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British Airways Engineering
A marriage is being arranged between the engineering divisions of the old BOAC and BEA. The problems of selecting the best of the best are formidable. J. M. RAMSDEN reports.

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HE DIFFERENCES between the engineering divisions of
the two old Airways Corporations, now joined
together as British Airways, arise directly out of
their different missions. BEA was and is the short-haul,
high-frequency operator with something like 350 move-ments a day through the main London Heathrow base in the peak period and an average flight time of lhr. BOAC was and is the long-haul, lower-frequency operator with aircraft away from base for three or four days, a maximum of 45 movements a day at Heathrow and an average flight time of 4J

2hr.

Yet there is a surprising amount in common between the two great engineering factories which lie within a few minutes' walk of each other at Heathrow, employing a total of nearly 10,000 people. As "flight-test departments" of the British aircraft industry and pioneers of its products for more than a quarter of a century, both have highly developed reaction procedures—more so perhaps than any other airline.

The European Division system is called React, the adventitious acronym of Reliability Evaluation and Control Technique. The Overseas Division system rejoices whimsi-cally in the name of Sordid, which stands for Summary Of Reported Defects, Incidents and Delays.
The two divisional systems differ considerably in detail, but their intentions are the same: to achieve the fastest possible reaction to defects in the interests of safety and economy. The working precept is safety first, although economy is a major motivation. Both divisions agree that the economic incentive to reduce defects automatically produces safety.
Both React and Sordid have evolved within airlines which historically have had the responsibility of introducing new British airliners. The two operators have been their own "customer-support" as well as development depart-ments to a greater extent than have competitors. New American airliners have been operated by more operators in larger numbers and introductory costs have been more widely spread. This is not often acknowledged in

BRITISH AIRWAYS ENGINEERING COSTS

Overseas Division
(BOAC)
1972-73

Tota l $ million (rounded off) $82m
Maintenance and overhaul
cost (cents per available
capacity tonne-km)
Per cent of total operating
cost

1-9

13-4

1967-68

$44m

2-9

13-5

European Division
(BEA)
1972-73

$73m

6-1

17-6

1967-68

$37m

4-6

15-9

engineering-costs comparisons with American airlines. There is no doubt that British Airways' engineering costs are above average, possibly higher than can be attributed entirely to product pioneering. Engineering costs in cents per available tonne-kilometre for 1972, the latest according to the standardised information published by Icao, the International Civil Aviation Organisation, and for 1967 are shown.

The Overseas Division's engineering costs compared with the industry average are overleaf.
The heart of the European Division defect-management system is the monthly document React. Inputs begin with the aircraft Technical Log which, with the associated documentation such as flight snag and check sheets, records by law all aircraft defects. Pretty well everything from these sources goes into React, which plots the behaviour of each aircraft type, system by system. There is an "alert level" for each—for example, "target" delay tolerated for the Trident 2 fuel system is 5min per 100 departures, with an alert level of 7-5min. Throughout the autumn and winter and spring of 1973-74 the table on page 22 of React shows monthly levels of zero, 2-9, 4-7, zero, 6, and then, suddenly in April, 20-2. Obviously the cause will be established long before React appears; but further reaction will be necessary if the level continues to be above "alert."

Special groups, focusing on component improvement and systems, analyse React each month. If a problem fails to respond to treatment by these groups it is passed for consideration to a Problem Control Group under the chairmanship of the chief maintenance engineer. He meets his key engineers for situation reports each morning.
The Problem Control Group's members, in addition to the airline engineers, include representatives of the air-craft manufacturer and also the vendor if a particular component or system is intractable. The product support manager of Hawker Siddeley and his team are permanent members of the Trident group. Similarly, Lockheed's product support vice-president is to be a member of the TriStar group for the first few months of operation.
The time taken from reporting a defect to clearance has been monitored closely for ten years. European Division claims that while 80 per cent of defects took eight days to clear in 1967, the current rate is about two days. On the Trident only 30 per cent were being cleared in one day in 1967 compared with 75 per cent today. These are levels which, according to the chief main-tenance engineer, sustain the confidence of the pilot. The technical judgement is that of the engineer and the pilot, who will consider the limitations of the allowable deficiency list (known as the minimum equipment list in