

MISS ARPIEM

By Dr. DEE MATHEWS . . . Old Timers have often been called the perfect training ships for radio control. If ever a perfect example had to be named, this would have to be it! Original design by STEVE KOWALIK.

• Through the thirty plus years I've been building "toy" airplanes, I've been fortunate enough to have built a few models that far exceeded my always high expectations. Every once in awhile, that peculiar chemistry of luck, skill, and intuition combine to produce a model of exceptional merit. "Miss Arpiem" is one of that kind of model.

Frankly, I started off on this project by accident. I became aware of the relationship between Steve Kowalik and Bill Northrop, and cunningly decided Bill would publish something by Kowalik if I submitted it. Looking through John Pond's plan list, I eliminated Miss Delaware (Model Builder had it brewing) (*still brewing. wcn*) and the Ideal Air Chief (ugly). But what was the "Miss Arpiem"? I honestly had never heard of it, could not recall ever seeing a photo in my magazine collection . . . a total unknown to me. Not wishing to remain in ignorance, I rushed an order off to John. Several weeks later the plans arrived . . . what a startle! Kowalik had designed a pretty little cabin job with strong esthetic appeal.

. . . But what does the name mean?

I immediately began red-penciling the needed modifications onto the plans and commenced construction. The resultant model was first flown with two channels, and a Super Tigre 23. My golly . . . talk about a climb . . . the darn thing flew like an F.A.I. power job, twenty seconds got it way up there. I could fly the power pattern with trim tabs *only*. Great competition potential, but hardly relaxing. After twenty flights or so of this type of thing, I decided she was too nice a lady to go flying about like a scalded cat. So off came the .23 and shut-off tank, and in went three channels and an O.S. 15 R.C. Now she was a gentle kitten, able to do beautiful touch-and-goes . . . a delightful 15 size sport ship.

. . . But what does the name mean?

As is always the case in great love affairs, this one ended in tragedy. After many happy hours together, I abused the lady and she died in agony. Someone said, "Will she spin?", so I tried . . . not in low throttle she wouldn't, nose high she just mushed 'till the stall recovered, no fall-off at all. So how about power on? Not to the right, but with full throttle, full down, and full left rudder she would, that is 'till her left wing broke off! She plunged to the ground like a wounded bird. Oh, the savagery of men! Oh, the quixotic moments of lovers. I done her in . . . dumb, dumb,

dumb. Fortunately, all is not lost, *you* can build her sister and have your own affair of the heart, I'll never tell. If anyone is still reading this, the following is a building outline:

GENERAL

The model is completely legal for SAM events (A, B, or C, cabin, and Texaco). (*Check local rules on Texaco. Some clubs have a 6 foot minimum span rule. Maximum glow engine displacement is .24. wcn*) All dimensions are exactly as originally designed; the structure is beefed up, but no sheet for built-up substitutions have been made. The airfoil is the original . . . watch out for illegal substitutions on several currently available kits!

Landing gear is a pre-formed I.M. Product, H-2 unit, bent slightly as drawn. A satisfactory gear can be bent of 3/32 M.W. if you so desire. The gear is held in place with nylon brackets, screwed and epoxied into the 3/16 ply floor. The floor itself should be epoxied to the spruce longerons. The formers can be fabricated quickly, using typing paper to trace outline, cut out with scissors, spray paper with 3M Sprayment, stick in place on sheet or plywood, and cut out. Peel paper off and sand, really a simple method of pattern making. Use spruce where specified, *do not* substitute balsa. Aliphatic resin glue is used throughout, with exception of epoxy for firewall, landing gear mount, and dihedraling the wing panels. Use plastic wrap for plan cover, waxed paper will weaken glue joints.

WING

I usually build wings first to generate some scrap sheet for the remainder of the project. The tips can be fabricated by cutting to match inside placement on drawing, then cutting to exterior outline after assembly. Of course, you may cut out before placement. The tip ribs are cut and trimmed from full chord ribs, then sanded to contour when shaping leading edge, etc. The wings build completely flat and are really simple to construct, so I won't detail a step-by-step procedure. The wing tips are set on top of the bottom spars, with the top spars tapering down into a flair at the outside edge.

Of course, be sure a left, a right, and a center panel are constructed. Shape leading edge, tips, and tip ribs before dihedraling. I prefer to block up the individual tips, sand angle in with a block against the table edge, then assemble against center section with epoxy. After epoxy is set, cut slots for

front dihedral gussets with two hack saw blades bolted together, insert and epoxy ply gussets, holding against spars with clothespins. Repeat for middle gusset and bolt-blocks. If you prefer mounting wing and stab with elastics and dowels, go ahead . . . the nylon bolts are just for fun, anyway. The wing can be covered with a heat-shrink material or whatever. If you are looking for something cheap and strong, consider acetate sheathing as detailed in fuselage finishing.

FUSELAGE

The first step in constructing the fuselage is to cut out the fill-in pieces and the three plywood formers. Next, cover plan with film and build a side, using spruce for longerons and vertical members back to C, with balsa from there back. Allow the first side to cure several hours, remove pins that are in the way and build side two directly over side one. After twenty-four hours, remove both sides and separate by popping down center with a table knife. Sand rough edges and remove glue blobs, etc.

Trim 3/16 from right front, trial fit bulkheads using clothespins to hold. Assemble A, B, and C, using epoxy on A and aliphatic resin for the remainder. Assemble by pinning wing rails onto building surface. Using a right-angle triangle and a carpenter's square, adjust clothespins and/or C-clamps, until the cabin is square in all dimensions. Add cross members back to C, then allow at least 12 hours for glue to cure.

With wing rails still pinned to building surface, mark the mid-line of cross members. Place a straight edge (yard stick or *straight* strip) on the marks and pull tail post together on the line. "Hot Stuff" the tail post, then fit a scrap of 1/4 x 1 trailing edge stock as a filler.

Cut remaining cross pieces of 3/16 x 3/16 balsa, marking middle of each, position each one on the mid-line mark. Complete frame by adding diagonal cross members top and bottom if fuselage is to be covered with heat-shrink, omit if covering will be fabric.

Cut out formers using the stick-and-cut method. Trial-fit to cross members, then "Hot Stuff" into place. Some minor correctional sanding may be needed to give a smooth contour as the 3/32 x 1/4 balsa stringers are positioned. I like to pin the front end in place, then trial fit, when satisfied. I then "Hot Stuff" everything in place. Refer to

structure photo for approximate reference to position of structure. The engine mount and T-nuts should be positioned and drilled at this point. Next, add the scrap ply tank floor, position the tank and its plumbing, then epoxy 3/16 sheet floor in place. The undercarriage should be installed *before* the bottom stringers are added. Fill around the music wire with balsa scrap to provide "sticking surface" for the covering material.

The cowl top can be cut from 3/4 inch sheet, or laminated from a sandwich of 1/4 inch sheet. I merely built up around the tank with 1/4 sheet. Thus creating a hold-down for the tank all in the same step. See drawing for detail of tank shut-off for two channel floater. Complete fuselage by adding tail and gussets, drilling hole for dowels, etc. If you wish to hold the wing with nylon bolts, epoxy 3/4 x 3/16 spruce in cabin top at this time. Noseblock is cut and laminated, using fifteen-minute epoxy. Carve and sand to shape. If the Sig No. 515 ABS cowl is chosen, epoxy blocks to firewall for hold-on screws.

I covered the fuselage with acetate sheathing. I would highly recommend this material for the entire model. The sheathing can be purchased from a fabric shop; it is relatively inexpensive (I paid 90¢ a yard), comes in a rainbow of colors, and seals with 3 to 4 coats of clear. Be certain you have acetate sheathing. I found a woven sheathing that doesn't work at all. Acetate looks much like silk, in that it has a definite grain direction, is shiny on one side, and will not stretch.

The acetate is applied exactly like silk . . . that is, wet, onto a previously doped frame. The wrinkles are pulled out (do not over-stretch); then the edges sealed with thin clear dope. Some shrinkage occurs as the water evaporates; however, much less than silk. Additional tightening occurs as the dope coats dry out. I use a coat of regular dope, then control additional shrinkage by using Lite-Coate or regular as needed.

I have used the acetate sheathing on several models and have grown to prefer it to any covering I've ever used. I would highly recommend it to anyone who is reasonably competent with paper or silk; if you are not, get someone to show you how. Try this stuff, you'll never go back to the high-priced spreads!

TAIL FEATHERS

Granted these look difficult, but they really aren't. The outlines are made using the stick-and-cut method, try to use firm 1/4 x 1/2 strip and C-grain sheet. Everything builds flat, then is block-sanded to airfoil after the hinge slots are cut. The music wire joiner is epoxied in place *before* contouring the elevator halves; the hinges are held with toothpicks! Hot Stuffed into the holes. It works! Pre-drill for large control horns.

Place stab on fuselage temporarily with masking tape and drill down into ply stab supports. Install 4 x 40 blind nuts into spruce (Hot Stuff lightly), and insert rudder into slot temporarily.

Fit battery, motor, wheels, etc., then move servos and tray along rails to get a slightly nose-down attitude when resting wing rails on fingers at CG point. The covering on the tail feathers and fuselage rear will move the CG back at least a 1/4 inch. Cut pushrods from 1/4 x 1/4 balsa, wrap front and rear wire in place with carpet thread, adjust for neutral, then Hot Stuff rods permanently. The rear rods could be brought out under the stab, but would require bending; as drawn the rods have a straight shot. Cut 3/32 sheet to clear a straight shot. Cut 3/32 sheet to clear with no binds anywhere in the hook-up. I put the switch on the side opposite the exhaust mounting, on a ply scrap in 3/16 infill. If you prefer an internal switch, there's plenty of room.

Disassemble everything, go over all surfaces with 220 sandpaper, and cover. The windscreen and windows can be Hot Stuffed, cemented, or held with vinyl trim tape. Any scratches can be polished out with toothpaste (fluorides not needed here).

Put all the hardware together, recheck radio functions get motor needed, recheck CG (ballasting if necessary), steam out any severe warps, and go fly this cutie.

R.O.G. with initial down elevator, feeding in up as speed increases. This model will jump off the ground, so don't use a bunch of up. Hand launching is a breeze, just pick her up under the wing, take two or three steps forward and let go, *do not toss*. Landings are super-simple, just keep the nose in the wind and flair out at touchdown. I used a steerable tail wheel, but it was a waste of time, the tail won't stay on the ground long enough to get any steering effect.

It would be redundant to describe thermal hunting with this model, read my "Kloud King" article in another magazine, if you are interested. I'll just make one comment here . . . the radio is more useful getting out of lift and back up-wind than for finding lift. The airplane will center up in the thermal without anyone's help. You'll have a ball with MISS APRIEM, whoever she is.

But what does the name mean?

(OK, since you ask. Back in circa 1938, Brown Jr. Motors published about four issues of a little hints-and-kinks newsletter, and named it ARPIEM, which, as most anyone can see, is one way of spelling a word that sounds like the initials for *Revolutions Per Minute*. Several gas model plans were published in the newsletter, including this one, which Steve Kowalik designed and appropriately named.

About that relationship with Steve, which Dee mentioned earlier. Though we met many modelers way down the line in our modeling career, Steve Kowalik was probably the one who did the most in getting us really started in the hobby.

Going back to pre-depression days, Mullins & Sons, a large men's and boys' clothing store in Wilmington, Delaware, had a sort of "playground" on the third floor . . . a place for young kids to play on swings, see-saws, and push-em-yourself merry-go-rounds while the parents shopped. This had been a favorite spot for this writer in his single-digit years of age.

Around 1932 or 1933, the store installed a model airplane shop adjacent to the "playground". It occupied a large area at one end of the third floor, with a fairly long counter, backed by high shelves for the various lines of kits. Over to one side were old-fashioned (well, not then) glass-covered clothing display cases, filled with solid and built-up scale models. We can still picture those intricately detailed and many-colored scale ships, mostly built from Cleveland and Peerless kits, that held us entranced for hours at a time . . . just looking in wonderment . . .

It was here that we saw our first microfilm model . . . "My gosh, is that covered with cellophane?" It was here that we bought and built Megow's first flying model, the "Parlor Fly." It was here that we watched a fellow hand-wind his Cleveland Boeing 95 Mailplane (you bet it was a biplane!) with the hardwood hubbed, fiber bladed prop. He set it on top of one of the display cases and two or three fellow modelers stood by about 20 feet away to catch it as he released it for one beautiful and realistic takeoff after another . . . to be caught by one of his helpers. And it was here that we saw and heard our first gas model engine . . . a Brown, of course.

Steve Kowalik operated the hobby shop. It might have been his store, or maybe Mullins', we don't know. However, it was Steve who helped us with the Parlor Fly, who explained about microfilm, who allowed us to watch and occasionally help with the construction of some of his models, and who had the audacity to crank up that Brown inside the store!

We'll stop here, because the flash-backs are coming so thick and fast that we could fill up the whole issue with memories. wcn)

**MODEL
BUILDER**

4771