# *Try This*

# Porterfield-Turner

**One of the newest arrivals on the American light plane tarmac, the Porterfield-Turner 50 is rapidly warming the hearts of many private flyers. Of course, all of you balsa butchers can't afford to shell out the $995 for this buggy—but you can build a top-notch miniature of the job from Claude D. McCullough's simple plans and instructions.**


## By C. McCullough

**Author of "Build Our Cub Coupe," etc.**

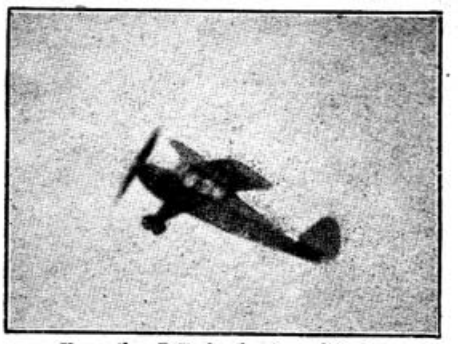

WHEN ROSCOE TURNER rocketed his stub-winged racer to victory at the National Air Races last year, he brought to a brilliant close a long and celebrated racing career. After years of herding screaming bundles of horsepower around the pylons and making record-smashing hops, the famous Flying Colonel has now turned to bringing aviation safely and economically within the reach of John Q. Public through the medium of the lightplane.

For Roscoe now is vice-president at the Porterfield-Turner Aircraft Co., whose famous president, E. E. Porterfield, has built more than 1,000 airplanes. The Kansas City company currently produces a number of excellent airplanes from $995 up.

The Porterfield-Turner 50 is a two-place monoplane using the Continental 50 h.p. engine, completely covered with a new type cowling which provides forced draft cooling and an effectively streamlined nose section. Boasting striking lines externally, the interior provides effective comfort in a roomy upholstered cabin.

The "50's" top velocity is well over 100 m.p.h. And at the cruising speed of 92, the ship turns in 27 miles per gallon of gas. Yes, this lightplane combines the factors of safety, performance, economy, and comfort.

As a model, the Porterfield-Turner has much to offer to the builder, both beginner and expert. Although the original ship was built as a sport and display craft, it has already won a flying scale contest and consistently turns in flights of over 1 minute. The construction is very simple, and although strong and rigid, the plane weighs only 1.3 oz. without colored dope.



*Here the P-T heads for altitude.*

A successful flying scale model must combine good looks with good flying qualities, and these can only be obtained through patience and careful workmanship. Spending a few cents more and getting Grade "A" balsa and good quality materials will produce a much better plane. A glance at the Bill of Materials will indicate how cheaply the "50" may be built.

But we have a job to do—so let's retire to the workshop. Study the plans carefully before beginning and make sure you understand all of the constructional details. Collect together all your tools now. Ready? Then let's begin with the—

### Fuselage Construction

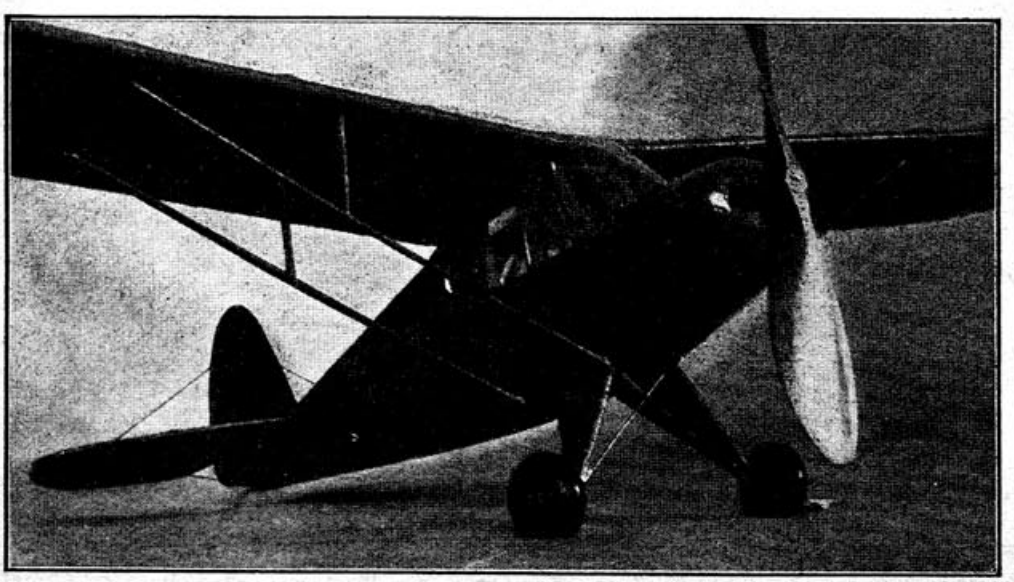
CONNECT at "B-B" the plates showing the side view of the fuselage. Using the black shaded portions as a guide, construct the two sides of the main framework, one on top of the other. Pins will hold the curve of the outside 1/8" sq. longerons until the 1/16" by 1/8" cross-pieces have dried. Remove the two sides and separate them carefully with a razor blade.

With the top view to indicate the width, cut the various spacers. Using books or other heavy objects to hold them in position, cement in the spacers, forming the rectangular portion of the fuselage.

Add the formers 1, 2, 4, and 5, which are cut from 1/16" flat balsa and notched for the 1/16" sq. longerons. The side longerons, which run the full length of the fuselage, are of 1/16" by 1/8" balsa. In the rear of the fuselage place a hook formed from .040 wire, as indicated on the plans. A small piece of spaghetti rubber tubing will keep the wire from cutting the elastic motor.

A soft balsa block, 1½" by 2½" by 2⅜", is cut to the shape of the cowl patterns on the front, side, and top views.

The flying landing gear is slightly longer than scale. The front view shows the actual length of the struts. A pair of 1⅛" balsa or pneumatic balloon wheels completes the landing gear.



*This fine close-up nose shot clearly shows many details you'll want to incorporate into your craft. In his graphic instructions, Claude says to stripe the fuselage with India ink. And when you get to that point, flip back to this pic for reference.*

*Looking strikingly like the real ship, our replica here seems to be waiting in the hangar for her owner to show up. Beautiful job, don't you think?*

### Empennage and Wing

ALTHOUGH the tail surfaces are of conventional construction, care should be taken in assembly or they will warp. They are built from 1/16" flat and 1/16" sq. balsa. Movable controls may be added if desired, using soft wire as hinges.

After assembling the tail and stabilizer directly on the plan, remove and cement on the underside. Both the stabilizer and rudder should be covered before assembly. Cement the two pieces to the fuselage and brace with thread. Note that the stabilizer has positive incidence.

The wing is built in one piece. Only one half of the panel is shown, so it will be necessary to make a layout of the right wing plan with carbon paper.

Pin the bottom spar of 1/8" sq. directly to the plan. Then cement over the spar in the indicated positions the ribs which have been cut from 1/16" sq. balsa. Add the top spar. Lay down the leading and trailing edges and cement securely.

The wing tips are cut from 1/16" flat balsa. Crack the spars and raise each tip 1" and brace the breaks with small balsa triangles and plenty of cement.

The struts are not added until the wing has been covered and assembled to the fuselage. Finish the wing by sanding the leading and trailing edges.

### Covering and Flying

THE ORIGINAL model was colored a brilliant red with black trim. While this makes a good combination, any similar colors are satisfactory. Use colored tissue for lightness and longer flights. And for beauty and appearance, use colored dope.

Before covering, finish off all parts with fine sandpaper. Make a mixture of 1 part dope to 1 part cement to attach the covering.

Cover the fuselage, one side at a time, with the paper grain running lengthwise. Trim the edges carefully with a razor blade. The grain of the tissue should run spanwise on the wing, up and down on the rudder, and lengthwise on the stabilizer.

Spray the covered parts with a fine mist of water and leave to dry. Weight the edges of the wing and tail pieces to prevent warping. When dry, brush two coats of clear dope on the model. Add slightly thinned color dope if desired. With a pen and black ink, rule the arrow stripe down the side. Add the control markings, door, and other details.

## BILL OF MATERIALS

**(All wood is medium balsa unless specified)**

Five strips 1/8" sq. by 36" for leading edge, spars, main longerons, and struts;
Three strips 1/16" by 1/8" by 36" for side longerons and vertical cross-pieces;
Two strips 1/16" sq. by 36" for stringers and tail;
One strip 1/16" by 1/4" by 36" for wing trailing edge;
One sheet 1/16" by 2" by 5" for ribs, formers, tail outlines, and wing tips;
One sheet 1/8" by 2" by 5" for landing struts;
One block 1½" by 2½" by 2⅜" soft balsa for cowling;
One block 1" by 1¼" by 8" soft pine for prop;
One pair 1⅛" balsa or balloon wheels, three yards 1/8" flat rubber, eighteen inches .040 music wire, colored tissue, cement, dope, celluloid, brass sheet, rubber spaghetti, etc.

### Flying the Model

CARVE THE PROP from a soft *pine* block, 1" by 1¼" by 8". This heavy propeller serves to compensate for the long moment arm in comparison to the distance from the center of gravity to the nose. A free-wheeling mechanism is constructed from brass sheet as shown on the plan. A .040 wire shaft completes the prop.

With a long wire hook, string 8 strands of 1/8" rubber with about 2" of slack through the fuselage and attach to the rear hook. The motor should be well lubricated with liquid soap or shaving cream. The motor, which will take about 600 turns, should be wound with a winder.

Before attempting power flights, glide the plane over some high grass to prevent damage. If the ship dives, warp the elevators up; if it stalls, warp them down. The rudder is regulated to prevent steep circling characteristics.

When the model's glide is satisfactory, put about 100 turns on the motor and launch forward with a firm

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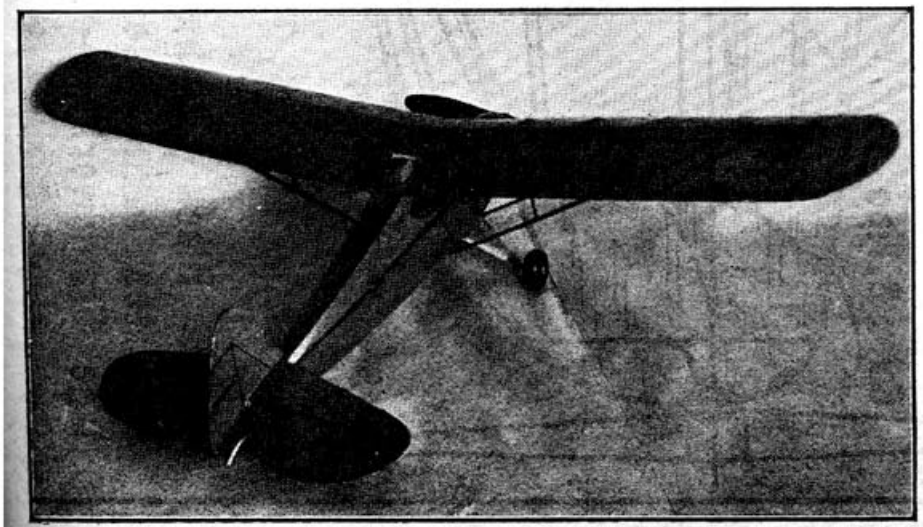

*And now we have a top-ish shot of the P-T. In this view you see the observation port in the wing's center section directly above the cabin. That window, you know, makes it possible for the pilot to look back and see if all's clear.*

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push. If the craft stalls under power, but yet glides perfectly, it will be necessary to add down thrust by putting a plug under the prop button.

Nice looking ship, eh? And say! I'll bet if Clint Randall got a good clear photo of it, he just couldn't resist awarding you an F.A. Distinguished Service Medal in his monthly contest. Take your shots up as close as possible to get all the details. Of course, be sure to use a portrait attachment if your camera doesn't have a focusing adjustment. Stop the lens opening down as far as possible—that is, to the highest number in the "F" scale on your camera. Remember, [illegible] make a longer exposure than usual to compensate for the smaller lens opening, and take shots from several angles.

Pose your plane against a background that is plain and of a color that will provide suitable contrast. If your craft is red, the ideal background is light tan wrapping paper, which may be obtained from any grocery store. A yellow or white job should have a black background, and other colors in similar [illegible] contrast.

And now—flip o[illegible] News page and [illegible] dull hop to