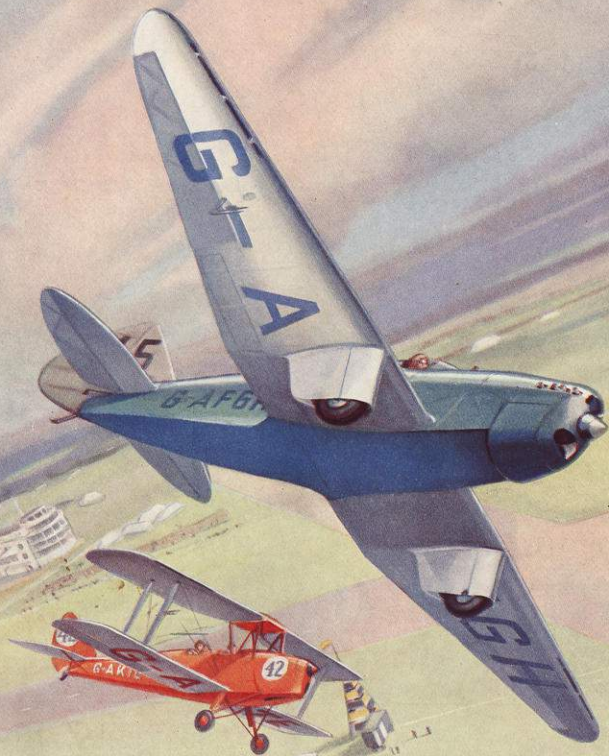


AEROMODELLER

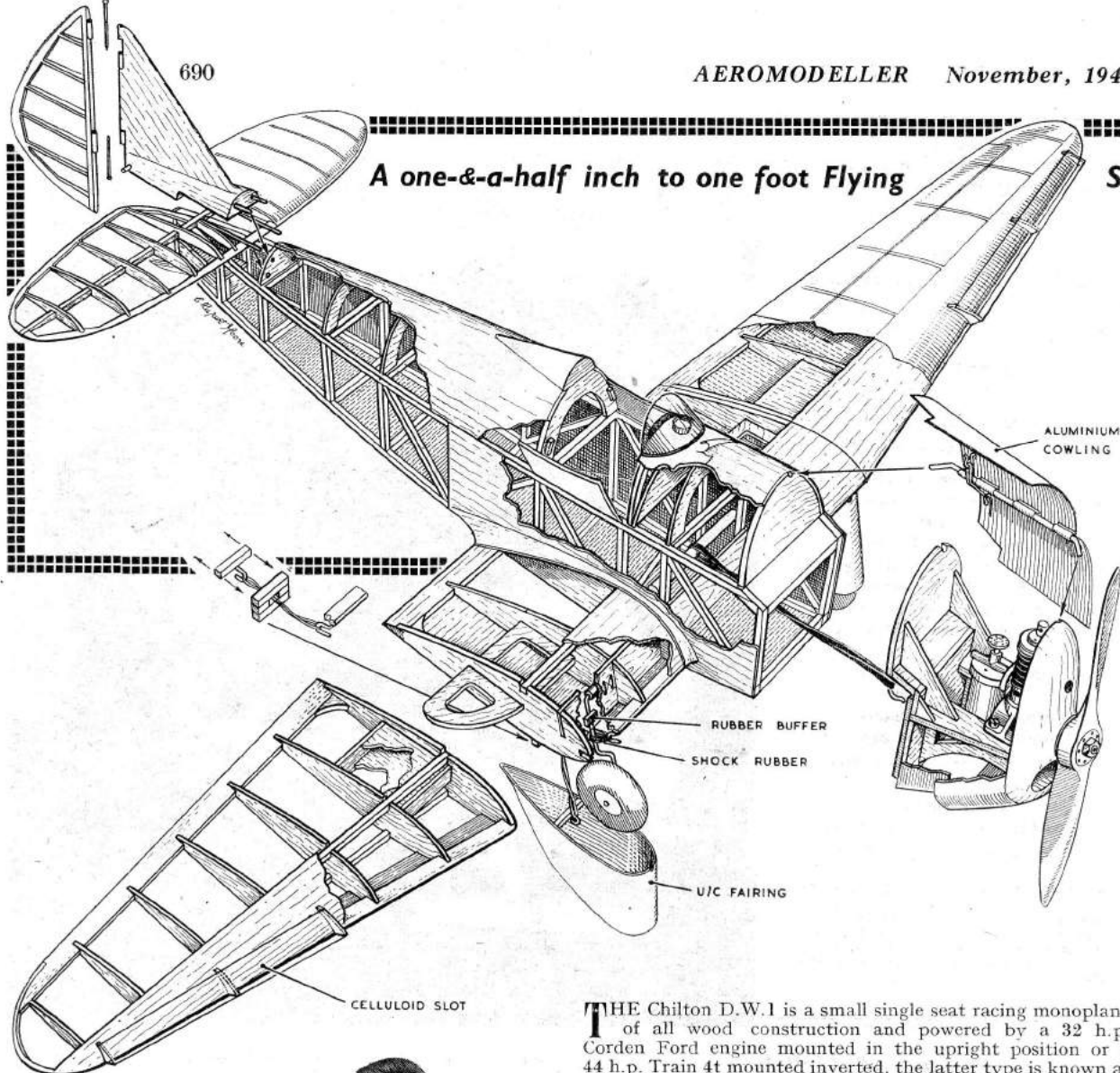


NOV.
1949

1'3

A one-&-a-half inch to one foot Flying

Scale



THE Chilton D.W.1 is a small single seat racing monoplane of all wood construction and powered by a 32 h.p. Corden Ford engine mounted in the upright position or a 44 h.p. Train 4t mounted inverted, the latter type is known as the D.W.2. The Chilton was designed in 1936 by two ex-D.H. technical school students who founded the Chilton Aircraft Co. and put the machine into production at Hungerford. Several of them are still on the Civil Aircraft Register: one, G-AFGH a Corden engined version is jointly owned by members of the Denham flying club.

Cover shows this latter machine rounding a pylon, closely pursued by H. K. Hughes' Tiger Moth in the Grosvenor Challenge Trophy Race at Elmdon on August 1st last.

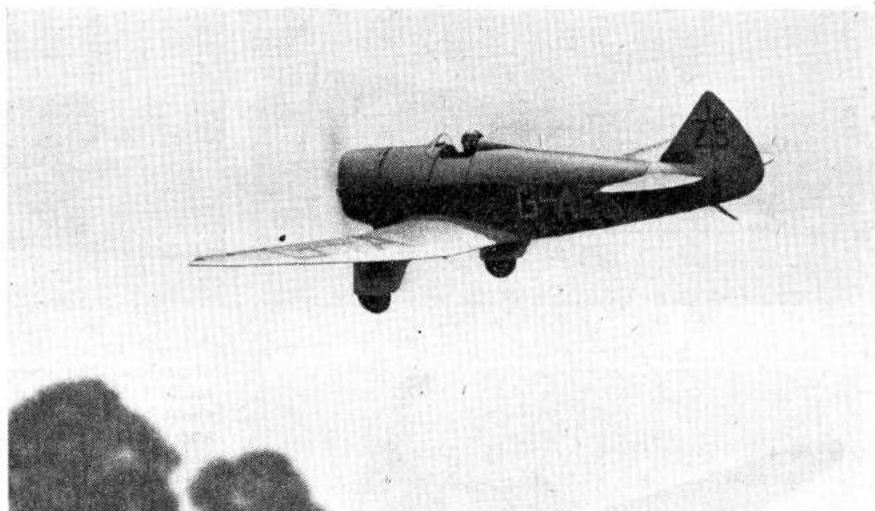
The Chilton was piloted in the race by H. Bilborough of the Denham Aero Club.



John M. Greenland. . . . Age 18½, Student at the de Havilland Technical School, Hatfield. . . Elder son of Sq. Ldr. H. J. Greenland, Test Pilot at Hatfield. . . First started solid modelling in 1942, progressed via gliders and semi-scale to rubber driven and powered scale flying models. . . Has never been a member of any club. . . The Chilton Monoplane is his fourth contribution to the Aeromodeller.

Model of the Chilton D.W.1

DESIGNED BY
J · M · GREENLAND



About a fortnight previous to the race, AFGH had sustained serious damage as the result of a forced landing near Watford, but with the assistance of the present owner of AESZ (now stationed at Thrupton, near Andover) who supplied various components needed for the repair work, the machine arrived at Elmdon on the day before the race was due to take place. A Train engine version, G-AESV, is owned by Squadron Leader Porteous. Reference to E. J. Riding's Civil Aircraft No. 27 in the February, 1946 issue of the AEROMODELLER will provide information as to the colour schemes, registrations and history etc., of the full-sized machine. The model is a replica of the prototype D.W.1 G-AESZ. It has a red fuselage, silver wings and tail unit, the registration is in red on the wings and silver on the fuselage. The number 29 is in black on the fin and was the machine's racing number in the 1937 Isle of Man race. Rugged and simple construction is used throughout, the model can be taken apart into six separate pieces which are easily carried about or stored away. Two engines have been tried out in flight, the Clan '9 c.c. and the Amco '87 c.c., the Amco gave the better performance since it is the lighter engine. However, almost any engine of under 1 c.c. that will swing the scale size propeller at over 5,000 r.p.m. will be suitable. The pilot shown in the photographs is a undercarriage trousers.

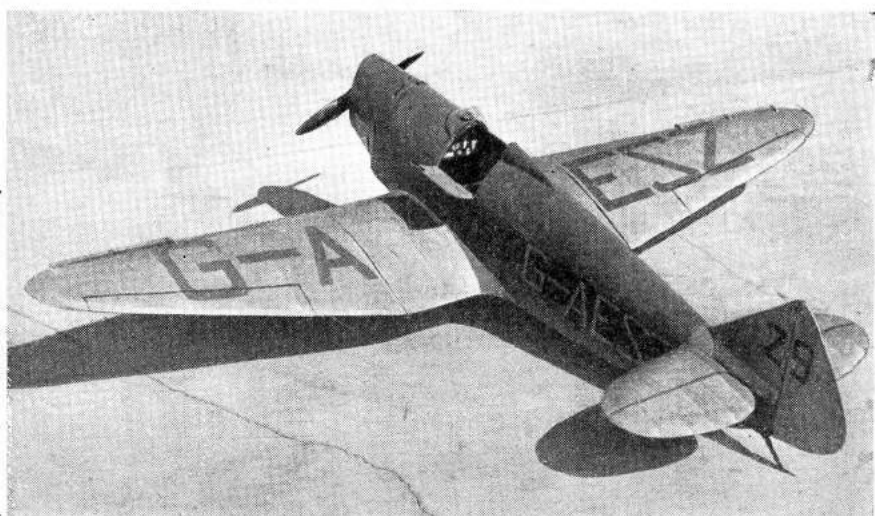
The finish on the model is Titanine cellulose dope sprayed on to clear doped rag tissue the letters being drawn on with a soft pencil and printed by hand.

Construction.

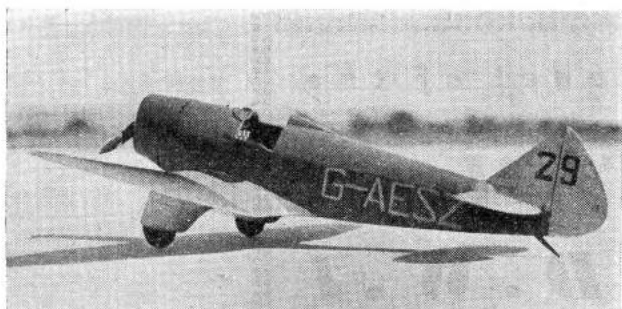
All the main components, fuselage, wings, etc., are so simple to build that anyone who has built one or two duration models can tackle

them with ease. The only parts likely to cause difficulty are the engine cowling and undercarriage trousers. The top cowling is made of 26 gauge aluminium and is in two halves hinged together along the centre line. The 16 s.w.g. hinge pin is inserted at one end into the fuselage and at the other, forward end, into the nose of the "power egg," this makes it impossible for the cowling to come off unless the "power egg" is detached from the fuselage. It is advisable to make a paper template before cutting out the aluminium panels, there is no double curvature so there is no beating to be done, the metal can be easily cut with scissors and trimmed with a file. The hinge is made by leaving $\frac{1}{4}$ in. tongues at the CL which are wrapped round a piece of 16 s.w.g. wire interlocking alternately with the opposite panel. They should be spring loaded to hold them shut by means of a simple coil spring or rubber band. The lower cowling is of $\frac{3}{64}$ in. sheet celluloid, moulded to shape by heating in front of the fire and bending with the fingers until it fits, it is a permanent fixture to the engine bearers. There is an exhaust and oil outlet in the bottom as shown on the plan, the engine attachment bolts are accessible through the air intake.

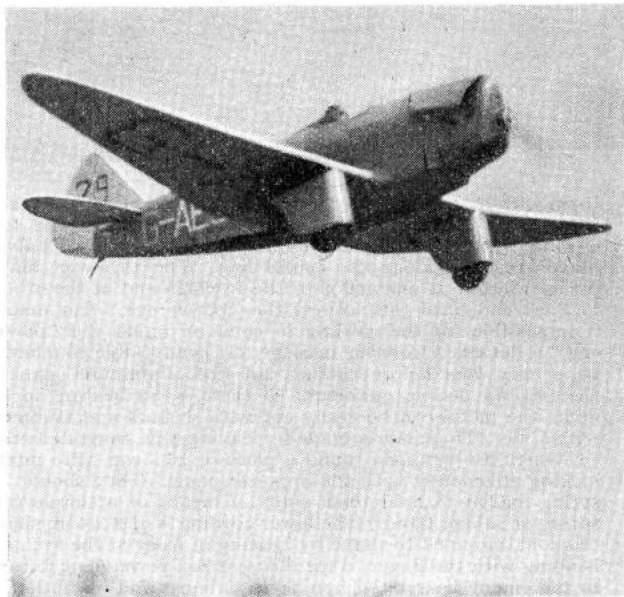
Each undercarriage leg is of 16 s.w.g. steel wire passed through a piece of brass tubing $\frac{3}{8}$ in. long which is bound securely to the undercarriage stress spar with strong thread and coated with plenty of Durofix. The shock absorbing is in a backward direction, rubber bands being stretched round the



Simple to build, easy to fly, and capable of withstanding the usual punishment, are features of the Chilton. Note the hinged cockpit side on the photo right, and the "real aeroplane" look enhanced by the "pilot" in the flying shot above.



"Aeromodeller" Photos.



undercarriage leg to a 20 s.w.g. wire hook on the leading edge, externally, pulling the leg forward against the undercarriage stress spar. Backlash shock absorbing is taken by a $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{8}$ in. piece of soft rubber stuck to the stress spar as shown on the plan. The leg, springing, and half of the wheel are hidden by a pressed paper trouser which is made by pressing 4 or 5 layers

of paste soaked newspaper into a plaster mould. The mould is made by building a balsa "model" from two pieces of $\frac{1}{2}$ in. sheet balsa temporarily cemented together carved to shape, and then cellulosed to a very smooth finish after which the two halves are separated and cast in plaster of Paris by laying them on a sheet of glass and pouring plaster over them. A plasticine wall is built up round the job to keep the plaster in shape until it is set. The whole job, including the actual paper pressings can be completed in an afternoon, and is a good deal simpler than carving each trouser from solid balsa, furthermore, should one become bent or crushed it is easily replaced. Note that the trousers are sprung, being held on with a rubber band stretched to the hook on the L.E. and passed through a kind of bridge as shown on the drawing.

While being tested with the Clan '9 c.c. engine a metal airscrew was used, this was made up from a piece of $\frac{1}{8} \times \frac{3}{4} \times 7\frac{1}{2}$ in. Dural Strip filed to section and then bent to the required pitch and polished. Later the Amco '87 c.c. engine was fitted and a wooden airscrew used of $6\frac{1}{2}$ in. diameter. Originally the model was fitted with a counter balanced rudder as fitted to Bagley's Nieuport and G. E. Fisher's Sopwith Pup but it was found to have no advantages and was finally scrapped. Two tailplanes have been used, the first was exactly scale size cut from "sheet" balsa with a symmetrical section. The model managed to R.O.G. with this, but was longitudinally unstable. An enlarged tailplane of $\frac{3}{4}$ in. greater span and a very high lift section was then fitted, built up construction being used, this was set at a lifting angle of 2° and the model performed satisfactorily.

The model has a very high flying speed and glides well, it is advisable to fly it over either very long grass or very, very short smooth grass such as an aerodrome where it can land without hitting lumps of mud, etc. The take off is most realistic, flying speed is gathered in about 25 yards, after which the model becomes airborne and holds a height of approximately 18 ins. for a further 12 yards or so, then climbs steeply up turning slightly to the left.

This photo shows the wing slots quite clearly, and it will be noticed in the flying shot above that the cowling has not been properly attached and is coming adrift.

