



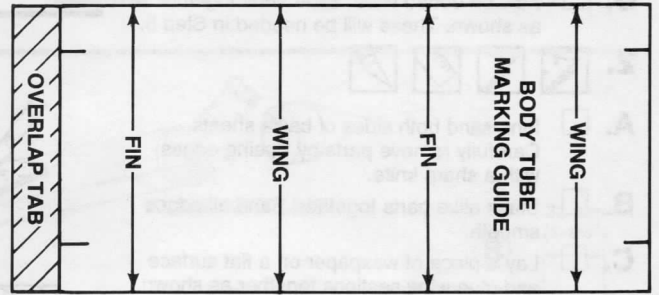
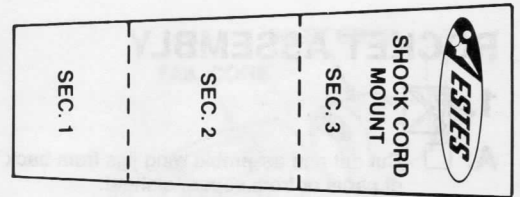


ESTES INDUSTRIES
1295 H STREET
PENROSE, CO 81240 USA

Challenge SERIES

SR-71 BLACKBIRD™

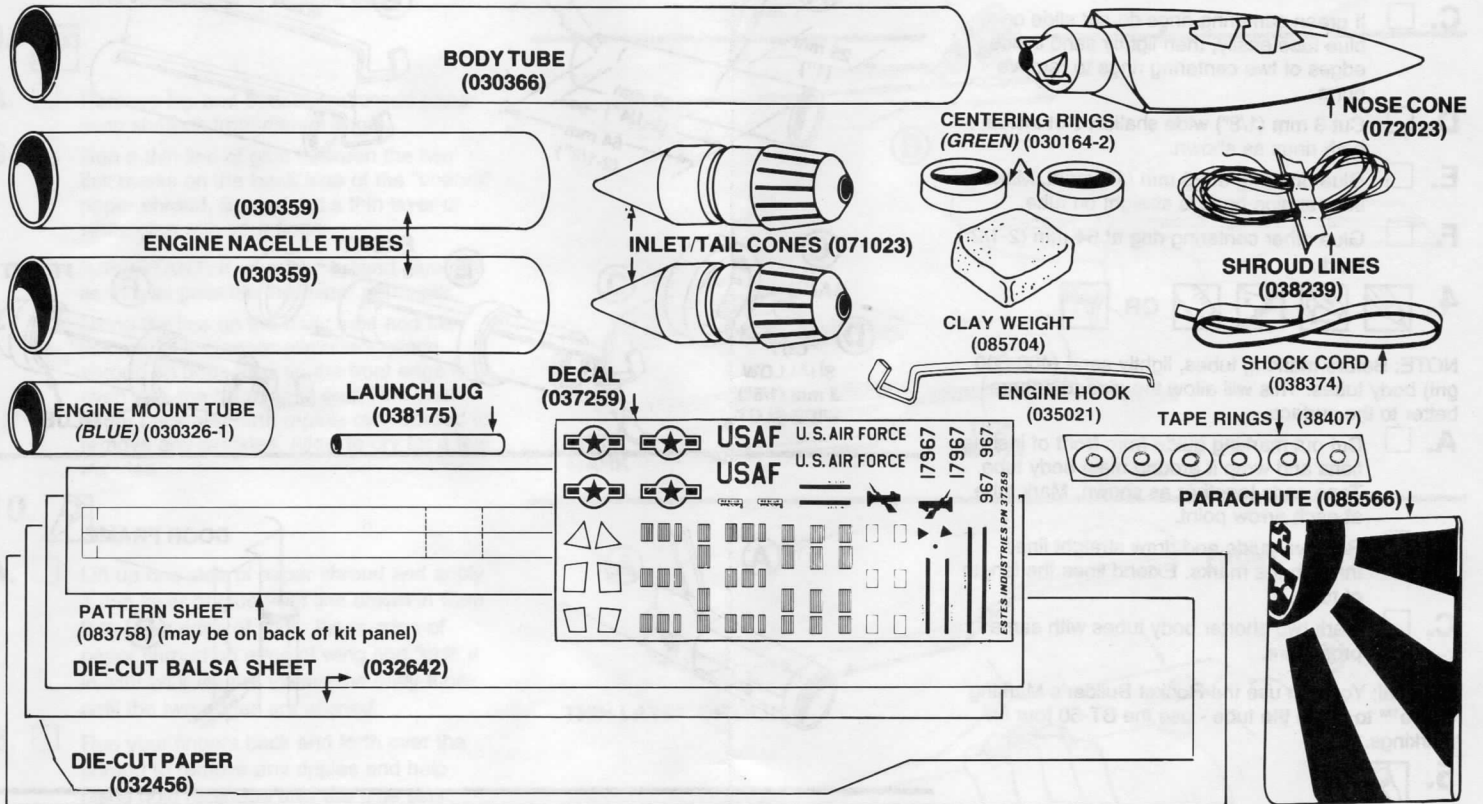
FLYING MODEL ROCKET KIT EST 1942



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 part 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



WAXPAPER



SANDPAPER



GLUE (white or yellow)



PAINT BRUSH



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



HOBBY KNIFE



SPRAY PAINT (Gloss Black)



SPRAY PAINT (Flat Clear) (Optional)



SPRAY PAINT (Automotive Primer) (Optional)



PLASTIC CEMENT

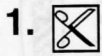


MASKING TAPE



SANDING SEALER (Optional)

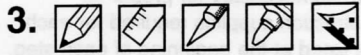
ROCKET ASSEMBLY



- A. Cut out and assemble wing jigs from back of panel or from separate sheet.
- B. Fold on dotted lines. Slide ends together as shown. These will be needed in Step 5.



- A. Fine sand both sides of balsa sheets. Carefully remove parts by freeing edges with a sharp knife.
- B. Stack alike parts together. Sand all edges smooth.
- C. Lay a piece of waxpaper on a flat surface and glue wing sections together as shown. Repeat this procedure for other wings.



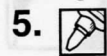
- A. Mark engine mount tube from one end as shown.
- B. Cut 3 mm (1/8") long slit at 64 mm (2-1/2") mark. Bend engine slightly in the middle as shown. Insert hook into slit.
- C. If green centering rings do not slide on blue tube easily, then lightly sand inside edges of two centering rings to remove burrs.
- D. Cut 3 mm (1/8") wide shallow slot inside both rings as shown.
- E. Glue one ring at 25 mm (1") mark. Make sure engine hook is straight on tube.
- F. Glue other centering ring at 64 mm (2-1/2") mark.



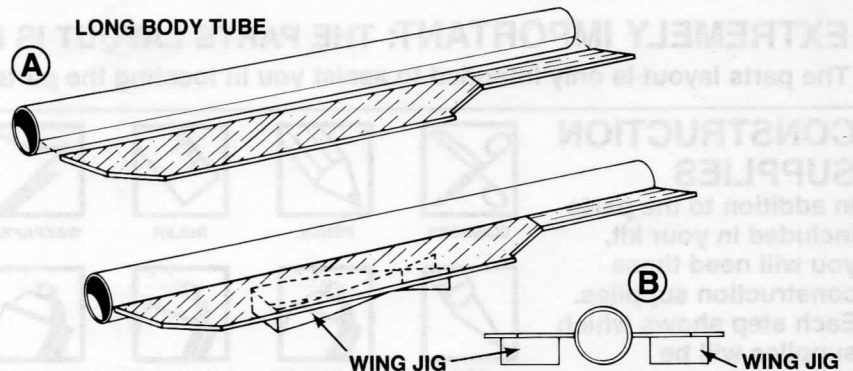
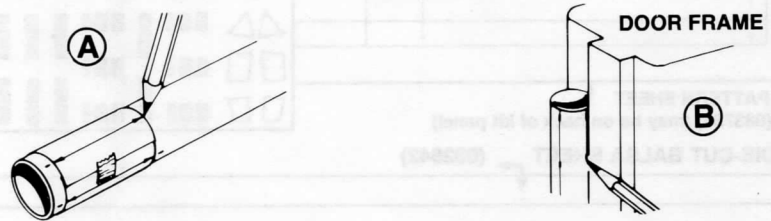
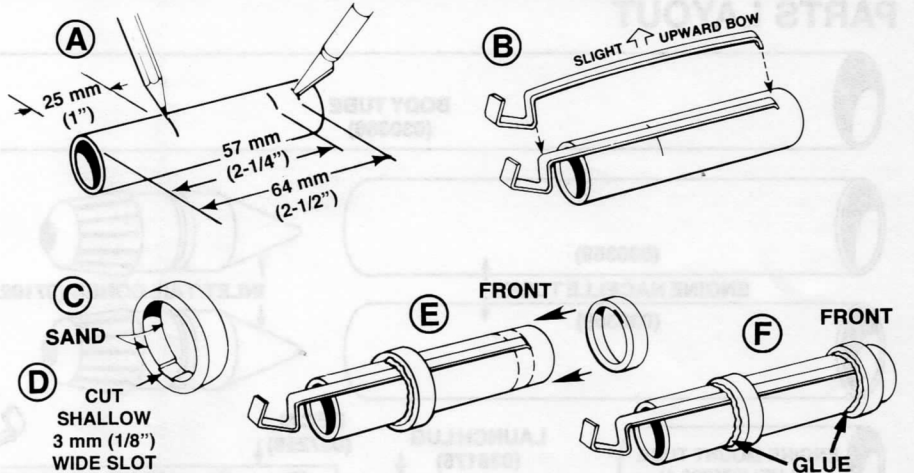
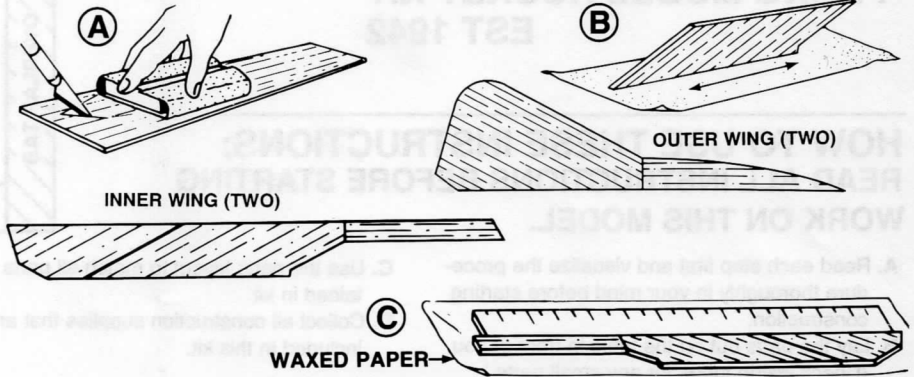
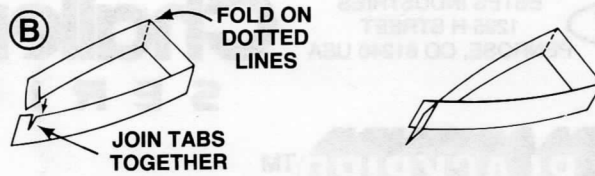
NOTE: Before marking tubes, lightly sand (400-600 grit) body tubes. This will allow the glue to adhere better to the surface.

- A. Cut out marking guide from front of instructions and wrap it around main body tube. Tape ends together as shown. Mark tube at each arrow point.
- B. Remove guide and draw straight lines through the marks. Extend lines the length of tube.
- C. Mark two shorter body tubes with same procedure.

Optional: You can use the Rocket Builder's Marking Guide™ to make the tube - use the BT-50 four fin markings.

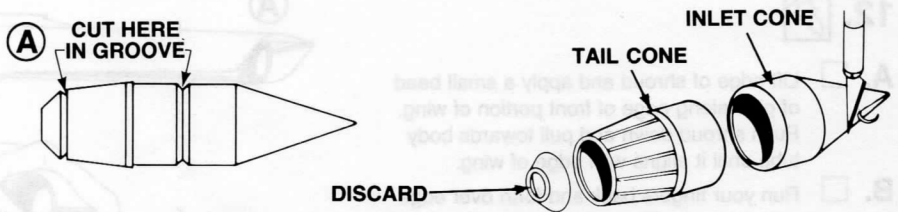


- A. Rub a thin film of glue into the root edge of a wing. Allow it to dry for a minute or two, then position wing on alignment line of large body tube so front of wing is flush with end of body tube.
- B. To insure proper alignment, use wing jigs from Step 1. Place jig and tube on flat surface and center wing on top of jig. Repeat procedure for other wing using second jig.

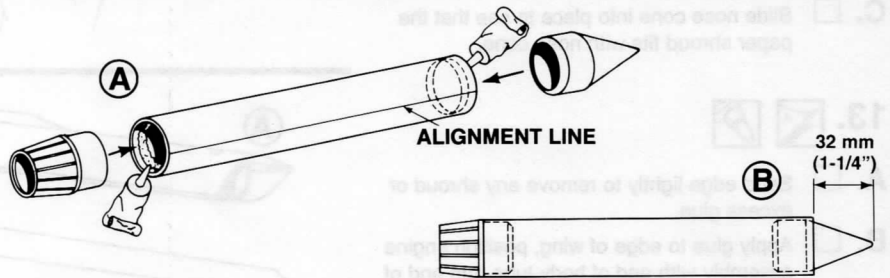




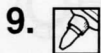
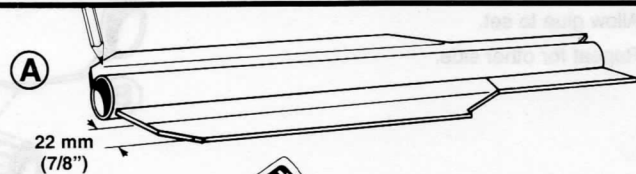
6. Cut along grooves of inlet/tail cone molding. Work slowly to avoid damage to parts. Discard scrap tail piece of plastic.
7. Sand parts where pieces were cut apart. Carefully remove any plastic "flash" along seams of parts.
8. Repeat procedures for other inlet/tail cone.



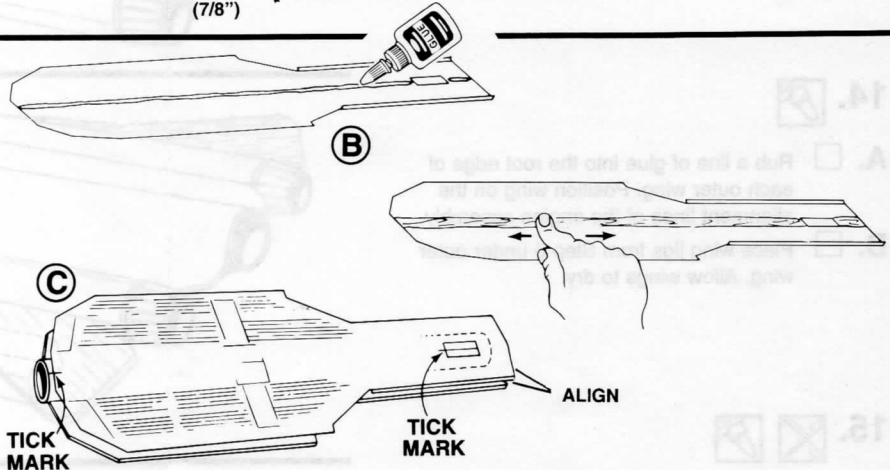
7. Run a bead of tube-type plastic cement around the inside of both ends of the short engine nacelle tube and insert tail cone and inlet cone.
8. Push inlet cone in until 32 mm (1-1/4") sticks out from end of tube.
9. Repeat procedures for other engine nacelle tube.



8. When joints are completely dry, draw straight lines on each wing on both top and bottom, 22 mm (7/8") from outer edge of wing. Use a ruler or straight edge.

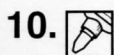


9. Remove top and bottom embossed paper wing shrouds from die-cut sheet.
10. Run a thin line of glue between the two tick marks on the back side of the "bottom" paper shroud. Spread out a thin layer of white glue with your finger.

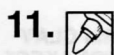
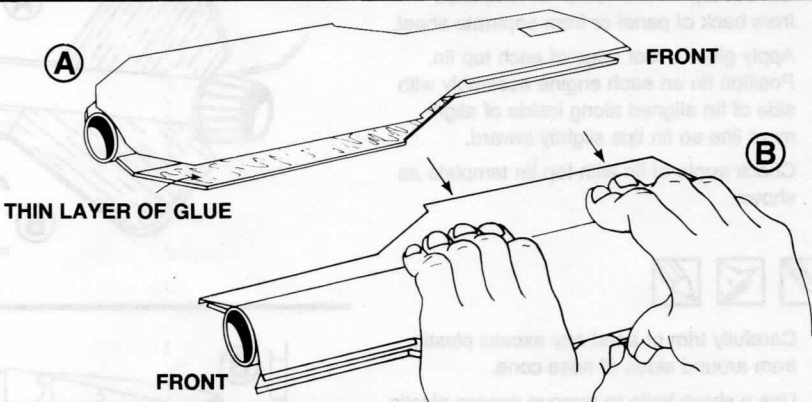


IMPORTANT: If you don't spread glue out as thin as possible the paper will ripple.

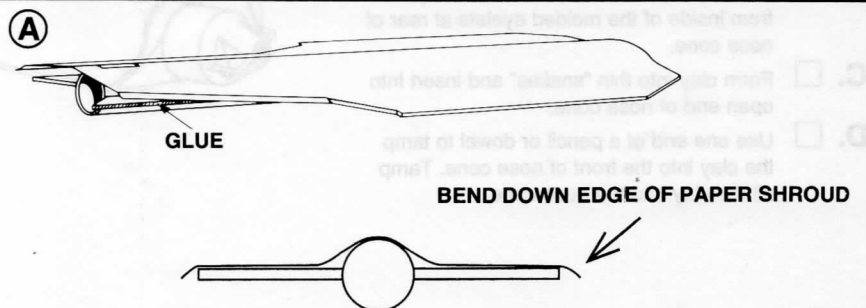
10. Using the line on the body tube and the tick marks for proper alignment, place shroud on body tube so the front edge is even with the balsa wing end. Run your finger back and forth rapidly over shroud to remove any wrinkles. Allow to dry for a few minutes.




10. Lift up one side of paper shroud and apply a thin layer of glue from line drawn in Step 8 to outer edge of wing. Place edge of paper shroud on edge of wing and "pull" it in with your fingers toward the body tube until the two edges are aligned.
11. Run your fingers back and forth over the shroud to remove any ripples and help piece hold its shape until the glue sets. Repeat procedure for other side of wing.

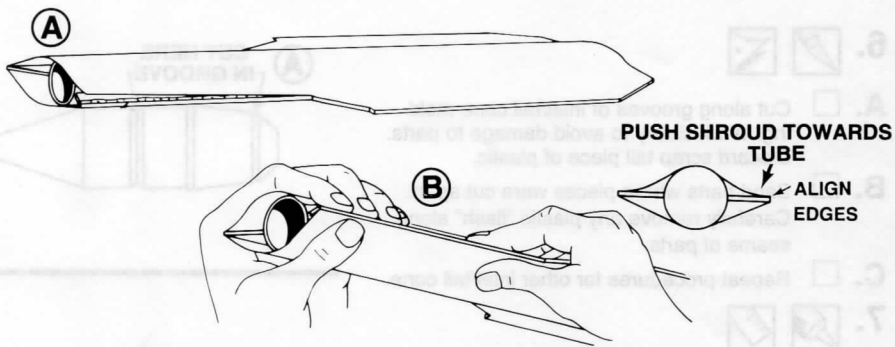


11. Apply glue along edge of forward section of wing. Push shroud down on wing and bend edges of paper down onto edge of wing.
12. Run your fingers back and forth over edge until glue sets. Repeat procedure for other side of wing.
13. Repeat Steps 10 and 11 for top side of wing.



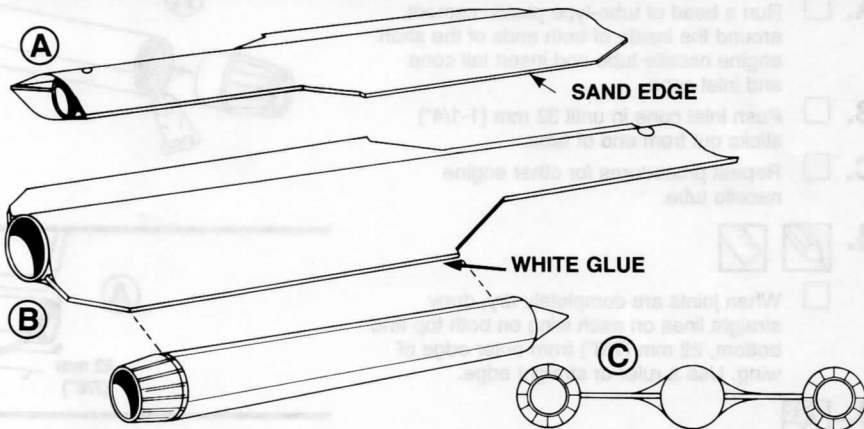
12. 


- A. Lift edge of shroud and apply a small bead of glue along edge of front portion of wing. Push shroud down and pull towards body tube until it aligns with edge of wing.
- B. Run your fingers back and forth over edge until glue sets. Repeat procedure for other side of wing.
- C. Slide nose cone into place to see that the paper shroud fits with nose cone.



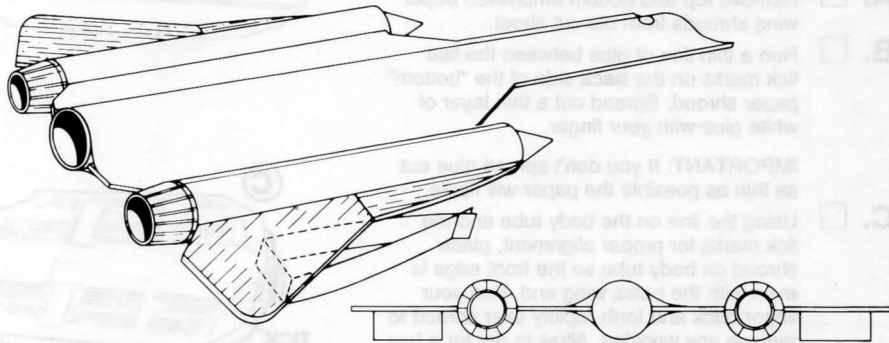
13.  

- A. Sand edge lightly to remove any shroud or excess glue.
- B. Apply glue to edge of wing, position engine assembly with end of body tube and end of wing aligned with alignment line as shown. Allow glue to set.
- C. Repeat for other side.



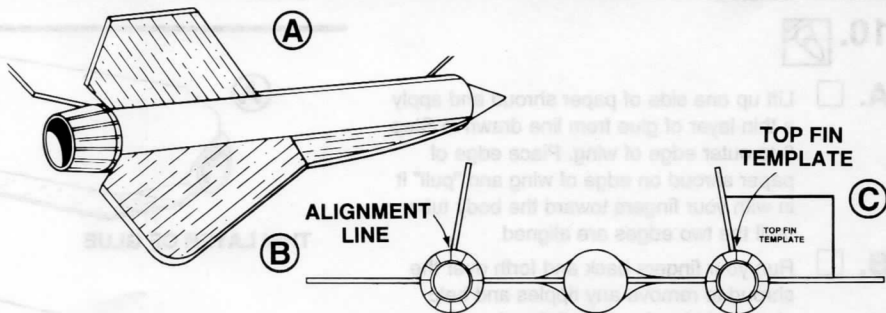
14. 

- A. Rub a line of glue into the root edge of each outer wing. Position wing on the alignment lines of the engine assembly.
- B. Place wing jigs from Step 6 under outer wing. Allow wings to dry.



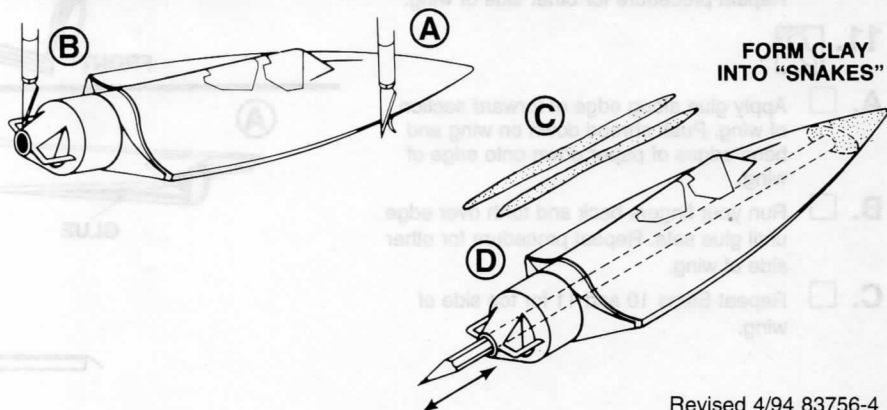
15.  

- A. Cut out top fin and lower fin templates from back of panel or from separate sheet.
- B. Apply glue to root edge of each top fin. Position fin on each engine assembly with side of fin aligned along inside of alignment line so fin tips slightly inward.
- C. Check angle of fin with top fin template as shown.



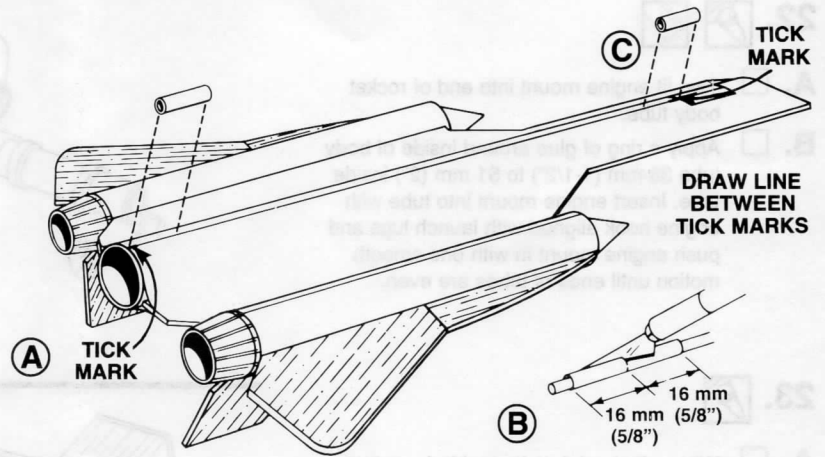
16.   


- A. Carefully trim or sand any excess plastic from around sides of nose cone.
- B. Use a sharp knife to remove excess plastic from inside of the molded eyelets at rear of nose cone.
- C. Form clay into thin "snakes" and insert into open end of nose cone.
- D. Use one end of a pencil or dowel to tamp the clay into the front of nose cone. Tamp all the clay into the nose cone.



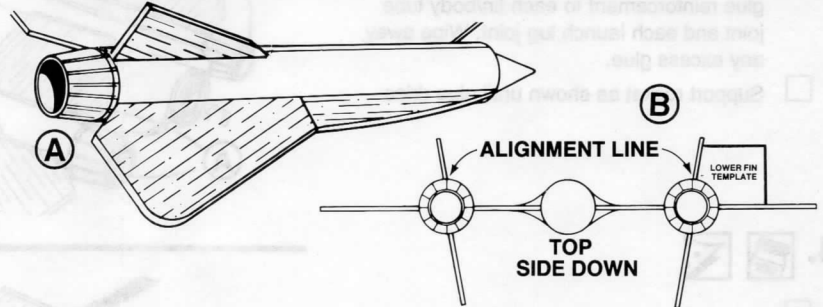
17.    

- A. When all glue joints are completely dry, turn your SR-71 over. Locate the two tick marks on the paper shroud, and draw a line between them.
- B. Cut launch lug into two equal parts. Use a dowel or stick for an internal support when cutting to prevent crushing.
- C. Glue lugs to alignment line at tick marks. Sight through both lugs to align them. The launch rod will need to slide freely through both lugs.



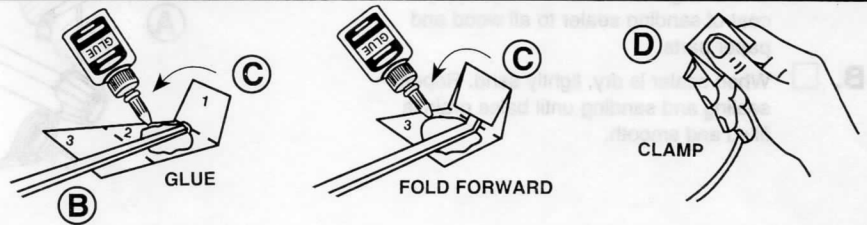
18. 

- A. Rub a thin film of glue into the root edge of each bottom fin. Let dry for a minute or two. Position on each engine assembly with side of fin aligned along outside of alignment line, so fin tips outward slightly.
- B. Check angle of fins with fin template for bottom fins
FINS MUST BE ATTACHED CORRECTLY FOR STABLE FLIGHT!



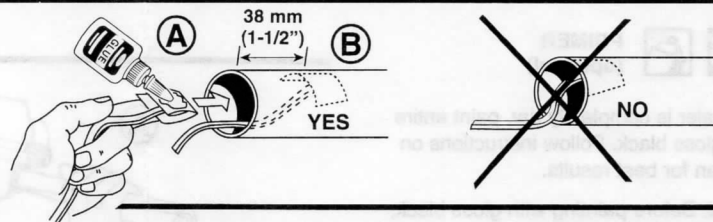
19.  

- A. Cut shock cord mount from front of instructions. Crease on dotted lines by folding.
- B. Spread glue on section 2 and lay end of shock cord into glue at a slight diagonal as shown.
- C. Fold section 1 forward. Apply glue to section 3. Fold forward again.
- D. Clamp firmly with your fingers until glue sets.



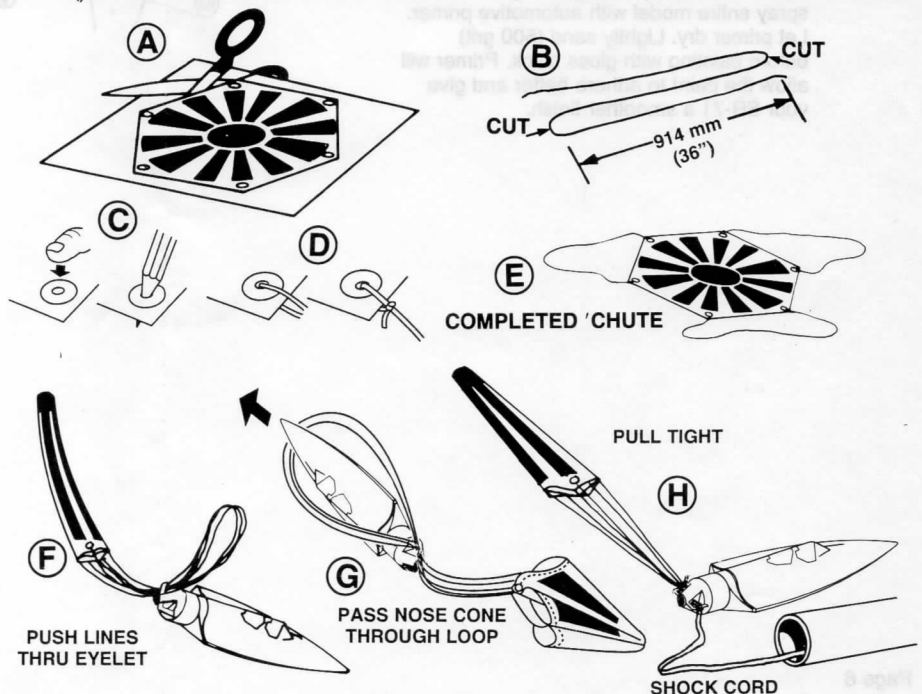
20.  

- A. Apply ample glue to shock cord mount as shown.
- B. Position mount firmly into body tube as shown.
- C. Hold until glue sets.



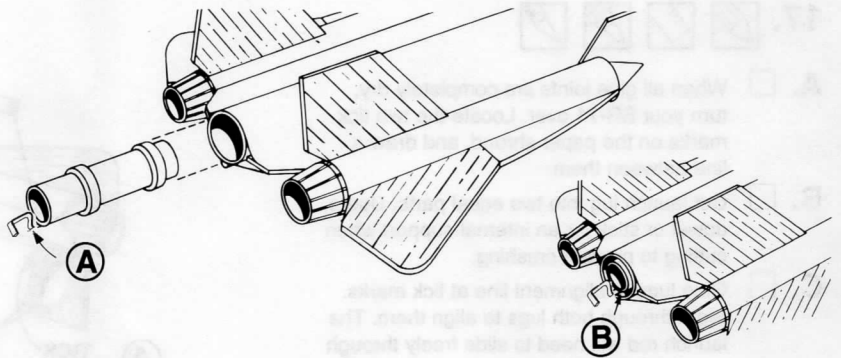
21.  


- 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 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. Thread shroud lines through eyelet on nose cone.
- G. Pass nose cone back through loop of shroud lines as shown. Pull lines tight.
- H. Tie free end of shock cord to nose cone. Use a double knot. Pack parachute and shock cord into rocket body and slip nose cone into place.



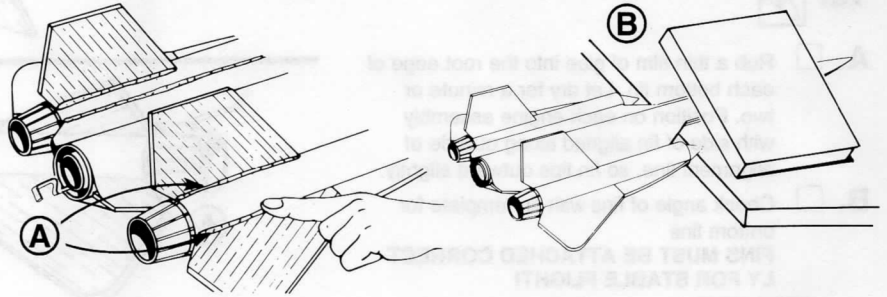
22. 

- A. Test fit engine mount into end of rocket body tube.
- B. Apply a ring of glue around inside of body tube 38 mm (1-1/2") to 51 mm (2") inside tube. Insert engine mount into tube with engine hook aligned with launch lugs and push engine mount in with one smooth motion until ends of tubes are even.



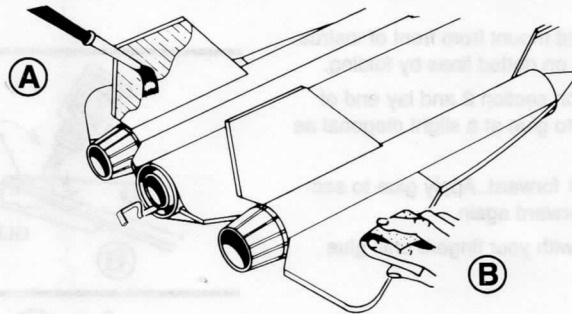
23. 

- A. When all glue joints have dried, apply a glue reinforcement to each fin/body tube joint and each launch lug joint. Wipe away any excess glue.
- B. Support rocket as shown until glue dries.



24. 

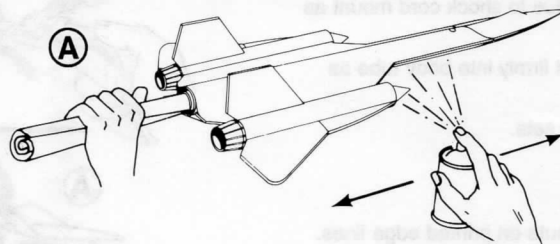
- A. When all glue on rocket is dry, apply a coat of sanding sealer to all wood and paper parts.
- B. When sealer is dry, lightly sand. Repeat sealing and sanding until balsa grain is filled and smooth.

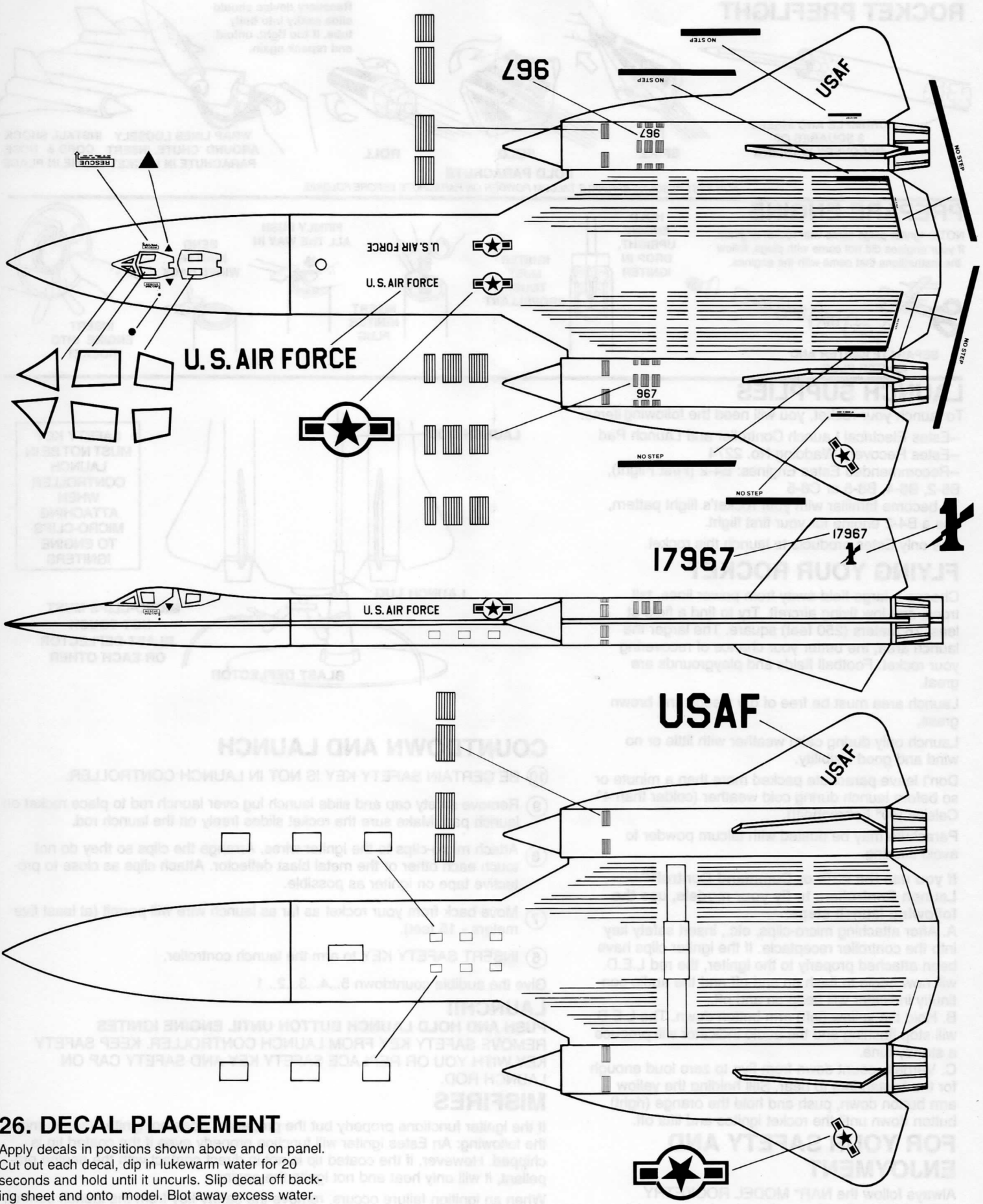


25.  **PRIMER (optional)**

- A. After sealer is completely dry, paint entire model gloss black. Follow instructions on spray can for best results.

Optional: Before painting with gloss black, spray entire model with automotive primer. Let primer dry. Lightly sand (600 grit) before painting with gloss black. Primer will allow the paint to adhere better and give your SR-71 a smoother finish.





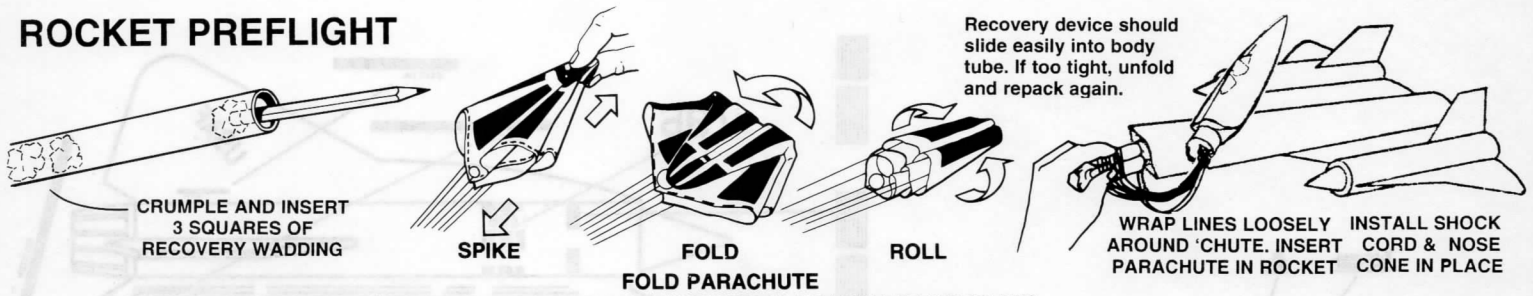
26. DECAL PLACEMENT

Apply decals in positions shown above and on panel. Cut out each decal, dip in lukewarm water for 20 seconds and hold until it uncurls. Slip decal off backing sheet and onto model. Blot away excess water.

27.

After decals have dried, spray entire model with clear flat paint - this gives the model a more realistic look and protects the decals.

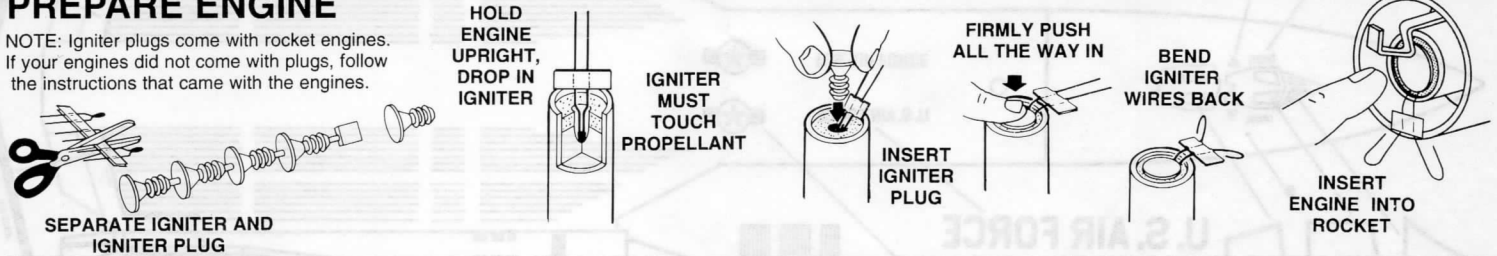
ROCKET PREFLIGHT



FOR BEST RESULTS: SPRINKLE TALCUM POWDER ON PARACHUTE BEFORE FOLDING.

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.



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: B4-2 (First Flight), B6-2, B6-4, B8-5 or C6-5

To become familiar with your rocket's flight pattern, use a B4-2 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.

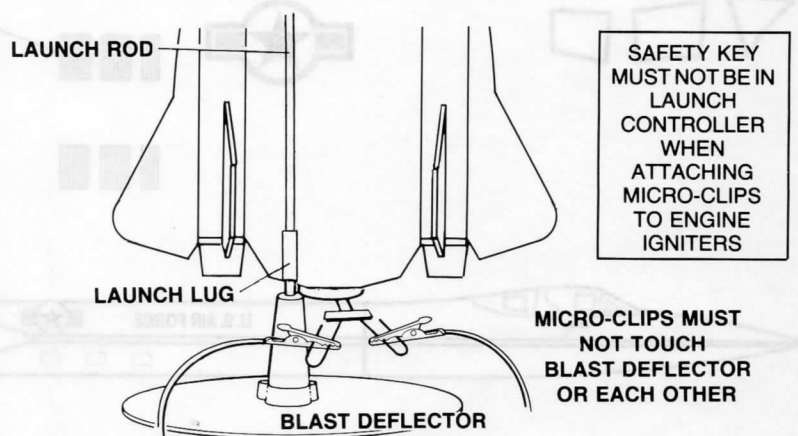
If you use the E2™ or Command Control™ Launch Controllers to fly your models, use the following launch steps:

- 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.
- 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

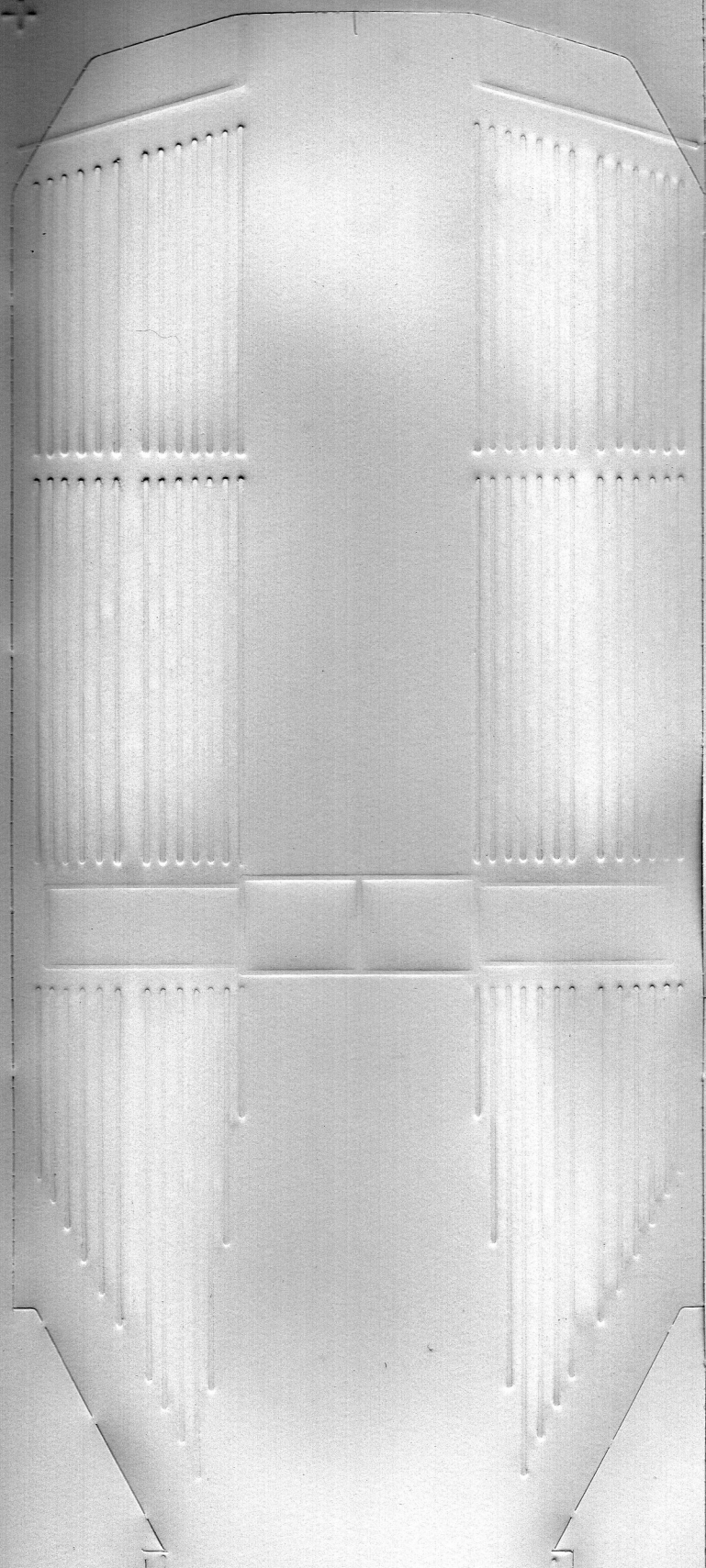
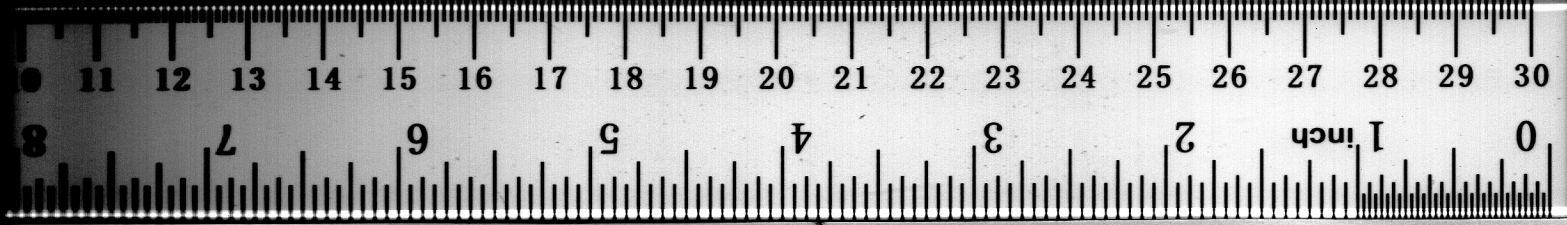
LAUNCH!!

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.

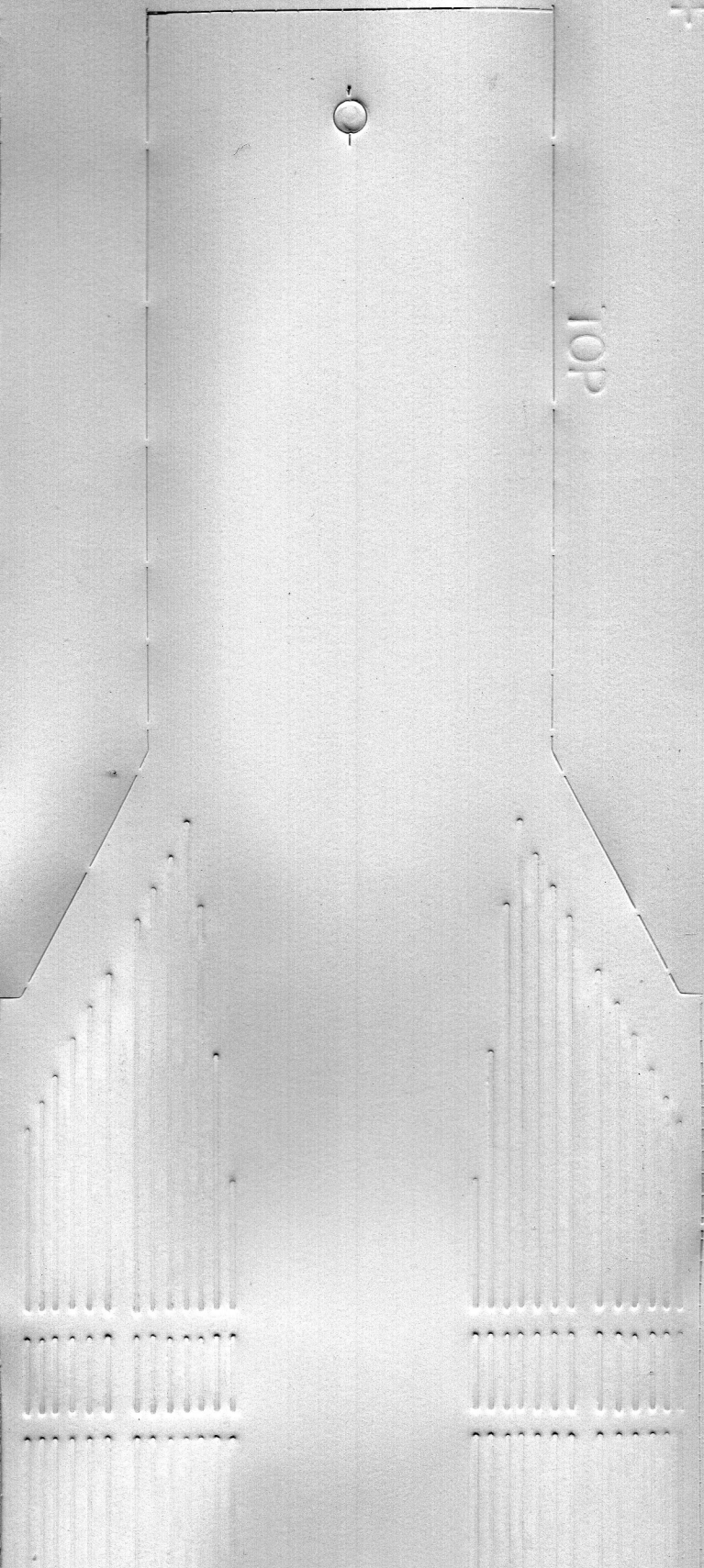
MISFIRES

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.

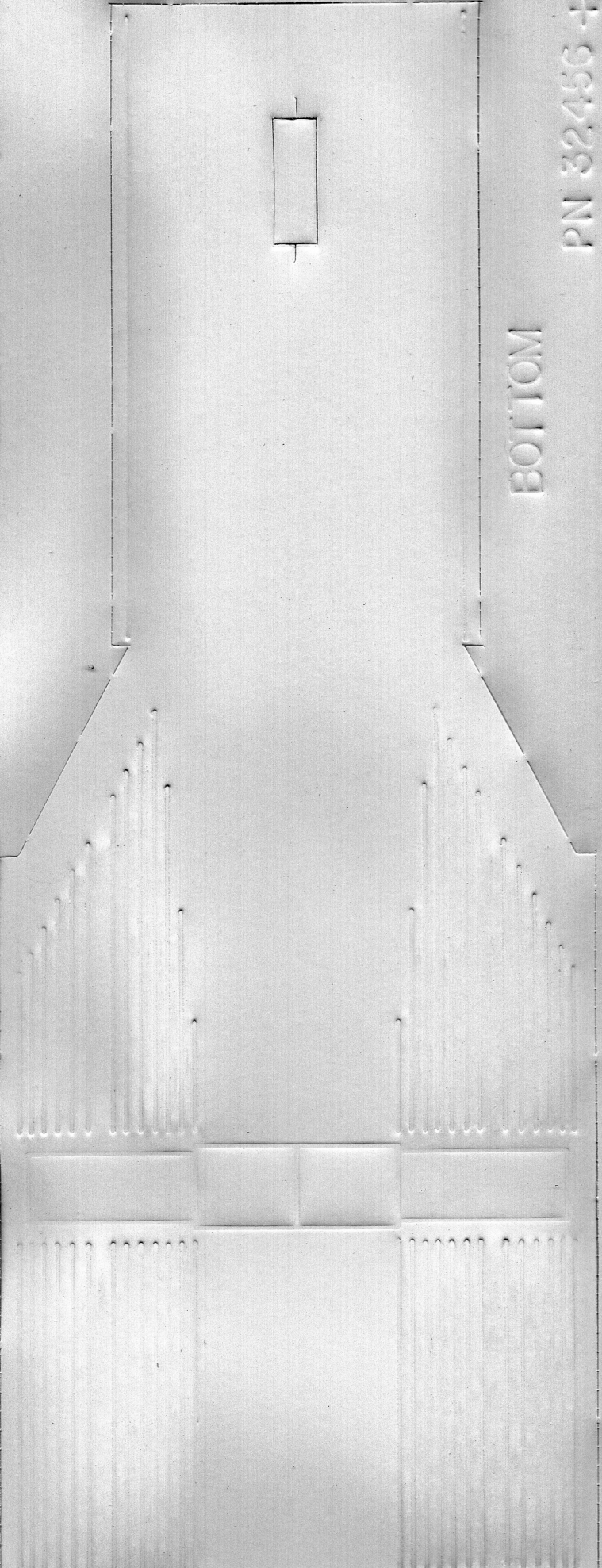
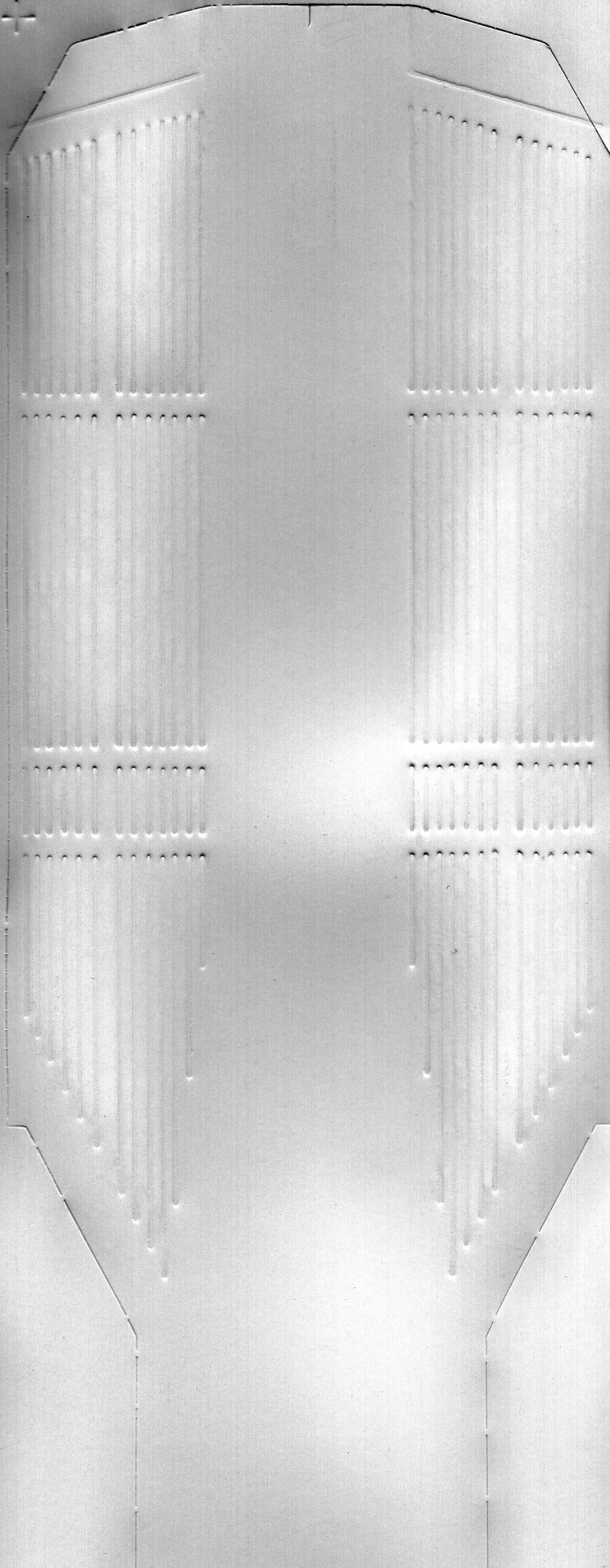
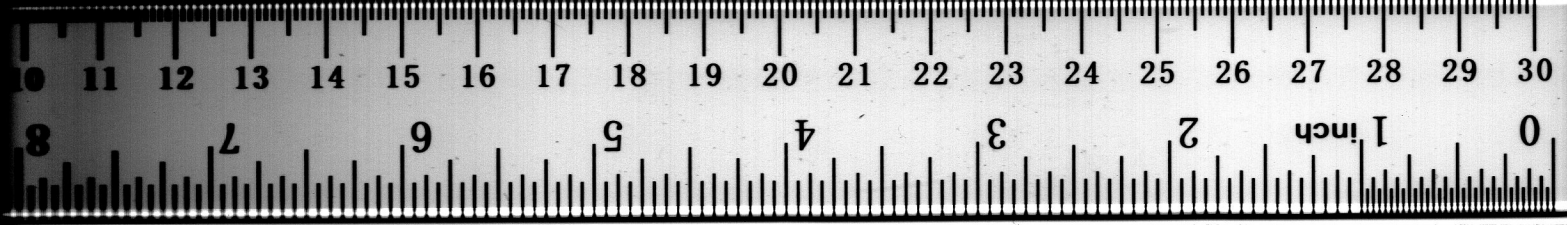
When an ignition failure occurs, remove the safety key from the launch control system and wait one minute before approaching the rocket. Remove the expended igniter from the engine and install a new one. Be certain the coated tip is in direct contact with the engine propellant, then reinstall the igniter plug as illustrated above. Repeat the countdown and launch procedure.



BOT



TOP



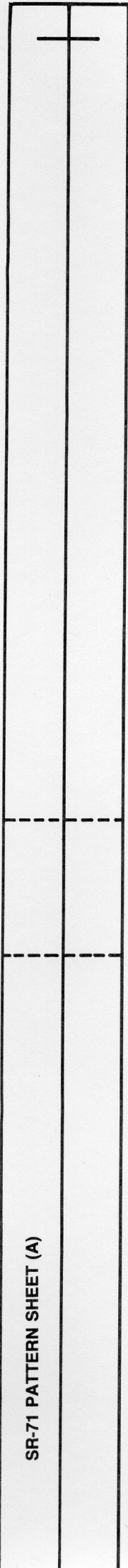
BOTTOM

PN 32456 4

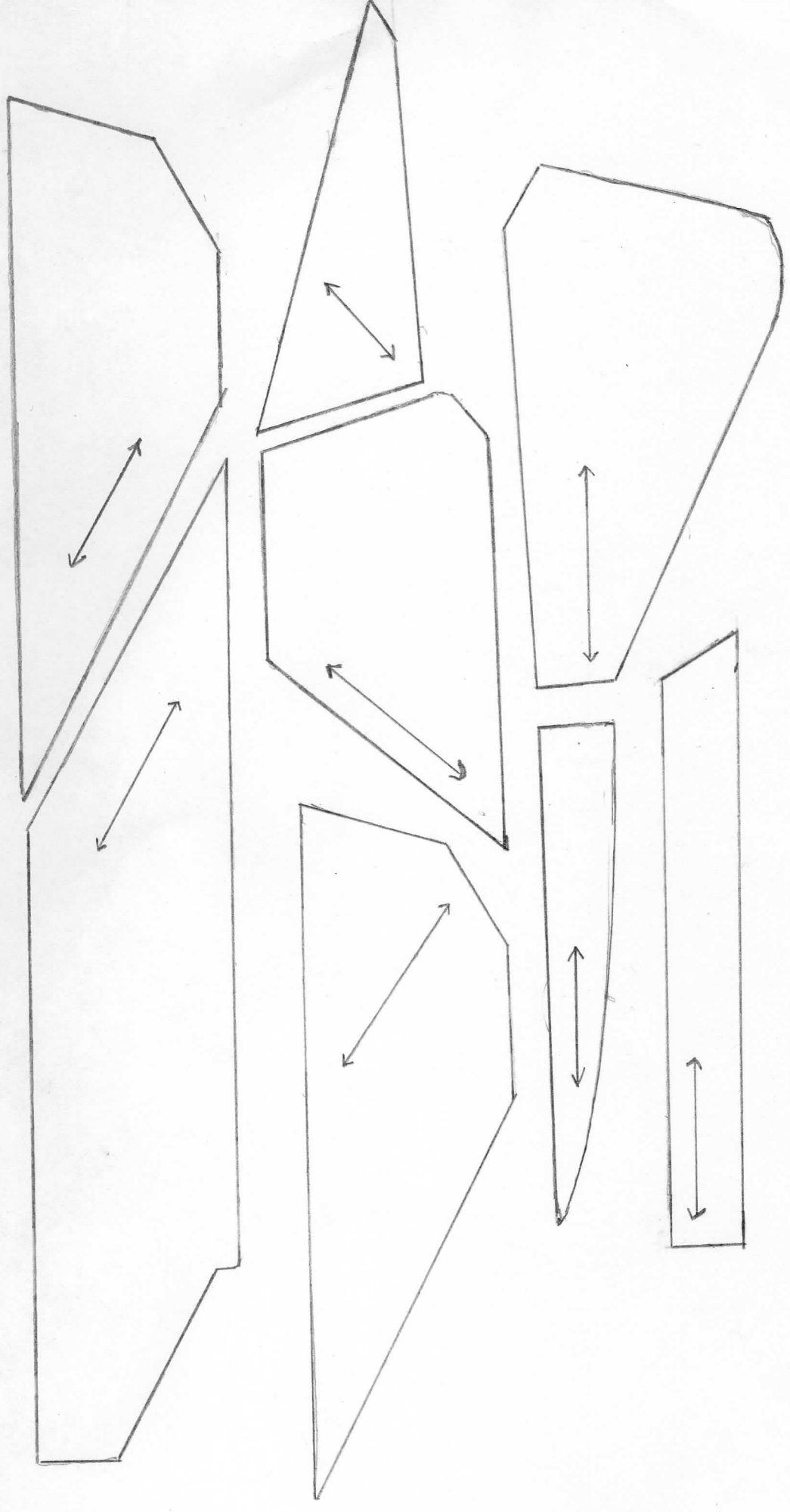


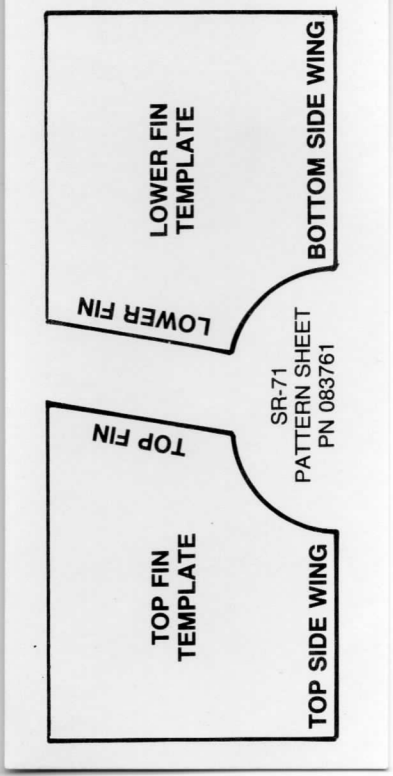
SR-71 PATTERN SHEET (A)

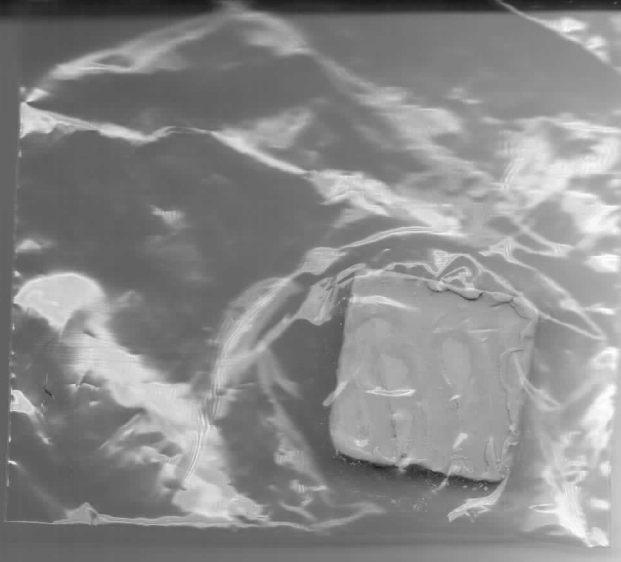
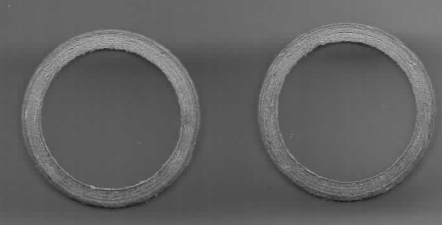
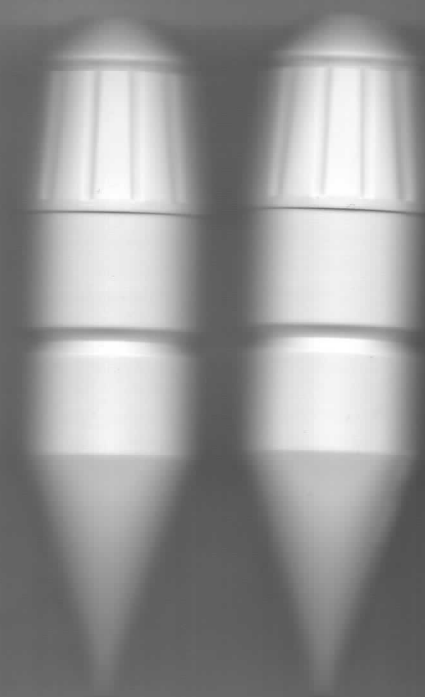
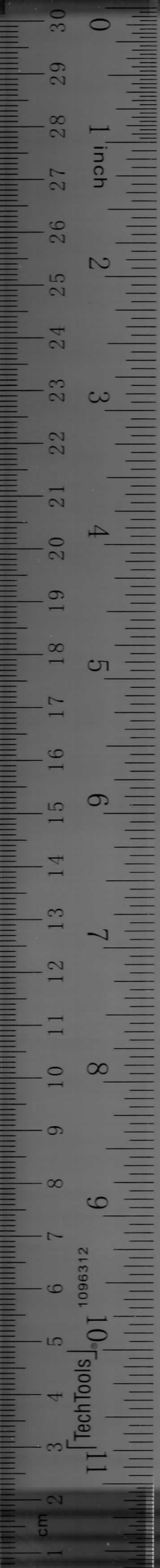
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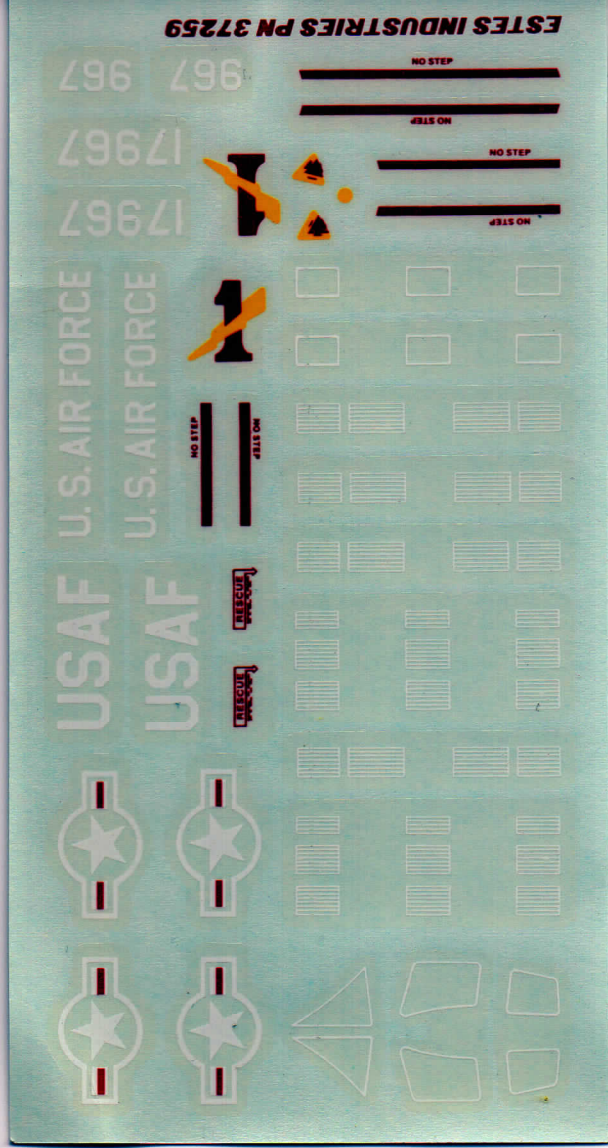


SR-71 PATTERN SHEET (A)









BODY TUBES - BT 50 12.75 INCHES LONG
BT 50 2 @ 6.50 INCHES LONG

ENGINE TUBE - BT 20 2.75 INCHES LONG

BALSA PATTERN - 3/32 ON DRAWING ARROWS ARE GRAIN DIRECTION. EACH PEICE DRAWN YOU
NEED TO MAKE 2

LAUNCH LUG - 1.25 INCH X 1/8

SHOCK CORD - 17 INCHES X 1/8

Challenge
SERIES

SKILL LEVEL 3

SR-71

BLACKBIRD™

FLYING MODEL ROCKET



ESTES INDUSTRIES
1200 N STREET
FRANCONIA, CO 81050



- SPORT SCALE OF THE FAMOUS HIGH SPEED, HIGH ALTITUDE RECONNAISSANCE JET
- AUTHENTIC 3 COLOR SCALE DECALS AND EMBOSSED PAPER "BLACKBIRD SKIN"
- PRECISION PARTS - PLASTIC SCALE NOSE CONE, JET INLETS AND EXHAUST DUCTS, DIE-CUT BALSA WINGS AND FINS

USE ONLY WITH
ESTES ROCKETS

1 MODEL MUST
BE LAUNCHED AT ALL TIMES

MADE IN U.S.A.

Length: 48.0 cm (19")
Diameter: 36.8 mm (1.45")
Weight: 85.7 g (3.03 oz)
Recommended Engine:
E2.2 (Max Flight: 30 s)
E4.2 (30 s)

This model kit requires assembly.
Requires hobby knife, glue, primer
or white paint, finishing supplies,
engine, motor, landing and
launch system - NOT INCLUDED.

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

