

Enlarged to 64 inches for 19 to 30 cu. in. displacements, and modified for the demands of modern flying, Doc's super-duper version of the smaller, somewhat sticky-built Panther by Peerless, is an attractive—perhaps a little corny—mixture of old Air Force pursuits, Jodel-like wing tips, Cessna gear, and a dashing pilot.

panther II

An exciting scaled-up version of Peerless' 1938 Panther for 25 power combines that "pursuit plane" look with gentle performance and a float-for-ever glide.

● **Dee B. Mathews**

HAVE you ever noticed most model airplane "freaks" tend to doodle drawings of fanciful aircraft whenever they are listening to boring lectures? They tend to drive their teachers insane by drawing instead of taking notes, marking the edges of church programs with far-out designs, and generally filling any blank piece of paper with whimsical dream designs. Back in 1938 Walter Schutz was also inclined towards doodling, the important difference being that he followed up by building a model of one of his dream designs. As kitted by Peerless of Cleveland, the Panther was so unlike the usual slab-sided high-winged designs of that era that it stood out like a man in a tuxedo at a nudist convention. That it flew as a free-flight is testimony to his excellent understanding of aerodynamics.

Combined with a heavy undercarriage and sub-rudder, the poly-dihedral wing places the center of lift close to the center of mass and provides surprisingly good stability—particularly for a model that looks so much like a "pursuit plane" of that era.

I've admired the Peerless Panther for years, but always bypassed it as too small at 46-in. span and 7-in. chord for my RC conversion tastes. I find models that small extremely difficult to keep

in sight, unless flown in tight spirals and close in. The undeniable eye appeal of the Panther finally induced me to enlarge the original to a more suitable size, simplify the construction, use a Clark Y section and modernize its appearance. The resultant model varies enough from the original to necessitate renaming it Panther II.

The stability has proven to be outstanding. Turns are as gentle or tight as one prefers, the touch-and-go ability is truly outstanding. It will spin, Chandelle, and loop with ease, yet is capable of riding a thermal. All in all, the Panther II is an excellent intermediate sport aircraft—

gentle enough for a novice pilot, but great fun for the more advanced.

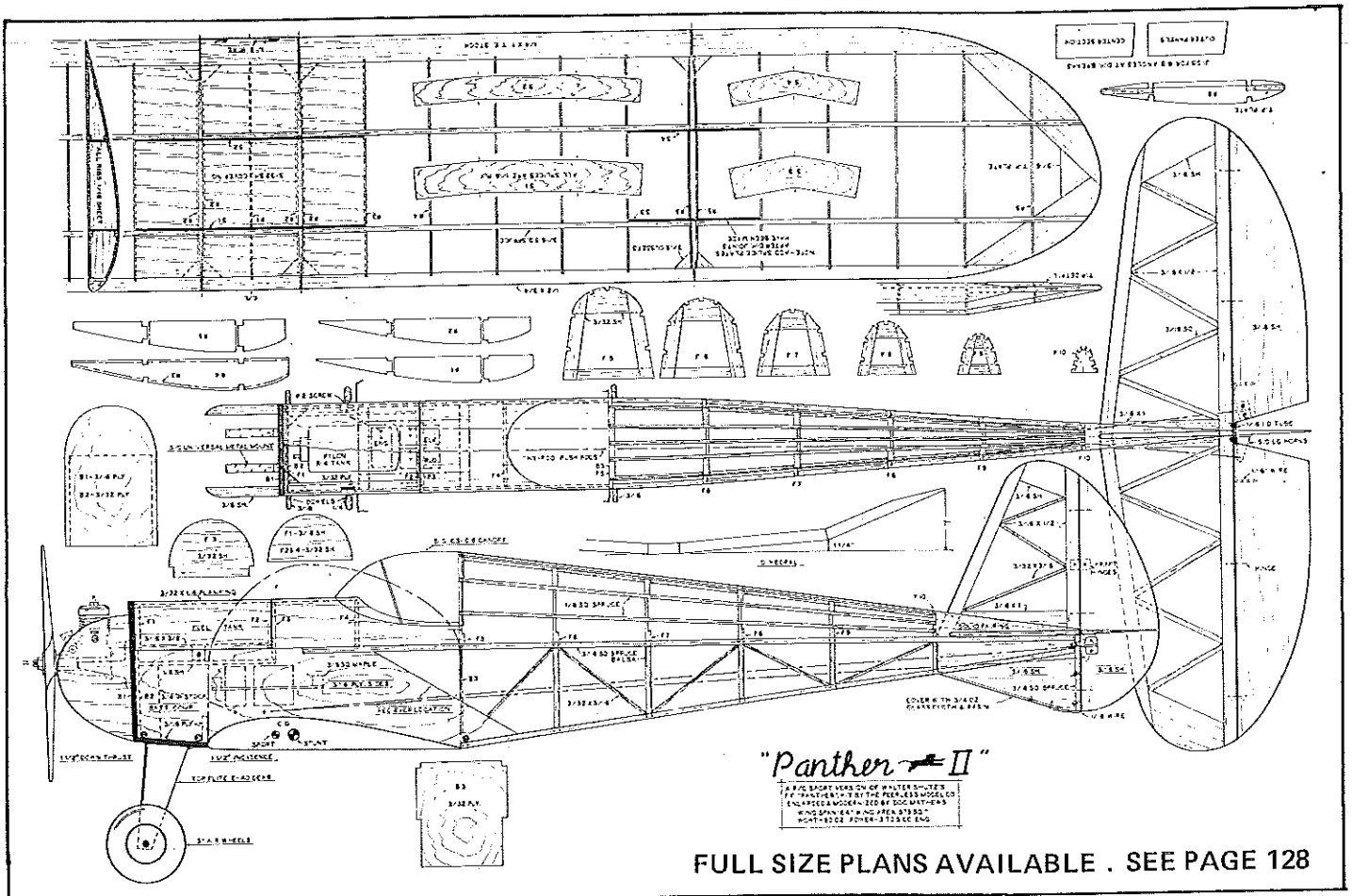
I would recommend the Panther II as a second step up the pilot skill ladder from a Kloud King or Ole Reliable. I'm confident someone is going to put ailerons on a Panther, as the thought has crossed my mind too. Could be very interesting.

If you're attracted to this out-of-the-rut sport model and its obvious classic lines, here's how to build one.

General: All wood sizes are carefully selected and should not be substituted. The plywood fuselage sides are 3/16 luan mahogany 3-ply unfinished paneling. These ply assemblies weigh about the same as 3/16 balsa plus 1/16 aircraft ply doublers and are much simpler to fabricate.

The term C.A. in this article refers to cyanoacrylate such as Hot Stuff, Jet-Set, etc. Glue is aliphatic resin, epoxy is 2 part to 1, and polyester resin refers to Quick Prep, finishing resin, etc. There is no five-minute epoxy or "model airplane cement" used in this construction.

All former and wing rib patterns can be developed using carbon paper under the plans or by photocopying (Xerox, etc.) then sticking the copy onto the wood with 3M Sprayment. Cut



tioned to suit engine, then glued. Mount engine to metal mount, position against A, mark and drill holes for 4 x 40 T-nuts, throttle pushrods, and the tank.

Cut tailpost from spruce and epoxy to fuselage rear. Add sub-rudder. This assembly carries all tail-end loads and is securely wrapped with glass tape and epoxy. Cut nose block to rough outline from 3/8 sheet or cross-grained lamination of 3/16 sheet. Epoxy to firewall then sand to contour. Coat tank compartment and nose with polyester resin or warmed epoxy.

Temporarily install Nyrods, radio, throttle link (I used .045 music wire running inside outer Nyrod), engine, tail, landing gear and wheels, dowels, and covered wings. Adjust servo location for slight nose-heavy attitude when fingers are placed at C.G. Add weight if necessary. Check all systems for function then remove

everything, cover, and finish fuselage.

Pre-Flight: Tank is held in hatch with wadded paper towels or foam. Balance at point shown; with a light ST 23 I used 2 oz. of Sig lead weight screwed and epoxied to firewall below engine. With an Enya 29 the C.G. required 1/2 oz. in the tail. The position of the motor on the mounts will affect this somewhat. *Do not attempt to fly a tail heavy model.*

Check radio operation with motor running. range check the system then prepare for hours of fun.

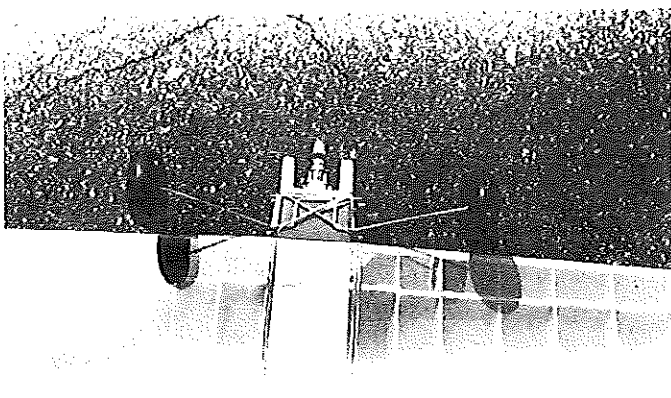
Takeoffs are done with throttle advanced and rudder correction. An exciting main gear roll can be done by applying slight down elevator as the throttle is advanced then neutralizing for takeoff. Landings are super simple. Just be aware that the glide needs to be set up "way out there." The

Panther II floats and floats; it just doesn't want to stop flying even on low throttle. As a matter of fact, it has to be pushed onto the ground with a little down elevator.

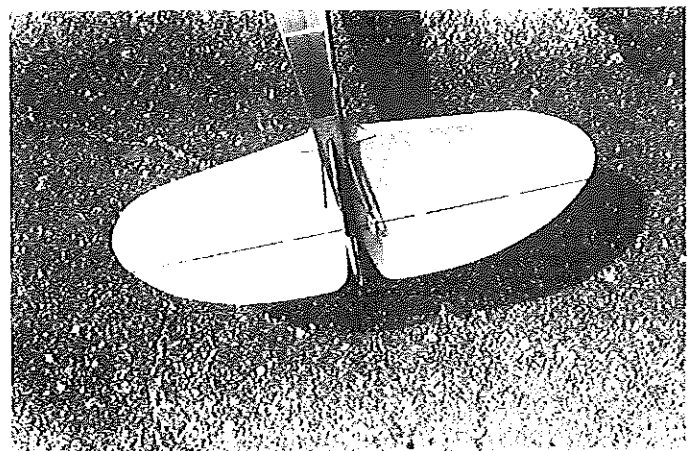
For fun, do an inside half loop. Throttle back at the top and apply full rudder. You'll see the prettiest slow motion Immelman ever. If you can get the Panther to stall and spin I'd like to know how. Mine just mushes around with the nose high refusing to turn. Power spins stop the instant the rudder and elevator are neutralized.

Touch-and-goes are much like the landing. You can get the Panther on its wheels only by using down elevator. Once on its wheels advance the throttle and neutralize the elevator and away you go.

The prototype has had nearly two gallons of fuel run through its ST 23 and patiently waits to be flown while I write this. You'll love your's too.



Delicate yet robust—a neat trick if you can manage it. Both wing and gear strap on with rubber which certainly minimizes annoying bends in the wire gear, or cracks or worse in the built-up fuselage and wing.



The pleasantly outlined horizontal tail is quick to build, light, and more than strong enough. Note ply seat at leading edge to steady the tail mounting. We note that Doc double pins all his hinges—smart boy!

out, then peel off paper. All parts are cut out, drilled and kitted prior to actual assembly. Firewall holes are developed by using the mounted engine as a guide. Do watch tank position.

Wing: Develop ply rib pattern with tracing paper and Sprayment. Stack cut ribs. Reduce three ribs for center section. Notch L.E. and T.E. for ribs, pin to plan. Block in tip wash-out with 3/16 scrap under T.E. at point shown.

Pin bottom spars over plan (pins straddle spar, do not penetrate). Lay tip sheets over bottom spars, glue to L.E. and T.E. Glue ribs into notches and over spars. Dihedral double ribs are set with a jig. Glue top spars, triangular corner gussets, fill tips in with 3/16 scrap under spars.

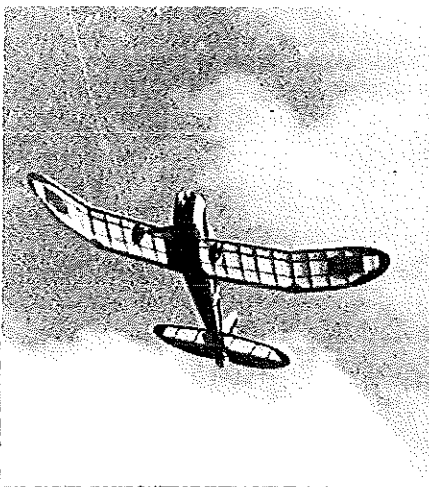
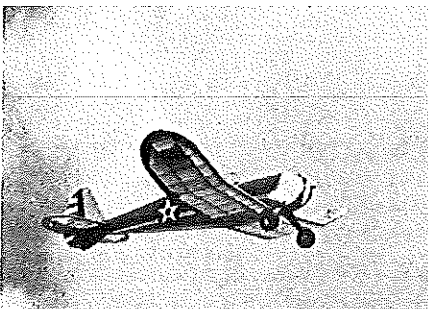
After glue cure, saw cut panels at joints and remove from plans. Cut tips to outside contour using cardboard pattern or carbon paper tracings. Sand in dihedral joints using the classic sanding block-table edge technique with panel blocked up to proper height. Use block from #7 to jig while epoxying joints. Allow for complete epoxy cure.

Cut ply gusset slots using two hacksaw blades taped together running along spar faces and L.E. Insert ply blank into slots, mask shape with pencil, cut out and epoxy into slots using cloth pins to hold. (See *Ole Reliable*, July 1978 *Model Aviation* for photos of this technique.)

Plank center section top and bottom. Epoxy anti-crush wire to T.E. Carve and sand L.E. and tips etc. to contour. Glue shear webs as drawn.

The wing is strong enough for heat-shrink covering. The bottom can be covered completely with two sections; the top requires a section on tips first, then center panel.

Tail Feathers: Assemble over plans, cut to outline using carbon paper under plans. Sand



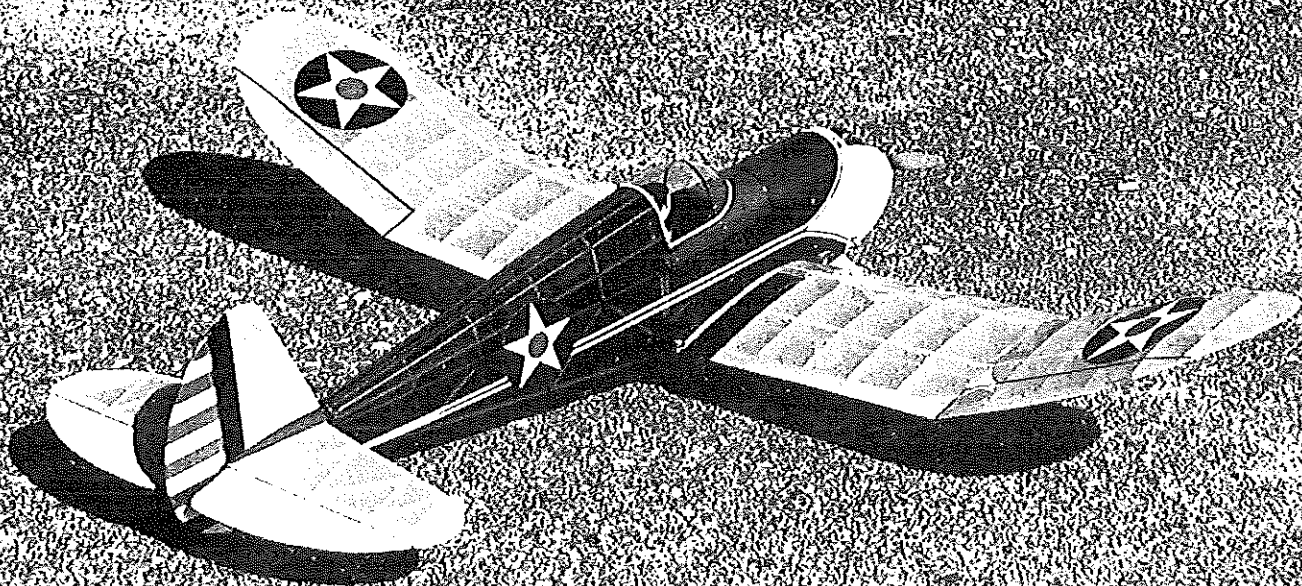
after hinging and adding strengthener to elevator. Mount the fuselage-seat with epoxy while checking alignment. Install horns before assembly.

Fuselage: Build two identical sides one over the other. Small pieces of masking tape are applied at the cement joint interfaces. Small brads will hold ply sides in position. Remove sides and pop apart with a table knife. Align the box inverted over the top view, using formers C and H in notches. Hold with masking tape, spring clothes pins, and clamps. Make certain of squareness with 90-degree triangles and a carpenter's square. Allow for eight hours or more of curing.

Pull tail posts together directly in line with top view drawing and C.A. Cut cross-frame members, C.A. to balsa and glue to spruce. Epoxy landing gear bearer and sub-fin filler, then remove frame from top view. Turtle deck formers are laid down directly over plan. Cut scraps of 3/32 sheet from wing rib cut-outs into strips, pin top and bottom over plan. C.A. sides strips into position, remove from plan and sand to shape. It is helpful to pre-shape the top section, but it can be done either way. This technique produces a lighter and stronger former than the traditional sheet cut-out type.

Epoxy A flush against C, glue B, D, E, etc. C.A. turtle-deck formers, cut notches for stringers using a straight-edge as a guide. Front cowl is formed with moist sheet, C.A. to hatch boxing strips and sides, pull over formers around to opposite side. Trim for fit then C.A. from under side.

Cut tank hatch free by razor sawing between formers. Add hold down hardware. I used plywood blocks and sheet metal screws. Consideration should be given to the new hatch hardware from Carl Goldberg. Tank floor is posi-



One view is prettier than the other—this rear quarter portrayal sends shivers through our thermal-seeking heart. The when-knighthood-was-in-flower color scheme calls for blue fuselage, yellow surfaces, white trim. The bare bones are sheer poetry when it flies across the sun.