

Ministers met (again in Paris) to discuss a number of mutual aviation projects. At that time, it was agreed that the helicopter programme should stand apart from other mutual arrangements and that development and production would be shared-out in proportion to the ratio of orders between the two countries. Further, that production of all three aircraft would take place in both countries.

The largest of the three is the twin-engined SA 330. This was designed by Sud-Aviation for the French Army, the first aircraft flew on April 15, 1965, and 130 are on order for ALAT (Aviation Leger de l'Armée de Terre). Flight trials are now in full swing and deliveries to the French military are to begin next year. Design leadership will remain with France.

The RAF and Royal Marine requirement is for 50 aircraft and these will be operated in the assault carrier role, as are their French counterparts. Because of the imbalance in orders



Sud SA 340, chosen for the LOH requirement, seen here on its first flight in April of this year

and the advanced stage reached with SA 330, those supplied to the RAF will be very similar to those supplied to the French. There will be no major structural changes and the existing powerplant—Turbomeca IIIC-4s rated at 1,300 s.h.p.—will be retained, production of this engine being divided in the proportions France 75 per cent, Britain 25 per cent. Any major modification programme, at this stage, would be very expensive and entail a substantial addition to the flight development programme.

It is probable, however, that certain equipment changes will be included—indeed, this will be necessary if a number of specialist helicopter ancillary manufacturers are to remain in business. In particular, the RAF will want its own communications equipment so as to ensure compatibility with existing facilities and to keep spares to a minimum. It is also possible that a British flight control system may be fitted.

The SA 330 is entirely conventional. The two engines are mounted horizontally alongside one another and drive a single gearbox with output shafts to the four-bladed main and five-bladed tail rotor. A retractable undercarriage is fitted. In its primary role of assault helicopter, the SA 330 can lift 18 fully equipped troops over 100 n.m. at 140kt, at a gross weight of about 14,000lb. Secondary missions include casualty evacuation and front-line transport of supplies and equipment, carried either internally or externally.

Air-portability is of utmost importance in the deployment of assault helicopters: the SA 330 is designed to be carried in the Transall C.160 but would be equally "liftable" by C-130s and Belfasts of Air Support Command.

Great emphasis was placed on reliability and ease of maintenance. The minimum overhaul life of any component is 1,000hr, while the engines are under-run during normal conditions with good single-engine performance. Maintenance is reduced to a minimum by the use of interchangeable or common parts wherever possible (engines, wheels, many systems items) and by fitting self-lubricating assemblies where suitable. Deliveries to the RAF will begin in 1969-70.

The next aircraft down in size, at 8,000lb gross, is the

Westland WG 13 twin-engined utility helicopter, which will be operated by the British Army, by the Royal Navy, the RAF and the French Army and Navy. Design leadership on both aircraft and engine will lie with Britain and it is expected that this country will purchase about 280 as replacement for the Westland Wasps and for the small quantity of Beavers at present operated. The French Army and Navy are between them to have 230. Powerplant will be the Bristol Siddeley BS 360-07 free-turbine engine, of 650/800 s.h.p. Turbomeca is to be responsible for 40 per cent of engine manufacture, although this will not necessarily imply that the French aircraft will have BS engines.

As the WG 13 is a utility aircraft, there is no primary role for it in either Britain or France. At the Paris Salon earlier this year, a number of models were shown in different roles. One of these depicted the helicopter as a French "gunship" having short, Hueycobra-type stub wings with weapon mountings and a tailwheel undercarriage (although other representations showed conventional nosewheel undercarriage). Westland state that "in its field support role, the WG 13 will be equipped with highly sophisticated equipment that will enable [it] to fly over difficult terrain at high speed and in bad weather. . . ."

The French requirement, as has been said, is for some 230; and (as the Paris models showed) vigorous development for the civil market could result in an attractive executive or taxi helicopter. In the military version, structure and systems will be kept at a simple level, only the designated engine and rigid, four-bladed rotor being radically new. In-service dates with the British and French armies will be 1972 and 1973 respectively.

Last and smallest of the three helicopters is the Sud-Aviation SA 340, which was designed to fulfil an LOH (light observation helicopter) requirement for the British and French armies. Some 600 will be purchased by the former, the vast majority going to the Army itself. Some will, however, be supplied to the Royal Marines, while others will go to the RAF and Royal Navy as trainers.

The light helicopter will be operated at unit level in the Army Air Corps and will undertake all the miscellaneous tasks—observation, liaison, reconnaissance, cable-laying, gunnery direction—associated with that branch of the Service. For this reason, the SA 340 is somewhat larger than its American counterpart, the Hughes OH-6A, which has a fairly strictly defined duty.

As a reflection of Britain's far larger purchase of the SA 340 (the French Army is to have 100) its Turbomeca IIN-2 powerplant will be produced in larger quantity (60 per cent) in Britain, by Rolls-Royce/Bristol Siddeley, than in France.

*Anti-submarine version of the WG 13, specially designed to operate from the restricted decks of small ships, and possessing all-weather performance. In the Royal Navy it will replace the Wasp*

