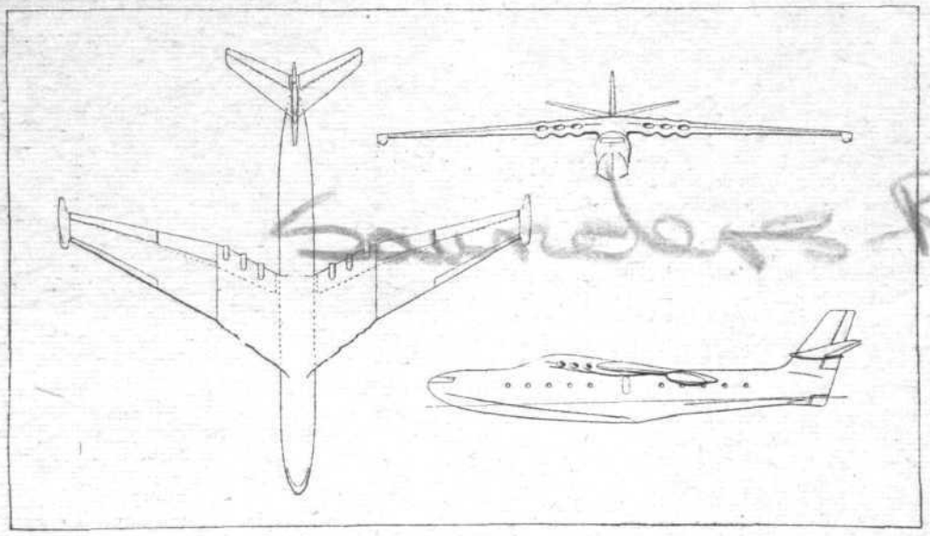
ENTER THE DUCHESS

First News of 500-m.p.h., Six-Ghost Saro, Designed for Economical Operation

For years past, flying-boat protagonists have awaited just such a craft as the elegant Duchess which, though bearing a family resemblance to the turbo-prop-powered Princess, is of totally new, and thoroughly uninhibited, design.



A VERY beautiful jet-propelled, medium-range flying-boat, to be known as the Duchess, has been designed by Saunders-Roe, Ltd., and is being considered by Tasman Empire Airways for journeys such as that between Australia and New Zealand. The designed gross weight is 130,000 lb and the span 124ft 6in. Salient features of this unusually interesting and thoroughly British craft, in which the most advanced aerodynamic and hydrodynamic techniques are manifest, are depicted here.

Installed in a similar manner to that of the Comet, the power plant will comprise six D.H. Ghost turbojets, for which a static thrust of 5,000 lb each has been presumed. The high length/beam ratio, full-length planing bottom, faired step and large water rudder are shown in the general-arrangement drawing, as is the unusual method of mounting the wing above the hull. Lateral stabilizing floats retract to lie on the wing tips in the same manner as those of the Princess.

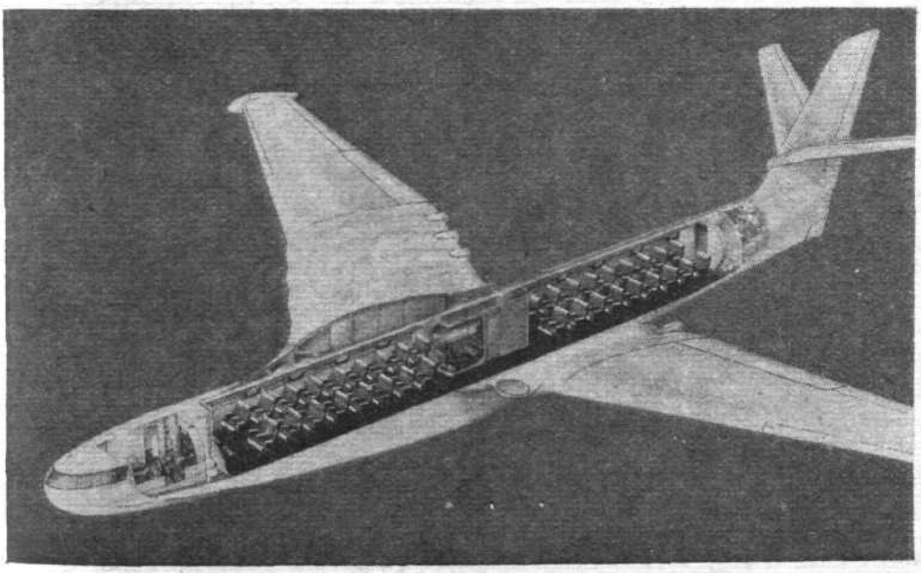
The interior layout illustrated for the pressurized and air-conditioned cabin is only one of many which could be arranged to suit an intending operator; the particular arrangement depicted allows for 74 passengers in two compartments connected by a gangway passing the freight-hold. Each compartment has its own toilets. The flight-crew of four is carried in the nose of the hull which, in the interests of aerodynamic efficiency, is finer than is usual on a flying-boat. It thus becomes necessary for mooring operations to be performed from a compartment on the starboard side, aft of the two pilots' seats, though these could easily be arranged on the port side if desired. The freight and baggage hold is over the centre of gravity and has a volume of some 600 cu ft—sufficient for 66 lb of baggage for each passenger, and about 3,500 lb of freight. The maximum payload for a 1,300-mile stage is 21,000 lb.

Although the Duchess will be capable of cruising at 500 m.p.h., its most economical cruising speed will be 468 m.p.h. and its maximum level speed, 550 m.p.h. The unstick run, in a 10 m.p.h. wind at sea level will be only 1,200yds, and the climb to 30,000ft will be accomplished in 15 min.

It is claimed that, applying S.B.A.C. standard methods for assessing direct operating costs, the Duchess will be the most economical medium-range aircraft yet designed. The estimated cost per passenger mile is just over 1d for routes with a stage-length of 1,300-1,500 miles, and 2d on a stage distance of 2,000 miles. The cost per ton mile is quoted as just over 1s for 1,300-1,500 miles stage-length, and approximately 1s 6d for 2,000 miles.

Tank tests on model hulls are reported to have given very satisfactory results, and already Capt. Clarke, managing director of Saunders-Roe, is in New Zealand on business connected with the Duchess.

Although the Duchess appears to be an easier design to bring to fruition than the much larger Princess, with its ten Bristol Proteus turboprop units and twin-deck, "double-bubble" hull, some years must elapse before the type could be in service.



Showing a layout for 74 passengers, each with 66 lb of baggage. Together with about 3,500 lb of freight, the baggage is stowed in the hold amidships. Provision is made in the nose for a flight crew of four and for a cabin crew of two.