

THE SPORTSTAR

A great-flying “beater bird” to hone your flying skills

DESIGNING AND BUILDING a large sport flyer model had been on my mind for some time because I needed something that would keep my aerobatic skills up. Though they fly better than smaller .45- to .60-size planes, larger airplanes take up more space in the sky, appear to fly slower and generally require some getting used to. That said, I built the SportStar as a transitional plane to help build confidence in the average Joe builder who wants something bigger. The SportStar has the features of a sports model; simplicity, economy, easy to build, fly and maintain while still looking good. I think it fulfills these roles nicely and could even be used as an advanced, low-wing trainer.

OFF-THE-SHELF THINKING

I designed the SportStar to be rugged for everyday flying while utilizing off-the-shelf parts such as the engine cowl and landing gear. Mine uses a cowl from a plans set from the UK, but any suitable Sig Mfg. Extra 300, Piper Super Cub or similar cowl will do. If you want a Golden Era racer look, use a radial engine cowl as long as it provides adequate air cooling for the engine.

The landing gear is also a commercial part you can get from your hobby store; mine came from a Sukhoi ARF. The canopy also comes from Sukhoi 26, though any suitable canopy will do. You could even make an open cockpit design with a

SPECIFICATIONS

Model: SportStar

Type: sport-flying “beater bird”

Wingspan: 74 in.

Wing Area: 980.5 sq. in.

Weight: 12.5 lb.

Wing Loading: 29.37 oz./sq. in.

Engine req'd: 1.20 4-stroke or equivalent (20-30cc gas)

Radio req'd: 4-channel (aileron, rudder, elevator, throttle)

windscreen and personalize it to your own tastes. With full-time building hours, my model only took a week to design and build. Even as a part-time project, it should take only a few weeks of evenings to complete.

CONSTRUCTION

First, decide on using either a foam- or built-up wing; both versions are shown on the plans. If you go the foam-core wing route, take the root- and tip-rib templates and transfer onto $\frac{1}{16}$ -inch ply then hook up with a friend with a hot-wire cutter and bring along the plan form of the wing. There are also several foam-core cutters online. For the built-up wood wing, cut out ribs and assemble all the material required as shown on the plans.

For most of the construction, I use Zap adhesives, thick and thin CA and Z-Poxy. I also use Perma-Grit sanding tools and the whole range of these products to get the heavy cutting and shaping done quickly.

WING

The foam wing features a standard approach and there is nothing difficult here. Add the $\frac{1}{2}$ -inch leading edge and block tips to each core, then the false aileron trailing edge and the trailing edge pieces and sand to shape. I'd suggest that you only tack glue the aileron section of the trailing edge so it can be cut away after the whole thing has been sanded. I fitted a servo for each aileron into the wing on $\frac{1}{8}$ -inch ply plates that exposed the whole of the top of the servo. You can also side mount them, which looks a lot neater. Channels in each wing need to be cut for the servo extension leads and the two

It flies as good as it looks—
and it looks great!



Simon says, "Build a SportStar and you'll be glad you did!"



panels should be joined and the middle reinforced using epoxy resin and a 4-inch wide strip of fiberglass cloth.

The built-up version is not a tricky job. Pin down the lower spar and put all the ribs into place. Drop the top spar into the rib slots, add the leading and trailing edges and apply thin Zap CA. You can cover with

balsa sheeting or make the leading and trailing edges covered with open rib bays and cap-strips. The rib patterns are on a separate sheet of plans. Assembly tabs are shown on the ribs as well.

FUSELAGE

Cut two fuselage sides from $\frac{3}{8}$ -inch x

4-inch-wide balsa sheets. Make up two thin plywood doublers and attach them to the sides with contact adhesive making a left- and a right-hand side. The doublers are set back $\frac{3}{8}$ -inch from the front of the balsa sides. This allows the firewall to fit flush into place. Cut all the formers and firewall from the materials shown on the plans



Fuselage sides and ply doublers being glued together with contact adhesive.



The ply firewall and two built-up balsa formers are shown glued to one side.



The second side is added to the fuselage structure. Keep everything square and aligned.



Rear foam turtle deck and front balsa deck formers are shown glued in place.

and glue them to one side using Z-epoxy for the firewall, and CA for the other formers. Use a square to make sure everything is aligned properly. A 1/4-inch balsa "tripler" fits in between the formers at either side of the wing to provide strength to the wing saddle.

Pull in the tail ends and use thick CA to hold in place with a wedge-shaped piece of

balsa scrap in between the sides to form the rudder post section. Check all is aligned over the plans then add the aft formers and spacers to the sides. Make sure everything is perfectly straight before gluing.

Next, install the forward fuel tank support and the former that supports the front of the plywood landing gear attachment plate. All of these forward pieces have

1/2-inch triangle balsa added for strength and rigidity. Be aware that the structure can still move around during assembly, so check for alignment before you Zap these pieces in place. I cut the rear deck from foam on the prototype using the rear cockpit former as a template. You can also make top formers and cover with thin plywood (or 1/8-inch balsa) to produce the required



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Wingspan: 35 in (890 mm) • Weight: 7.2-8 oz (205-225 g) • Length: 29.5 in (750 mm)

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