



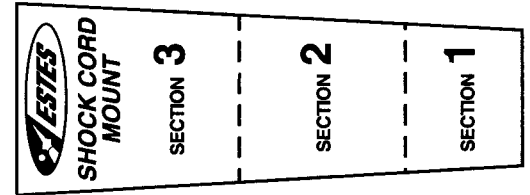
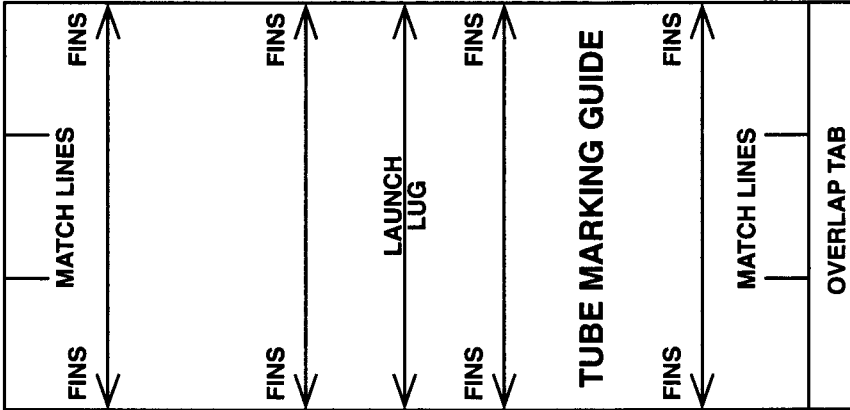


ESTES INDUSTRIES  
1295 H STREET  
PENROSE, CO 81240 USA

**EXPLORER**  
SERIES

**BULLPUP**  
**12D™**

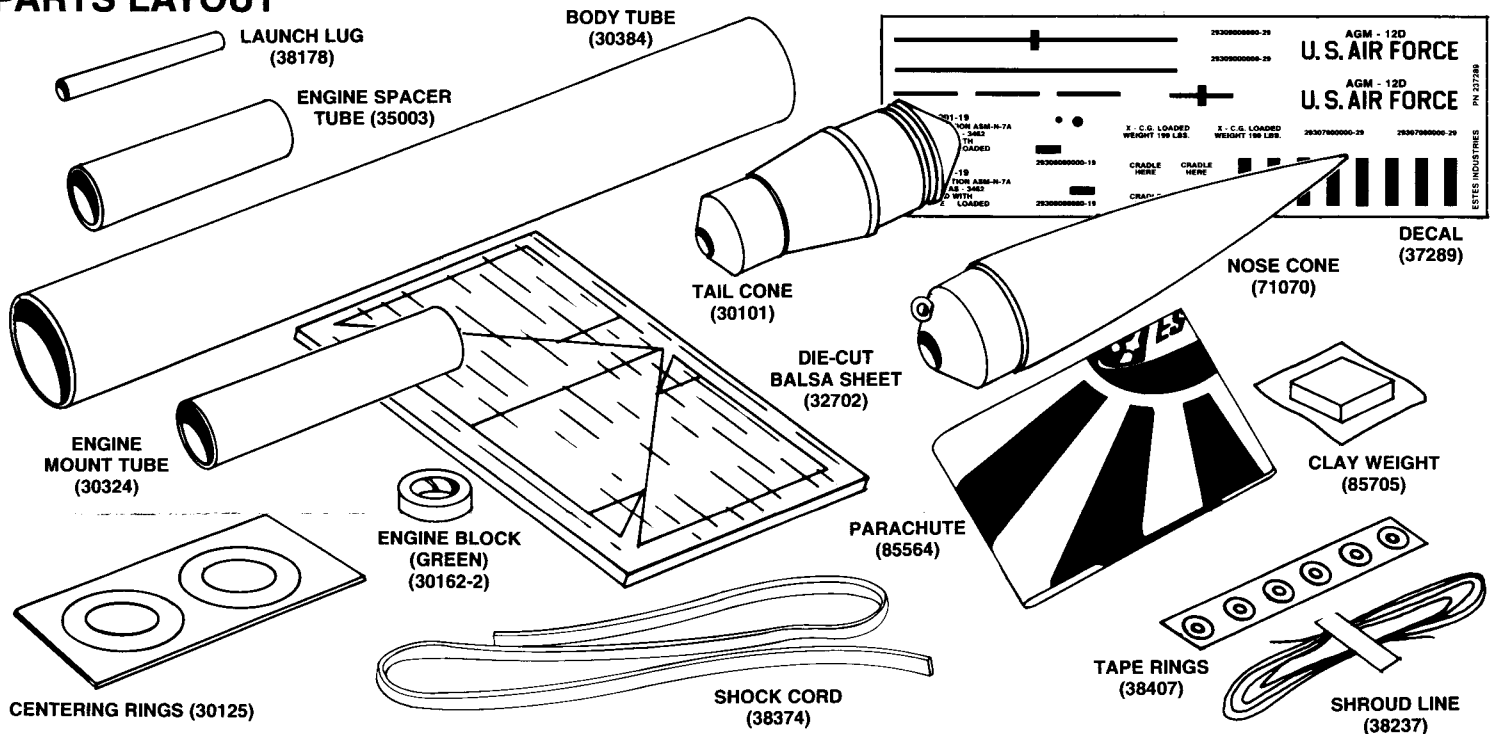
**FLYING MODEL**  
**ROCKET KIT**  
EST 1972



**HOW TO USE THESE INSTRUCTIONS:**  
**READ ALL INSTRUCTIONS BEFORE STARTING WORK ON THIS MODEL.**

- A. Read each step first and visualize the procedure thoroughly in your mind before starting construction.
- B. Lay the parts out on the table in front of you. (Check inside tubes for any small parts.)
- C. Use the parts layout to match all parts contained in kit.
- D. Collect all construction supplies that are not included in this kit.
- E. Sand parts as necessary for proper fit.
- F. The construction supplies required for each step are listed at the beginning of each step.
- G. Check off each step as you complete it.

**PARTS LAYOUT**



**EXTREMELY IMPORTANT: THE PARTS LAYOUT IS FOR REFERENCE ONLY!**

The parts layout is only intended to assist you in locating the parts included in this kit.

**CONSTRUCTION SUPPLIES**

In addition to the parts included in your kit, you will need these construction supplies. Each step shows which supplies will be required.



SCISSORS



PENCIL



RULER



SANDPAPER



WHITE GLUE



HOBBY SAW



PAINT BRUSH



ROCKET BUILDER'S MARKING GUIDE - EST 2227 (Optional)



HOBBY KNIFE



SPRAY PAINT (Gloss White)



SPRAY PAINT (Flat Clear) (Optional)



SPRAY PAINT (Primer) (Optional)



MASKING TAPE



SANDING SEALER

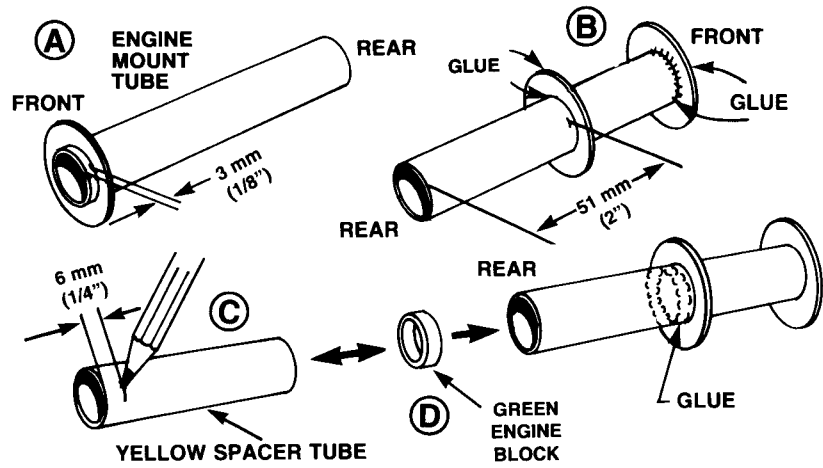


PLASTIC CEMENT

# ROCKET ASSEMBLY

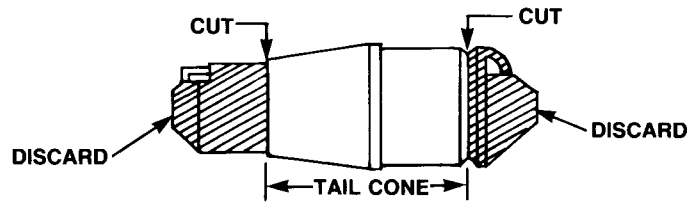
## 1.

- A.  Remove centering rings from die-cut sheet. Slide one centering ring onto engine mount tube 3 mm (1/8") from end of tube. Apply glue to both sides of ring/tube joint.
- B.  Slide remaining ring onto rear of tube 51 mm (2") from other end of tube. Apply glue to both sides of ring/tube joint.
- C.  Mark yellow spacer tube 6 mm (1/4") from one end. Smear glue 51 mm (2") inside engine mount tube.
- D.  Insert green engine block into rear of tube. Insert spacer tube and push engine block into tube until 6 mm (1/4") mark is even with end of tube. NOTE: The yellow spacer tube is a tool and must be removed as soon as you match the mark with the end of the engine mount tube. Don't accidentally glue the tool in the mount tube.



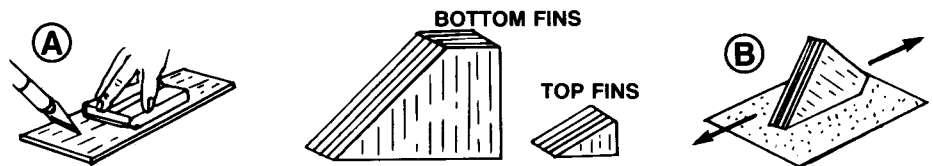
## 2. OR

- A.  Locate the plastic tail cone.
- B.  Cut the excess plastic parts off as indicated in diagram and discard.
- C.  Sand front and rear of tail cone flat and remove any excess plastic with modeling knife.



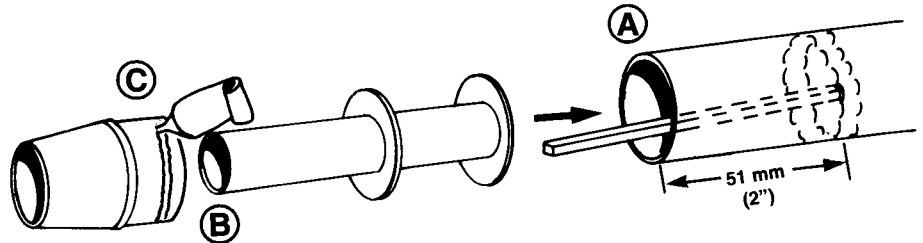
## 3.

- A.  Fine sand balsa die-cut sheet. Carefully remove fins by freeing edges with sharp knife.
- B.  Stack fins together. Sand all edges smooth.



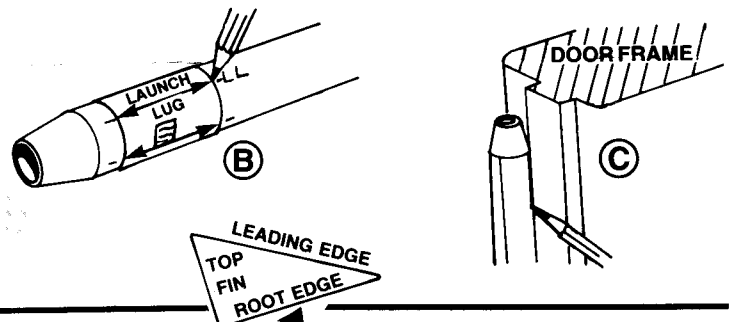
## 4.

- A.  Using a piece of scrap balsa, smear glue inside body tube 51 mm (2") from one end.
- B.  Slide engine mount into body tube. Using the tail cone, push engine mount and tail cone into the tube until tail cone is flush with end of tube.
- C.  Remove tail cone. Apply plastic cement to tail cone as shown and push tail cone back into place.



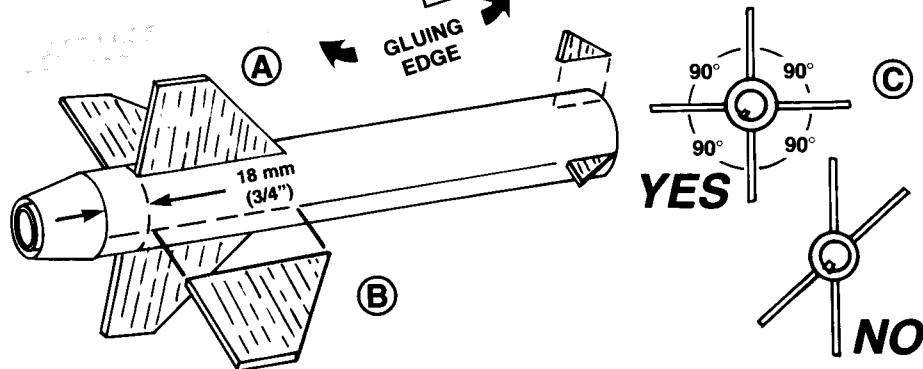
## 5. (optional)

- A.  Cut out tube marking guide from front of instructions.
- B.  Wrap guide around the tube and tape. Mark tube at arrows. Remove guide. Optional: You can also use the Rocket Builder's Marking Guide™ (EST 2227), using the BT-55 and four-fin guides.
- C.  Draw straight lines connecting each pair of marks. Extend all lines the full length of tube.



## 6.

- A.  Compare fins to patterns to find front (leading) and gluing (root) edges.
- B.  Position and glue fins on alignment lines as shown, one at a time. Bottom fins should be positioned 18 mm (3/4") from end of body tube. Let each dry several minutes before applying the next one.
- C.  Adjust fins to project straight out from tube.
- D.  Do not set rocket on fins while glue is wet.



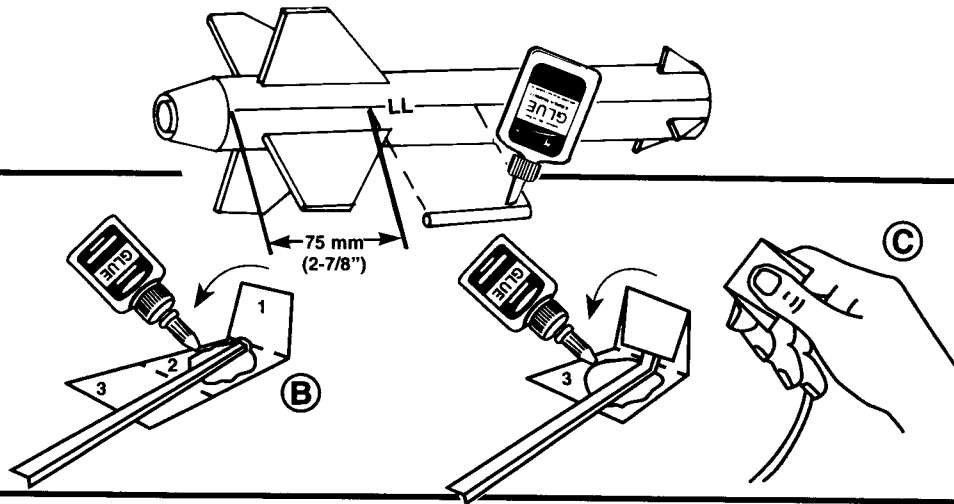
**FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!**



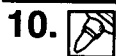
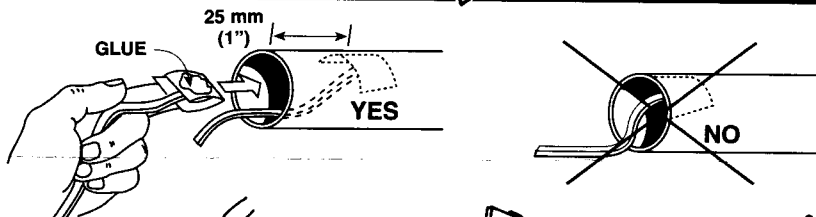
7. Glue launch lug straight on launch lug line with its rear edge 73 mm (2-7/8") from rear of tube.



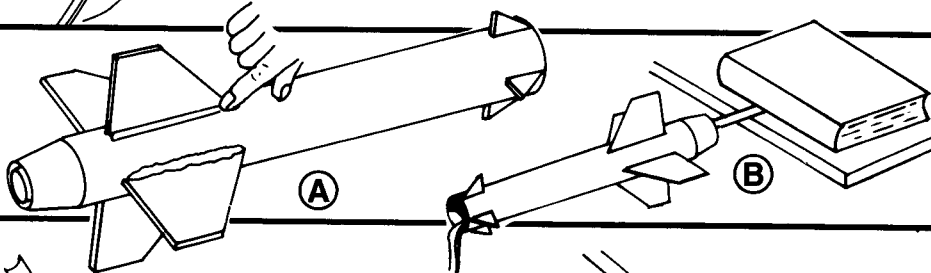
- A.  Cut out shock cord mount located on page one of the instructions.
- B.  Crease on dotted lines by folding. Spread glue on section 2 and lay end of shock cord into glue. Fold over section 1 and apply glue to section 3. Fold forward again.
- C.  Clamp unit together with fingers until glue sets.



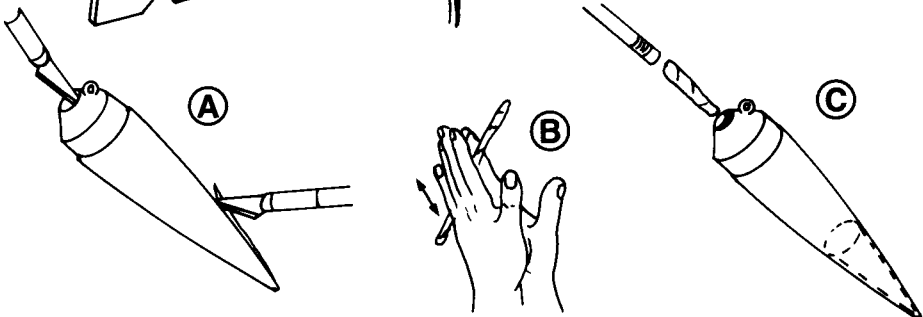
- A.  Apply glue to shock cord mount.
- B.  Press mount into body tube about 25 mm (1") in from end of tube to allow for the nose cone.
- C.  Hold until glue sets.



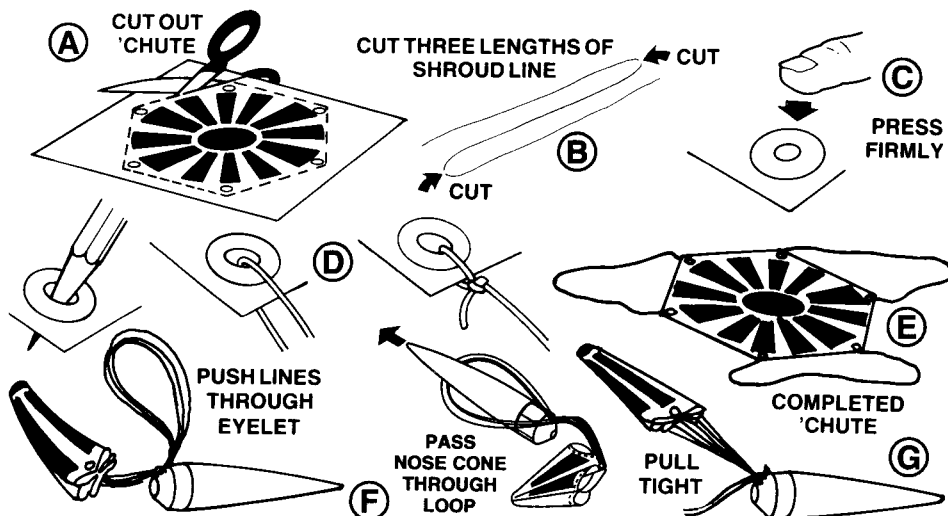
- A.  Apply a glue reinforcement to each fin/body tube joint and each side of launch lug. Smooth with finger.
- B.  Support rocket as shown until glue dries.



- A.  Trim excess plastic from around sides of nose cone with sharp knife. Remove any excess plastic from inside molded eyelet. Enlarge hole in rear of nose cone.
- B.  Roll clay into a "snake" about 3 mm (1/8") diameter. Poke clay through the hole in nose cone. Use pencil or dowel to push clay into end of nose cone. Pack clay tightly. Use all of the clay.
- C.  Wipe nose cone with damp cloth to remove oil and dirt.



- A.  Cut out parachute on printed edge lines.
- B.  Remove tape from shroud lines, fold and cut into three equal lengths.
- C.  Attach tape rings to top of parachute at each corner and press firmly into place. Punch hole through the parachute material with the point of a sharp pencil (do not use a dull pencil or ballpoint pen).
- D.  Pass shroud line through hole in parachute and tape ring. Tie lines together with a double knot.
- E.  Attach remaining lines to other corners to complete parachute.
- F.  Pass shroud line loops through eyelet on nose cone. Pass nose cone through loop ends and pull lines against the nose cone.
- G.  Tie free end of shock cord to nose cone eyelet.



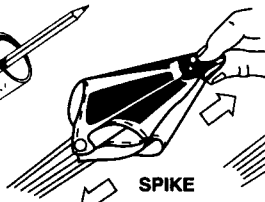
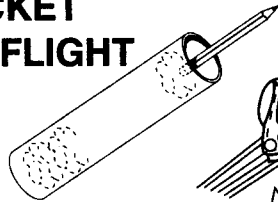
## FINISHING YOUR ROCKET

Apply sanding sealer to fins. When sealer is dry, lightly sand parts. Repeat sanding and sealing until balsa grain lines are filled. Optional: Spray a light coat of automotive primer over entire rocket. Lightly sand (600 grit) when primer is dry. This allows the paint to adhere better and gives a smoother finish.

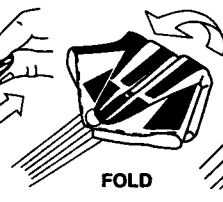
Spray paint the entire rocket gloss white. Follow instructions on spray can for best results. Allow paint to dry overnight before applying decals. Refer to photo on front of instructions and photo on panel for decal placement. To apply decals, cut out each decal, dip in lukewarm water for 20 seconds, and hold until it uncurls. Slip decal off backing sheets and onto model. Blot away excess water. For a more realistic appearance and to protect decals, spray a flat clear coat on the rocket.

## ROCKET PREFLIGHT

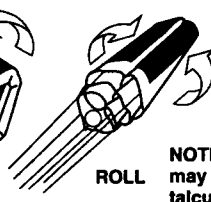
CRUMPLE AND INSERT 3 SQUARES OF RECOVERY WADDING



SPIKE



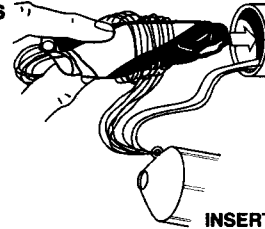
FOLD  
FOLD PARACHUTE



ROLL

NOTE: Parachute may be dusted with talcum powder to avoid sticking.

WRAP LINES LOOSELY AROUND 'CHUTE.

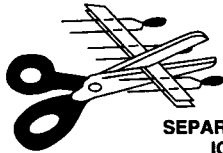


Recovery device should slide easily into body tube. If too tight, unfold and repack again.

INSERT SHOCK CORD AND NOSE CONE IN ROCKET

## PREPARE ENGINE

NOTE: Igniter plugs come with rocket engines. If your engines did not come with plugs, follow the instructions that came with the engines.



SEPARATE IGNITER AND IGNITER PLUG



HOLD ENGINE UPRIGHT, DROP IN IGNITER

IGNITER MUST TOUCH PROPELLANT

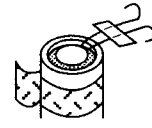


INSERT IGNITER PLUG

FIRMLY PUSH ALL THE WAY IN

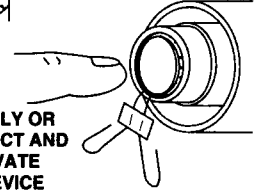
WRAP WITH ONE OR TWO WRAPS OF MASKING TAPE

BEND IGNITER WIRES BACK



MUST FIT SNUGLY OR ENGINE MAY EJECT AND FAIL TO ACTIVATE RECOVERY DEVICE

INSERT ENGINE INTO ROCKET



## LAUNCH SUPPLIES

To launch your rocket, you will need the following items:

- Estes Electrical Launch Controller and Launch Pad
- Estes Recovery Wadding No. 2274
- Recommended Estes Engines: A8-3 (First Flight), B4-4, B6-4, B8-5, C6-5

To become familiar with your rocket's flight pattern, use an A8-3 engine for your first flight.

Use only Estes products to launch this rocket.

## FLYING YOUR ROCKET

Choose a large field away from power lines, tall trees, and low flying aircraft. Try to find a field at least 76 meters (250 feet) square. The larger the launch area, the better your chance of recovering your rocket. Football fields and playgrounds are great.

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 4° Celsius [40° Fahrenheit]).

Parachute may be dusted with talcum powder to avoid sticking.

**If you use the E2™ or Command Control™ Launch Controllers to fly your models, use the following launch steps:**

A. After attaching micro-clips, etc., insert safety key into the controller receptacle. If the igniter clips have been attached properly to the igniter, the red L.E.D. will now begin to flash on and off and the audio continuity indicator will beep on and off.

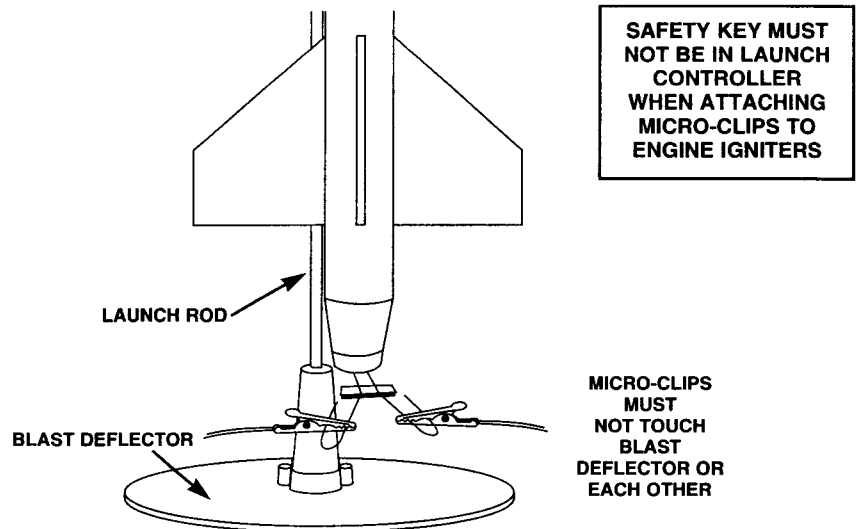
B. Hold the yellow (left) arm button down. The L.E.D. will stop flashing and the audio indicator will produce a steady tone.

C. Verbally count down from five to zero loud enough for the bystanders to hear. Still holding the yellow arm button down, push and hold the orange (right) button down until the rocket ignites and lifts off.

## FOR YOUR SAFETY AND ENJOYMENT

Always follow the NAR\* MODEL ROCKETRY SAFETY CODE while participating in any model rocketry activities.

\*National Association of Rocketry



## COUNTDOWN AND LAUNCH

- ⑩ BE CERTAIN SAFETY KEY IS NOT IN LAUNCH CONTROLLER.
- ⑨ Remove safety cap and slide launch lug over launch rod to place rocket on launch pad. Make sure the rocket slides freely on the launch rod. Make sure micro-clips are clean for a good electrical contact.
- ⑧ Attach micro-clips to the igniter wires. Arrange the clips so they do not touch each other or the metal blast deflector. Attach clips as close to protective tape on igniter as possible.
- ⑦ Move back from your rocket as far as launch wire will permit (at least five meters - 15 feet).
- ⑥ INSERT SAFETY KEY to arm the launch controller.

Give the audible countdown 5...4...3...2...1

### LAUNCH!!

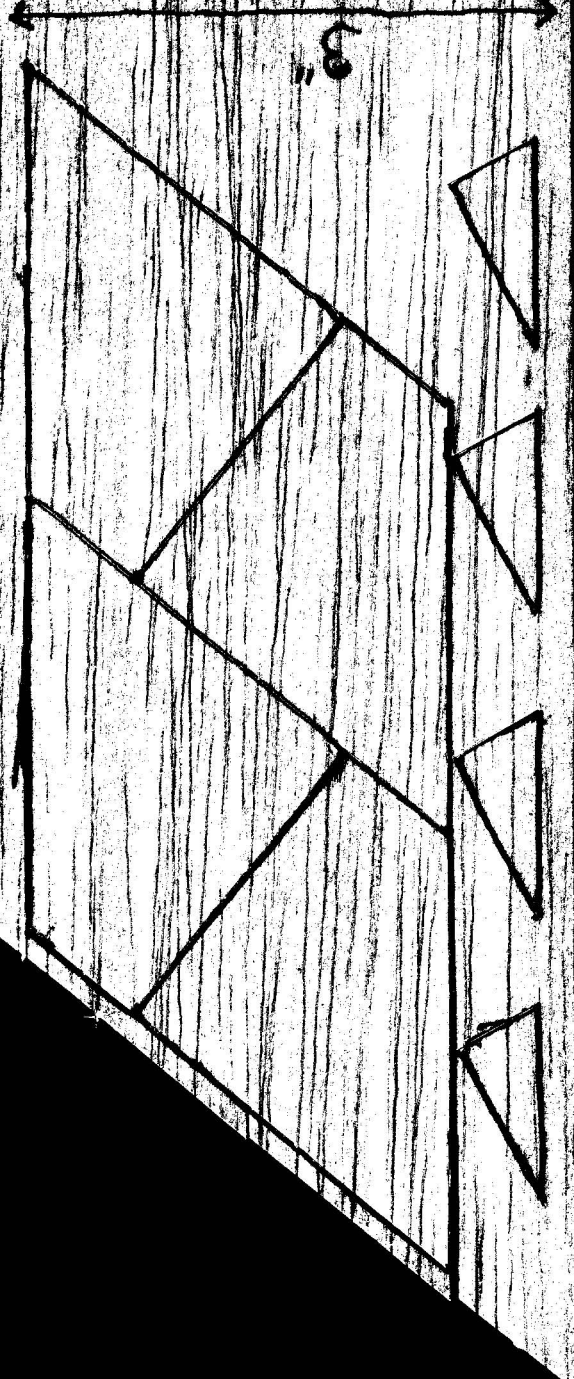
**PUSH AND HOLD LAUNCH BUTTON UNTIL ENGINE IGNITES**  
REMOVE SAFETY KEY FROM LAUNCH CONTROLLER. KEEP SAFETY KEY WITH YOU OR REPLACE SAFETY KEY AND SAFETY CAP ON LAUNCH ROD.

### MISFIRES

If the igniter functions properly but the propellant does not ignite, keep in mind the following: An Estes igniter will function properly even if the coated tip is chipped. However, if the coated tip is not in direct contact with the engine propellant, it will only heat and not ignite the engine.

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, then reinstall the igniter plug as illustrated above. Repeat the countdown and launch procedure.

3"



29309000000-29



29309000000-29

**AGM - 12D**  
**U.S. AIR FORCE**



**AGM - 12D**

**U.S. AIR FORCE**

29301000001-19

CENTER SECTION ASM-N-7A  
SERIAL NO. AS - 3462  
ASSEMBLED WITH  
EXPLOSIVE LOADED



X - C.G. LOADED  
WEIGHT 199 LBS.

X - C.G. LOADED  
WEIGHT 199 LBS.

29307000000-29

29307000000-29

29306000000-19



CRADLE  
HERE

CRADLE  
HERE



29301000001-19

CENTER SECTION ASM-N-7A  
SERIAL NO. AS - 3462  
ASSEMBLED WITH  
EXPLOSIVE LOADED



CRADLE  
HERE

CRADLE  
HERE



# EXPLORER

SERIES

## BULL PUP 12D™ FLYING MODEL ROCKET

SKILL LEVEL 2



SPORT SCALE OF THE  
USAF AGM-12D BULL  
PUP AIR-TO-GROUND  
MISSILE



AUTHENTIC 3 COLOR  
SCALE DECALS



PRECISION PARTS -  
PLASTIC NOSE CONE  
AND TAIL CONE,  
DIE-CUT Balsa FINS



CAPABLE OF OVER 245  
METERS (800 FEET)  
ALTITUDE

Recommended for ages  
10 and up with adult  
supervision for those  
under 12.



EST 7000



ESTES INDUSTRIES  
CORPORATION  
PENNINGTON, CO PA 19150

1 MODEL ABOUT  
10" LONG  
PERFECT FOR COLLEGE  
NON COMPRESS

USE ONLY WITH  
ESTES PRODUCTS  
MADE IN U.S.A.



SPORT SCALE OF THE  
USAF AGM-12D BULL PUP  
AIR-TO-GROUND MISSILE



AUTHENTIC 3 COLOR  
SCALE DECALS



PRECISION PARTS -  
PLASTIC NOSE CONE AND  
TAIL CONE, DIE-CUT Balsa  
FINS



CAPABLE OF OVER 245  
METERS (800 FEET)  
ALTITUDE



Recommended  
for ages 10 and  
up with adult  
supervision for  
those under 12.

This model kit requires assembly.  
Requires hobby knife, glue,  
(white or white) paint, finishing  
spray, engine, igniter,  
wadding, and launch system.  
NOT INCLUDED.

Length: 38.7 cm (15.2")  
Diameter: 33.7 mm (1.32")  
Weight: 51 g (1.8 oz.)  
Recommended Engine:  
A4.3 (3rd Flight) B4-4  
B4-4, C4-3

# BULL PUP 12D™ FLYING MODEL ROCKET

SKILL LEVEL 2

