ARIES

A 6 ft-span radio-control slope - soaring glider by George Upson

RADIO CONTROL FLYING first stirred my interest early in 1957 and having little actual radio knowledge I felt sure that useful experience could be gained by installing such equipment in a glider. Slope soaring was the obvious method of obtaining flights of any duration, and knowledge gained flying an A.P.S. Archangel with radio at 2¾ lb. weight eventually led to the design of "Aries".

The prime design factor for slope soaring is good wind penetration, and for this reason a flat-bottomed wing section is used giving the model a fairly fast flying speed. Other components are orthodox, the tailplane area being 25 per cent. of the wing, the moment arm three wing chords, and the dihedral 10 per cent. Tip dihedral is used in order to simplify the two-piece wing joint.

The fuselage was made as strong as possible and designed around the Hill receiver and Mighty Midget Servo unit which means that there is plenty of room for any conventional system.

Single-channel control with rudder only is employed, utilising the Laurie Ellis Canadian Actuator, described in the February, 1957, AEROMODELLER. This provides selective control, *i.e.*, one signal gives left, two right, or *vice versa*, with automatic return to neutral on release of the signal. Sellotape was used for the dead spots on the gear wheel which provides a means of finding their best position.

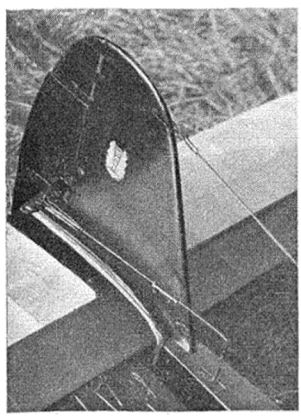
Construction

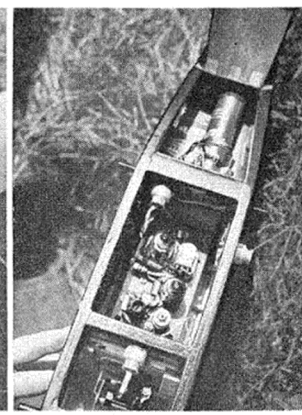
Building is straightforward, but the following points should be noted. Washout in the wing should be incorporated when building. Fuselage top sheeting is added after installing the control rod. It is essential that the rudder control linkage operates quite freely. No centring springs are used on the rudder control surface as servo motor overrun is negligible.

Flying

Trim with C.G. between 50 per cent. and 55 per cent. of wing for straight glide below the stall using the rudder tab and tailplane packing. If you move the C.G. further back than 55 per cent. flight becomes undulating in stall recovery.

Trim as above is standard for winds of up to 10 m.p.h.; for stronger winds move the C.G. forward and adjust tailplane. With the C.G. at 45 per cent., which entails 4½ ounces of extra lead in the nose, the model has flown in winds of 25 m.p.h. Increasing the overall loading about the C.G. also helps in the latter conditions.





Photo, left, shows close-up of rudder linkage. Note adjustable horn and grub screw adjuster for control rod length. Aerial, it will be seen runs from tip of fin to aft of radio compartment. Right, is top view of fuselage layout with front hatch open. Other compartments are covered by wing. Front section houses batteries, middle section the Hill receiver and the rear compartment the Laurie Ellis type Mighty Midget selective actuator. Note the neat plug and socket connections between the various units