



Powerplant	Rolls-Royce Tyne 2
Span	118ft
Length	122ft 10in
Gross weight	141,000 lb
Typical cruising speed	425 m.p.h.

almost exactly with Capital's original estimates, but that they compare remarkably favourably with the long-established piston transports. For example, corresponding figures for the DC-6B were 110.47 cents per mile and \$59.56 maintenance cost per hour. Similar figures for the Convair 340/440 were 77.18 cents and \$37.04.

No doubt the biggest contribution to the Viscounts' success has been made by the Rolls-Royce Dart. With more than two million engine hours flown, the authorized overhaul period is now 1,500 hrs, with 2,000 hrs as the goal. Statistics for 1956 show that the average feathering rate was 0.5 per 10,000 hr, and the average failure rate 1.3 per 10,000 hr (most of the latter being revealed during ground inspection). These figures for the only turbine engine in service at that time compare favourably with the best piston-engine records.

Not all Viscounts have been ordered for airline use, and several are now in service with executive owners.

Of the 372 Viscounts sold to date, 225 have been delivered. Production at Hurn (700s and 700Ds) and Weybridge (800s and 810s) is now at the rate of 12 aircraft per month.

Vanguard To see the full-scale Vanguard mock-up at Weybridge, or the production fuselage-sections now taking shape there, is to realize that this aircraft is very much more than the "bigger Viscount" popularly visualized. With a total fuselage capacity for passengers and freight approaching that of the Douglas DC-8, and an operating cost which promises to be unbeatable over short and medium ranges, the Vanguard is the expression of B.E.A.'s desire for the "ideal" transport for the profitable operation of short-stage, high-traffic-density networks. The aircraft is also having built into it all that Vickers and Rolls-Royce—whose Tyne turboprop was conceived specifically for the aircraft—have learnt in their experience of the North American market with the Viscount. The first export order for Vanguards, for 20 aircraft, came from Trans-Canada Air Lines, and a large number of airlines have the aircraft high on their lists of the alternative types being studied for their medium-stage and short-haul requirements of the sixties. Indeed, the aircraft falls into the most keenly contested of all transport-aircraft markets today: no less than six other types, jet and turboprop, are being offered as the ideal solution to the airlines' medium transport problems. Every operator has different needs and local conditions, but the majority concur on a set of basic requirements. These may be summarized as follows:

- (1) Low operating cost per seat-mile over stage-lengths as low as 200 miles.
- (2) The ability to carry full payload and fuel reserves on stages of up to 2,500 miles, thus employing one basic vehicle for a route-system with widely varying stages.
- (3) Large payload capacity, to exploit most economically the rising traffic volume of the years ahead.
- (4) High block speed and a design engineered for fast terminal turn-round.
- (5) Modest airfield demands.
- (6) Economics which are not over-sensitive to the delays inevitably likely to be experienced in the congested traffic of the sixties.
- (7) Ability to carry a large proportion of capacity payload in off-peak passenger periods, in order to maintain high utilizations—in other words, big freight-hold volume.
- (8) Systems, engineering, instrumentation and cockpit layout to conform with modern principles.

The Vanguard has been designed to meet these basic airline requirements. An example of the last-named can be seen on the Vickers stand, where a full-scale mock-up of the cockpit—which must be the most practical yet designed for a British airliner—will be on display.

The first production Vanguard is due to fly in about a year's time, with deliveries of B.E.A.'s 20 starting in March 1960. Early aircraft will have Tyne 1 engines of 4,220 s.h.p. each; new orders will be for aircraft with Tyne 2s of more than 4,600 s.h.p., giving a cruising speed of 425 m.p.h. Development of the Tyne up to 5,000 s.h.p. is planned.

The standard seating arrangement of the Vanguard is 86 (50 tourist and 36 first-class), but up to 130 seats can be accommodated. By virtue of its big freight holds, the aircraft can carry capacity payload with only a quarter of the seats occupied.

