



CONSTRUCTION

BY MARK RITTINGER

Coming in for a smooth approach to landing, the Omen III is a great sport-flying design with classic pattern ship looks.



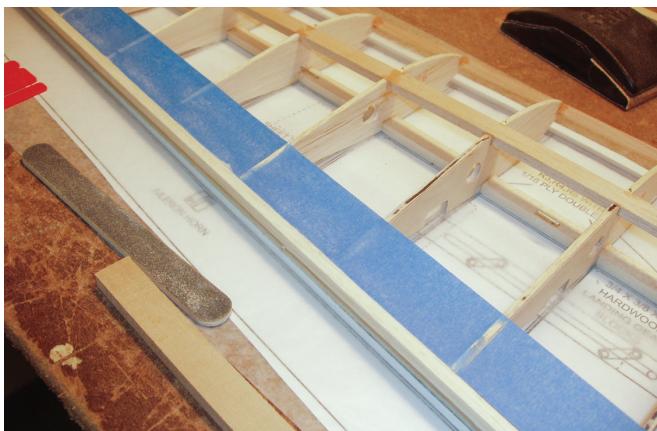
Omen III

Scaled-down pattern classic for e-power

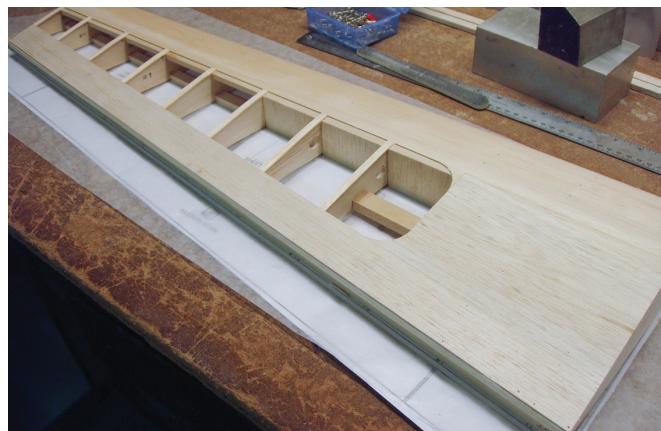
Don Wilke's "Omen II" from 1968 is one of those birds that just grabs your attention and won't let go. I've had my dad's 1968 RC Modeler magazine for years, and there was something that kept bringing me back to it. It seems to have the classic early pattern proportions, perfect for today's sport models. The raked fin and slick turtledeck give her nice lines, and the long tail moment screams "smooth."

Fast forward 46 years, and electric power is now practical, affordable, simple, and reliable. Ah ha! Let's shrink down the 92-inch original design and simplify it. Many of the older pattern ships make great sport models today, and I thought it would be a sure winner designed around the reliable E-flite Power 46-size setup. So here we have the result, the 63.5-inch-span Omen III. It is an all-wood design, with

a minimal parts count. I've used standard size woods throughout, switched to a fully symmetrical wing section, and gotten rid of half the wing ribs. I went from one aileron servo to two. The prototype was built from design start to finish and ready to fly in seven weeks of evenings, so your model will go even faster! The finished ship is only 4 pounds, 12 ounces with a 4S 4000 battery, for a light 19 ounces of wing



The wing is a traditional D-tube structure with leading and trailing sheeting and with open bay ribs. The panels are easy to build flat on the workbench and then joined together with a center plywood dihedral brace.



Here you see the sheeted wing panel with capstrips added to the top and bottom of the ribs. Notice the vertical shear webbing added to the main spars.

loading and a healthy power loading. She's even lighter with a 4S 3700mAh pack.

WING

The wing is a simple D-tube affair with two $1/4 \times 1/2$ -inch balsa spars and a hardwood or hard balsa $1/4$ -inch-square leading edge. Begin by cutting all the ribs from $1/8$ balsa. Laminate the ribs with ply on R3, R4, and R5. Lay the bottom spar for one wing panel on your board, and place the ribs, except R1, on the spar. Place the trailing edge shim under the trailing edge of the ribs and pin in place. Next, put the top spar in place. Glue the leading edge onto the ribs, then CA the ribs to the spars. Place R1 using the dihedral guide and glue and then install $1/8$ -inch ply at leading edge center. Add the rear $3/8 \times 3/16$ spar and sand to taper off ribs. Glue in the vertical grain shear webs as noted.

The $3/16$ ply joiner can be built into one panel but it must fit into the spars of the other panel when built. Sheet the spar to leading edge "D" section, the center section and the trailing edge section with $1/16$ balsa. It might help to wet the leading-edge sheet on the outside to help it bend. Remove the panel from the bench, epoxy in the hardwood landing gear mount blocks, and sheet the lower section of the wing. Note the sheeting on the center section of the bottom goes out farther than the top does to provide strength for the gear and the aileron servos. Capstrip the ribs top and bottom. Build the opposite panel the same, and make sure it joins up straight with proper $1 \frac{3}{4}$ -inch dihedral per tip. Use slow epoxy to join the two panels, and then add your trailing edge stock and wing tips. I used



The author poses with his newest design. Even though it's smaller than the original, it is still a respectable size for excellent flight performance.

SPECIFICATIONS

Plane: Omen III
Designer: Mark Rittinger
Wingspan: 63.5 in.
Weight: 4 lb., 12 oz.
Wing area: 574 sq. in.
Wing Loading: 19 oz./sq. ft.
Length: 48.81 in.
Power req'd: 600W electric
Radio req'd: 4-channel (throttle, rudder, aileron, elevator)

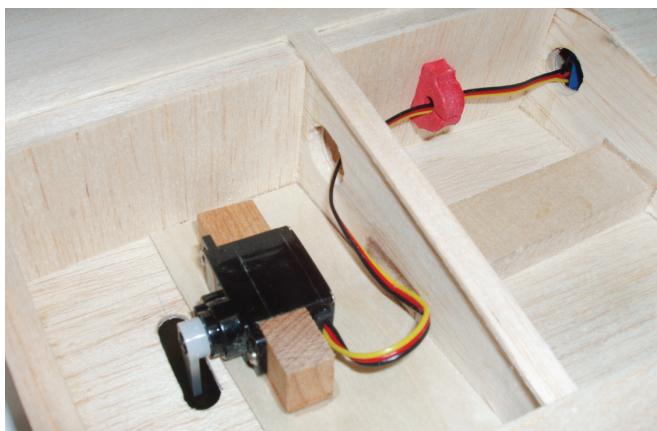
some $1/32$ ply where the servos mount, and added mounting blocks. Wrap the wing center with nylon or fiberglass cloth and resin.

FUSELAGE

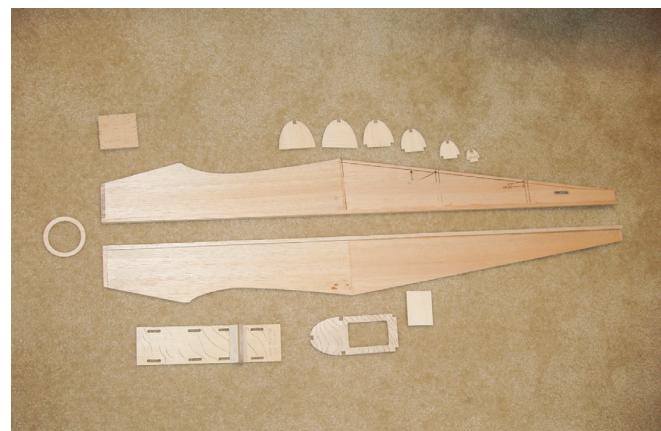
The fuselage is a simple "box" affair with a planked or sheeted rear deck. Cut the sides from medium $1/8$ balsa. Add the top and bottom $1/4$ square stringers, and vertical $1/4$ vertical square stock. Glue in the $1/16$ balsa side doublers. Notice they do not go all the way to the front, but form a backing for the firewall. Install the assembled F2

with its doubler to the battery tray, then epoxy the assembly to one side of the fuselage. Install the nose gear mount on the $1/4$ ply firewall, then the firewall to the same side at 90 degrees. Glue F3 in place, glue the fuselage sides together, and then glue the tail together, making sure its straight. Add F4, F5, F6 and F7 and top stringer. Sheet or plank the top deck aft of F3. Epoxy the wing mounting block in place and sheet bottom of rear fuse with cross-grained balsa.

Fit the wing in the saddle and drill through F2 to seat the wing mount dowels. Then, install the dowels, and make sure they go all the way in to the $3/16$ ply wing



Here's the aileron servo installation. There's one servo for each aileron, the original design has a single servo in the center of the wing and it was attached to the ailerons with music wire pushrods and 90-degree bellcranks.



All the parts for the fuselage are shown here.



CONSTRUCTION



The basic fuselage structure is a simple box arrangement with sheeted aft decking.



The motor and spinner are faired in with balsa blocks to form the cowl. I use silicone adhesive to hold the cowl in place after it has been shaped and covered.

panel joiner. Can you say "strong?" Place the wing back in the saddle and drill the wing bolt holes and tap the mounting block for two 1/4-20 bolts.

Now you can add the nose chin block. Build the hatch using H1, H2, 1/16 and 3/8 balsa. I held mine on with a rear peg and forward magnets. Mount the motor using the included blind nuts, then build the cowl up. I used silicon to attach mine on after covering with a dab of silicone on each

side. If I have to get in to the motor, I'll just cut the silicone.

STABILIZER AND FIN

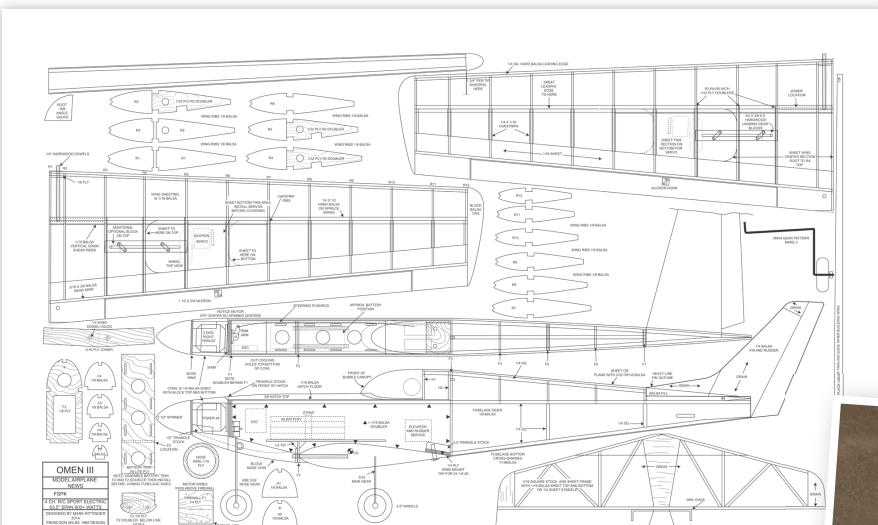
The prototype used a medium-light sheet balsa stab/elevator and fin/rudder. Pay attention to grain direction, and make sure everything is true when on the fuselage. The elevator halves are joined with wire. If you prefer, you can save a little weight in the caboose by building up the stab

as shown, the choice is yours. My model needed no nose weight.

FINISHING

My Omen III was covered in white and Aztec gold MonoKote using the best tool known to man for film covering: the Ohio-superstar.com Cover Tugger. I suggest everyone that covers with film try one; you'll wonder how you ever did the job without it! Cover the bottom of the wing first, then install the aileron servos and extensions before covering the top surface. I hinged the surfaces with Ohio-superstar medium hinge material. The canopy was cut from the front part of a Sig 14-inch bubble. The pilot, "Damian," is a Halloween figure skull (appropriate for the Omen, yes)?

Radio gear consists of my trusty Hitec Eclipse 7 Pro, Optima 6 receiver, HS65HB servos on ailerons and 5085MGs on rudder/steering and elevator. Use a "servo-saver" on the rudder servo for nose gear. Power is an E-Flite Power 46



Omen III | X0615A

Designed by Mark Rittinger, the Omen III is a modern, electric powered version of Don Wilke's popular 1960s era Omen II. The new RC pattern/sport flyer uses modern construction techniques with traditional balsa, lite-ply and plywood parts. It has fixed landing gear and is intended for 600W electric power systems and a 4S LiPo flight pack. Span: 63.5 in.; Length: 48.81 in.; Power: 600W electric; LD: 2; 1 sheet; \$16.95



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