THE DE HAVILLAND 110
BUILDING INSTRUCTIONS

PREPARATION

Pin the plan on to a small flat board and cover with greaseproof paper. Using a razor blade or Keilkraft knife, carefully separate the strip wood from the "strip" panels and cut the parts from the printed panels.

FUSELAGE

Pin the two pieces A to the plan, cement the join at the front. Cut piece M to length from 1/4" x 1/16" and pin in place. Cement former 4 over pieces A and M using pins to keep the former upright. Cement formers 5 and 6 in position, then add pieces B on each side, and gussets. Cut N from 1/4" x 1/16", pin in position, then cement former 7 immediately behind N. Cement pieces C to the ends of formers 6 and 7 on each side. Cement pieces F to the rear face of 7 on each side and hold with pins, cement former 8 to the rear ends of pieces F. Add formers 1, 2 and 3.

The top half is now ready for the 1/16" x 1/16" stringers, the arrangement of these is shown on the left only—the right side being identical except that no cut-out is necessary for the cockpit cover. *Please note that the cockpit cover (shown in dot dash lines) is "off-set" to the LEFT!* The second stringer up from A on each side may be cracked at 4 to obtain the sharp curve which occurs here. The Side View will assist in following the paths of the stringers.

When all stringers are in place make the cut-out for the cockpit where shown. The top half may be removed from the plan when the cement is hard (remove the pins first of course).

THE BOTTOM HALF is built directly on to the previously built TOP Half. Cement formers 9, 10, 11, 12, 13 and 14 to the undersides of the top formers (see Side View). Add pieces D and E and formers 15 and 16.

When former 13 is set, cut out the shaded square which is the position of the Clip Mount. The stringers may now be cemented into the notches in the formers of the bottom half. These stringers follow very similar paths to those of the top half except of course the three lowest stringers which stop at former 12 to provide room for the Jetex 50 motor.

Cement the two halves of the nose block to pieces A as shown and carefully carve to shape using a very sharp knife. Finish with fine sandpaper.

Bend the catapult hook as shown then insert from the bottom of the fuselage, placing one leg of the bent-up part on either side of the lower stringer. Push the two short prongs into former 3 then cement well, it is advisable also to cement small gussets around the hook for extra strength. The gussets should be let in flush with the stringers.

Air intakes and cockpit cover are added after tissue covering.

WINGS

Place the lower spar of 1/16" x 1/16" over the spar position on the plan and retain by placing pins on each side of the wood. Cement the ribs in position, holding in place with pins.

Pins on either side of R1 and R2 should be bent over so that the ribs are held in a tilted position as shown in the Front View of Left Wing. This tilt should be checked, using the card template shown, and when correct, pieces 6A may be added which join ribs R1 and R2 together.

Apply cement to the front notches in the ribs and carefully press the leading edges in place. Similarly, apply cement to the rear notches and press the trailing edges in place. Cement the top spar into the notches in the ribs. Cut the tip blocks from the printed balsa then cement to the tip ribs R5 of each wing. Finish off the shape of the tip blocks with fine sandpaper. *A better finish will be obtained if the wings are attached to the fuselage before tissue covering—see later notes.*

BOOMS, FINS AND TAILPLANE

Cut the two booms from printed 1/4" sheet. Cement one fin to each boom so that the fins are directly over the centre line of the booms when viewed from above.

When set, taper each boom down towards the fin using medium sandpaper until the boom is level with the fin on each side. Shape the front ends to agree with the Top View. Now round off the corners of the booms until the sections shown in the Side View of the Booms are obtained. *It is important to fully shape the booms otherwise they will be* TOO HEAVY. Round off all edges of the fins.

Fine sandpaper the tailplane and also round off corners. Apply cement to one end of the tailplane and with the boom/fin unit laying flat, press the "tongue" of the tailplane into the slot in the fin, KEEP THE TAILPLANE SQUARE with boom/fin until set. Apply cement to the other end of tailplane, and with both booms upside down on the table, insert the tailplane tongue into the second fin.

"Sight" from above and check for equal distance between the booms back and front and also that this assembly is generally "SQUARE."

Handle this assembly carefully now as it is rather fragile until cemented to wing/fuselage assembly. Balance the centre line of the tailplane on a knife edge, the booms should hang straight down, if not, sandpaper the heavier boom until balance is obtained.

TISSUE COVERING, ASSEMBLY, DETAILS

Using fine sandpaper remove all rough edges, corners, etc., from fuselage. Round off leading and trailing edges of the wings, also sand ribs to blend smoothly with these edges.

Apply cement (one wing at a time) to rib R1 and carefully press the wing into position on to B/D of the fuselage. With both wings in place and before the cement sets, place the fuselage flat on the table with former 12 overhanging the edge. Support the wing tips until set by placing an object which is 7/8" to 1" thick (the same for both sides) under each tip block.

Tissue cover the fuselage using tissue paste to affix the tissue. The top, between formers 6 and 8, and from the centre to C should be covered in one piece. Between 4 and 6, and from D across to B may also be covered in one piece.

Cover the top of each wing using one piece, overlapping the tissue on to the fuselage for a smooth joint.

Between formers 1 and 2, 2 and 3, 3 and 4—"bands" of tissue should be used which wrap round the fuselage as far as possible in one piece. The under side of fuselage and wings are covered in a similar manner.

When the paste has dried out, spray the tissue with water; as the water dries, the tissue will shrink and tighten. Apply a coat of clear dope to all the tissue covering.

Slide the booms into position in the slots formed by C and R2. The booms may be cut away wherever it is necessary to give an easy fit. When the fit is satisfactory, apply cement to all the mating surfaces and carefully press the boom/fin/tailplane assembly in position. Run a thin fillet of cement around the booms where they join the wings, etc., above and below.

Build the air intakes, where shown, on each side, by first cementing pieces 4A on each side of former 4/12. Cut out two pieces S from postcard, smear cement on the back and hold into a curved shape until set. Cement the curved S pieces over 4A and the tissue covering.

Bevel the inner ends of G and H where these pieces meet S then cement in position, G on top and H below. Both G and H should follow the line of formers 4 and 12. Tissue cover the intakes, overlapping the tissue on to the wing root portion.

Trim the cockpit cover first to length and then to fit snugly over the fuselage where shown. *Notice that the left-hand side will have to be deeper than the right because the cover is offset to the left.* Hold the cover in place on the fuselage then run cement around the lower edge.

Cut the wing fences from postcard and cement over the wings on either side where shown.

Cut the Clip mount from printed panel, cement the Jetex 50 clip (supplied in each Jetex 50 outfit and not contained in this kit), to the Clip mount, making sure that the clip is central and parallel with the clip mount. Insert the screws as shown. The clip mount with clip is cemented as a unit to piece M exactly in the position shown in the Side View.

Using colour dope the model may be finished either matt black or silver. Whatever the colour decided upon, colour dope should be used thinly and sparingly.

FLYING

With the Jetex 50 loaded and clipped in position, the model should first be made to balance when held on the fingertips at the shaded areas marked "balance" on the wings (see plan). Balancing can be achieved by adding small pieces of plasticine to the nose or behind former 8/16— this weight can later be cemented inside to avoid loss.

Make a catapult as shown; but for testing, *do not draw the model back too far on the catapult.* After releasing, watch the model carefully.

If it dives (see sketch) remove some of the weight from the nose or warp up the rear edge of the tailplane. If it stalls add a little more weight to the nose. Any tendency to turn severely left or right is an indication that a wing is warped.

Warps may be removed by *gently* twisting the particular wing or part in the opposite direction of the warp while holding near an electric fire (not too near). When a long flat glide has been obtained after releasing from the catapult, jet power may be used. *Before power flying, it is advisable to read the operating instructions which are supplied in each Jetex 50 outfit.*

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