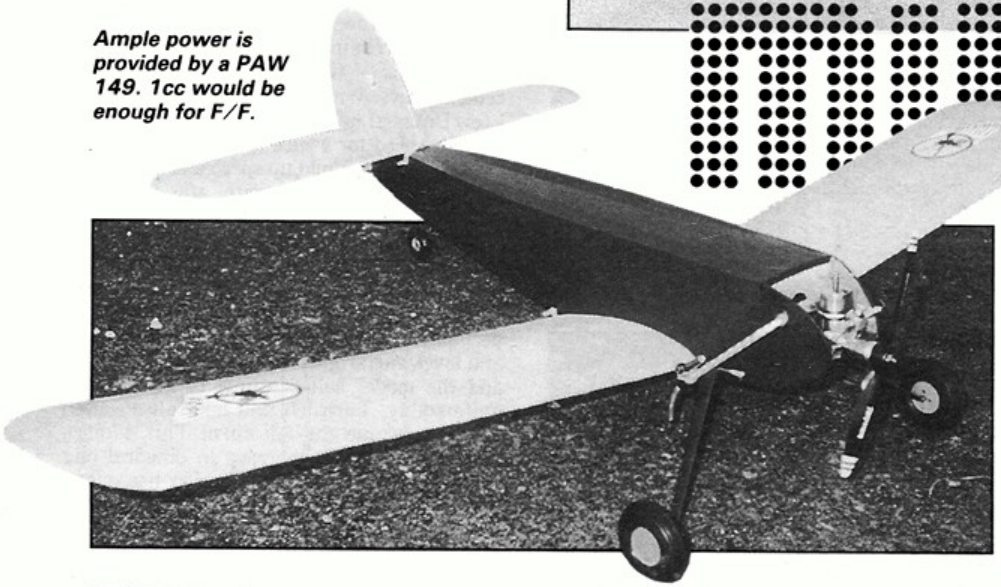
Mike Whittard's 46in. vintage-style sportster is ideal for F/F or R/C

BUILD FROM OUR FULL SIZE PLANS!

Meadowlark

Minor

Ample power is provided by a PAW 149. 1cc would be enough for F/F.

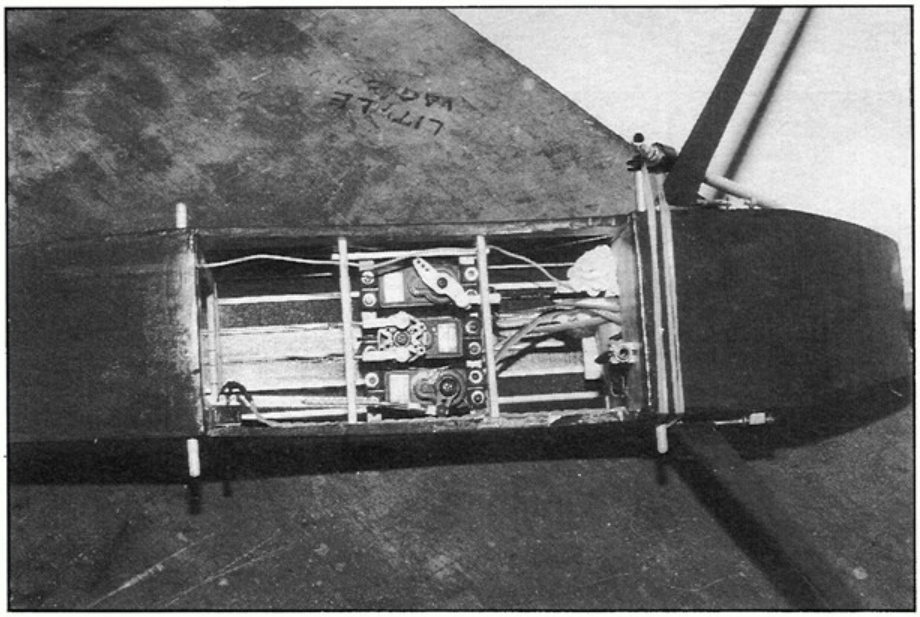


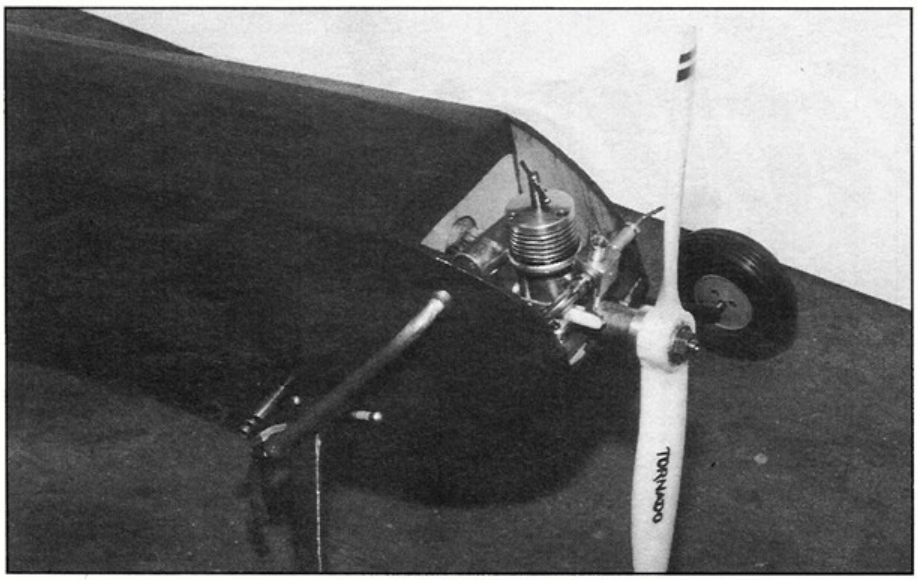
THE MEADOWLARK series is the result of an idea I proposed in the October 1986 Vintage Era column in RCM&E, Aeromodeller's companion volume. Briefly, the idea is an extension of the pre '51 Wakefield concept; that is, to design an R/C power model using the pre '51 technology, apart from engines and radio equipment. As one or three (!) modellers rose to the bait, I felt that I should at least have a go myself. The result was the first Meadowlark of 62in span and 3.1/2lbs weight. Controls were rudder/elevator/throttle, with power provided by an elderly Saito 30 four-stroke. The model proved stable, responsive and rugged, albeit very slow. In my haste to get it built, I managed to incorporate a little more incidence than originally intended. Reduction - in easy stages - to the designed angle (a process known as 'trimming', Brian) improved handling and also allowed the machine to be flown in winds above 5mph! I was toying with the idea of building a new thin, flat-bottomed 'high-speed' wing(!) when GC spotted the aeroplane and suggested a smaller version would be acceptable for R/C, F/F - and *Aeromodeller*. Well, who can resist such a charming, delightful, suave, debonair, handsome young chap - especially when he mentions money! Out came pencil, paper and calculator, and Meadowlark Minor was born. This one does indeed have the 'high-speed' wing, and I must admit that it does seem just a bit quicker, but so far, the opportunity to fly 'hen and chick' has not arisen, so comparison is subjective. Both are delightful to fly - and that's not just my opinion, but also that of my clubmates.

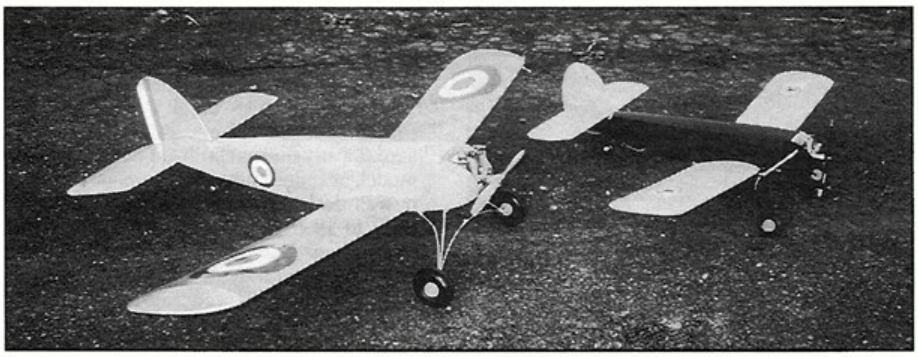
Both are rugged. The large one spiralled into the runway when a rudder cable came adrift on its first flight. Damage was confined to a broken prop, LE and spar at the wing-root. It was repaired in less than two hours. The Minor suffered a mid-air with a Chilton DW1A and lost its tail in the process. Sid King said 'You've got to land when de-tailed.' Hmmm. Result was a broken fuselage where the servos shot through the top on impact. Repairs took a while because I had to replace the complete tail. Solartex bags of bits are not too good as stabilisers! Nonetheless, the model was flying a week later.

Selected your wood yet?

Meadowlark Minor is neither difficult nor time-consuming to build. Mine took me a couple of weeks of evenings. It is just the same as any normal built-up free flight sports model, or indeed any vintage model. After all, it was designed to be representative of the 1930 to 1950 period. As the fuselage is the most labour-intensive item, it's as well to get this done first. Start by cutting out the three 1/8in. ply formers and the two trapezoidal pieces that carry the undercarriage. These should be drilled as a pair - stick them together with double-sided tape to ensure that all holes match up. The formers can be fitted when the two flat sides are built over the plan 'in the usual manner'. Before removing the sides from the plan, lightly mark the positions of the side-stringers onto the uprights. The fuselage is erected upside-down over the plan (that's why the top longerons are straight in the side elevation) by means of the plywood formers. Note that all the spacers from F1 through to F3 are the same length (I'm basically a lazy b... b... builder!). Draw in the tail and make sure the sternpost is truly vertical. After adding all the cross-pieces the basic structure can be lifted from the board. Add the four side-stringers. Note that the top edges of the lower ones are flush with the top edges of the 1/8in. balsa wing seat pieces. The tail of each stringer curves into the rearmost bays so that the extreme







Top: Fitting radio? Plenty of room for three servos. Centre: Engine installation is straightforward. Silencer extension takes exhaust clear of airframe. Above: Meadowlark Minor at right in company with 62in. Saito-powered original.

tips are flush with the basic structure. At this stage, mark out, drill and fit the tail dowel tubes. If you have a drill press, this is easily accomplished by turning the fuselage upside-down and drilling from the bottom (that flat top again!). Cut out and glue the outer wing-seat laminations. These are best left a little oversize and trimmed back when the glue is dry. If you add these one at a time, you can drill all the holes from the ply inserts. Drill from, say the left side through the outer right lamination; then add the left lamination, drilling from the right hand side. That way all the holes match up. For holes in balsa, I use a piece of tube with the end sharpened - this gives nice neat holes of exactly the right size. Fit the engine bearers at this stage whilst there is still some room to get you fingers through the top! Drill the bearers for a Paxolin engine plate; I fixed it with blind nuts. The cowl can now be finished. Cut all the top deck formers to length, then cut the radius around a suitable template (I used a dinner plate). All the radii are the same (told you I was a lazy builder). Add the top deck; and we're almost home and dry. The wing-seat outer laminations are now planed or sanded to a triangular section. The front ends (together with the stringers) are blended into the cowl sides. The undercart is easy. At the tail wheel leg use the brass joiner tube as an axle, but don't solder it until the model is complete. You can adjust the balance by using a heavy or light tailwheel as required.

The rest is just as easy

There's nothing fancy with the wing but note the F/F wing has greater dihedral. The cap-strips lap over the TE and the underside of the LE. Top sheeting is more to preserve the aerofoil shape than anything else. The same goes for the tail. If you don't feel up to laminating the fin/rudder outline it could be made from small pieces of sheet, but the laminated outline is much stronger. Drill for the dowels very carefully. Use double-sided sticky tape (again) to hold the tail in place, then drill through the tubes in the fuselage. Use aluminium tubes through the tailplane and cyano in place. The aluminium can be flushed down to the surface easily with a sanding block. Temporarily install servos and rest of the gear, then cover the model. I chose Solartex for the wings with Polytex fuselage. The CG position should be no further aft than the mainspar. Control movements are 1/2in. up and down; one inch left and right. You may need a touch of sidethrust and/or downthrust depending on the engine in use. Weight is 2 1/4 lbs or a shade less.

Flying R/C? Get on the controls!

Take-off is surprisingly straight. I've suffered a swing only once - and that was my own fault. Once trimmed out - the model, not the transmitter - fly straight and level at cruising revs. With the trims in neutral, try a few Unusual Attitudes. A shallow dive gives enough speed for a nice easy loop. Rolls are easily achieved. Build up speed as before, but don't apply too much elevator otherwise the speed drops off a bit quick! Stall turns are a delight, and spins in either direction are without problems. Recovery, which takes no more than half a turn, is effected by centralising the controls. There is just one peculiarity. Try this. When trimmed straight and level, turn right. Neutralise the controls and the model will continue turning right quite stably. Turn left and neutralise - and it will continue the left turn! This oddity persists despite an increase in dihedral on the Minor. My 24in. CO_2 version has even more dihedral, yet still exhibits the same tendency. No problem of course; it's just a quirk of handling which makes the model respond rather like an aileron machine.

Free flight fun

If you want to try free-flight, I've shown a modified dihedral brace. The only other modification is to make the tail without hinged surfaces, although a directional trim tab would be a good idea.

I did say at the beginning that the Meadowlark had developed into a series. Plans are afoot for a 37in. free-flight version; I believe a larger than standard version (1.1/2 times!) is being built elsewhere; and I am toying with the prospect of a control-line version. There are structural differences and one or two small aerodynamic differences between each version, but each one has given me much satisfaction. In particular, the CO_2 version flown round-the-pole is great fun.

So there it is. A fun model that looks 'vintage' but flies like a well behaved modern R/C sports model or stable free-flighter. Wonder what a biplane version would be like?