



| Q | Description         | Centuri | Estes   | Comment                        |
|---|---------------------|---------|---------|--------------------------------|
| 1 | Centering Ring      | #80425  | AR-2050 | Split                          |
| 1 | Engine Tube         | #30326  | BT-20J  | 2.75" Long                     |
| 1 | Engine Lock         | #35025  | EH-2    |                                |
| 1 | Thrust Ring         | #30224  | EB-20A  |                                |
| 2 | Centering Ring      | #30164  | AR-2050 |                                |
| 2 | Paper Contour Sheet | #32916  |         | Heavy embossed card            |
| 2 | Tailcone            | #72010  |         | Fits BT-60 (see scan)          |
| 2 | Engine Inlet        | #72010  |         | Fits BT-60 (see scan)          |
| 2 | Engine Tube         | #30414  | BT-60K  | 7" Long                        |
| 2 | Balsa Sheet         | #32805  | BFS-30L | 3" x 12" x 3/32" Die Cut       |
| 2 | Balsa Sheet         | #32804  | BFS-30  | 3" x 9" x 3/32" Die Cut        |
| 2 | Launch Lug          | #31781  |         | 1" Long for 3/16" Rod          |
| 1 | Lower Body Tube     | #30402  | BT-60AJ | 10" Long                       |
| 1 | Tube Coupler        | #30266  | JT-60C  |                                |
| 1 | Upper Body Tube     | #30407  | BT-60?  | 12" Long                       |
| 1 | Shock Cord          | #85784  | SC-1    |                                |
| 1 | Nose Cone           | #72165  |         | Same as USS America and Quasar |
| 1 | Clay Weight         | #85264  |         | 1" x 1" x 1/2"                 |
| 2 | Parachutes          | #85671  |         | CP-20 20" Parachutes           |
| 2 | Shroud Line         | #38241  |         |                                |
| 2 | Tape Disk Sets      | #38408  |         |                                |
| 1 | D Engine Tube       | #30362  | BT-50J  | 2.75" Long                     |
| 1 | Centering Ring set  | #30053  | RA-5060 |                                |
| 1 | Centering Ring      | #30164  | AR-2050 |                                |
| 1 | Engine Lock         | #35025  | EH-2    |                                |
| 1 | Decal               | #36827  |         | Red/White/Blue                 |



**Centuri**<sup>®</sup>

Prod. #5349

# SR-71 BLACKBIRD

## SECRET U.S. SPY PLANE

The Lockheed SR-71 Blackbirds flying at altitudes of more than 80,000 feet and remaining out of sight throughout their missions, keep watch on the world's more serious trouble spots. The equipment fitted in the SR-71's black fuselage can map 60,000 square miles in an hour. Although the SR-71 went into service in 1966 and has made headlines with its record breaking performance, its professional career has always been shrouded in secrecy.



## MODEL ROCKETEER'S SAFETY CODE

### CONSTRUCTION

My model rockets will be made of only lightweight materials such as paper, wood, plastic, and thin metallic foils, with the exception of payloads and engine holders made of wirelike material.

### ENGINES

I will use only pre-loaded factory made model rocket engines in the manner recommended by the manufacturer. I will not change in any way nor attempt to reload these engines.

### RECOVERY

I will always use a recovery system in my model rockets that will return them safely to the ground so that they may be flown again.

### WEIGHT LIMITS

My model rocket will weigh no more than 453 grams (16 oz.) at liftoff, and the engines will contain no more than 113 (4 oz.) of propellant, as prescribed by Federal Regulations.

### STABILITY

I will check the stability of my model rockets before their first flight except when launching models of already proven stability.

### LAUNCHING SYSTEM

The system I use to launch my rockets will be remotely controlled and electrically operated, and will contain a switch that will return to "off" when released. I will remain at least 15 feet away from any rocket that is being launched.

### LAUNCH SAFETY

I will not let anyone approach a model rocket on a launcher until I have made sure that either the safety interlock key has been removed or the battery has been disconnected from my launcher.

### LAUNCH AREA

My model rockets will always be launched from a cleared area, free of any easy-to-burn materials, and I will only use non-flammable recovery wadding in my rockets.

### BLAST DEFLECTOR

My launcher will have a blast deflector device to prevent the engine exhaust from hitting the ground directly.

### LAUNCH ROD

To prevent accidental eye injury I will always place the launcher so the end of the rod is above eye level or cap the end of the rod with my hand when approaching it. I will never place my head or body over the launching rod. When my launcher is not in use I will always store it so that the launch rod is not in an upright position.

### POWER LINES

I will never attempt to recover my rocket from a power line or other dangerous places.

### LAUNCH TARGETS AND ANGLE

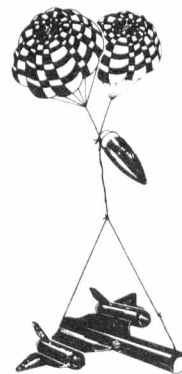
I will not launch rockets so their flight path will carry them against targets on the ground, and will never use an explosive warhead nor a payload that is intended to be flammable. My launching device will always be pointed within 30 degrees of vertical.

### PRE-LAUNCH TEST

When conducting research activities with unproven designs or methods, I will, when possible, determine their reliability through pre-launch tests. I will conduct launchings of unproven designs in complete isolation from persons not participating in the actual launching.

### FLYING CONDITIONS

I will not launch my model rocket in high winds, near buildings, power lines, tall trees, low flying aircraft or under any conditions which might be dangerous to people or property.



## HOW IT WORKS

Your Blackbird model rocket is designed to fly in the same manner as most model rocket kits. The electrically ignited engine boosts the rocket off the launch pad, guiding it into proper flight by the launch rod. The rocket continues coasting to peak altitude while the engine's delay-charge operates. Then the ejection charge ignites, pushing out the nose cone and recovery system. Your rocket drifts to earth ready to be prepared for another flight.

## WHAT IT TAKES TO FLY

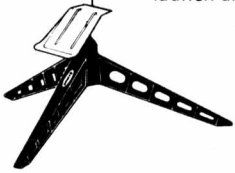
You will need engines, igniters, an electrical launch system and parachute wadding to fly your rocket. These supplies are NOT included in individual rocket kits, but are available separately and ARE included in every Centuri Starter Set or Rocket Outfit.



We recommend using Centuri engines; each package includes igniters.

The popular Centuri Power Tower launch stand and Power-Control launch system are ideal for launching your Blackbird. In addition, they can be used to launch any other kit Centuri makes.

Always use standard remote-control electrical ignition and follow the engine recommendations. Be sure to comply with any laws that may apply in your area, for the good of Model Rocketry and your own enjoyment.



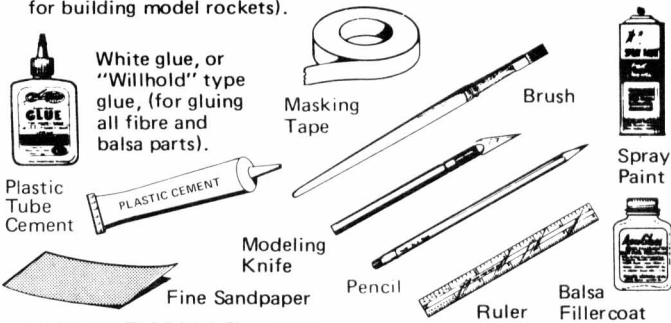
## RIGHT MATERIALS FOR THE JOB

Different model rocket kits are made out of a variety of materials, depending on the needs of each kit. The chart below explains why this particular kit is designed using certain materials.

| PART        | REQUIREMENTS   | MATERIAL      |
|-------------|--|---------------|
| Body & Fins | <ul style="list-style-type: none"> <li>• Light Weight</li> <li>• Strength</li> </ul> | Balsa & Paper |
| Nose Cone   | Strength   | Plastic       |

## TOOLS YOU WILL NEED

In addition to the parts supplied, you will need the following tools to assemble and finish this kit (DO NOT use model airplane glue for building model rockets).



## BEFORE YOU START

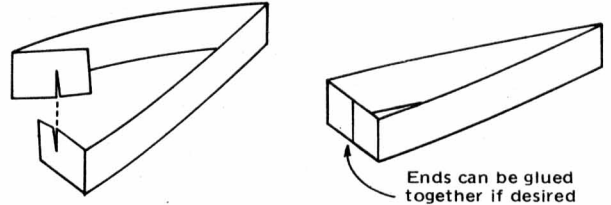
If you are new to model rocketry, here are some general tips to get you off to a good start.

- Choose a practical assembly area: well lighted, big enough to work in, and out of the way of relatives or pets who might accidentally mess up your work.
- Cover your worktable with plywood or heavy cardboard to protect the table from glue, paint, cuts, etc.
- Remove the entire contents of your kit package carefully to avoid losing or damaging small parts. Lay them out neatly and identify each by referring to the "exploded view" drawing on this instruction.
- NOTE: Sometimes certain parts are packed INSIDE of other parts, such as tape discs inside parachutes, decals or couplers inside body tubes, etc.

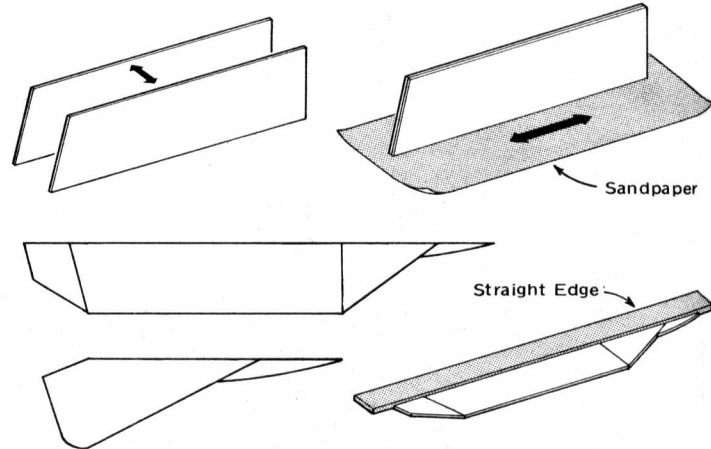
# ASSEMBLY INSTRUCTIONS

You **MUST** follow these instructions for satisfactory flights. The shape and placement of the model's parts has been carefully engineered for safe flights. **DO NOT** try to change the design, "customize" it, or leave off any parts.

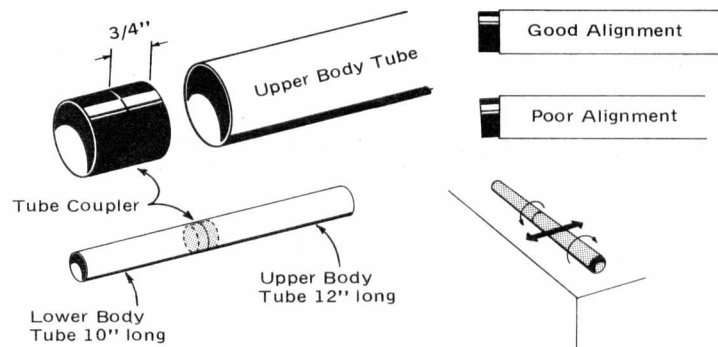
- 1 Remove the wing jig from each of the thin paper die-cut sheets. Fold the jig as shown below. Slide the ends together.



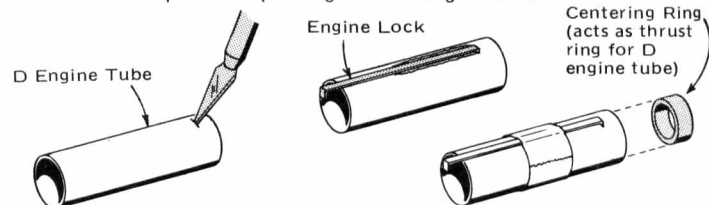
- 2 Carefully remove balsa wing sections from die-cut sheet. Holding identical sections together, sand all edges with a sanding block or on a piece of sandpaper on a flat surface. Lay a piece of waxed paper on a flat surface and glue wing sections together as shown. Repeat this procedure for other wings.



- 3 Locate the main body tube sections and tube coupler. Mark the tube coupler 3/4" from one end. Apply a line of glue inside one end of the upper tube and insert tube coupler so the line is even with the end of the body tube. Apply glue to an end of the lower body tube and join the sections together. Roll the tubes on a flat surface to be certain they are properly aligned.



- 4 Locate the adapter ring set, D engine tube, engine lock, and one of the centering rings. Cut a 1/8" wide slit in the D engine tube 1/4" from one end as shown. Apply a 1-1/2" long line of glue to the tube as shown. Push one end of the engine lock into the slit and press the main part of the lock into the glue. Wrap a layer of masking tape around the engine tube as shown. Apply a ring of glue inside the forward end of the D engine tube. Place the thrust ring in the end of the tube and push it in place against the engine lock.



**5** Remove two of the adapter rings from the adapter ring set. Glue one ring to each end of the D engine tube as shown. The notched ring should be placed over the engine lock. Apply a glue fillet to each side of the ring. A fillet is made by applying a line of glue to the joint and smoothing it with your finger as shown. This adds extra strength to your model and is very important.

**6** Stand the main body tube with the 10" tube in down position over the fin guide located on pages 4 & 5. Mark the body tube with a pencil at the four black marks. Find a convenient groove or channel such as a partially open drawer or door jamb and extend the marks the full length of the tube.

**7** Apply a line of glue to the root edge of one wing. Place it on the drawn line on main body tube so the rear edge of wing is flush with end of lower body tube. Remove wing and allow glue to become tacky. Apply a little more glue and replace wing. To insure proper alignment use wing jigs: place jig and tube on flat surface and center wing on top of jig. Move the tube and wing together sighting from rear. Repeat procedure for other wing using the 2nd jig.

**8** Snap the molded engine inlet/tailcone apart at the neck. Scrape away any plastic "flash" along the seams.

**9** Stand an engine tube on one Engine Tube Fin Guide (pages 4 & 5). Mark the tube and extend the marks using the same methods used in step 6. Repeat for second engine tube. NOTE: it is helpful to lightly write the line names on the tubes and to mark them left and right to avoid confusion later.

**10** Run a bead of plastic tube cement around the inside of both ends of the engine tube and insert tailcone and engine inlet. Repeat for other engine tube.

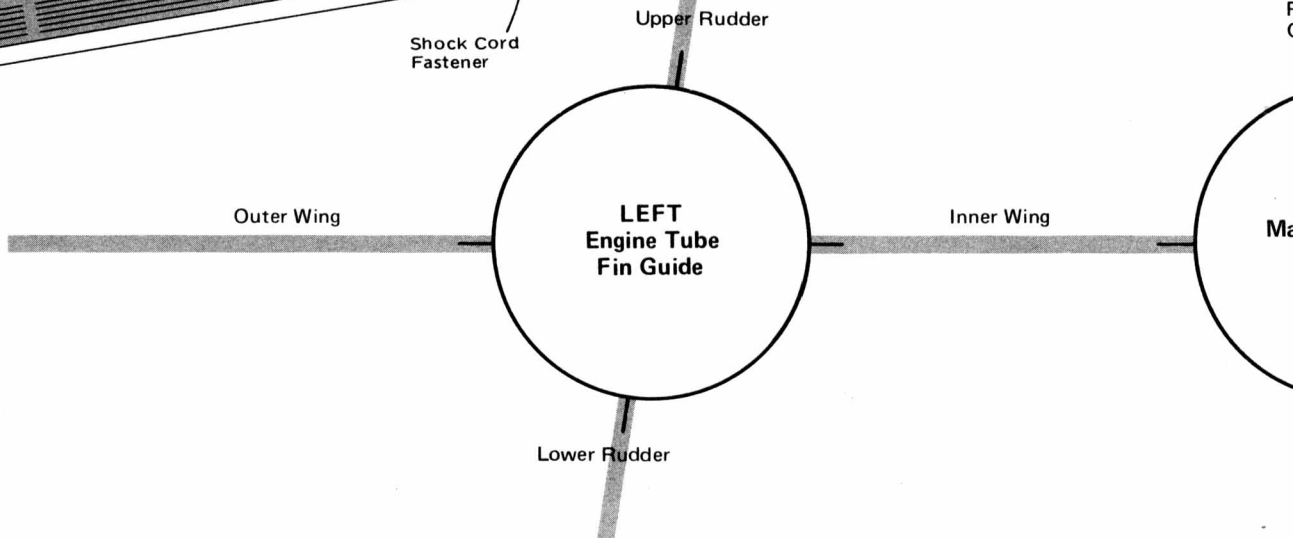
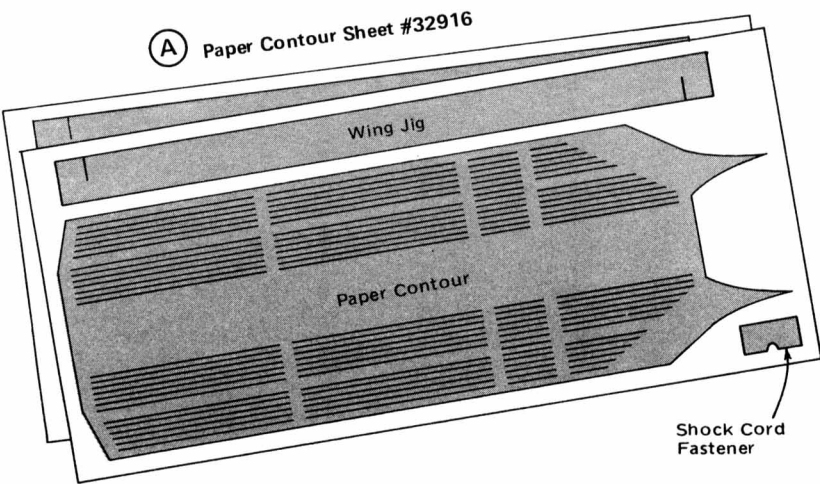
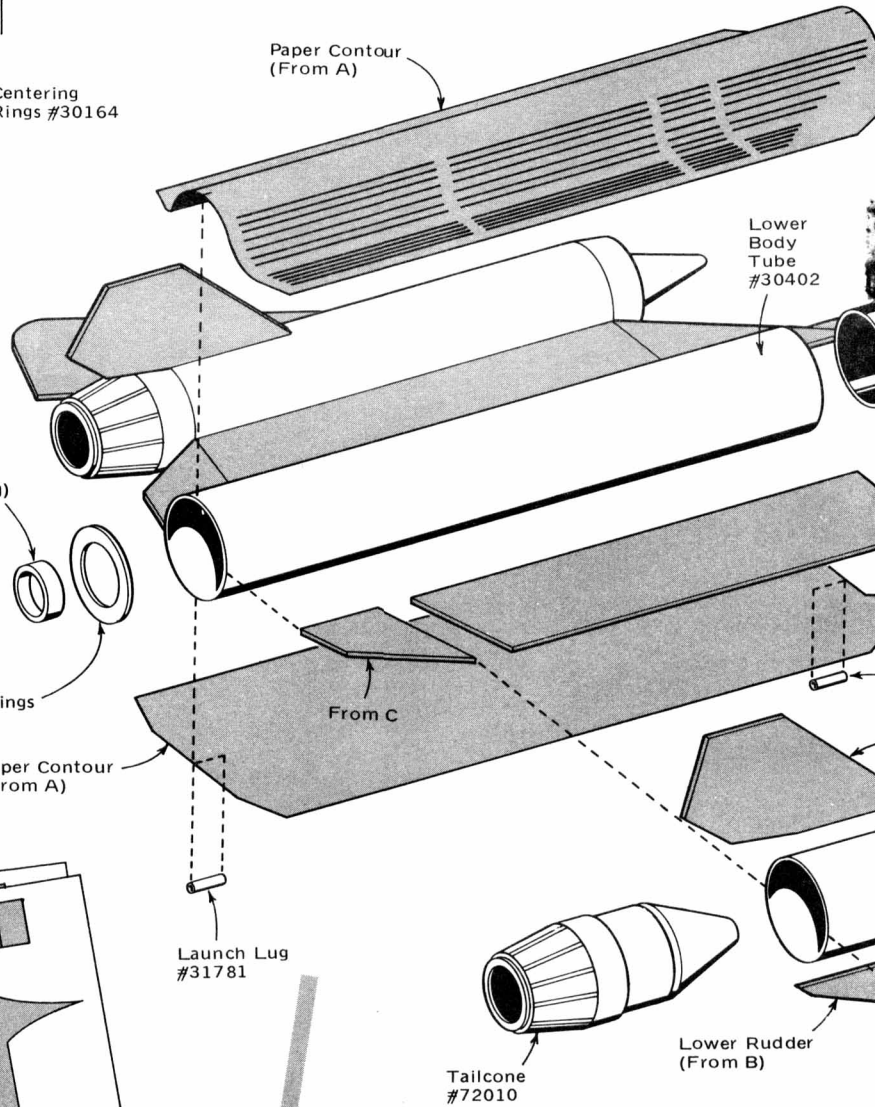
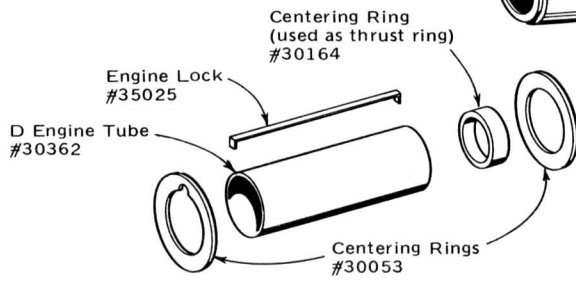
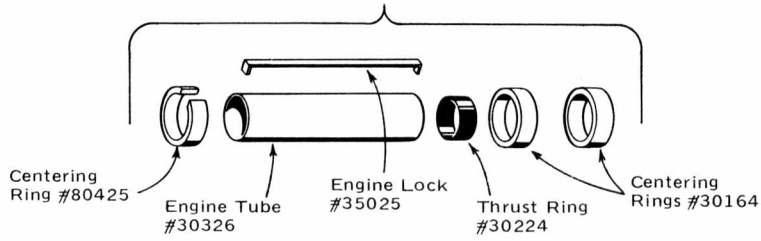
**11** Attempt this step only after wings are completely dry. Draw a straight line on each wing 1" from edge.

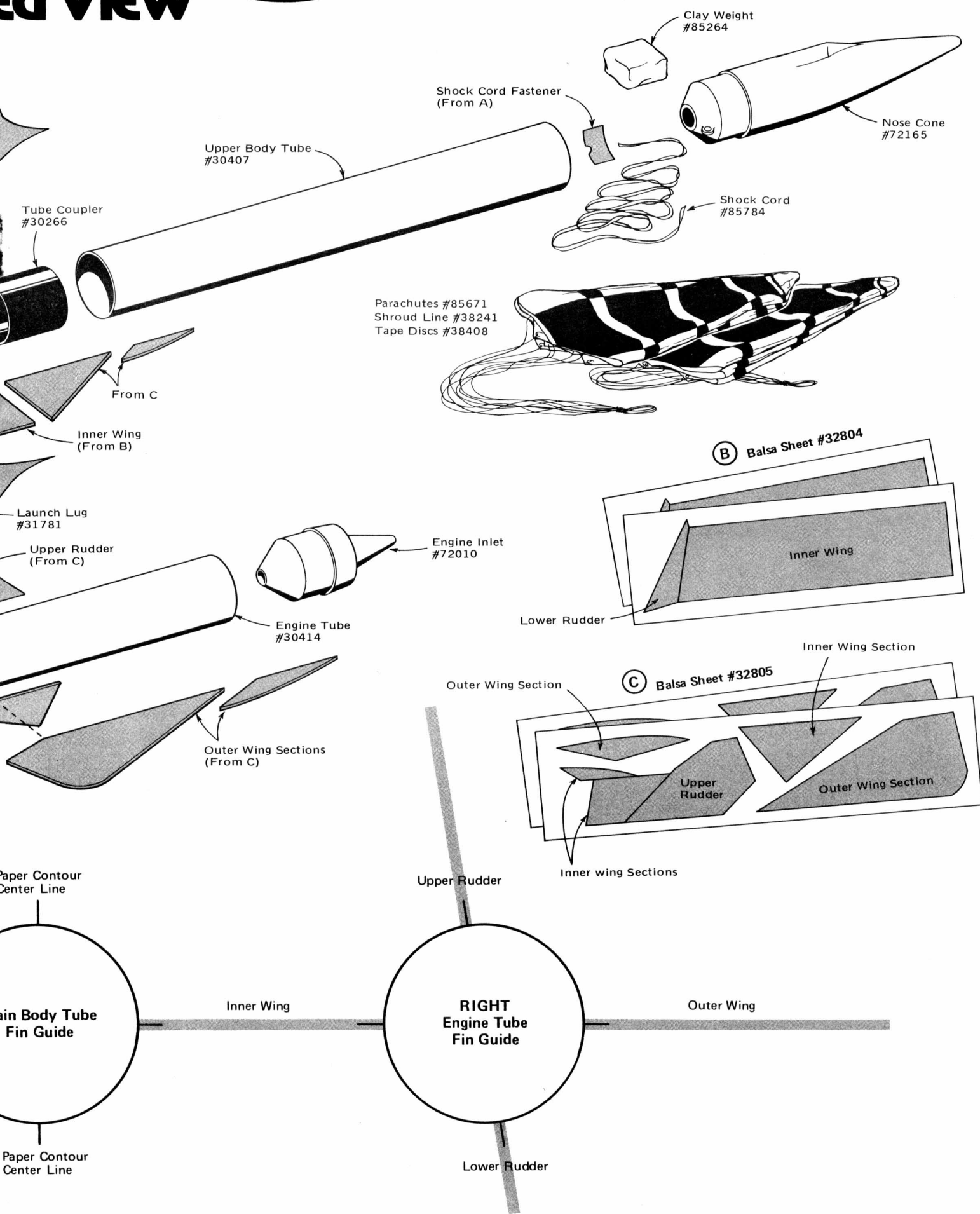
**12** Remove embossed paper wing contour from die-cut sheet. You should notice that one side has more detail on it. This "embossed" side will face out from the tube. On the backside of the paper contour run a line of glue between the two tick marks. Spread the glue out thinly with your finger. Important: if you don't spread the glue thinly an ugly ripple will appear. Using the drawn line on body tube and the tick marks for proper alignment, place paper contour on body tube so that rear edge is flush with the end of body tube. Run your fingers back and forth rapidly over contour to remove any wrinkles. Allow to dry for a few minutes.

**13** Fold back one side of paper contour and run a line of glue along the entire edge. Spread glue thin with your fingers as in previous step. Place edge and "pull" it in with your fingers towards the body tube until it is aligned with the drawn line. Run your finger back and forth over the contour to remove any ripples and to help the piece hold its shape until the glue sets in a few seconds. Now you can form the pointed section of the contour easily by using your finger to press it into place. Repeat procedure for other wing.

**NOTE: ASSEMBLY CONTINUED ON PAGE 6.**

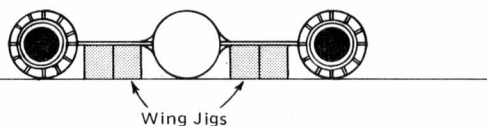
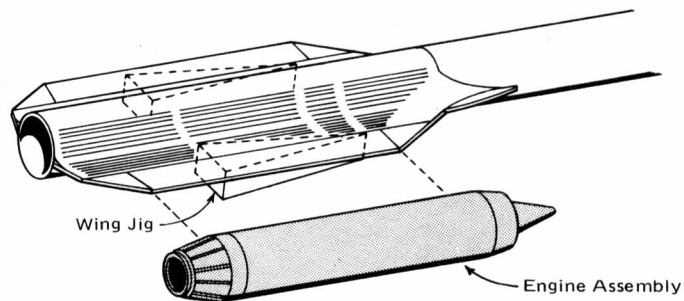
These parts are used for assembling the convertible mount which converts this D-powered kit to standard engines. Assembly instructions are at the end of kit instructions.





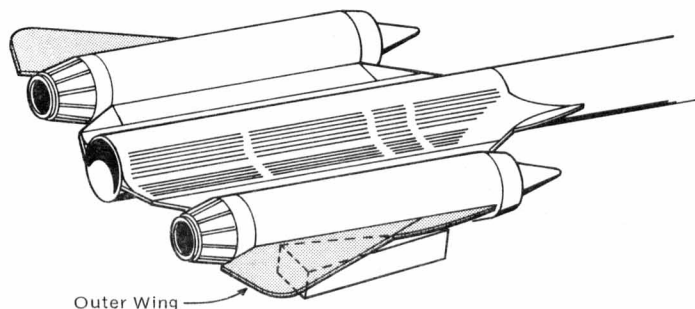
14 Repeat steps 11, 12 & 13 for bottom side of model.

15 Place the wing jigs under the wings as in Step 7. Run a line of glue down edge of one wing and glue its engine assembly to the wing. Allow to dry. Repeat for other side.

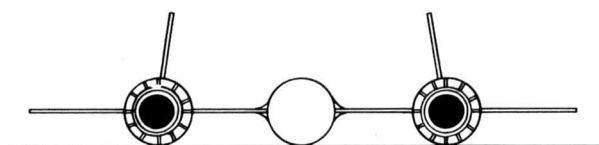
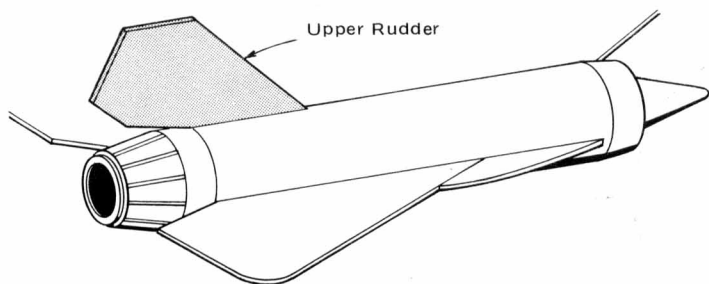


16 Now is a good time to assemble the two parachute kits, to allow the engine tube and wing assemblies to dry. The instructions are printed right on the chute material. Save the left over shroud line for step 28.

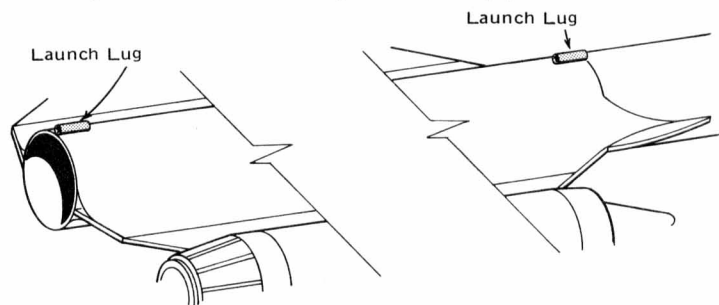
17 Remove jigs from under wings. Using the same technique as in step 7. Glue outer wing in place against engine tube. Repeat for other side.



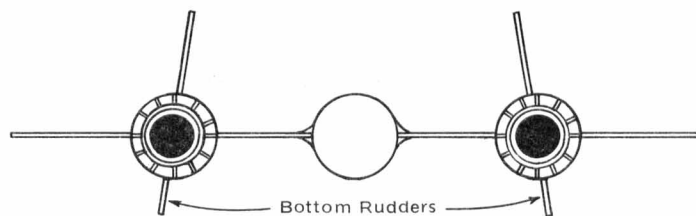
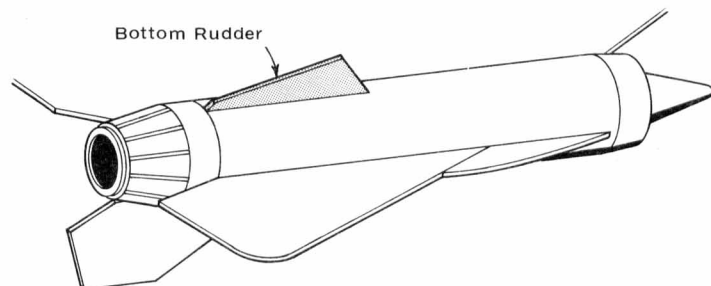
18 Apply a line of glue to the root edge of one upper rudder. Place it on the line on one of the engine tubes so that the rear edge is even with the end of the paper engine tube. Remove rudder and allow glue to become tacky. Apply a little more glue and replace rudder. Use Engine Tube Guide to check for proper alignment. Repeat for the other upper rudder.



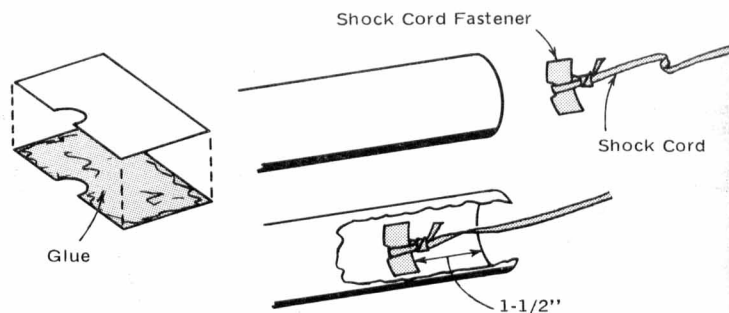
19 After you are sure that all the glue joints are completely dry, turn your SR-71 over. Locate the two launch lugs. Place a line of glue on each lug and using the tick marks for proper alignment, place each lug so that it is even with edge of embossed paper contour.



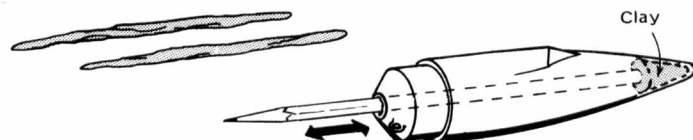
20 Apply a line of glue to the root edge of one bottom rudder. Place it on the line on the underside of the engine tube so that the rear edge is even with the end of the paper engine tube. Remove bottom rudder and allow glue to become tacky. Apply a little more glue and replace rudder. Use Engine Tube Guide to check alignment. Repeat for other bottom rudder.



21 Locate the two identical shock cord fasteners. Apply a thin coat of glue to one side of one piece and glue together to form a "sandwich". Bend the shock cord fastener slightly so it can be glued to the inside wall of the body tube. Tie the shock cord around the shock cord fastener and apply glue to the fastener. Glue it in place inside the body tube, making sure it is at least 1-1/2" below the forward end of the tube. Use your finger to tamp the fastener firmly in place against the wall of the tube. Allow to dry.

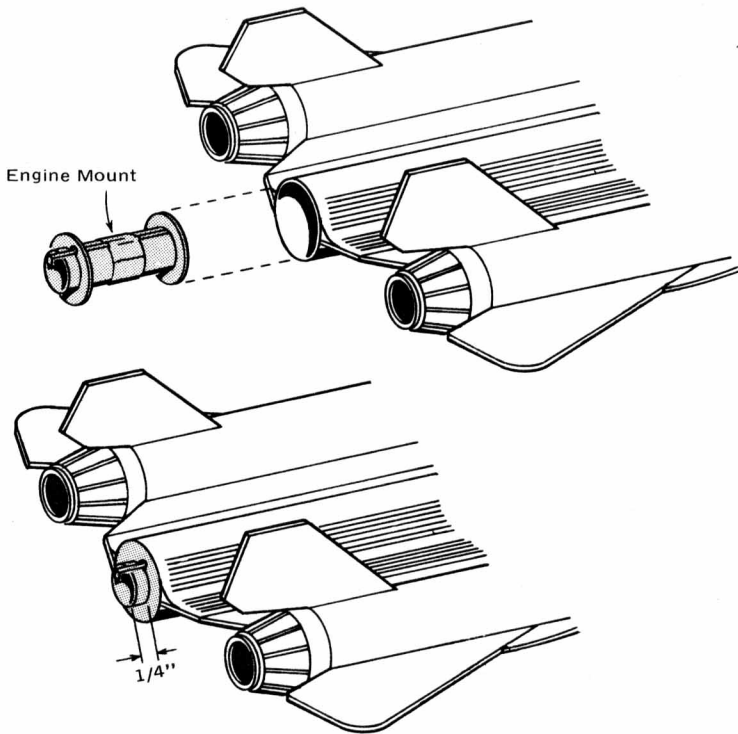


22 Locate the clay weight and the nose cone. Form clay into thin "worms" and insert one into the open end of the nose cone. Use one end of a pencil to tamp the clay into the front of the nose cone as far as possible. Tamp all the clay "worms" into the nose cone in this manner.

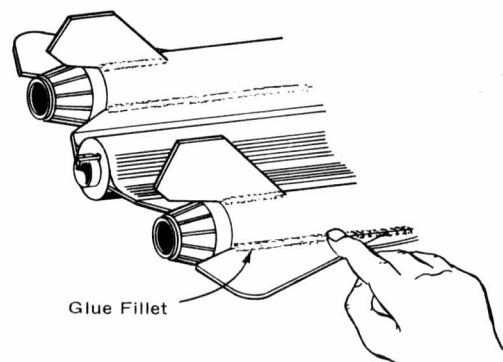




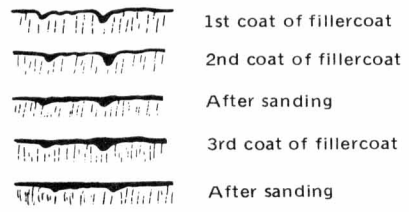
**23** Test fit the engine mount in the end of the body tube. Remove and apply glue inside the body tube. Insert engine mount into the tube with engine lock in the up position as shown and push in until 1/4" of engine tube remains.



**24** Apply glue fillets to all wing/body joints and wipe away excess glue with your finger. This is very important and adds extra strength to your model.



**25** Using a sanding sealer or balsa fillercoat, fill the wood surfaces of your model to obtain a smooth finish. Use several coats and sand between each coat to get a smooth finish.



**26** When painting plastic parts, never use dope or lacquer! Use enamel only! Dope or lacquer will melt the plastic.

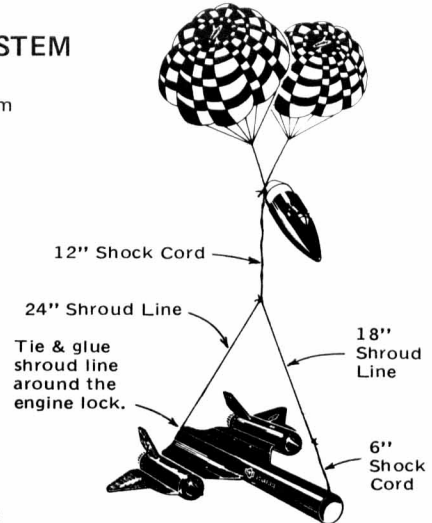
Spray painting your finished model with a fast-drying enamel will produce the best results . . . IF IT IS DONE PROPERLY! Most important is the number of coats of paint. DO NOT try to paint your model with one heavy coat! Instead, give it a couple of quick, light coats first and then a finish coat. Let each dry before applying the next.

**27** After the paint is dry apply the decals. Make sure surface is free of oil and dust. Dip decal in water, approximately 10 seconds. Hold decal by one end until it uncurls. Have surface wet for easy sliding into position. Slide decal from paper to remove excess adhesive and blot dry with a tissue.

SEE PAGE 8 FOR PROPER DECAL PLACEMENT.

## RIGGING THE RECOVERY SYSTEM

**28** Rig the recovery system as shown at right.



## FLYING INSTRUCTIONS

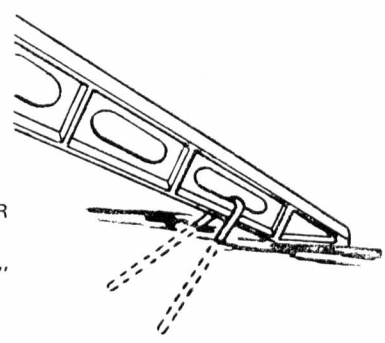
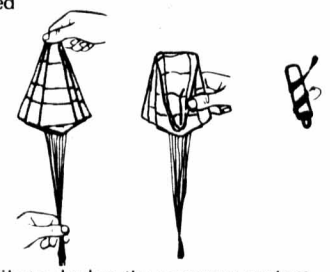
### ENGINES

Igniters and complete engine installation instructions are included in "Engine Operating Instructions" which accompany all Centuri engines.

**RECOMMENDED ENGINES: C6-3, C5-3S, D12-5**

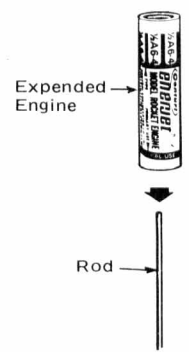
### FLIGHT PREPPING

1. Inspect the entire recovery system for good condition before each flight. If recovery system is tangled from last flight, untangle by cutting it apart and then reattach.
2. Insert Centuri crepe or fibre type recovery wadding into your model. This should be loosely packed and you should use enough to protect your parachutes from being burned by the engine's ejection charge. Do not pack too lightly. Use 8 sheets of crepe wadding or a loosely packed 3" ball of fibre.
3. Fold the parachutes as shown and insert them into the body tube. Place the nose cone in place, making sure the fit of the nose cone is correct. It should fit snugly, but not so tightly that the ejection charge fails to deploy the recovery system.
4. Insert the igniter into the engine following the instructions enclosed with the engines.
5. Insert engine into mount.
6. Mount the rocket on your launcher. Due to the size of the Blackbird it is VERY IMPORTANT that you weight or secure the launch pad in place. This can be done by placing a brick on each leg of the launcher or by cutting apart coat hangers and making stakes as shown. DO NOT ATTEMPT TO LAUNCH YOUR ROCKET WITHOUT SECURING THE LAUNCH PAD IN PLACE. ALWAYS USE A 3/16" DIAMETER LAUNCH ROD WHEN LAUNCHING YOUR BLACKBIRD.

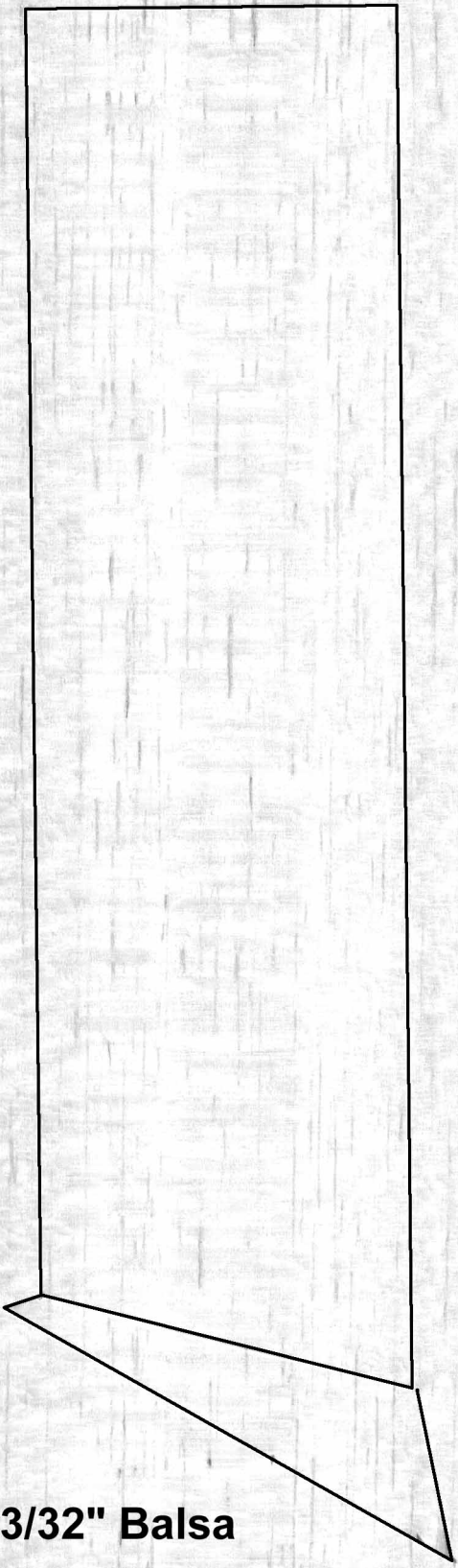


### RECOMMENDED LAUNCH SYSTEM:

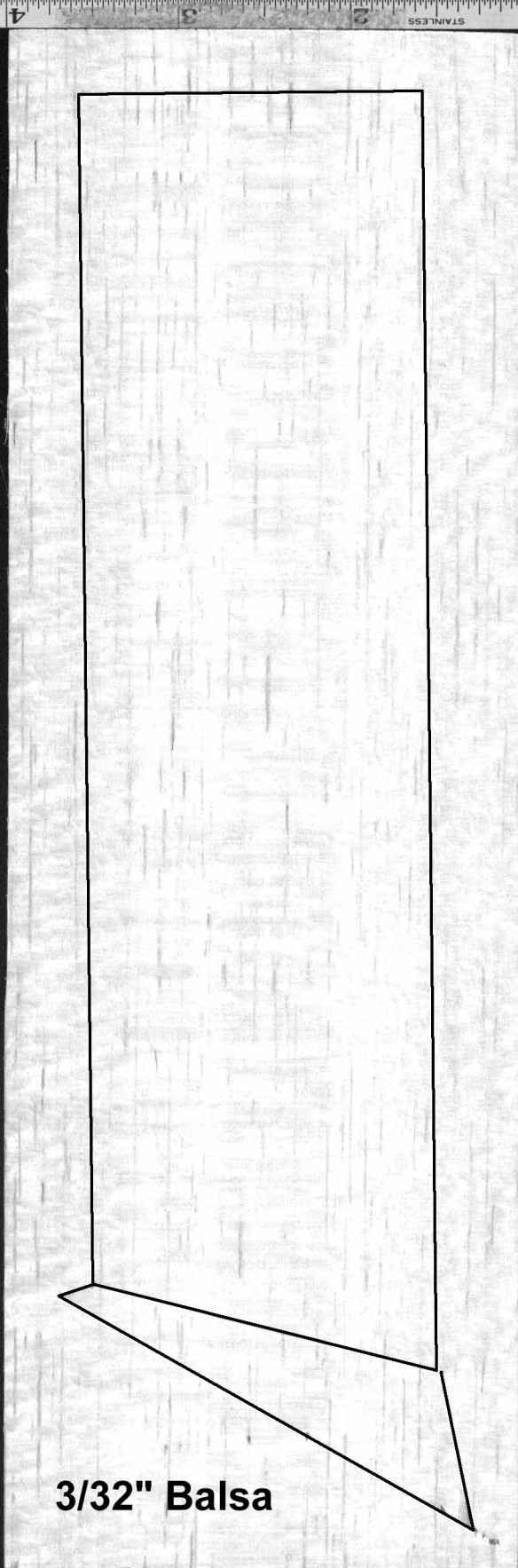
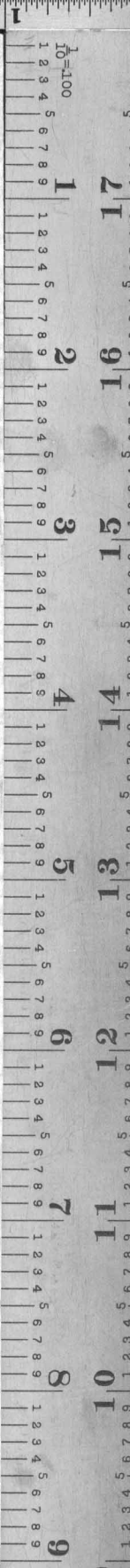
- #5601 Power Tower Launch Stand
- #5623 Powr-Control Controller
- #5803 Heavy-Duty 3/16" Launch Rod (Rod available by mail order for \$1.75 plus \$1.50 handling). May substitute 3/16" pianowire or welding rod.

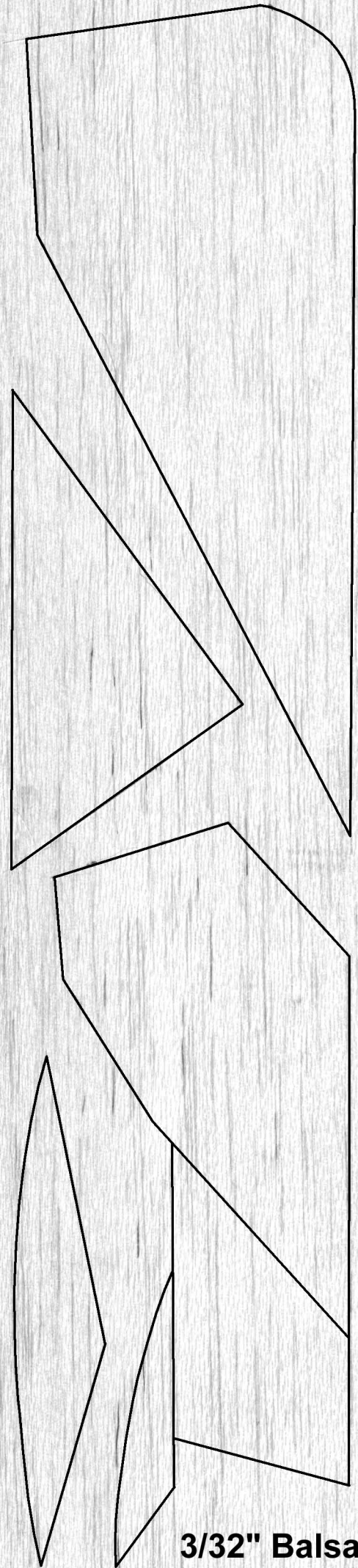


Avoid eye injury by capping the exposed tip of the launch rod when not actually launching. Follow the instructions and the Safety Code, and have many happy hours with model rocketry.

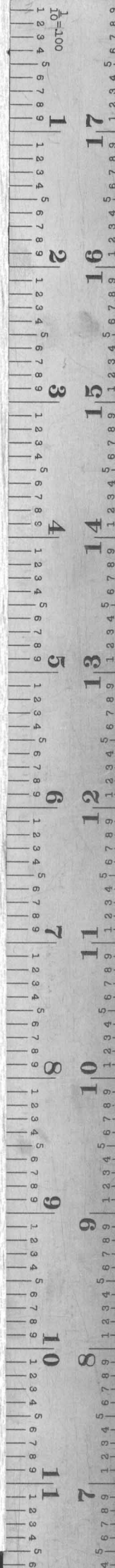


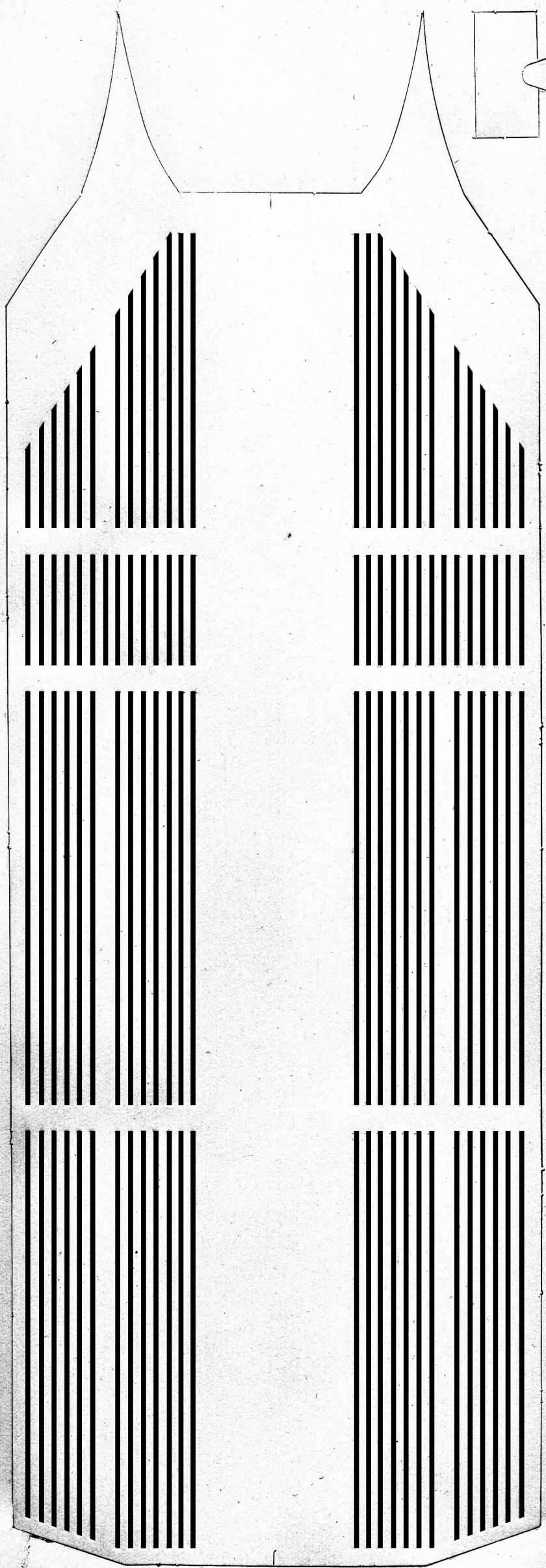
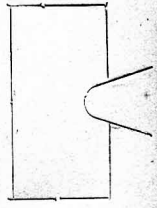
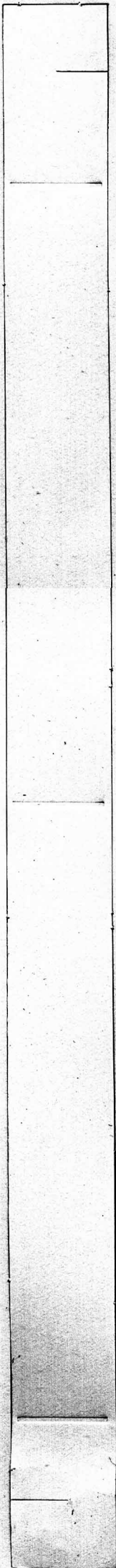
**3/32" Balsa**



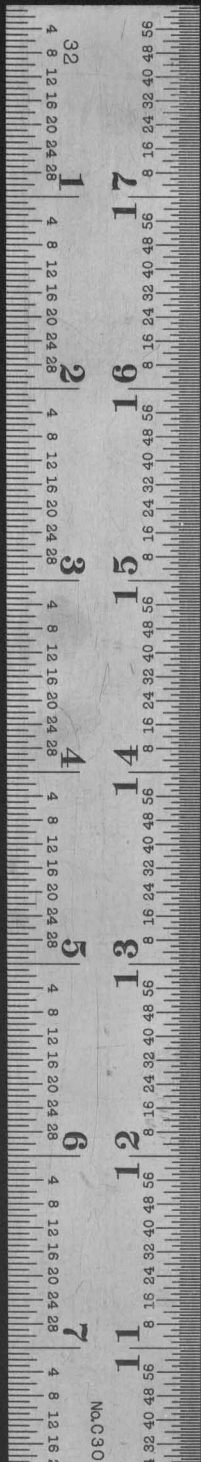
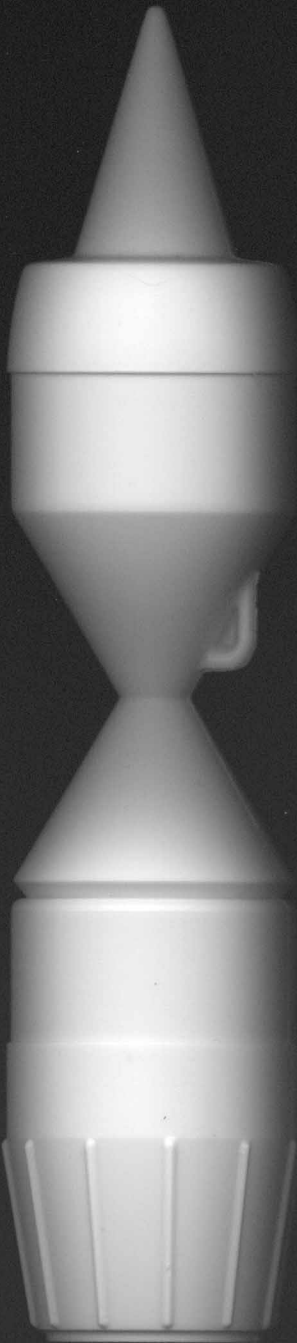


**3/32" Balsa**









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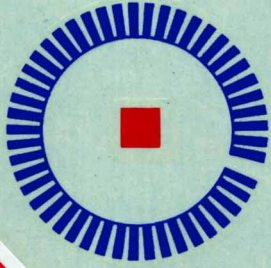
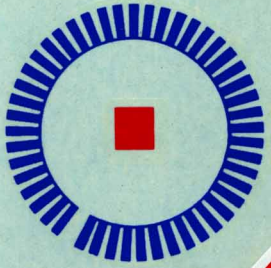
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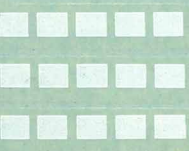
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