

All the way from Czechoslovakia comes this Old Timer Free Flight that should give your SAM efforts a different look; perfect for R/C Assist.

SATYR

TYPE: R/C Assist FF or Old Time FF
WINGSPAN: 65 inches
WING AREA: 648 square inches
LENGTH: 46 inches
ENGINE: .29-.45 ignition; .21-.25 glow
RADIO: 3-channel

by Jaromir Pipek

Text by Art Schroeder from information supplied by Mr. Pipek

• Satyr is a free-flight design by the late Jiri Smola, editor of the Czechoslovakian modeling journal *Modelar* until his death in 1979. The original plan was issued in 1943 by the Czech modeling firm, Ipro. This model is ideal for ignition power (a .40 c.i.d. engine was used in the original), although glow engines up to .25 c.i.d. may also be employed.

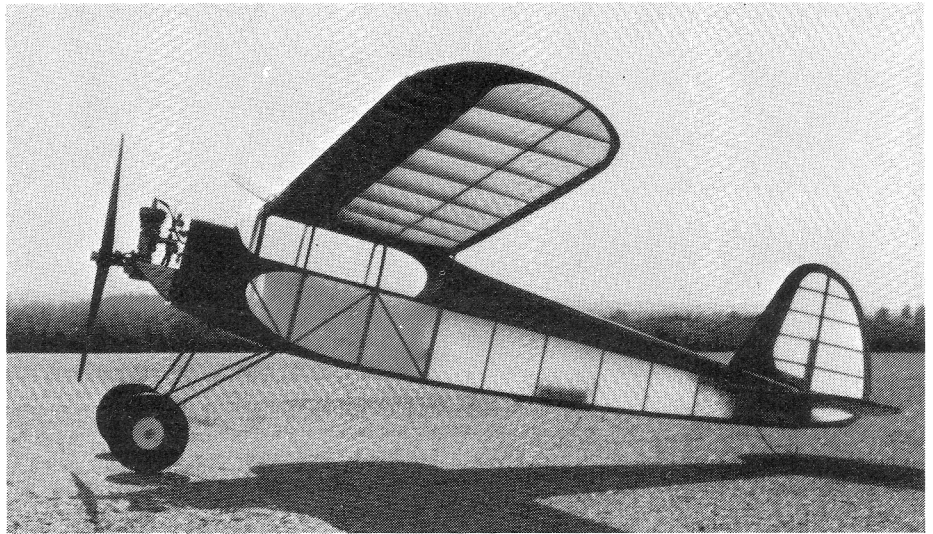
In constructing this replica, I have maintained the same building techniques, materials and covering/finish of the original model. The only change has been the use of radio control for rudder, stabilizer and engine control. Note that the R/C version uses an all-flying stabilizer. A fixed stab with elevators to the main spar line would also be acceptable and probably would be more in keeping with the original 1943 craft. However, the flying stab gives very positive pitch control, is actually less of a drag producer, and is well worth the extra building effort. The only other structure modification was a strengthening of the wing to better handle flight loads imposed by the additional weight of a radio system.

The all-flying rudder is exactly as the original 1943 aircraft's where it was used for flight trim adjustments. One thing is certain, there are not too many R/C assist Old Timers that have both flight control surfaces in this style.

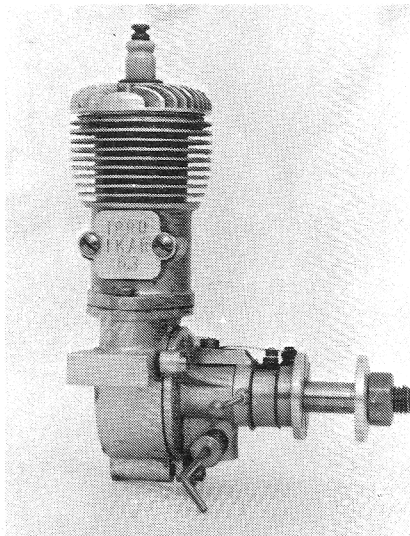
But let's get to some construction notes:

Fuselage. The entire fuselage is assembled of spruce strips and plywood bulkheads. Note that the bottom longerons are actually a lamination of two $\frac{1}{8}$ " x $\frac{1}{8}$ " spruce; top longeron of the basic side is a single strip of $\frac{1}{8}$ " x $\frac{1}{4}$ " spruce. The lamination of the bottom strip takes a bit of time and effort over a single strip, but it adds immeasurably to the overall fuselage strength—don't eliminate the feature! A simple jig made of pins driven directly into the building board will make the lamination easy to achieve—use enough pins to insure that the curvature develops accurately. Upright side members of $\frac{1}{8}$ " sq spruce are installed between the two

OT Replica from 1943



Although it has a familiar look, Satyr is not common to the experience of most Old Timer modelers; ship comes from Czechoslovakia, uses .40 ignition or .25 glow.



above: The Satyr has a delicate look because thinner hardwoods are used, yet this aircraft is very strong.

left: Antique Ipro Ikar 6.3 ccm powered the author's OT ship; interesting engine like the Baby Cyke.

longerons while everything is pinned down; diagonals may be bonded into place after the sides have been joined with the bulkheads. When one side is finished, lay a sheet of plastic wrap over it, press the standing pin heads through the plastic material, and build the second side directly over the first.

By the way, white glue is a good primary glue for this aircraft, but Super Jet (or any other slower-setting alpha cyanoacrylate) will speed construction and gives just as much strength.

Once the two basic sides are set, they can be joined with the plywood bulkheads

(firewall of $\frac{1}{4}$ " ply; all others, $\frac{1}{16}$ " ply). Be careful of alignment and equal curvature of the two sides as they bend to meet the tail post. All $\frac{1}{8}$ " stringers and wing support stringers ($\frac{3}{16}$ " x $\frac{1}{8}$ " spruce) should be added at this time. Forward part of the fuselage from firewall (F-1) to bulkhead F-3 is covered with $\frac{1}{32}$ " plywood.

The landing gear is fixed to the fuselage with aluminum clamps and small bolts or wood screws. There is a $\frac{1}{32}$ " ply hatch that forms the fuselage bottom from forward of F-3 to F-5. It is partially held in place by the landing gear screws and separate

screws at F-4 and 5. This hatch makes ignition and radio installation easy to accomplish.

You will be amazed at this structure's light weight and I can assure you of its strength. It, of course, can be built of 1/4" sq balsa and 1/8" balsa formers, but the spruce and ply is so much stronger with an added benefit of relatively low cost. Because of spruce's tighter grain, fuel absorption will be significantly less than with a balsa structure. Silk or silkspan covering will give a beautiful appearance if you simply finish with a clear coating of dope or clear epoxy paint over a tightening coat of dope. The clear covering gives the structure a delicate appearance, yet it's as strong as a battleship.

The plan shows a bent sheet metal motor mount as used on the original Satyr. Any of the aluminum or nylon mounts available today could be substituted, but I prefer the old-time appearance the mount shown gives. Wing Mfg. Co. makes an E-Z engine mount that is bent sheet steel and gives the appropriate appearance. Their address is P.O. Box 33, Crystal Lake, IL 60014.

Stabilizer and Rudder. Both structures are of balsa and quite simple to build directly over the plans. When completed, sand to symmetrical airfoil shape. You'll have to fabricate the control horn hardware from materials and sizes of tubing and rod available to you. A cut-down Giezendanner flying stab, plug-in control device should work nicely on this airplane. Check with Dick Penrod at Giezendanner USA, P.O. Box 818, Pottstown, PA 19464.

Wing. The wing is of classic construction involving balsa spars and ribs, only the leading edge is of spruce for impact resistance. Note that the center section is flat, and it is suggested that a substructure of the ply spar joiners and ply ribs (W-1) be built. The two main panels are then built, and all three components are slid together, aligned and allowed to set. Epoxy glue for final wing assembly would be best. The center section is covered on both sides with 1/32" plywood. The spars must be tapered from W-3 to the laminated tip which centers on the leading and trailing edges and rises at the tip to meet the center of the spar. That laminated tip is made of 1/16" x 1/8" spruce strips. It will be neces-

sary to soak the strips in hot water (a bit of Clorox added will help the bending) and then bend them around a hardwood template bandsawed to the plan shape. It is suggested that white glue be used as the bonding agent.

After all building is completed a shaping with sandpaper will get the right contour to trailing edge, leading edge and tips, as well as remove all those little bumps you really don't want.

Covering. Silk or silkspan (or most fabric or plastic heat-shrink materials) will work fine for covering. The original was covered with white silkspan, given five coats of clear dope, and then trimmed to the outline shown with red dope. Silk will add additional strength, as would Top Flite's new FabriKote or Coverite.

Engine. My model is powered by an antique spark ignition, Ipro Ikar 6.3 ccm (.40 c.i.d.). You will find that to be a bit difficult to come by in the States. However, any ignition engine from .29 to .45 will work fine. As mentioned before, a .21 to .25 glow engine will also fly the airplane well, but there is nothing better than an old-time sparker in an old-time airplane.

Flying. The model's flight characteristics can best be described as pleasant, particularly with an ignition engine. It is slow but positive under control. In short, as with many old-timers, Satyr is an ideal training plane for novice fliers. The beautiful deep sound of an ignition, gasoline engine and the ship's slow, nearly majestic flight will excite any modeler with a yen for Old-Time Free Flight. Satyr, by the way, is also fine for regular OT Free Flight (you know, the kind you must chase). It is easy to adjust and it should be competitive with most cabin-class aircraft.

I hope you enjoy a bit of modeling history from my country, Czechoslovakia, and I would be interested in hearing from anyone building Satyr; just drop a note to me c/o *Model Airplane News*. ■