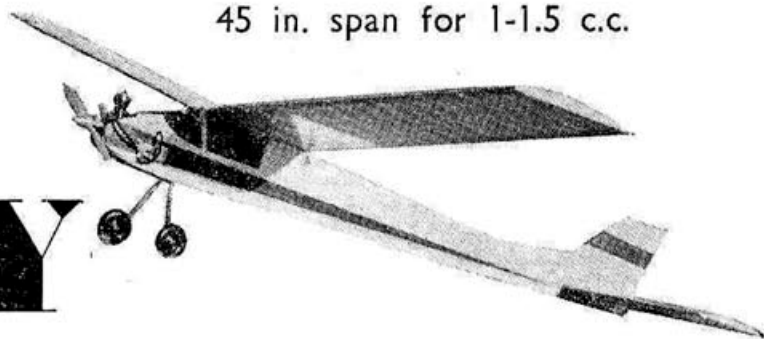
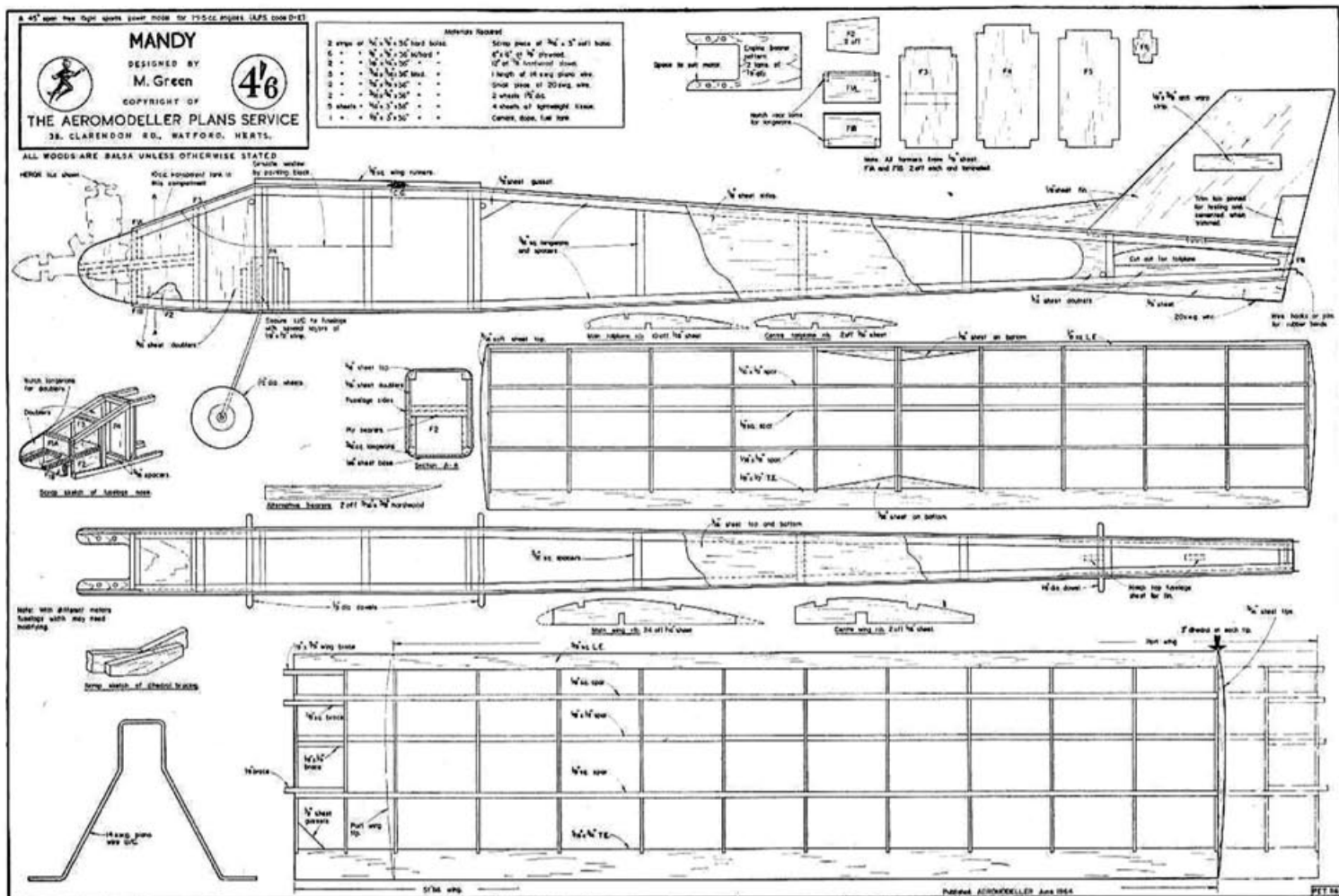


Specially commissioned by  
 "AEROMODELLER" from Britain's  
 leading power contest flyer of 1963—  
**MIKE GREEN**

45 in. span for 1-1.5 c.c.



# MANDY



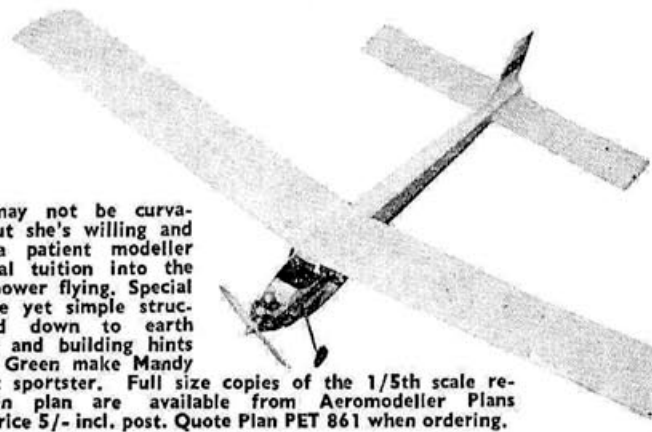
THIS MODEL HAS been designed with the younger sports flyer in mind. It has not been the intention to break any records, but rather to provide an aeroplane of reasonable appearance, easy construction, which will give dependable performance over a long period.

For the newcomer to the sport it must be stressed that patience in building and trimming pays off and can make the difference between failure and possession of a model which has its life measured in years. With this in mind let's run through the construction.

For the most part balsa is used, the vast bulk of which is "medium" grade. Some tolerance is permissible but care is advised when choosing the wood.

**Fuselage.** We suggest tackling the bearers first. Either cut them from ply, or use adequate sized square section hardwood—see the plan. Wrap tissue

Mandy may not be curvateous; but she's willing and obliges a patient modeller with ideal tuition into the arts of power flying. Special warp free yet simple structure and down to earth trimming and building hints by Mike Green make Mandy a perfect sportster. Full size copies of the 1/5th scale reproduction plan are available from Aeromodeller Plans Service price 5/- incl. post. Quote Plan PET 861 when ordering.



round the exhaust and air intake and bolt the motor to the bearers. The whole assembly can then be fixed to the fuselage properly later, in the knowledge that the motor fits, and is lined up. This may seem obvious; but many people drill bearers when the whole model is practically complete, and when mistakes are less easily rectified.

Cut the fuselage sides from  $\frac{1}{16}$  in. sheet, cement in longerons and spacers— $\frac{3}{16}$  in. sq. Cement in the reinforcement at nose and tail — do not overlook the space for the tail or the gussets for the dowels. The width of the front end will depend on the motor, so therefore the top view is a guide and may not be exactly the right size for certain motors. Accordingly, when cutting the fuselage formers make sure they are the *right* size. However, the difference will not be great,  $\frac{3}{16}$ - $\frac{1}{4}$  in. at most, and it should be within one's capacity to make the necessary modification!

When the parts have been cut, assemble "dry" to make sure parts fit — and include the bearers. If correct, go ahead and cement in the formers first, checking for trueness as you proceed. There is not undue difficulty in actual fact! The engine bearers are best fixed with Araldite, but otherwise ample cement will suffice. Caution — if using Araldite do not make the motor a permanent fixture! When the front is held, complete by adding rear spacers. Shape the u/c wire and cement to former — either well embedded in balsa, or bound on, the former then being of ply, not balsa. Make holes for dowels but do not cement in yet. Sheet top and bottom and cut slots on top to take fin.

## TOP TIPS FOR SPORTS FLYERS FROM A LEADING CONTEST MAN

Cut fin from  $\frac{1}{2}$  in. sheet balsa, and insert stiffener. Cement dorsal fairing and fin to fuselage, taking particular care that they are on the centre line and also vertical. When the whole lot has set, clean up with fine sandpaper.

Now cement in dowels and solder washers to secure wheels and axles.

**Wings.** Make an accurate template for the wing ribs from  $\frac{1}{16}$  in. ply. Cut the ribs from  $\frac{1}{16}$  in. medium sheet balsa. Notch the trailing edge to take ribs. Pin leading and trailing edges on to board. Lay mainspar in correct position, securing with pins either side—i.e., do not pin rigidly. Cement in ribs ensuring a snug, but not overtight fit with the spar fitting right into notch, not protruding. Cement in top spars. Add tips from soft  $\frac{3}{16}$  in. When both sides are set, cement together at correct dihedral angle. Do not omit dihedral braces at centre. When set shape L.E. and T.E. as necessary and sand smooth. Sand tips, and carefully sand off any rough projections. Cement bandage to L.E. and T.E. at centre for toughness.

The **Tail** is basically similar to wing.

**Covering.** Lightweight tissue is adequate for most surfaces, but heavyweight is acceptable for the wing. Fix the tissue to the L.E. and T.E. of the wings and tail with tissue paste, making the tissue smooth rather than excessively tight. I use cement at the centre section as paste is inadequate on ribs and the tissue may pull away. More experienced modellers may prefer to use old (thick) dope, but paste is better for the slower beginner who can then take adequate time over the job. Use lightweight tissue for the

fuselage using dope, smoothing out wrinkles as work proceeds.

Either steam or water shrink the tissue on wings or tail. Give the wing two or three coats of dope (ordinary strength) and the tail two. Pin down these items on the board between each coat of dope for 24 hours. Check carefully for warps and steam any undesirable ones out. A little "washout" on each tip ( $\frac{3}{16}$  in.) is acceptable; but it must be the *same* each side.

Use colour dope sparingly, if at all, and in any case only on the fuselage or for trim on the wings. The windows can be simulated by painting in black dope or carefully applying black tissue.

If you are using a glow motor do not forget to fuel proof the fuselage, 6-8 in. inboard each side of the wings and very lightly on the tail. Proof the engine area liberally. Put on your name and address *now*, not later when you may forget!

**Flying.** Assemble the model and check that everything sits firmly and squarely. Correct unwanted tilts by shimming where necessary with  $\frac{1}{32}$  in. sheet. Use enough elastic bands of the correct size to hold the model together rigidly by the way. This sounds obvious but I have seen numerous models "floppily" assembled and as a consequence not flying properly.

The model should balance about  $3\frac{1}{2}$  in. back from the leading edge, though there is some tolerance. If the C.G. is way out, ballast will have to be added either to the nose or tail, but at this stage this is unlikely to be necessary.

Wait for a calm day for the first tests and do find a wide open area away from houses, people, etc.

Hand glide to obtain an approximate idea of the trim and cure any diving or stalling tendencies by packing the tail—i.e., pack up the L.E. of the tail to eliminate stalling and pack up the T.E. to cure diving. Use  $\frac{1}{16}$  in. hard sheet balsa (or  $\frac{1}{16}$  in. ply preferably) for coarse adjustments and  $\frac{1}{32}$  in. for fine.

The turn direction is not critical for moderate power. If at the hand glide stage turn is excessive cure this using the fin tab. Make the initial powered flights under low power and shortish runs—5-8 secs. It is necessary to have some idea of how long the motor will run on so much fuel, if using a "visible" fuel system. A timer will be needed for an enclosed fuel tank — though the majority of sports fliers will be employing the former. Ideally the model will climb smoothly in a fairly wide turn and make a good transition into a stable glide. If this is so work up to normal revs in easy stages and if all goes well then increase the motor run to a safe time for the conditions.

Most likely, however, some adjustments will be needed. In the event of too right a turn, make fin tab adjustments in the opposite direction — say  $\frac{1}{32}$  in. at a time not more. If the model stalls in the glide, pack up the L.E. of the tail  $\frac{1}{32}$  in. at a time. A dive into the ground straight ahead is unlikely, but if it happens, cure by packing the T.E. of tail up!

In the event of power being correct, but glide too steep, a little ballast in the rear fuselage will help. The main thing is to carry out one adjustment at a time and only when the pattern appears satisfactory, increase revs or motor run. Provided reasonable care is exercised the model is unlikely to come to grief and in any case is quite sturdy so should withstand a modicum of mishandling.

Good flying!