

the trailing edge of the wing to the nose. Lay the two sides together and drill $\frac{1}{8}$ " dia. hole, for the stabilator pivot, through both pieces. This will assure accurate alignment. Cement $\frac{1}{8}$ " plywood pivot bearings in place, and finally sand all the outside edges round.

Trial fit booms to center-section side of R-4. When satisfied with the fit and alignment, cement main booms in place followed by the upper pieces. Now cement the R-3's against the booms. Building the booms into the wing in this manner will produce a much stronger structure than simply cementing them on the sheeting.

Cover the bottom of the center section with $\frac{1}{16}$ " medium sheet, leaving an opening for the center fuselage and the pushrod. Cut the stabilator from $\frac{1}{8}$ " hard sheet balsa and notch for the pivot dowels. Adhere $\frac{1}{8}$ " dowels in place in the notches. Strengthen this area by rubbing a couple of coats of cement over the dowels on the top and bottom, and

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COMBAT "P-38"

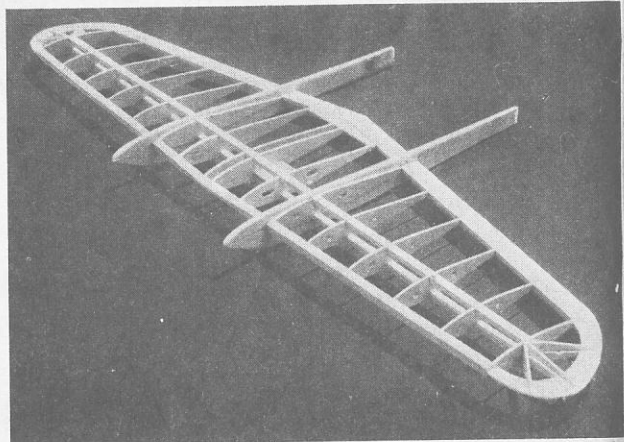
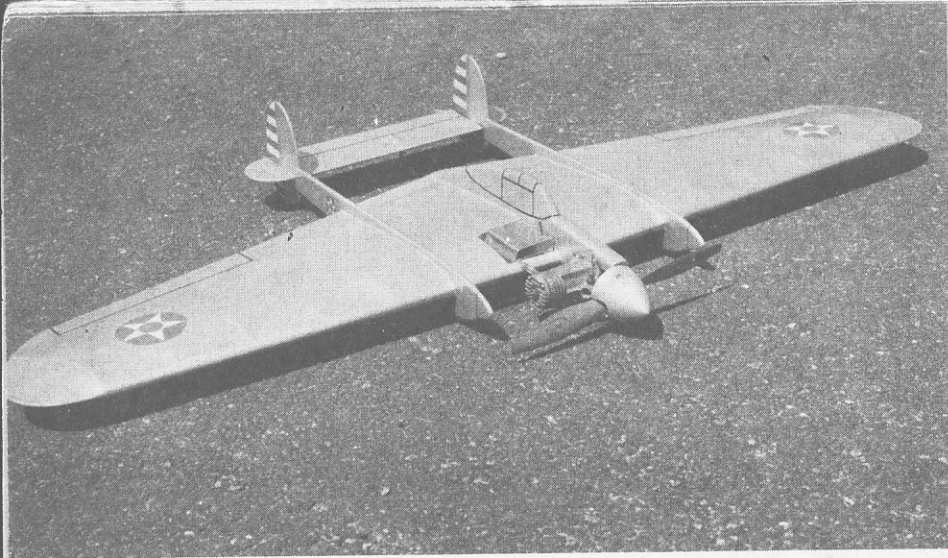
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CONSTRUCTION: The wing being the only major construction job, is built first. Cut out all the wing ribs from medium $\frac{3}{32}$ " sheet, except #1 ribs, which are $\frac{1}{8}$ " sheet. Drill holes for lead-out lines in one set of the ribs. The $\frac{1}{4}$ " x 1" trailing edges and the $\frac{5}{16}$ " x $\frac{5}{8}$ " leading edges are trimmed to length and carefully notched $\frac{3}{16}$ " deep where indicated on the plans. Join the trailing edges with a $\frac{1}{8}$ " plywood joiner, making sure they lie flat.

Cement both R-2 and R-8 ribs in place on the $\frac{1}{4}$ " x $\frac{3}{8}$ " top spar. Locate the R-2 rib with the bellcrank platform notch on the correct side. When dry, cement the trailing edge assembly to the four ribs, aligning it with the spar and pen until the cement sets. Cement the remaining ribs in place, omitting R-3 which is added after the booms are in place.

Use a $\frac{1}{2}$ " thick block between the two R-1's, as a spacer, to make sure the $\frac{1}{2}$ " center fuselage profile will fit properly. Add the remaining spar and leading edge again, maintaining alignment until dry. Cut the wing tips from medium $\frac{1}{8}$ " sheet and cement in position along with the $\frac{3}{32}$ " sheet tip braces.

Install the $\frac{1}{8}$ " plywood bellcrank platform and brace, cementing securely in place. Put the bellcrank pivot bolt and nut in platform and tighten. Next, cut booms out of hard $\frac{1}{4}$ " sheet, and note how each one separates from



Nick Zirolì's

COMBAT

"P-38"

Wild new look for Combat's Stunt—
Builds up fast, retains scale lines . . .

FULL SIZE "TIMELY PLANS" AVAILABLE AS ADVERTISED

► Combat flying is perhaps one of the most popular of all the control line events and most would agree that it is the most exciting. Yet year after year we see the same old familiar configurations of low aspect ratio wings, with a flipper hung off the end to provide up and down control.

To be sure the frequent use of the completely moving stab or stabilator as it is generally known, has lendèd considerably more stature to the de-

sign of combat models, yet noticeably absent in most designs is a certain amount of realism or association with full scale craft.

The combat design was conceived with a scale look with that thought in mind, while not sacrificing performance requirements for a top-notch combat machine. The proportions are far removed from a P-38, yet it achieves the look of the "Lightning" through the use of twin booms with

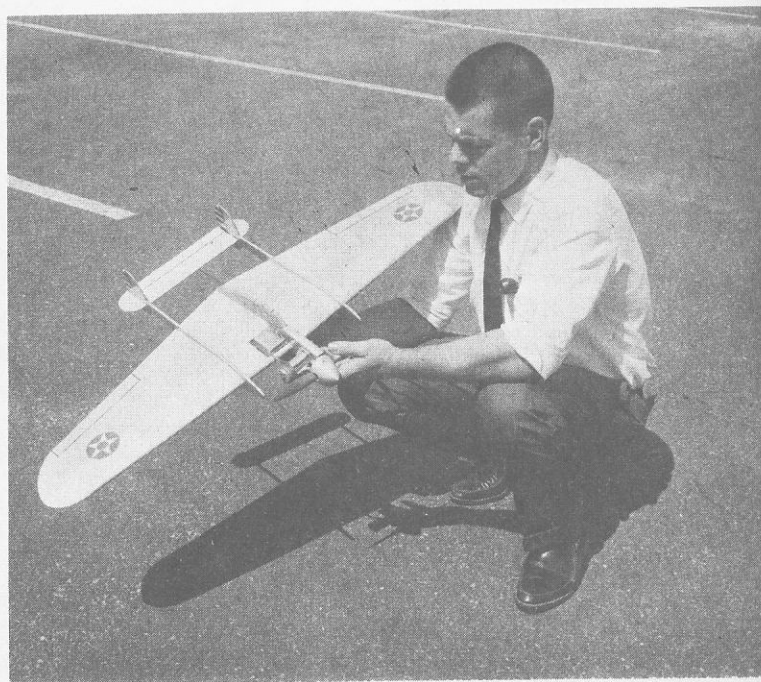
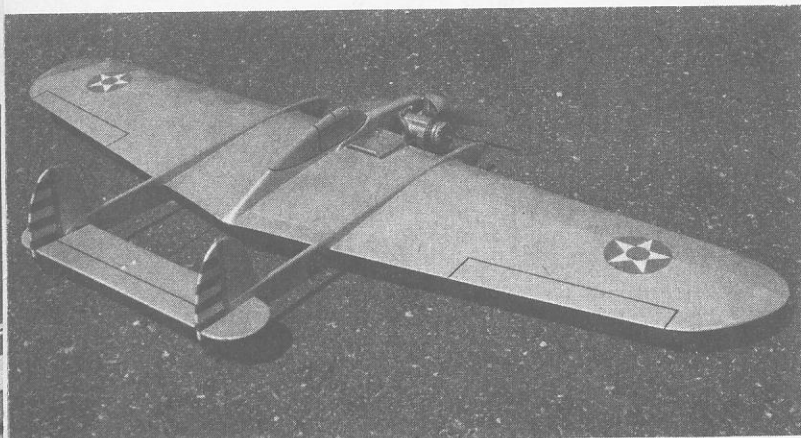
P-38 shaped rudders, the center nacelle and cabin which houses the engine and the use of scale markings. Nothing hard to build, as on most scale types. It's strictly combat, and capable of holding it's own against the best streamer-choppers around.

If you're hankering for a good looking snappy combat design why not clear away some of that balsa dust and get started building our "Combat P-38." (Continued on Page 29)

Span is 40", 20½" overall, .19 to .35 mills.

Profile types are the only sensible craft for Combat rigors. "P-38" is a rugged fast ship.

Design lends itself well to flashy silver and black trim. Star decals dress it up. Build it.



COMBAT "P-38"

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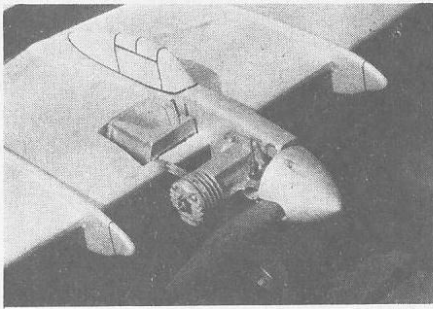
then bolt control horn in place.

Install stabilator by putting one of the dowels in a pivot hole and spreading the booms enough to slip the other end in the hole opposite. Connect leadout lines to a 3" bell-crank and bolt in place along with the $\frac{1}{16}$ " dia. wire pushrod. The pushrod protrudes through the hole cut in the bottom sheeting. With the bell-crank and stabilator in neutral, bend the pushrod to line up with the hole in the control horn, but do not secure it at this time as the stabilator will be removed for finishing.

Cut out and cement the fuel tank compartment bottom and back in place. The remaining center-section sheeting is added, including the leading edge pieces outboard of the booms. Cut out $\frac{1}{2}$ " medium center fuselage profile pieces and the $\frac{1}{8}$ " plywood doublers. The $\frac{3}{8}$ " x $\frac{1}{2}$ " hardwood motor mounts are cut to length then cemented into the upper and lower profiles. Carefully fit these pieces to the wing.

The method used to join the fuselage to the wing offers a joint that is much stronger than the more conventional wing in a slot. Here we have the wing and fuselage locked together in one vibration proof as-

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COMBAT "P-38"

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sembly. When satisfied with the fit, cement the profiles in place followed by the doublers. Clamp securely until dry.

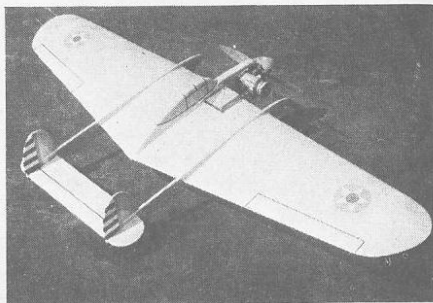
Trim rudders out of $\frac{1}{8}$ " hard sheet, sand edges round and cement to the booms. Follow this with the $\frac{1}{8}$ " plywood sub-rudders. When the clamps are removed from the fuselage, carve and sand the edges round. Locate the mount holes and drill.

If a landing gear leg is going to be used it should be bent to shape from $\frac{3}{32}$ " dia. wire. Bind to the fuselage with soft wire or clamp with a metal strap. The landing gear on the original model was made removable, flights being made both with and without it.

Sand the structure smooth all over to prepare it for covering. Remove any lumps of cement and high spots. Clear dope a coat over entire plane. When dry sand with fine sandpaper to remove fuzz. Cover wing including sheeted center-section, silk or heavy Silkspan, the latter being used on the original with satisfactory results.

Applying the covering wet will make it easier to cover the outer panels where they come against the booms. When the paper or silk is dry, give it two coats of clear dope sanding between coats with fine paper.

One heavy coat of sanding sealer over all wood parts, sanded well, followed by one more coat of clear over the entire model prepares it for colored dope. The original was painted all silver with a light blue cockpit area. Rudder stripes are easily made by painting the area white and using Trim Tapes (Timely Plans) for the red horizontal and blue vertical stripes. Standard stars are cut down and red centers added for the wing and sides of the booms. Control and



FLYING MODELS

cockpit outlines are applied using black $\frac{3}{32}$ " Trim Tape.

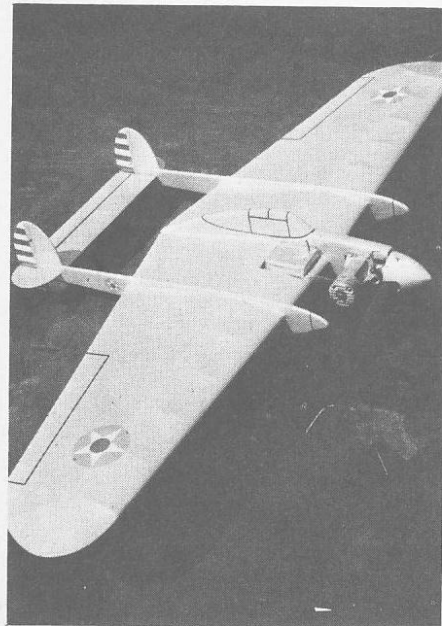
Slip the stabilator in place and hook up the pushrod. Mount the engine and fuel tank. A 2" dia. plastic spinner dresses up the nose. If the landing gear leg is used, install a 2" dia. wheel, retaining it with a washer soldered to the axle. A final check for warps in the wing should be made before flying. If any are detected they can be removed by steaming and twisting in opposite direction of the warp.

FLYING: Performance is similar to any high performance combat model and the usual first flight precautions should be taken. Hand launching is best done with an under hand heave, holding neutral or slight up on the control surface. Using this method you will get a smooth launch every time without a wild climb and dive. If your using upwards of a .29 engine, we'd suggest making the first few flights, with the engine running a little rich and with perhaps only about a half full fuel tank. This "combat P-38" is a lot of fast aircraft, and such precautions are highly in order.

BILL OF MATERIALS

(Balsa unless otherwise specified)

- 1— $\frac{1}{16}$ " x 3" x 36" (med. to soft) Center-section planking
- 2— $\frac{3}{32}$ " x 3" x 36" (hard) Wing ribs
- 1— $\frac{1}{8}$ " x 3" x 36" (hard) Tail assembly and center-section ribs
- 1— $\frac{1}{4}$ " x 2" x 36" (hard) Tail booms
- 1— $\frac{1}{2}$ " x 3" x 18" (hard) Fuselage nacelle
- 2— $\frac{1}{4}$ " x $\frac{3}{8}$ " x 36" (hard) Wing spars
- 1— $\frac{5}{16}$ " x $\frac{5}{8}$ " x 36" (hard) Wing leading edge
- 1— $\frac{3}{16}$ " x 1" x 36" tapered (med. to hard) Wing trailing edge
- 1— $\frac{1}{8}$ " x 3" x 18" (plywood) Nose doublers, bellcrank mount, spacers, gussets, and sub rudders
- $\frac{1}{16}$ " dia. wire pushrod; $\frac{3}{32}$ " dia. wire strut (optional); $\frac{1}{32}$ " dia. stranded wire lead-outs; 2" dia. spinner; 2" dia. wheel; 3" "Veco" type bellcrank; bellcrank bolt, washers; $\frac{1}{8}$ " I.D. eyelets; Silkspan or nylon covering material; Fuel-proof cement, clear and colored dope; $\frac{1}{16}$ " black trim tape (timely plans) Fuel tank; $\frac{3}{8}$ " x $\frac{1}{8}$ " x 2 $\frac{3}{4}$ " Hardwood engine mounts; Decals; and one .25 to .35 size engine.



FLYING MODELS