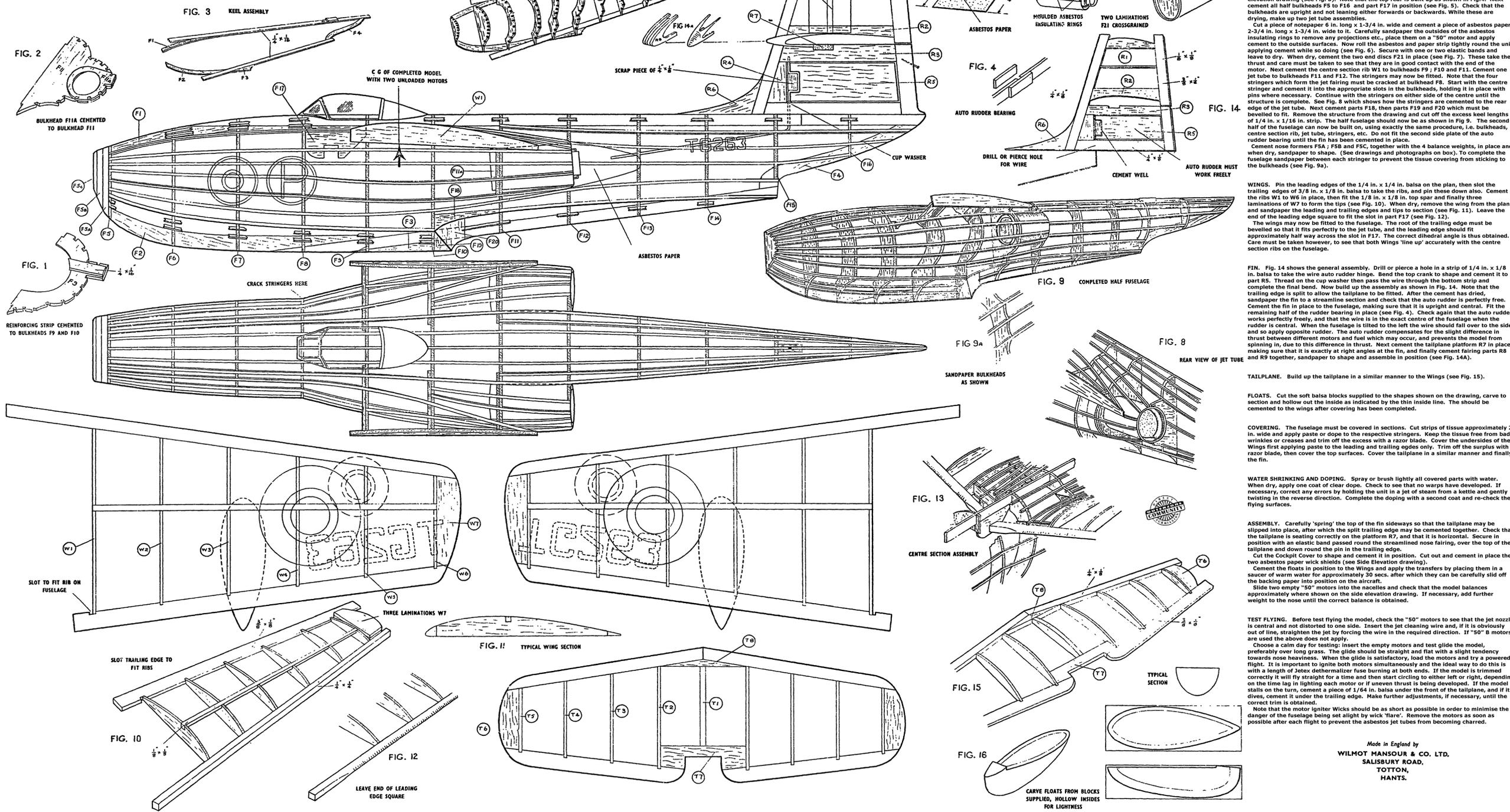


JETEX SAUNDERS ROE A/I

FOR TWO JETEX 50 POWER UNITS

DESIGNED, DRAWN, AND TRACED BY A. A. JUDGE FROM DATA SUPPLIED BY



BUILDING INSTRUCTIONS

Introduction
The prototype S.R.A.1. was the first single-seater jet flying boat to be constructed and was built by Messrs. Saunders Roe, of Cowes, Isle of Wight.
The model has been designed to incorporate automatic stability whilst retaining scale outline as far as possible. It is not designed to take off from water.
Before starting construction read the instructions carefully and protect the drawing by placing a sheet of greaseproof paper over it.

CONSTRUCTION. Begin by carefully cutting out all printed parts with either a razor blade or balsa cutting knife. Cement 1/4 in. x 1/16 in. strip to bulkheads F9 and F10 (see Fig. 1) and cement bulkheads F11a to F11 (see Fig. 2). Assemble and cement the keel by placing the 1/4 in. x 1/16 in. strips and parts F1, F2, F3 and F4 in their respective positions on the side elevation drawing (see Fig. 3). Note that the top rear is built up as shown in Fig. 4. Next cement all half bulkheads F5 to F16 and part F17 in position (see Fig. 5). Check that the bulkheads are upright and not leaning either forwards or backwards. While these are drying, make up two jet tube assemblies.

Cut a piece of notepaper 6 in. long x 1-3/4 in. wide and cement a piece of asbestos paper 2-3/4 in. long x 1-3/4 in. wide to it. Carefully sandpaper the outside of the asbestos paper to the outside surface. Now roll the asbestos and paper strip tightly round the end of the motor. Next cement the centre section rib W1 to bulkheads F9, F10 and F11. Cement one jet tube to bulkheads F11 and F12. The stringers may now be fitted. Note that the four stringers which form the jet fairing must be cracked at bulkhead F8. Start with the centre stringer and cement it into the appropriate slots in the bulkheads, holding it in place with pins where necessary. Continue with the stringers on either side of the centre until the structure is complete. See Fig. 8 which shows how the stringers are cemented to the rear edge of the jet tube. Next cement parts F18, then parts F19 and F20 which must be bevelled to fit. Remove the structure from the drawing and cut off the excess keel lengths of 1/4 in. x 1/16 in. strip. The half fuselage should now be as shown in Fig. 9. The second half of the fuselage can now be built on, using exactly the same procedure, i.e. bulkheads, centre section rib, jet tube, stringers, etc. Do not fit the second side plate of the auto rudder bearing until the fin has been cemented in place. Cement nose formers F3A, F5B and F5C, together with the 4 balance weights, in place and, when dry, sandpaper to shape. (See drawings and photographs on box). To complete the fuselage sandpaper between each stringer to prevent the tissue covering from sticking to the bulkheads (see Fig. 9a).

WINGS. Pin the leading edges of the 1/4 in. x 1/4 in. balsa on the plan, then slot the ribs W1 to W6 in place, then fit the 1/8 in. x 1/8 in. top spar and finally three laminations of W7 to form the tips (see Fig. 10). When dry, remove the wing from the plan and sandpaper the leading and trailing edges and tips to section (see Fig. 11). Leave the end of the leading edge square to fit the slot in part F17 (see Fig. 12).
The wings may now be fitted to the fuselage. The root of the trailing edge must be bevelled so that it fits perfectly to the jet tube, and the leading edge should fit approximately half way across the slot in F17. The correct dihedral angle is thus obtained. Care must be taken however, to see that both wings "line up" accurately with the centre section ribs on the fuselage.

FIN. Fig. 14 shows the general assembly. Drill or pierce a hole in a strip of 1/4 in. x 1/8 in. balsa to take the wire auto rudder hinge. Bend the top crank to shape and cement it to part R5. Thread on the cup washer then pass the wire through the bottom strip and complete the final bend. Now build up the assembly as shown in Fig. 14. Note that the trailing edge is split to allow the tailplane to be fitted. After the cement has dried, sandpaper the fin to a streamline section and check that the auto rudder is perfectly free. Cement the fin in place to the fuselage, making sure that it is upright and central. Fit the remaining half of the rudder bearing in place (see Fig. 4). Check again that the auto rudder works perfectly freely, and that the wire is in the exact centre of the fuselage when the rudder is central. When the fuselage is tilted to the left the wire should fall over to the side and so apply opposite rudder. The auto rudder compensates for the slight difference in thrust between different motors and fuel which may occur, and prevents the model from spinning in, due to this difference in thrust. Next cement the tailplane platform R7 in place making sure that it is exactly at right angles at the fin, and finally cement fairing parts R8 and R9 together, sandpaper to shape and assemble in position (see Fig. 14A).

TAILPLANE. Build up the tailplane in a similar manner to the Wings (see Fig. 15).

FLOATS. Cut the soft balsa blocks supplied to the shapes shown on the drawing, carve to section and hollow out the inside as indicated by the thin inside line. The should be cemented to the wings after covering has been completed.

COVERING. The fuselage must be covered in sections. Cut strips of tissue approximately 2 in. wide and apply paste or dope to the respective stringers. Keep the tissue free from bad wrinkles or creases and trim off the excess with a razor blade. Cover the undersides of the Wings first applying paste to the leading and trailing edges only. Trim off the surplus with a razor blade, then cover the top surfaces. Cover the tailplane in a similar manner and finally the fin.

WATER SHRINKING AND DOPING. Spray or brush lightly all covered parts with water. When dry, apply one coat of clear dope. Check to see that no warps have developed. If necessary, correct any errors by holding the unit in a jet of steam from a kettle and gently twisting in the reverse direction. Complete the doping with a second coat and re-check the flying surfaces.

ASSEMBLY. Carefully "spring" the top of the fin sideways so that the tailplane may be slipped into place, after which the split trailing edge may be cemented together. Check that the tailplane is seating correctly on the platform R7, and that it is horizontal. Secure in position with an elastic band passed round the streamlined nose fairing, over the top of the tailplane and down round the pin in the trailing edge.

Cut the Cockpit Cover to shape and cement it in position. Cut out and cement in place the two asbestos paper wick shields (see Side Elevation drawing). Cement the floats in position to the Wings and apply the transfers by placing them in a saucer of warm water for approximately 30 secs. after which they can be carefully slid off the backing paper into position on the aircraft.
Slide two empty "50" motors into the nacelles and check that the model balances approximately where shown on the side elevation drawing. If necessary, add further weight to the nose until the correct balance is obtained.

TEST FLYING. Before test flying the model, check the "50" motors to see that the jet nozzle is central and not distorted to one side. Insert the jet cleaning wire and, if it is obviously out of line, straighten the jet by forcing the wire in the required direction. If "50" B motors are used the above does not apply.

Choose a calm day for testing. Insert the empty motors and test glide the model, preferably over long grass. The glide should be straight and flat with a slight tendency towards nose heaviness. When the glide is satisfactory, load the motors and try a powered flight. It is important to ignite both motors simultaneously and the ideal way to do this is with a length of Jetex dethermalizer fuse burning at both ends. If the model is trimmed correctly it will fly straight for a time and then start circling to either left or right, depending on the time lag in lighting each motor or if uneven burning is being developed. If the model stalls on the turn, cement a piece of 1/64 in. balsa under the front of the tailplane, and if it dives, cement it under the trailing edge. Make further adjustments, if necessary, until the correct trim is obtained.

Note that the motor igniter Wicks should be as short as possible in order to minimise the danger of the fuselage being set alight by wick "flare". Remove the motors as soon as possible after each flight to prevent the asbestos jet tubes from becoming charred.

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