HERE IT IS !

Wolfgang Matt's

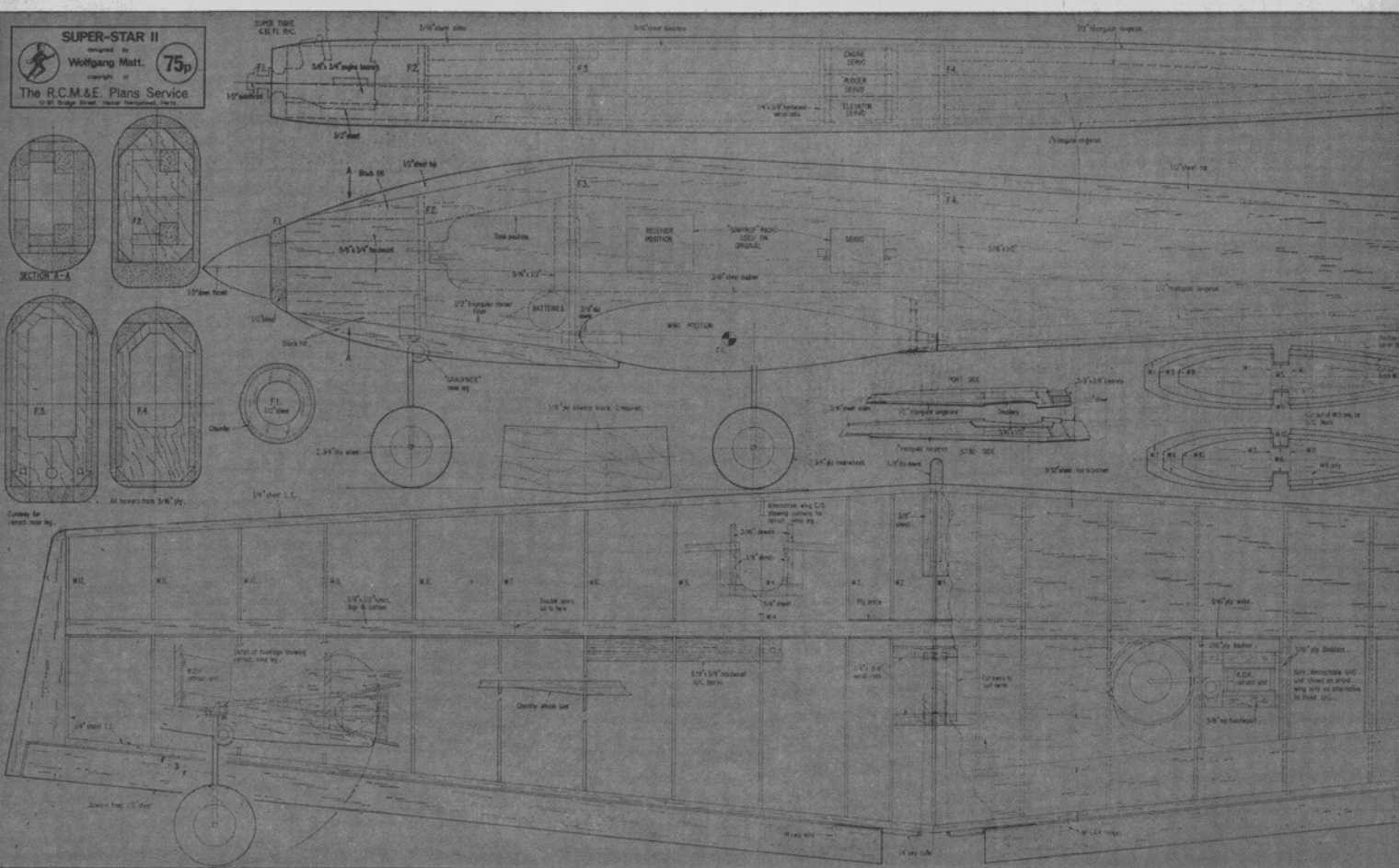
SUPER STAR 2

THE name of Wolfgang Matt first burst on the R/C modelling world at the 1967 World R/C Championships at Ajjaccio, Corsica, where this youthful, unknown flier, unknown outside Western Europe, that is, showed a clean pair of heels to most of the competition, finishing sixth.

That year, Wolfgang Matt used a Fritz Bosch designed Super Delphin – one of the first of the fish-fuselaged F.A.I. aerobatic models. Matt was not without design ideas of his own, though, and at the Bremen World Champs in 1969 he competed with his first *Super Star* design. This owed obvious design lineage to the Bosch original, smaller, more attractive in wing planform and fuselage outline, it was nevertheless a quite large aeroplane. Coincidentally, Matt placed sixth at Bremen, too.

The Bremen World Champs sparked off the widespread use of retracting undercarriages in aerobatic models, after the convincing demonstrations there by Schoenfeldt, of Germany, and Bruno Giezendanner, who won the event.

It was no surprise therefore to find Wolfgang Matt's Super Star at Doylestown, U.S.A., equipped with KDH retracts. Alteration to the design did not end there though. The engine thrust line has been changed, and also the wing incidence. Perhaps more significant, however, is the change to an extremely thick airfoil section on the tailplane,



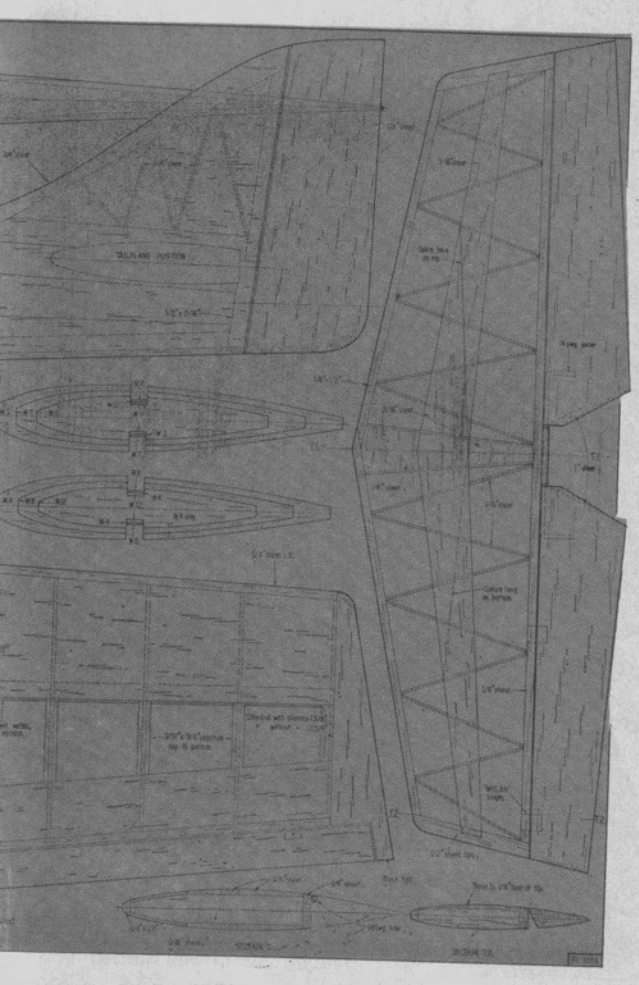
with the elevator hinged on the top surface to better achieve the differential effect necessary to provide sufficient up elevator effect for a good spin.

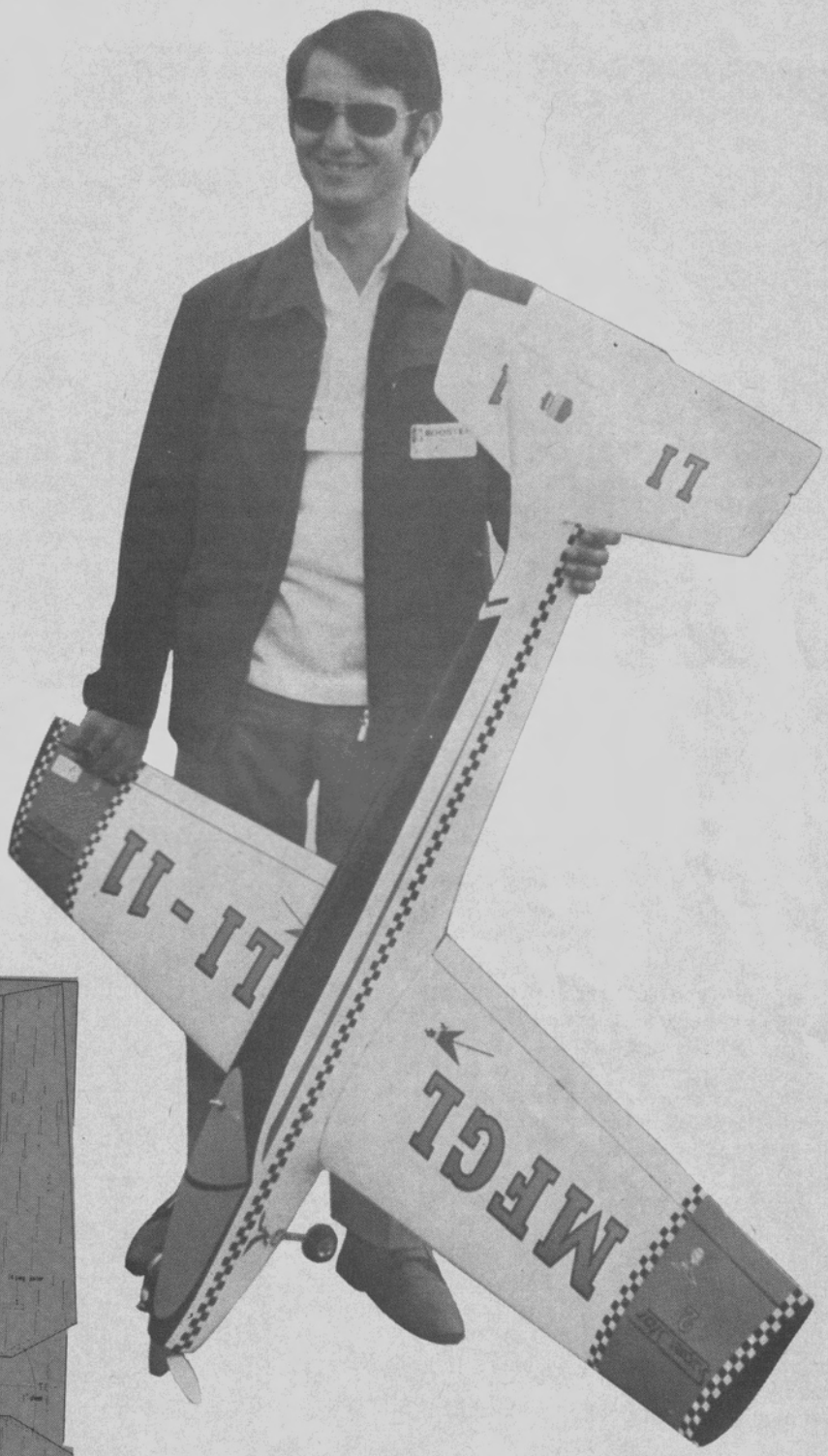
That, virtually, is the sum-total of changes to Wolfgang Matt's design to achieve *Super Star 2*. That the changes are valid is certainly justified in his truly superb performance at Doylestown. Matt's flying drew more interest at Doylestown than any other competitor, particularly his near-faultless last flight, when a vast crowd of interested parties assembled to watch. That flight will long be the subject of discussion whenever aerobatic R/C fliers gather, as will his final second place position.

It has been said many times, with justification, that R/C aerobatic flying is 90 per cent pilot, 10 per cent model. It can, however, be justifiably asserted that it takes a really top-class pilot to design a top-class model, and we are confident that any R/Cer will go a long way before finding an aerobatic design to compare with Wolfgang Matt's SUPER STAR 2.

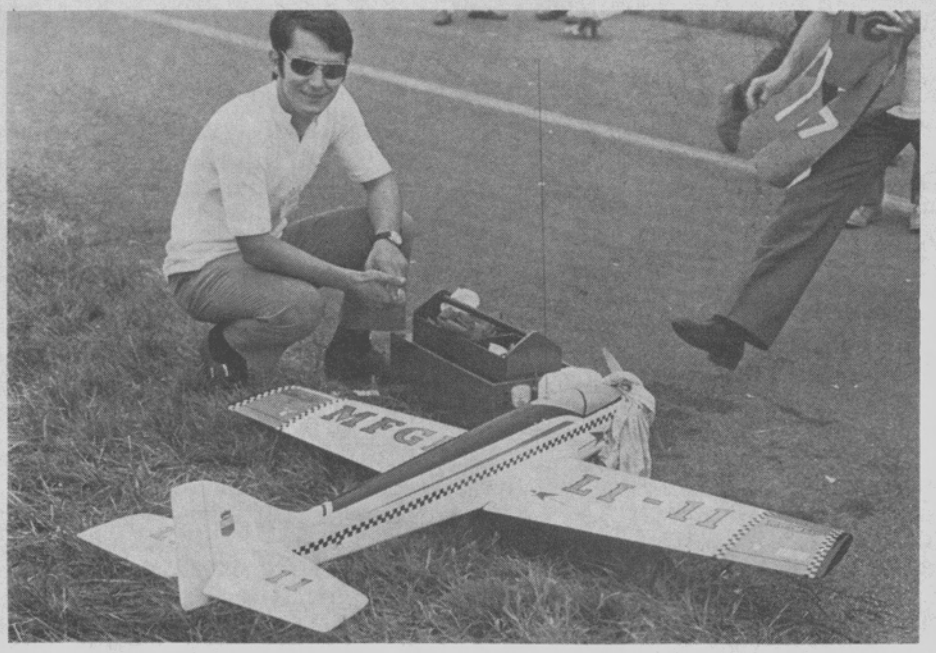
Fuselage

Prepare the fuselage sides on a flat building board, making sure that you are building two opposite sides – not two identical! Follow the construction sketch on the plan, adding the top and





Full size copies of this plan, shown here at 1/6th scale reduction, are available from R.C.M.&E. PLANS SERVICE, 13/35 Bridge Street, Hemel Hempstead, Herts, price 75p. Please quote plan RC/1056 when ordering.



bottom triangular longerons, wing seat doublers, and filling blocks at the nose, including the engine bearers to make up two basic fuselage side structures ready for joining.

Naturally, every model builder has his own constructional techniques. To ensure true alignment, I assemble the fuselage directly over the plan, which I cover with plastic sheet. An alternative method is to draw the plan view of the fuselage on the building board and assemble the fuselage over this.

Assemble the fuselage over the plan upside down, lying the fuselage top deck on the board and gluing the fuselage sides to it. Use right angle to true up the sides and clamps to hold them against the formers. While this assembly is drying, construction can be taken a stage further by adding the fuselage underside sheet, grain across the fuselage for added strength. At the nose, filling blocks are then added and finally the ply floor.

When all glue has set, remove the assembly from the building board and add the remaining filler blocks at the front of the fuselage top deck. The fuselage is now structurally complete, and the next job is to shape it to the sections shown on the plan, first drawing the side view outline on to the balsa and shaping to this line. The fuselage is then rounded off, preferably using an electric drill and sanding disc, then finally hand sanded to finish.

Wing

The wing is best built in one piece using two perfectly true building boards set to the correct dihedral angle. It can be built in two separate halves and eventually joined using the dihedral brace, but the one piece method is to be preferred.

Prepare two sets of wing ribs using the 'sandwich method' as shown on the plan, cutting rib blanks, assembling as a block and carve and sand to shape using the root and tip templates. Next, make up the mainspars using medium hard wood, with the spare doublers in the centre.

Pin the lower mainspars on the board and then position the wing ribs. Align the ribs using a purpose cut jig sheet placed under the ribs just ahead of the leading edge. Cement all ribs and then add the leading and trailing edge spars. The jig pieces, incidentally, are cut in

Super Star 2 is a truly elegant R/C aerobatic model, and one capable of the highest performance. Note vertical whip aerial which Wolfgang Matt has used for many years on his model.

half span lengths and cut to shape, but transferring the board-to-rib rises at root and tip to the jig sheet and cutting the jig sheet to shape along the line joining the rise points. This correctly aligns the ribs and compensates for the wing taper.

Add the top ply spar braces and, when the structure is dry, begin to add the top surface sheeting. The plan shows a partially sheeted wing structure with cap strips to the ribs where sheeting is not shown. For those who prefer it, however, the wing can be fully sheeted.

When all top surface sheeting is complete, leave the structure to dry thoroughly. The next step is to remove the structure from the building board and add the remaining ply centre section braces. Then add the front centre rib strengtheners around the wing locating dowel.

Finally, complete the undersurface sheeting, add the wing tip blocks and sand to a final shape.

Tailplane

The structure shown for the Super Star 2 tailplane is one that has been popular for many years, and little comment on construction is required, except perhaps to add that an alternative method would be to use a foam core arrangement.

Finish

Finishing a model is a subject in itself, and every modeller has his own personal technique. I would only advise an initial covering of the fuselage framework with tissue or silk to harden off the surface.

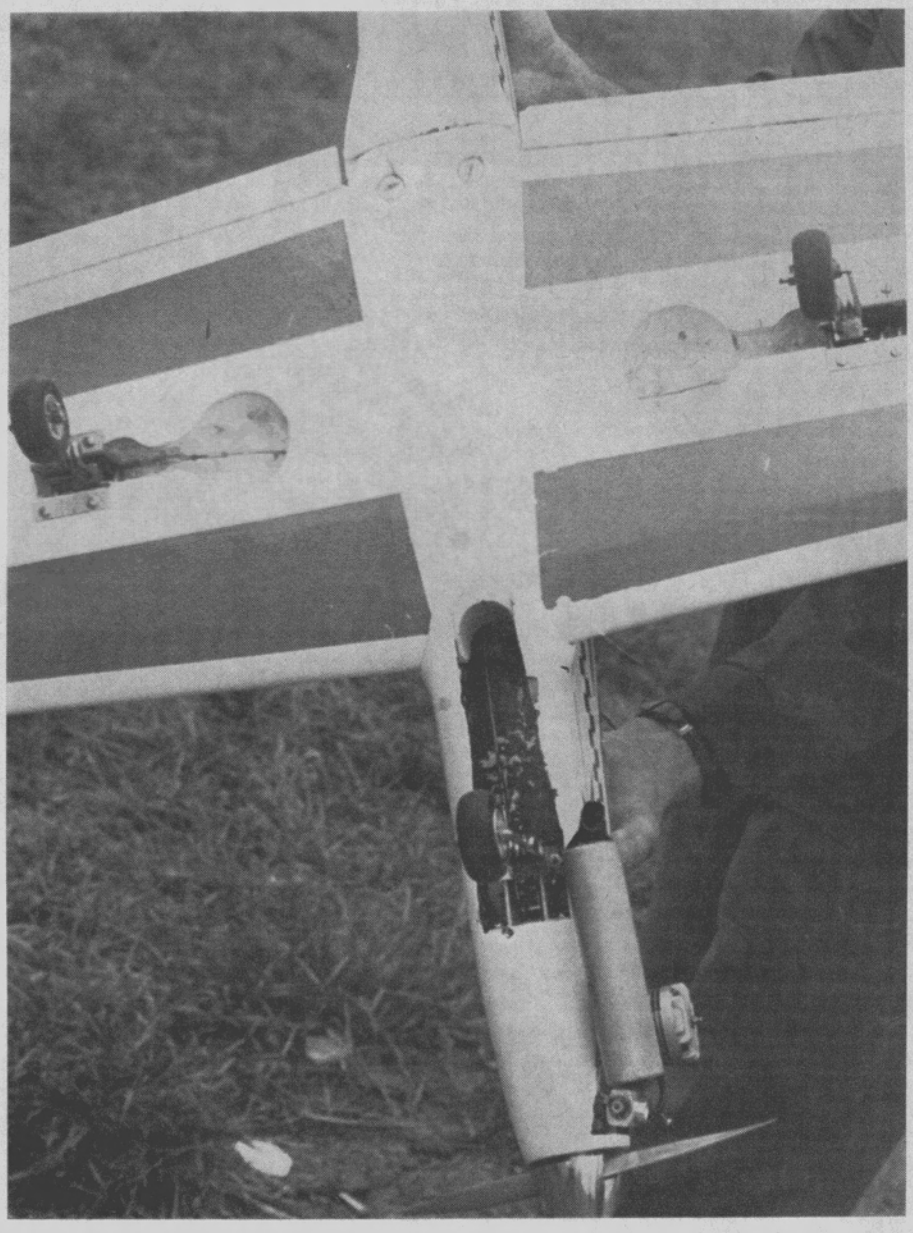
A few words about test flying

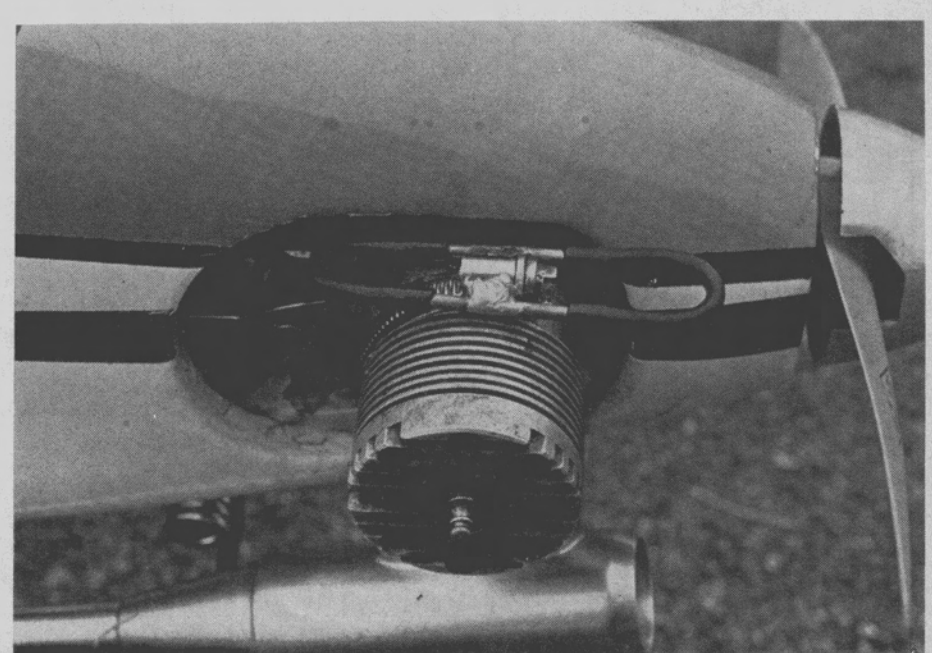
First, and most important, ensure that any model balances correctly. Switch on your radio and check that all control surfaces centre correctly and that the strip ailerons have equal throw.

The most important part of trimming concerns loops and outside loops. In the case of the inside loop, if there is a tendency for one wing to drop, the wing should be balanced, with weight on the lighter tip.

Screwing out of outside loops is corrected with engine thrust line adjustments, usually about 1.5 degrees one side or the other to compensate.

That's about it as far as Super Star 2 goes. It's a good machine and you should have fun with it. Build more than one!





Top right: the retracting undercarriage system, which employs the larger size KDH units. Wolfgang's model uses a foam wing and the cores are simply hollowed out to take the wheels. Right: detail of motor installation. Note accessible pressure line.