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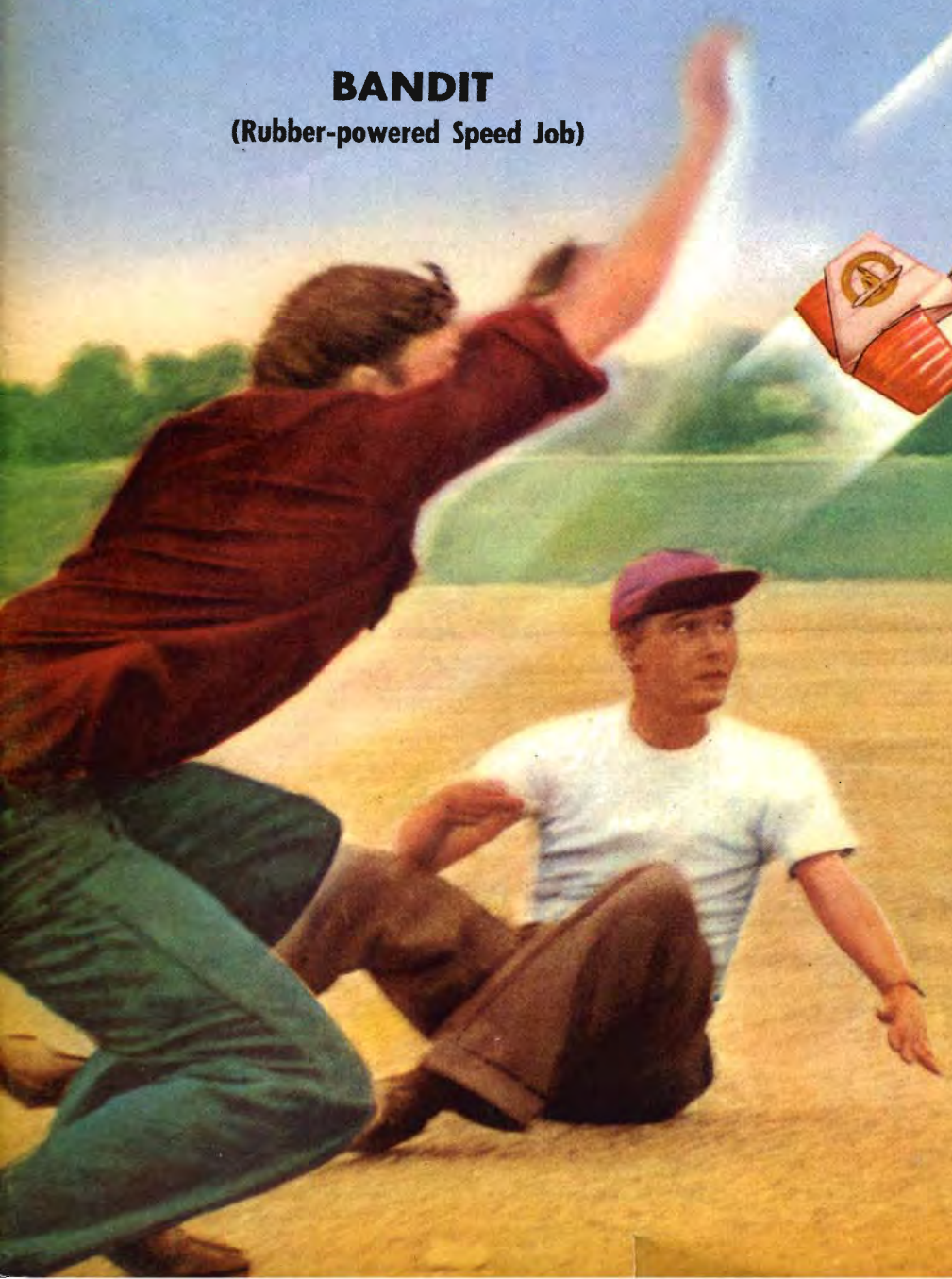
OCTOBER

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1949
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23rd YEAR OF
PUBLICATION

BANDIT
(Rubber-powered Speed Job)



Full size plans for
THE HUSTLER
HOBO
CURTISS XF15C-1
and others

★ ★ ★

SPEED TIPS FOR BEGINNERS

Give

enough!
FOR ALL
RED FEATHER SERVICES



BANDIT

Featuring rubber or CO₂ power, this lively model is a cinch to build. Use those full-size plans!

by Don McGovern

● *Don't* build this ship for your next contest! But, if fast sport flying is what you're looking for, read on brother, read on!

A real contest rubber job is a well designed combination of bare essentials. Frills, appearance and even strength are usually sacrificed to save weight, in order to add more rubber.

The Bandit, on the other hand,

has all the strength you could ask for—all the frills you can think of, plus a couple extra. It's fast, extremely stable, and turns in performance similar to a sport gas job. Propelled by a well-balanced basswood prop, this ship is the outgrowth of about fifteen models, and is by far the best of the lot.

The first of the series was

known as the "Corpse" and was built eleven years ago. Powered by an 8" hardwood prop, and 1,400 turns in six strands of 1/8" flat rubber, it really made your hair stand on end—something like a break-away control-line job. According to the rule book, 1,400 turns is far too many. Don't worry . . . the rubber usually broke!

Later experiments with a version very close to this, but a trifle larger, featured 32 strands of 3/16" flat rubber in a 28" fuselage, with a 10" hardwood prop. The wing, to top matters off, was 20" Jasco glider stock. Wound till the winder broke, this winged lunatic catapulted straight up—and down—thereby terminating a short and useless career.

Actually we were in search of the happy medium between a slow-flying contest rubber model, with its big lazy balsa folding prop, and the super-speed type of rubber model of a decade ago.

At any rate, the "Bandit" is the result of a lot of experimentation, and as such we present it here for your enjoyment. As a sport model, we can assure you of many fine flights, whether hand-wound or by winder. Its construction is very easy, and the finished result will repay your careful work.

The stringers and hollow ribs add greatly to its neat appearance, and add only a few minutes to the total building time. Actually, this method of constructing the ribs makes the wing easy to build. (Turn to Page 62)



The wing is permanently attached to the fuselage and faired in. The cockpit is an inspection hatch for the rubber.



Don't let this scare you. Construction is extremely simple, with no difficult curves to contend with. Note rib construction.

BANDIT

(Continued from Page 14)

For those who wish, a 3/16" bore CO₂ engine (Buzz or Campus Bee) may be used for power. Installation sketches are shown on the plans.

Now that you're in such a lather about it, it's high time to either go to bed and sleep it off, or start chopping. If the latter's your choice, we suggest you first give the Bill of Materials at the end of the article a once-over, and pick up whatever material you will need. The plans are drawn full-size, so there is no need of any work on that score, with the exception of tracing reverse wing and stabilizer panels.

We might just as well start with the fuselage sides, shown in black in the side view to avoid confusion. The main longerons are of 1/8" square medium stock, and should be as uniform in weight and strength as possible. One 1/8" square vertical is used to back up the nose block, and a small piece of 1/8" sheet in the extreme rear. With these two exceptions, all other verticals and diagonals are of 1/16" by 1/8" stock.

To insure uniformity of the two fuselage sides, it is best to lay both out simultaneously, with straight pins holding the longerons in the proper position directly on the plan. Later, when removed from the plan, the sides can be separated by sliding a double-edged razor blade between them, cutting any cement film formed between them. A light application of sandpaper and elbow grease cleans the excess cement and waste off.

Now lay out the wing and tail assembly, while the fuselage sides are drying. The rudder is simple and requires little explanation. The base is formed from sheet wood, and is notched only for the leading and trailing edges of the stabilizer, and the spar. A 1/8" square balsa cap is placed across the top, with the leading and trailing edges butting against it. This adds greatly to the strength.

The wing and the stabilizer are constructed in much the same manner, with the exception of the ribs. The hollow rib method was chosen for this design as it is the easiest way to make tapering wing ribs, to say nothing of saving weight and providing a much better covering job (the paper doesn't touch the spar, and thereby cuts the skin friction).

To get down to business, pin the leading and trailing edges securely to a flat surface, and then lay 1/16" square strips for the bottom camber, as you would for any normal rib. Each will have to be cut to its individual length to fit snugly against the leading and trailing edges.

Once these are cemented in place, the spars are next on the list. In the case of the stabilizer, a single 1/16" square strip will suffice, while the two wing spars are formed of 1/16" by 3/16" balsa tapered to 1/8" at the tips. Cement these down as indicated, remembering that the spar is continuous.

Now we come to the top camber. Get

yourself a French curve of one type or another if available, to match the airfoil at the wing root shown on the side view. If you have no such instrument, a thin piece of plywood, celluloid, hard balsa, or anything else suitable for a template cut to that curve will do equally well. Place this template on a sheet of 1/16" balsa and, using it as a guide for the razor, slice off 1/16" square top rib cambers, with the curve just built to order.

These top camber strips are then cut to the desired lengths, proportionally from both ends, and cemented in position to the leading and trailing edges, as well as to the spars. When thoroughly dry, remove from the plan, clean up the extra cement, etc. Trim the loose ends and cap, as in the case of the rudder, with the 3/16" sheet wing tips and 1/8" square stabilizer tips.

The leading edges and tips may now be carved roughly to shape, and then sanded smooth. All cement specks or bulges on the airfoil should be carefully removed, in the interest of appearance and performance.

Note, in the top view of the fuselage, that the two wing sections do not butt together, but rather are joined to a 2" center-section. Cut a 2" section of leading edge, trailing edge and two spars, and bevel slightly to compensate for dihedral.

Coat the ends of these strips, as well as the mating sections of the wing leading edges, spars, etc., with a thin coat of cement, prior to permanently joining the sections. This prevents excessive absorption of the cement, which would weaken the joint.

Pin the center section units to a flat surface to prevent any shifting. Block up each wing panel to 1 1/4" dihedral as you cement them in place. 1/16" by 3/16" spar gussets reinforce the wing roots, as shown on the plans.

This concludes construction on the wing and tail assembly for the present. The rudder is not cemented to the stabilizer until the units are covered.

Getting back to the fuselage, carefully cut the main frame cross-pieces to size, two of each, and give all the ends a preliminary coat of cement as before. Starting at the very nose, cement them in place, aligning very carefully.

After the front cross-pieces are inserted, bevel the extreme rear of the fuselage sides a slight bit, in the interest of a better, neater joint, and cement in place. As this joint dries, carefully eye along the fuselage main frame, and check the alignment. Often one side tends to curve to the left or right more than the other. By pulling a tiny bit on the fuselage ends, this can be adjusted. We suggest that you use the top fuselage plan view to check this alignment.

The next step is the landing gear. Bend the two front and rear struts from .045" piano wire; likewise the tail skid. The tail skid is merely bent around into a simulated "U" shape, and cemented to a 1/8" sheet floor.

The main gear struts are cemented and bound with thread to a 1/8" square strip, notched to receive the wire. Next

this is cemented between the fuselage longerons, and reinforced with a 1/8" sheet between, as indicated in the top view. The two wires should now be bound to each other at the axles for a quarter of an inch, with a thin strand of electrical hookup wire. This is then soldered, to hold it permanently in place. Note that a 3/8" length of the rear strut protrudes to the rear in the side view. This forms a support for the wheel part, preventing any loosening on that score.

The wheel pants, while we're on the subject, are formed of three separate pieces. A sheet of 3/8" soft balsa is cut to the dotted outline as shown, to receive the wheel. Then, two pieces of 1/8" sheet balsa are cemented to each side. Give the pants sufficient drying time before carving and sanding to shape. A pinhole through the balsa serves as a guide for the wire, and the pants are completed.

Install a washer or two on each side of the wheel as you attach the pants. Cement securely, and, if you so desire, permanently affix a soldered washer on the outer side of the wheel pant.

The wing assembly should next be cemented to the longerons and carefully aligned.

1/16" sheet fill-in should be added at the rubber post position before the stringers are attached. Nose planking is done after the stringers are added. See the cross-sections for the fuselage top formers and stringer locations, in the cases where they are not shown on the plans for the sake of clarity. Note that the stringers, most of which are 1/16" square balsa, are not notched into the formers (except at the cockpit), as this would mar the lines of the covering. The only stringers which are not 1/16" square are the two 1/16" by 1/8" strips which support the pilot headrest.

Once the stringers are all in place, add the 1/16" sheet cockpit, the nose planking, and a second thickness between the stringers at the rubber post. For the wing fairing, use soft 1/16" sheet balsa, moistened and wrapped around a 1/4" dowel.

This can then be trimmed and fitted easily to the plane, forming a neat fairing. Carve it away in the rear, add a couple of scraps as necessary in the front, and you are all set. A neat covering job, extra strength and no bulges is the reward. Cut away the stringers directly below the rubber post, to provide access to that compartment.

Next comes the business end of the crate. If you so desire, a CO₂ engine of 3/16" bore can be installed as shown on the plans. Locate the capsule as far to the rear as possible, and trim for balance, if necessary, with clay.

If you're a rubber fan, a machine-cut balsa prop will do fine on this ship, as top-notch endurance is not the keynote. If available, a hardwood prop can also be used. Take your choice. We do advocate, however, a strong prop shaft and ball-bearing prop washer. 1° right thrust and 1 1/2° down-thrust were built into the original model, which proved to be perfect. A couple of large-faced

bushings aid in holding the adjustment, and greatly eliminate headaches on the field. An inconsistent thrust adjustment is really a flight wrecker. You never know where you are.

Be careful, in bending your prop shaft, to prevent wobble in the rubber hook, as this will produce vibration. As this is a high-powered job, such troubles are bad medicine. Don't forget to make some provision for a winder hook.

Before the shaft is installed in the nose block, trim and sand the block to exact size. This may be accomplished by tacking it lightly to the nose with a couple of drops of cement. 1/8" balsa strips may be cemented to the face of the nose block later to act as "keys."

That just about winds up construction. All that remains is the covering operation, quite familiar to you by now. We suggest wet silkspan as your material, although this is optional, of course. Two coats of dope on the wing and stabilizer, and three on the fuselage should suffice.

The original color scheme was orange wing and stabilizer, white fuselage, and orange and black trim. License numbers were gold and black; wheel pants and prop were also orange.

As for performance, the model flew fine on four strands of 3/16" flat rubber. Six strands were later added, with sharply increased performance. Use more power as you see fit, according to the type of flying you desire.

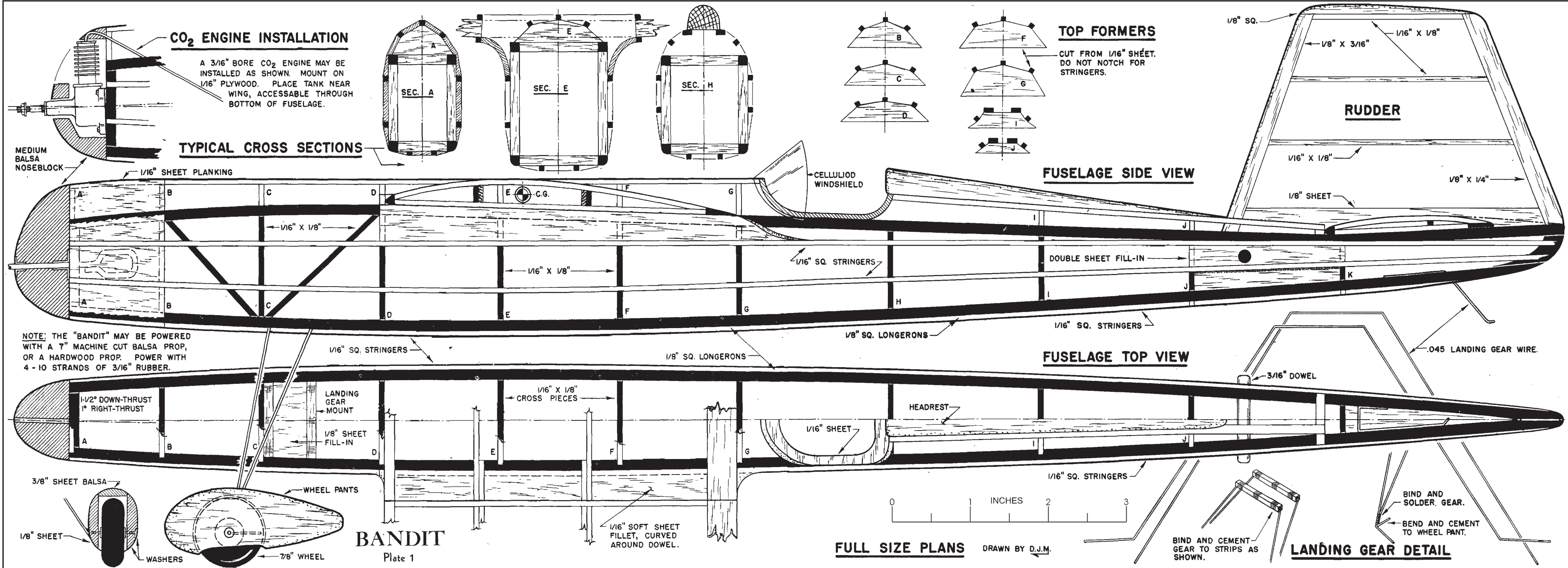
The original Bandit flew perfectly from the very start, without so much as rudder adjustment. Climb was in a gentle right circle, with glide just about the same. No incidence change was required, but we suggest holding the tail assembly in place temporarily with a rubber band, until your exact incidence setting is determined. Then if you choose, you can cement it in place.

BILL OF MATERIALS

(Balsa unless otherwise specified)

5—1/8" x 1/8" x 36" (medium)	.....Longerons, leading edge, etc.
2—1/16" x 1/8" x 36" (medium)	.....Stringers, cross-pieces
12—1/16" x 1/16" x 36" (medium)	.....Stringers, ribs
1—1/8" x 3/8" x 36" (medium)	.....Trailing edge of wing
2—1/16" x 3/16" x 36" (hard)	.....Wing spars
1—1/8" x 3/16" x 18" (medium)	.....Leading edge of rudder
1—1/8" x 1/4" x 18" (medium)	.....Trailing edge of stabilizer, rudder
1—3/16" x 1/2" x 12" (soft)	.....Wing tip caps
1—1/16" x 2" x 36" (medium soft)	.....Wing ribs, fillets, sheet fill-in, formers
1—3/8" x 2" x 6" (medium)	.....Wheel pants, headrest
1—1/8" x 2" x 18" (medium)	.....Wheel pants, sheet fill-in
1—3/4" x 1" x 2" (medium)	.....Nose block

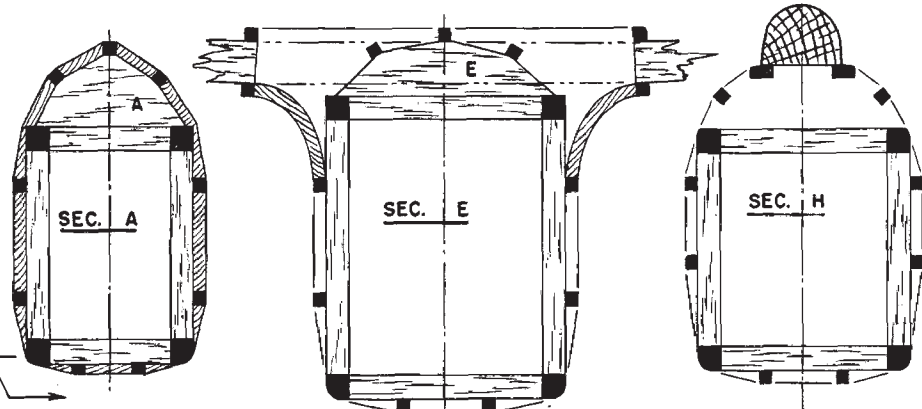
1 length .045" piano wire for gear; short length 1/16" piano wire for prop shaft; 3/16" dowel rubber hook; machine-cut 7" balsa or hardwood prop; celluloid for windshield; silkspan or tissue; cement; clear dope, colored dope; thread, pins, washers; license numerals; Buzz or Campus Bee CO₂ engine, or 3/16" flat rubber and rubber lubricant.



CO₂ ENGINE INSTALLATION

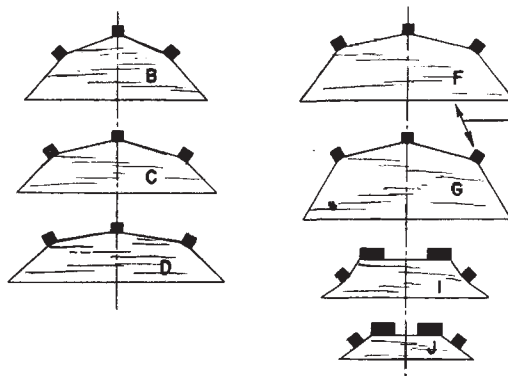
A 3/16" BORE CO₂ ENGINE MAY BE INSTALLED AS SHOWN. MOUNT ON 1/16" PLYWOOD. PLACE TANK NEAR WING, ACCESSABLE THROUGH BOTTOM OF FUSELAGE.

TYPICAL CROSS SECTIONS

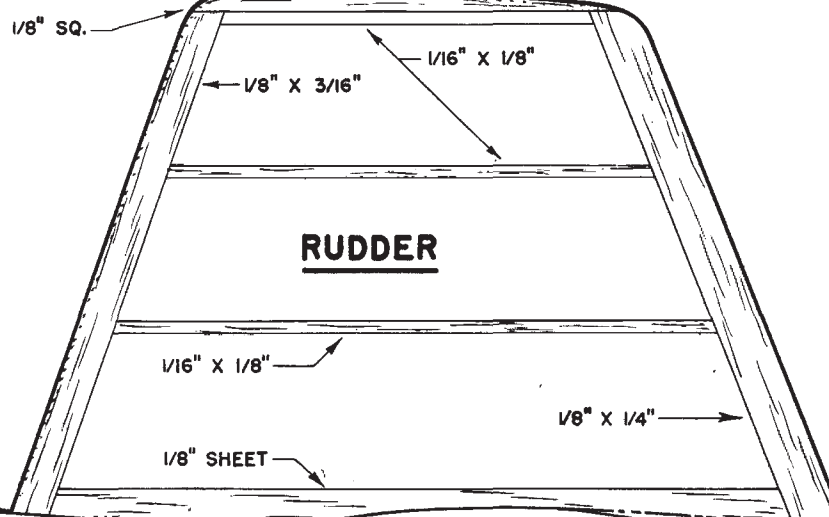


TOP FORMERS

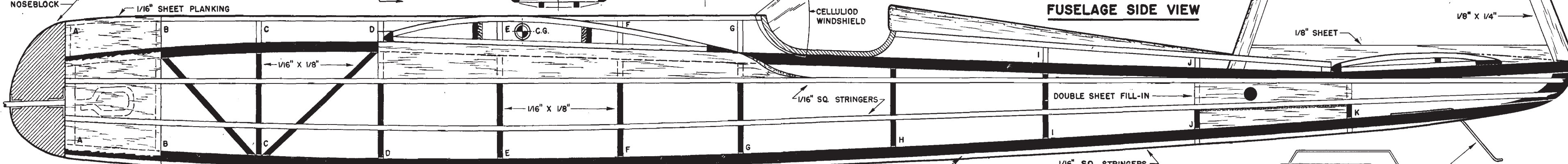
CUT FROM 1/16" SHEET. DO NOT NOTCH FOR STRINGERS.



RUDDER

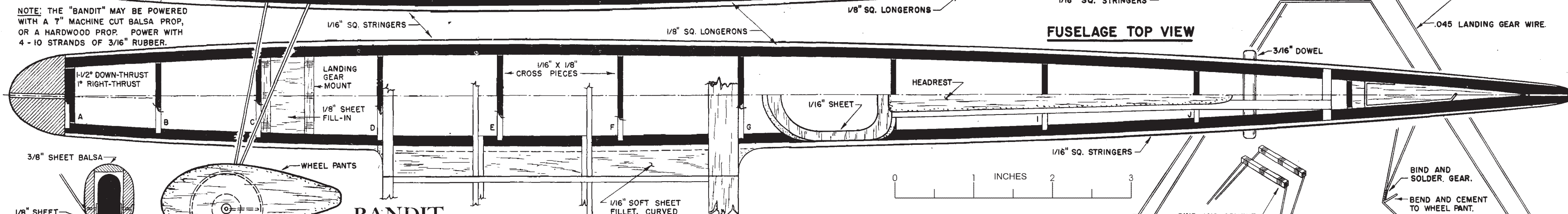


FUSELAGE SIDE VIEW



NOTE: THE "BANDIT" MAY BE POWERED WITH A 7" MACHINE CUT Balsa PROP, OR A HARDWOOD PROP. POWER WITH 4-10 STRANDS OF 3/16" RUBBER.

FUSELAGE TOP VIEW



3/8" SHEET Balsa

WHEEL PANTS

BANDIT

Plate 1

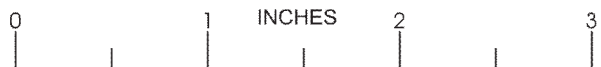
WASHERS

7/8" WHEEL

1/16" SOFT SHEET FILLET, CURVED AROUND DOWEL.

FULL SIZE PLANS

DRAWN BY D.J.M.

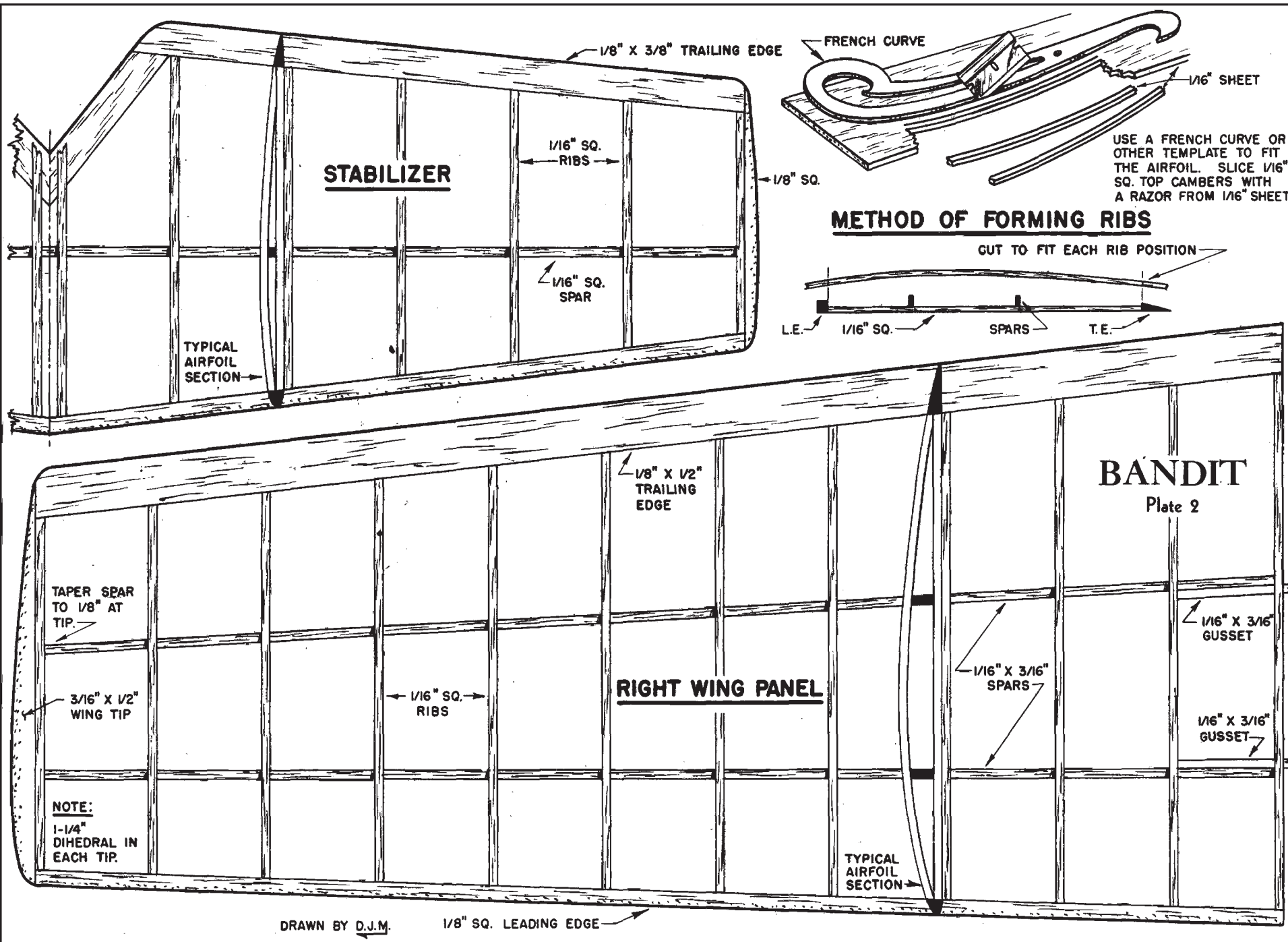


BIND AND CEMENT GEAR TO STRIPS AS SHOWN.

LANDING GEAR DETAIL

BIND AND SOLDER GEAR.

BEND AND CEMENT TO WHEEL PANT.



STABILIZER

1/8" x 3/8" TRAILING EDGE

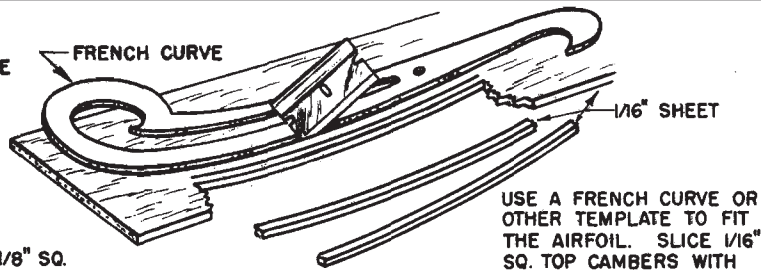
1/16" SQ. RIBS

1/8" SQ.

1/16" SQ. SPAR

TYPICAL AIRFOIL SECTION

METHOD OF FORMING RIBS



USE A FRENCH CURVE OR OTHER TEMPLATE TO FIT THE AIRFOIL. SLICE 1/16" SQ. TOP CAMBERS WITH A RAZOR FROM 1/16" SHEET.

CUT TO FIT EACH RIB POSITION



BANDIT

Plate 2

RIGHT WING PANEL

1/8" x 1/2" TRAILING EDGE

1/16" SQ. RIBS

1/16" x 3/16" SPARS

1/16" x 3/16" GUSSET

1/16" x 3/16" GUSSET

TAPER SPAR TO 1/8" AT TIP.

3/16" x 1/2" WING TIP

NOTE:
1-1/4" DIHEDRAL IN EACH TIP.

TYPICAL AIRFOIL SECTION

DRAWN BY D.J.M.

1/8" SQ. LEADING EDGE

