

## FUNSTAR

One of the great things about our hobby is the choice of various types of models for different purposes that we have available to us. Depending on our mood or the weather on the day, we may choose to fly an aerobatic, scale, sport or other type. Some days I don't feel like dragging out one of my larger models and all its associated equipment and would prefer a model that is easy to carry and quick to set up at the field. This equates to a model small enough to go in the trunk of my car ( a small one ) in one piece i.e. no rigging up at the field. I like the versatility of a fun fly type of aircraft which you can hot dog or just cruise around at low speed for some relaxed flying. These considerations led to the basic configuration of the Funstar.

The usual Fun Fly type of layout with a stick fuselage and the receiver, battery and servos in the wing, is to me, not ideal, in that access to the radio gear and linkage of servos to engine, elevator and rudder can be a problem. I prefer a conventional rugged two wheel undercarriage rather than the flimsy one wheel type often used. The Funstar is designed to avoid these disadvantages, as well as giving good performance with lower powered 2Ss and is simple and economical to build. The servos, radio gear and tank are installed in the fuselage, are easily accessible and control linkages are simple and direct. The undercarriage is strong enough for rough landings, which seem to happen fairly often with me. All up I am very pleased with the performance and general simplicity of using the Funstar.

## CONSTRUCTION

### Fuselage

Start construction by building the fuselage because this will need to be finished before the wing can be made. Cut the fuselage sides, engine bearer, F1, F2, throttle servo mount and u / c parts out of the ply thicknesses nominated, accurately for a good fit. Glue the u / c parts together and glue the tail booms, tapered as shown, to the fuselage sides keeping these flush with the booms on the inside and laid flat on the building surface. When set, make a trial, dry assembly of the fuselage parts. If all is well then glue these together with clamps across the fuselage sides until the glue sets (epoxy recommended). The fuselage is self aligning but the bottom rear section is flat and this should be laid on a building surface and weighted down to ensure proper alignment, until the glue is fully set. Lastly, glue in the servo rails and throttle servo mount.

### Wing

Having completed the basic fuselage cut out a set of parts for the wing. The ribs are all the same shape but note the different thicknesses. The wing is built flat on the building board starting by placing the lower spar on the plan, packed up 1/16" with scrap, pinning down the T.E. as well, then adding the ribs using the fuselage as a spacer for ribs W6 & W7. Fit the spar webs between the ribs then add the top spar, the slightly chamfered T.E. strip, top T.E. sheet and L.E. sheet. The L.E. sheet should finish slightly past the front edges of the ribs to allow it to be sanded back flush with the ribs later, and the L.E. sheet continues in one piece from W1 to W12. Allow to set then turn the wing over, pin it down and install the T.E. and L.E. sheeting. When this is set use a long sanding block to carefully sand the top and bottom L.E. sheeting flush with the front edge of the ribs and then glue in position the leading edge. The wing is completed by adding the cap strips, wing tips and gussets, shaping the L.E., and lastly cutting away the L.E. and L.E. sheeting between W6 & W7, being very careful not to cut into the spars. Next the wing should be covered but not shrunk tight. I used contrasting bright colors on the top and bottom as this makes it much easier to tell which way up the model is at a distance. The covering should be stuck down to W6 & W7 on the fuselage side, or inside, taking the covering about 1/8" down the side of the rib. Generously coat the fuselage and wing mating surfaces with epoxy and make sure they are properly bedded together then leave this to set. After this the covering can be shrunk tight with no risk of distorting ribs W6 & W7 and pulling them away from the fuselage.

### General & finishing

Construction of the ailerons, tailplane, fin & rudder is straightforward and these are built directly over the plans ( as always first covered with waxed paper ) using the balsa stick sizes shown. The thickness of these control surfaces is too thin to allow conventional hinges to be installed so the use of Du-Bro Kwik Hinges or similar is recommended.

Make the aileron torque rods as shown and fix them to the ailerons noting that they are different lengths and are half recessed into a groove made in the aileron and glued in with epoxy. After this cover ailerons, tail and fin frames and hinge the relevant parts together, then install control horns. Fix the tail assembly to the booms, and install the undercarriage as well as the sheeting below and above the fuselage. Make the hatch cover as shown and add blocks for the retaining screws. I recommend giving the engine and tank bay a soaking of thin C.A. before finishing to prevent fuel penetration, then a couple of coats of dope, sanded back, before the paint finish of your choice. The fuel tank is held in position by rubber bands and small screw hooks.

Install the servos as per the plans with control runs indicated, using plastic covered steel fishing trace for the closed loop systems to rudder and elevator. The battery and receiver compartment is fairly small but should hold most modern equipment quite easily.

### Controls set up & flying

I recommend using a radio with dual rates so that low rate can be switched in to take off and land, but this will depend on your nerves and flying ability. My set up has about 1/2" up and down on ailerons and elevator on low rate, the high rate settings being 1 1/8" for ailerons, 7/8" for elevator. I have 1 3/4" of movement on the rudder. You could use these settings as a start then adjust them as you like when you become more familiar with the Funstar. Like fun fly planes generally Funstar has neutral stability and is very responsive to control input. It flies inverted with very little down elevator with the CofG position as shown. I hope you have as much fun as I have with the Funstar!





