

THE FULL DAY DISCUSSION ON "HELICOPTER MAINTENANCE"

An all-day discussion on Helicopter Maintenance, organised by the Helicopter Association of Great Britain, with the co-operation of the Society of Licensed Aircraft Engineers, was held in the library of the Royal Aeronautical Society at 4 Hamilton Place, London, W.1, on Saturday, October 21st, 1950.

There were three sessions.

MORNING SESSION

Chairman: MR. A. McCLEMENTS
(Helicopter Association of Great Britain).

THE CHAIRMAN, opening the proceedings, said: On November 20th, 1948, there was a Joint Meeting of the Royal Aeronautical Society and the Helicopter Association of Great Britain at which the operational, technical and constructional problems of the helicopter were ventilated. The programme for today's meeting is similar in character to that earlier joint meeting, since the operational, design and constructional aspects of the helicopter will be discussed, but today our discussion will be limited to a consideration of maintenance. We are devoting a full day to this discussion on maintenance because the subject is one of prime importance, particularly to the commercial operator. There is little doubt that maintenance, with its man-hour and spares consumptions and its resulting loss in utilisation, can make or break the commercial application of the helicopter.

Maintenance is essentially a subject which demands a combined effort by the engineer, engaged in its practical application, and the designer. This point was very much in our minds when we decided on today's programme, which consists of morning, afternoon, and evening sessions.

During the morning session we shall hear three papers read by engineers having first-hand practical knowledge of operational maintenance problems. Two of the speakers represent the Helicopter Association of Great Britain and the third the Society of Licensed Aircraft Engineers.

During the afternoon we shall hear four papers read by members of the design, research, inspection and engineering branches of the four British firms engaged in helicopter development. Mr. HARDINGHAM, who today represents the Society of Licensed Aircraft Engineers, will be Chairman during the afternoon session.

Today's meeting was organised in co-operation with the Society of Licensed Engineers, whose members I would like to welcome here today. I would also like to welcome guests of both S.L.A.E. members and Helicopter Association members, and add that we shall be pleased if our respective guests take part in the discussion after this morning's session and during the evening session.

PAPER

By Mr. E. A. Voss (British European Airways Corporation).

THE CHAIRMAN, introducing Mr. Voss, said : Mr. Voss was initiated to the helicopter during his period of employment in the Experimental Department of Messrs. General Aircraft, when he came into intimate contact with the earlier types of Sikorsky helicopters. During the latter stages of the war, he served in the Royal Armoured Corps, at the Specialised Armoured Development Establishment, devoting his energies mainly to the development of tanks and armoured cars. He joined the B.E.A. Helicopter Unit at its inception in 1947, and I have known him personally since then, and had ample opportunity of appreciating his skill and enthusiasm in the helicopter operational engineering field. Until recently, Mr. Voss was the B.E.A. Helicopter Unit Station Engineer at Speke, and as such he was largely responsible for much of the maintenance of the helicopters used on the First Regular Scheduled Helicopter Passenger Service, into which operation the progressive system of maintenance was introduced.

HELICOPTER MAINTENANCE

By E. A. Voss.

1. *Principle of Application.*

In the field of commercial aviation, the Helicopter is a comparatively new vehicle and, to my mind, one requiring considerable development in respect of servicing, maintenance and overhaul.

As we are all aware, serviceability has an important influence on an aircraft's revenue flying time. Therefore, I think that it is essential for us to grapple with maintenance problems at an early stage and try to place them in their true perspective.

From my point of view, as an engineer, it is most important to use the aircraft at a high "Utilisation Rate," without impairing its safety. To do this, one must have a high "Utilisation Potential," and the factors affecting this are as follows :—

(a) *Operational Limitations.*

(b) *Serviceability.*

Of the former, there are such things as :

- (a) 1. Commercial Potential ;
2. Flight Limitations and Weather ; and
3. Embodiment of operational modifications.

Of the latter, we have :

- (b) 1. Standing time spent on routine servicing and maintenance ;
2. Standing time associated with random failures ;
3. Embodiment of functional modifications ;
4. Standing time waiting for spares ; and
5. Test flying time necessary to clear the aircraft as serviceable after "grounding."

The Operational Limitations are not the Engineers' direct concern, but the servicing factors definitely are, and it is the charge of the engineering