

The Wildcat

Hurst Bowers and Don Srull



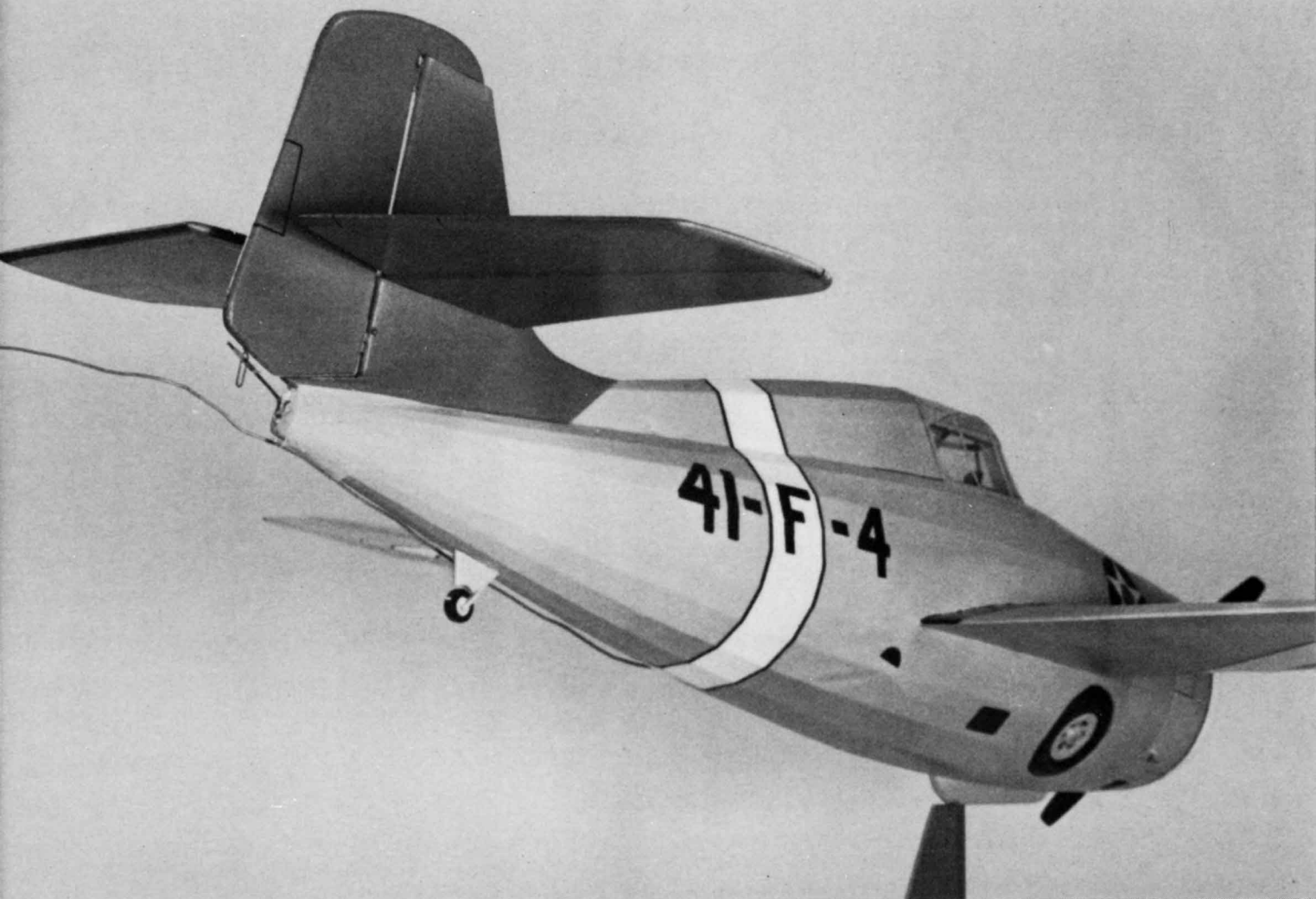
For "schoolyard" flying it would be difficult indeed to improve upon the smart performance and flight realism of Grumman's chubby little Navy fighter of WW II. The Cox Pee Wee makes it go, Ace's rudder-only pulse system controls it.

I HAVE always liked short, fat little airplanes so the Grumman stable naturally has a tremendous amount of appeal. Back in the days of rubber, and free flight powered scale, I frequently built models with these characteristics, but in keeping with the "old wives tales" of the day, most of them turned out to be less than spectacular fliers. This did not deter me, however, for I continued to build them and strive for more success on the flying field.

Of course, the Wildcat has consistently remained one of my favorite aircraft and this fascination was enhanced one day back during the big war, when an F4F pulled up next to me, tucked in, and followed like a friendly kitten for awhile. I was flying a B-25 and from the left seat had ample opportunity to enjoy the view and study the pleasant and efficient lines of the little fighter, as well as be thankful that I was not flying a Japanese bomber. When the "F4" peeled off to the left and vanished behind a big, puffy cumulus cloud I felt a bit lonesome. Many years later, during a cold and wet Sunday afternoon in Paris, I was going through some of my collection of drawings when I ran into three-views of



One of the great advantages of these schoolyard birds is that the plane can be built as a unit, which means you can hang it up, or put it on a pedestal, so you always enjoy its appearance.

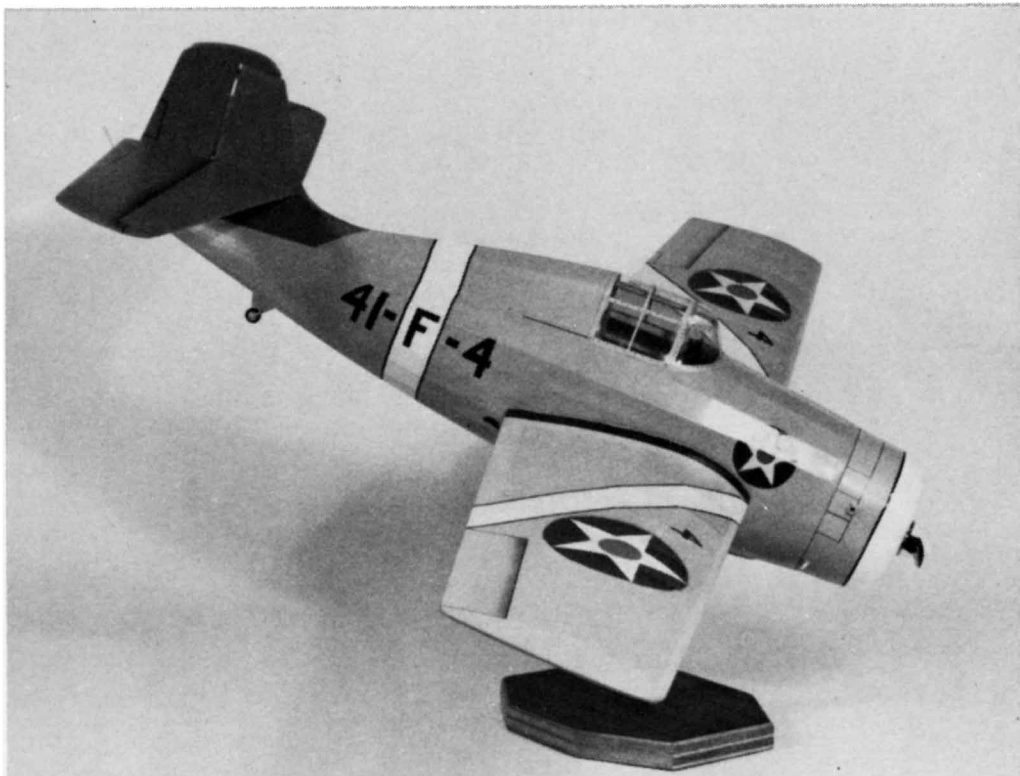


the Wildcat. I thought of my "wing man" of almost 20 years earlier and got out the drawing board to develop a model that I just knew would prove the "old wives" didn't know what they were talking about. I finished the plans and put them away, to build from later on when I had more time.

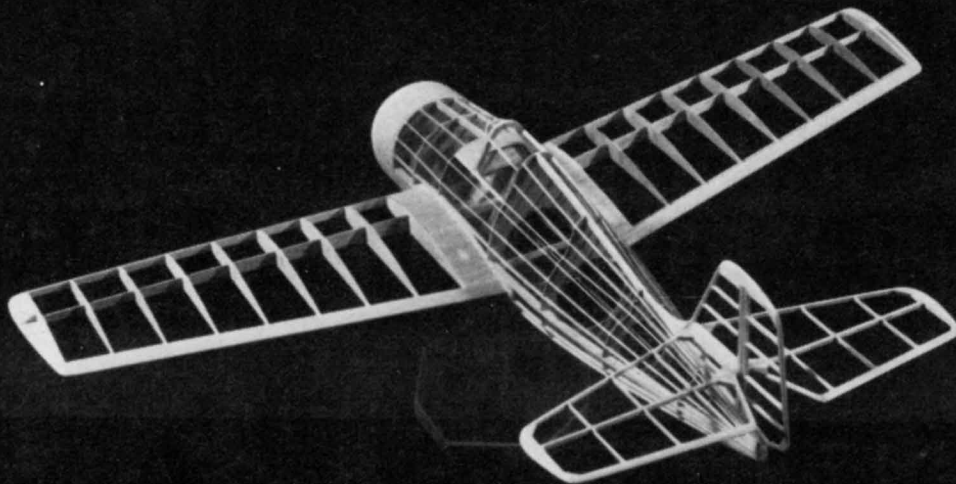
The story of the Grumman Wildcat is not new to most model aviation enthusiasts, and its combat record in the Pacific is legendary. When historians recount the events of Wake Island and Guadalcanal, the F4F comes to mind as one of the most outstanding participants. These were not the only engagements; there were many others as well, such as Rabaul and the Coral Sea, to name but a few. According to Profile Publications Limited, 376 F4F variants were built, with 229 being deployed by the U.S. Navy and Marine Corps, primarily aboard the aircraft carriers of the day. Some were consigned to both the Greeks and the French, but delivery was diverted with their capitulation; Britain was the only Ally to use the aircraft, designated by then as the "Marlet."

The design first appeared in 1936 and the Bureau of Aeronautics contracted with Grumman for the first machine. In the competition that followed, it lost out to the Brewster Company's XF2A-1, another "FLUF" (fat little ugly fellow); however, the world situation at the time precluded discarding such a promising aircraft.

The rudder-only control, showing method of driving the moveable surface from the Ace actuator. If you have a mini system, rudder and elevator can be used. Degree of power requires no throttle.



When the Wildcat appeared on the scene, the Navy was still using the fabulous (to any modeler) color scheme of the Thirties. The basic silver and chrome yellow was dressed up with a coded scheme of colors which identified the plane as to the Carrier, its squadron and spot therein.



The bare bones. Good construction minimizes the number of pieces, and makes none heavier than the job requires. Of course, if you are ambitious, no one will stop you from planking the body.

After several design changes and improvements the Navy bought it, and of course the story is very well known from there. Briefly, the vital statistics are: Wing span, 35 ft.; length, 28 ft. 9 in.; gross weight, 7,065 pounds; engine, R-1830-76, 86, 90 of 1200 horsepower; maximum speed, 331 at 21,000 ft.; service ceiling, 37,000 ft.; range, 860 miles.

My basement workshop is frequently

visited by such model aviation notables as Don Srull, one of the most outstanding modelers that I know, as evidenced by his 1976, '77, and '78 winnings in the scale events at the Nationals. One night a couple of years ago, when "schoolyard scale" was in its formative stage, Don and I were looking at some of my old "must build later" drawings when we came to the Wildcat. It hit both of us as a natural for

"schoolyard" flying with an .020 engine and pulse-rudder radio control installed. We agreed that it was light and simple enough to be safe and compatible with small flying sites.

As I was currently working on another model, Don took the plans and a few nights later called me to come over and see the structure which he had just completed. It was light, sturdy and without a doubt the most beautiful example of craftsmanship that I have ever seen. A few days later he had the model completed, and finished in the livery of U.S. Navy Squadron VF-41, based aboard the aircraft carrier USS "Ranger," in 1940. It was beautiful and is very light, weighing all-up only 8.9 ounces. And this includes engine, radio, and everything. The wing loading is 7.5 ounces/sq. ft. of area. Need more be said?

To the surprise of a few remaining skeptics (probably still subscribers to the old wives' tale) it flies, and it flies well. It is beautiful in flight. No doubt you detect my enthusiasm for this model. Anyway, it is still around and flying as well as ever, and in response to many requests, here is the plan and a quick and easy recapitulation of how to build and enjoy this chubby little bird. It is very simple and no extraordinary skills or techniques are required—just plain, old fashioned, straight-forward modeling.

At this point I should elaborate to some extent on the many and varied color schemes and combinations used on Naval aircraft. During the 1930's when carrier operations were in their formative years, the carrier-based aircraft carried distinctive colors, in addition to their standard Navy livery, which were coded to their particular mother ships. For instance, a green tail indicated that the aircraft was assigned to the USS "Ranger", white for the "Saratoga", and yellow for the "Lexington", etc. Also adding color and distinction were the fuselage and cowl color bands, the wing chevrons, and the squadron insignia. These could tell a complete story, such as indicating the aircraft of the squadron and flight commanders, formation positions, and units of assignment. In general, the standard Navy color scheme of the period was light gray fuselage and wing bottom, with the top side of the wing being chrome yellow. Of course, at that time the national insignia was the white star on a blue disc background, with the red circle in the center. As World War II grew closer, there became a rapid succession of changes which progressed to the standard dark blue with gray underside, and the abolishment of the red "meat ball" from the insignia, with the white bar on each side being added. There was probably no more colorful period in aviation history than during the late 1930's, and the U.S. Naval aircraft of that era, particularly the fighters, epitomized this mood.

Since Don Srull selected the color scheme used, as well as building and decor-

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A canny pair of scale designers and fliers, Hurst Bowers, left, and Don Srull. Model is flown without landing gear for wheels-up realism. If you are not limited to pavement, landings are uneventful.

Wildcat/Bowers/Srull

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ating our model of the Wildcat, I'll let the old pro himself take it from here and tell you how to do it.

Construction: If you have ever built a stick-and-tissue free flight scale model, you can build the Wildcat with guaranteed results. Pretend it's a free flight model and take care to build a light and sturdy framework, then add the miniscule 2½ ounce Ace Baby Twin radio system, a tiny Tee Dee .02, and you'll have one of the prettiest and novel little radio models you can imagine. By using reasonable care in selecting light weight wood, and using the covering/finishing to be described later, the total flying weight can easily be kept at 10 ounces or less.

Here are a few tips to speed you through this fairly simple and satisfying project. I would recommend using only cyanoacrylate and thinned Titebond glues. Epoxy is OK but it can add up to more weight than

necessary on a small model. The fuselage is built using the keel and half-shell former method. In this method the entire left half of the fuselage, including the fin, is built over the plans. The right side bulkheads and stringers are then added to complete the fuselage. Use very lightweight balsa for everything, except the 1/16 × 1/8 stringers which should be firm enough to resist the tension of shrinking tissue. Don't try to beef up the structure; and please, no extra plywood.

After laying out the fuselage keel pieces, which are laminated from two 1/8 × 1/8 strips, complete one side of the fuselage, including formers, stringers and the fin before removing it from the building board. Next step is to complete the other side, making sure the fuselage remains straight as the opposite stringers are added. Take special care to assure that both wing mounting plates are parallel and properly aligned. These mounting pieces should also be cut from fairly firm, stiff balsa.

Next, build the cowl, temporarily attach it to the fuselage and sand until all contours are smooth and accurate. The actuator and torque rod now are built into the fuselage. I found that a plastic wheel from a Guillows P-38 kit was just the right size for the Wildcat. One half of the wheel glued into each wheel-well looks authentic. However, a piece of 1/8 balsa cut to a 1-7/8" diameter, shaped and sanded, will do nicely.

The wing and tail surfaces are ultra-simple. The only firm, strong balsa member here should be the root wing rib "A". Also take care that the proper dihedral angle is built into both of these ribs. Some sanding can be done to correct minor errors, but it's easier to get it right the first time.

Now for covering. After the frame is sanded smooth and to proper contours, "scallop" the formers between each stringer with sandpaper wrapped around a pencil. Then cover the fuselage with lightweight Silkspan. If you first dampen the Silkspan and work slowly, you can cover the entire fuselage with only 8 or 10 pieces. Pre-doping the two rear stringers, which go from the canopy bottom to the tail post, will keep the tissue from pulling away from these stringers when it shrinks. I covered the wings and tail surfaces with Japanese tissue, but lightweight Silkspan will be OK. Five to six coats of thinned clear butyrate dope on the fuselage will ready it for color. Three or four coats of thinned, low-shrink clear butyrate should seal the tail surfaces and keep them free of serious warps. Apply one coat of color dope sparingly with an air brush. The trim is masked and sprayed, except for the thin black pin stripes which are reproduced with 1/16" trim tape.

Assembly is ultra easy. Make sure the wings go on straight, with proper and equal dihedral. Use only a couple of small spots of glue to attach the wing, to allow it to pop off with minimum damage in case of a hard landing. If you want to take the time,

a very light weight wing plug-in system, a la British modelers, can be used instead of glueing on the wings. Keep the weight to a minimum if you go this route.

Be sure all surfaces are warp-free and the model balances on the spar. Use a 6-3 black plastic prop, and make the first test flights with the engine running a little on the rich side. If built according to the plan, the model is sure to surprise you with its smooth, graceful flying characteristics. That cowed little engine sounds good too!

To achieve final longitudinal trim, you can add a small paper elevator tab, or use small pieces of clay ballast, to get exactly the climb and glide angles you want. In windy weather I put a lump of clay the size of a small marble in the cowl to increase the penetration speed, and reduce the climb rate. On those calm and warm summer evenings I remove this nose weight and the glide becomes incredibly flat and slow. Modest lift will keep the little tub up there indefinitely.

I hope you have as much fun with your unique little F4F as we have had with ours.

