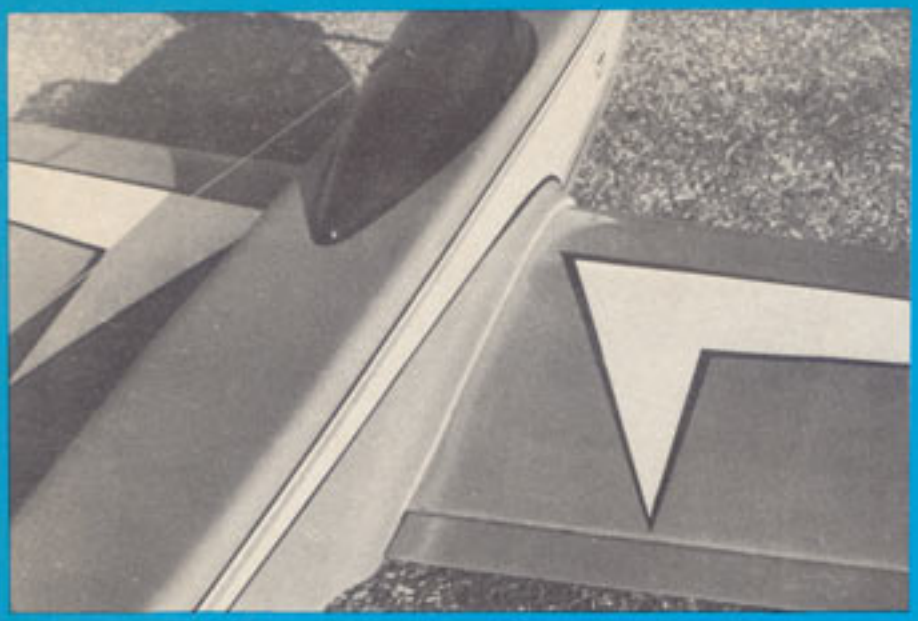
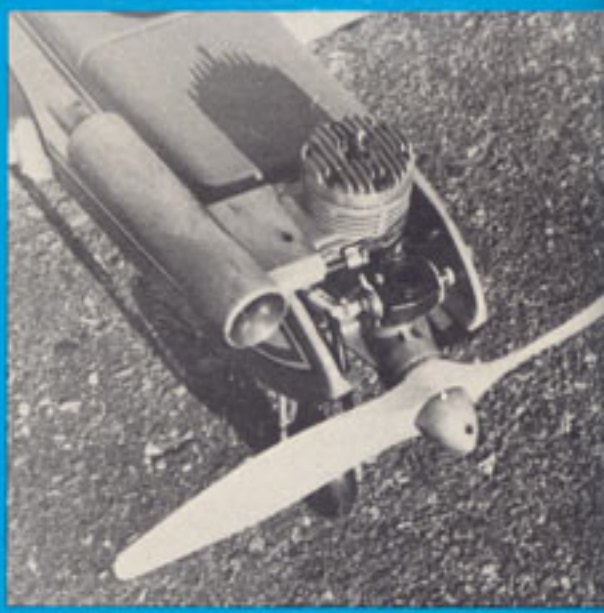
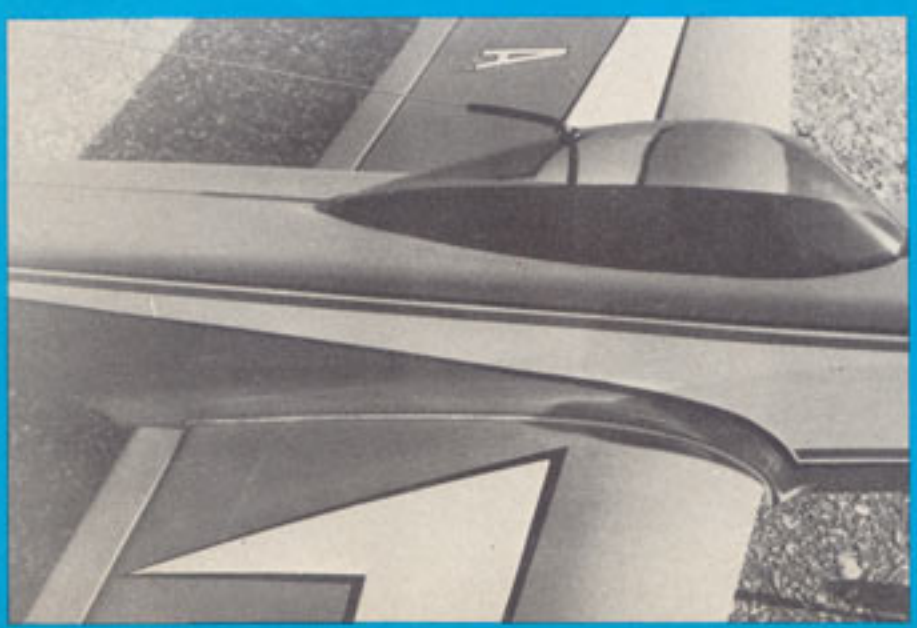
By JOE BRIDI





Above: Fillets add to the appearance as well as to the performance. Right: The Veco-Lee Custom .61 with Perry carburetor provide all the power necessary.

THE KAOS



Close attention to details, such as fillets and fairing-in canopy, will add to the overall flight characteristics of the Kaos.

World renowned R/C flier, Joe Bridi, presents his pattern contender for 1970. Although it may look like its famous predecessors, a closer look will show you why the Kaos will be the year's top multi.

The Kaos may look like its predecessors, notably the Sun Fli III and IV, but a line-up of minor changes has been made to improve the performance of this model. We have gone to a double taper wing to help the rolls and, by doing this, we also improved such maneuvers as the slow roll, 4-point, and the spins. The root rib is a 19% thickness and the tip rib is 17%. Again, like the Sun Fli IV, the top of the wing, at the spar, should be flat across the entire span. If dihedral is used the model will have the tendency to roll out on the knife edge and the vertical portions of the 4-point rolls.

We were experiencing some warping in the elevators on the Sun Fli, so we increased the thickness to eliminate that problem. The rudder area was also increased for obvious reasons. There never seems to be enough rudder area for maneuvers.

Again, 3/16" full-length balsa fuselage sides were used. We haven't experienced any need for doublers when using 3/16" thick stock. The top block is built up with 1/4" x 3/8" strips and 1/4" sheet. This was done in order to reduce weight and the overall cost of construction.

The wing spars are grooved for each rib as illustrated on the plans by the dotted lines. We used the same procedure for the leading and trailing edges. This makes for a sure-fire alignment of all ribs. A radial saw is a handy tool for the notching of the spars, trailing, and leading edges. If at all possible, use this method even if you have to borrow your friend's saw. The leading and trailing edge cannot be cut with the same spacing as the spars. By tapering the leading and trailing edge, an increased spacing is necessary. Just follow the spacing on the plans and you'll be all right. The fuselage sides are also indexed for the bulkheads. If you don't index the bulkheads, cut down the width of the bulkheads to fit properly.

By the time this article and plans are featured in RCM, the Kaos will also be brought out on the market as a kit by Bridi Hobby Enterprises, 23625 Pineforest Lane, Harbor City, Calif. 90502. Plans, of course, can be obtained through RCM. Whether you purchase the plans or the kit from your local hobby shop, you should give the Kaos a try. I'm sure you'll be more than happy once you've tried it. Well, we've given you enough of the propaganda, now we'll go into the building instructions step-by-step as best we can. If you follow the instructions, I'm sure you won't experience any problems.

Stabilizer

1) Edge glue the sheeting together.
2) Lay one sheet on the building board; glue trailing edge spar, tips, leading edge spars and center fillers in place on the sheet.
3) Glue the ribs in place starting at the tip and working in to the center filler.
4) Glue the top sheet in place and sand the stab to shape.
5) Connect the two elevators together using epoxy glue to secure the wire to the elevator.

Fin and Rudder

Glue the pine control horn insert, sub-rudder, and rudder together. Do not glue the dorsal fin to the fin since it is glued in place after the fin is glued to the fuselage.

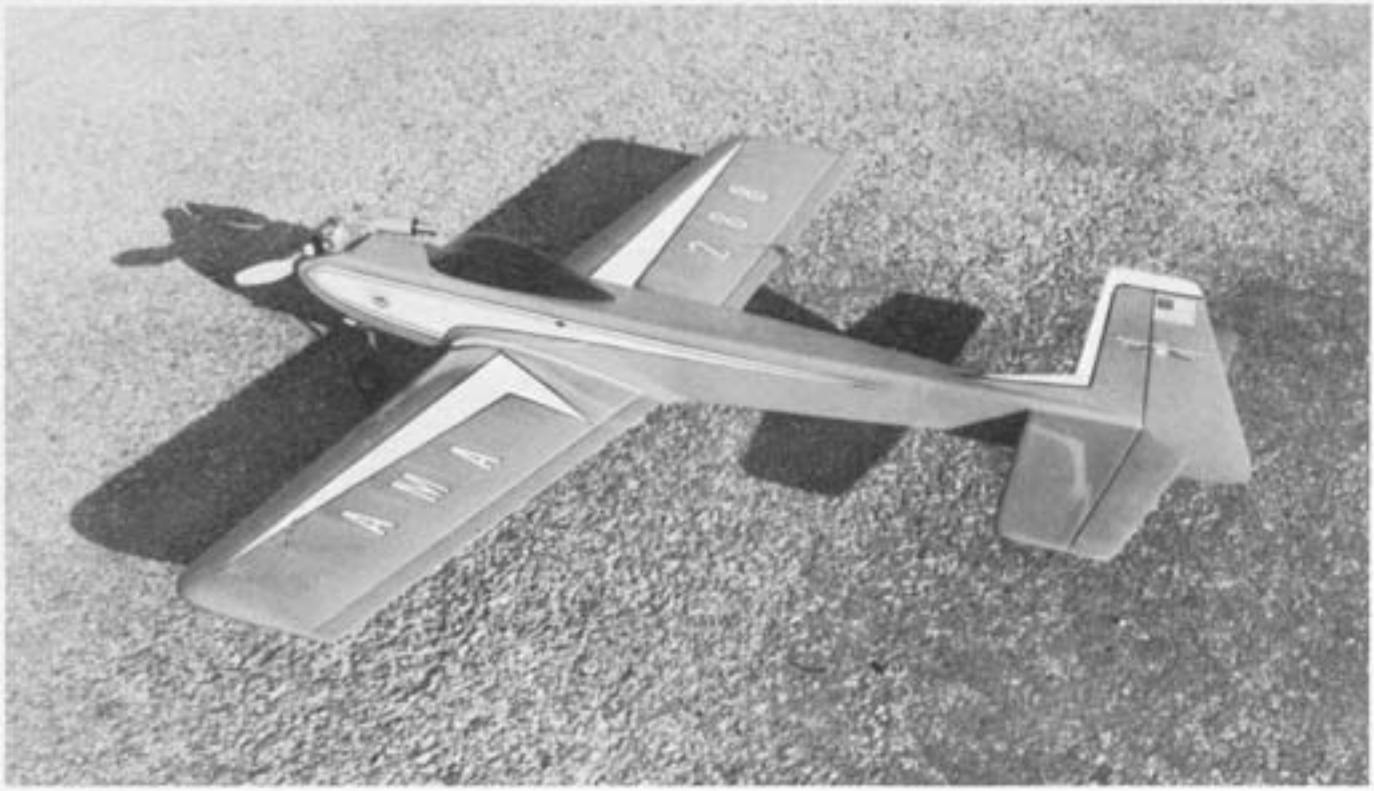
Fuselage

The fuselage is built upside down. Start by placing the fuselage top on the building board. Next glue all the 1/4" square stringers and cross braces in place. The fuselage sides are indexed to receive bulkheads No. 2 and No. 3. The fuselage sides and bulkheads No. 2 and No. 3 are glued to the top block at the same time, making sure that the sides are square to the building board. Add the 1/4" square fuselage rear stiffeners to the sides. Glue the motor mounts and bulkhead No. 1 in place (epoxy recommended). Use small C type clamps to pull the sides into place, keeping bulkhead No. 1 even with the fuselage top, which will automatically give the proper downthrust. Glue the 1/16" balsa sheet planking on the bottom of the fuselage, again checking to be sure that the sides are square to the building board. Note that the planking immediately behind the wing saddle is a piece of trailing edge stock. Glue the bulkhead double plywood wing dowel plate in place, being sure that the narrow edge from the holes is toward the bottom. Glue the plywood wing nut plates into position on the fuselage sides. Drill the wing dowel holes through bulkhead No. 2 using the holes in the plywood plate as a guide.

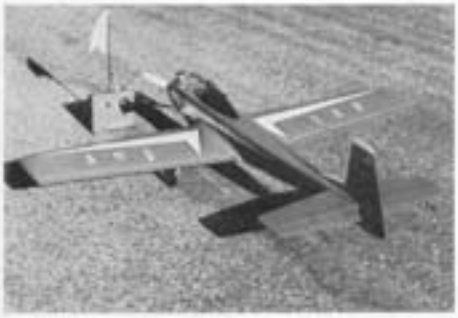
The fuselage can now be removed from the building board. Cut the triangular glue block from stock and epoxy in place as shown on the plans. A light coat of epoxy is recommended for the entire tank compartment. Glue on the hatch hold-down pins extending 1/4" past the hatch. When dry, place the hatch in position and mark on the bottom at the front of bulkhead No. 1. Remove and glue the plywood hold-down forward of the mark. Glue the wing fillets together at the beveled joint. Do not glue the fillets to the fuselage as yet. Sand the entire fuselage, then glue the stabilizer and fin in place. Check to see that the stabilizer is parallel to the top of the fuselage. The fin is centered and at right angles to the stabilizer. After they are dry, add the dorsal fin and small blocks at the bottom rear of the fin.

Wing

The RCM wing jig is highly recommended for assembly of the wing. (Refer to the August 1967 issue of R/C Modeler Magazine.) Using 1/4" steel rods in the holes in the ribs, this jig can give you a true wing in much less time and work than the usual construction methods. Pin the blocks to the position shown on the plan. Glue the ribs to the spar with the landing gear notch in ribs No. 2 and No. 3 DOWN. Do NOT glue in the false ribs or 1/4" inch dowel as yet.



Longer tail moment emphasizes larger, more graceful maneuvers. Larger rudder area improves maneuvers.



Left: 3/4 rear view of Kaos; E.K. single stick. Right: Landings such as this are easy to accomplish with Kaos. Tail skid recommended to protect rudder.

Kaos weight between 5 3/4 and 6 pounds with 644 sq. inches of wing area.

Glue the top spar into position. Glue the notched trailing edge to the ribs and pin to the block. Glue the notched leading edge to the ribs and let the glue dry before proceeding further. Glue the front and rear planking in place. (The leading edge of the front planking is tapered.) Glue the cap strips in place.

When all of the glue is thoroughly dry, turn the wing over and glue the rear planking in place. Glue the plywood landing gear doublers to the ribs and install the landing gear parts as shown on the plan. To install the wing tip blocks, cut the overhang of planking, spars, etc., flush with the tip rib, then sand flat with a large sanding block. If you wish to hollow the tip blocks, glue at two small spots and sand to shape shown on the plan, then break loose and hollow inside. Now, re-glue into position. To build the other wing panel, repeat this process being sure to KEEP LANDING GEAR NOTCHES UP so you will have a right and left wing panel. Remember that this panel is upside down, so do not glue the leading edge planking in place. When the wing panel has dried, turn it over and complete the top sides.

Joining Wing Panels

Trim the overhang flush with the root rib. Place the bottom of the wing down on a flat building board and block the tip up one inch. With your sanding block, sand square across the wing until the rib is 90 degrees to the building board. When both panels are

sanded, check for a proper fit. Now glue the two panels together with epoxy or Tite-Bond glue. When the wing is joined, glue the plywood wing bolt plate in place with no overhang at the trailing edge. Block the wing 1/16" down in the wing saddle making sure it is square in the saddle. Now mark the leading edge of the wing through the bottom of the tank compartment. Remove the wing and drill a 1/4" hole through the leading edge of the wing. Glue the 1/4" dowel and false ribs in place. Complete the bottom of the wing leading edge sheeting and the cap strips. Refer to the plans for completing the center-section reinforcements.

Tank Compartment Bottom & Fillets

Place the 1/16" plywood tank compartment bottom in position and mark the sides. Remove, cut to shape, then glue in place and allow to dry. Place the wing in the saddle and bolt in place. Block the wing down 1/16" from the fuselage sides. Now check all alignment again including wing incidence. When you are satisfied that all is right, glue the wing fillets to the fuselage allowing 1/16" clearance between the bottom of the fillets and the top of the wing. The 1/16" gap will allow the use of wing sealer tape. Now COMPLETELY finish the airplane. Install all equipment, engine, tank, wheels, pushrods, etc., except the fuselage servos.

Balance

With the airplane complete (except for the fuselage servos) make sure the battery pack is pushed to the rear of the tank compartment. Now place the servos on top of the fuselage and move fore and aft until the desired balance is found. Now mount the servos inside at this pre-determined position. If a change in CG is found necessary after flying, the battery can be moved.

Preflight

Always check your controls for direction and binding. Check the CG for proper position. The CG shown on the plans is approximate. Move your power pack, radio equipment, etc., to suit the flight characteristics you may desire. We have, in the Kaos, tried to bring you the latest in building techniques and design with easy index construction. The Kaos is capable of all F.A.I. and AMA maneuvers with complete ease, yet docile enough for the beginner.

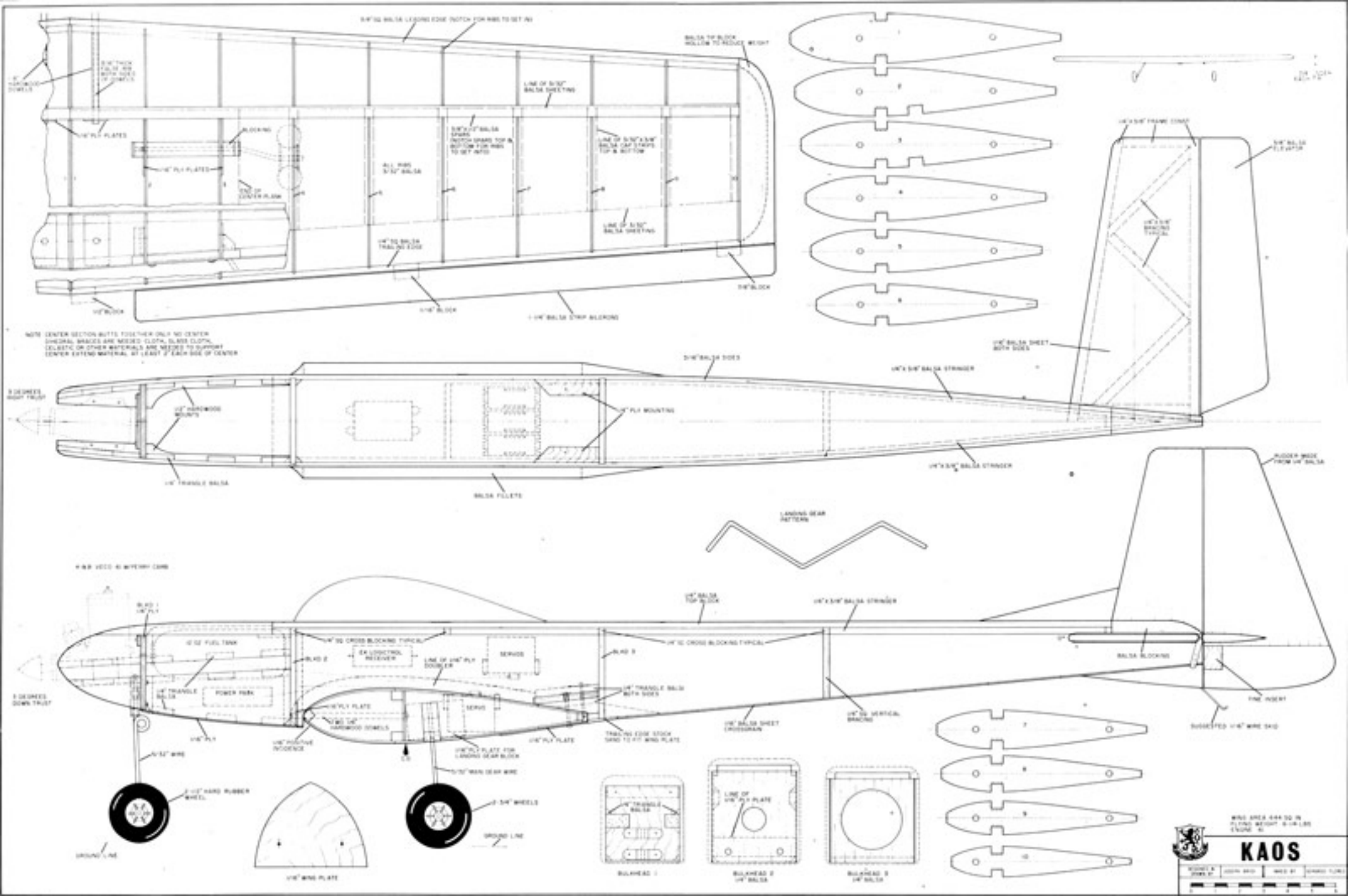
Try the Kaos and I'm sure you'll be more than pleased with its performance.

Happy flying! ●

Open area in nose section for steering and engine mounting allows easy access for repairs or changes.

Full rear view of Kaos shows clean lines, ample control surfaces for all F.A.I. and A.M.A. maneuvers.

Rear section of Kaos shows how rudder area was increased over its predecessors.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