



B.M.P.R.A. Season

We need

**Phil Greeno's F.A.I.
Pylon racer**

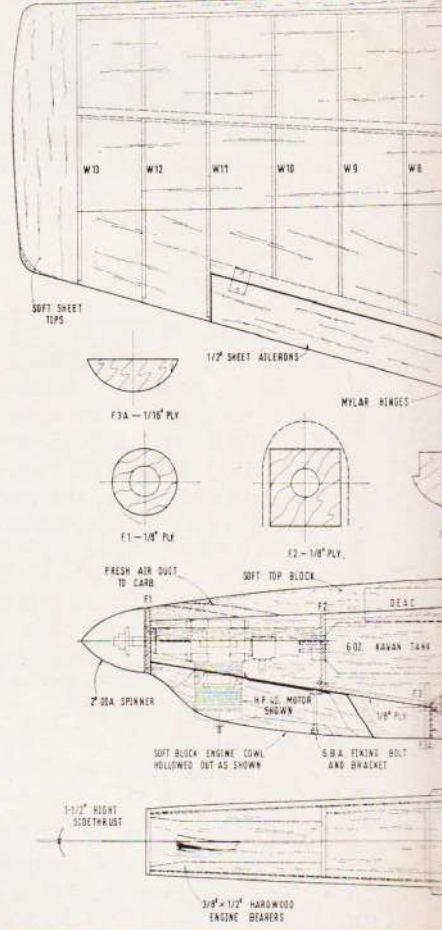


MANNEATER

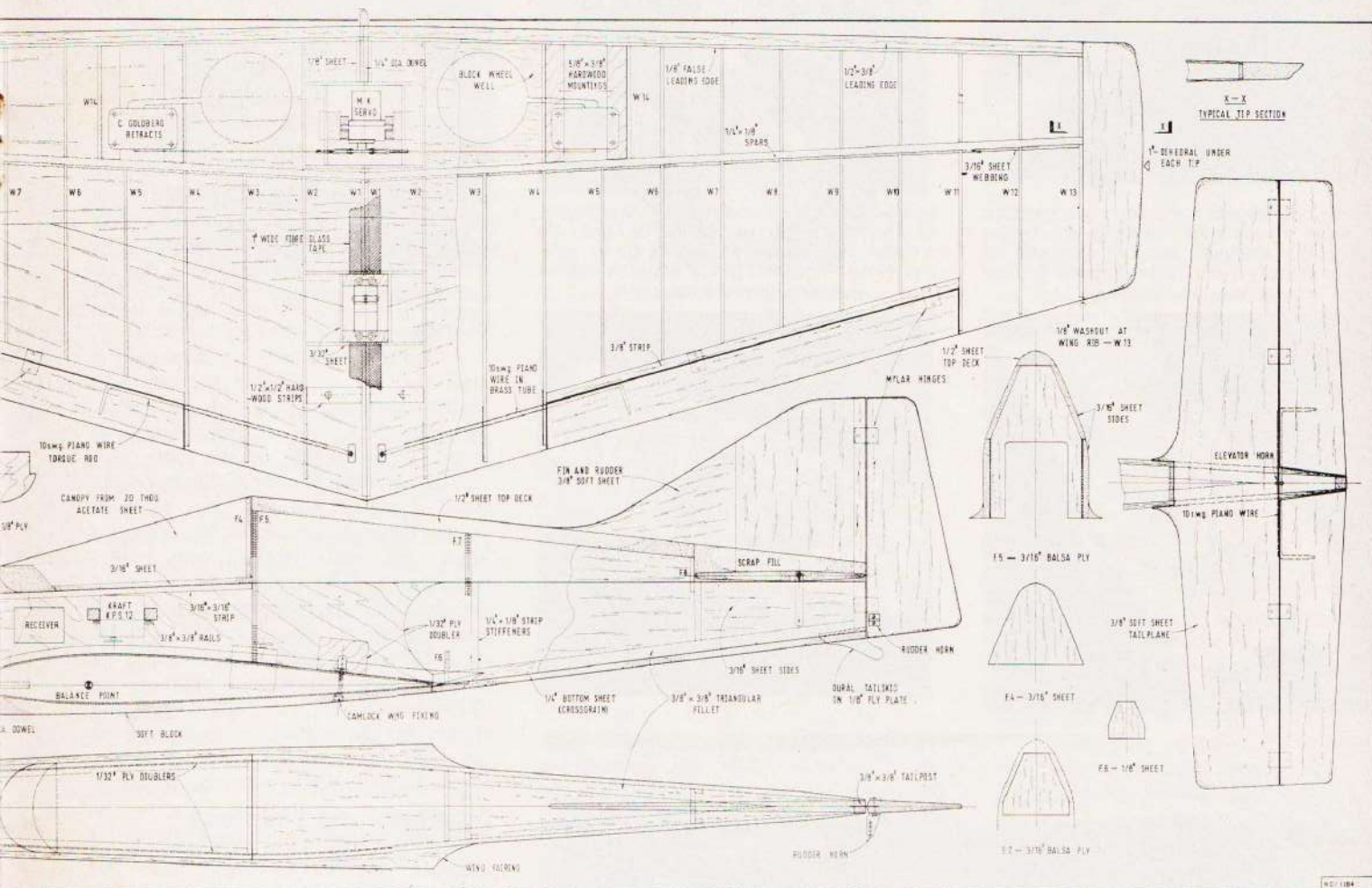
A 507 SWK F.A.I. CLASS RADIO CONTROL PYLON RACER FOR 6 & 8 1/2 TO 10 1/2 IN. MOTORS

MANNEATER
 designed by
P. Greeno
 copyright of
The R.C.M.&E. Plans Service
 13-25 Bridge Street, Harlow, Essex, Essex, U.K.

£1.25



Champion; 2nd at the Nationals, 2nd at the Cranfield International; fastest time – 1:43. say no more, the record speaks for itself!



AFTER seeing Frank Van den Bergh thrill the crowds with his Midget Mustang F.1 Racer at the Nats over four years ago I knew pylon racing was for me. The sheer speed and response that these small semi-scale models had spurred my imagination so much that I felt like building one immediately. At that time I was still cutting my teeth on slope soarers and the thought of flying a pylon racer at the Nats was only a pipe dream.

With the introduction of the F.A.I. formula 18 months later my interest was again roused, so much so in fact, that when the plans for Frank Van den Bergh's 'Phaeton' were published I rushed over to the R.C.M.&E's offices at Hemel Hempstead to purchase a set. Alas, I wish my building was as fast as my driving because it wasn't until the following spring that I actually finished the model. (I'll have to give up that other hobby.)

My first season of racing ended with my model in one piece, my nerves

shattered, and my wife shouting 'You had better try and find another woman, I can't put up with this much longer.' I suppose it was a bit much expecting her to get up at 4 a.m. in the morning just so I could go pylon racing at R.A.F. Topcliffe, Yorkshire.

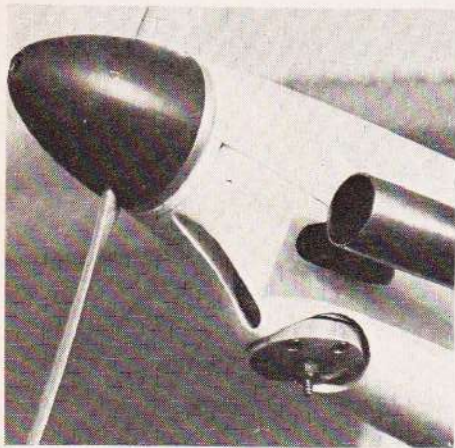
By that time my well loved 'Phaeton' was looking rather tired and with the introduction of the HP-40R PR I set about designing and building my own model.

Basic design requirements were for a clean, light model, of pleasing lines that fitted the F.A.I. rules with no excess fat as it were. Construction also had to be reasonably simple and the model generally quick to build as pylon racers have a habit of hitting other pylon racers – if you see what I mean. The result was MANNEATER.

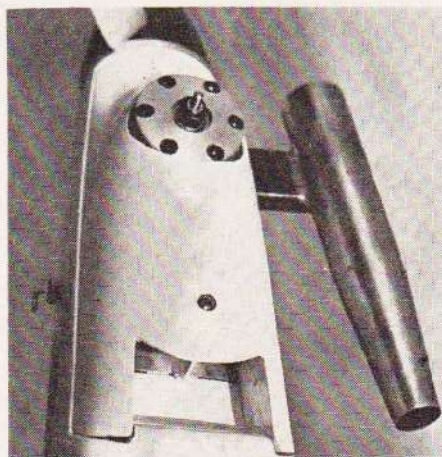
I chose an inverted engine for its aesthetic appeal, and I have personally had no trouble with hydraulic locks on the starting line. The use of retractors seemed at first to be a debatable point.

Was the advantage gained in speed worth the extra effort of installation, not to mention the extra cost? Well, in my opinion, the answer is YES! After an entire season of racing I had no trouble at all with the undercarriage. The key to reliability is in the accuracy of installation, and the type of servo used to operate them.

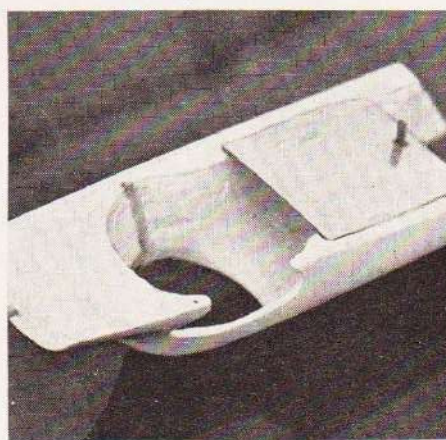
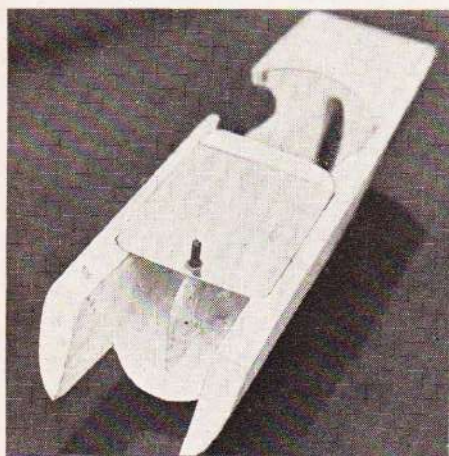
Prototype No. 1 used the German-built Mini K.D.H. units actuated by a special retract servo made by M.K. Skyleader very kindly supplied me with a servo amplifier to use with the M.K. retract servo so that I could plug it straight into the fifth channel of my S.L.X.6 receiver, thus alleviating the need for an additional power pack. My latest model uses the new Goldberg retract units and these too have proved excellent in operation and are to be preferred for their unique and simple construction. On the performance side I am sure retracts score as the acceleration out of the base pylons seems incredible with the wheels up. General



Above and above right: the nose section showing the engine cowling air intake and outlet. Cylinder head is exposed by approximately 1 cm. Note Andrew Mylius spinner and muffler.



Below: two views of the internal contours of the motor cowl. Must be tight fit around the cylinder to ensure good cooling. Note the metal guide plate to deflect exhaust gases from carb.



Flying characteristics are very good also and the model is extremely groovy when flown gently and with the minimum of control surface movements. I think smooth flying as well as speed is the key to winning pylon races. If you get the chance watch Bob Violett and you'll see what I mean.

Construction

Basic construction is quite simple but before you start make a nuisance of yourself in your local model shop and select some top grade light balsa. Try to aim for as light a model as possible. The original weighed just under 5 lb., complete with K.D.H. mini retracts. Care must also be taken with such points as engine cowling, wing seating, and the installation of the retracting undercarriage.

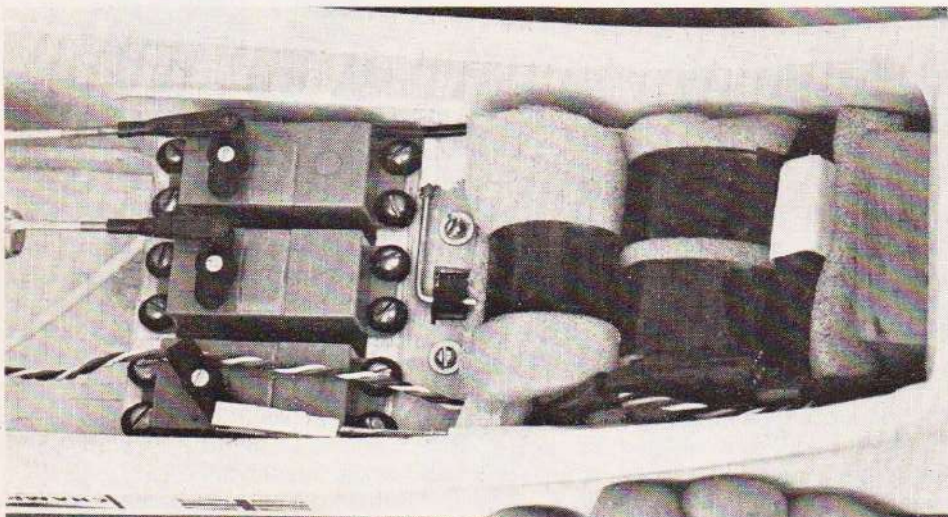
Wing

A conventional built-up structure is used for the wing. For the top and bottom sheeting I used $\frac{3}{32}$ in. balsa, this was butt jointed and sanded to $\frac{1}{16}$ in. before gluing to the ribs. This method ensures a smooth finish to the wing sheeting without any dips or warps between the ribs. No dihedral braces are used, the two wing halves being butt jointed and glued at the root. A 1 in. wide strip of fibre-glass tape is then glued in place over the joint using fibre-glass resin as an adhesive. If you intend to use retracts such as the 'Goldberg' units then follow the plan closely for the correct location, and use the right servo for the job, such as the Japanese M.K. distributed by RipMax.

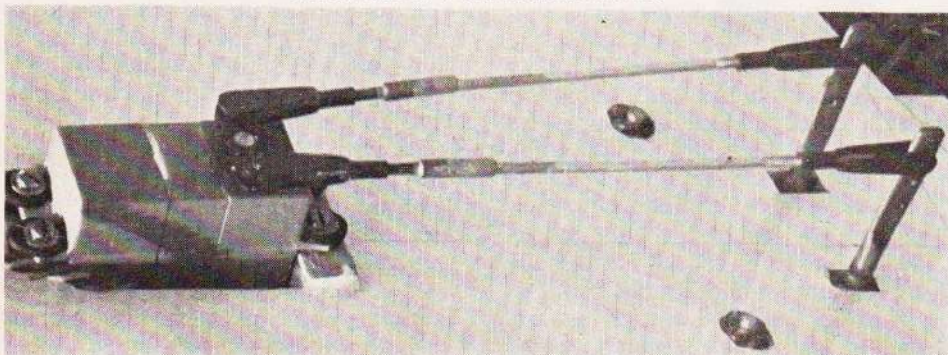
Fuselage and Tailplane

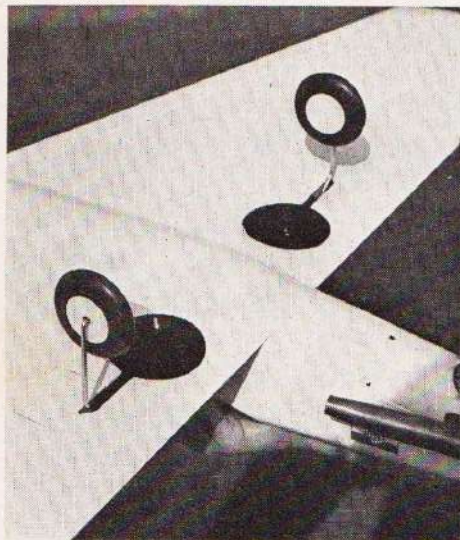
The fuselage sides are cut from medium soft $\frac{1}{8}$ in. sheet, and the $\frac{3}{32}$ in. ply doublers are contact cemented in place. Mark and then epoxy the hardwood engine bearers to the fuselage sides. Add the $\frac{3}{8}$ in. x $\frac{3}{8}$ in. triangular strips and the $\frac{1}{4}$ in. x $\frac{1}{8}$ in. stiffeners and the fuselage sides are ready to be assembled over the plan together with formers F2-F6. The $\frac{1}{4}$ in. ply nose ring F.I. and the $\frac{1}{8}$ in. x $\frac{3}{8}$ in. tail post are glued in place last to ensure correct alignment. Now add the rear top and bottom sheeting and the front top block. The block for the engine cowling is then tack cemented in place and the whole fuselage is ready for shaping and sanding. Attach the wing to the fuselage with a $\frac{1}{4}$ in. diameter dowel at the front and cam locks at the rear. The wing fairings are cut from $\frac{1}{2}$ in. sheet and glued to the fuselage sides with the wing attached to obtain a perfect fit. The canopy is made from 20 thou. acetate sheet, there being no compound curves. The engine cowl can now be removed and hollowed out to suit your engine.

Take particular care here and try to obtain as tight a fit as possible. This



Above: the radio installation showing Skyleader SLX servos three abreast. Note the internal switch and well-padded receiver. Below: the strip aileron linkage to the aileron servo. Note massive horns.





The undercarriage units showing the wheel wells and the narrow retraction slots for the undercarriage legs.

will ensure that the incoming air will pass through the cooling fins of the cylinder, and give good heat dissipation. I personally have had no problems with overheating and you should not experience any, especially with 'straight' fuel required in F.A.I. Racing. Be careful to add the aluminium plate to deflect the hot air flow away from the carburettor compartment. Fresh air for the carb is ducted through a small opening on the top nose block just behind the spinner, and passes through a channel to the carb.

The tailplane, fin and rudder are all from $\frac{3}{8}$ in. soft sheet sanded to the required shape. Be careful to obtain the correct decalage (0° incidence) between wing and tailplane as this will affect the entire performance of the model.

Finally add the bottom fuselage block to the underside of the wing and the model is ready for covering.

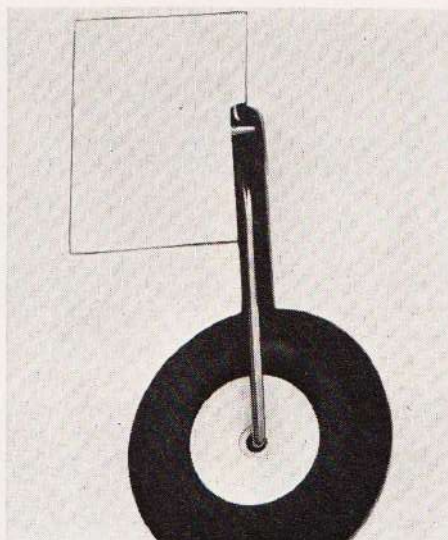
Finishing

Most modellers have their own ideas about covering and finishing, but I chose to cover the wings with super Monokote and the fuselage and tailplane with lightweight tissue, doped and fuel-proofed in the normal manner. Whichever method you use keep it as light as possible.

Installation and Flying

Make sure you install the radio gear as far forward as possible with the DEAC over the tank as shown on the plan, this ensures the correct C. of G. position. No additional ballast was required on the original to obtain the correct balance. Control surfaces should be kept to a minimum with not more than $\frac{1}{4}$ in. up and down movement for the elevator

In R/C pylon, if you want to stay ahead, you build everything in two's, see? Here is designer Phil with his two prototypes . . . just about as fast as anything current in F.A.I. pylon.



Close-up detail of one undercarriage unit retracted into well. Note inspection panel.

and ailerons. Rudder movement is not critical and should be about 1 in. in each direction to ensure good take off control.

Flying a pylon racer is a technique on its own and cannot be described in words. Basically it is just practice, so get out and fly the course whenever you can. MANNEATER is a very quick model and with a good H.P.40 up front can turn in some really fast times. The key to success in racing is preparation. Make sure everything is just right before you even attempt to fly in a race. Your motor must be well run in and running just right, and when I say run in I mean run in. At the beginning



The R.M.K. retract servo which, with special Skyleader servo amplifier, has proved ideal. Skyleader make the amp. for many systems on request.

of last season I spent a whole day at my club field running-in a new H.P.40. I must have put nearly two gallons of fuel through it, yet the engine was still a bit tight and it was not until half-way through the season that the motor really began to sing.

There is not much one can do about tuning the H.P.40, as they are pretty good as they come. Selecting and using the right prop seems to be the answer here. I use a Topflite 9 in. x 7 in. pylon prop cut down to $8\frac{1}{2}$ in. dia. and washed out and balanced in the usual way. I normally prepare 10 or more props at a time and then select the

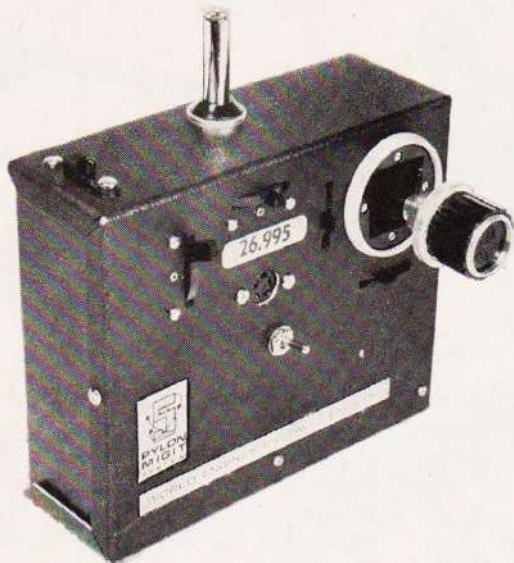


Manneater

best ones using an Irvine Rev Counter to check static performance. Any tip flutter will be easily noticed, and any prop suffering from this should be discarded.

Flying a pylon racer is a technique on its own and requires considerable practice. Try and fly a clean tight course without any erotic, sorry, erratic, movements. Try and obtain a fast straight take-off with a shallow climb out to the number one pylon. When you think you are three-quarters of the way up the course, slowly roll to your left through about 85° and when your caller shouts 'turn' pull in up elevator quickly and smoothly, rolling out slowly again to negotiate the back straight and the number two and three pylons. These base pylons are best taken in one smooth turn, flown fast and as tight as possible without cutting. When flying in a race run under the matrix system where points are given for the winning order of each heat, always keep in close contact with your caller, he will be able to inform you whether the other competitors in your race have cut or not. If you are in a good position and well in the lead don't risk flying too tight, fly a little wider and finish the 10 laps without any cuts to ensure your four points.

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