TURBINE ENGINES OF THE WORLD

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HK PAST TWELVK MONTHS in the turbine engine sector have
been characteristically active, despite the oil crisis at the
end of 1973 and the subsequent economic gloom. The three big
fans continue to thrive despite heightening competition between the JT9D and CF6-S0 in the 747 and DC-10, and the chance that the JT9D in the 747 will suffer a second source of competition from the KB.211-524. All three turbofans continue to be developed to higher thrusts, with ratings for the American engines escalating in leap-frog fashion.
Pratt & Whitney and General Electric have also joined battle on a second front, with the first runs during 1974 of the JT10D and CFM56 so-called ten-tonne fans, the former also involving MTU and Fiat, and the latter Snecma. This multi-company international development of major new commercial projects is likely to become the pattern for the future. While Snecma has a 50 per cent share in the CFM56, MTU and Fiat have only a 10-15 per cent share in the JT10D.
Where Rolls-Royce can fit into this picture is difficult to see; the company is reportedly unwilling to take a minor cum-sub-contractor role in a new engine, and clearly R-R is unlikely to obtain UK Government backing to go it alone on an engine in the ten-tonne bracket, even if the market warrants it.
In the supersonic sector, Concorde and its R-R/Snecma Olympus 593 are now assured of a minimum of 16 aircraft, and the Kuznetsov NK-144 in the Tu-144 is likely later this year to become the first SST engine to enter commercial operation. Looking further and faster ahead, Nasa and the US Services are supporting a growing programme of component and systems R&D aimed at testing a demonstrator variable-cycle engine within the next year or so. Russian engines are also reported to be working on this advanced mode of air-breathing propulsion.

Smaller and slower along the scale, the TFE731 is emerging as a strong winner for Garrett AiResearch, whereas the Lycoming AL.F502 is likely to suffer from Hawker Siddeley's about-face on the HS.146. The smaller JT15D has also suffered from the con-sequences of UACL's continuing strike, which also led to the demise of the projected JT25D. Rolls-Royce subsequently an-nounced its RB.401 turbofan to fill roughly the same, as yet unoccupied, 5,0001b-thrust bracket.
In the small-engine market the Lycoming LTS101 and LTP101 are now launched, and have sparked a reaction from Allison, "which during the year announced developments of the Model 250 to compete in the 500 to 600 h.p. bracket. While development of the Turbomeca Arriel also progresses, the R-R/MTU/Alfa Romeo consortium both announced and cancelled their new ESM/EPM 600 turboshaft and turboprop between April and August. Hopefully the UK cost escalation which hit these and the HS.146 will not also stop the RB.401 and refanned Spey.
In the military sector, the F101 was scheduled to have made its first flight last month in the B-1A; another but smaller GE turbine, the T700, also flew for the first time in October in the Sikorsky U"ttas, and in November in the Boeing Vertol version of this helicopter. The Turbo-Union RB.199, after a spate of much-publicised problems, got airborne in the MRCA, and the re-equipment of four Nato air forces is producing intense competition between European contenders and America's two LWFs, both of which started flight-testing during 1974, the Northrop YF-17 taking the GE J101 aloft for the first time.

Aaour installation on an RAF Jaguar at Lossiemouth