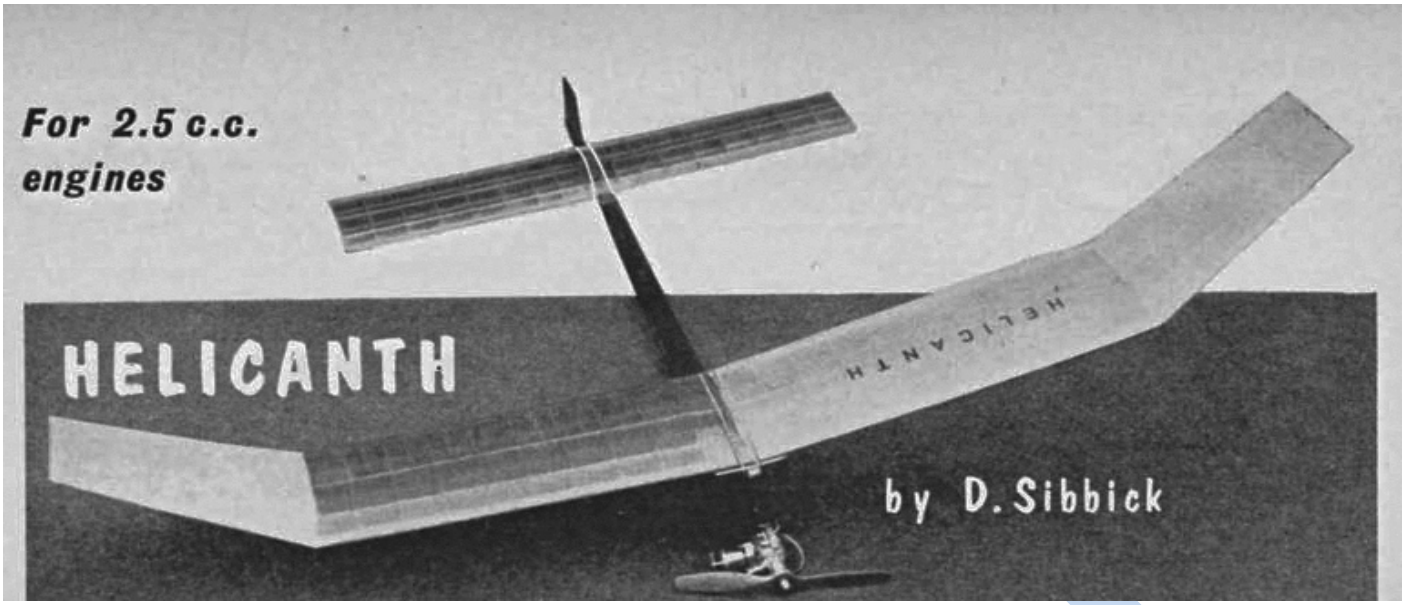
Helicanth



The Helicanth is a F/F Pylon model plane for 2.5cc engines designed by D. Sibbick.

The first Helicanth was built in September, 1957, for an Oliver Tiger and it flew " straight off the board " with only a piece of 1/16 in. packing under the trailing edge of the tailplane being added for final trim. Encouraged by this, another was quickly built for an A.M.35 but owing to the lightness of this engine it was found difficult to get the c.g. in the correct position, and this model was not so successful. The Mark III was the first one to have silk-covered wings, which gave great strength for a very small increase in weight.

The Oliver Tiger in the Mark I has been replaced by an E.D. 2.46, so that the Tiger could be installed in Mark IV. This was unfortunately lost for three days and when recovered had received extensive damage to the wings. However, a new pair were built and the model now flies slightly better than it did previously, best time being around the 11 min. mark from a 10 sec. engine run.

Fuselage: Start by cutting out the top and bottom from 3/32 in. sheet, then formers F1-F5 from 1/8 in. sheet—the remainder being cut from 3/32 in. Cement the formers along the bottom of the fuselage, and when dry add the 3/8 in. sq. hardwood engine bearers. The top can now be cemented on and pinned until dry.

The pylon is cut from three pieces of 1/4 in. sheet which are joined together, two pieces of 1/2 in. x 1/8 in. balsa being placed across the top to strengthen, and form the wing-band retaining hooks. The whole is sanded smooth and securely cemented in a slot cut in the top of the main fuselage.

The fuel tank, made from shim steel, timer and cut-out can now be added, after which the sides are covered with 3/32 in. sheet which overhangs at the back to form a slot for the fin, which is made from three pieces of 3/16 in. medium sheet, joined together, and sanded to a symmetrical section.

Cement on the wing and tail platforms, these being made from 1/16 in. ply, strengthened with 1/4 in. sheet. Sand the entire structure and cover with heavy-weight Modelspan, then give four coats of dope and one of thin fuel proofer. Bolt the engine in place with no side, up, or down thrust.

Wings: These are quite straightforward, so start by cutting out 18 W1 ribs from 1/16 in. sheet, also three W2, and two each of the tip panel ribs. The starboard center section is built first. Cut 1/16 in. wide slots about 1/8 in. deep in the 3/16 in. x 1 in. trailing edge section with a small file, and pin down, together with the 3/8 in. sq. leading edge which is packed up 1/4 in. to give the required wash-in. Cement in all W1 ribs and add the top spars.

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Now build the other half of the center section and while this is drying, cement the previously built part to it. Cement the joints well, brace with 1/16 in. ply, as shown, add rib W2, and pack up the tip 3 in. to give the correct dihedral angle.

The wing tip panels are easily built (you will find it easier to fit the ribs between leading and trailing edges before cutting the spar slots) and are joined to the center section —packing up the tips 5 in. to get the correct dihedral. Cement the bottom spars in place and add 1/16 in. sheet to the two leading edge panels in the center. Cement soft 3/16 in. sheet to the wing lips, carve and sand to follow the line of the end rib.

Sand the whole framework and give one coat of dope, cover with silk or heavy-weight Modelspan and dope accordingly.

Tailplane: The tailplane area is 40 per cent, that of the wing. Start by cutting out 18 ribs from 1/16 in. sheet, and two tip ribs from 1/8 in. sheet. Cut out the 1/16 in. ply d/t hooks and cement in position between two ribs. Pin down the leading and trailing edges and cement the ribs in place followed by the top spars. When dry, add the bottom spars, sand, and cover with light-weight Modelspan giving three coats of 50/50 dope and thinners. Finally, add d/t wire straps.

Flying: Check that the c.g. position is 1 in. from the trailing edge of the wing. Test glide on a calm day; a flat glide should be obtained with a right turn trim. The turn is obtained by packing up the right-hand tail tip.

Using a 9 in. x 4 in. wooden propeller, a power flight can be attempted on low revs. The model should climb, turning to the right in 70/100 ft. circles. If these tests are satisfactory, increase the engine revs., until the final trim—a near vertical climb with a slow spiral—is attained.

The engine side thrust can be varied by packing under the lugs with washers to give more, or less, turn.

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