

THE only gull-winged plans I'd ever seen were of gliders and the American Spook, a vintage high-wing cabin model.

I'd always liked the idea of a cranked-wing configuration and when my OS 20 four-stroke and a set of R/C gear became idle, I thought - this is it!

I planned for a wingspan of about 56in. and a fuselage length of 32-33in. I asked numerous questions to learned club members regarding wing and tail incidence, CG position and then took the average answer - zero degrees, relative to the fuselage datum and the CG position calculated as shown on the plan.

Let's get going!

The tail and elevators are conventional 3/16in. square balsa with the tips from 3/16in. sheet, sanded to aerofoil section with the top half of the fin built on. The lower fin was built into the fuselage after cutting away the spine and opening out the formers. The top of this lower fin terminates in a 1/8in. ply platform onto which the tailplane is glued. For ease of construction, I cut the slot and bored the hole for the elevator snake

outer and clevis area. This was the most awkward part; silver soldering the central control horn to the elevator joining bar at the correct angle so as to meet the snake in a smooth flowing curve needed more than one try. I found that Bowden cable

gave better results than the normal white plastic inner. The fuselage spine and keel were laid down first and the half formers

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Gullable

Build Tony Kagan's vintage-style gull-wing
craft for three function R/C and .20 to .25
motors



Classic fuselage lines achieved with simple balsa planking.

glued in place. Enough planking in the centre area was added to enable the whole side to be removed from the plan without it bending. The reverse side formers and planking were then added and the two undercarriage tubes were wired and epoxied for formers F1 and F2. The planking was then completed down to the keel centre-line, tapering where necessary.

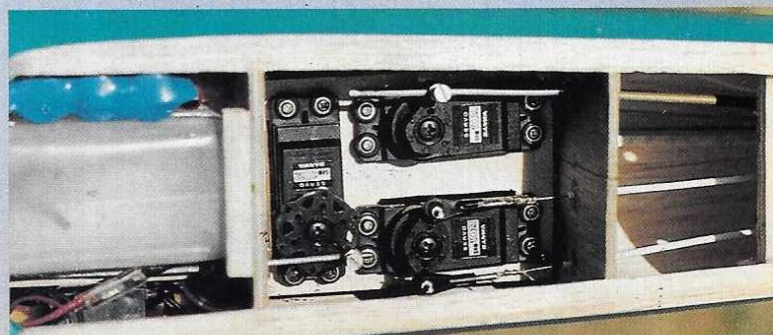
The servo tray, snake tubes and tank were next installed. The 40oz tank fits between the engine bearers with the

Below, top to bottom: Gull wing and high tail are distinctive features; OS 20 four-stroke provides ample power; plenty of room for servos - note closed loop control for rudder.



feed tubes passing through the 1/4in. ply F1 to hold it rigidly in place. The remainder of the planking, up to the wing seat, was then completed. The seat has a 1/4in. square coaming let-in and the tops of formers F2 and F3 were then cut down to this level.

The wing is retained by two nylon bolts to the rear, with captive nuts epoxied into a ply plate - supported at both ends - and a ply tongue at the front which locates in a recess in the upper fuselage block.



The over-wing fairing is carved from soft block to conform to the curvature of the fuselage with two holes drilled to clear the wing bolts at the rear. After fitting a 1/8in. ply nose ring the cowl area is fabricated from soft balsa (again!) then the whole assembly carved and sanded to shape – lotsa dust!

The throttle arm is connected with a bowden cable running through the bulkheads to the servo. The R/C switch is located to one side of the tank and a 500mAh nicad slides down the other side. The receiver sits under the tank, wrapped in foam.

The undercarriage is constructed in two halves, epoxied into the tubes fitted in the fuselage and joined to the spreader bar, bound and soldered. A steerable tailwheel is fitted using a thin metal support strap wrapped around the stern post and bolted to the underfin. Note: Do not omit this as a heavy landing will tend to bend the stern post tube backwards.

Wing things

Cut both dihedral braces from 1/8in. ply and construct the centre section, building the trailing edge from 1/16in. balsa sheet.

With this assembly pinned to the building board, the mid-wing can be built 'in the air'. If the spars are joined to the braces and the ribs added, then the leading and trailing edges can be accurately joined. These are probably better ways of constructing the wing using angled building jigs and so on, but there were no warps by this method,

and that's what counts. The whole assembly was then removed from the board, the centre section supported and the tip built flat on the board onto the centre panel. When dry the centre section and leading edges were sheeted with 1/16in. medium balsa and the complete wing sanded to section. This is especially important at the tips where the ribs are flatter.

The finished wing was then fitted to the fuselage and the coaming test fitted and sanded to produce an accurate fit along its length.

Covering the framework

The fuselage was given four coats of sanding sealer, two coats of cellulose body filler and then sanded with wet-and-dry before spraying with Datsun turquoise blue. The wings, tail and fin were covered with vintage orange Solartex and trimmed with turquoise, prior to a final coat of fuel proofer.

Two degrees of right thrust and two

washers were added under the rear of the engine plate to give a small amount of downthrust, then all servos were linked to their surfaces.

Testing, testing

Now the 'sweaty palms' bit! I collared my clubmate and test-pilot Dave Gould to do the honours. The engine was started and the throttle trim settings checked to cut the motor at low trim. Unsure of how the model would perform, we set the elevator at 5/8in. and rudder at 3/4in. throws.

Dave opened her up and she took off smoothly. After trimming it was found necessary to reduce the elevator to around 3/8in. The model was made to climb, dive, loop and roll and fly inverted – which it did beautifully judging by the pilot's face and comments. Past master (I think that's what he said) Dave then landed and I had a go. I found it very stable, reverting back to stable flight on its own after even the most violent manoeuvres. It seems to 'sit' in the sky.

When landing, it is better to keep the power on as it does tend to bounce – but that's probably just my landings!

That's it folks; my first own-design R/C model a success! Lastly, many thanks to my club comrades Mike Conrad, Dennis Fairlie and Dave Gould who gave so much advice and encouragement. Now – be Gullable!

Gullable takes any .20 to .25 motor; prototype flies well on a .20 four-stroke.

