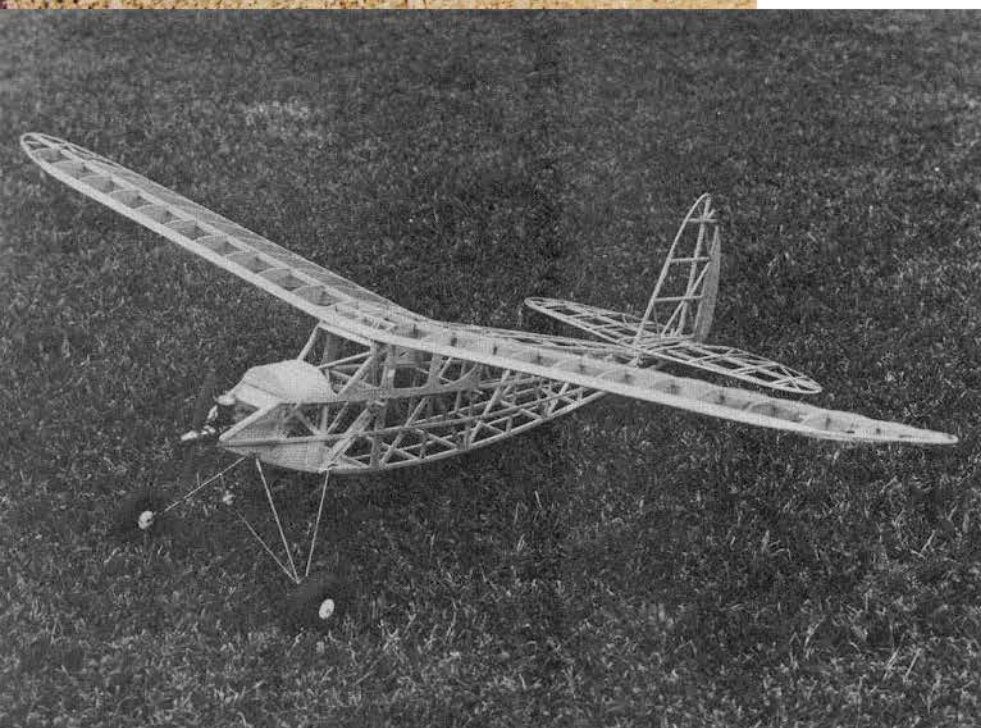




Son Of QUAKER



The peripatetic Basset strikes again - - - this time with a 38" span scale model of the famous old timer, the 1937 Quaker. For pulse rudder-only, you can set the trim and the Son Of Quaker will find its own thermals, soaring around as long as you want to keep it up there. If this ship strikes a nostalgic chord and you have an affinity for relaxed flying, break out the T.D. .020 and let's get started - - -

BY LOREN DIETRICH

"Ah, Wagger," sighed Walt as he lit his pipe and sat down on an old DeBolt Live Wire fuselage, "you missed the good old days of the big free flights!"

"Umpff," muttered the pensive Basset who usually had a flair for conversation, as well as for radio control. Today, however, he seemed lost in thought.

Walt gestured with impatience. "Really, Wagger, you don't remember the old realistic looking 7' monsters of the 1930's as they circled overhead like huge hawks, with the sun shining through the bamboo paper and showing off all that gorgeous lumber inside. Man . . . (pardon me, I meant **dog!**) that was really modeling!"

Wagger shifted his haunches, raised his soulful, if somewhat bloodshot, eyes to meet those of his master. "I suppose a 7', 1937 Flying Quaker with its shock-absorbing landing gear and red scalloped paint job really turned you on, boss?"

"You got it, bonedogger!" enthused Walt.

"I sure do," grinned Wagger. "A 38½" scale model, including all structure, powered by a TD .020 and steered by pulse rudder, with functional landing gear and yummy scallops! Now, here's how we'll build it . . ." Wagger murmured, putting on his half-glasses and unrolling the plans over Walt's latest Peanut Scale which was soon crushed flat.

Tail Surfaces:

First, (Wagger explained to Walt), you'll have to track down some 3/32" reed at a hobby shop or upholstery store that re-builds wicker furniture. Be sure to get some stiff reed, not the limp basket-weaving stuff. Reed is a dried swamp-plant stalk, and is an ancient way to make tips on model surfaces. It may be hard to find, so don't be discouraged easily. If you get desperate, you could split some bamboo and form it around a light bulb, another old-timer trick. (If worst comes to worst, you could make conventional "rubber model" tips of bent spruce strips, laminated balsa

strips, or flat stock; however, the scale romance would be lessened. It had **reed** tips, man!) Soak the reed in hot water until pliable, pin in place over the plans, and let dry. Glue in the spars, leading edge, and the top of the ribs. Let dry, turn over, shim up the outline, and quickly add the bottom of the ribs. Watch that symmetrical airfoil! After all has dried, sand the surfaces. Finally, glue the fin to the stabilizer.

Wing:

Build the wing in three pieces, consisting of the flat center section and the two panels. The only tricky part here is to soak, form, and dry the reed tips, then build the upcurving wingtips by careful fastening and forming. It's fussy, but it's the way it **was**. The little diagonal braces at the reed tips on both the tail and wing are also scale braces to keep the tips from deforming. The 3/16" square spars and ply dihedral braces may seem like overkill for a small model, but are of scale size. Note that the center section and butt ribs will have to have their spar slots widened slightly to accommodate the dihedral joiners. Measure that dihedral carefully when joining. Note that the center section is not sheathed, but, rather, has two extra 1/8" stringers to resist the tension of the hold-down rubber bands. Shape the leading edge and block sand all structure. Be careful of those ribs!

Fuselage:

Build two sides over the plans, noting that the uprights are 1/8" square aft of the wing trailing edge but are 1/8" x 3/16" forward. Remove from the plans, sand both sides smooth and add ply gussets at the landing gear slot. Cut the crossbraces, join the two sides over the plans at the cabin area. Join the tailposts, and insert the aft crossbraces. Squeeze the nose together, adding firewall F1 and the forward crossbraces. Add the cabin sheeting, cutting out the windows first. Add F2 and F3, then cover the nose with 1/32" sheet forward of the windshield. Sheet the bottom of the nose with 1/16". Add the stringers and small plates for the wing and stab dowels. Add the windshield top fairing and the two dowel "V" braces. Now note that some parts of the structure, such as the nose and the landing gear slot, are lower than the stringers and sheeting. Add some light "shim" strips to bring them up to the same level for smooth covering. Block sand all of the structure for a smooth transition, rounding the outside longeron corners slightly. Epoxy in a strong tailskid; it's also the rear rubber hook to hold the tail on!

Landing Gear:

This is one part of the Quaker that always turned me on. Shock absorbing, rugged, forward; what a prop-saver in the days of unguided landings! Start by drilling 1/16" holes through the bottom longerons in four places. Insert a piece of 1/16" music wire through the front

holes for the front strut, then bend to the shape shown on the plans. Bend the cabane pieces from 1/32" wire, then wrap and solder to the front strut. Bend the rear strut over the plan, solder that top bar to it, then insert the rear strut through the fuselage slot. Wrap and solder the rear strut to the front strut, making sure of your alignment. Slide a piece of 1/16" wire through the holes in the longerons below the rear strut; wrap

needle. After each flying session, deflate tires and peel them from the hubs. Put them back into their box and place in a cool, dry place until the next flying session. They should last forever instead of 30 days!

Radio:

The tail can now be temporarily installed with rubber bands. Lace the Adams pulse actuator to a piece of 1/16" ply and locate as shown. (I used a piece of ply about 3/4" wide and the same height as the fuselage. It fits into a fabricated slot in the bottom of the fuselage, then fastens to the top crossbrace with one screw. It's easily removed for service.) The 3/32" dowel torque rod has music wire bound and epoxied to its aft end. This passes through a plastic tube in the "tail cone", then bends up for rudder actuation. The front of the torque tube, again, has music wire which passes through a ply crossbrace "bearing", then bends 90° to be driven by the actuator crank. I didn't draw all this out because it's in your Ace R/C catalog which you got with your equipment, right?

Get it all working smoothly **now**. Wrap the receiver in foam, fasten it to the 1/32" ply tray which slides down between the fuselage sides in the cabin after you build some 1/8" square "tracks" for it. Make accommodation for your switch under the cabin on the right side. Also make provisions to run your antenna down through a plastic tube in the fuselage bottom, then along the bottom to the tail skid. It works fine on the bottom and looks better there on scale models.

Covering and Doping:

Pre-dope all structure that will touch the covering, and then sand lightly. Use heavy white silkspan for the fuselage, light silkspan for the wings and tail. Run the grain of the silkspan lengthwise on all parts. Cut a piece of silkspan slightly oversize, lay it on the surface of some water in a shallow pan, pull it out of the pan over one end and lay it on the newspaper. Lift, lay it on the surface of the part and pull out smoothly. Lift the edges, dope the outline of the structure, smooth down, and pull taut. Trim 1/16" oversize, re-wet the edges, dope and smooth around the edge of the part. Cover the other side quickly to minimize warpage. (Note: When covering fuselage, don't dope inside of the engine compartment. Instead, rub in a coat of slow-drying epoxy and allow to cure.) Now, clear dope all surfaces for air seal and fuel-proofing, but take it easy on the wings and tail. Don't go for a gloss finish; you'll have trouble with the warping of those reeds later. Sand lightly between coats. When everything is ready for the color trim, pick up some vinyl "Contact" shelf paper from the variety store and use this instead of masking tape. Taking your clues from the plans, lay out the scallops on the contact paper and cut out carefully with a sharp blade. Strip off

"SON OF QUAKER"

Designed By: Loren Dietrich

TYPE AIRCRAFT

Replica Old Timer

WINGSPAN

38 1/2 Inches

WING CHORD

5 3/8 Inches

TOTAL WING AREA

190 Square Inches

WING LOCATION

Cabin

AIRFOIL

Flat Bottom

WING PLANFORM

Elliptical Tips

DIHEDRAL, EACH TIP

2 1/2 Inches

O.A. FUSELAGE LENGTH

26 3/4 Inches

RADIO COMPARTMENT AREA

10 Square Inches

STABILIZER SPAN

14 Inches

STABILIZER CHORD (incl. elev.)

4 Inches (Mean)

STABILIZER AREA

64 Square Inches

STAB AIRFOIL SECTION

Symmetrical

STABILIZER LOCATION

Fuselage Top

VERTICAL FIN HEIGHT

5 7/8 Inches

VERTICAL FIN WIDTH (incl. rudder)

4 Inches (Mean)

REC. ENGINE SIZE

Tee Dee .020

FUEL TANK SIZE

Tank Mount

LANDING GEAR

Conventional

REC. NO. OF CHANNELS

One

CONTROL FUNCTIONS

Rudder, Pulse

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage	.....	Balsa
Wing	.....	Balsa
Empennage	.....	Balsa
Weight Ready-To-Fly	.....	9 1/2 Oz.
Wing Loading	.....	7.2 Oz./Sq. Ft.

rubber bands around this piece and the top bar of the rear strut. Also, wrap a rubber band around the center "vees" of the cabane struts. Check the shock absorbing action; ain't that **neat**? Now add the ply stiffeners to the rear strut to prevent bending during hard landings. Add the Trexler airwheels. Hint: Shoot a little silicone spray into and onto those tires, then inflate **only** with a tire pump and

the backing, then stick to the surface. Remember, you're masking off the white to paint the **red**; almost got it wrong, didn't you?

Now, paint thin, clear dope over the edge of the masking vinyl, then let dry to prevent "bleeding". Now brush on several coats of a bright red trim dope, peel off the masking, and **love** those scallops! Note that you can now put red dope over the epoxy in the engine compartment.

Now, when all trim is complete, brush one coat of clear Hobbyepoxy over the whole nose of the fuselage including the engine compartment. After this cures, fuel soaking should never be a problem and the ship should last forever.

Oh, yes; windows. Cut slightly over-size, hold in place lightly with pencil eraser, then "Zap" or "Hot Stuff" the edges. Pre-form the windshield first, then use a similar technique.

Flying

Remove all warps, determine that the rudder is moving the right direction, turn on the radio, and test glide for a smooth and straight descent. Shim, or offset, the tail for correction, **not** the wing. Put the prop on backwards and limit fuel for the first few flights. The climb should be essentially straight with no rudder application, and almost "stally". Then, with rudder application, it should lay over in a climbing turn and spiral up unassisted. After the power stops, the glide should be smooth, flat and straight. You'll probably notice it takes lots of rudder to change direction because of that huge fin. Landings will be bouncy, but you won't break props!

"Now, Walt," Wagger said with a ghastly grin that showed canine teeth, but which was intended to be an engaging grin, "go hunt thermals. The Quaker will hold circles and center the thermal all by itself or with minimum help from the pilot. Just soar away against the sun and get back by dark. I will expect my usual ration of 'Puppy Chow' with whipped cream, no later than six, as usual."

"Urk!" replied Walt. □

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