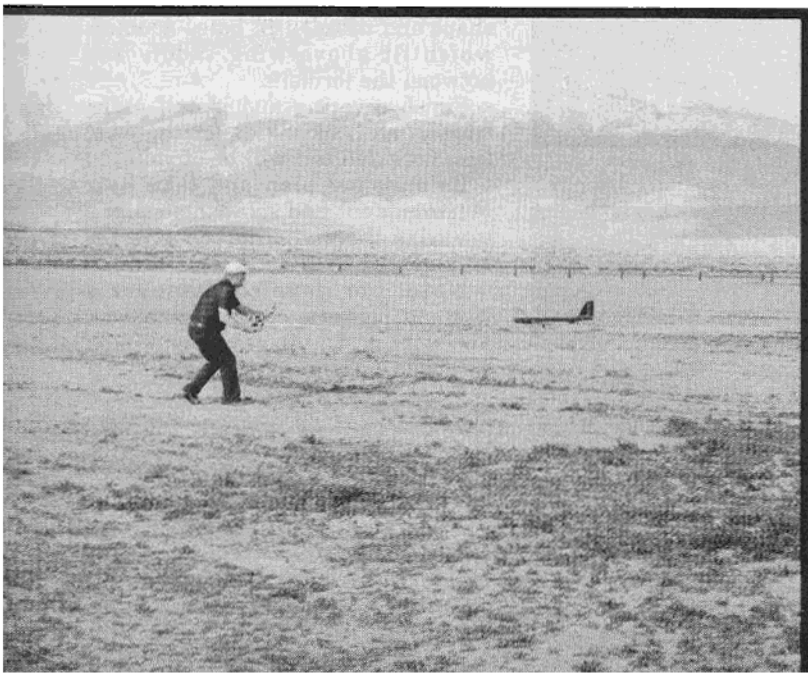
MAXIMUM

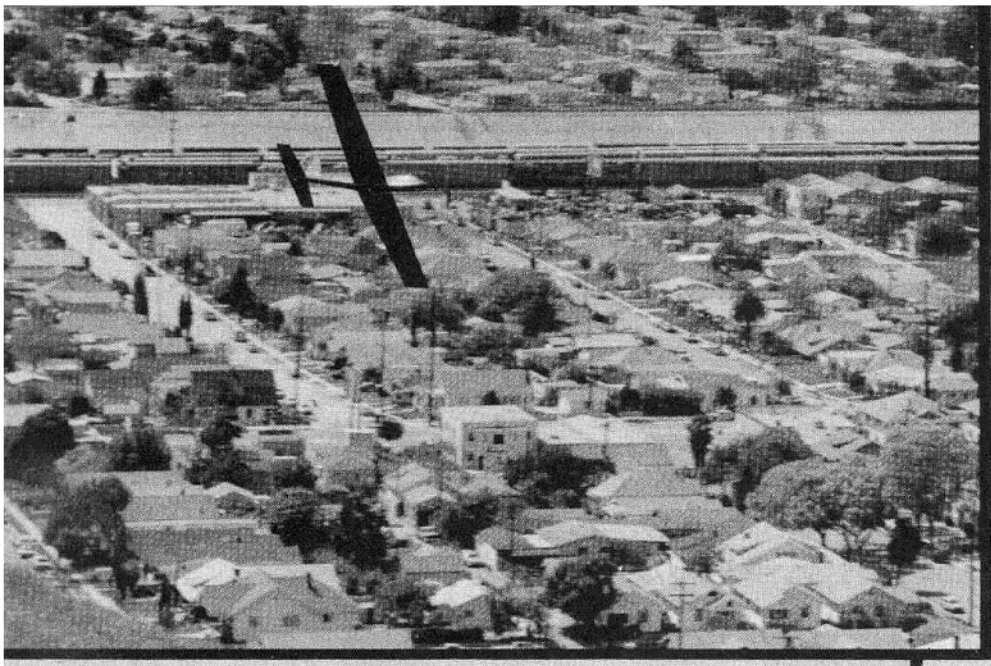
The field reaction to this one is it has to be a high wing or it won't fly. Watch it come off the tow hook!

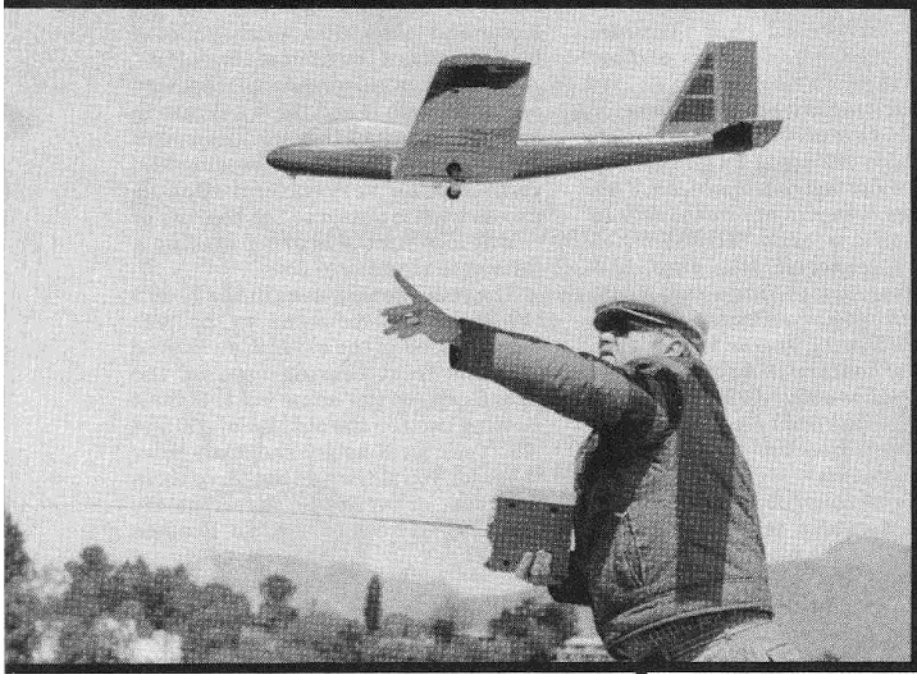
By Bill Evans

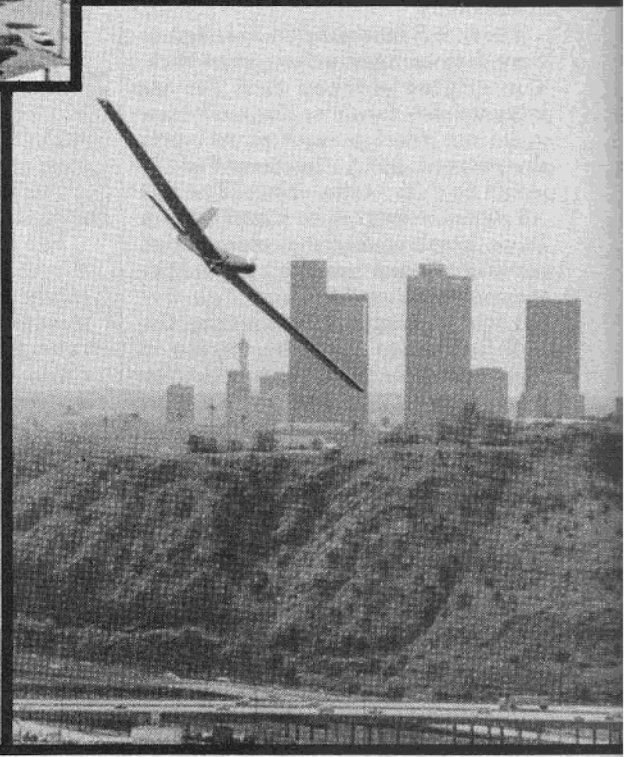
Project "Maximum" proved to be interesting, different, long on time and very rewarding. The rewarding part is the product, a good looking (first practical low wing thermal glider), super flying and very easy to build silent craft. The Maximum had its beginning many years ago with my Seville, also a low wing glider; looks similar but different. Also, the Crosswind (.15 power) smacks of the Maximum, but again different. The different part comes from the fact that this is the first built-up wing I have done in the past thirty years. Prior to this it's been all foam. You will find the construction of this wing to be very interesting. First the wing is built in one sitting (no waiting for parts or sub-assemblies to dry). Much as a pyramid, from the bottom up. Once the panels are dry they can be sanded and joined using epoxy, the same as foam wings are joined.

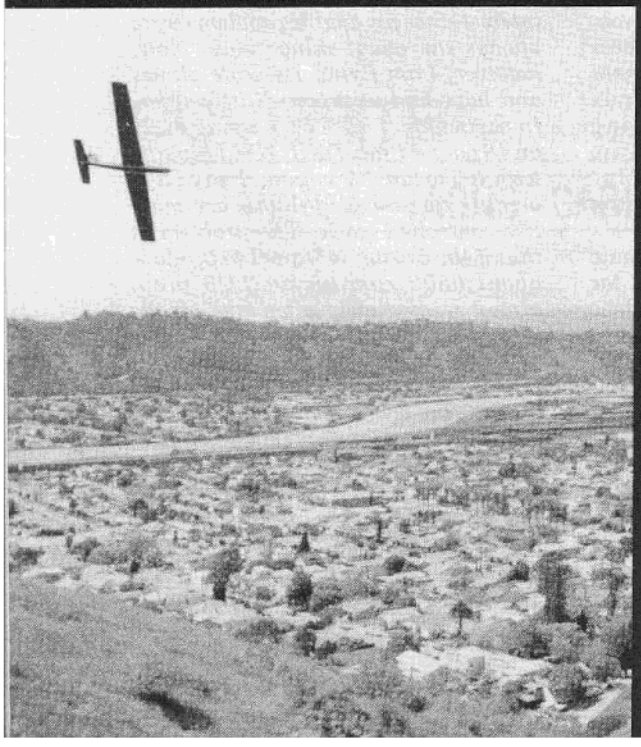
The wing platform shown is not limited to the Maximum flat bottom

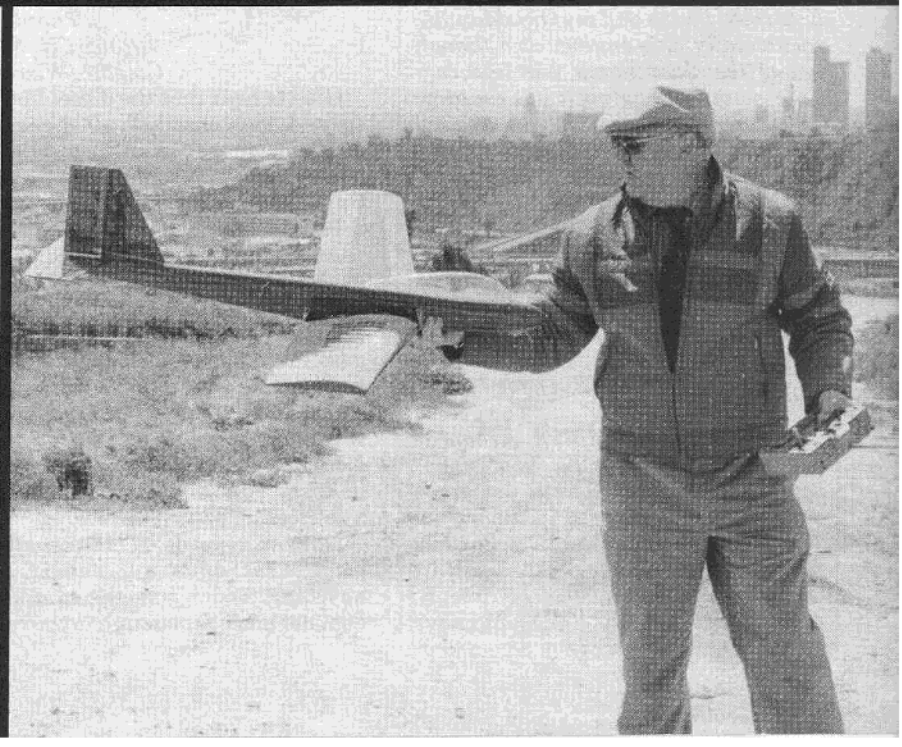












airfoil. The technique of building on the platform can be applied to all airfoil sections. Merely cut a foam cradle for the airfoil bottom and proceed to build over it. This procedure eliminates the need to block spars or leading and trailing edges when building a semi-symmetrical or symmetrical wing.

The reaction of most fliers when they first see the Maximum at the field is that it sure looks good but "everyone knows that all thermal gliders are high-wing, so it won't fly well." All bets are off when the Maximum comes off the hook. Turns are easy and it stays up with the best of them and outdoes most in light air. How about on the slope? In a word, **excellent!**

When touching down on the single wheel, the Maximum smacks of the Sweitzer 232. By the way, the position of the tow hook and the wheel creates no problem with release of the tow line. Just keep chute or flag well-forward of the nose of the ship.

Built per plan your Maximum will be rewarding and make you stand out at your flying field.

CONSTRUCTION

Let's start with the fuselage so that while it's drying the wing ribs can be cut.

Fuselage Top:

Draw a line down the center of a 3/16" x 3" x 36" balsa sheet; make marks 1" out from the centerline at the nose end and at each former location; connect these points. Mark 3/4" from centerline 9" aft of rear former and 1/2" at tail.

Cut off last 3¼" of fuselage top (stab saddle block).

Pin fuselage top down on work area.

Glue and pin 1/2" triangle stock to fuselage top (do not glue at aft end where stab will set).

Cut out fuselage sides from 3/16" x 3" x 36" balsa sheet.

Glue and pin left and right fuselage sides in place (again do not glue to stab saddle block). Push the pins in through the outside.

Cut formers and glue into place.

Cut 1/2" triangle to length, glue and pin (from outside) in place to bottom inside edge of fuselage, front and rear.

Glue and pin fuselage bottom 3/16" balsa sheeting in place.

Cut nose block to outline shape and glue in place.

Set aside assembly to dry.

Wing:

Cut ribs from 3/32" balsa sheet.

Cut washout platform templates from 1/8" ply.

Note: A simple foam cutter can be made by pushing a 3/16" x 6" piece of piano wire into either end of a 40" length of 1" x 4" pine (or, etc.); drill holes first. Stretch a length of .015 piano wire between ends of the 3/16" wire. Power for your cutter can be a 12 volt car battery or a 12 volt battery charger (6 to 20 amps). **Never use more than 12 volts. Do not use household current.**

Cut washout platform.

As shown, place plans over washout platform.

Pin 1/16" x 2" balsa lower trailing edge sheeting in place.

Draw a line on the trailing edge sheet 3/4" from the trailing edge.

Glue and pin trailing edge stock into place, use the line to keep the T.E. stock straight.

Pin 1/16" x 2" balsa bottom L.E. in place.

Glue and pin inboard 1/16" balsa sheeting and 1/16" x 1/4" balsa lower capstrips into place.

Set lower 1/4" sq. balsa spar in place.

Pin and glue all ribs in place, start with #1 and move out.

Set top 1/4" sq. balsa spar in place.

Glue and pin 1/4" x 1/2" balsa leading edge in place.

Glue and pin 1/16" sheet balsa shear webs in place.

Glue and pin 1/16" x 2" leading and trailing edge top sheeting in place.

Glue and pin 1/16" inboard sheeting in place. Same for top 1/16" x 1/4" capstrips.

When both wing panels are assembled and dry, carve L.E. and sand wings. **Note:** The leading edge is steep and the bottom radius is only slight.

Join wings using 5-minute epoxy.

Cover with your favorite material. The original was covered with a transparent red on top and blue opaque on the bottom. This contrast produced an interesting appearance.

Tail:

Merely pin and glue parts into place over plans and sand. We used X-Hinge to link stab to elevator, same for rudder to fin. Again, cover as you choose.

Carve and sand the fuselage to shape and install 1/8" balsa doublers which fit above wing saddle and between the formers.

Finish covering and install radio, wheel, and hook. Skids for the wing tips, nose and tail will be of value.

Balance per plan and take your Maximum out and show them that a low wing thermal craft can give the Maximum.

Note: For your convenience a washout platform can be ordered for $6.00 plus $2.00 packing, $2.00 shipping, from Soaring Research, 454 Wildrose Lane, Bishop, California 93514. Pre-cut ribs are also available for $10.50 plus packing and shipping, or a complete package of the washout platform and ribs packed and shipped to your door for $20.50. California residents please add 6.5% tax.

Good lift. □

MAXIMUM
Designed By:
Bill Evans
TYPE AIRCRAFT
Low Wing Thermal Sailplane
WINGSPAN
71½ Inches
WING CHORD
8 In. (Avg.)
TOTAL WING AREA
570 Sq. In.
WING LOCATION
Low Wing
AIRFOIL
Flat Bottom
WING PLANFORM
Tapered L.E.
DIHEDRAL EACH TIP
4 Inch
O.A. FUSELAGE LENGTH
41"
RADIO COMPARTMENT SIZE
(L) 15" X (W) 2" X (H) 2"
STABILIZER SPAN
20 Inches
STABILIZER CHORD (incl. elev.)
4½" (Avg.)
STABILIZER AREA
89 Sq. In.
STAB. AIRFOIL SECTION
Flat
STABILIZER LOCATION
Top of Fuselage
VERTICAL FIN HEIGHT
7½ Inches
VERTICAL FIN WIDTH (incl. rud.)
6½" (Avg.)
REC. ENGINE SIZE
NA
FUEL TANK SIZE
NA
LANDING GEAR
Single Wheel
REC. NO. OF CHANNELS
2
CONTROL FUNCTIONS
Rud., Elev.
BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	Balsa & Ply
Wing	Balsa,
Empennage	Balsa
Wt. Ready To Fly	**42 Oz.**
Wing Loading	**10.3 Oz./Sq. Ft.**

MATERIAL LIST

Balsa
4 — 3/16" x 3" x 36"
1 — 2½" x 2½" x 3"
4 — 1/16" x 4" x 36"
3 — 3/32" x 4" x 36"
5 — 1/4" x 1/4" x 36"
3 — 1/4" x 1/2" x 36"
1 — 1/4" x 3" x 36"
2 — T.E. Stock 3/16" x 3/4"
Ply
1/8" x 2" x 6"