

DH71 Tiger Moth Racer

B. PRICE designed this DH71 racer for .40 two-strokes and four function r/c.

Model spans 50 inches.

On August 27, 1927, the Tiger Moth 71 broke the light plane 100km circuit record at 186.5mph, far in excess of anything possible with any fighter then in service in the world.

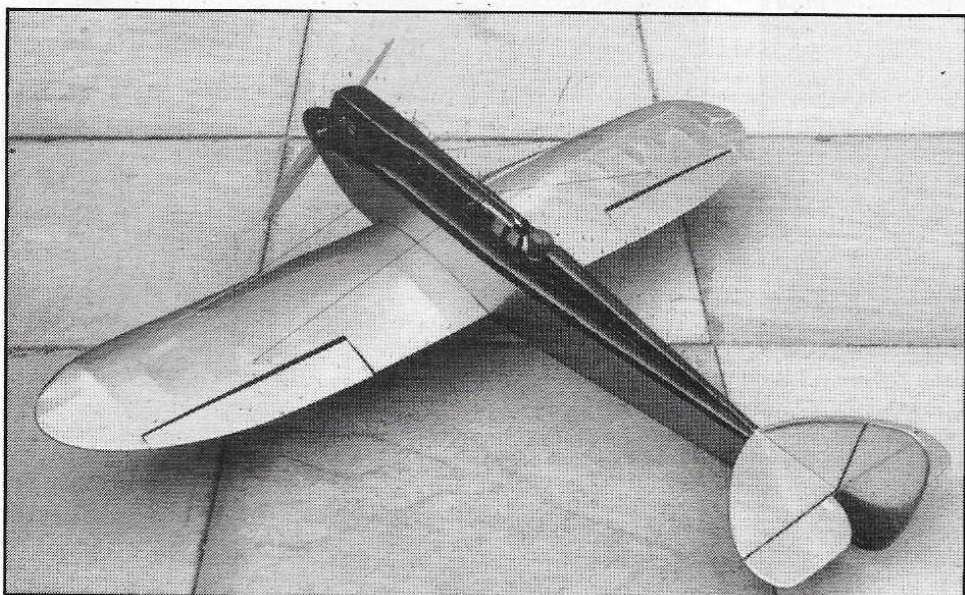
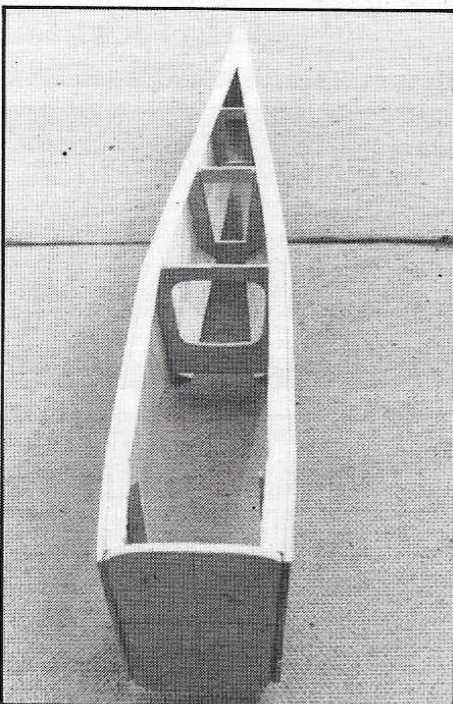
I have always liked 1925-30 type racing monoplanes, and the only Tiger Moth 71 you could get for radio had a very large 80in. span. So I decided to design my own smaller version. Being a very short nosed aircraft with a lot of fuselage aft of the C of G, I decided to design a 50in. span and put a .35 to .40 cu.in. engine up front to reduce the ballast needed (anyway the prototype was a racer). The model is close to the scale profile but owing to the large engine I decided to enlarge flying surfaces slightly, to reduce the wing loading.

The Tiger is very simple to build due to the fuselage being all flat sheet and triangular strips. The hardest part is shaping the cowl, but when finished it has a very nice streamlined fuselage. The wing is built up in the usual way. If you wish you could add a dummy engine over the engine cowl, but with a .40 engine this would be difficult. More information can be obtained from scale drawings plans handbook, plan 2959.

Fuselage

Cut our formers F1-F3 from ply, build up F4 and F5 from 1/8in. hard sheet, cut out fuselage sides glue 1/16 ply doublers to sides making sure you have a left and right hand (ply on insides). Glue wing seating and triangle strips to side 3/8in. top, 1/2in. bottom. Leave bottom protruding 1/8in. to allow for sanding flat (see sketch). Assem-

Right, the fuselage at an early stage of construction. The other two photos show the appearance of this attractive aircraft.

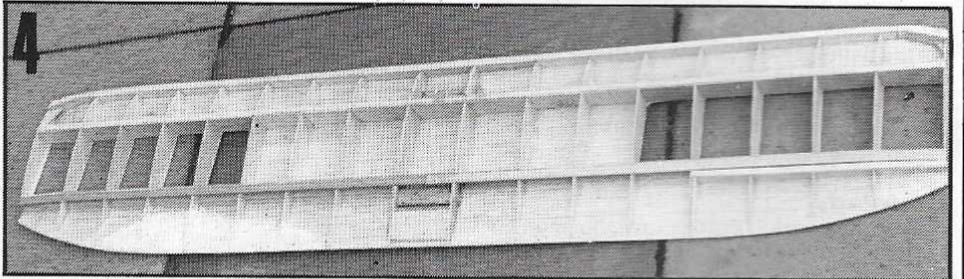
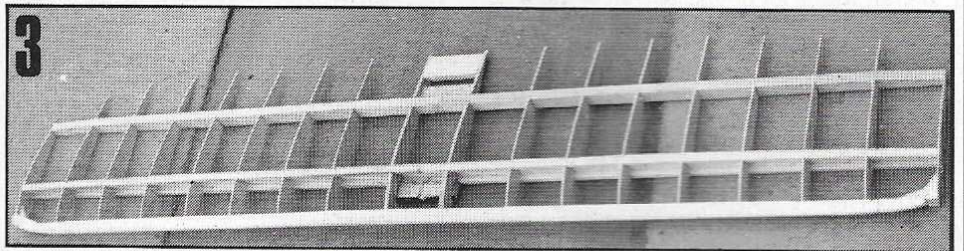
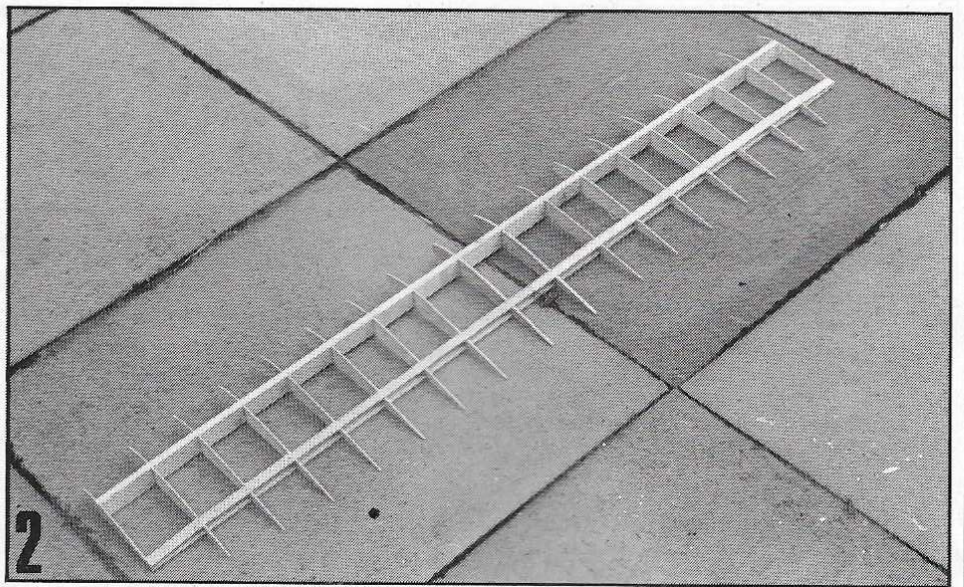
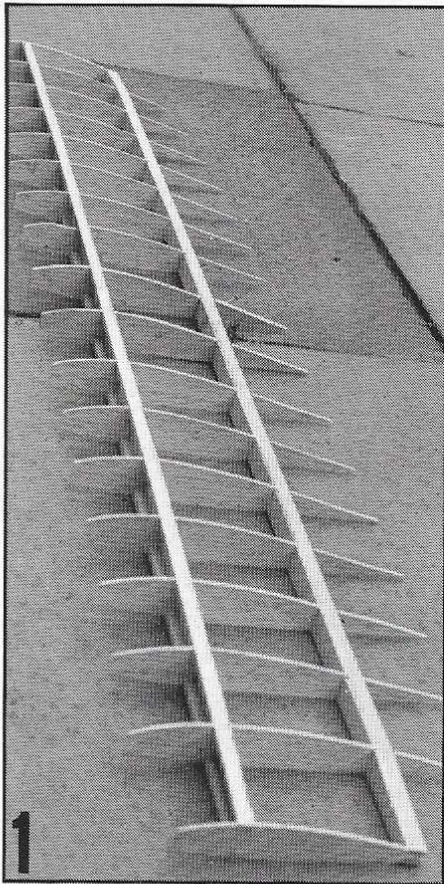


ble sides upside down, epoxy F2 and F3 ensuring all square. When dry epoxy F1 and pull in rear fuselage, shaping the triangles to fit together at end, gluing in F4, 5 and 6. The sides at back of fuselage should be straight. Bind wire tail skid to balsa, glue to rear along with scrap infill piece.

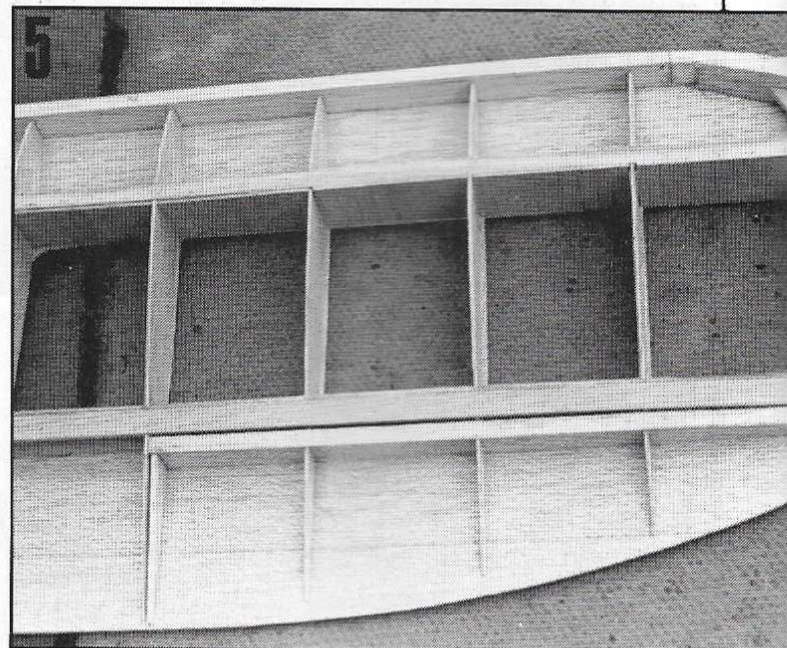
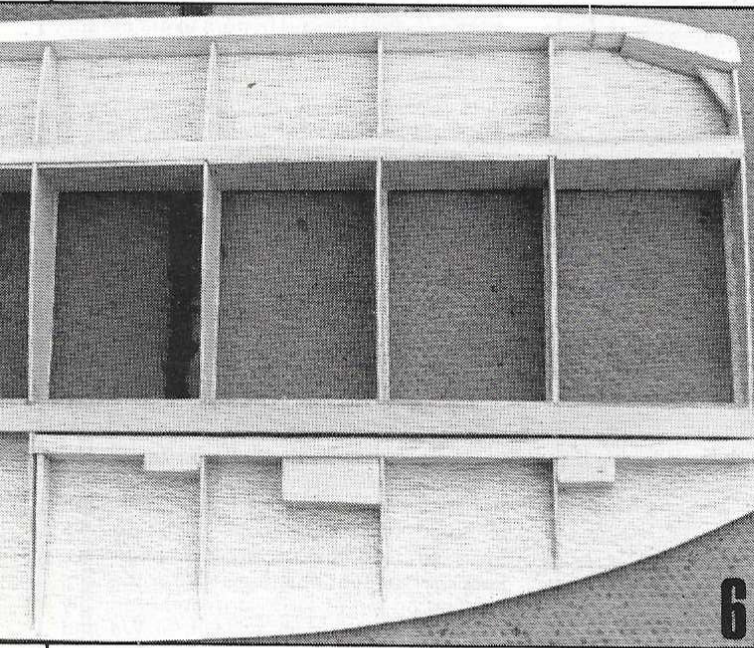
Glue 1/2in. triangular section strip to F1 and 3/8in. triangle to F2. When dry, sheet top and bottom, grain going across fuselage. Build up streamlining on top of fuselage both sides of cockpit up to F1. Fit engine and spinner and build cowling round engine. When dry, sand cowling to shape up to spinner. Remove engine and sand rest of fuselage. You need to sand quite a lot of balsa off top and bottom to get the correct shape. When you have finished it looks a bit more like a boat than a plane. Fit engine back in and build up cowling round top of engine, blending into fairing at F1. When dry drill from top through to bottom half of cowl for dowels. Push dowels in glue in top half. When dry lift top of cowling off, remove engine, sand and shape cowl, fitting bolt fixing under top of fairing at F1. Glue F3A and shape, epoxy ply wing plate and side pieces to fuselage sides where shown.

Wings

The wing is built flat on a board. Cut out ribs W1 to W5 using sandwich method. W6 to W9 are cut separately. Epoxy ply undercarriage doublers W1D to W1 ribs left and right hand. Lay spruce spars down on building board, rear spar is raised up by a 3/16in. strip along wing length to align ribs. Pack up rear spar position at W9 with 3/16in. packing on top of 3/16in. strip and gradually decrease to W6, pack at 1/8in. at W8 and 1/16in. at W7 to give washout at tip. Glue ribs and false leading edge and top spars front and rear. Crack rear spar at W8, leaving pinned to board. When dry glue webbing grain vertical on both spars right along wing. Glue leading edge sheet to false leading edge. Remove from board, cut slots in W1's for dihedral braces and epoxy four braces in position. Epoxy hardwood undercarriage mounts, cutting

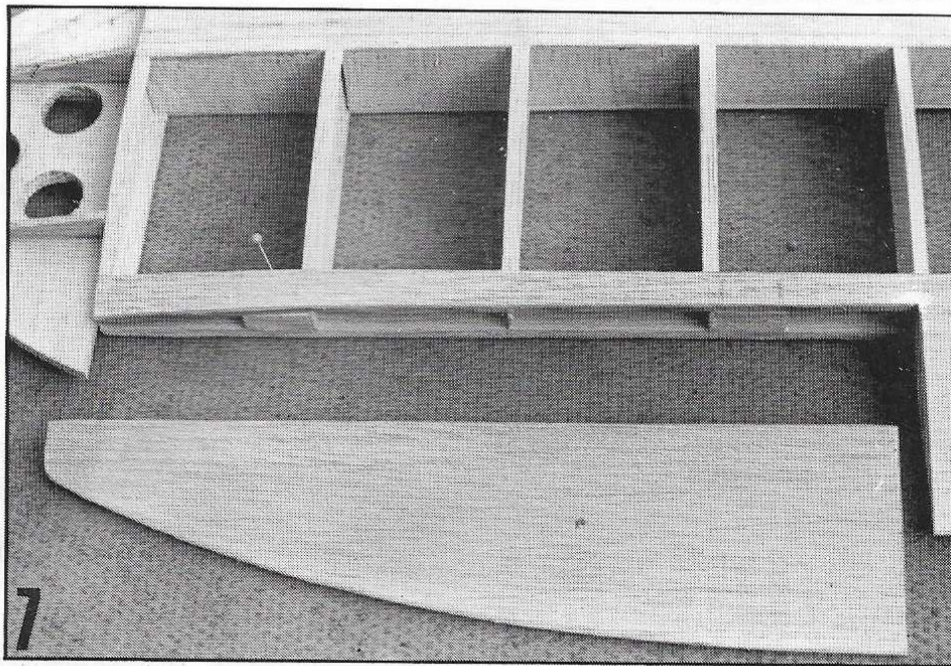


groove in front for wing dowel. Glue block balsa for wing bolts in position at rear. Shape leading edge where it fits into fuselage. Drill hole for wing dowel, put dowel in dry and offer up to fuselage. Check wings are level and fit fuselage. Remove wing and epoxy dowel in place. When dry add balsa block top and bottom around the dowel. Pin down wing again and sheet top including aileron and cap strips. When dry,



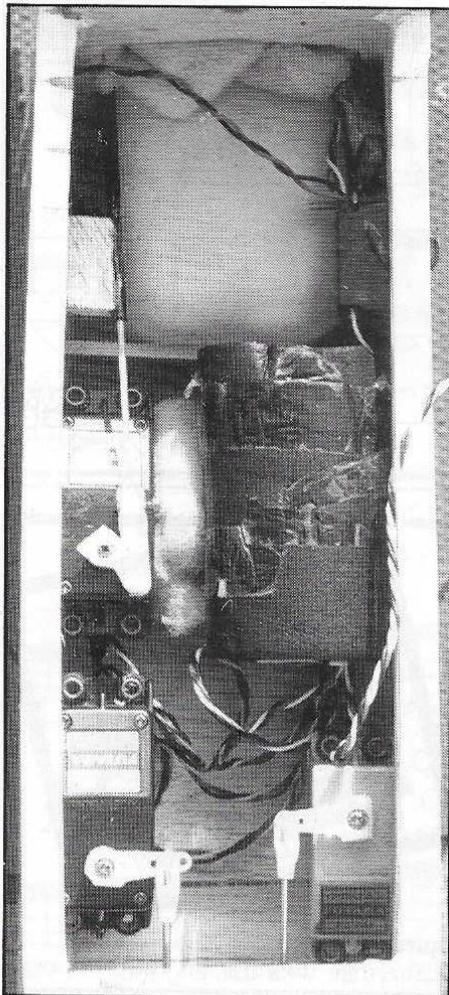
1. The wing spars and ribs are assembled first and (2) the spars are webbed to give the structure rigidity. 3. The leading edge is added with the centre section structures. Note the way in which the leading edge is built out to reach the tip rib. 4. Bottom sheeting is

added, including rib cap strips. 5. Aileron construction is started by trimming the trailing edges of the ribs and fitting in the aileron leading edge. 6. Reinforcing blocks are added for hinges and horns, then the top sheeting can be added.



cut out $\frac{1}{4}$ in. from inside of each aileron rib and glue $\frac{1}{4}$ in. sheet to ribs and top sheeting where shown on plan. Glue $\frac{3}{16}$ in. hinge blocks and aileron block where shown cut out and glue end ribs. Glue $\frac{1}{8}$ in. ply bellcrank plate, fit bellcrank and drill holes in ribs for wire rods to aileron servos. Bend wire to shape for hat elastic. Glue onto W6 with soft blocks. Turn wing over and sheet bottom. Glue tips and leading edge tip blocks and tip braces. When dry, shape leading edge and sand entire wing cut out

If it's well thought out, the r/c installation is easy in a roomy compartment.



7. Last photo in the wing construction sequence, showing how the sheeted aileron is cut away from the wing. Above right and below, the engine installation.

aileron, glue hinge blocks and $\frac{1}{16}$ in. sheet against rear spruce spar at aileron position. Shape leading edge of aileron, drill two holes for mounting bolts in wing trailing edge, offer finished wing to fuselage and align wings and fuselage then mark on the securing plate the positions for the wing bolts. Drill plate for bolts, glue the captive nuts in place check the wings fit ok.

Tailplane Assembly

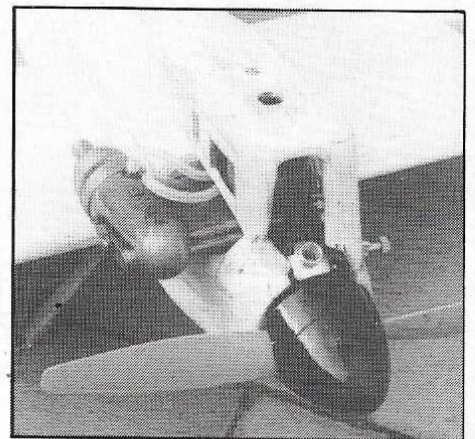
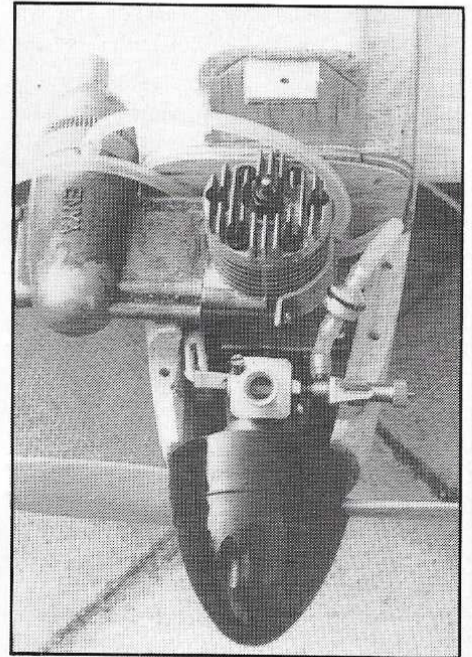
$\frac{3}{16}$ in. sheet is cut to shape following grain direction on the plan. Tips have sheet glued across grain for strength, all wood medium except fin which is hard. Use Mylar strip for hinging, elevator joiner being wire. Sand all edges to section on plan, cut slot and tailplane for fin. Bolt wing to fuselage, glue tailplane onto fuselage lining up horizontally with wing. When dry glue fin into tail vertically. Run a fillet of white glue between fuselage and tail, and tail and fin, to add strength to tail assembly.

Undercarriage

Form the undercarriage from 10swg wire, formed to shape shown on plan. Bind and solder front and rear wire where shown add balsa fairings to wire if you wish. Then bolt to undercarriage blocks. Glue wing fairing formers WF1-WF5 on bottom of wing. (With wing bolted to the fuselage). Plank from WF1-WF5, with block balsa between WF5 and end of wing angled to fit fuselage. When dry sand to shape to give a streamlined shape to bottom of wing/fuselage. Drill bolt holes through balsa block.

Finishing

The canopy is made from plastic card with clear acetate inside. Curve over and glue in slots in fuselage, paint black. I used bronze and black Solar film. Bronze wings, tail and fuselage to a line half way up. Black top to fuselage and black spinner. Bend eyes from paper clips and fit on engine fairing where shown, use black shirring elastic tied to fuselage on top and hooked to wing, tied on axle and hooked to bottom of wing. Don't forget the pilot. The wheels should

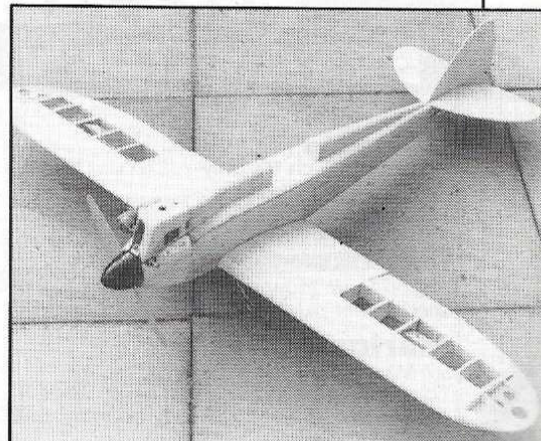


be the very slim type, mine were a little too thick but did not interfere with the flying. With a .40 I only needed to ounces of lead in the nose. (There is plenty of room for radio gear as shown in photo. (Ail. servo is flat in wing).

Flying

If you haven't flown a tail dragger before, get someone who has to take her off. You

All finished bar the covering.



need reasonably short grass or she will nose over when opening up. Use up elevator for a few yards then centralise, slight up elevator and then she will be off the ground, It is quite aerobatic, stall turns are nice with a .40 cu.in. engine, as are large loops and inverted flight. Looks best on slow low fly-past. As with all small models if landing dead stick keep the nose down and speed up. (It is very fast with a 40 c.i., but stable when flying slow.) Do not exceed 4 1/4 lb., with a 40c.i. size engine. Balance where shown.

