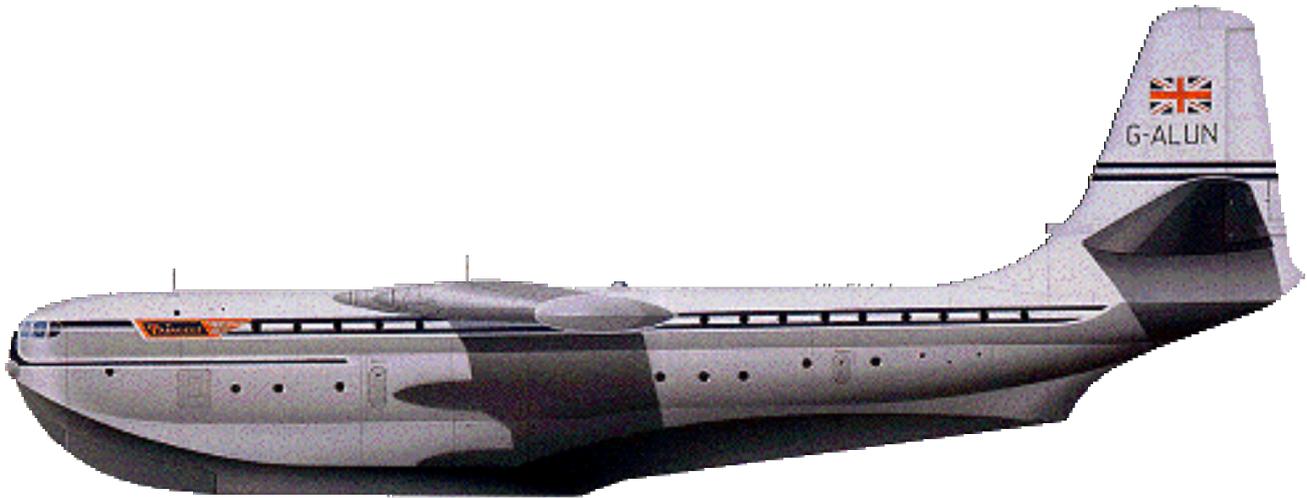


Synopsis of Lecture to RAeS Loughborough Branch on 10 May 2011

Saunders Roe and the Princess Flying Noat

by Bob Wealthy, Aviation historian.



Saunders Roe and the Princess Flying Boat

The first flight of the Princess took place on 22nd August 1952 and was marked by the unveiling of an information board on the East Cowes waterfront in August 2002.

Origins of Saunders-Roe go back to the early 19th century with the S. E. Saunders boat building business which was set up on the River Thames. In 1909, Sam Saunders, the son of the founder of the business, decided to move to Columbine Yard, Cowes because of the perceived market for private yachts in that area.

The company had invented a new method of construction for plywood hulls called "Consuta" which was later applied to boats, airships and flying boats. They went on to produce 40% of the plywood used for aircraft production in WW2.

During WW1 Saunders-Roe were contracted to produce the Avro 504 Training Aircraft, the Shorts 184 Seaplane and the Felixstowe F2A flying boat. In 1917 they started their own aircraft design group which resulted in the Saunders T1 biplane fighter aircraft (1917) and the Saunders Kittiwake amphibian (1921), Saunders A3 Valkyrie flying boat (1926) and the Saunders A4 Medina flying boat (1926). For various reasons none of these were successful.

In 1928 S.E. Saunders was purchased by Sir Alliot Verdon Roe and Saunders-Roe was formed. Saunders-Roe then went on to lead in the development of metal hulled flying boats. The New Columbine Works, a purpose built flying boat factory, was opened in 1936. During WW2 this works concentrated on producing the Supermarine Walrus and Sea Otter flying boats since they had no flying boats of their own design available for RAF use.

Immediate post-WW2 projects included the SRA/1 flying boat fighter aircraft (1947), SR53 supersonic missile carrying fighter aircraft (prototype) (1957) and the Black Knight re-entry research vehicle (1958).

Saunders-Roe went on to buy the Cierva Helicopter Company. This became the Saunders-Roe Helicopter Division who developed the Scout and Wasp helicopters from the original Cierva Skeeter helicopter design. The last full scale Saunders-Roe product was the SRN1 hovercraft which led to the SRN4 Cross Channel Hovercraft.

The inspiration for the Princess Flying Boat came from the pre-WW2 Dornier Do X flying boat and the obvious limitations of the long range alternative, the airship. In 1935 there was a UK government decision that they wanted to establish the Empire Flying Boat Service to carry mail and

a few passengers across the Empire. Saunders-Roe's starting point was their design for the SRA/1 jet powered flying boat. Initially a scaled down prototype was built called the Shrimp.

The SR45 (later to be called Princess) large flying boat contract was let in 1948. Engine supply problems became the overriding problem for the project. The engine used was an early version of the Bristol Proteus Engine which only developed 2500 shp instead of the 3500 shp required. Each aircraft was fitted with 10 such engine; 8 in pairs with contra-rotating propellers and the two outermost engines operating singly. The aircraft specification was as follows.

Overall Dimensions:

Wingspan: 219 feet 6 inches

Wing Area: 5019 sq ft

Length: 148 feet

Height: 55 feet 9 inches

All up weight:

330,000 pounds

Power Units:

Ten Bristol Proteus Turbine Propeller Units arranged as four coupled pairs and two single engines in the outboard positions. Total power – 35,000hp

Performance:

Speed: 360 mph at 34,500 feet altitude

Range: 5000 nautical miles (20,000lbs Payload)

Princess' first flight was on 22nd August 1952 after which it made one appearance at the 1952 Farnborough Air Show (it flew on all show days in 1953). Only three aircraft were built and the project eventually failed. The aircraft were moth-balled and eventually broken up in the 1960s. Despite its failure, the technology of some of its design features was later used for a number of other aircraft design projects.

Saunders-Roe was later absorbed into what is now GKN-Westland.