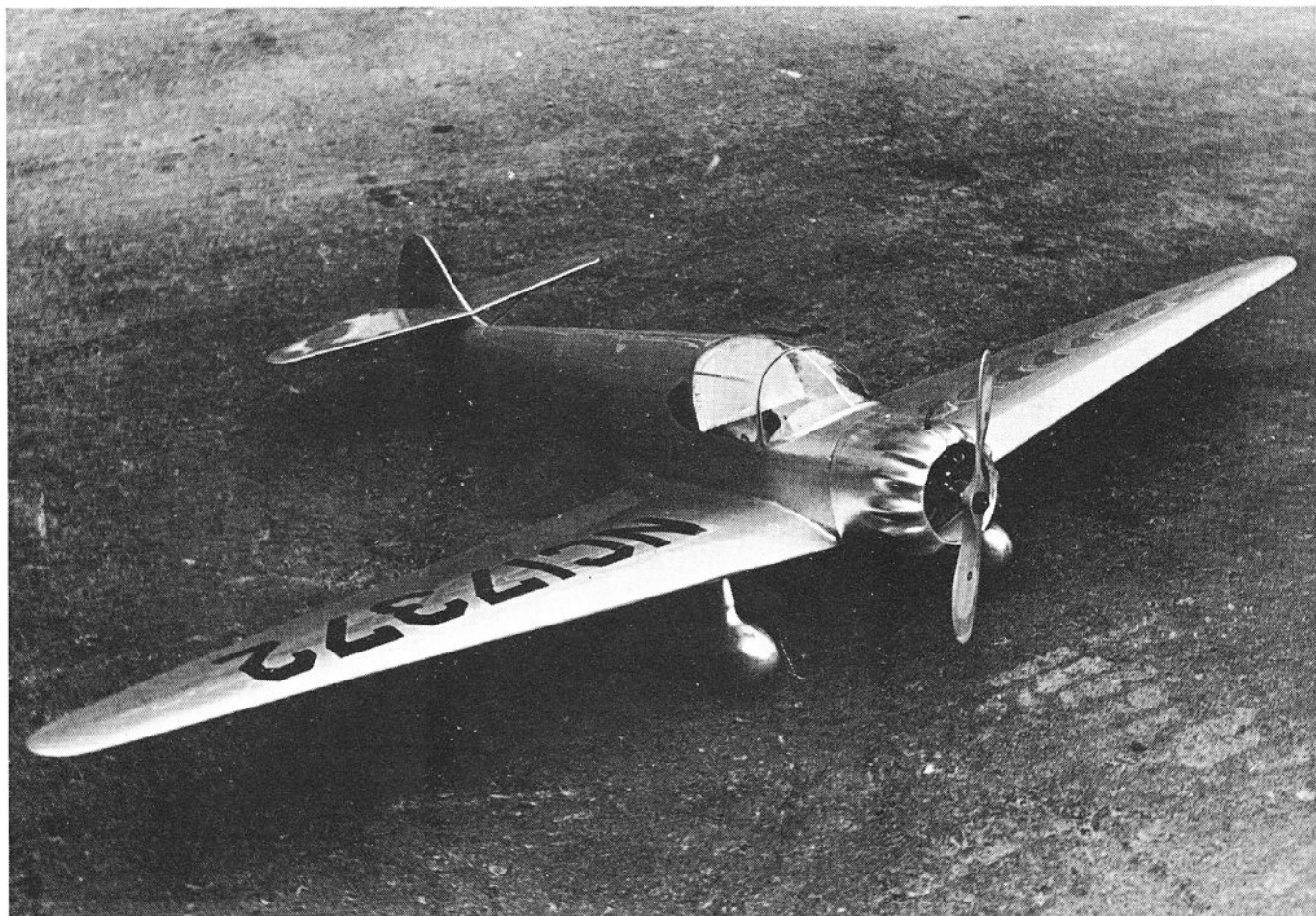


# Ryan SC

IN 1930's THIS PLANE WAS WAY AHEAD OF ITS CONTEMPORARIES IN DESIGN AND PERFORMANCE. HERE IS A FINE FLYING FF SCALE VERSION.



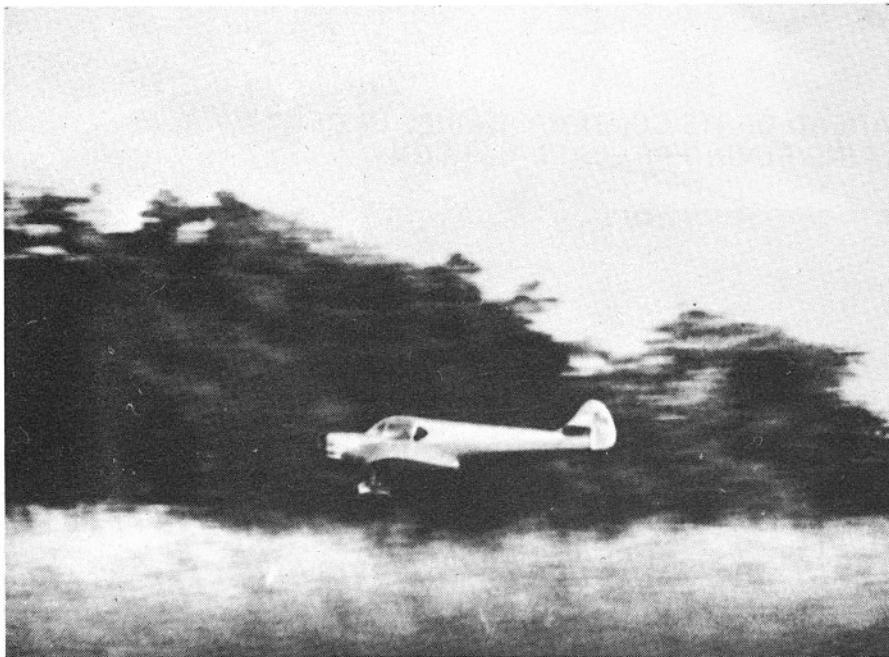
Photos by Dr. Robert Carroll

by MARTIN CARLIDGE, JR.

Tired of the same old high wing sport models? I was. While paging through back issues of *AAM* looking for something different, I came across the fine article and three-views of the Ryan SC, so this fine-looking Sport Cabin aircraft of the mid 30's became my next project.

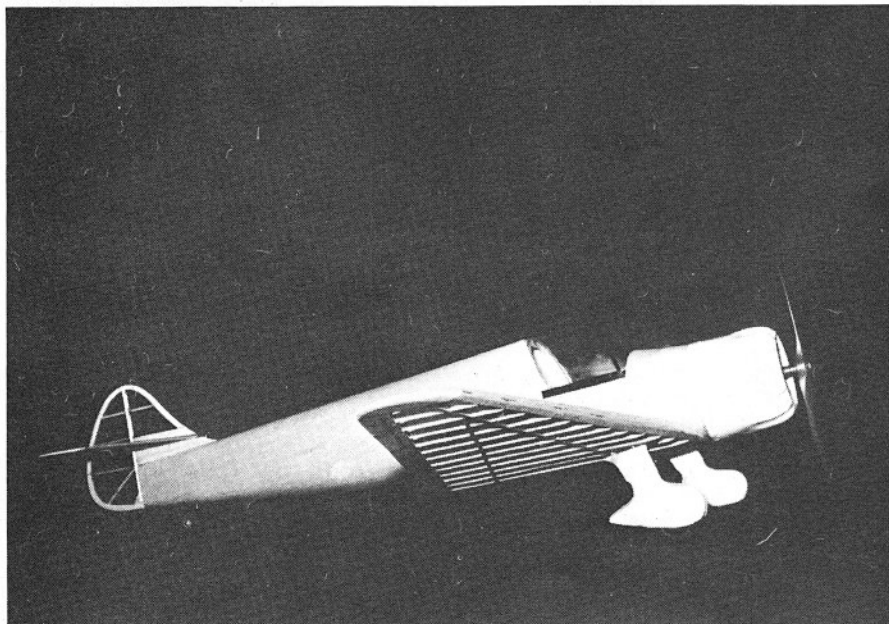
Although the Ryan SC has a few characteristics, such as extreme wing taper and small tail surfaces, which are not normally associated with good free flight performance, it was decided to give her a go anyway.

The first test flights quickly dispel fears and once you become used to the higher flying speed (she definitely is no floater) and trim her accordingly, she will turn in some fine flights.



Flight of the Ryan is fast and smooth. Built light, it glides real well. Its speed helps it handle windy contest days easily.

Construction of the ship is not particularly difficult. Fuselage is a balsa sheet monocoque assembly. Canopy, cowl and wheel pants were vacuum-formed from light plastic at home, text describes how.



### Construction

The fuselage is the most difficult part of the model, so let's start with it. Begin by cutting all the bulkheads from 1/8 medium balsa. Assemble formers F-5 thru F-9 on the 1/4 in. sq. upper and lower keels, being especially careful to insure correct alignment. Install FW-1 (2 each) and formers F-3 and F-4. Butt glue 1/32 sheet balsa together to form a piece large enough for the fuselage skin. Use the template on the plan to cut the skin to shape. This is oversize and will be trimmed after assembly.

Soak the skin in very hot water for about 10 minutes. Carefully position the skin on the top keel member and wrap around the frame, allowing it to overlap at the bottom keel. Carefully pin and tape the skin in place and allow to dry. Trim the skin by cutting through the overlapping layers, leaving a good butt joint at the bottom aft fuselage and at the top, just forward of the cabin. Allow the skin to dry, then remove it from former and bulkhead assembly.

Apply cement to the former and bulkhead assembly from F-5 aft to F-9 and place inside the molded skin. Again use pins and tape to secure it. Avoid application of pressure between bulkheads, as this causes sagging. Now the skin can be glued to the bulkheads forward of F-5, and when completely dry, trimmed to shape. Do not trim the skin at the wing attach area until fitting the wing assembly. Add the 1/16 plywood firewall, being sure to epoxy the nuts for the engine mount to the back side. Add the cowl mount tabs. Mount the engine as indicated on the drawings.

Construction of the empennage is simple and straightforward. Use medium balsa and double glue all joints to prevent warping.

The wing panels can be built directly over the plan. Notch the leading and trailing edges and insert all wing ribs. Insert the upper and lower wing spars. Before gluing in the lower aft spar, raise the trailing edge at the wing tip 1/4 in. This wash-out is essential to good flight stability and must be accurate. Add the wing tip blocks and sand to shape. Join the wing halves using W-15 to establish the proper dihedral angle, 3 in. at each tip. Bend the landing gear wire as outlined on the drawings. Epoxy and soft wire are used to fasten the wire to W-17, the 1/16 plywood mounting plate. W-17 is epoxied into the wing. The 1/16 balsa webs are inserted between W-2, W-3 and W-4 on the forward side of the spars. The leading edge can be sheeted at this time. Wetting the outside surface of the sheeting will aid in forming the skin to

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the rib curvature. The skin overlaps the leading edge and is sanded smooth.

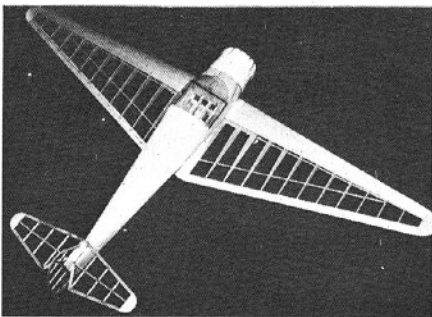
The cowl, canopy and wheel covers of the original were vacuum-formed of 1/16" styrene plastic. This is a simple but interesting process which may be used for numerous modeling projects. Carving the forms may seem like a lot of work, but the results are well worth the extra effort and add a custom touch to the finished model.

A simple vacuum box of pine or ply is necessary. The box is open on the top only, with a hole in one side to accept the vacuum hose. The plastic is stapled to a frame which has the same dimensions as the vacuum box.

The plastic is heated in the oven until it just begins to smoke. Turn on the vacuum and quickly remove the frame containing the heated styrene from the oven. Place the frame over the vacuum box containing the form. The vacuum will draw the plastic down tight over the form. Shut off the vacuum and allow to cool. It will be necessary to slit the cowl on its lower surface in order to remove it. A small amount of acetone will join the parts together. Be sure the cowl mold is recessed on the forward edge and a vacuum hole is provided to draw the plastic into the recess.

The cowl and wheel covers may be built up in the conventional manner. The canopy can be draw-formed by pulling a sheet of heated clear plastic over the canopy form.

The wing should be joined to the fuselage at this time. Carefully position the wing in the fuselage cutout and ad-

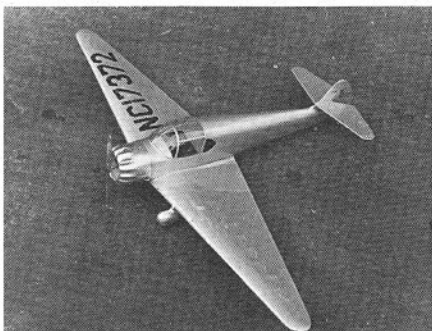


Long, graceful, tapered wings and stab are beautiful.

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The Ryan could be adapted to rudder-only RC but do add a bit more dihedral. Model is MonoKoted.

just for approximately +3° incidence. Use soft balsa to fill in between the leading edge and former F-3. The wing fillets are added now. Insert W-19 and the laminated trailing edge blocks. Cement the lower fillet skins in place first. Soak the top fillet skin in hot water and cement to the top of the root ribs and the sides of the fuselage. Pin as necessary to hold in shape.

The original model was covered with silver MonoKote. Undoubtedly, colored tissue and clear dope would result in a lighter model—the choice is yours. Glue the horizontal stabilizer in place after covering. If MonoKote is used, be sure to trim it away in the area to be cemented. The cowl and wheel covers are painted silver, as were the canopy frames. Wing and tail numbers can be added using black tissue, MonoKote or paint.

### Flying

If possible, find a flying site with tall grass for the initial test flights. Add weight to the nose or tail so that the model balances when held at the center of the wing tips. Adjust the balance until a nice flat, fast glide is obtained. First powered flights should be at reduced power. Add downthrust if stalls develop under power and adjust for wide turns. Remember, the high taper wing will not readily recover from steep turns, so avoid them.

Properly trimmed, the Ryan is a fine performer. Don't hesitate to try a few ROG—they are something to see.