

PEE-TEE Sportster

Peter Miller's 55in. span sports model for for 0.40cu.in. four-strokes captures the atmosphere of pre-war US trainers to a tee! For 4 or 5 function R/C



The cowling is made from laminations $\frac{1}{2}$ in. sheet balsa with four Veron 'Hawker Tomtit' cylinders fitted, it is retained with two screws through the front ply ring into the ends of the bearers. A cut down spinner of the type which is held together with two screws, is fitted. The rear portion is cut off and new cut-outs for the propeller blades made in the front part, the rear part now acts as a back-plate. This shape is much more in keeping with the era, this method of making the spinner is Gordon Whitehead's (Thanks, Gordon). A normal spinner can be used of course.

THE DESIGN OF THE 'Pee-Tee' was brought about by one of the moods that all scale designers know; you want to design a scale model, you know just what you want but hours spent with 3-view drawings, a ruler and a calculator leave you feeling even more frustrated because nothing seems to be just what you want. The only cure for this mood is to build something... anything. The Ryan PT-22 had come nearest to my requirements but at the size needed, only the rocker boxes of my Saito 45 stuck through the cowling so in desperation I designed the 'Pee-Tee' based on the Ryan but with bits of other aircraft thrown in (if someone had not had a plan published with the name 'Mongrel', I would have used that name).

Construction was based on my control-line 'Yak 18' (APS plan) of proven lightness and strength, it looks complicated but is really very easy, light and cheap. A 0.30cu. in. two-stroke or 0.40cu. in. four-stroke motor will give a performance that will match the type of model, a 0.40 two-stroke could be used for added performance in which case a single cockpit with a bigger pilot and a fighter or racer colour scheme which would be in keeping with the 30s character of the model. The wing has been designed so that flaps can be fitted with only minor modifications to the design.

Construction

Construction is simple, I kid you not. At first glance the model may seem quite complex

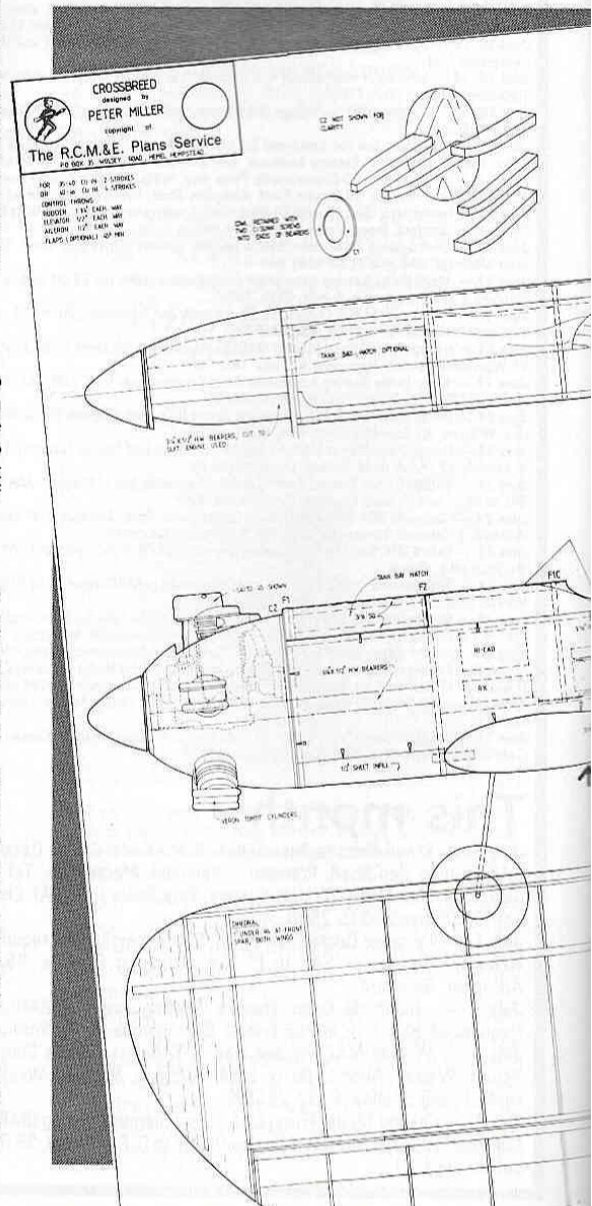
but it isn't, I am very lazy when it comes to building and refuse to design anything with tricky or awkward areas of construction. The plan shows all the required information so the notes that follow will not go into detail but will just discuss some of the main points of interest.

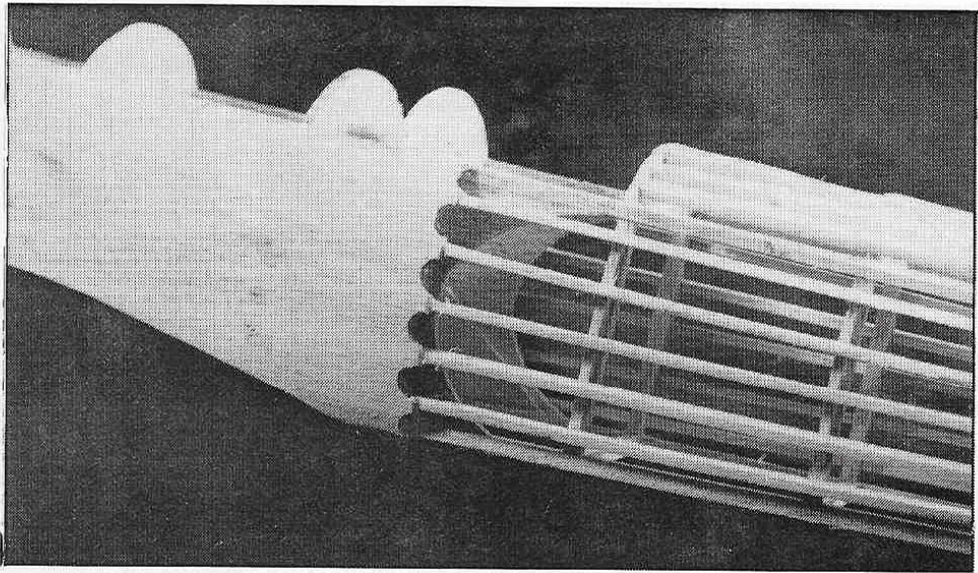
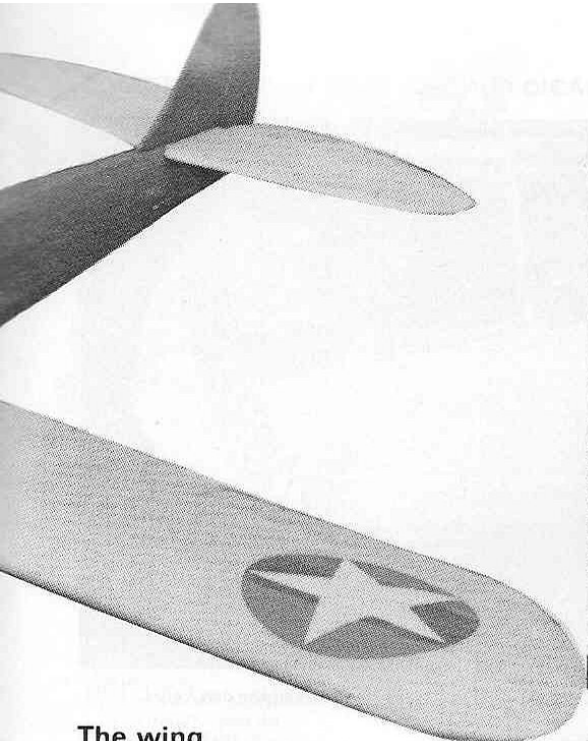
Fuselage

The two sides are built over the plan, the sides could be all sheet if required for use with a four-stroke due to the extra weight of the engine but they are adequately strong as shown, the basic box has side formers at the nose with a double skin, this gives terrific strength and simplifies construction of the oval section.

The side stringers are stuck down before the side sheeting is fitted, after fitting the sheet, the stringers are sanded to match and also tapered to nothing at the rear. The rear bay of the fuselage is sheeted to take the stringers and to act as a weight box. Top and bottom stringers are fitted in the same way. The tank hatch is optional but well worth the slight extra work involved, some law states that an accessible tank will give no trouble while a tank that is built in will always have some problem.

Full-size copies of the plan shown here at 1/6 scale are available as Plan No. RC1476 price £3.95 plus 50p postage from RCM&E Plans Service, PO Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts.





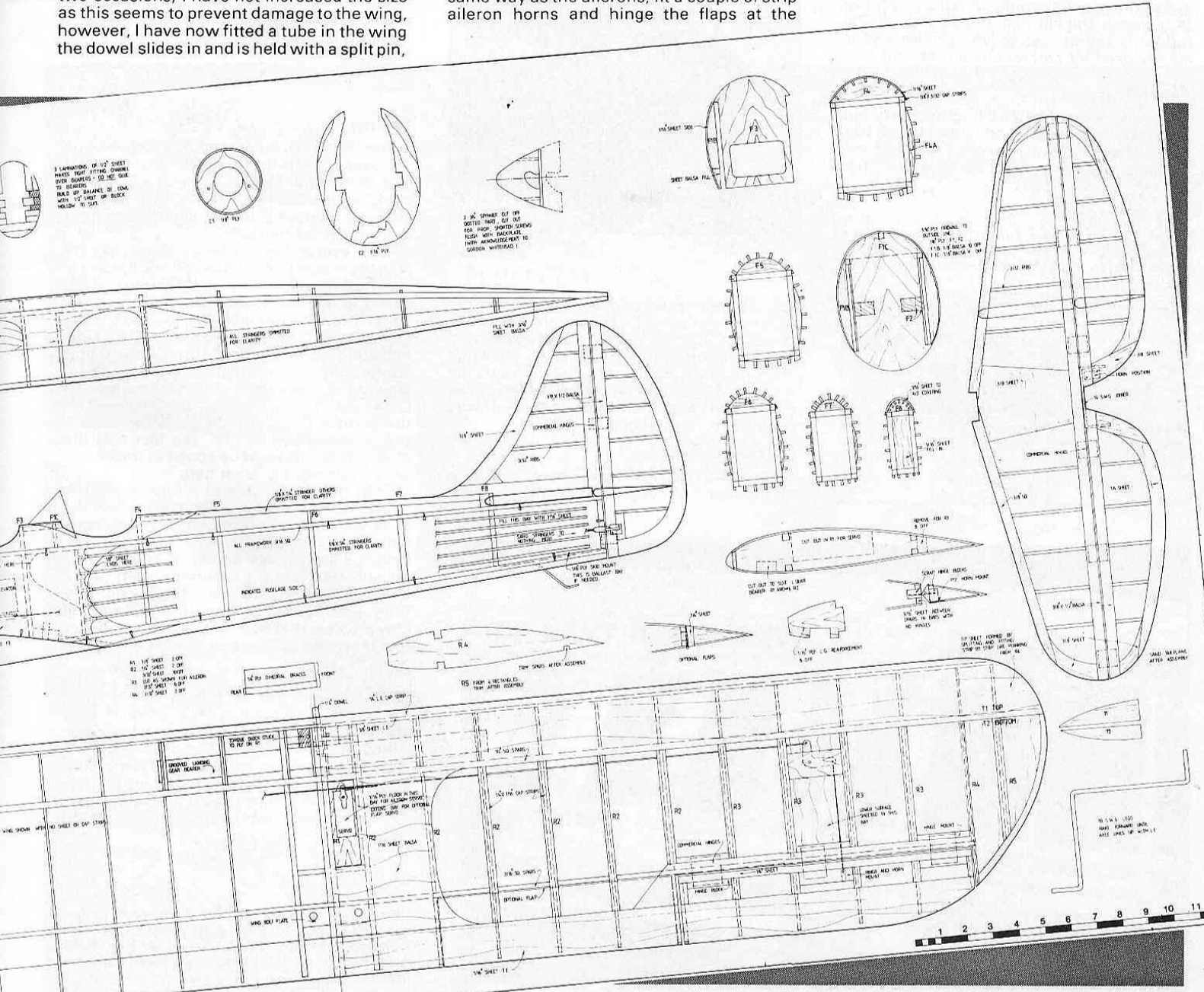
The wing

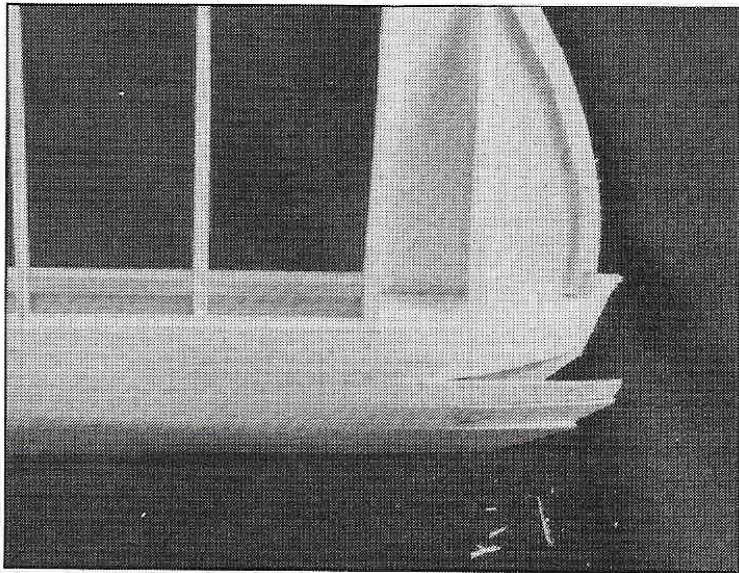
The wing is a standard type of construction and should present no problems to anyone who has built a couple of models. The undercarriage mounting is extremely strong and to date several abrupt arrivals have not moved it in spite of bending the torsion bars.

The front locating dowel has sheared on two occasions, I have not increased the size as this seems to prevent damage to the wing, however, I have now fitted a tube in the wing the dowel slides in and is held with a split pin,

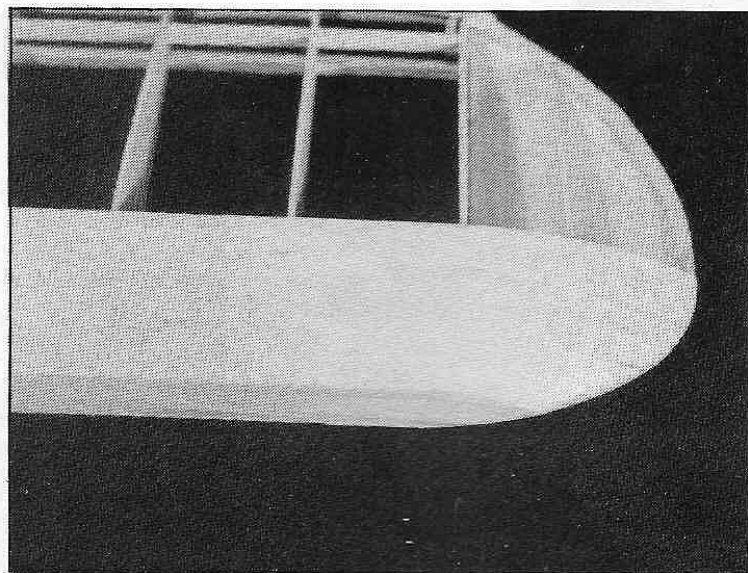
this makes replacement easy on the field. The fixing bolts are fitted just behind the rear spar, there are two reasons for this, first, the whole assembly is much stronger and there is less likelihood of damaging the wing, the second and main reason is that it makes the fitting of flaps easy, one merely has to make the inner portion of the wing in the same way as the ailerons, fit a couple of strip aileron horns and hinge the flaps at the

Above: basic box fuselage employs balsa longerons and spacers, the classic elliptical shape is completed by addition of sheet formers and stringer. Not difficult and very strong.





Above: form the leading edge sheet down to the tip profile by slitting the sheet, cutting out wedge shaped pieces as necessary. Adhesive tape can help to hold everything in place whilst glue dries. Once glue has dried, sand down to a smooth curved shape.



bottom. I didn't do it on mine but the next one in the family which is planned to be even more aerobatic, will have them.

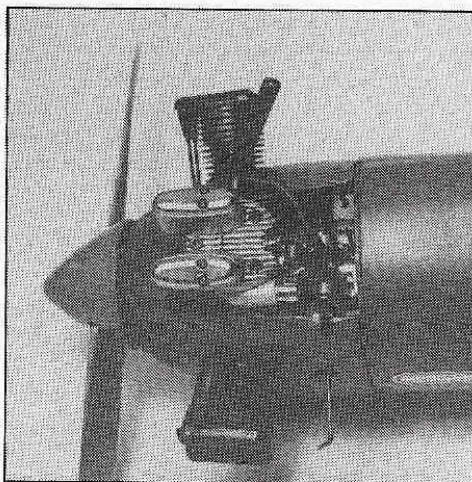
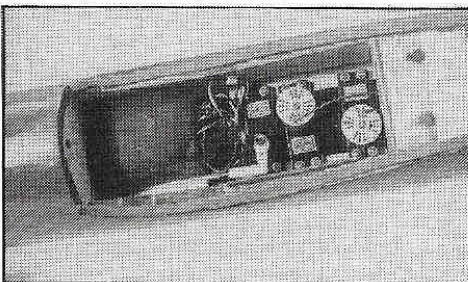
Tail assembly

There is very little to be said about the tail feathers, they are light, strong and easy to make, the experimentally-minded might like to increase the fin and rudder size as the rudder is rather ineffective in flight and is mainly used for corrections on take-off.

Covering

I cannot recommend using anything but 'Solartex', the ease and strength of this material puts it way ahead. I covered the fuselage with one piece of 'Solartex'. The

Right: Veron 'Hawker Tomtit' cylinders make a good match with the Saito 45 used by this author. Below: ACOMS R/C equipment used by the author.



colours are a very good match for the American colours that they are meant to represent. The trim was done with 'Stiktrim' for the blue discs and 'Solarfilm' for the white stars, the only paint used was black in the cockpits. The whole model was given a coat of 'Tufcote' and then the control surfaces were fitted, *not* before.

Installation

I used ACOMS R/C and it was fitted with no problems although one must be careful

that the servos in the fuselage are placed as high as possible to avoid fouling the aileron controls. The switch is fitted to the cockpit floor, this means spacing the servos to make room for it.

Receiver and batteries fit under the front cockpit, the aerial is led out through a short length of snake outer which acts as a mast, this gives the flexibility needed without using elastic bands on the top of the fin.

The throttle is controlled via a snake while pushrods are used for the rudder and elevators, control throws are given on the plan.

Flying

The 'Pee-Tee' is reasonably aerobatic and yet is very easy to fly, I handed the transmitter to a friend who had never flown a low wing model before and he had no trouble at all and promptly started thinking about building a low winger for himself.

With everything set up as shown on the plan the model will not flick roll and in spite of every effort on my part I still have to make it spin, the nearest so far is a relatively gentle spiral dive which stopped as soon as the full up/full rudder was released. Apart from this limitation all aerobatics are possible, loops, bunts, rolls and any combination of these. One of the most satisfying manoeuvres is a clover leaf, four loops with a quarter roll on the vertical down part to give four loops at 90° to the previous one, the fact that the model does not build up speed in the downwards section is a great help.

With the gentle purr of a four-stroke the model seems slow but in fact is quite fast, the glide with a dead engine has a pronounced whistle, those dummy cylinders I expect. Landings are smooth and easy, engine on or off and take-offs are also easy with just a touch of rudder to correct any swing. I fly from a strip that has longish grass and the only problem that this causes is the tendency to remove bits of the lower cylinders in a nose over.

I see no reason why one could not raise the engine bearers and mount the engine inverted like a Ryan STA but not if your engine is a four-stroke without rockerboxes.

Built as per plan the 'Pee-Tee' is a great sports model with good looks, add some extra detail such as rigging wires, U/C leg fairings or even spats and you could have scale fans trying to work out just which American trainer it is. Have fun.

Left: some carving of the hardwood undercarriage blocks required before sheeting the wing leading edge. Plywood doublers are fitted to the front half of centre section ribs to support the blocks.

