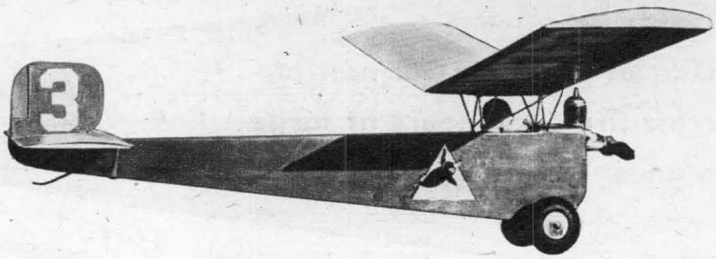
Blunderbus



By S. CALHOUN SMITH

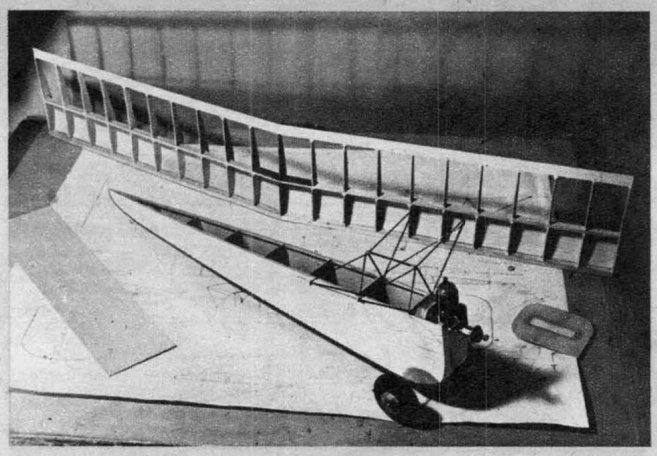
■ This little straight line special will never win any contests, but for Sunday afternoon fun it can't be beat. If ever a design has been flight proven, this one has. It is a veteran of nearly a year of weekend flying sessions. Damage to date: punctured wing covering from roosting in trees.

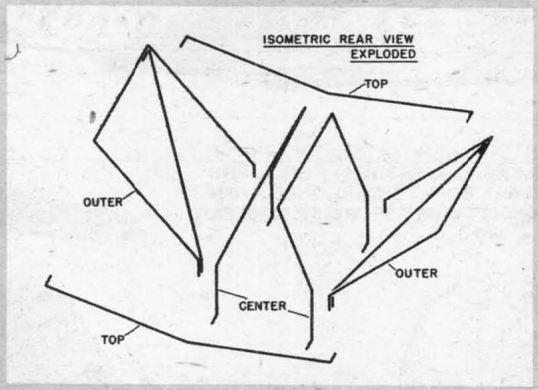
Blunderbus was inspired by a Doug Rolfe sketch of an ultra-light German ship built by Albatros in 1924. This "Sportflugzeug" was a tiny single-placer powered with 30-40 hp Bristol Cherub engine, and from its appearance in the sketch was simplicity itself designwise.

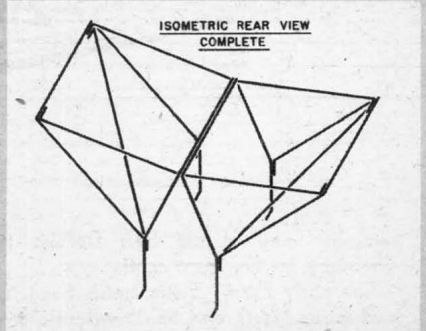
Because no complete plans were available of the real aircraft, the model was designed with typical free-flight proportions merely to resemble the big ship. The comma-shaped rudder was added just for appearance.

Model specifications are: span 30½", length 21", wing area 150 sq. in., stab area is one-third of wing area; power with any .049 engine. Weight is 8 oz., pretty heavy for a small free flight, but since contest performance was not wanted, much durability of structure was gained by building fairly heavy.

Fuselage construction is simple box-type. Cut out the fuselage sides of 1/16" sheet. Mark former positions on inside surfaces. Since fuselage is rectangular no former drawings are given on the plan. Formers can be made by referring to the plan top and side views. Cement 1/16"







Blunderbus is no contest hot-shot, but will take a terrific beating and turn in consistent sport flights. Easily ROG's from smooth surfaces. That's young "Skeeter" Smith, 8, launching the scale-like 'Bus.

x 1/8" longerons along the top and bottom edges of the fuselage sides. Notch former corners to fit over the longerons. The firewall is a piece of 1/8" plywood backed with pine strips opposite engine mounting holes. The pine furnishes some thickness for wood-screw mounting.

Cement 1/4" sheet front, firewall and next two 1/8" sheet formers to one fuselage side. Add other side. Work upside-down over plan top view. Sides are parallel in this front section, so good alignment here is important. Add formers progressing toward the tail, checking against top view for straightness and squareness. A block of pine or plywood is next added across bottom for landing gear attachment. Block in nose and let whole fuselage structure dry thoroughly.

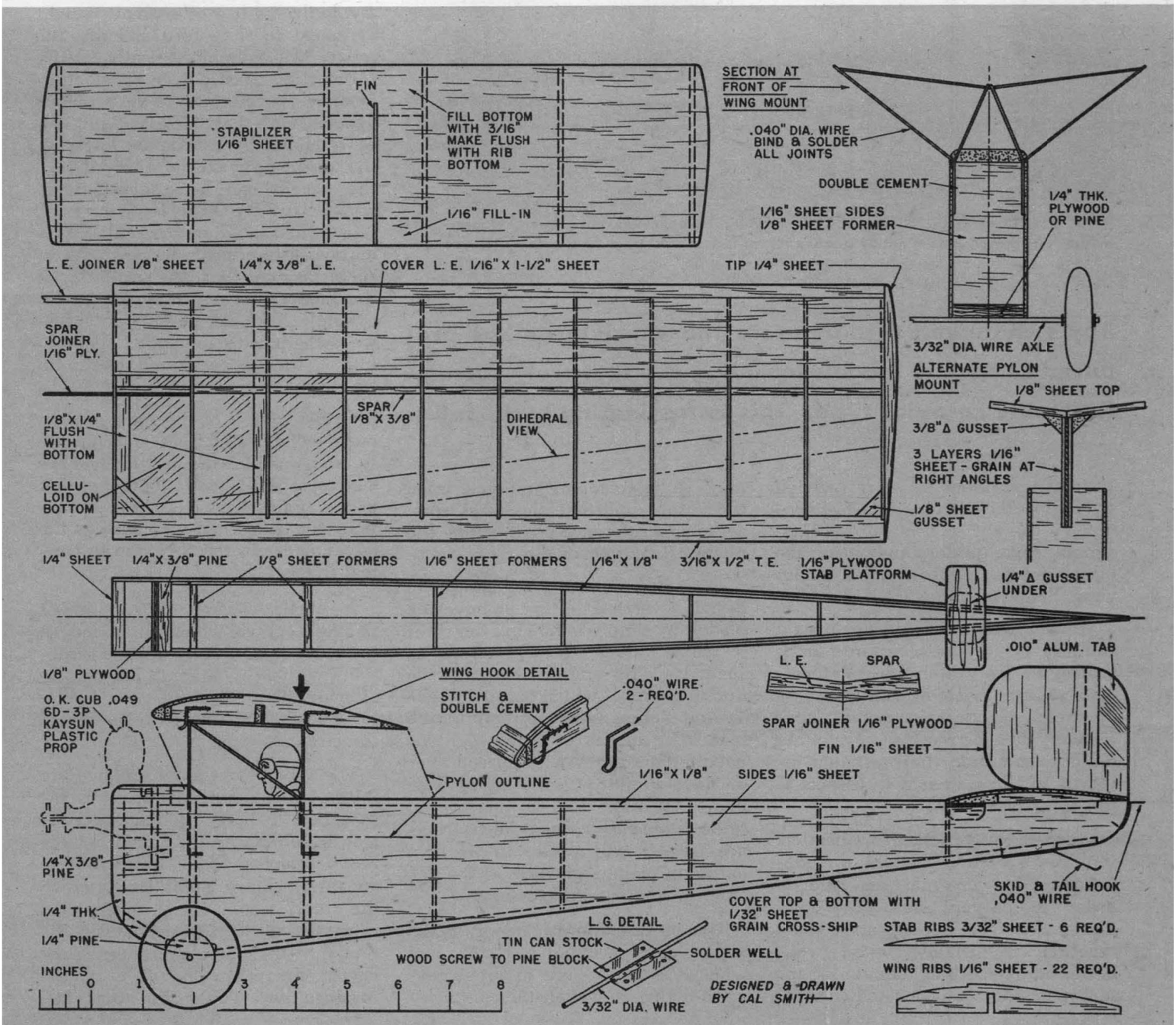
The scale-like wire wing mounting is the only fussy part of the model, and unless you are handy with pliers and soldering iron, the alternate pylon mount should be built. The wire wing mount enhances the appearance of the ship and has proved rugged and practical for flying. The isometric sketches show the makeup of the wire pieces. Center pieces are bent to shape first; note difference in height in side view for wing incidence. The center pieces are joined at the top corners by binding with thin soft wire and soldering. The bottom ends pass through notches in formers at side former corners.

Next bend outer wire pieces and diagonal braces and join these to center pieces. This operation is best done upside-down over a board with center piece blocked up 3/8". And the work must be done with parts carefully aligned. The top pieces pass under the center piece top corners and touch the inside edge of outer piece corners. Bind all joints and solder well. This complete wire mount is then pushed into place at the front of the 1/8" formers. Double-cement where wire passes down corner.

If you prefer the pylon mount make the pylon of three layers of 1/16" sheet joined with criss-cross grain, like plywood. Cut to outline shown in phantom lines on plan side view. Notch formers to receive the pylon base. Pylon top is made of 1/8" sheet and can be rectangular or oval in outline. Run grain spanwise and gusset corners where top pieces join vertical member. With wing mount in place, cover top and bottom of fuselage with 1/32" sheet, grain running cross-ships. Add plywood strip for stab mounting and gusset bottom surface. Add tail hold-down wire hook and tail skid. Double-cement over the wire.

Landing gear is about as simple as you'll find, consisting of a straight length of wire soldered across a piece of tin can stock. Use four wood screws to fasten the tin plate to the fuselage bottom at the pin block.

Wing construction follows standard procedures. Cut out the required number of ribs



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and build directly over plan view. Pin down leading, trailing edges and spar. Rib spacing is identical for both wing halves, so both panels can be made over same plan. The two center ribs should be very hard balsa or plywood since the wing hooks are attached here. Bend hooks as shown in the drawing and stitch and double-cement to ribs. These hooks are used in connection with the wire mount only, and of course can be omitted if you are building the pylon mount. Wing hold-down with wire mount consists of a rubber band triple-looped over wing hooks and passing under center wire mount pieces.

Join wing halves with plywood spar joiners, add corner gussets, cover leading edge and add tips. Carve and sand edges to complete wing. The bottom wing surface from center out to third rib is covered with sheet celluloid to provide a strong surface to bear against wire wing mount.

Tail surfaces are sheet balsa, the stab having a thin lifting section. Ribs are cemented to underside and center section is filled in with sheet to form a flat surface where stab rests on stab platform and tail. Cement a strip of silk over leading and trailing edges of stab at center where hold-down rubbers pass over surface.

Fuselage is finished with fuel-proof dopes, several coats of sealer can be used or wood can be covered with lightweight tissue for evtra strength. Wing is covered with tissue and given several coats of fuel-proof dope. Tails are simply doped to save weight.

Since the model has such a short nose, the heavier Half-A engines are preferred to achieve balance. Wheels can be lightweight 1¾" or 2" depending upon weight needed to make model balance. Wing has only 2 deg. positive incidence and stab is at 1 deg. negative incidence. Balance point is about at large arrow on plan. Naturally this will vary with individual models and can only be proven by test flights.

The original model used about 1½ deg. to 2 deg. downthrust and right thrust. Rudder tab was deflected about 1/32" to right. This trim set-up gave a shallow left climbing turn with wide right glide turn. Remember, the open parasol wing mount gives left power turn tendencies. Fuel tank is a coil of tubing for limiting engine run fastened to fuselage side. A starting tank may be installed inside fuselage or held on outside. Fuel line coil is then pulled off tank upon launching.

Bill of Materials

3 pcs. 1/16"x3"x36", fuselage sides, formers, wing ribs, tails, wing leading edge. 3 pcs. 1/16"x⅛"x36", longerons. 1 pc. 1/32"x 3"x18", fuselage top and bottom. 1 pc. ¼"x ⅜"x36", leading edge. 1 pc. ⅛"x⅜"x36", spar. 1 pc. 3/16"x½"x36", trailing edge. 2 pcs. .040" dia.x36" wire, wing mount struts. 1 pc. 3/32" dia.x4¼" wire, landing gear.

Scrap pine and plywood, 2" dia. wheels cement, dope, tissue.