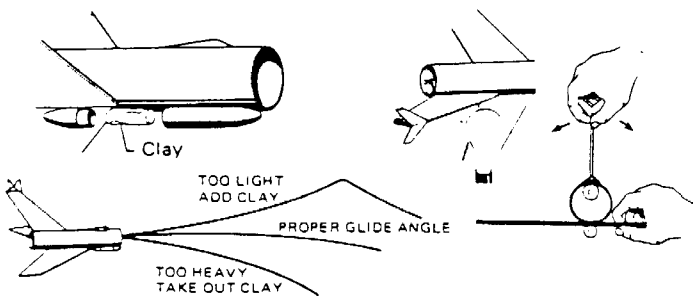




BALANCING THE MACH 10

Locate a clear grassy area to test glide your ship. To simulate actual glide conditions, remove the plastic nose cone and streamer and insert an expended engine casing into the engine compartment. Take a small piece of the clay provided in the kit and roll into a small cylinder. Remove the nose from the belly tank, drop in the clay and socket the cone back in place. Holding the Mach 10 by the belly tank, throw it straight out from shoulder height. If it noses in sharply, remove a little of the clay. If it climbs and stalls add a little more clay. Add or subtract ballast until you obtain a nice glide of about 10-12 feet. The Mach 10 is not a time endurance contest glider, and it glides rather fast. If the plane banks sharply right or left, check the stabilizer alignment. Hold the stabilizer-body joint over a light for about 30 seconds to soften the glue. With the glue joints now pliable, bend the stabilizer in the direction opposite the direction of bank (ie: the plane banks to the right, bend the stabilizer slightly to the left and visa versa). The glue joint will cool and harden again in a few minutes. Once a proper glide has been obtained, you are ready to launch. The remaining amount of clay, not used for balance, should be inserted into the plastic nose cone to serve as takeoff ballast.



Important!

After the Mach-10 has been fully trimmed, insert the remaining clay into the target marker cone. Insert the base carefully into the nose cone. NOTE: Insert and remove the nose cone several times to insure a snug fit. If the fit is too tight, wiggle it around a bit, so the ejection charge will pop it off at the proper time.



LAUNCHING THE MACH 10

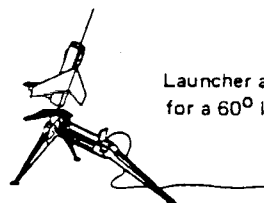
The Mach 10 can be flown from any conventional launcher. Launch the Mach 10 with the following engines:

- B4-2 approximately 250' altitude
- C6-3 approximately 500' altitude

Prepare an engine and igniter according to the instructions which accompany all Centuri engines. Insert the engine into the rear of the Mach 10 and lock in place. Push a small piece of flameproof chute wadding into the front of the engine tube. Socket the plastic nose cone in place, letting the streamer hang down inside the body tube. Launch the Mach 10 from a 1/8" x 36" launch rod. Use electrical ignition only as outlined in the Centuri engine instructions.

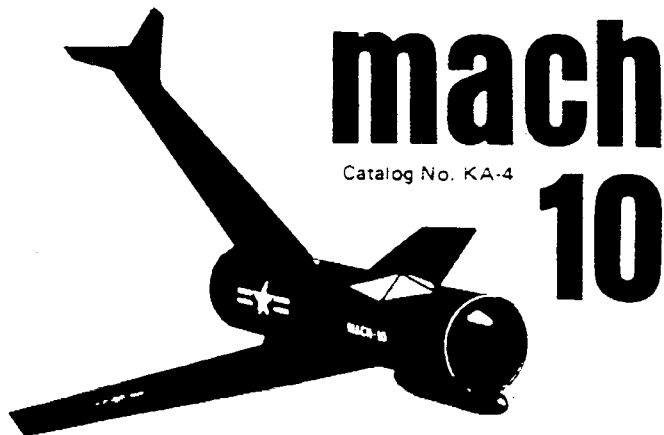
Upon ignition, the Mach 10 rises vertically under power, peels off in a slow arc during the delay phase and fires the target marker at the ejection point. From there, the Mach 10 begins a wide circling glide back to earth.

If your model tends to arch over backwards, try launching at an angle of about 60° with the stabilizer pointed up.



Launcher adjusted for a 60° launching.

IMPORTANT: First flights should be done over soft grass or dirt areas. Flight tests may show that it needs additional trim and you'll want the model to survive these tests!



A totally new concept! The Mach 10 screams into the sky at speeds over 100 mph up to 500 feet, peels off, ejects a target marker and heads for home — circling the field and finally skidding to a stop on its belly tank. Hold contests for flight duration, spot landing in a target area or "precision bombing" — landing the ribbon chute target marker in a pre-determined target area. Invent your own competitions — the Mach 10 goes together quickly and easily — rugged high performance at scale speeds up to 5000 mph, flight after flight.

This rocket is designed to be launched only from standard remote controlled electrical launch systems. Always use the recommended engines and recovery wadding. Check with local authorities for possible restrictions before launching model rockets in your community.

Model rocketry, like any outdoor activity such as football or swimming, has its safety precautions. Following the Model Rocketeers' Safety Code, common to all manufacturers, will let you get the most out of model rocketry!

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 rocket 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 lift-off, 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 10 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.

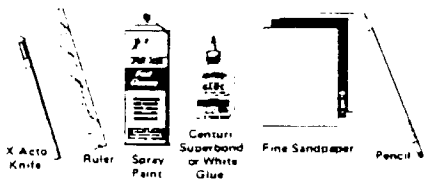


CENTURI ENGINEERING COMPANY
P.O. Box 1988, Phoenix, Arizona 85001

ASSEMBLY INSTRUCTIONS

READ BEFORE STARTING ASSEMBLY!

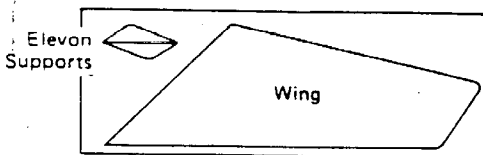
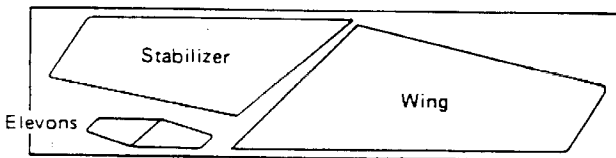
TOOLS: In addition to the parts supplied, you will need the following materials to assemble and finish this kit. DO NOT use model airplane glue for building flying model rockets.



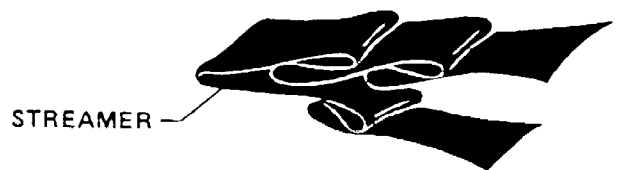
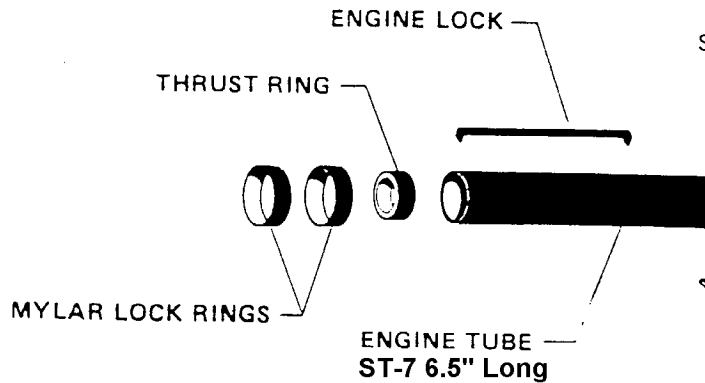
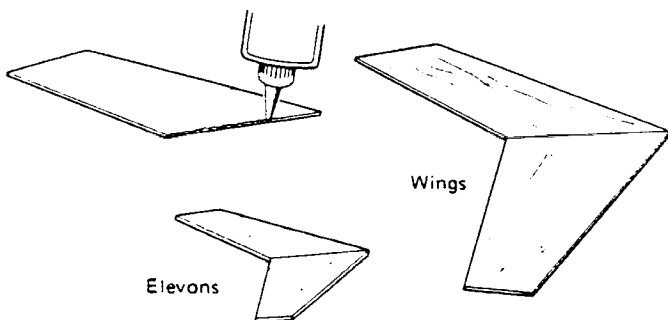
NOTE: The MACH 10 must be built exactly as explained here. Do not attempt to "improve" the design by such things as adding an airfoil!

WINGS & TAIL ASSEMBLY

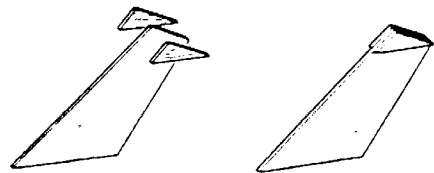
- Carefully push each die-cut part from the sheets. Using 220-320 grit sandpaper, square up the edges. Lightly sand the surfaces of all parts. It will be easy to round balsa edges later when assembly is completed.



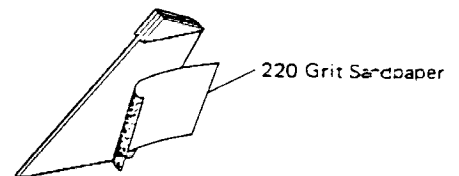
- Apply glue to the root edges of the wings. Allow glue to become tacky and press together on a flat surface. Repeat this process with the elevons.



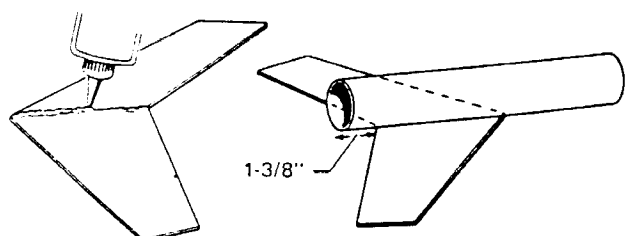
- Glue the elevon supports to the tail as shown. After the glue has dried, square up the glued parts with sandpaper.

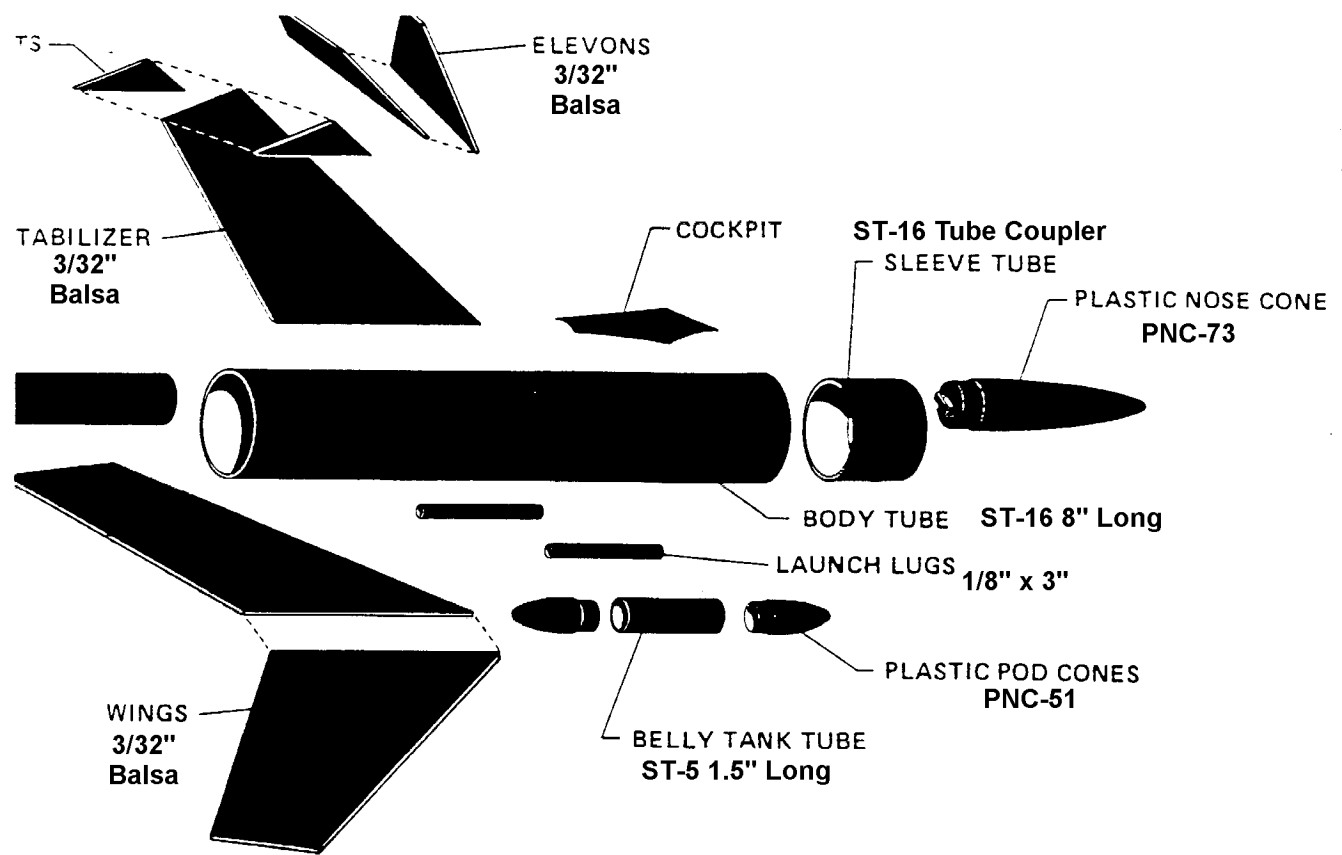


- Maximum glide performance with minimum "trimming" can be obtained if fillercoating is eliminated entirely. At this point, simply sand all balsa surfaces with 220 grit sandpaper.

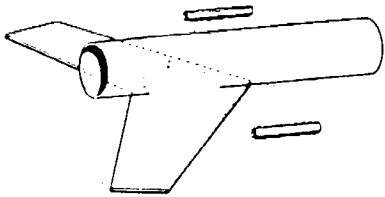


- Lay the wing on a flat surface. Apply a generous bead of glue on the joint and place the large main body tube on the joint with the back of the body tube extending 1-3/8" beyond the rear edge of the wing.

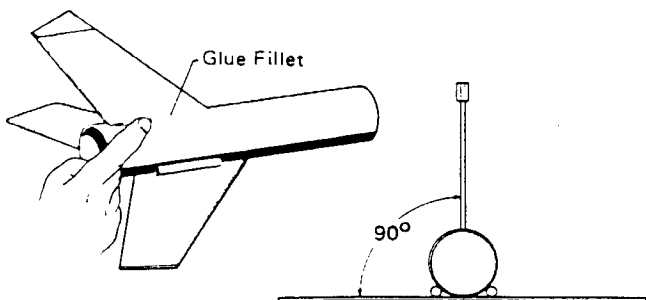




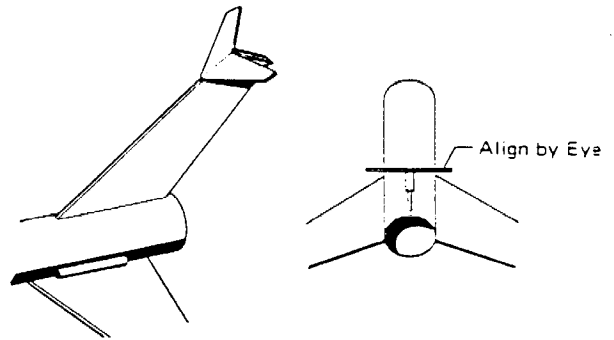
6 Apply glue to the simulated cannons (launch lugs) as shown and cement to either side of the wing-body tube joints. These not only serve as launching lugs, but provide added strength to the wing-body assembly.



7 Apply glue to the base of the stabilizer and, carefully sighting along body tube, press into place on the top center of the rear portion of the tube. The aft end of the stabilizer should be 1/4" forward of the rear of the body tube. Hold in place until glue begins to set. Sight along the body and push the stabilizer gently to right or left until it is in vertical alignment with the rest of the assembly. Allow to dry, then run a bead of glue along both sides of the stabilizer-body tube joint and smooth into an even fillet with your finger.

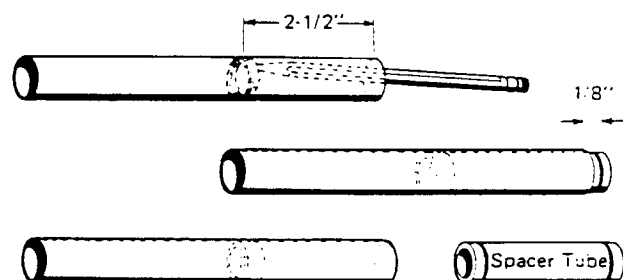


8 Using procedures as in previous steps, glue the elevon assembly to the top forward edge of the stabilizer. This elevon counteracts the forward weight to create lift in flight.

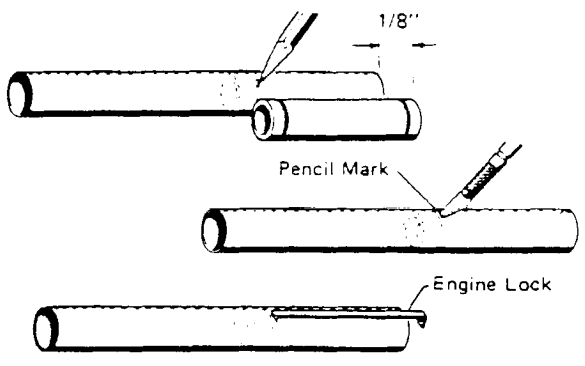


ENGINE MOUNT ASSEMBLY

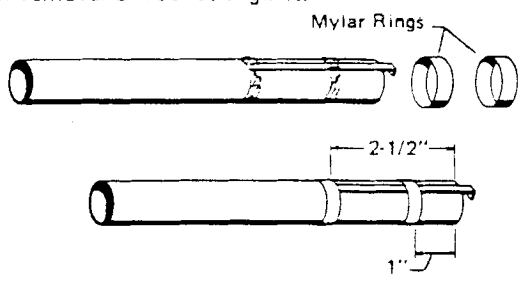
9 While the glue is drying on the main body assembly, begin the engine mount assembly. Place a generous bead of glue around the inside of the engine tube (3/4" dia. x 6-1/2" long) at a depth of about 2-1/2". Insert the thrust ring into the end of the tube and using the engine spacer tube, push the thrust ring forward until the spacer tube extends only 1/8" from the end of the body tube. Withdraw the spacer tube immediately so it will not be accidentally cemented in place.



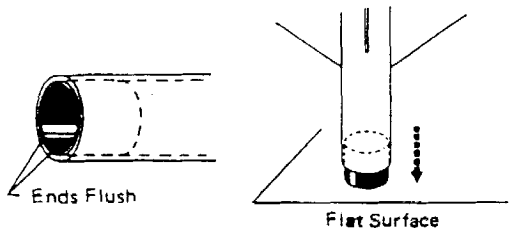
10 Place the spacer tube alongside the engine tube with the spacer tube projecting 1/8". Mark the engine tube at the top end of the spacer. Cut a short (1/8") slit in the engine tube on this mark. Press one end of the metal engine lock into the slit.



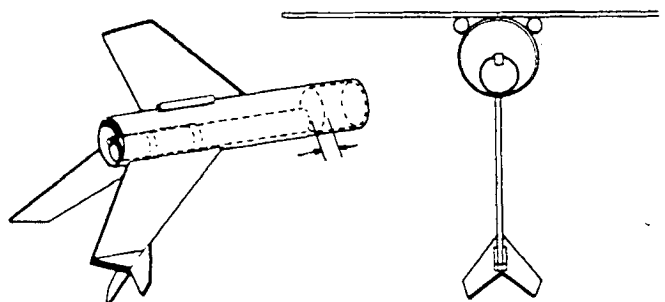
11 Slip the mylar lock rings over the end of the engine tube. Apply beads of glue around the tube at a point 1" from the end and 2-1/2" from the end. Slide the mylar rings down the tube, imbedding into the glue. This secures the engine lock yet allows it to spring outward at the end for insertion or removal of rocket engines.



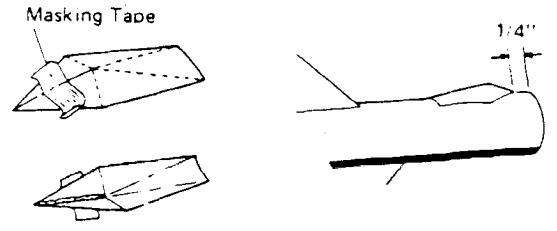
12 The sleeve tube will strengthen the front of the body and prevent it from fraying. Apply a bead of glue 1" down inside the front end. Insert the sleeve tube and push it (firmly, without stopping) flush with the front.



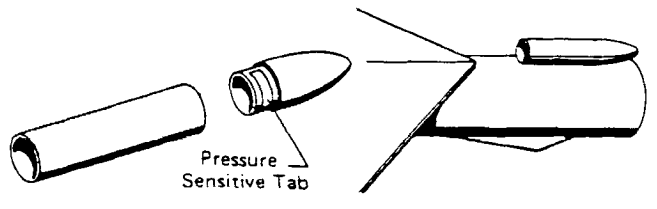
13 Run a generous bead of glue along the engine tube on the side opposite the engine lock. Turning the body of the Mach 10 upside down, cement the engine tube into the main body, centered with the tail and with the back end of the engine tube even with the back end of the main body. Sight along the engine tube to make sure it is centered with the long axis of the body. Allow glue to dry before setting the assembly down. Note that there should be a gap inside the Mach 10 between the engine tube and sleeve tube.



14 Cut the cockpit from the cardstock sheet. Carefully bend the canopy on the dotted lines and press the front edges together. Secure temporarily with masking tape and run a bead of glue along the inside of the joint. When the glue has dried, remove the masking tape. Run a bead of glue around the inside edge of the cockpit, position it on the top of the body tube 1/4" from the nose and press the edges of the cockpit down onto the body. Hold until the glue sets.

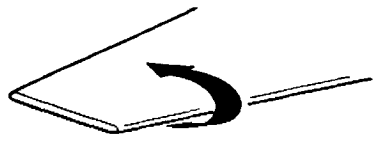


15 Apply one of the pressure-sensitive tabs to the base of each small nose cone. Smooth the inside edges of the 1-1/2" tube with your fingernail. Apply a few drops of glue inside one end, and insert a cone with a firm twisting motion. Run a bead of glue along this pod assembly and cement to the bottom of the main body. The pod's cone should be flush with the front of the body.



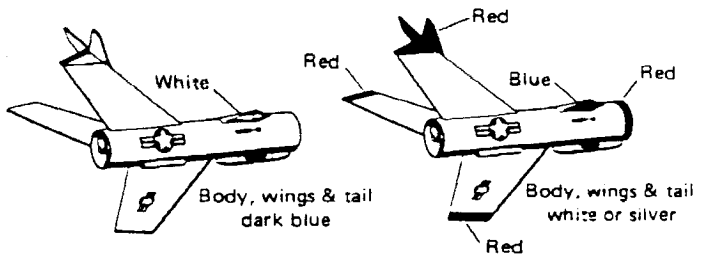
16 This completes basic assembly. Socket the rear cone into the belly tank and prepare for painting. The plastic "target" nose cone will be inserted after painting is completed.

17 Gently round all exposed balsa edges with sandpaper. Do not attempt to airfoil the wings, as this will decrease flight performance.



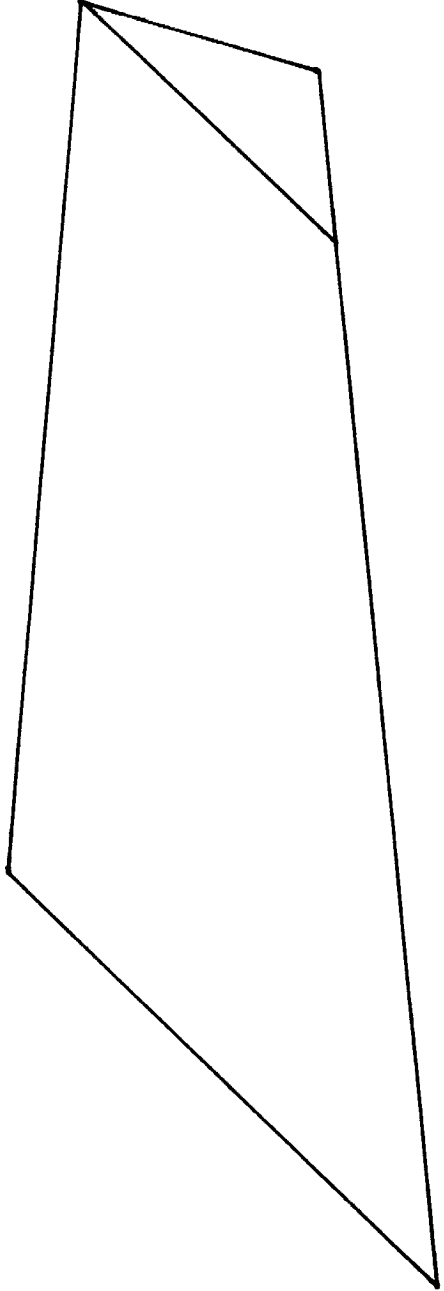
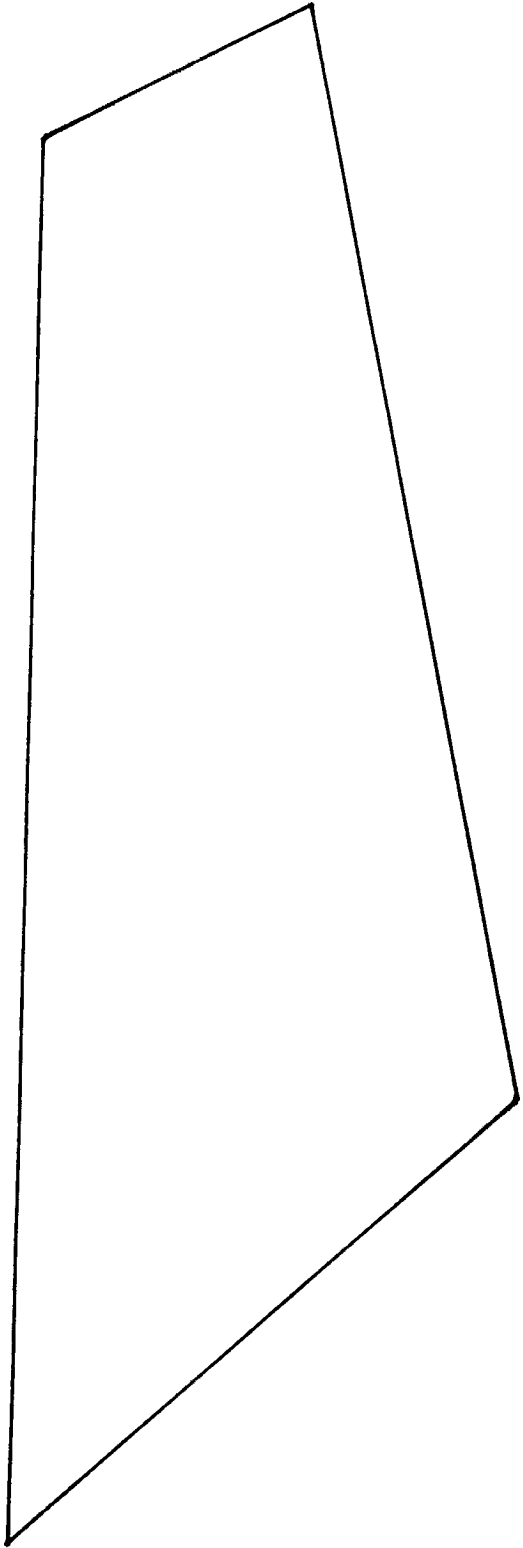
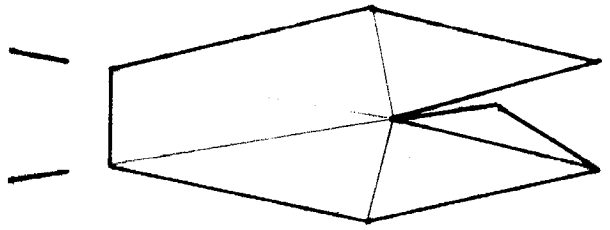
18 PAINTING: Do not use fillercoat! Shown below are two suggested paint schemes for the Mach-10. You may brush paint the model with airplane "dope" or spray it with an aerosol type paint. Spraying is, of course, the fastest way and usually produces better results. A paint stand may be made by taping a wood dowel into the engine spacer tube and anchoring the other end of the dowel in a vise or wooden base. Apply one light coat. Sand all balsa thoroughly with 220 grit sandpaper. Apply final coat. If you spray the model, remember to hold the spray can approximately 12" from the model, moving the can up and down in even strokes. Do not attempt to spray the model in one heavy application. Rather, spray several light coats, allowing time between for the paint to dry. Don't apply too much paint. Remember, the Mach-10 is a glider. Too much paint might make it sink like the proverbial rock.

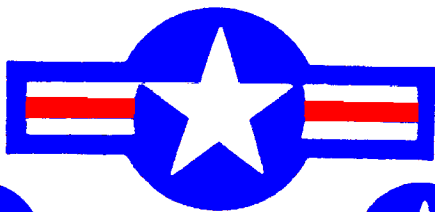
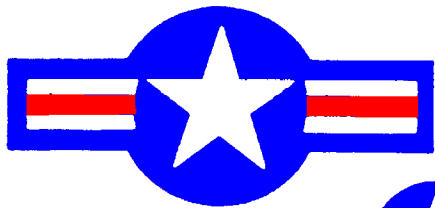
When the paint is dry, apply the decals according to instructions printed on the backing material.



19 Using the piece of string included in the kit, tie the streamer to the nose cone base. In use, the streamer will hang down inside the airplane. When launching the Mach-10, place chute wadding inside the engine tube to protect the base of the nose cone.

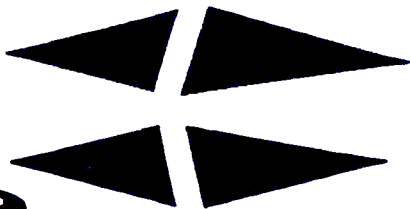






MACH-10

MACH-10





mach 10

ROCKET PLANE

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