EDITORIAL

HELICOPTERS IN WESTERN EUROPE

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Compared to the United States, the total population of the major industrial nations of Europe is higher by about 30%, their gross national product is about half as great, but its rate of expansion is more than twice as high. Six times as many people live on each square mile. Economic integration is progressing rapidly and political integration--it is hoped--will follow. These conditions suggest that helicopter utilization in Europe will increase in the future. New military requirements for transport helicopters alone have been estimated to approach 1000 over the next several years.

There are three principal arrangements under which these new helicopters can come into existence:

1. by direct procurement from U. S.
2. by European license production of U. S. designs, and
3. by European production of European designs.

All three methods have been used in the past but which one, if any, will dominate in the future is not clear at this time because a number of important considerations are in conflict with each other:

The U. S. balance of payments problem suggests method (1); the current U. S. technological lead favors methods (1) and (2); European economic reasons cause emphasis on methods (2) and (3); and finally the desire for national prestige lends weight to method (3).

The conflict between these interests is noticeable throughout the European helicopter manufacturing and procurement system. This conflict is often difficult to resolve because significant procurements, as for instance the still unsettled West German transport helicopter selection, involve the interests of more than one country. The Governments of Great Britain and France, the two largest helicopter manufacturing countries in Europe, stand fully behind the products of their respective companies, Westland and Sud Aviation. These companies enjoy government-sanctioned monopolies in their countries and thus face competition only across national boundaries but not in their domestic areas.

In view of these complex political and economic factors, technological lead is not the principal but only one of many factors in the placement of production orders. The incentive to make technical progress remains just strong enough to raise moderate amounts of private and government funds for development work. These efforts have yielded the following results:

In England, the most interesting horse in the Westland stable is the experimental Fairey Rotodyne. None of the helicopters in production now have had much success in competitions outside of the Commonwealth. It is reported that further improvements to the noise problem of the Rotodyne have been made but unfortunately the guests at Farnborough were not given any occasion to witness these improvements, since the Roto-

In France, the development of the Frelon by Sud Aviation is going forward with heavy reliance upon U. S. rotor and transmission technology and without any particularly novel features. Production of the Djinn is almost phased out but Europe's most successful helicopter project, the Alouette, has been produced in great quantities and further evolutionary developments of this model are making their appearance.

West Germany is engaged in a number of small exploratory developments of which the Derschmidt system for producing very large lead-lag motions of the blade to increase both speed and efficiency is the most interesting. Some have high hopes for this system, others fear that the loads in the hub and in the transmission are too sensitive to the accurate maintenance of the design value of the mass of the swinging blade. It will be interesting to observe the outcome.

In Italy, Agusta is designing a transport helicopter, but little has been released about the details of this aircraft. Along with the smaller models of Bell, Agusta is also producing a Gnome-powered HU-1 in small quantities. Fiat is flight-testing a small helicopter whose rotor is powered by cold jets.

In general, one is left with the impression that many European projects suffer from lack of sufficiently vigorous and continuous financial support. It is likely, therefore, that they will be faced with heavy competition from advanced United States products by the time they will have been developed to the point of operational suitability. This is particularly true of the larger helicopters which are more demanding as regards the pocket book. U. S. technology can then be expected to retain its lead within the foreseeable future. Since the political factors are also here to stay, the European helicopter problem will continue to be both as promising and as complex as it has been in the past.