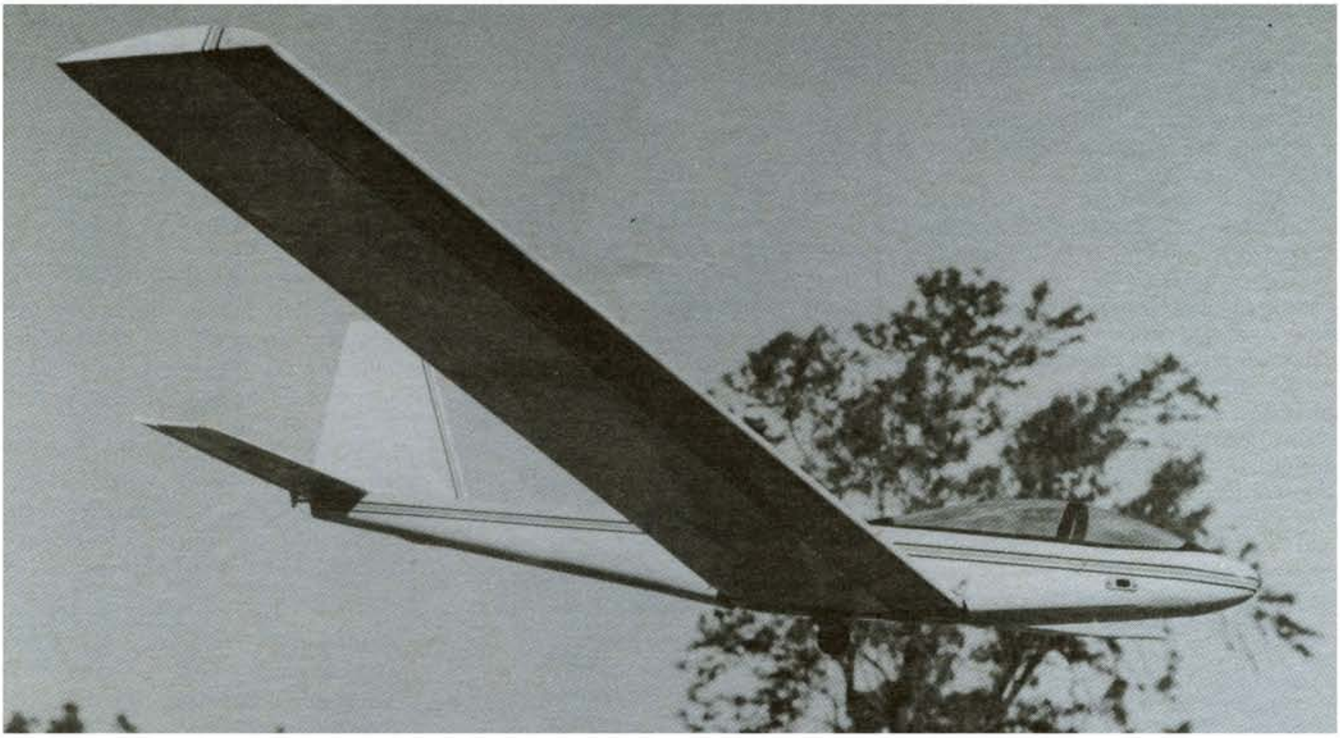
SEVILLE



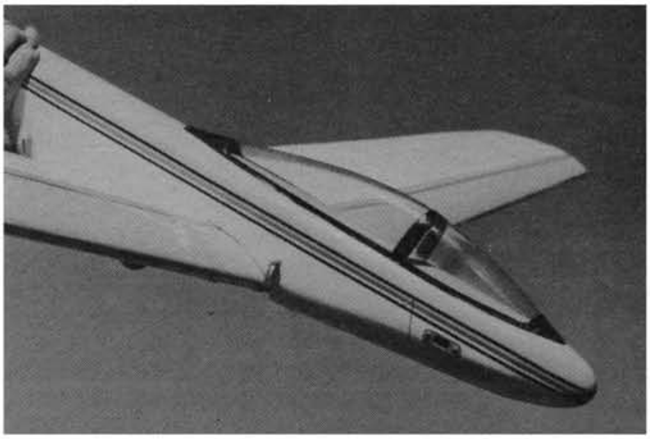
Proving that a low-wing rudder-and-elevator RC glider is practical, four of these ships have turned in numerous soaring flights of more than one hour./Bill Evans

About to catch the Seville after a soaring flight is Bill Evans. Not only is this ship practical and simple, but it is enjoyably stable. The wing is foam cored, ply or balsa skin.

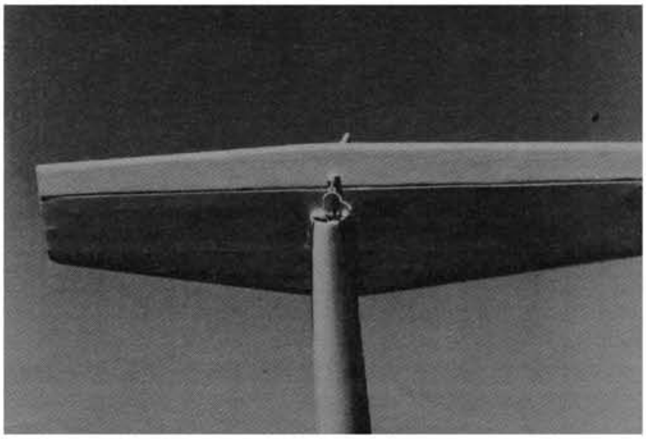
MODEL AERONAUTICS have undergone significant evolutionary changes through the years. Having to do with more reliable equipment, new materials, improved construction techniques and a lot of "guts" on the part of some individuals to depart from convention and negative attitudes, these changes have produced easy to build, excellent performing model aircraft with eye appeal.

The Seville is a new departure from convention. It proves, contrary to most attitudes, that a low-wing rudder-and-elevator sailplane is practical. Not only is the Seville practical, it is highly stable and has the good lines of a full-size aircraft. Its eye appeal is most dramatic when making a fly by, as well as on the landing approach and touching down on the single wheel to roll to rest tail high. So setting aside convention and traditional attitudes, our mental struggle began to design a low-wing, hook-happy, winch wanton-thermal ship.

The wing airfoil, configuration, span, area and materials were the first consideration. A moderately thin flat-bottom airfoil was chosen to give good penetration and a fairly fast movement of air over the wing. The swept-back leading edge provides a bit of the needed dihedral (basically, each ten degrees of sweepback gives the



The canopy is installed with Zap and Zap filler. The nifty trim lines are easily achieved using DJ Multi-stripe—and look sharp.



Exiting from the open fuselage end, the pushrod/horn attachment is obviously easy to tinker with. Stab area is about 25% of wing's.

effect of one degree of dihedral). To effect a wing loading of near 8 oz. per sq. ft., a root chord of 9½ in. and tip chord of 6 in. yielded an 80-in. span. The fully sheeted foam wing is easy to build and gives needed strength for winch launches. It can be sheeted with ply or balsa—the former requires no spar.

Though the Seville is a thermal ship in every respect, for the test flight I couldn't quite bring myself to high-start a new low-wing rudder-and-elevator design. So I chose a gentle slope located in the Simi Valley. The Seville was pushed off into a four-knot wind. The flight performance was remarkable. Not only did the Seville maintain altitude, it managed a beautiful climb to 1200 feet plus. The turns were a piece of cake, requiring a minimum of down-elevator when coming out of the turn.

Boyd Krueger, who shared watching the Seville's first flight, expressed disappointment that it flew contrary to his belief that low-wing, rudder-and-elevator-only "ships don't fly!" Boyd decided to compare the Seville's performance against a known model, so off into the air went his Hobie. To his surprise, the Seville kept pace with the Hobie. The Hobie maxed out at about 1500 feet; the Seville didn't get quite as high, just 1200 feet. After the 20-minute slope test flight we stretched out the high-start on a flat field. The Seville tracked straight up on a high-start launch that resulted in a seven-minute flight, in the cool 5 p.m. air.

At this time the four Sevilles built have turned in many one-hour thermal flights. Several more are under construction. One has been built using a .049 mounted in the nose for power assist.

From an appearance standpoint, most modelers who have seen it, view the Seville as something between a Schweizer 232 and a U-2; although I had no specific aircraft in mind when I designed it.

Then we considered the fuselage. To avoid splicing materials and not sacrifice stability, a good combination of nose and tail moments was worked out to permit using 36-in. stock for the fuse sides. The fairly large fuselage frontal area makes for greater ease in tracking through turns.

A single wheel was incorporated to save wear and tear on the fuselage. The only place for the wheel was behind the C.G. By the way, the wheel position creates absolutely no difficulty with tow-line release.

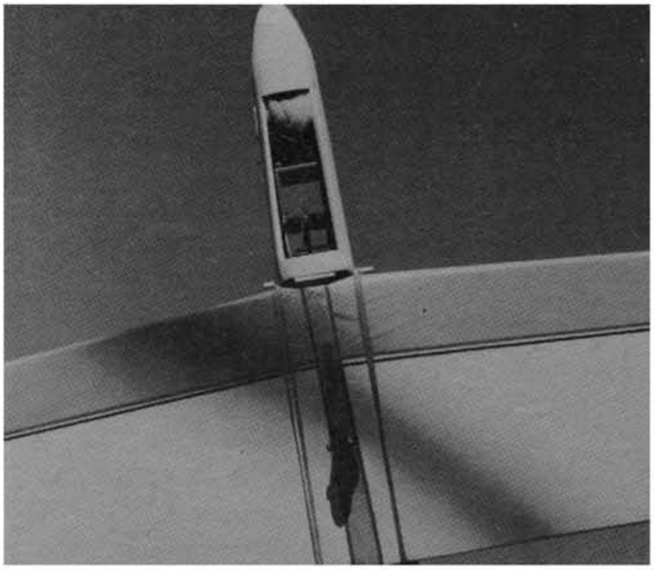
The tail surface sizes make it possible to cut the necessary parts from two pieces of 3/16 × 4 × 36, and also provides for a satisfactory area ratio of the tail surfaces to wing of about 25%.

For your convenience foam wing cores cut for this Seville are available from Bill Evans, 19216 Calvert St., Reseda, CA 91335. Price is $10.00 which includes shipping (CA residents add 6% tax).

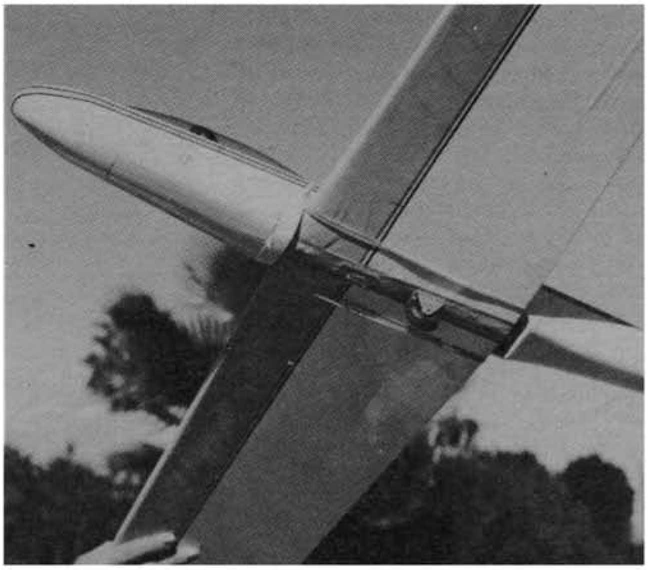
Construction

The following instructions are sequenced to minimize building time. Read them over before building to more completely understand them.

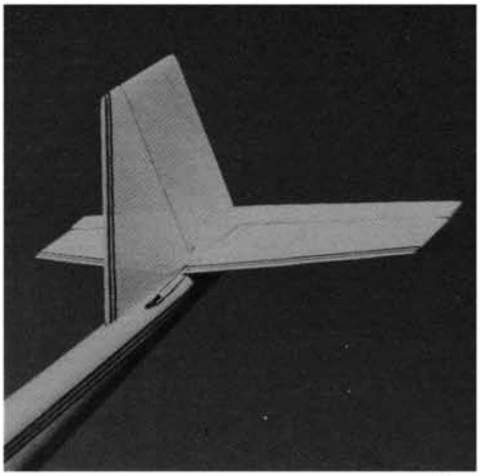
First you should decide on 1/16 balsa or 1/64 plywood for the wing sheeting. If 1/16 balsa sheeting is used a ⅛ × ½ spruce



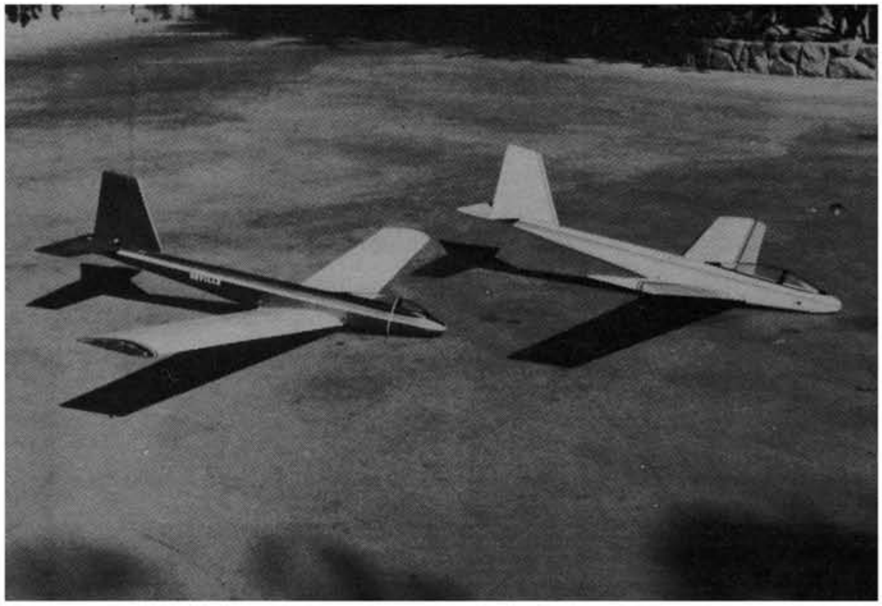
Radio compartment provides a snug but adequate fit for the batteries and the brick-type radio. Strap-on wing is quite satisfactory.



View from beneath showing the mono-wheel gear, tow hook and access hatch. The wheel does not interfere with the tow-line release.



Rudder pushrod and rudder horn detail. Tail surfaces are cut from sheet balsa. Author's model covered with gray and white Monokote.



At rest in their distinctive tail-up attitude, two Sevilles wait their turn to fly. The forward canopy position has been found to ease the turns. First test flight lasted 20 minutes.

wing spar as shown on the plans must be employed. You may cut the spar groove in the foam cores by using a table saw with the saw blade raised ½ in. above the table top, or you may use a soldering gun with a properly bent wire tip as a depth gauge and balsa strips as guides.

Cement and pin ½ × ¼ balsa strip to the leading edge of each wing panel, making sure that the leading edge is kept straight. Cut fuselage sides, top, bottom and formers from stock. Pin the fuselage top to a flat surface. Glue and pin the left fuselage side against the fuselage top. Glue and pin the ⅜ triangle stock against the left fuselage side and the fuselage top and repeat for the right side. Glue and pin fuselage formers in place. Glue and pin the ½ triangles to the bottom inside edges of the fuselage, front and rear. Glue and pin the fuselage bottom ⅜ sheet, front, and 3/16 rear. Rough cut nose block then pin and glue it to the fuselage.

Butt join and splice 1/16 balsa sheet to make four pieces that are each 40 in. long and taper from 10 in. on one end to 7 in. at the other. (Or 1/64" plywood may be used for wing sheeting as mentioned.) Apply contact cement to wing cores and wing sheeting (I suggest using a good water-base contact cement, such as Light-Dex). Let the cement dry per manufacturer's instructions. Bond sheeting to wing cores (be sure to use the foam wing cradles as a base on a flat surface to hold the ¼ in. washout in each panel).

As you may know, washout is accomplished by raising the wing trailing edge at the wing tip, in this case ¼ in., above the normal position without washout. The purpose of washout is to prevent excessive tip stall (falling off on one wing). Washout works like this: When an aircraft makes a turn, let's say left turn, the right wing moves faster than the left wing. The faster moving right wing creates more lift, which raises the right wing above the height of the left wing, causing a stall which usually results in the ship falling off the left. By washing out both wing tips an up aileron effect is produced which works against the increased lift which results in a much more smooth, flat turn.

Trim and sand wing panels and add ¼ in. tip plates. Join wing panels using 5-min. epoxy and set dihedral by blocking each tip up 4⅝ in.

Cut out the tail surfaces from 3/16 sheet, sand to shape, and cut lightening holes. (You can save on wood by butt-gluing a piece of 3/16 to the 4 × 3/16 sheet so as to cut the stab and elevator in one piece.)

Carve and sand fuselage to shape then cut bottom hatch for the radio compartment. The hatch is made by first making the front and rear cross-gain cuts. Using a razor saw make the length cuts on a right angle through the ½ in. triangle with an Xacto knife and a ruler for a stright edge.

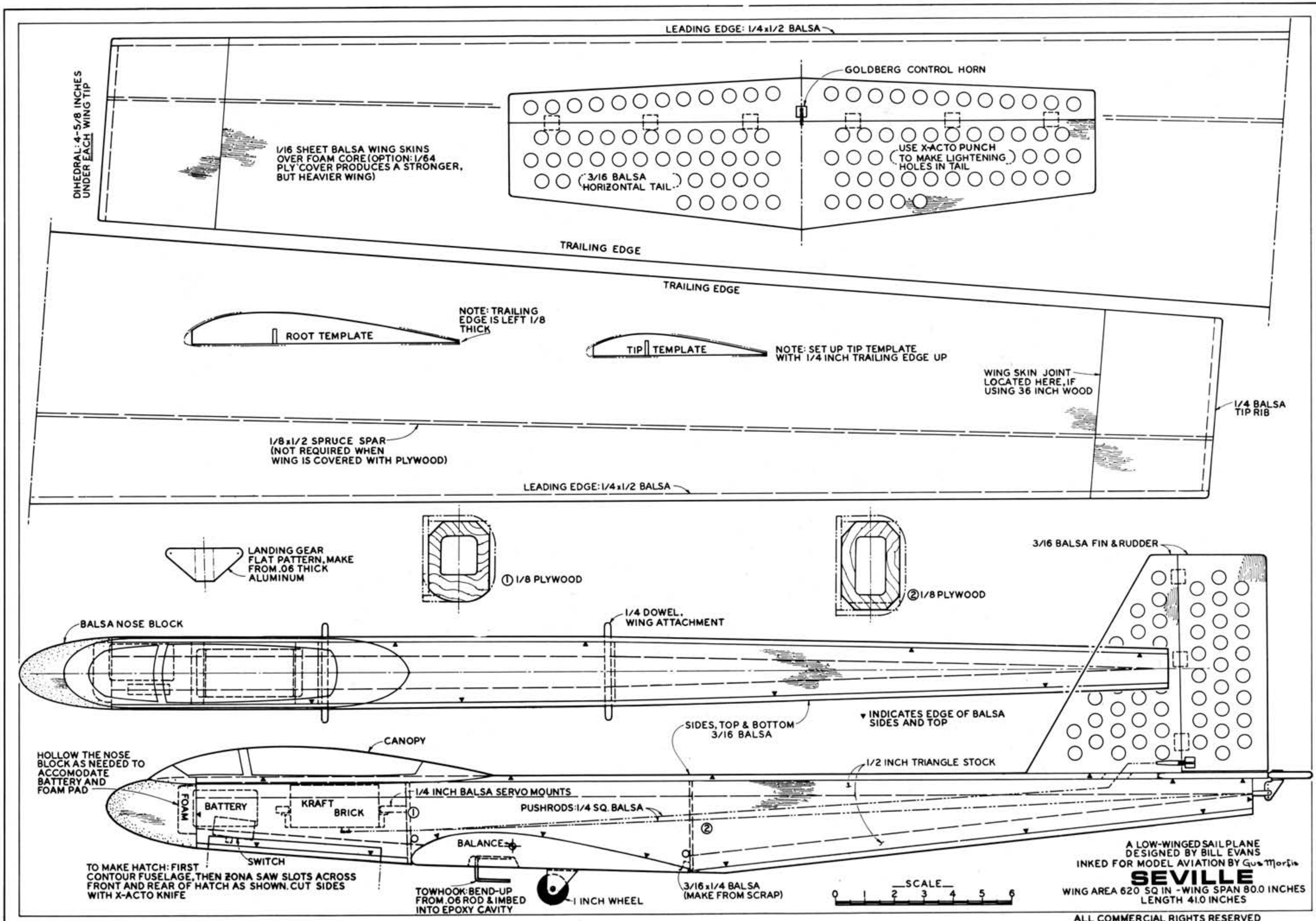
Cover components and assemble. Gray and white Monokote and DJ's Multi-Stripe were used on the original. Epoxy tow hook in wing as shown on plans. Bend and trim wheel strut to shape and screw and epoxy strut to wing, then install wheel.

Notice that the radio is installed upside down, so make sure that for rudder and elevator your control movements are correct. Rudder throw should be 1 in. in both directions, ⅜ in. up and down for the elevator.

The canopy is permanently installed by using Zap and Zap filler. Then trim with black DJ's Multi-Stripe.

Flying: Fly the Seville as you would any thermal sailplane. I've found that the best launch method is to hold the Seville with your hand wrapped around the underneath and sides of the fuselage, forward of the wing. Let the launch line run forward from the hook so that it is between the fuselage bottom and your hand. Good lift!

Designer ready to launch the Seville. Foam cores are available. Wing may be skinned with either balsa or plywood according to directions, but if balsa is used a spar becomes necessary.



FULL-SIZE PLANS AVAILABLE .... SEE PAGE 104