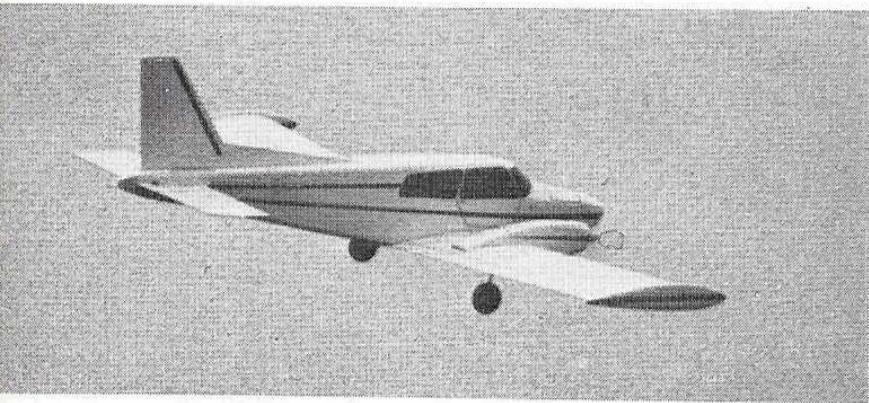
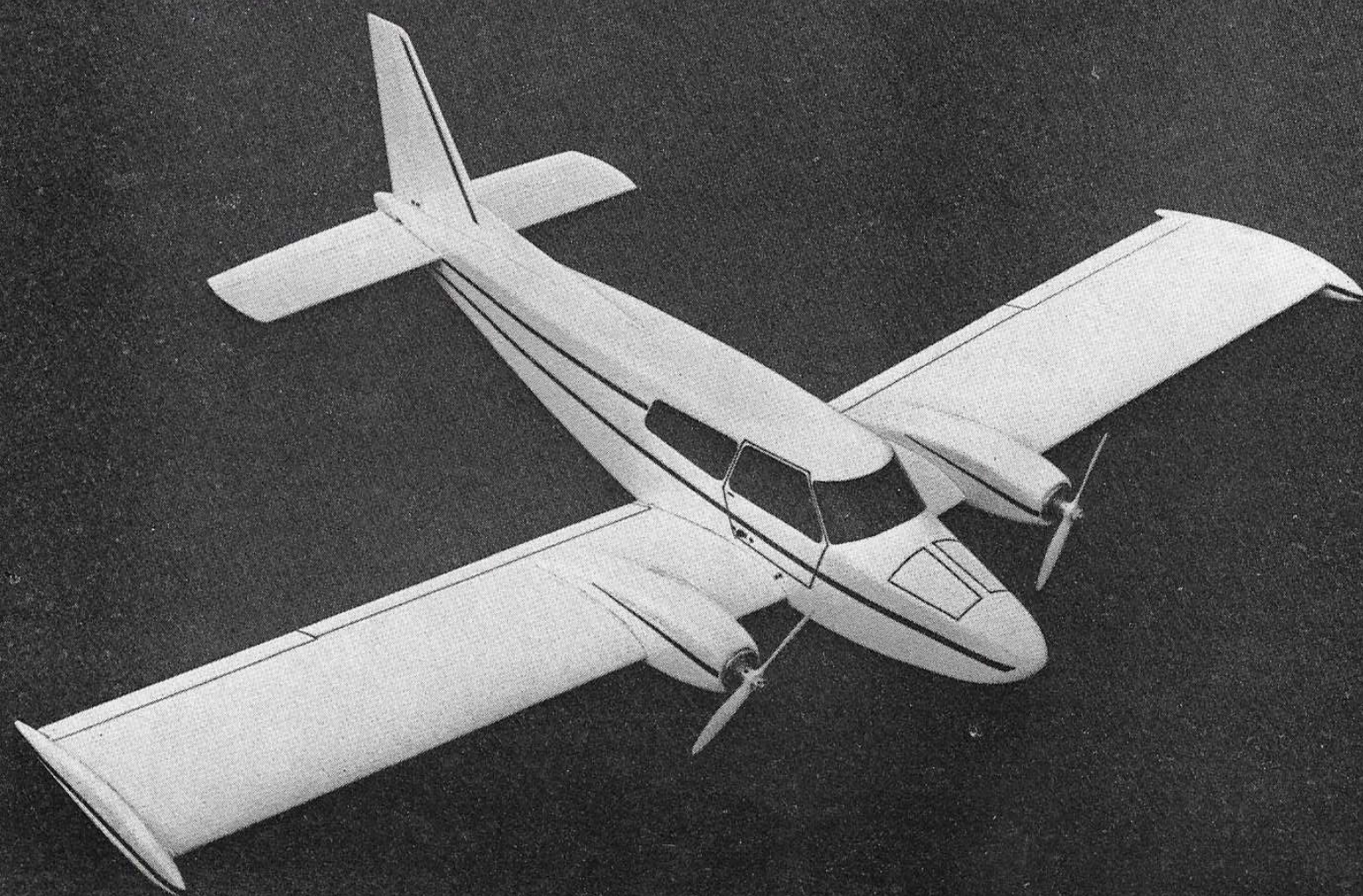


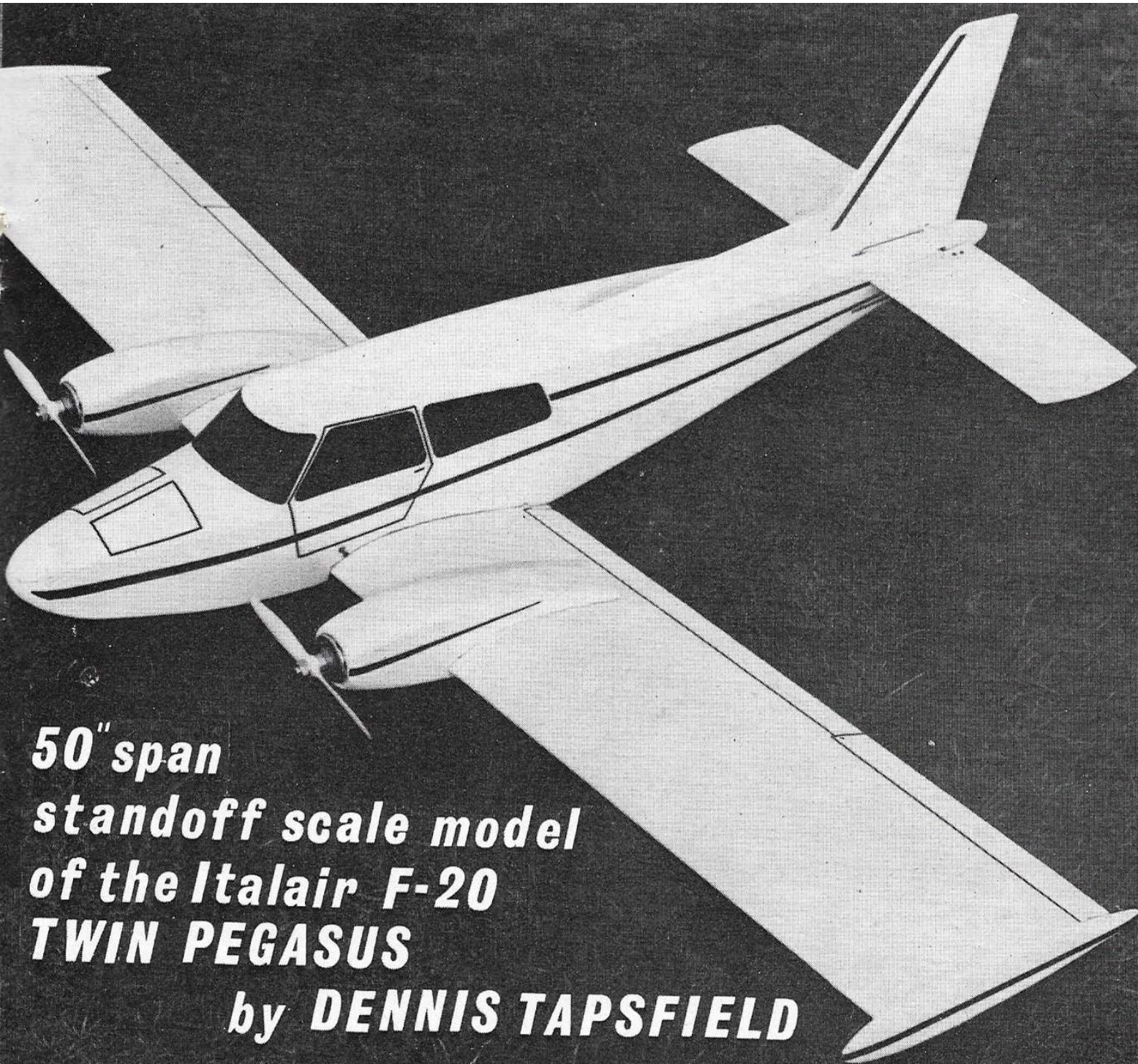
PEGASUS

twin motor for
ELECTRIC *power!*



★ With two "15"-size motors, such as the 'Cyclone', and nine fast-charge nicads, it performs beautifully!





**50" span
standoff scale model
of the Italair F-20
TWIN PEGASUS
by DENNIS TAPSFIELD**

IF YOU have thought, up to now, that an electric powered r/c model aircraft is a glorified sailplane wallowing around like a wet sponge, you are in for a pleasant surprise with the *Pegasus*. This model is the second of a line of electric twins, and will do most manoeuvres associated with a "25" powered single engined machine of similar size and weight. The model is quite docile, controls are as responsive as you want to make them, the roll rate can be quite fast, spins are entered very crisply, and recovery is instantaneous on neutralising everything. Inverted

flight is good, the model having very little tail-down attitude. Taxiing is a snip with the steerable nose wheel, and take-offs on a reasonably smooth surface are fast, followed by a lively climb-out, yet landings are quite slow and easy.

The model is powered by two Mabuchi R.S.54, "Cyclone 15s", "M.F.A." or "Astro" 05 electric motors, and the power pack consists of nine 1.2 A.H. fast charge nicads. You can use eight if you prefer to, giving a slightly less lively performance. The motors are switched by using the throttle servo to operate

three micro-switches on a slider system: the three positions being: 1, off; 2, both motors in series; 3, both motors in parallel. The "series" position provides enough power for cruising flight, and will just about maintain altitude, but only uses about half the current that full power demands. Flight times are in the five to six minute bracket.

The twin motor configuration brings with it certain advantages. Firstly, the facility of series-parallel switching provides not only a form of power control, but also avoids a sudden discharge surge from the

batteries to static motors; this in itself not only lengthens battery and motor brush life, but gives a slightly longer flight time. It is also well known that, provided an airframe is clean aerodynamically, the available power from the two motors, is better utilised, than by combining the power of the two into one motor in a single engine configuration. However, enough said on the theories; if you have read this far, you are probably sufficiently interested to build one.

Remember to choose your materials carefully to compensate for the unavoidable weights of the equipment; the airframe on the prototype, covered, with u/c, ready to fit the radio, power pack and motors weighed in at 18 ounces! (all up weight 66ozs) see if you can do better. I've written before, "Add more lightness for a livelier model." It was never truer than for electric powered model aeroplanes. A bonus with electrics:—A flame-out is virtually unknown! So fly it like a single!

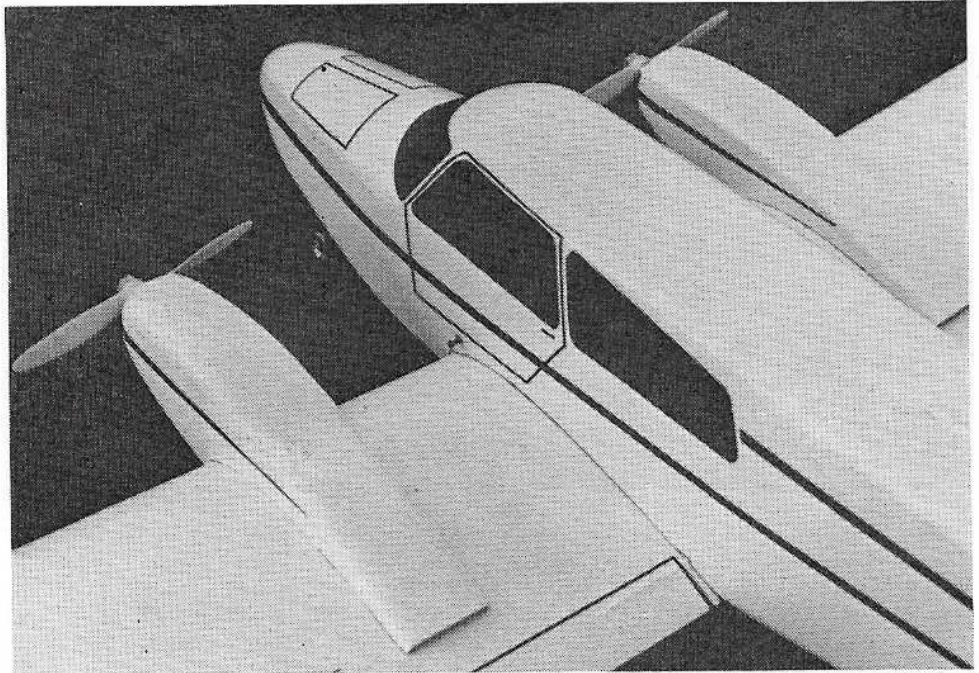
CONSTRUCTION

Wing

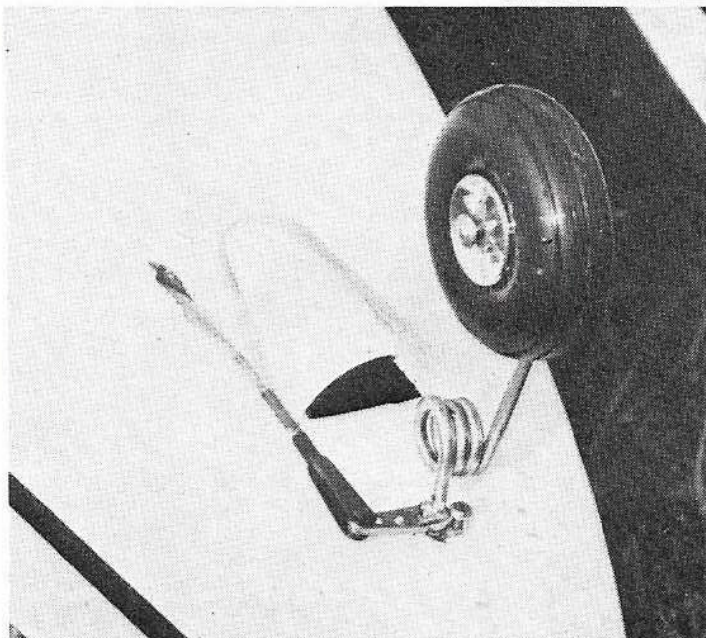
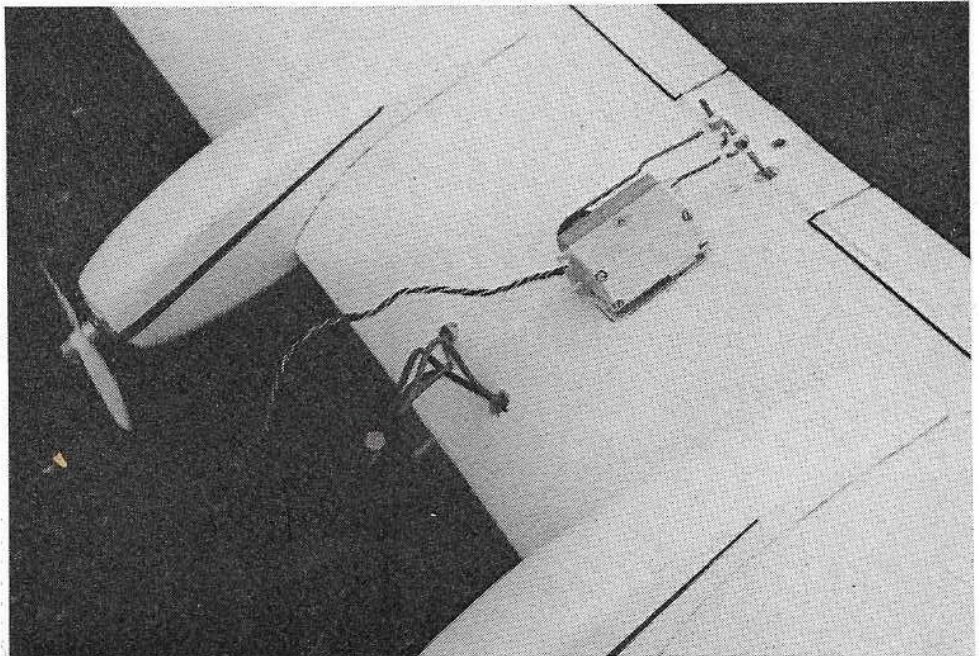
This is a very straightforward structure using my favourite method of a "D" box and produces a really light and rigid wing; the only thing to remember is to put the motor wires in, or cords to pull them through, before you close the "D" box, or you'll be sorry! I use P.V.A. white glue for the glass tape centre strips, I find it quite satisfactory, and easier to film over. Hinge the ailerons with film.

Nacelles

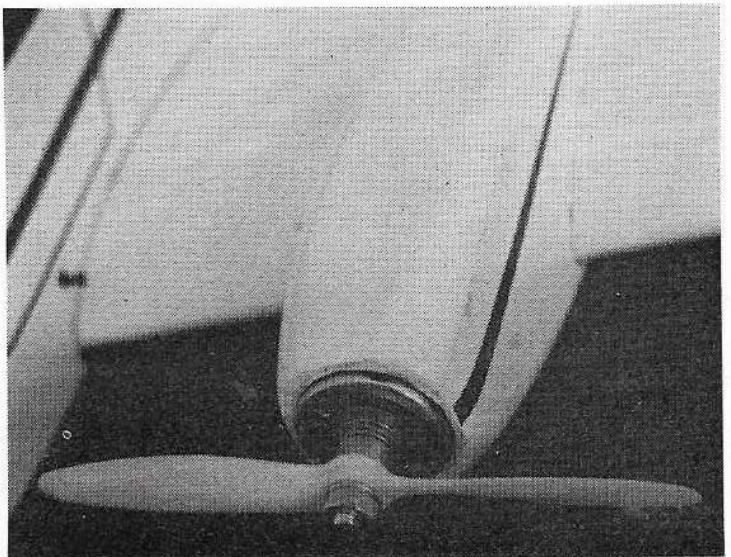
Cut out the side panels, making sure that the profile matches the

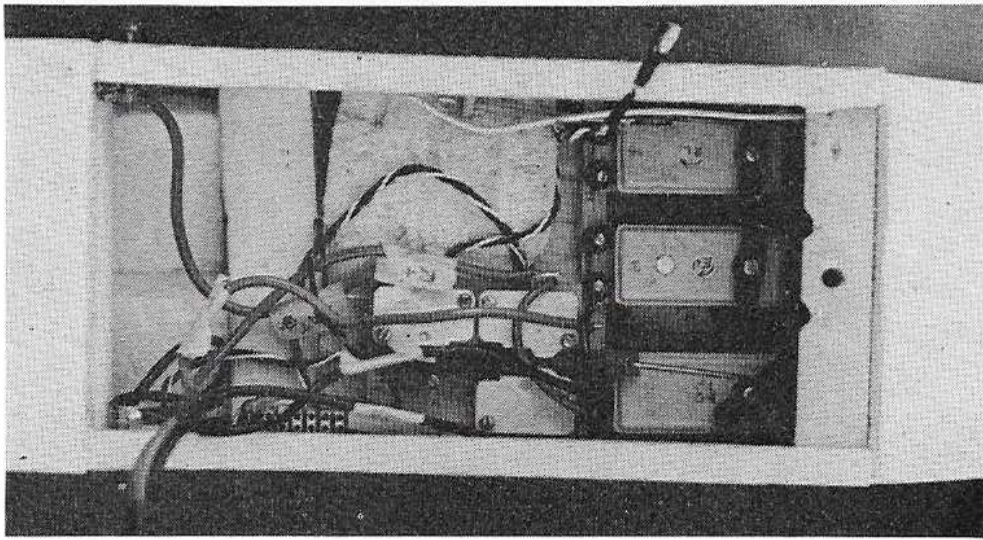


Clean lines and scallish appearance. Below is shown wing with fuselage removed, to reveal the aileron servo.



At left, model is inverted to show steerable nosewheel (scoop is from plastic bottle), while below we have a close-up of one of the two Cyclone 15s—no mess, no synchronising problems!





Bags of room for three-abreast servos here. Power pack and receiver are under the plentiful foam packing.

wing; complete the boxes, and glue in the motor tubes. Sand to shape when dry.

Fuselage

A simple box structure; cut the sides out of matching $\frac{3}{32}$ in. sheet balsa, glue on the $\frac{1}{4}$ in. sq. longerons and the wing seating reinforcements. Fit and glue in formers F2, F2a and F3; allow to dry, then draw tail ends together. Trim the longerons to enable the sheet sides to meet at the tail end and glue. When dry, add former F1, followed by the small formers in the tail end. Complete the structure to the drawing.

The tail unit is a very simple structure, all parts being cut from $\frac{1}{8}$ in. sheet. *Do not fit it to the fuselage yet* however.

Covering and finishing

Cover the wing with iron-on film, making sure that it is well stuck

down where the nacelles fit, also that the wires or cords remain in position.

Cover the nacelles with film, and place them in their correct positions on the wing. Mark around the outside with a ball pen, and remove the film from the wing within the area of the marks, to ensure wood-to-wood glue joints. Now glue the nacelles in position with plenty of P.V.A. white glue. Cover the wing tip tanks with film, leaving an area clear for gluing to the wing tips.

Cover the complete fuselage with film, using Fablon or similar material for the windows, and film for decoration and trim. Cover the tailplane and elevator, leaving the area within the fuselage uncovered for gluing. Do not hinge the elevator yet, slit

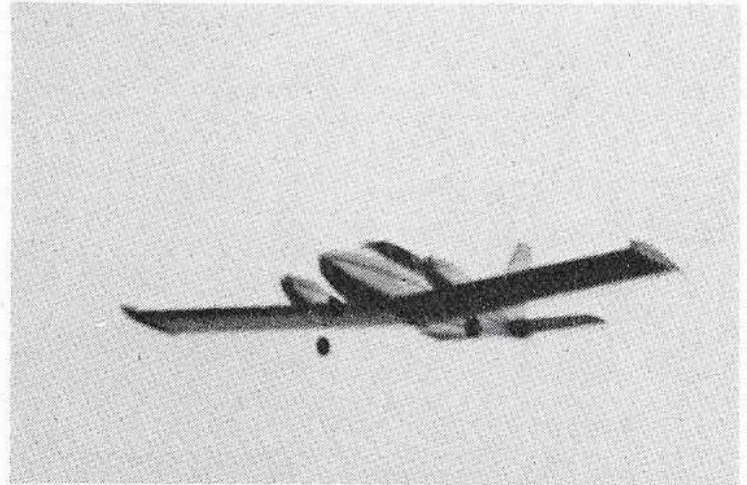
for mylar hinges. Cover the fin complete, leaving the area within the fuselage uncovered for gluing; cover the rudder, slit for mylar hinges, and hinge the rudder. Sit the fin in position on the fuselage, mark around it with a ball pen, and remove the film within the area for gluing.

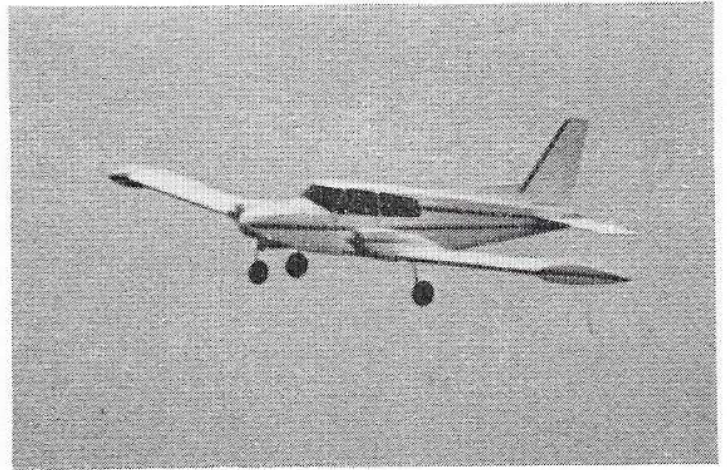
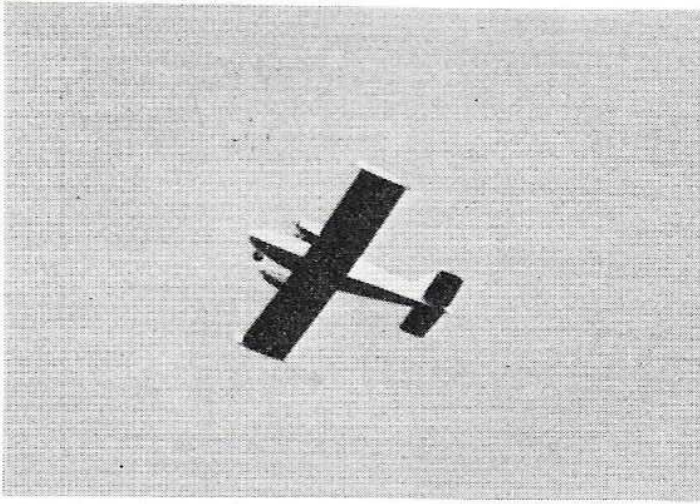
Assemble the tail as follows: slot the elevator through the fuselage, followed by the tailplane. Manoeuvre the hinges into position, and epoxy. Glue the tailplane into the fuselage, then glue the fin into position, making sure that it sits on to the top of the tailplane and that the whole unit is square. Install the elevator and rudder horns and push-rods, followed by the radio and its concomitant items, making sure that the c.g. is correct. I use a 250 nicad to save space and weight, and this is mounted under the servos. Set the control movements as per the plan; you can reduce them slightly if you prefer a really docile performance to start with.

Flying

The model appears to have no real vices, all controls responding well, right up to touch-down. Now (assuming you have range-checked your radio, with both motors run-

Dennis poses, after flights—with spotlessly clean model!





Typical flight attitudes of the Pegasus twin.

ning, in order to ensure that they do not interfere with the radio—and that the balance point is as specified) choose a smooth take-off strip (close mown grass is OK). Switch on the motors, hold her straight with rudder while she gathers speed—and fly her off. You will be surprised at the model's agility and silence (your neighbours will love you!).

Landings are easy; I usually chop the power and bring her in "dead-stick". She glides well and, properly handled, will touch down like a feather. If you want to go round again, you can—provided you've not exhausted your batteries! It would be a good idea to try some approaches early in the flight to get the feel of the model. Touch and goes with twins are usually reserved for the brave or the stupid—but no need to worry with this baby!

Make no mistake, this is an efficient, practical, good looking, and fun-to-fly aeroplane. *If you don't believe me, build one, fly it, and see!*



No more flicking or starters—just switch on at the Tx and away she goes!!

