

# JUMBO SCALE CESSNA AW

By JIM ADAMS

● The Cessna A-W Monoplane was the first cantilever wing, four place type manufactured and flown at the company's field in Wichita, Kansas. It was powered by a 200 h.p. Wright Whirlwind engine. The plane was also available powered by the Siemens or Anzani engines, as desired by the purchaser.

A close look at the plan shows the family resemblance to the famous pre-war Cessna Airmaster and today's Cessna 195. Obviously, the A-W is the granddaddy of all of them. The Cessna Monoplane had a wing span of 40 feet, 6-1/2 inches and length of 23 feet, 8-1/2 inches. The wing was constructed of spruce and plywood, while the fuselage, landing gear and tail group were made of steel tubing. The entire airplane was fabric covered. Outstanding features of the plane included its simplicity and distinctive appearance due to the lack of struts.

Construction of the model is very conventional and requires very little explanation. The most important thing to remember in building a Jumbo rubber scale model is to keep the weight to a minimum. This is true with all scale models, but must be particularly emphasized on the large ones. Extra weight will penalize your model during the climb by forcing you to add more rubber . . . which in turn adds more weight.

The 3/32 sheet stripped ribs (a la indoor style) are not absolutely necessary. If you should desire to use sheet ribs, use 1/16 light sheet balsa and substitute 3/32 square spars on the top and bottom of the wing in place of the sheet spars called out on the plan. The strip ribs are trimmed to the length shown on the plan by cutting excess length from the rear end of the ribs. Patterns are given, one for the ribs between the center and the rib half way to the tip and the other for the ribs from the mid-point on each wing panel to the tip.

Wing construction is started by pinning the leading and trailing edges down over the plan, and adding the 3/32 square lower ribs (Note: These are located at every other rib location.). Add the spars and then trim and cement the previously stripped upper surface wing ribs into place.

The recommended tail construction is laminated per instructions given previously in Fernando Ramos' scale articles in earlier MODEL BUILDER issues. The material is 1/32 x 1/16 inch basswood strips.

Paper surfaces should be water shrunk

after covering and given two light coats of clear dope. If you desire color, spray on a very light mixture of flat train paint and clear dope or clear lacquer. Mix approximately 50-50. Be careful here, and use pigmented finishes sparingly; this is where the weight can build up.

A technique that I have used for several years on tissue, silk span, and silk . . . either wet or dry . . . is to apply two coats of full strength dope to all framework where you want the covering to adhere, let it dry. Sand lightly, and then smooth on covering, using your dope brush to apply thinner to the paper. The thinner activates the dope under the covering instantly and dries very rapidly. Any blushing that occurs will be removed by the first coat of dope. If you get a wrinkle you can lift the paper by re-wetting the area with thinner.

The lettering is cut from black tissue and applied with sparingly used thinner on a small brush. Too much thinner will cause colored dope to bleed through.

One of the most important requirements for getting good flights is the right propeller and the right rubber motor. Don't be afraid to tackle this job and don't be discouraged if your first prop turns out looking like a butter paddle or an oar from a lifeboat. I've noticed that even model builders who have been flying for years often have trouble with the propeller. Start by cutting the block to the dimensions shown in the plans. Carve the back side first, following the lines formed by the edge of the prop. Don't try to put in a lot of undercamber; just get it at least flat from edge to edge. If some undercamber is desired, limit it to 3/32 inch max. Next, shape the front side of the blades to obtain an airfoil shape. Keep the leading and trailing edges of the blades fairly sharp and thin, much like a speed job wing. The prop blades must not be thick and blunt if they are to perform as they should. Don't be afraid to sand the blades to approximately 3/32 to 1/8 inch thick . . . of course, they will be thicker as you approach the hub, but keep them light.

After you have sanded and balanced the prop, coat it with 3 or 4 coats of dope or wood filler, sanded between coats and topped off with a coat of epoxy or Fuller's Plast. Plast is a polyurethane based bar top finish and fuel proofer that gives excellent flexibility to the finished prop.

The nose block should be drilled with approximately 1-1/2° of down and 1-1/2° of right thrust. I made the nose block on my model with a slight taper to the sides that fit into the hollow round hole in the nose-piece. The nose block is wedged into the hole by the tension of the rubber. The down and right thrust can be varied by rotating the nose block to obtain more down thrust or more right, as desired. The block and the nose piece should be marked at the top center line in order to maintain the proper setting on successive flights.

The rubber motor is 14 strands of 1/8 brown rubber 26 inches long. Initial flights should be made with 50 turns, then increasing to 75 and then 100. Once the model demonstrates that it is properly trimmed, you can put in 400 to 500 turns, depending on condition of your rubber and your nerve. The motor will take more, but refer to published charts on rubber capacity before trying to wind to maximum turns. However, before putting in even one turn find a large patch of deep grass and try a few gentle glides.

First add some clay to the inside of the nose piece until the model balances at a point 1/3 of the way back from the leading edge of the wing. Aim the nose of the model at a spot on the ground 25 feet away and give it a gentle toss. Add 1/32 inch thick shims under the front of the stab if it stalls and under the rear if it dives.

The model should have a gentle left turn in the glide; the right thrust will take the model around to the right under power. The left turn may not be noticeable during hand gliding, but should show up during low power flights. The entire rudder is moved to get the proper turn. Small blocks (1/8 square) should be added to the lower side of the stab at the leading edge and spar to index the tail assembly to the fuselage. This will ensure the same setting on successive flights. If your model

appears to stall slightly, dipping a wing tip before the nose dips and recovers, it is a common problem with scale models.

This is not to be confused with a straight ahead stall that can be cured with more down thrust. It can usually be cured by warping some washout into each wingtip. Washout is added by steaming and twisting the trailing edges up over a tea kettle.

The model is very stable and should afford you many hours of enjoyment.