Not sure whether this photo is just another Statute of Liberty pose to show off the plane's good lines or to demonstrate a hand launch!
Photos by Harold Payne

FUDPUCKER FANTOM

BY DICK WICKHAM . . . the saga of one man's advent into the realm of model aircraft, or how one man managed to design, develop and bring forth a biplane of character, ability and manageability for the avid—and even not so avid—bipe fan. A bipe that can hold its own!

• I got into building from scratch—and somewhat out of my field (sales engineer)—in order to obtain a plane that I couldn't find in kit form. I have a deep-seated conviction that a model does not have to be ugly to fly well. Nor does it have to be a super-excellent flyer to have appeal.

Being a biplane nut the criteria were a bipe, small engine size and stock material. "El-Proto-Typo," the original, is the Experimental Aircraft Association Model P. Changes were made to simplify construction and obtain stability. It is "stand-off," and from downtown you can't see the deviations.

The Fantom is named in honor of Dudley P. Fudpucker, president and general manager of the Fudpucker Aircraft Company. Dudley, as most of you know, designed the world-famous, double-inverted, gull-winged Fudpucker Flying Machine.

Dudley still resides in Wisconsin, but to avoid crowds and being beleaguered by his admirers he avoids publicity. (If Dudley's name had been Phudpucker, the spelling of "Fantom" could have been correct.)

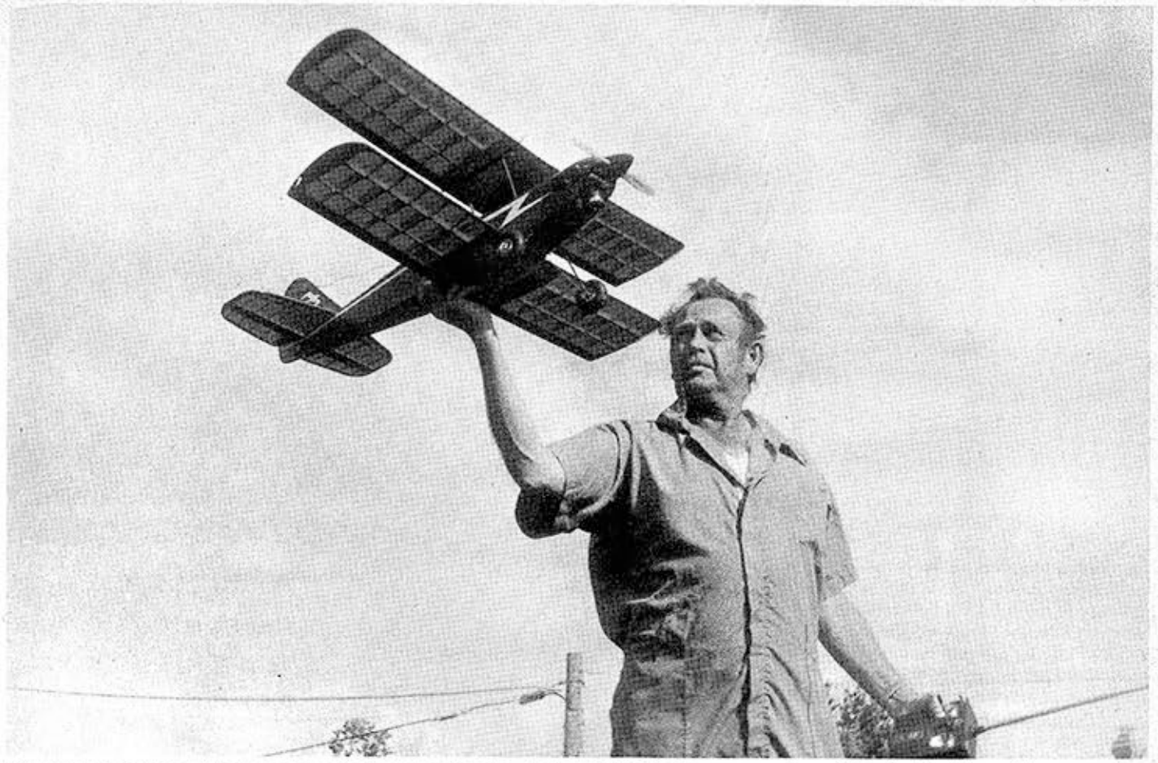
I have read about scratch-builts that flew off the drawing board. I must confess that the first Fudpucker Fantom didn't exactly do that. Fact is that it flew like a screaming banshee. The miscalculation was excessive wing loading due to an attempt to match the wing area and airfoil of the original. It would have been no problem for "hot" pilots, but scared me. It perished when I lost track of my altitude in a late evening sun. How many confessions have you seen that something besides glitch or zap caused a disaster? This was strictly pilot error; you can't see into the sun!

The accompanying material list is for people like myself who don't keep a basement full of balsa. I keep some assorted pieces but hardly enough to get started on a complete model. There is also an advantage in buying a quantity at one time, as the hobby shop proprietor is more tolerant when you sort through the box. And sort through the box you must, because you must choose correctly. In the words of Swift, the Des Moines Dean of Scratch, "If she aint light, she wont be quite right."

The material list is also a guide in construction, but obviously does not list glue, covering, bolts, horns, linkage, etc. I attempted to list the material usually found in a kit. Use small horns and hinges. I used an OS-20 engine and found that Fudpucker flew very well with the throttle 60% open. If you intend to use a two-channel radio, use a size 15 engine.

The building description is brief because construction is not complicated. Anyone who has put a few kits together should have no problem. If you're the buy-and-fly type, have the kid down the street build it for you. If you like to build, you will enjoy putting this together. The building time is not much longer than many kits. There is a lot of personal satisfaction in cutting every part and having something that is not just another kit.

The parts that require a pattern were drawn on 8½" x 11" paper so that they could be reproduced on the "stick-on," brown-back, polyester sheets. These are manufactured by Stanpat Products, Inc. for



This time the author holds it to show functional good looks of the Fantom. Again, we are not sure if this is a hand-launch demonstration.

MATERIAL

FUSELAGE

(2) 3/32" x 3" x 36" C-grain matched sides
(1) ⅛" x 3" x 36" C-grain formers
(1) 1/16" x 3" x 36" A-grain top front and rear bottom sheeting
(1) ⅛" x ⅛" x 36" hard bottom corners
(1) ⅛" x ¼" x 36" stringer
(2) 3/32" x ¼" x 36" stringer
(2) ⅛" x ⅜" x 36" fuselage framers
(2) ⅛" x ¼" x 36" spruce side rails
(1) 3/16" x 12" long hardwood dowel
(1) ½" x 4" x 12" bottom front and cowling
(1) ⅛" x 3" x 12" plywood
(1) 1/16" x 36" piano wire
(2) 3/32" x 36" piano wire
(1) Pkg. copper binding wire

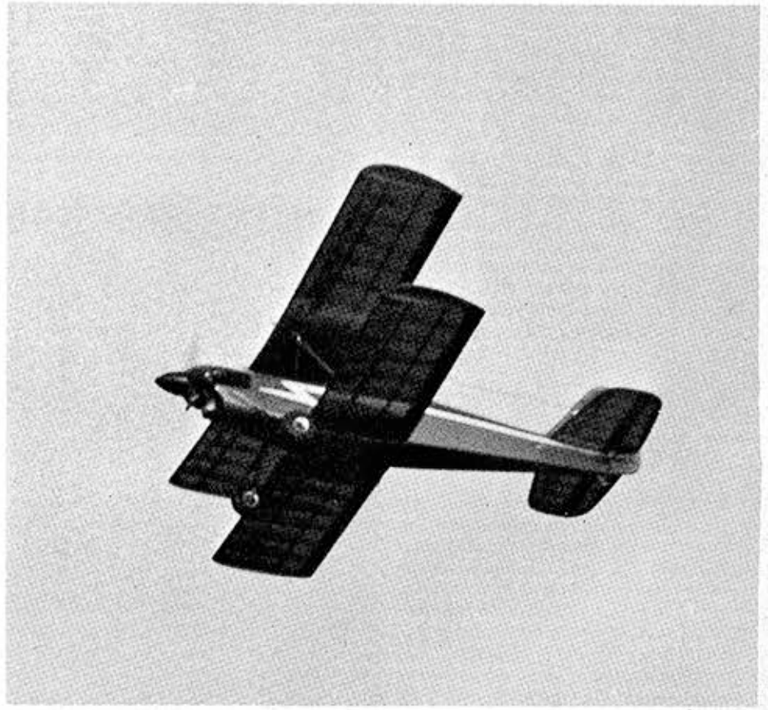
WINGS

(2) ¼" x ¼" x 36" hard leading edge
(4) 1/16" x 1" x 36" trailing edge sheeting
(2) ⅛" x ½" x 36" trailing edge strip
(2) ⅛" x ½" x 36" main spar
(2) ⅛" x ¼" x 36" rear spar
(2) 1/16" x 3" x 36" A-grain sheeting
(3) 3/32" x 3" x 36" W-1 ribs

W-2 ribs and outside ribs from 3/32" C-grain side material gussets and tips from ⅛" fuselage former material.

EMPENNAGE

(2) 3/32" x 3/16" x 36" ribs
(3) ⅜" x 3/16" x 36" frames
3/16" fillers built from 3/32" wing rib material doubled



And after the takeoff, hand launch or no, we have the Fantom doing its thing, flying well.

FUDPUCKER FANTOM CONTINUED

use in a Xerox 914. Sand the stock material, wipe with your Tac rag and stick on the pattern. Use your own method to get these parts cut, but if available, do it as I did, easy and accurate. The next choice would be simple reproductions to temporarily glue on with dope.

CONSTRUCTION

GENERAL. As always, think before you glue it in. If you don't have to be reminded of this, good. If you need to be reminded, you have been.

Construction is such that constant alignment can be maintained. Cut the parts cleanly and sand for conformity. Check alignment at every step.

Items you may need in addition to those used in building a kit are a large plastic triangle, a 12" plastic T-square, a small vise and a razor saw.

The wood selected was thick for this sized model: 3/32" ribs, 1/8" formers and 3/32" sides. This is more stable to work with and has more gluing area but must be light.

The tank used was a Sullivan 4 oz. round, but there is room for a Slant 6. Radio installation was not shown as it may vary. I used an M R C Mark V mounting chassis with rudder and elevator in line and throttle sideways. The receiver fits between F-2 and F-3 on top of a 500-mill pack. These were packed in foam and held in with a rubber band. I mounted the switch on the dash; it is tight but can be done.

Start by cutting the plywood parts from the patterns. Cut the fuselage sides and try not to cut the plans when doing this. Cut the formers and ribs. Gussets, fuselage doubler and fillers are cut as you need them. Follow the material list as you cut out the parts.

For ribs, cut two pieces of 1/4" o.d. tubing 2" long and sharpen one end. Holding pattern in place, push and twist tubing into balsa. This will hold pattern in place while you cut outside shape with razor blade or X-Acto knife; cut spar notches undersized. When all ribs are cut, plus two spares of each, put the tubing in a drill and cut out the 1/4" holes. String the ribs together over sanded down 1/4" dowels and sand to match. File out spar notches to match and receive spars.

WINGS. Complete the spars by gluing each half to the dihedral braces at proper dihedral. Note that material may not be 36" long so the top wing spars should be done first.

Construct the right-half top wing over the plans and use a 1/16" spacer to allow for sheeting. Pin spars and bottom trailing edge sheeting over plans. Check trailing strip because it may be too thick, especially at the rear. Sand to size as necessary. Install ribs, then trailing edge. Install trailing edge top sheeting, leading edge and gussets.

Pin over left half of plan, block right tip to maintain dihedral and repeat as above. With wing pinned in place, sheet over the W-

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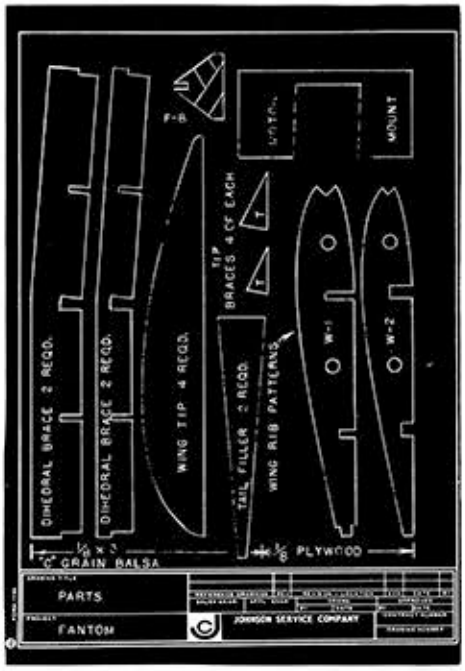
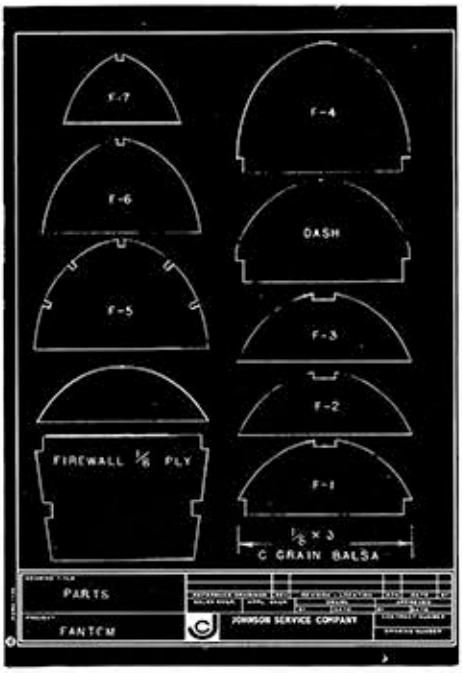
Still another flight shot showing the Fantom buzzing along in good style. It is very pretty.

The inside story shows us the amount of room that is available to stuff in all the electronics.

Taking it easy in the Iowa sod which could use a bit of mowing; note upper wing hold-down.





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2 ribs. The sheeting from the main spar to trailing edge is not cut in the center. Remove wing from plans, invert and block up center; fill rib gap with epoxy, sheet over W-2 ribs and again do not cut sheeting in center. Repeat for lower wing, install tips with tip braces holding "wash" angle as shown and shape leading edge.

EMPENNAGE. Frames are built over plans as

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shown. Build completely and cut hinges in place, but do not glue. Sand entire frame over a flat surface until all joints match. Outside edges are *slightly* rounded.

LANDING GEAR AND CABANE STRUTS. Bend as shown and bind with copper wire. Soldering will not be done until pieces are fit to fuselage. When pieces are correct, solder binding wire. A 1-½" x 12" landing gear blank is entirely satisfactory as a substitute for the wire landing gear. If you use a gear blank, "bed in" ⅛" ply to hold blind nuts and mount with 8-32 nylon bolts.

FUSELAGE. Build upside down over plans by building box from F-W through F-2, F-3 and F-5 frames with spruce stringers. The bottom spruce spar is pulled into F-W and glued after the other joints are dry.

Remove box from plans and sand sides flat. Pin box over plan, glue sides over box and frames, and pull into tail post. Install bottom corner stripes, the T-1 tail formers and ⅛" x ⅛" bottom pieces, the 3/32" doubler and ⅛" gussets. Note that the doubler is between the spruce spar, frame F-2 and F-5 only (as shown).

Cut wing groove in front block. Be sure to get a good fit because the wing is forced forward by the mounting bands to lock in position in this groove. Install front block; the outside will be shaped later.

Yes, you still have the frame pinned to the plan! Install 3/16" wing dowels; check lower wing for fit and incidence. Lower wing is at 0-0 incidence. All reference is to datum line. Remove fuselage from plans and cut off excess tail post.

Install top formers and center stringers. Note former F-8 is not rounded, and 5/16" and ⅛" strips are glued to front to receive top side stringers. The flat edge of F-8 is to match a 3/32" flat filler from F-8 over stabilizer to tail.

Line up the top stringers and notch formers F-6 and F-7 ¼" deep to receive stringers. Install dash, cockpit floor and cross braces at cabin strut location. Use fine wire to hold cabin struts in position. Line up struts to match, solder binding wire and epoxy in place.

Install stabilizer and fin, rudder and elevator, fuel tank and engine, radio servos and linkage. The fuel fill line is brought out of the engine compartment to be held on a sealed tube when flying.

Remove radio servos; install tail skid rear bottom, top sheeting and cheek cowls. Build cowl to fit around engine and fit to cheek cowls; shape to spinner. Remove engine; use ⅛" scrap to double fuselage sides in front of firewall. I have shown an upright mounting as optional. The cheek cowl serves as additional engine support as I have built it. If you choose to mount the engine upright, add pieces of ½" balsa below the spruce stringer.

The engine is mounted to the ⅛" mounting plate by blind nuts; washers are used to obtain down thrust. The ⅛" mounting plate is epoxied to spruce stringers and to firewall. Shape front bottom; coat engine compartment with glass or epoxy.

Cut slots for landing gear ¼" deep and bed in place with epoxy. Solder binding wire. If you want a windshield, provide for it at this time. (I forgot, so I don't have one.)

Complete final sanding and cover with your choice of material. I used Solarfilm. If you elect to use some other material, make sure that you do not add substantial weight.

The wing saddle and 3/32" strut wire were covered with split 5/32" o.d. black polyethylene. The cockpit edge was covered with split ¼" o.d. blue urethane tubing. These are not necessary but do improve the looks.

For the test flight I called on Bill Parker, one of the calm and relaxed people in our area. If that makes me chicken, well, chicken I must be. I haven't been at this very long and didn't want the heebie-jeebies taking over. The only adjustments made, after the first time up, were to limit the elevator movement to total 1-¼" and the rudder to total 1-¼", and to take the top wing incidence from 2° down to 1° via a balsa shim.

Up again in a few minutes, and I must have had the same feelings as Wilbur and Orville at Kitty Hawk. A few simple maneuvers to insure that nothing was squirrelly, and Bill pronounced the verdict, "Take the incidence out of the top wing and go fly it yourself." It can't be extolled as a trainer, but then how many so-called trainers really should be! It is as easy to fly as my 6-ft. Cub, but perhaps harder than the Squire.

For those of you who may have been wondering, as you read this, about the "Fudpucker Aircraft Company," I should explain that it is the brainchild of Bob Lindsey, manager of Johnson Control, Inc.'s Appleton, Wisconsin, office. For years Bob has been handing out calling cards for one Dudley P. Fudpucker, and annually he reports to the regional manager that the Fudpucker Division has sold no aircraft, incurred no expenses and has had no cash flow. [. . . just added a little bit of fun to this sometimes too serious world. Ed.]

POSTSCRIPT. I made so many trips to the drugstore for film, attempting to get some good photos, that the manager asked me if I were refilming WWII. When I sent the photos in, Walt said they were not good. I showed them to Harold Payne, a local architect, and he said they were terrible. Harold, an accomplished amateur photographer, offered to meet me at the flying field and must be given credit for the photography. ■