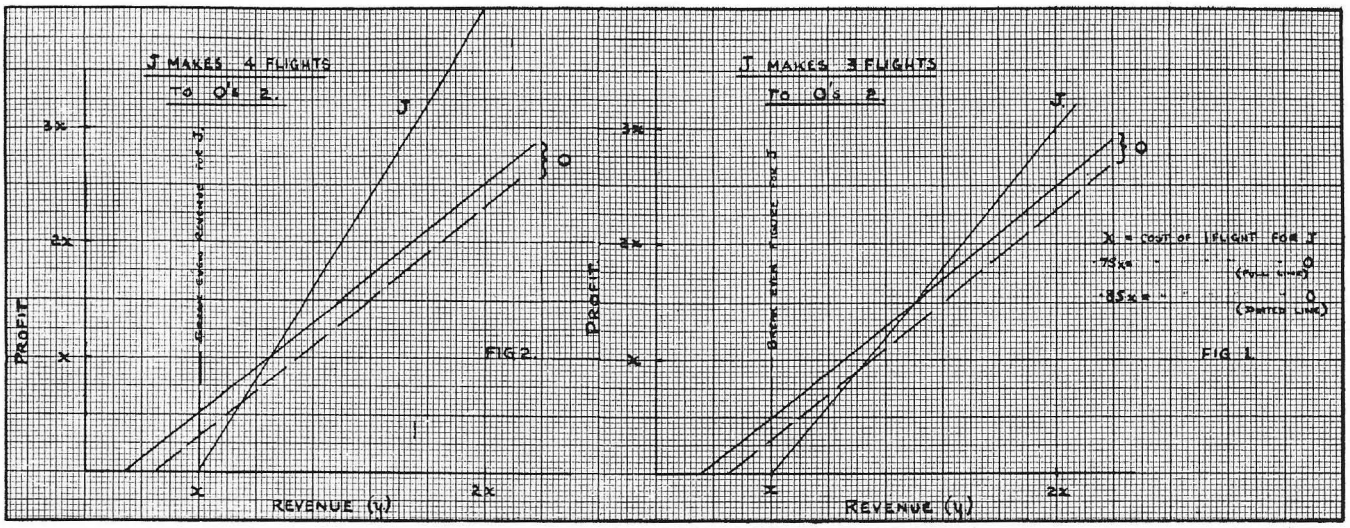

In the above comparison chart, jet aircraft are represented by the figure J and orthodox aircraft by O.

A Jet's Higher Operating Costs Can Still Give More Profit

By Ian Scott-Buccleuch

IT IS surprising the number of people who fail to see how a jet transport, operating at a slightly higher direct operating cost than the orthodox aircraft, can still earn a similar if not greater profit in the same number of flying hours. They seem to be mesmerised by the direct operating cost figure and though they may murmur assent when it is explained to them that the greater number of trips which can be made with the faster aircraft yields a greater profit, their assent is only a lip service to the fact.

The following simple analysis is for the benefit of those who have not yet stopped to work out this apparent contradiction for themselves.

Let us consider a jet aircraft (J) and an orthodox aircraft (O) and we will assume they have the same seating capacity and are carrying the same number of passengers for the same fare per flight. The revenue per flight will therefore be the same for both aircraft — $y (say). Let us now assume the cost of operating J between two towns A and B to be x and the cost of operating O between the same two towns to be only .75x. (It is not to be supposed in making this assumption that the difference in operating costs between these types of aircraft is necessarily of this order but these figures will suffice for the purpose.)

Provided the range is not too short the block speed of J is of the order of 390 mph compared to about 260 mph for O. This means that J can get from A to B in two-thirds the time that O takes and therefore assuming the same utilization, it can make three trips to O's two.

J's three journeys between A and B will cost 3x, and O's two journeys between A and B will cost 1.5x.

The profit from J on this basis = = 3y — 3x, and the profit from O on this basis = 2y — 1.5x.

This comparison is best seen in the graph fig. 1 where y has been given values of x and the profit in terms of x plotted against the revenue. The dotted line is the profit from O when the direct operating cost is .85 times that of J.

There are many instances where orthodox aircraft are under-utilized on some routes simply because the range is such that it does not conveniently allow another return trip at convenient times. Here, the jet aircraft by improving on the piston engined aircraft's utilization, can do two return trips in one day to the other's one. Fig. 2 shows the comparison of the profits from the two aircraft under these conditions.

From this brief analysis it can be seen that even if a jet aircraft has a poor direct operating cost compared with a present day aircraft, by careful scheduling to keep its utilization the same as that for the orthodox aircraft, it can earn as much profit. Improving present specific fuel consumptions will not only improve direct operating costs but will also improve the break-even load factor. This will be the more readily apparent when we can see a performance analysis of a plane such as the Vickers V-C7 which will have four Rolls-Royce Conway by-pass engines and seat 100 to 150 passengers. The operating costs per passenger mile of this plane in all probability will be less than those of piston engined aircraft and there will then be no question as to the profitability of operating jet aircraft. Whether people will realize how much of the profit is owed to the aircraft's speed and how much to its operating cost is another matter.