# HAWK F-11-C

**By SIDNEY MICHAELS**

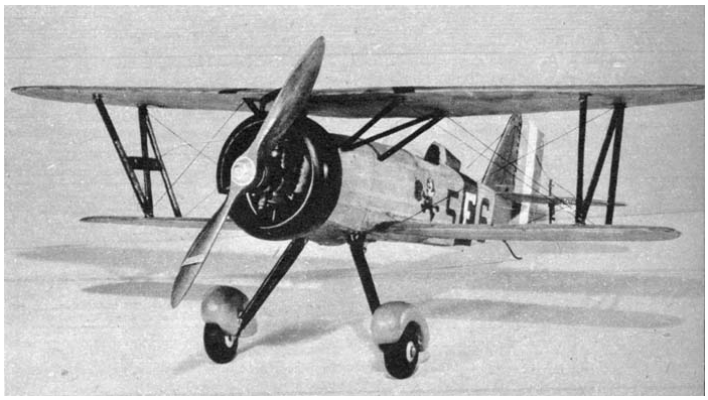
BUILDING a model just to make it the smallest is a waste of time. But building a small model that can and will satisfy in every respect is a real step forward in model science. There have been many who have said that small models and small engines in control-line are impractical and can't work; well, this one does. It won't win speed contests, but it will fly very satisfactorily. 1 well remember a meeting in Chicago attended by engine manufacturers, members of the control-line rules committee of the AMA, and some of the most important model designers in the business. One member of the rules committee flatly stated that anything below .23 in engines just wouldn't fly. Carl Goldberg said maybe he was right, but if he was, would he please tell him just what was happening every time he flew his Atom-powered job. Could it be that it was an optical illusion when he thought he saw it in the air at the end of the lines?

Of course, if any one attempted to end this controversy in modeling he would just about kill off the good old American pastime, fat battening in models. I'm just trying to say that there are two sides to every argument and there is no reason why this snappy little scale-liner won't give you many hours of good flying.

Construction: The fuselage is the conventional frame and former type of construction and very simple to build. Select good straight grain 1/8" squares for the fuselage frame and lay out over the side view of the fuselage. Build both sides at the same time, one over the other. When dry, remove the sides from the work board and insert the 1/8" square crosspieces. Before gluing the formers in place install the ignition system complete with ignition cut-off switch. The control-plate, control rod, and pivot horn should also be installed before the formers are glued in place. The 1/8" plywood firewall is now mounted then the balance of the formers are glued in place. After the formers have set, install the 1/16" x 1/8" stringers to complete the fuselage. At station three (3) on the fuselage fill in between the uprights with 1/8" hard sheet balsa and attach the landing gear against this brace. The original model used a sandwich of 1/8" hard balsa to hold the gear in place.

The top of the fuselage is covered with 1/16" soft sheet; the bottom is covered with the same soft sheet between formers I and J. The .030 piano wire tail skid is bound and glued against the bottom longerons. Cut out the 1/16" sheet to form the cockpit and add the celluloid windshield to complete the fuselage,

The engine cowling ring is built up in laminated form of 1/4" sheet balsa. This construction is very simple: draw five 3-1/2" diameter circles on soft balsa. Now draw 3-1/4" dia. circles inside those that have already been drawn. Cut out the inside circles of all five rings and then roughly cut around the outside circles, allowing about 1/4" stock from the outside edge of the circle. After all five rings have been cut out in this fashion, glue for the spark plug. A piece of heavy gauge aluminum bent at the rings while they are drying. When dry, sandpaper the cowl to them together and lay a heavy object, such as a book, on top of match the outline shown on the plans and cut the clearance hole right angles can be used to hold the cowling ring in place. Fasten the aluminum bracket to the firewall and glue the other end to the inside face of the ring. The wheel pants are formed in the same fashion as the cowling ring. The landing gear fairing and pants are used only for show purposes and should not be used when flying the model.



THIS FAMOUS SHIP MAY NEVER WIN A SPEED CONTEST, BUT IT WILL AFFORD ITS BUILDER HOURS OF ENJOYMENT

The wing, stabilizer, and rudder are of conventional design and do not require any special instructions. However, you will note that the main spar of the lower wing butts against the front of station four (4). To strengthen this section, fill in between the cross braces with 1/8" sheet exactly as you did for the landing gear at station three (3). The upper wing is built as a separate unit and is held in place by the wing struts. As this is the only support this wing has, be sure to have exceptionally good joints for the wing struts. The line guide of 1/16" plywood is mounted between the outer struts on the side of the model that you prefer. The 1/8" sheet stabilizer is cut to outline and then split at the elevator line, Sand to an airfoil shape and then glue in place. The sheet rudder is cut and sanded in the same manner and is glued in place on the stab.

Flying: The model balances on the front control-line. If necessary, move the batteries to achieve this balance. The original model weighed 10-3/4 ounces; if possible, try to keep within this weight or even less. When ready for the first power flight, use maximum power. Models as small as these require all the power they can have. The speed is not great enough to endanger the model from any over-control. Some builders prefer to fly clockwise to overcome motor torque. Others By counter clockwise with either the rudder offset to the right or right thrust in the engine. Whichever way you may choose to fly the model, be sure to let the model fly itself for a number of laps. In this manner you can feel out all the control bugs and note the control reaction. Then, when you are thoroughly familiar with it, you can make with the stunts and acrobatics. The sturdiness of this little job will amaze you. and what Francis Reynolds said about control-line aerobatics (June, 1946, Air Trails Pictorial) is within the scope of this scale-liner.