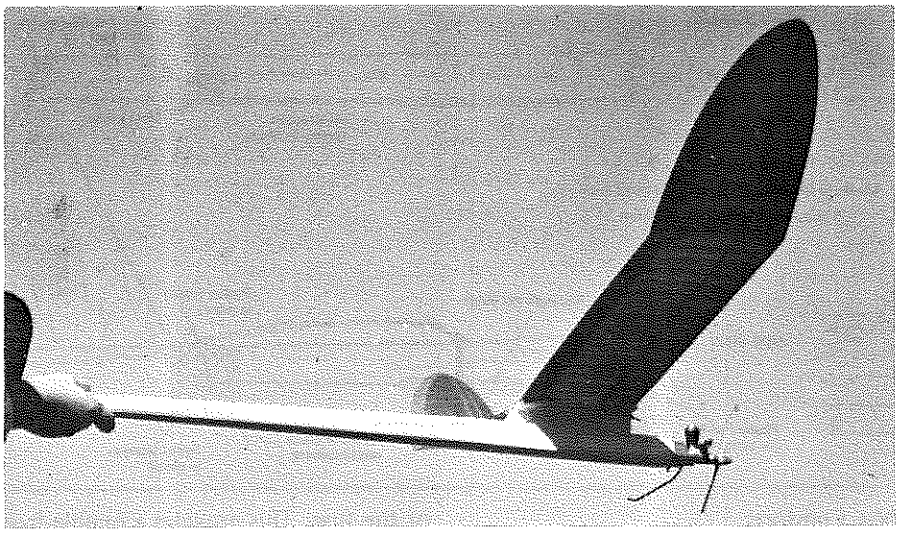


1/2A SHRIKE

Here's a competition ship that is better than average in looks and performance. It likes to climb! **By BILL LANGENBERG.**

• Perhaps the most common type of free flight model which appears in the hobby literature is the "hot" 1/2A. Many free flighters, I suspect, can recall a host of these ships, most claiming in some degree to be the ultimate in light weight, rapid climb, and soaring glide.

I shall refrain from use of such superlatives to describe the Shrike. It is, however, an esthetic, consistent, competitive, and durable model which has been quite successful and enjoyable for me over many contest seasons.

During the past ten years, I have lived and flown competitive free flight in California, Arizona, Texas and surrounding states. From the modeler's standpoint there are marked differences in altitude, terrain, climate, and wind among these regions. Probably the most meaningful recommendation that I can make for this model, and its predecessors of the same general design, is that they have demonstrated consistency and durability in competing under these widely varied conditions. Originally designed for the 20 second engine run, 5 minute max rules, the Shrike has been refined over the years to be competitive under the 9-15 second power pattern and 3 minute maxes which seem more common today.

For those readers curious about the name, the Shrike is a predatory bird which impales its prey on thorns. If this model is built as shown on the plans, and flown intelligently, it should survive its competitors which become impaled on wheat stubble, barbed wire fences, or other flying field hazards, and continue to be successful for many contest seasons.

So if the plan appeals to your esthetic tastes, and you seek a consistent, durable 1/2A or A model which will permit you to compete rather than build, the Shrike may be for you.

STABILIZER

Begin construction with the stabilizer so that it can be covered, doped, and cured before any test flights are attempted. To withstand the rigors of DT landings and enhance durability, spruce spars and leading edge are utilized. Balsa can be substituted if weight is the ultimate criterion to the builder, although this is not recommended. The stabilizer should be covered with tissue and given at least three coats of thinned dope. I normally prefer nitrate to butrate dope because it appears less susceptible to moisture changes in the pair. If nitrate dope is used, a coat of fuel proofer must be applied as the final step. The stabilizer should be absolutely free of warps.

WING

Next in construction sequence is the wing. It is straightforward and should present few building problems. Here again, balsa can be substituted for the spruce shown on the plans, although I do not recommend it.

Select the wood for the wing tips with care, as they should be kept as light as possible. For the two inboard wing panels, ribs should be cut from 1/16 quarter grain stock. The trailing edges are preferably carved from similar 3/16 sheet balsa. During assembly, the front of the trailing edge should be packed up to conform with the airfoil as shown on the plan.

Assemble the wing panels to the polyhedral dimensions indicated, using liberal amounts of glue on all joints. Install plywood gussets and triangular reinforcements as shown. Sand the entire completed structure carefully to ensure an attractive covering job.

I recommend covering the inboard wing panels with GM silkspan to enhance torsional rigidity and facilitate field repairs and patches. If tissue is used, cross grained double covering of the inboard panels is desirable. As on the stabilizer, apply at least 3 coats of nitrate dope, plus fuel proofer on the inboard panels. Set the wing aside and allow it to cure thoroughly. The right inboard wing panel should have 1/8 inch wash-in.

FIN

The fin is cut from 3/32 soft sheet to the outline shown on the plan. It should be carved and sanded to a streamline shape as indicated.

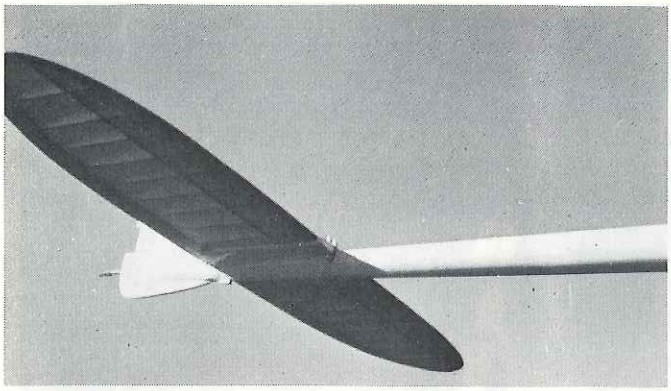
FUSELAGE

Select four 1/8 x 1/8 straight grained strips for the longerons and carve them to triangular shape aft of Section A as indicated on the plan. Cut two fuselage sides from 3/32 soft sheet balsa. Now pin one side over the plan and glue the longerons to it. Insert 1/8 balsa bulkheads just forward and aft of the pylon, and spaced about every 4 inches thereafter to just in front of the fin. Add another one ahead of the D-T timer. Remove the first fuselage side from the plan, and glue the shaped longerons to the second side. After it dries, attach the second side to the bulkheads, making sure that the entire fuselage is properly aligned.

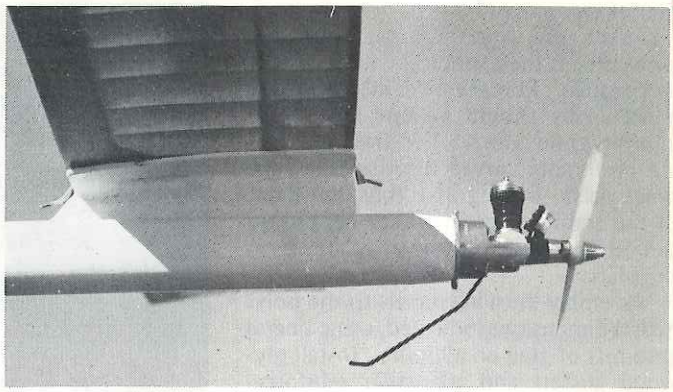
Select a sheet of medium 3/32 balsa for the fuselage bottom. Sand smooth the two fuselage sides, longerons, and connecting bulkheads, and then glue the entire assembly to the bottom sheet. This whole structure can be pinned to a flat surface. Cut the pylon, very accurately, from hard 1/8 sheet balsa, notch it for the bulkhead forward of the D-T timer, and glue it firmly in place. Ensure it is perfectly vertical. Now sand smooth the fuselage top, and glue the 3/32 cover sheet on it for the entire length. Prepare the wing and stabilizer platforms as shown on the plan.

After the fuselage assembly has dried, remove it from the plan. Cut and drill the 1/8 plywood firewall to fit a Tatone tank mount. Install blind mounting nuts. Then glue the firewall to six cross grained sheets of 1/8 bass wood, and cement this assembly to the fuselage forward bulkhead as shown on the plan. Epoxy is recommended for this process. Now file, carve, and sand the forward fuselage into a smooth round shape to ensure a clean junction with the tank mount. Fiberglass and epoxy resin over this entire region.

Sand smooth the balance of the fuselage, then add the wing and stabilizer platforms. Cut out the fuselage for the fin, insert if as shown on the plan, check



Tail feathers. VTO peg facilitates takeoff and eliminates possibility of damage or detrimming of rudder tab during launch.



The "Go" end of the Shrike. Design is clean and simple, yet lines are smooth and streamlined.

alignment and glue it in place. Add the 1/16 spruce dowel for the D-T bands, then the tubing for the external D-T string. Bend the wing hooks from 1/16 wire as shown on the plan and epoxy them firmly in place. Drill a 3/32 hole in the bottom of the nose and epoxy a short length of 1/16 I.D. tubing in place to hold the landing skid, which is formed from 1/16 music wire. Sand smooth the entire fuselage and apply two coats of clear dope. Install the engine and D-T timers. I normally apply two coats of epoxy paint as a fuselage finish, primarily because it is durable and absolutely fuel proof. If desired, however, the fuselage can be tissue covered and doped. Ensure that adequate fuel proofing is applied if the latter procedure is used.

FLIGHT TESTING

The crucible of a hot 1/2A model usually occurs during testing. Normally, the first few flights are most critical. Once these have been completed without mishap, the rest becomes easier. The Shrike is no exception to these statements. Before attempting the first test flight, assemble the model and check it carefully for proper alignment, CG location, and absence of unwanted warps. Test glide it and adjust as necessary by small increments of packing under the leading or trailing edge of the stabilizer.

After the glide is satisfactory, the ship is ready for its first power flight. Set the engine timer for not more than a three second run, start the motor, and hand launch the model gently into the wind at about 45 degrees elevation. Climb should be straight out at the angle of launch, into a slight right spiral. Any tendency to go left in the climb should be corrected immediately, as this normally is fatal. On subsequent test flights, increase length of motor run as flight pattern, safety and intestinal fortitude permit. All of my models of this general design have required about 1/16 inch left rudder tab to keep the tail down during climb. The 1/8 inch wash-in in the right inboard wing panel helps keep it up during ascent.

One word of caution on this subject seems appropriate. If this model is to be used interchangeably in classes 1/2A and A, this test procedure should be repeated upon switching engines. Nothing affects the Shrike's climb pattern more drastically than major changes in power, hence speed. So unless you are absolutely certain your 1/2A and A engines are equal in power output, a few short test flights upon engine changes are normally prudent.

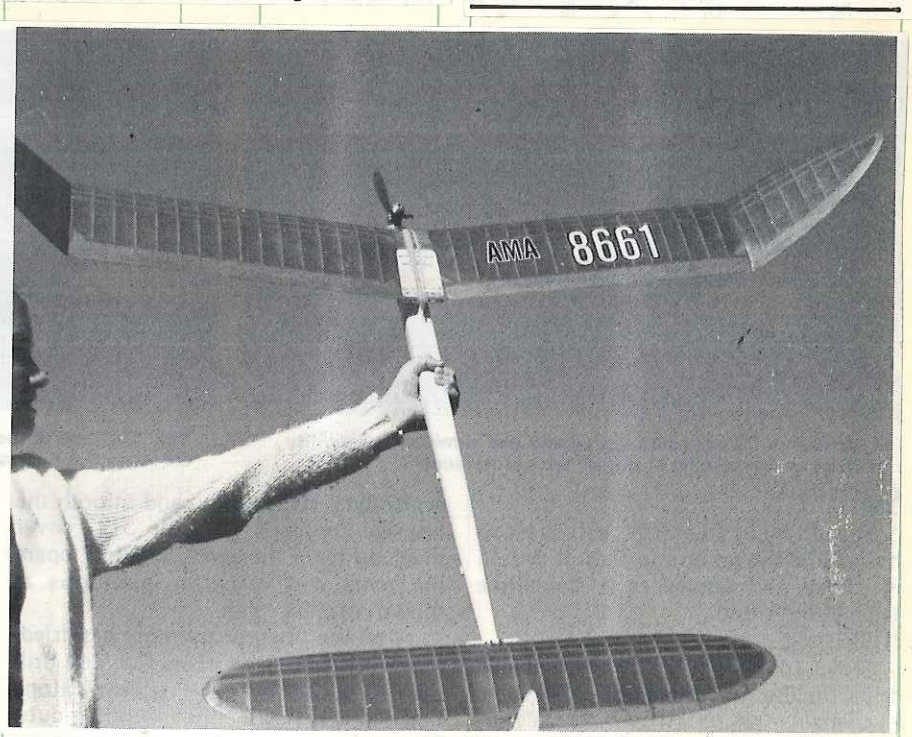
With a full VTO 15 second engine run, this model should make about 3 full turns to the right during climb, and enter glide pattern with no stall or loss in altitude. Flight patterns should be right-right, and this will automatically result if the model is built according to the plans.

COMPETITION DURABILITY

This model should weigh about 8-9 ounces ready to fly if built as shown. In my opinion, this extra weight will not noticeably reduce performance, presuming a hot engine is used. The rugged construction which creates this weight, however, will allow this ship to compete actively for several contest seasons. For those modelers with limited building time, or with a preference for competing to building, this can be a great advantage.

At the risk of being an iconoclast, I make one suggestion to enhance this model's durability . . . minimize unnecessary testing. Once the wing and stabilizer have matured, the model is properly adjusted and has proved its mettle in competition, little additional testing is necessary, Probably 2 or 3 short D-T flights before a contest should suffice.

For those who question this philosophy, how many folded wings, damaged and cracked models, or lost free flight ships can you recall which resulted from superfluous test flights? ●



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