6th Part of Report No. A.& A.E.E./783, a.

14 OCT 1942

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT

BOSCOMBE DOWN

Kittyhawk II. F.L.220
(Merlin V.1650-1)
Radio Trials - Communication Sets.

A.& A.E.E. Ref:- 4484/1 - A.S.76/4.
M.A.P. Ref:- R.A.1862/D.A.N.A.1.

This report deals with the aircraft (or equipment) as tested. Action to remedy defects or decisions to accept items not in strict compliance with the specification are matters for decision and action by the Ministry of Aircraft Production.

Report No.	Title
1st Part of A.& A.E.E./783, a.	F.L.220 - Weight and loading data.
2nd do.	F.L.220 - Flame damping trials with short stub exhaust flame dampers.
3rd do.	F.L.220 - Carbon Monoxide contamination tests.
4th do.	F.L.220 - Climb and level speed performance and position error.
5th do.	F.L.220 - Engine cooling trials.

1. Introduction.

Tests of the radio equipment were carried out during the period 23rd August to 27th September 1942, and covered:-

(a) Trials of the specified equipment which consists of the Signal Corps Radio Command Set S.C.R.274, and,

(b) Tests, to ascertain if any ignition interference was experienced with R/T reception. These tests were necessary as doubt existed as to the advisability of having unscreened L.T. switch leads from the magneto.

2. Communication Set.

The Transmitters and Receivers of the S.C.R.274 are fitted just aft of the pilot's seat, with the three receivers positioned approximately in the centre line of the fuselage, and the transmitters mounted immediately above. Transmitters and receivers face to the rear of the aeroplane and access is attained via a hinged panel in the port side of the fuselage. The antenna indicating and aerial relay unit is fitted on the starboard side of the fuselage near the transmitters. These instruments are all accessible for maintenance and tuning.

2.1. The remote controls for the receivers are fitted on the starboard side of the pilot's cockpit, in a forward position near to the instrument panel. The control for the transmitters is also fitted on the starboard side of the cockpit, in line with the pilot's seat. These controls are accessible for operation. A press button switch is fitted on the throttle level for the dual purpose of switching the neck microphone into circuit, and as the "send-receive" switch when using Radio-telephony.

2.2. The installation calls for U.S.A. pattern telephones and a neck microphone, and these were used throughout the trials.

2.3. Calibration of the transmitters was carried out and the frequency coverage of 4 to 7 mc^{s}. laid down for the transmitters gave outputs varying from .6 amps at 4 m.c. to 1.0 amps at 7 m.c. It should be noted that the output indicator is not calibrated in amps, but is marked in arbitrary units.

2.4. The fixed aerial is a wing-tip to tail broad arrow type, of the following dimensions. Each roof wire is 8 ft. in length and the lead-in is also 8 ft. The capacity of the aerial is 75 m.m.fds.

3. Flight Tests.

R/T trials were carried out with a ground station using a receiver type R.1084 and transmitter type T.1087, operating on a frequency of 5740 K C^{s}.

/Several

Several air tests were made and results obtained indicated that the communication range is 30 miles with the aeroplane flying at an altitude of 3,000 ft. and 40 miles at 5,000 ft. At these ranges, the signals from the aeroplane were very good, but reception in the air was at its limit for reliable communication purposes.

3.1. No ignition or electrical interference was experienced in the aeroplane during reception.

4. Conclusions.

The installation of the S.C.R.274 communication equipment in this aeroplane is satisfactory.

As no ignition interference was experienced during the trials, it is apparent that the unscreened L.T. leads do not affect the efficiency of the S.C.R.274 installation.

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