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25th Part of Report No. AAEE/817c

MINISTRY OF SUPPLY

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT

BOSCOMBE DOWN

METEOR MK.8 WF.716
(DERWENT 8)

RADIO ACCEPTANCE TRIALS

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5/52 (A1513) Wt.33812/798. 40M. 2 2/53. H. E. & S. Gp.848

11 SEP 1953

AEROPLANE AND ARMAMENT EXPERIMENTAL ESTABLISHMENT
BOSCOMBE DOWN

Meteor Mk.8 WF.716
(Derwent 8)

Radio Acceptance Trials

A.& A.E.E. Ref:- AAEE/411/27/Radio
M. O. S. Ref:- 44th Joint Radio Meeting, A.& A.E.E.- M.O.S.
Period of Trials:- 2nd January, 1953 to 14th May, 1953.

Progress of issue of Report

Report No.		Title
20th Part	AAEE/817e	WA.857 Brief Assessment with Restricted Air Brake Travel (Meteor Mod. 1599).
21st	- do -	WH.483 Longitudinal Manoeuvrability Characteristics in Ground Attack.
22nd	- do -	WK.648 Brief Handling Assessment with 5" H.V.A.R.
23rd	- do -	VZ.422 Hood Jettison Tests in the Blower Tunnel. VZ.473
24th	- do -	WK.648 Service Clearance Trials of Mk.8 Type 18 R.P. Installation.

Summary

Trials of the Rebecca Mk.7 installation were required prior to C.S.(A) clearance for Meteor Mk.8 aircraft. The trials were carried out in Meteor Mk.8 WF.716.

The installation was satisfactory in its performance and the accessibility for operating and maintenance was satisfactory.

The incorporation of modifications to the installation, suggested in paragraphs 4 and 5, would improve the layout of the installation and the visibility of the indicator during certain phases of operation.

This report is issued with the authority of

Air Commodore,
Commanding A.& A.E.E.

List of Contents

List of Illustrations

/1. Introduction.....

1. Introduction

1.1 Trials were required on Rebecca Mk.7 installation in a Meteor Mk.8 aircraft, to enable C.S.(A) clearance to be given for the installation of A.R.I. 5849. The trials were carried out in Meteor Mk.8 WF.716, fifty five hours being flown, of which three hours were by night.

2. Reports Issued

2.1 Already issued :- Nil.

2.2 Included in this report:- A.R.I.5849.

2.3 Reports to follow :- Nil.

3. A.R.I. 5849

3.1 Installation Details

3.1.1 The T.R.X.1809 was installed in its rack, together with Junction Box Type X.2004 on the centre line of the decking of the fuselage, aft of the hatch giving access to the radio bay. This position was satisfactory for maintenance.

3.1.2 The transmitter aerial co-axial feeder was considered too long, and liable to be damaged by personnel working in the radio bay. (Fig. 1) The use of a 90° entry plug fitted to the feeder, would enable the cable to be laid over the top of the transmitter unit, thus reducing the feeder length.

3.1.3 The use of a 90° entry socket on the pilot's indicator would enable the mating of the cable on indicator plug, and would enable the indicator to be set back closer to the panel, this bringing the indicator into the pilot's field of vision when flying on instruments.

3.1.4 The Aerial Relay Switch Type 78A, was mounted on the starboard side of the fuselage and was satisfactory for maintenance. The aerials were incorrectly connected to this unit on arrival.

3.1.5 Power supplies for the A.R.I.5849 were fused by a 10 ampere fuse; this proved insufficient to deal with the starting current and was changed to a 20 ampere fuse. No trouble was experienced after the alteration of the fuses.

3.1.6 The Control Unit Type 909 was fitted on the starboard side of the pilot's cockpit (Fig. 2). The position was satisfactory for operation and for maintenance.

3.1.7 The Range and Heading Indicator was mounted on a resilient mounting on the port side of the cockpit, angled towards the pilot. (Fig. 3.) This position was satisfactory for observation, but greater ease of observation would be achieved if the indicator was moved back as far as possible in its present attitude. The use of the 90° entry socket on the connector from the Junction Box to the indicator would facilitate this alteration of indicator position, and would also be better for servicing.

3.1.8 The aerial system comprised housing aerials, each consisting of aerial and reflector, mounted on the port and starboard wings (Fig. 4), a transmitting aerial mounted on the centre line of the fuselage, behind the ventral tank, and an omnidirectional aerial mounted under the fuselage on the centre line, forward of the ventral tank (Figs. 5 and 6). The length of the transmitter co-axial cable was 2 ft. 6.625 inches. No frequency gap was found over the frequency band of 190-236 Mc/s with this feeder length.

3.2 Object of Trial

3.2.1 To determine the maximum range of the equipment and the

/proportional.....

proportional deflections of the homing indicator.

3.3 Procedure for Trial

3.3.1 Range Runs. The aircraft was flown on a steady course from base, with the service selector switched on "Homing", and the range was noted when the equipment became unlocked. The selector switch was then changed to "Omni", and the aircraft continued on course, until the indicator became unlocked when the range was noted. After the range indicator became unlocked, the aircraft continued on course for a further five miles and was then turned on to a reciprocal course. The reverse sequence of operations to the outward run was then employed.

3.3.2 Homing Accuracy. When at the extreme range of the Rebecca Mk.7, the service selector switch was selected to the "Homing" position, and the aircraft was navigated entirely by the Heading Indicator.

3.4 Results

3.4.1 The results of the range runs were as follows:-

Altitude Feet	Omni Range		Homing Range	
	Head Aspect	Tail Aspect	Head Aspect	Tail Aspect
1,000	35	30	30	32
3,000	51	50	45	43
5,000	64	65	46	45
7,000	107	108	100	97
10,000	112	110	92	100
15,000	150	140	135	133
20,000	168	168	155	160
25,000	180	170	164	170
30,000	200	200	180	200
40,000	200	200	180	200

3.4.2 During the homing runs, tests were carried out at approximately 30 miles from the beacon, to determine the amount of "off course" deviation, to give half and full-scale deflection of the heading meter. The amount of "off course" for half scale deflection was approximately 6°, and for full-scale deflection approximately 16°.

3.4.3 During night flying the Range and Heading Indicator was difficult to read, as it was out of the area of instrument lighting.

4. Recommendations

4.1 The transmitter co-axial feeder should be re-routed over the top of the transmitter receiver, thus reducing the length of co-axial feeder, and a 90° entry plug substituted for the straight entry plug fitted.

4.2 The straight entry plug on the junction box-indicator connector should be replaced by a 90° plug. This would facilitate servicing, and enable the indicator to be set closer to the instrument panel.

4.3 The power supply fuse for the equipment should be changed from 10 amperes to 20 amperes.

4.4 The installation was otherwise satisfactory for operation and maintenance.

5. Conclusions

5.1 Maximum range and homing accuracy of this installation are satisfactory.

/5.2.....

5.2 Subject to the recommendations at para. 4 above, the installation is satisfactory for maintenance and operation.

Circulation List

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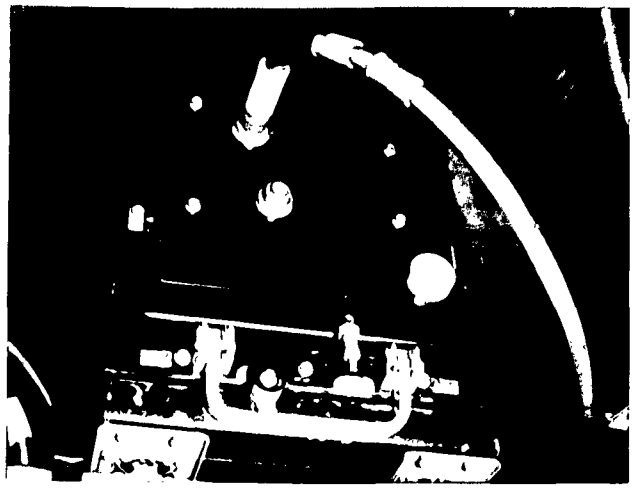

FIG.1.

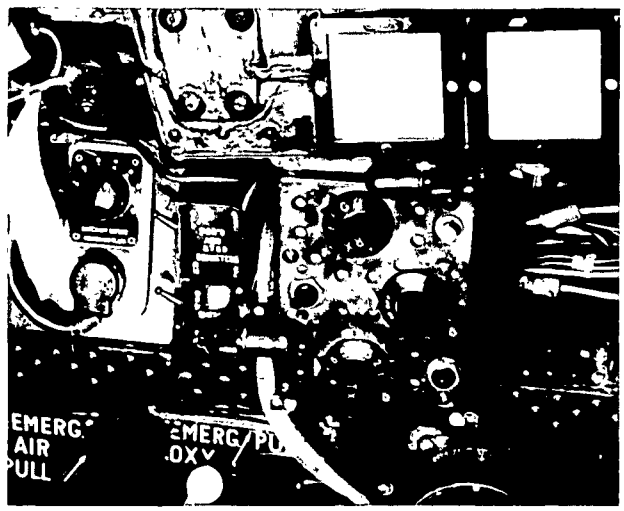

FIG.2.

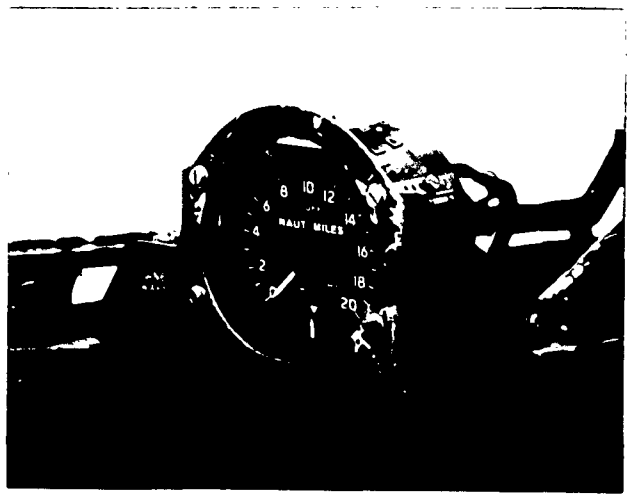

FIG.3.

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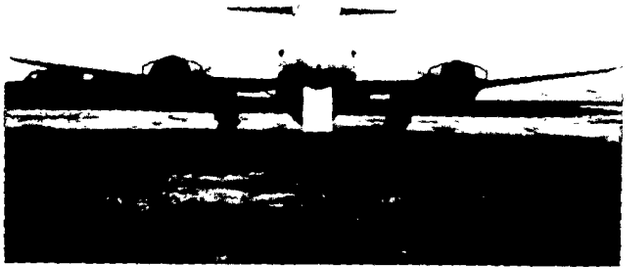

FIG.4.

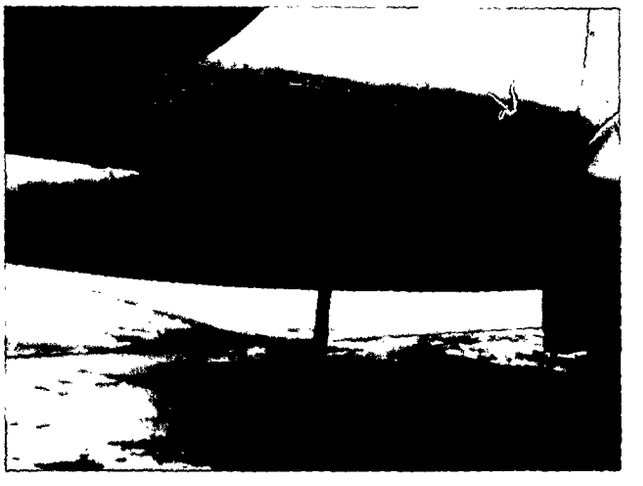

FIG.5.

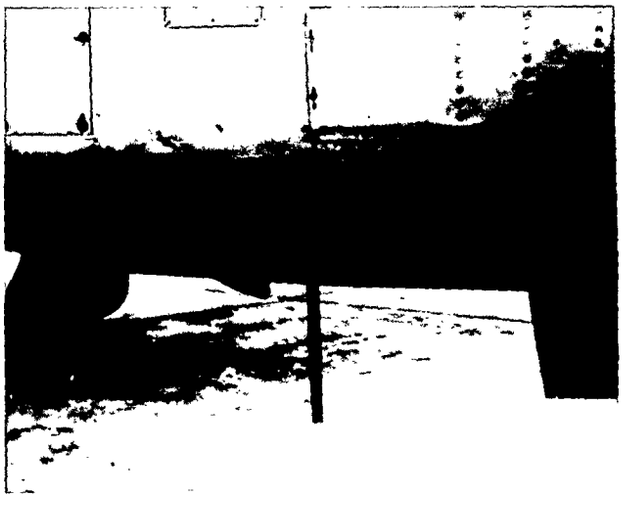

FIG.6

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