BOEING F4B-2

THE AEROBATIC F4B-2 WAS THE TALK OF MILITARY CIRCLES IN 1928. IN 1969, THIS 60" SPAN, .60 POWERED MODEL WILL EVOKE THE SAME PRAISE IN RADIO CONTROL SCALE MEETS ACROSS THE COUNTRY.

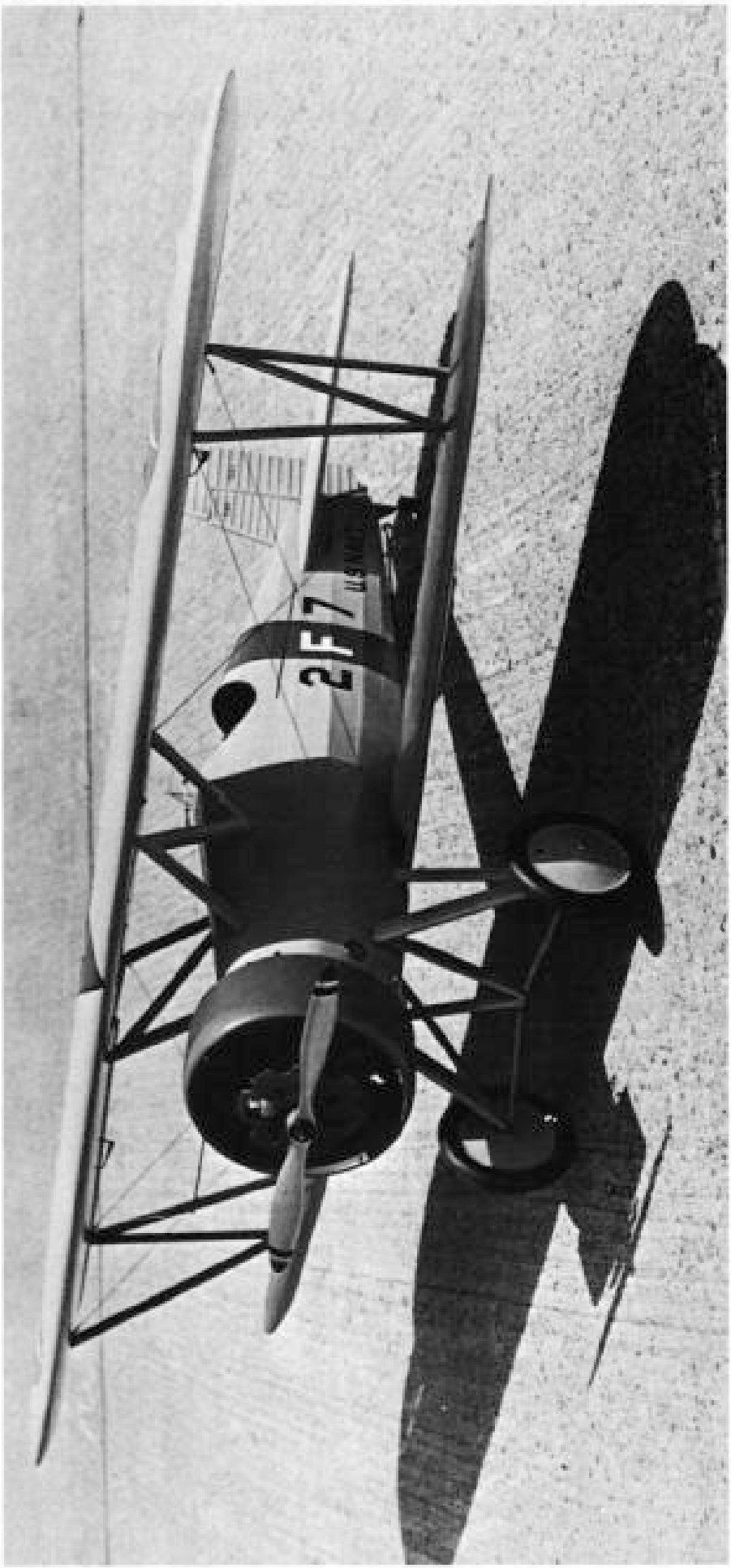
BY H. G. BOWERS

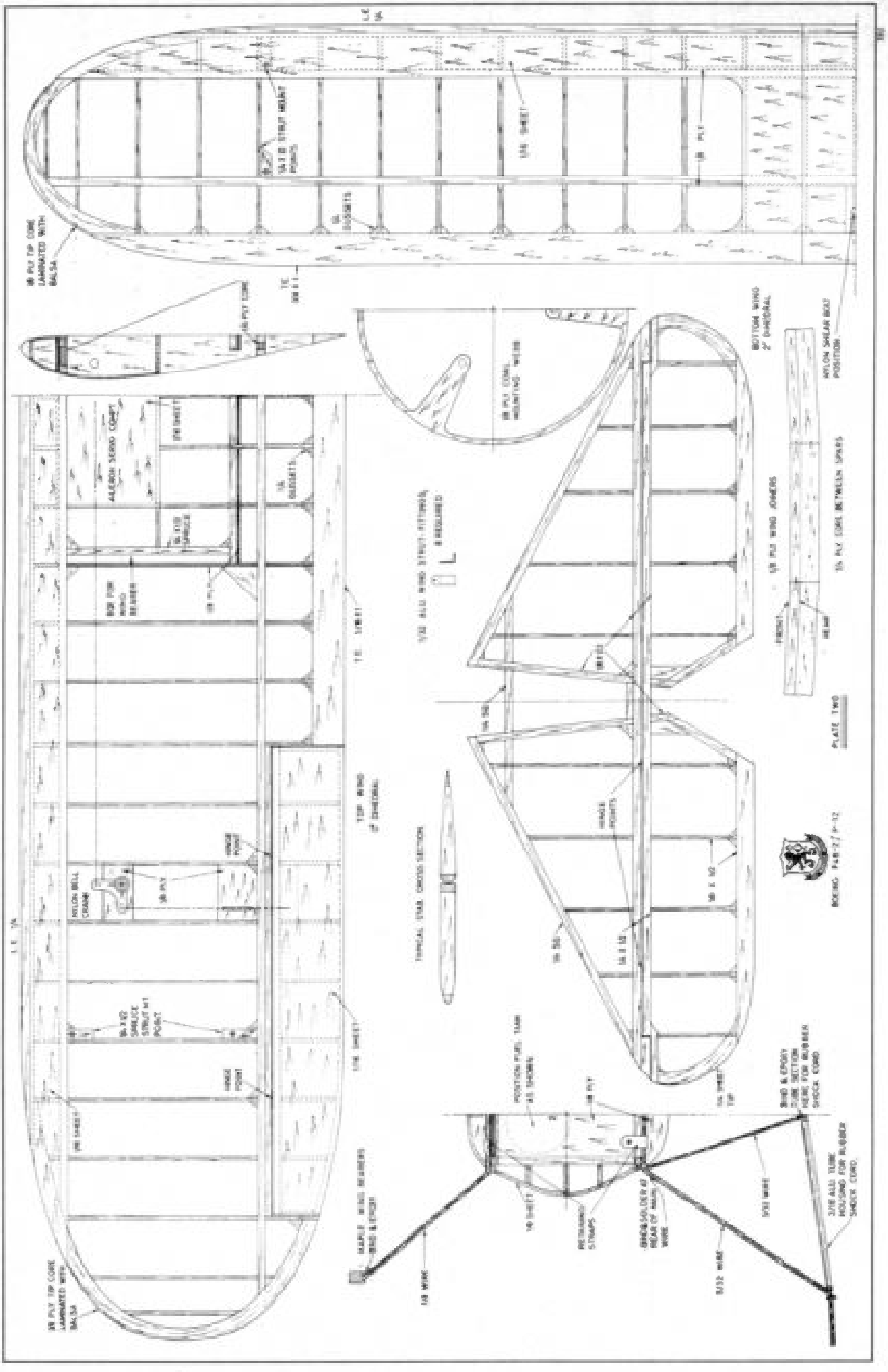
PHOTOS BY KEN MURRAY

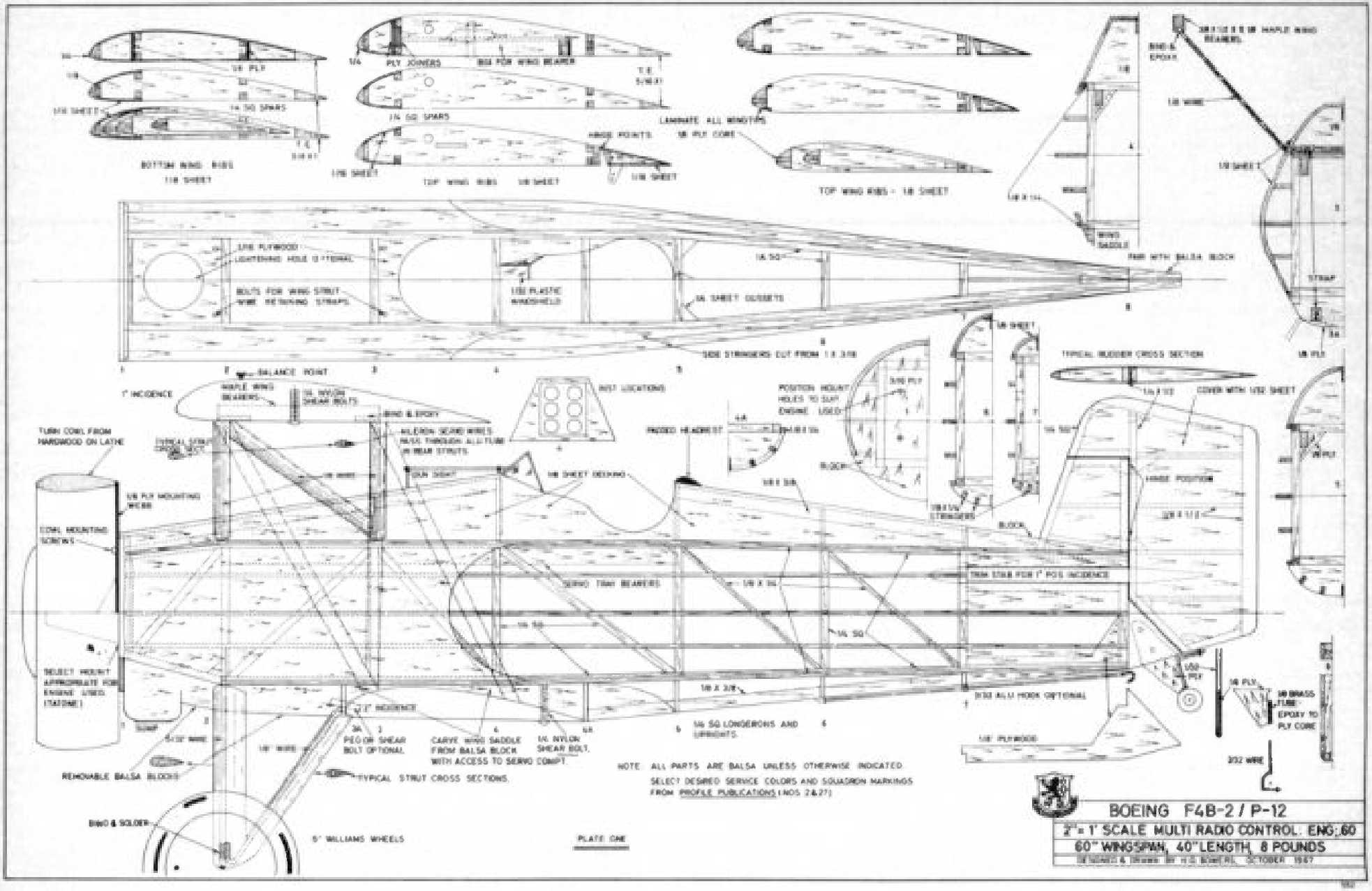
No more colorful era in aviation has existed than the period between 1925 and 1935. At that time the name Curtiss ruled supreme in the air arms of the military services. This position of leadership was seriously challenged when a stubby little biplane powered with the big Pratt & Whitley "Wasp" was rolled out of the Boeing plant, near Seattle in 1928. Its potential as a military fighter plane was readily apparent and it was purchased by both the Army as the P-12, and the Navy as the F-4B.

The development of the airplane evolved through four basic models with several hybrids, including two parasol configurations. These eliminated the lower wing and replaced the cabanes with an elaborate arrangement of struts. The military version evolved from pleasingly angular fabric fuselages and square rudders, to the rounded, all metal fuselage, with the large headrest and redesigned rudder. Throughout the life of the design, it carried the distinctive corrugated metal tail surfaces, long landing gear, and low aspect ratio wings. For the pilots of the day, it was a real "fun machine," and no other airplane of the time could compare with its aerobatic qualities, but the short moments and oversized surfaces made it exceptionally sensitive. It was a very well-built airplane with a heavy tubular steel basic framework, and single piece, tip-to-tip wings. The ruggedness of the structure enabled it to withstand any aerobatic maneuver, and sustain operations from very rough fields. No modeller, particularly those with receding hairlines and slightly enlarged center sections, can resist the lure of the Boeing, but the more the design is studied, the more it is shied away from, for those qualities which made it a fabulous fighter plane create many problems for a model. The only thing that makes this project feasible today is the new and reliable proportional radio control equipment that is available.

The design was discussed at length with all the old pros of the Northern Virginia Radio Control Club, and the concensus was about 70 to 2 that it was too tough to tackle. Those two hard heads were myself, a sheer novice to RC, and Commander Earnie Green, who had flown the F-4B's in gunnery training at Pensacola, before he became a lecherous old salt who still believes in battleships. Since Earnie had the equipment and I had nothing except nostalgia and enthusiasm, we decided to have a go at it as a winter project. As we progressed with the structure and frequently took it to RC Club meetings,




1/8 SHEET
1/8 PLY
1/8 GUSSETS
1/8 SHEET
1/8 PLY
1/8 PLY TIP CORE LAMINATED WITH BALSA
1/8 PLY CORE
1/8 PLY CORE MOUNTING WEB
BOTTOM WING 2° DIHEDRAL
NYLON SHEAR BOLT POSITION
1/8 PLY WING JOINERS
1/8 PLY CORE BETWEEN SPARS
AILERON SERVO COVER
1/8 SHEET
1/8 GUSSETS
1/8 SPRUCE
1/8 PLY
1/8 SHEET
1/32 ALU WING STRUT FITTINGS 4 REQUIRED
TRIANGULAR CROSS SECTION
HINGE POINTS
1/8 SHEET
TOP WING 4° DIHEDRAL
NYLON BELL CRANK
1/8 PLY
1/8 SPRUCE STRUT MT POINT
HINGE POINT
1/8 SHEET
1/8 PLY TIP CORE LAMINATED WITH BALSA
PLATE TWO
BOEING F4B-2 / P-12
POSITION FUEL TANK AS SHOWN
1/8 PLY
BIND & EPOXY TUBE SECTION HERE FOR RUBBER SHOCK CORD
MAPLE WING DOWELS GLUED & EPOXY
1/8 SHEET
RETAINING STRAPS
BREAK SOLDER AT REAR OF MAIN WIRE
1/32 WIRE
1/16 WIRE
1/32 WIRE
3/16 ALU TUBE HOUSING FOR RUBBER SHOCK CORD



FULL SIZE PLANS AVAILABLE – SEE PAGE 70

three of the NVRC pundits, Joe Taylor, Pete Peterson, and Joe Tsergi would sit side by side on the floor with their hands over their ears, eyes, and mouth, respectively. That was the most encouragement we got until Vince Neil, in a moment of compassion, thought it might have possibilities as a new type of pylon racer provided we could find some hydrogenic fuel to use. The one point upon which everyone would agree was that it was a hell of a beautiful airplane. We thought so, too, and worked away. At this point I will say that it is definitely not a project for the beginner, but for the older types whose brains have become slightly loggy from inhaling too many glue fumes over the years, it offers a real challenge.

For the scale buff, our model is exactly two inches to the foot, and the design was taken from authoritative drawings by William A. Wylam and photographs by Boeing, the Army, and the Navy. We specifically selected the F-4B-2 because of the fabric covered fuselage. Profile publication number 27 was very helpful, particularly in providing details for a color scheme. There is ample "proof of scale" material available which will support our plans, but any judge should be satisfied with the Wylam drawings and the little Profile booklet.

Well, now that you have fortified yourself sufficiently to tackle the project, I'll try to give you a few construction tips which will make it a little easier for you than it was for me. First, and foremost, keep in mind that this model must not be tail heavy for the short moments make it extremely difficult to correct this condition, should it exist. Consider this when selecting wood for the fuselage and tail, and keep the rear end light. Don't worry about the nose – you can hang anything you want up front with no ill effects.

Let's start with the fuselage, and build up the two sides from ¼ inch square balsa. No problems should be encountered here as it is built up just like the old rubber models, but bigger. The points where the wire struts for the top wing and the landing gear mount must be heavily reinforced and a good grade of plywood used. Epoxy glue should be used liberally at these locations. Mount the gas tank, blind nuts on the firewall, throttle linkage tube, and all other items permanently, for once the planking is added the only access is through the saddle for the lower wing, and the removable block balsa fairings between the landing gear and just ahead between stations 1 and 2. Now add the balsa formers, stringers, and planking, sand smooth, and add the fairings to the wire wing mount and landing gear struts. The fuselage can now be put aside and the tail and wings started. The tail is simple balsa construction which I covered with 1/32" sheet balsa and used 1/16 floating fly line to simulate the metal corrugations. Although this is beautiful, it adds lots of weight right where it hurts, and many problems could be avoided by only covering the tail with silk. In building the wings the classical construction methods are used except the tip bows are cut from 1/8" plywood and laminated on both sides with balsa to provide the proper tip contours. Small boxes are constructed into the lower side of the top wing center section to receive the maple wing bearers which are mounted on top of the center section struts. By using plywood for these boxes with a maple top to receive the nylon shear bolts, a very accurate and strong wing mounting is achieved which does not distract from scale.

The ailerons are built up and covered with 1/16" sheet balsa using floating fly line to simulate corrugations as on the tail. Hardware is standard nylon and the servo is mounted in the bottom center section of the top wing, as shown on the plans. On our model, we placed a 3/16" aluminum tube down the left rear cabane strut through which the aileron servo wires passed and were connected at the wing-strut juncture by a plug. We experienced no difficulty at all with this system.

The scale drag ring was turned on a lathe, first from balsa, and later from

hard wood. If you have ever turned nut or salad bowls, this should pose no problem at all. We definitely recommend using the hard wood for it is easier to turn and the weight comes in handy up front.

Our model was covered entirely with silk and control line cable was used to make up the flying wires. It was finished in the usual manner using about 6 coats of clear dope applied by brush, and 4 coats of colored dope sprayed on. The Navy color scheme was selected from Profile publication number 27 and details were added by masking, doping, MonoKote cut-out numbers, etc. We cannibalized a Sterling PT-17 kit for the pre-World War II wing insignia, and the plastic dummy engine, but the wonderful Williams Brothers 2" scale cylinders now available really solves the dummy engine problem. Tatone dummy scale instruments were very realistically used and add lots to the cockpit detail.

I will not trouble the reader further here with the details on the finishing touches of the model for anyone who tackles this project will most likely be an expert. The same holds true for the installation of radio equipment. Although the servo tray bearers extend to the cockpit, we found that all radio gear, servos, and batteries needed to be further forward. Our servos were placed between stations 3 and 4, with the receiver immediately under the CG and the batteries directly behind the firewall. The removable hatch blocks on the fuselage bottom prove very valuable for positioning and for access to the components. A word of caution – keep the control movement to a minimum for the aircraft becomes overly sensitive otherwise, particularly on the elevator.

When ready to test hop your Boeing again, be sure the CG is as shown on the plans. Select an area where a take-off can be made with a long, smooth run to test the feel before pulling the model off. If back pressure is not required for lift off, you are in trouble. We speak from experience! A slightly nose heavy condition is much more desirable on this bird than the reverse. If the roll is straight and true, and if you need positive effort to unstick the model, you should have no trouble, and as you get accustomed to the feel, it will become a pleasure to fly. There will be minor linkage adjustments necessary for trim possibly the CG can be slightly moved aft as experience is gained, to improve the aerobatic qualities. You are certainly in for a thrill with the Boeing and it will be a real show stopper and scale winner in any meet. Good luck!

Cdr. Earnie Green, U.S.N., left, and Col. Hurst Bowers with F4B at Pentagon Heliport.