THE SUPER VC10

Today, April 1, the Super VC10 enters service. It is the largest British transport aircraft ever built. "Flight" marks the achievement in three special articles—the first, beginning here, looks into the background and future prospects of the aircraft; the BOAC Super VC10 flight training manager writes from the pilot's angle on pages 499-501; and, beginning on page 501, the Editor describes a route-proving flight to New York and discusses BOAC's commercial plans for the aircraft.

IN the competitive world of building transport aircraft it seems that a new and unproven type must offer not less than calculable economic advantages if it is to find widespread acceptance by the airlines. Nevertheless, estimated economics are only as good as the "guesstimates" of the detailed cost items—where the inspiration is invariably based on current experience with older generations of aircraft. Compared with the figures for other long-haulers, VC10 costs per mile have never looked particularly outstanding when computed on the basis of well-known operating cost formulæ. The reason is that from shape to systems the VC10 is designed to entirely new standards and philosophies in matters of safety (through reliability and ease of handling) and of passenger appeal—all of which have to a certain extent adversely affected empty weight and price.

The Standard VC10 has now been in commercial service for virtually a year, has operated on nearly all the major routes of the world and has gone into airfields previously unfrequented by big jets. A total of 17 VC10s and Super VC10s have been delivered to BOAC, BUA, and Ghana Airways and the initial operating and revenue results are turning out far better than expected. For example:—

Reliability: Within a year of VC10s entering service BOAC has applied to the ARB for an increase in the permitted period between major overhauls of from 4,000hr to 6,000hr. Meanwhile, established rivals are only reaching this figure after six years in service. Average BOAC Standard VC10 utilization during the first seven months' service was equivalent to 3,250hr per annum; last year the corporation's 707s, flying predominately long stages, performed an average of 3,650hr each after six years in service. Whereas 707-420 engineering required around 27 man-hours per flying hour, the comparable VC10 figure is around 25 man-hours. The latter figure allows for the fact that the 707s were undergoing some 4,000hr-overhaul work; actual VC10 engineering time achieved was 22 man-hours per flying hour.

Handling: Not one pilot has failed the conversion course from propeller types to the VC10 through any characteristic of the aircraft requiring particular strength, skill or nerve; and less conversion flying is called for. Insurance companies have indicated their willingness to take account of the VC10's unusually good handling and safety features when quoting premiums. Pilot praise of the aircraft has been unanimous and often borders on the ecstatic; there have been virtually no fundamental criticisms.

Passenger appeal: BOAC is known to be consistently getting around 15 per cent more revenue per flight on the Far East and African routes when flying 109-seat VC10s instead of 137-seat 707-420s. Everywhere it has gone the VC10 has unquestionably demonstrated passenger appeal superior to that of all other long-haulers. Soon after BOAC cut back its order for Super VC10s last July, on the grounds of revised requirements, a Pan American official was reported to have remarked that this was the best bit of news he could have wished to hear. Pan American is not the only major long-haul airline which is keeping the VC10 under close review; if BOAC's Far Eastern and African route experience is repeated on the Atlantic this summer big airlines may become seriously interested in acquiring front-rank fleets of these aircraft for their most competitive services.

Past History and Future Prospects

The irony of the present political situation surrounding the VC10 and its parent operator BOAC is that it should have been left to a rival airline to pay the biggest compliment to the aircraft. During all the argument about BOAC's ordering too many aeroplanes, it has often been forgotten that the BAC Standard VC10 and Super VC10 have met all their basic performance guarantees and are proving to be exceptionally fine aeroplanes in service. In case any lack of confidence at this time should result in failure to carry the programme through to ultimate success it is worth reviewing briefly the commercial and technical background history, considering the present operations and performance and discussing possible future developments—big and small.

The VC10, which was ordered by BOAC in May 1957, has its roots in a specified requirement of 1956 for a big jet to fly on the corporation's Southern and Eastern routes. A good airfield performance (by other big-jet standards) was a prime requirement. Though the Weybridge engineers recognized that there would be a structure weight penalty inherent in the choice of rear-mounted engines it was considered acceptable in view of all the well-known advantages—particularly towards achieving the airfield requirement conferred by a clean wing. One important advantage of the VC10-type layout is the comparative ease with which more powerful engines can be installed and range and payload accommodation stretched. This in fact happened at a very early stage in the VC10's evolution, when full transatlantic capability was added to the medium-range-route requirement as BOAC visualized a one-type fleet to perform on all its routes.