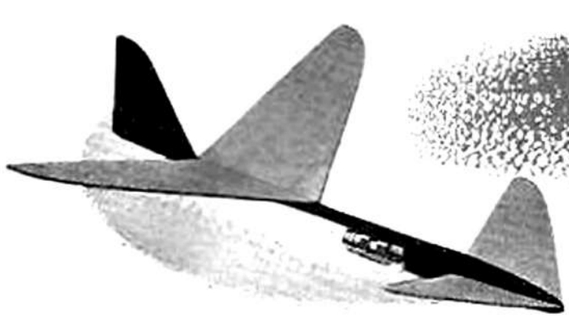
Conversion
des unités impériales en système métrique
mais adaptées au modélisme

en mm	Unités impériales	Dimensions du bois
0,396	1/64″ =	4 à 5/10e
0,794	1/32″ =	7 à 10/10e
1,585	1/16″ =	15/10e
2,381	3/32″ =	20 à 25/10e
3,175	1/8″ ou 2/16″ =	30/10e
4,762	3/16″ =	50/10e
6,350	1/4″ =	60 à 65/10e
7,973	5/16″ =	80/10e
9,525	6/16″ =	90 à 100/10e
11,112	7/16″ =	110 à 120/10e
12,700	1/2″ =	130 à 140/10e

1/16″ square =	2 x 2
3/32″ square =	3 x 3
3/16″ x 1/16″ =	5 x 2
5/16″ x 1/16″ =	8 x 2

hardwood =	bois dur
plywood =	contreplaqué
balsa =	balsa



JETEX CANARD

By BILL DEAN

Model Aircraft - January 1951

LOOKING for an out-of-the-rut Jetex model? Well, how about this "50" powered *Canard*. Construction is very simple and the performance better than most conventional all-sheet designs. It took just 2½ hours to get the original model into the air and that included 30 min. work on the plans. The Jetex unit was attached to the fuselage with "Sellotape" and slid backwards and forwards until the glide had been perfected. Then the clip was screwed into position, the motor attached and the fuse ignited for the first power flight. Conditions were perfectly calm (late evening) and the model made three tremendous loops straight ahead. One of the wing tips was twisted to correct this and the next flight was spot on—the model gaining about 150-200 ft. of altitude in wide shallow circles. Since then we have had many successful flights with this design, some of them over a minute. In spite of its unusual "which-way-does-it-go" layout, this *Canard* is graceful in flight and shows no tendency to stall when the power cuts. Brief notes on the construction follow.

Flying Surfaces

Transfer the full size patterns on to medium ⅛ in. sheet with the aid of carbon paper. Fit the parts into the sheet carefully (see sketch on right) to avoid wastage. Join the small triangles (6) to the main wing panels (5), flat on the building board. Taper the edges of the wing, tailplane (7) and fin (4) to a streamlined shape. Place the root ends of the wing and tailplane panels level with the edge of the building board and sand to the dihedral angle. Pin the left hand panels (5 and 7) flat on the plan and cement the right hand panels to them—using the template to obtain the correct dihedral angle.

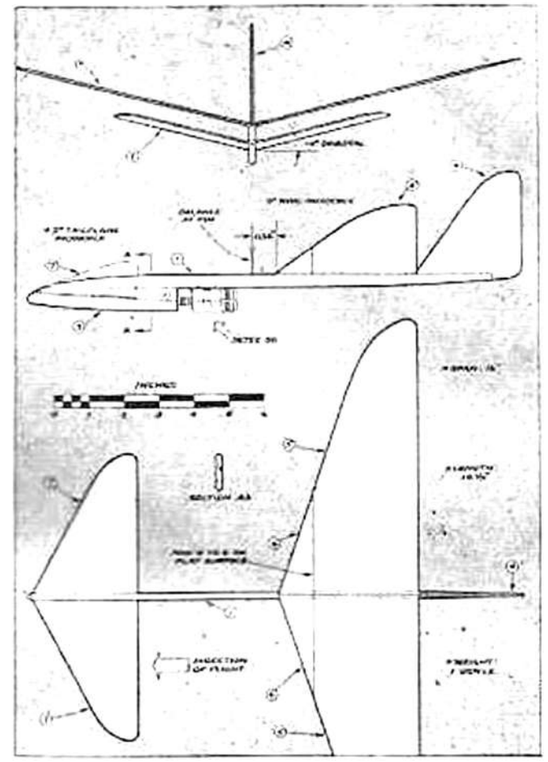
Fuselage and Assembly

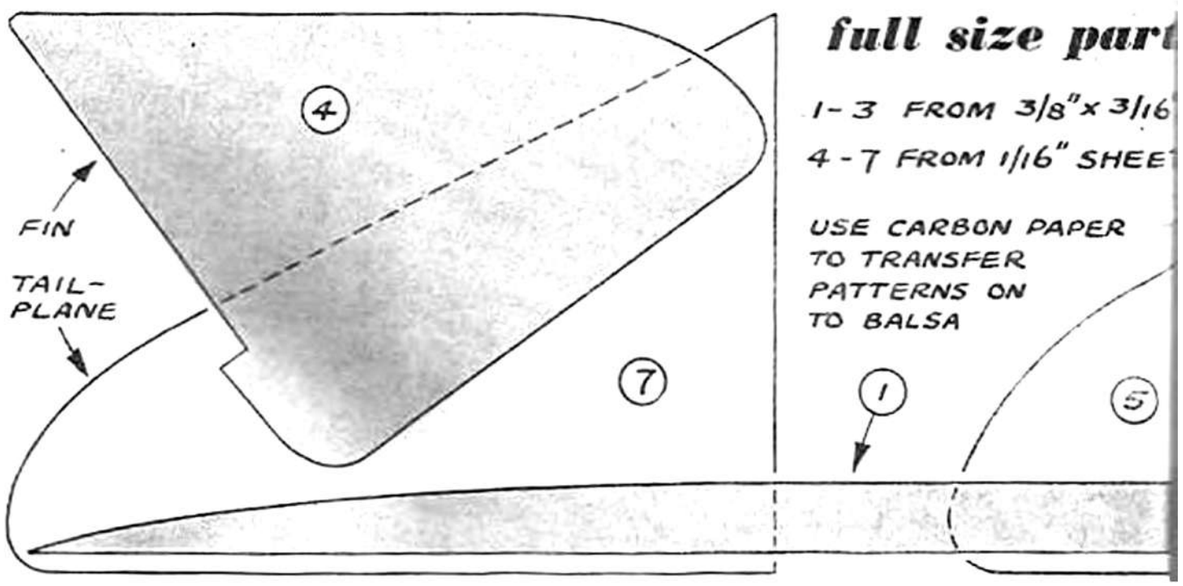
The fuselage is made up from a length of medium hard strip—21 in. × ¾ in. × ⅛ in. Transfer the patterns (1, 2 and 3) on to the balsa, cut them out and cement 1 and 2 together. Trim the recessed portion of 2 to a "V" section and cement the tailplane in position. Cement the fin (4) to the rear of the fuselage—checking that the former is quite vertical. Cut a shallow "V" in the fuselage (in front of the fin) and cement the wing to it. Check that the flying surfaces line up correctly in the front and top views. Pins are useful for keeping these parts in position until the cement dries. Now cut a shallow "V" in 3 and cement it to the underside of the tailplane. Round off the edges of the fuselage (see section *AA*).

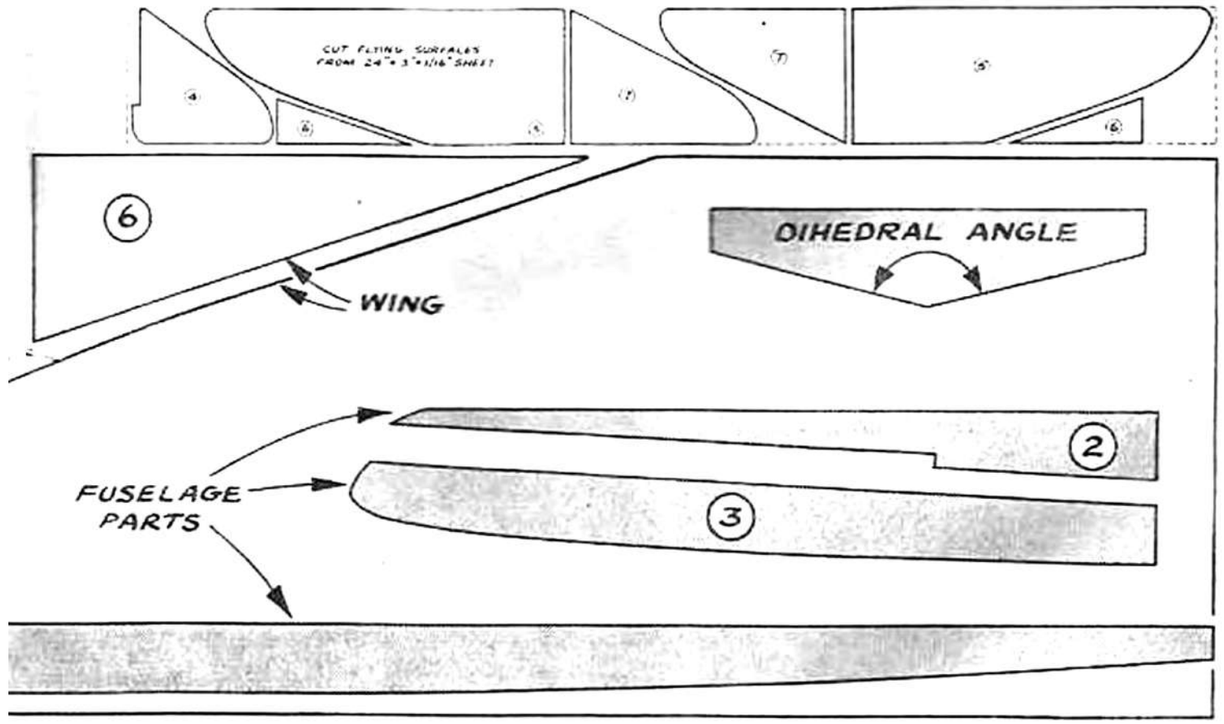
Push a modelling pin into the top of the fuselage (see plan) and attach the loaded Jetex unit (by means of screws and cement) so that the model balances level when held by the pin. The position of the unit will be similar to that shown on the plan. For a stronger attachment—especially if fairly soft wood has been used for the fuselage—cement a hardwood insert (⅜ in. square × 1½ in.) to 1 and screw the Jetex clip to that.

Flying

Test glide with a loaded unit in position. A slightly steeper than usual glide is desirable as the thrust pushes the nose up in the climb. Slight trimming adjustments may be made by weighting the nose, but the best method is to attach the unit in such a position that it gives the required balance. The model will most likely have a natural turn, but if this is not so—gently twist one wing tip to give the desired effect. From the point of view of trimming, treat the wing as if it were a tailplane. Tilt the wings of the model slightly in the direction of the natural turn when launching. As with all Jetex models, allow the thrust to build up for a second or two before releasing.



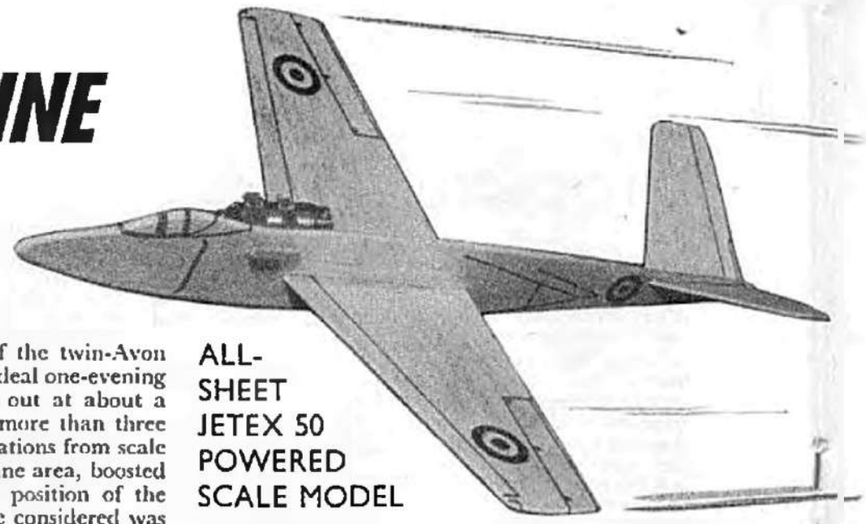




SUPERMARINE 508

By Bill Dean

Model Aircraft - May 1953



ALL-SHEET JETEX 50 POWERED SCALE MODEL

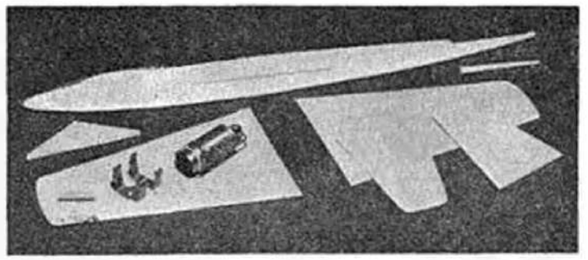
THIS Jetex "50" profile model of the twin-Avon powered Supermarine 508 is an ideal one-evening project. The cost of materials works out at about a shilling and only a sluggard will take more than three hours to finish the job. The only deviations from scale outline are the slightly increased tailplane area, boosted wing dihedral and the more forward position of the wing. Size was kept down to what we considered was the practical minimum for a "50" size motor and this resulted in a realistically fast model with a good rate of climb.

The drawings are full size, so trace the patterns on to well sanded medium weight sheet—with the grain following the longest dimensions. Pin-prick the holes for the motor clip screws (in the fuselage). Cut out the parts with a razor blade, making two of the wing and tailplane patterns. Round off the edges—except at the tailplane cut-out and flying surface roots. It will be found easiest to apply the decoration *before* assembly, so pencil in the R.A.F. roundels, canopy and other markings, then go over them with a ball-point pen.

Sand the wing and tailplane roots to the correct angles to allow for the dihedral. Pin one wing panel flat on the building board and cement the other panel to it—packing up the latter 1½ in. at the tip. Repeat the process for the tailplane panels, but in this case obtain the correct dihedral by means of the ⅛-in. sheet angle template "*X*."

Now cement the wing in the fuselage slot—checking that it lines up correctly with the fuselage in the top and side views. Cut a "V" shaped trough in the fuselage at the tailplane position, then cement the tailplane in place—carefully lining up with the wing. Cement a piece of scrap ⅛-in. sheet on top of the tailplane, allow to dry, then trim down to line up with the fuselage curve.

Cement a ¼ in. × ⅜ in. × ⅛ in. piece of hardwood (or ply) to the right side of fuselage (looking from front), then screw the motor clip in place—parallel with the wing. With the *loaded* motor installed, the model should balance at the point indicated—weight being added to the nose or tail if required.



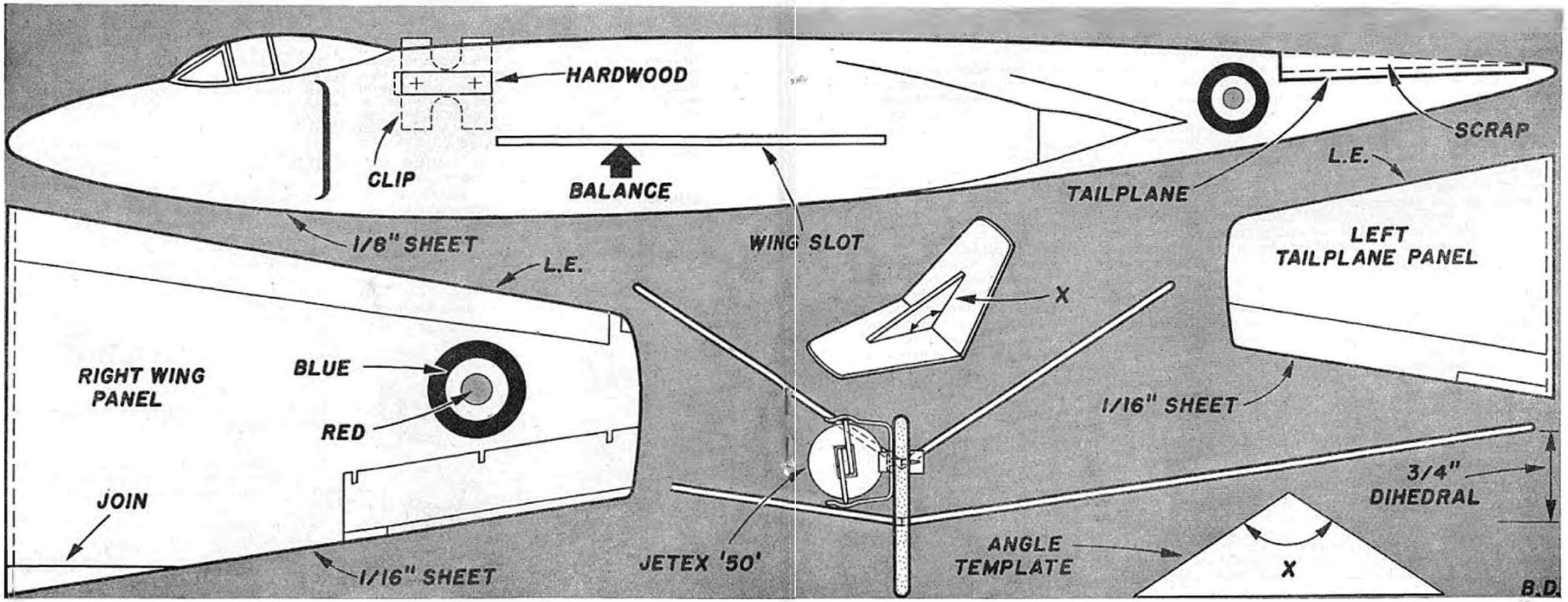
Here are all the components before assembly.

Flying

Glide test model from shoulder height, checking that no violent turns, diving or stalling tendencies are present. Adjust turn by twisting up wing leading edges or tailplane trailing edges. For instance, a sharp *right* turn may be corrected by twisting up the *right* wing leading edge or *right* tailplane trailing edge.

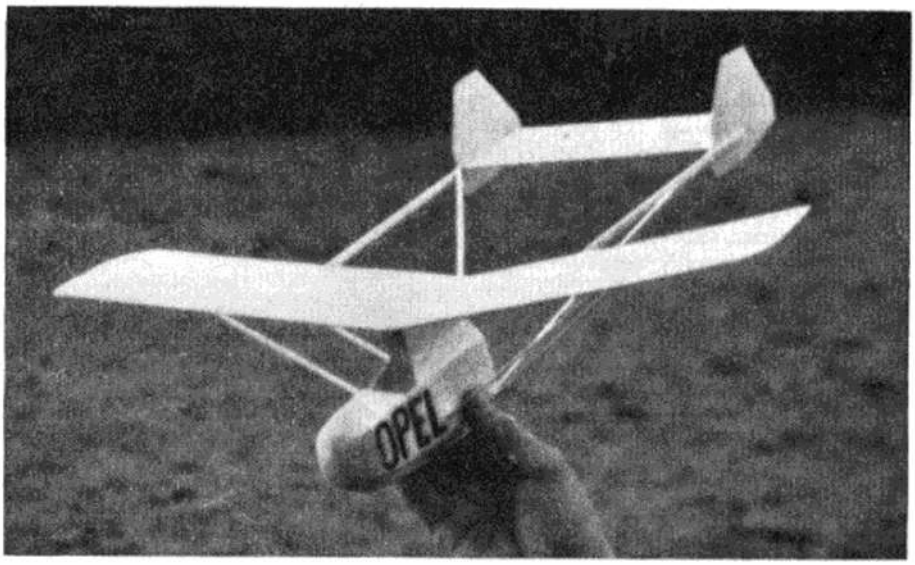
When a good glide with a gentle turn (in either direction) has been achieved, try a power flight. After lighting the wick, wait for 3-4 sec. before launching—to allow the thrust to build up. A fast steep climb should result, with the offset motor pushing the nose round to the left.

The original model is trimmed to glide right, but the offset thrust gives a gentle left turn under power. This appears to be the best trim arrangement, since a left glide turn may tighten up under power to the point where the model spirals in.



Build a model of the world's first jet

the OPEL HATRY



The Opel Hatry is an ideal Jetex model for beginners, with a good performance.

ON September 30th, 1929, at Frankfort-on-Main, observers had the unique experience of watching what appeared to be a secondary glider, mounted on a launching ramp, belching smoke from the end of its nacelle and slowly gathering speed—just airborne at the end of the ramp, then accelerating rapidly to reach a final height of 50 ft. They had, in fact, witnessed the first piloted jet aircraft to fly, with Fritz von Opel at the controls.

The aircraft was a special design—not a converted glider—built by Ernest Hatry. Professor Sander designed and made the rocket motor, consisting of five separate units fired one after the other. Flight duration was short but the machine flew, even if Opel did have difficulty in keeping it under control as speed built up to a maximum of 90 m.p.h.

Construction of this authentic scale model is extremely straightforward. Use light wood throughout, except for the booms. These were hard quarter-grain stock on the originial. If your prefer you can use larger material (e.g. 3/16 × 3/32), but keep the total weight of the model down as much as you can.

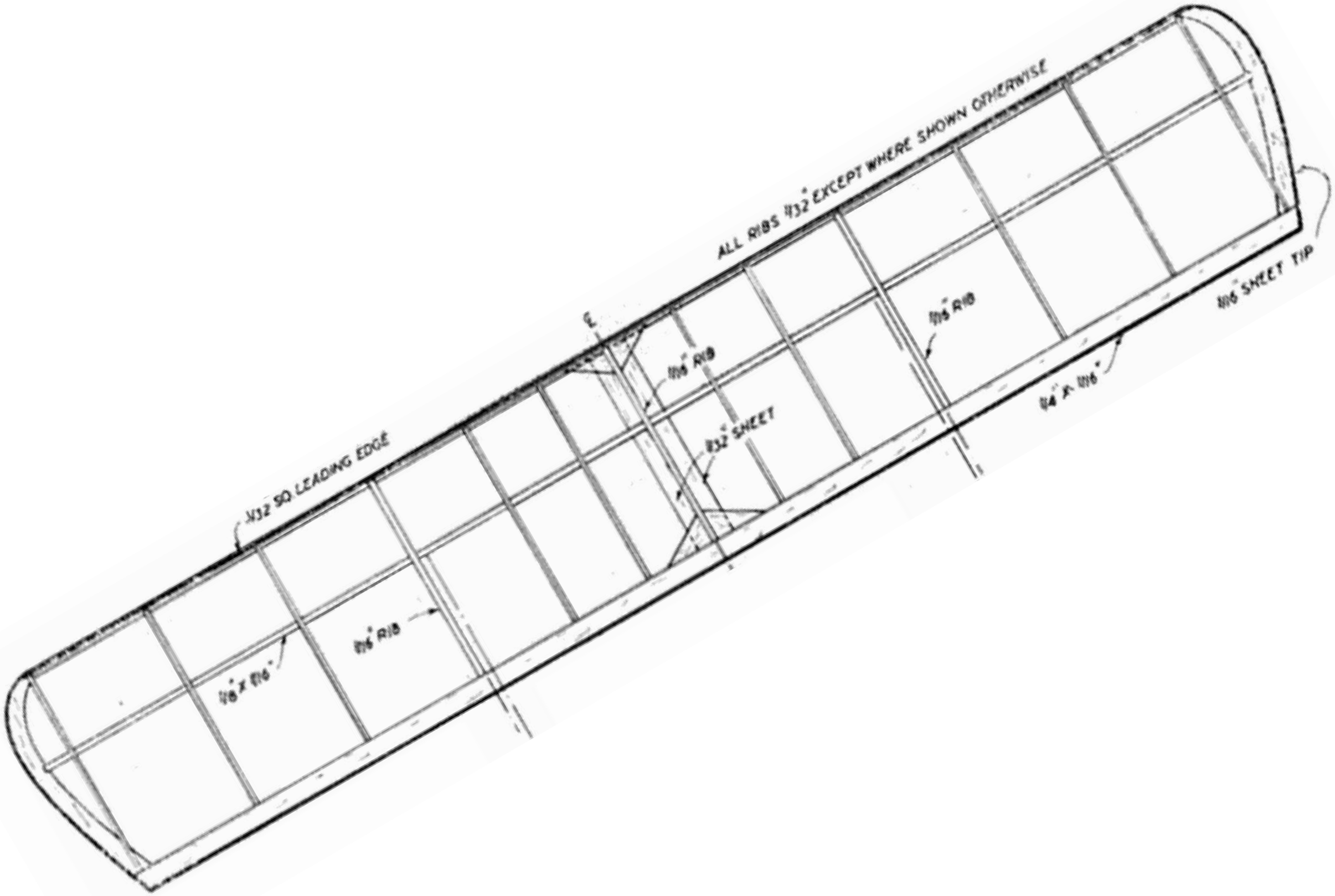
First job is to scale up the plan, using the ½ in. grid for reference. The wing is built flat over the plan, cracked at the centre and cemented to the correct dihedral. The tailplane is flat, without dihedral.

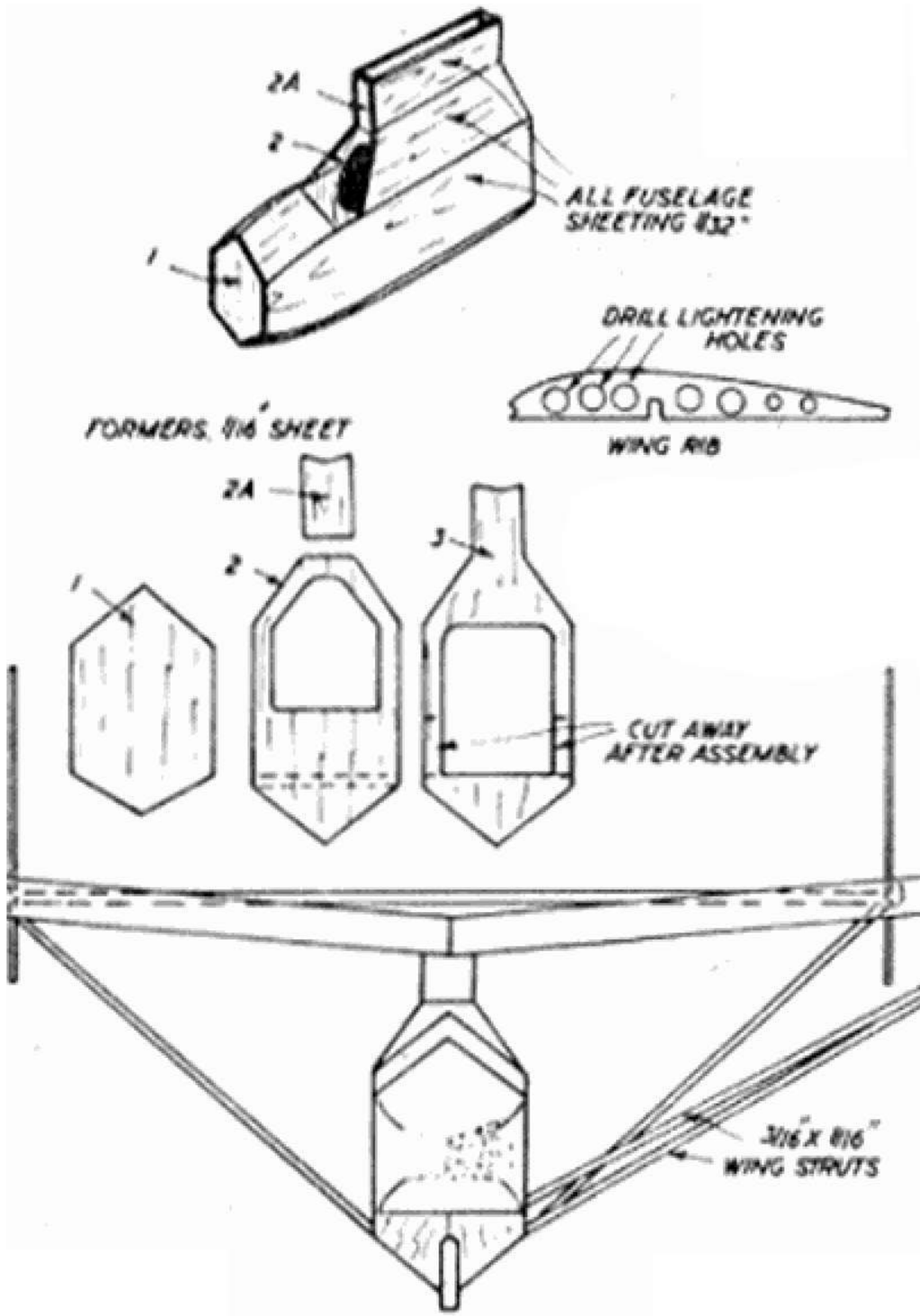
The fuselage nacelle is assembled by cutting two sides from light 1/32 in. sheet and cementing to the formers. Then complete the top and bottom sheeting, also the sides of the cabane. The noseblock is carved from solid balsa.

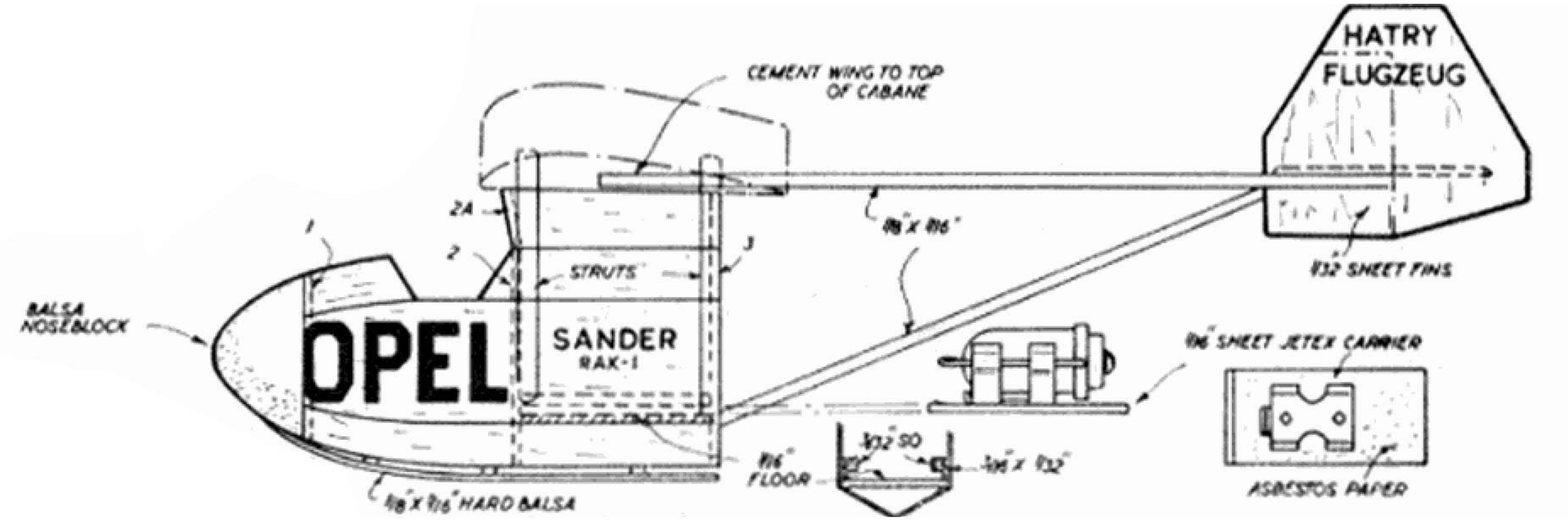
Mount the Jetex unit on a 1/16 in. sheet carrier which engages in rails cemented inside the open end of the nacelle. Be prepared to cut these out later as you may have to tilt the Jetex for trim, e.g. raising the rear of the unit to stop the model from looping under power.

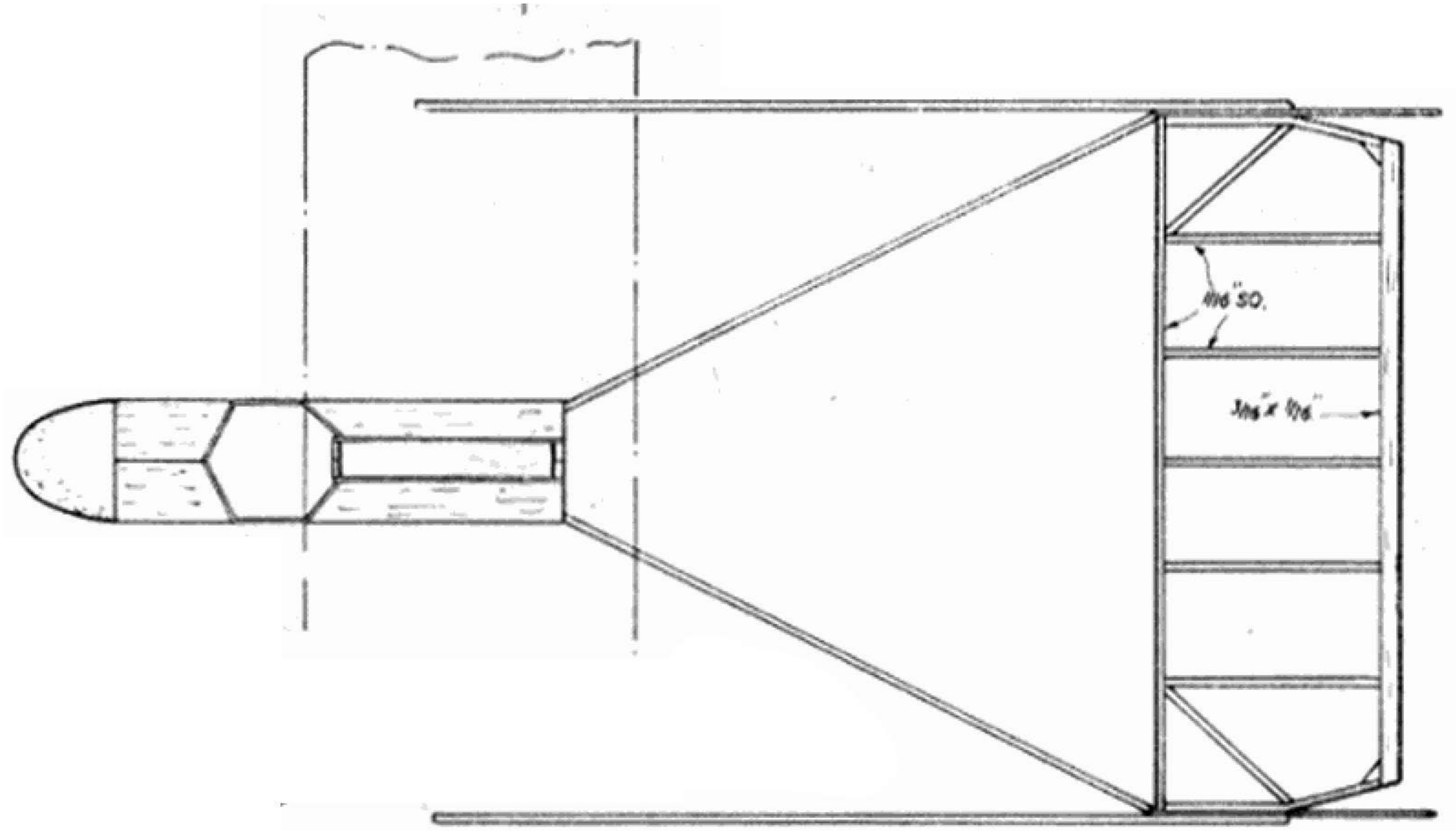
Tissue cover the tailplane on the top surface only. Cement on the two top booms. With the wing flat on the table, prop up the leading edge of the tailplane 5/16 in. and cement the booms to the two 1/16 sheet wing ribs. This packing will ensure the correct difference in rigging between the wing and tail. Now cover the wings with tissue, top and bottom, waterspray, and dope. Cement to the fuselage cabane and then add the bottom tail booms and wing spars.

Balance the model just behind the wing spar with an unloaded Jetex unit in place. Glide should be fast and flat, and straight. Climb should be straight at first, developing into an upward spiral. Provided you keep the model light, good durations should be possible.


ALL RIBS 1/32" EXCEPT WHERE SHOWN OTHERWISE
1/16" RIB
1/16" RIB
1/16" RIB
1/16" SHEET TIP
1/64" x 1/16"
1/32" SHEET
1/32" SQ LEADING EDGE
1/16" RIB
1/8" x 1/16"


2A
2
1
ALL FUSELAGE SHEETING 1/32"
DRILL LIGHTENING HOLES
WING RIB
FORMERS 1/16" SHEET
2A
2
3
1
CUT AWAY AFTER ASSEMBLY
1/4" DIHEDRAL
3/16" X 1/16" WING STRUTS


HATRY
FLUGZEUG
CEMENT WING TO TOP OF CABANE
2A
2
1
3
STRUTS
1/8"X 1/16"
1/32 SHEET FINS
BALSA NOSEBLOCK
OPEL
SANDER
RAK-1
1/16" SHEET JETEX CARRIER
1/16" FLOOR
1/32" SQ
1/16" X 1/32"
1/8"X 1/16" HARD BALSA
ASBESTOS PAPER


1/16" SQ.
3/16" x 9/16"

BELL VTOL

Unorthodox Semi-scale Twin Jetex model

....designed by **LARRY CONOVER**

BELL'S VTOL was a design study of a vertical rising jet airplane which could take off and land on a "dime." I was fortunate in being able to see movies of actual flight tests, and it worked very well. The machine lifted, turned 360 deg. over the spot, progressed 200 ft. down the field, landed on a spot, minimum flying speed was zero m.p.h. Maximum was rumoured as 300 m.p.h., but the aircraft was not designed for this speed; it was intended only as a stability test bed.

The success of any aircraft is entirely dependent on stability, and this is the paramount problem for all VTOL aircraft. In hovering flight the Bell ship utilised compressed air ejected from nozzles at the wing tips and tail for control in all three axes. Powerplants were two Fairchild J-44 turbojet engines of 1,000 lb. thrust each, and they could be rotated from vertical to horizontal for varied flight attitudes.

The aircraft had a span of 26 ft., a length of 21 ft. and weighed 2,000 lb. Note the marginal thrust to weight ratio—no heavy eating for the pilot!

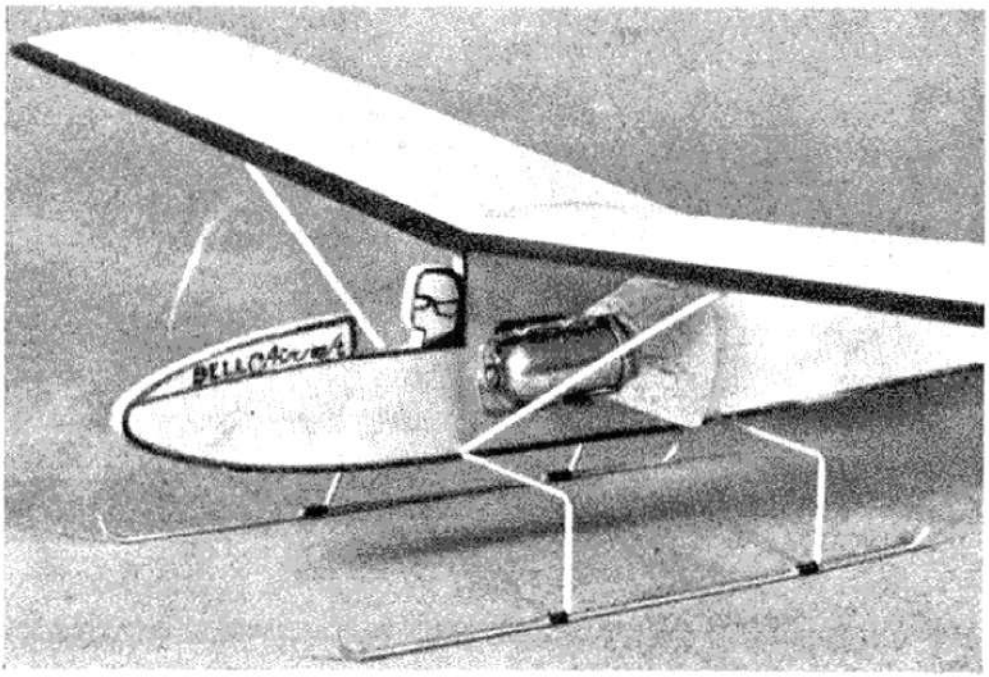
Your model is not intended for hovering flight, although you can gain some interesting experience by attempting to turn your Jetex engines as near vertical as possible and still retain flying ability, then you will appreciate some of the problems the full scale people had.

The plans tell most of the story on construction, but be careful to keep the tail end light, use quarter grain balsa for all flying surfaces, and take care to avoid splitting when bending the camber into the wings. No dope is required. To mount the motors drill a hole in the centre of the Jetex mounting clip and find a short machine screw that will just protrude enough to take the nut on the other side. The model should balance at 50 per cent. wing chord, and I used chuck glider techniques for trimming.

For initial flight tests use only one engine, and adjust for a slight circle on the glide, with the loaded engine on the inside of the glide turn. When using two engines always light the inside (of circle) engine first. Make small adjustments one at a time—this is a fast moving model.

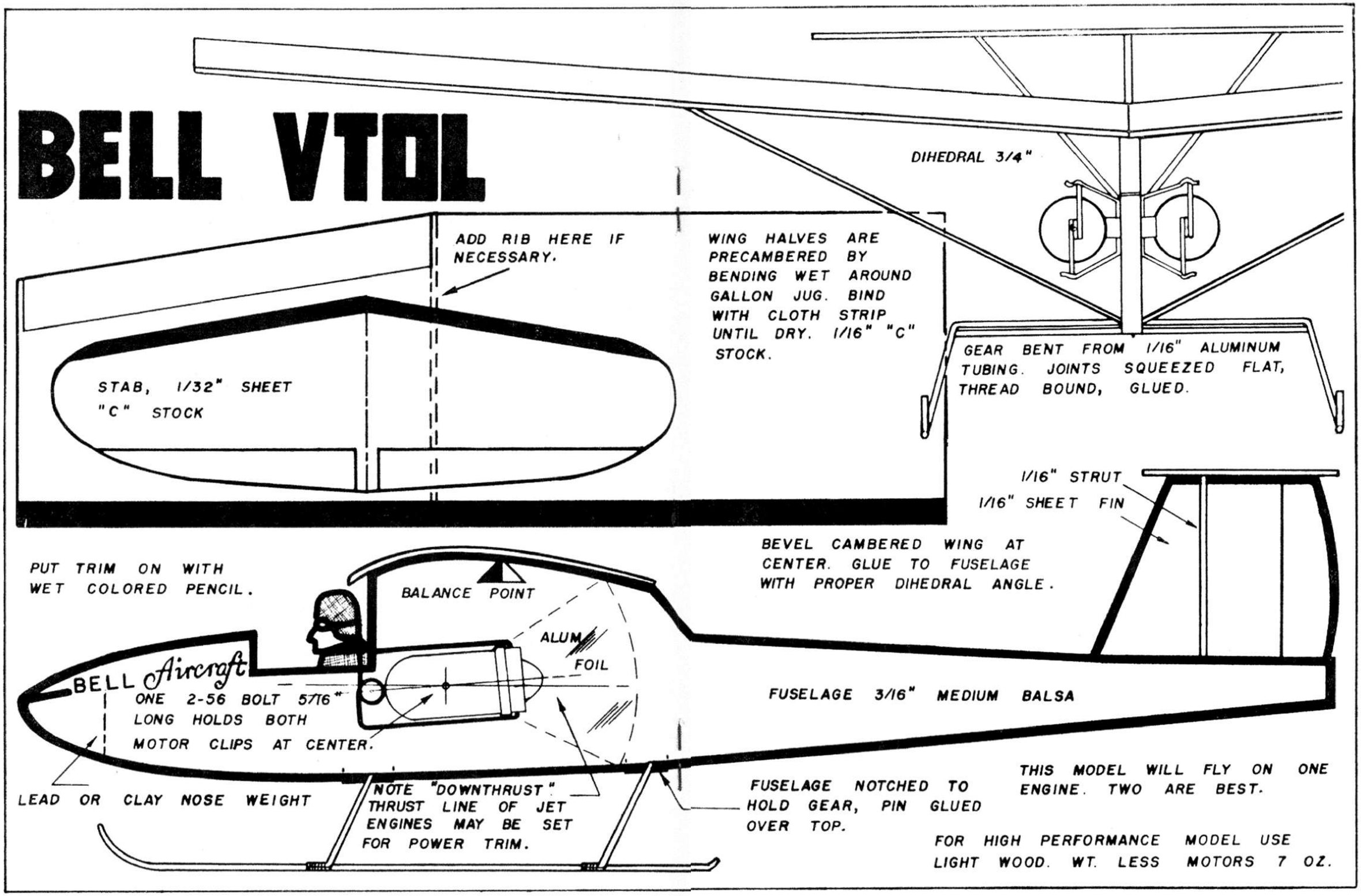
I have had flights of up to 3 min. and distance of, as the old-time magazines would put it, "flies 5,000 ft."

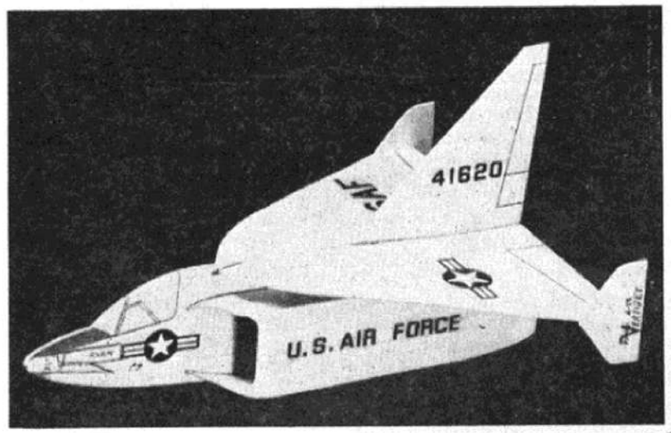
FULL SIZE PLANS OVERLEAF



The two photos show the general lines and straightforward construction of this model. In the heading the motors are in the V.T.O. position, while right they are set for normal flight. When the photos were taken the model had made over 25 successful flights.

BELL VTOL


DIHEDRAL 3/4"
ADD RIB HERE IF NECESSARY.
WING HALVES ARE PRECAMBERED BY BENDING WET AROUND GALLON JUG. BIND WITH CLOTH STRIP UNTIL DRY. 1/16" "C" STOCK.
GEAR BENT FROM 1/16" ALUMINUM TUBING. JOINTS SQUEEZED FLAT, THREAD BOUND, GLUED.
STAB, 1/32" SHEET "C" STOCK
1/16" STRUT
1/16" SHEET FIN
BEVEL CAMBERED WING AT CENTER. GLUE TO FUSELAGE WITH PROPER DIHEDRAL ANGLE.
PUT TRIM ON WITH WET COLORED PENCIL.
BALANCE POINT
ALUM FOIL
BELL Aircraft
ONE 2-56 BOLT 5/16" LONG HOLDS BOTH MOTOR CLIPS AT CENTER.
FUSELAGE 3/16" MEDIUM BALSA
LEAD OR CLAY NOSE WEIGHT
NOTE "DOWNTHRUST" THRUST LINE OF JET ENGINES MAY BE SET FOR POWER TRIM.
FUSELAGE NOTCHED TO HOLD GEAR, PIN GLUED OVER TOP.
THIS MODEL WILL FLY ON ONE ENGINE. TWO ARE BEST.
FOR HIGH PERFORMANCE MODEL USE LIGHT WOOD. WT. LESS MOTORS 7 OZ.



RYAN X13 VERTIJET

PROFILE MODEL FOR JETEX 50c

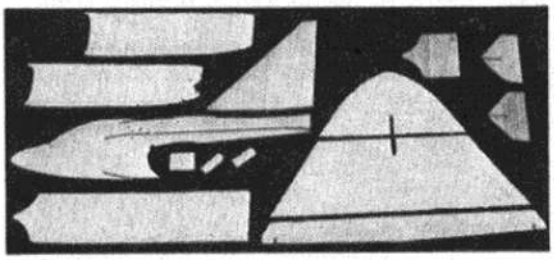
By

J. A. FLEMING

SEE THE "WINGS CLUB" PAGES FOR THE BUILDING NOTES.

TURN TO PAGE 90 FOR ILLUSTRATED BUILDING INSTRUCTIONS

RYAN X-13—*an ideal model for wingmen*



Build this model and win £2!
This prize will be awarded to the Wings Club member who sends us the best photo of his completed X-13 by March 15th. We will publish the photo in our May issue. The plans and these instructions almost do the job for you!

THE full size plans in the centre pages of this issue are for a simple Jetex 50 powered profile model of the fascinating Ryan X-13 *Vertijet*. This experimental American vertical take-off aircraft first flew successfully in 1957, and even junior Wings Club members should find no difficulty in constructing our flying model of it.

In photo 1 all the parts are laid out and as you can see there are no difficult shapes to cut out. You will need a tube of cement and a 3 ft. sheet of softish $\frac{1}{16}$ in. × 3 in. balsa wood, which costs about 1s, a piece of $\frac{1}{8}$ in. sheet balsa, large enough for the fuselage, and, of course, a Jetex 50c. motor.

Start by tracing the outline of all the parts on to the balsa wood and cut them out with a sharp knife. The wing and part "A" are each made up of three pieces of $\frac{1}{16}$ in. sheet cemented together edge to edge. While these parts are drying, cement the small plywood motor mounting plate to the fuselage, and fit the two triangular blocks between its top side and the fuselage to support it firmly.

Slide parts "A" and "B" into the slots in the fuselage and hold them with pins until the cement dries. Make certain that the fuselage is exactly on the centre line of these two parts. The side pieces may now be cemented into position; one is shown fitted in photo 2.

Slide the leading edge of the wing into the fuselage slot just behind the cockpit, and cement the wing firmly to the fuselage making sure that it is in contact along its entire length. The rear end of the wing should curve up slightly; this is important and pins must be used to hold the wing until the cement dries.

Slot the tip fins on to the wings and then cement the centre fin in position as shown in photo 3. Be sure to get the fins exactly in line fore and aft and perfectly upright, sloping neither to left or right. The markings can now be applied using transfers; or a ball point pen may be used to draw them directly on to the wood.

When you fit the Jetex motor take care not to have it pointing to one side as this will make the model very difficult to fly. With an *empty* Jetex motor fitted, your X-13 should balance level when supported under the wings at the point marked "c.g.," on the plan. Add plasticine to the nose or tail until the correct balance is achieved.

Glide the model with the empty motor fitted over soft ground and adjust the balance until a smooth descent is obtained. Load the Jetex motor according to the instructions and choose a calm day on which to fly the model for the first time.

If you have built the X-13 carefully and there are no warps, it should climb in an almost straight line. If it turns sharply to right or left correct it by bending the tip fin on the *outside* of the turn in the *opposite* direction.

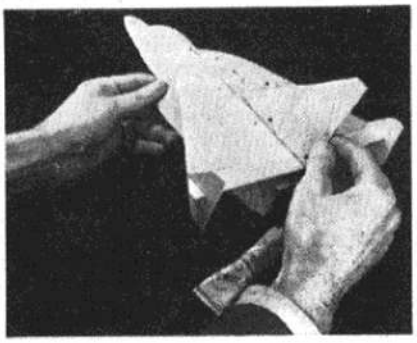


Fig. 3