



THE ST. ALBANS'
HI-BALL
 BY PETE NEATE
 A super performance contest model featuring the popular high pylon wing fixing.

AS a fitting start to what should be a long series, if pylon models retain their undoubted popularity, we present here one of the most successful diesel models of original design in the 1947 competition season, and the first pylon power model to be featured in our pages. Some idea of this model's performance can be gained from the fact that out of six successive contests the Hi-Ball won five. Anyone who has seen the model performing at the Nationals or at Eaton Bray will understand why. The standard performance of this fascinating little model is a take-off run of negligible distance followed by a literally vertical corkscrew climb for all of the usual twenty seconds engine run, followed by an amazingly flat glide which keeps the model in the air for well over a two minute average. Strangely enough the original model has never yet caught a thermal, although perhaps this is as well to judge from its best flight to date of three minutes forty-six seconds without such aid. All credit to young designer Pete Neate of the St. Albans' Cement-Squeezers.

Despite the pylon power-house type of design the model succeeds in achieving a not ungraceful appearance. There is plenty of strength built into the construction, and the original model though scarred is still flying as well as ever. The simple construction is extremely robust and has an additional advantage in that, despite the low drag circular section, it does not require any jigs. Designed as it is for power duration flying the total weight

when complete with engine should only be ten ounces, when the wing area of approximately two hundred and thirteen square inches gives a very light loading.

For F.A.I. competitions such as the major S.M.A.E. events it is only necessary to make a five minute modification to the pylon in order to incorporate the necessary extra fuselage cross-sectional area to bring it up to formula. This is very simply done by cementing a length of $\frac{1}{8}$ " square balsa down each side of the pylon from the fairing to the fuselage and then covering this modified pylon with tissue. It will be found that this alteration has no effect upon the model's performance.

Designed essentially for the low capacity British diesels now on the market, the model will take any 1 to 2 c.c. engine—the original was fitted with a Mills 1.3 c.c. As this original engine was rather hotted up it is possible that an even better performance may be obtained with engines around the 2 c.c. mark, although in the ordinary course of events there is no doubt that the Mills has sufficient power for all the model's needs.

For the newcomer to pylon power modelling, the Hi-Ball presents no difficulties of construction or trim. It is undoubtedly an ideal model for this purpose, although it should be emphasized again that the flying qualities more than satisfy the experts! Plans of this model are available from Aeromodeller Plans Service, Allen House, Newarke Street, Leicester, price 2/6 post free, and a $\frac{1}{4}$ scale reproduction is given opposite. There will be many a Hi-Ball in high placings in the 1948 flying season.

Fuselage

First the pylon is cut out of $\frac{1}{8}$ " sheet with 1/16 in. sheet laminated on each side, the $\frac{1}{8}$ " sheet grain vertical, the 1/16 in. sheet horizontal. The first six formers are then cemented onto it. When this is dry the two main stringers, $\frac{1}{4}$ " x 3/32 in., are cemented in, cut off to the correct length and joined together at the tail. Then these two stringers are marked off every two inches and the rest of the formers put in. Next the ten 1/16 in. square stringers are cemented on. When all is thoroughly dry the 1/16 in. ply former with the undercart bound to it is cemented on and the engine bearers are put in, using large cement gussets. The necessary sheeting up to former No. 2 and around airhydraulic timer is fixed. The timer is attached as in sketch on plan. The fuselage is either covered with flax tissue, with two coats of dope or double covered with jap, first with grain vertical and then with grain horizontal.

Wing and Tailplane

First the spars and the leading and trailing edges are pinned to the plan and the ribs cemented into position. The laminated tips are made by driving pins in at about $\frac{1}{4}$ " intervals around the inside line of the tip, coating the strips of $\frac{1}{4}$ " x 1/32 in. with cement and bending round and then compressing these together with further pins and leaving for an hour to set. They are then sanded and the dihedral built in. The tailplane is built in the same manner as the wings.

Flying

The model is test glided until satisfactory glide is obtained—this is done either by packing up the leading or trailing edge of the tailplane. Launch with the lowest possible revs—if the model turns sharply in one direction it should be corrected by the trim tab until it both climbs and glides to the left.

Heading picture shows the special "hands off" launching technique developed by the St. Albans Cement-Squeezers. Engine is revving, and launcher holds the model steady with hands round the fuselage; timer can be set at the last moment without coming near the airscrew arc; hands come away smartly and the most pernickety judge will be unable to fault for a push start.