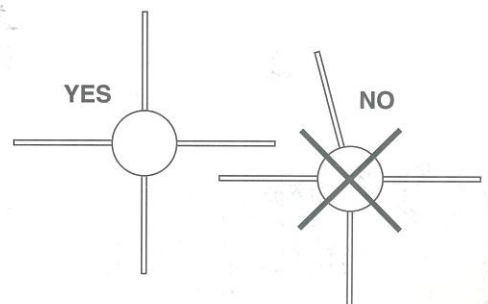
C. Reinforce the joint between the body tube and rear centering ring by applying a layer of glue (fillet) around it.

7.

NOTE: YOU MAY NEED TO SAND FIN TABS TO FIT PROPERLY.

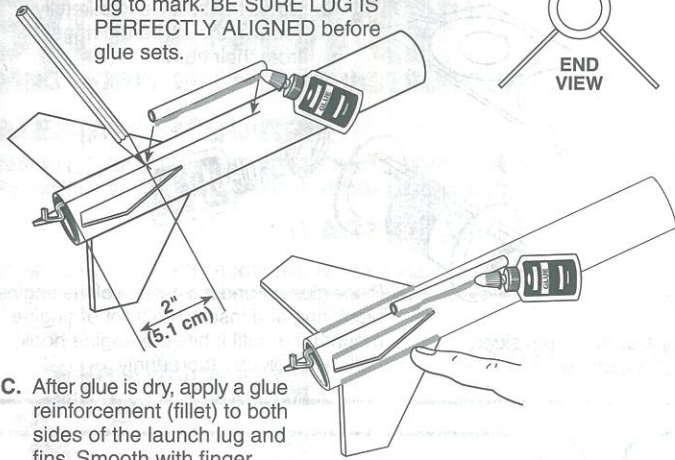


A. Test fit fins into slots. Apply glue to the tabs on the fins and along the root edges as shown. Insert the fins into slots, checking alignment to make sure fins are straight.



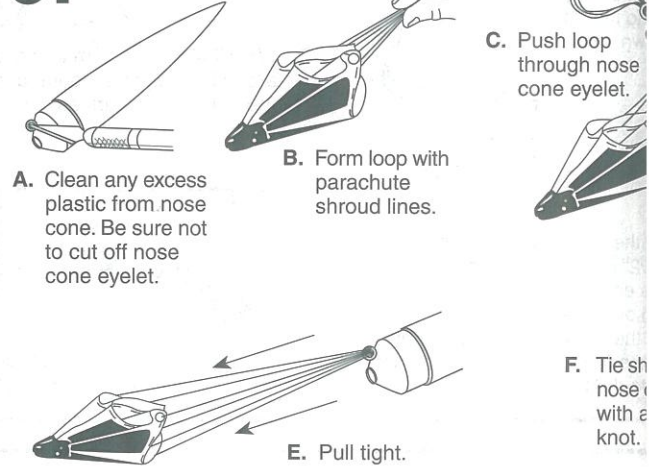
8.

- A. Mark the launch lug line at 2" (5.1 cm) from the REAR of the body tube.
- B. Apply glue to the launch lug and apply lug to mark. BE SURE LUG IS PERFECTLY ALIGNED before glue sets.



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

9.



- A. Clean any excess plastic from nose cone. Be sure not to cut off nose cone eyelet.

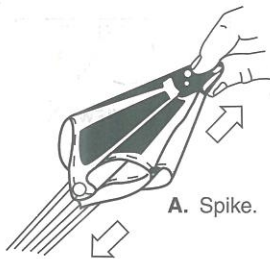
- B. Form loop with parachute shroud lines.

- C. Push loop through nose cone eyelet.

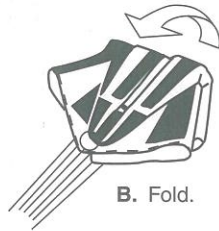
- E. Pull tight.

- F. Tie shroud lines with a knot.

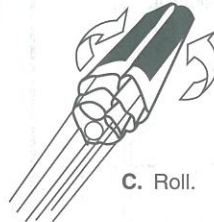
10. PACKING PARACHUTE



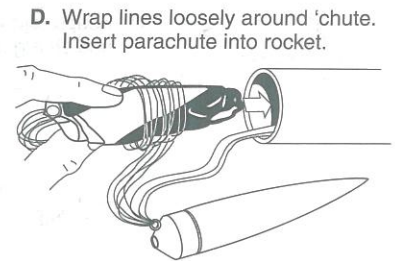
A. Spike.



B. Fold.



C. Roll.



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

- D. Wrap lines loosely around chute. Insert parachute into rocket.

11. 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. Mask off the nose cone, then paint the rocket body red. Let dry completely.
- C. Once dry, mask off the rocket body and paint the nose cone black.



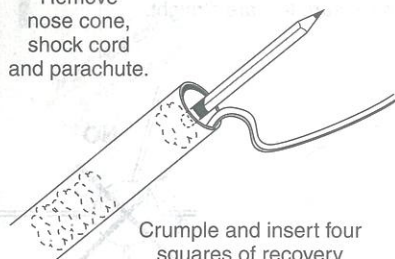
- D. When paint is dry, paint the fins at a time for each rocket as shown.

- E. Once in position, paint the fins black.

12. FLYING YOUR ROCKET

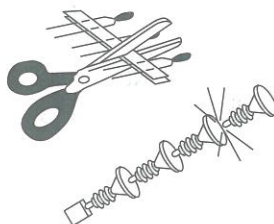
ROCKET PREPARATION

Remove nose cone, shock cord and parachute.



Crumple and insert four squares of recovery wadding. Repack and insert parachute, shock cord and nose cone.

ENGINE PREPARATION



- A. Separate igniter and igniter plug.



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



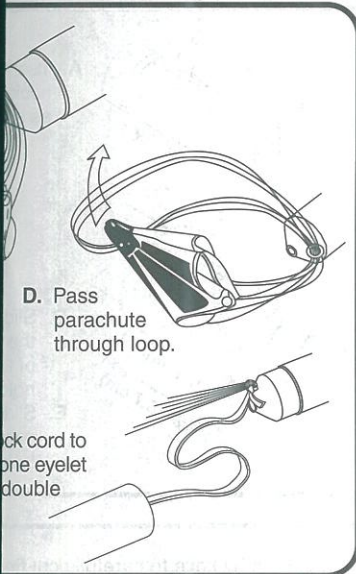
- C. Insert igniter plug.



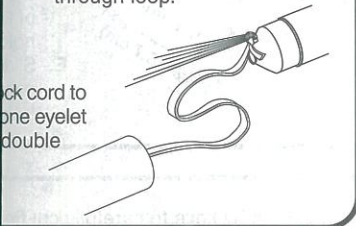
- D. Firmly push all the way in.



- E. Bend igniter wires back.

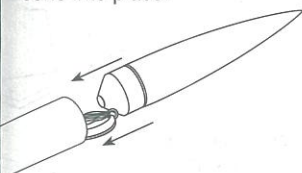


D. Pass parachute through loop.



E. Slide shock cord to one eyelet double.

F. Slide shock cord and nose cone into place.

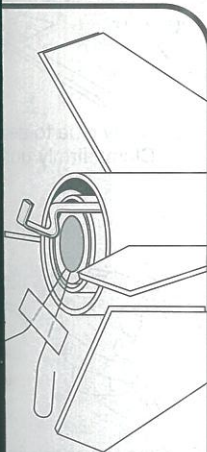


G. Do not forget to pack recovery wadding in the rocket before flying - see Step 12.

H. Decal is thoroughly dry, remove one decal from backing paper and position on top down on box.



I. In preparation, rub decal with finger to remove air bubbles and secure decal to rocket.



F. 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: A8-3, B4-4, B6-4, C6-5. Use an A8-3 engine for your first flight to become familiar with your rocket.
- 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	161	49
B4-4	357	109
B6-4	372	113
C6-5	700	214

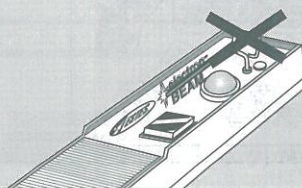
TIPS FOR FLYING YOUR ROCKET

- 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.

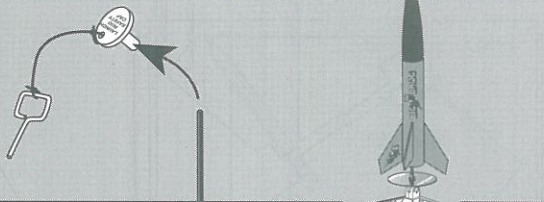
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COUNTDOWN AND LAUNCH

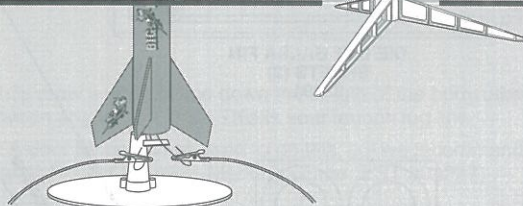
10... Safety key must not be in launch controller. The safety cap with safety key attached should already be on the launch rod.



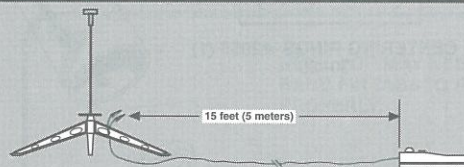
9... Remove safety cap from launch rod, slide launch lug over rod. Make sure rocket slides freely and micro-clips are clean for good electrical contact.



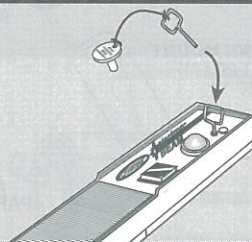
8... Attach micro-clips to the igniter wires. Arrange the micro-clips so they do not touch each other or the metal blast deflector. Attach micro-clips as close to protective tape on igniter as possible.



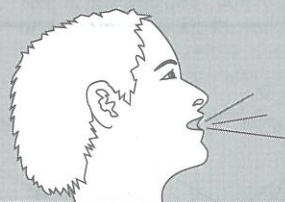
7... Move everyone back from your rocket as far as launch wire will permit (at least 15 feet - 5 meters).



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.