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NATIONAL RESEARCH COUNCIL OF CANADA
RADIO AND ELECTRICAL ENGINEERING DIVISION

PROGRESS REPORT
ON
CB AND MZPI RADAR EQUIPMENTS
JULY - SEPTEMBER, 1950

Declassified to:
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J. Y. WONG

Authority:

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OTTAWA
OCTOBER 1950

The National Research Council of Canada
Radio and Electrical Engineering Division

PROGRESS REPORT

on

CB and MZPI RADAR EQUIPMENTS

July-September, 1950

COUNTER-BOMBARDMENT RADAR EQUIPMENT

All units were completed during July and August for the trials of the initial system. The equipment was mounted on the carrier and in the Field Trials Trailer behind the Sussex Street laboratories during August. Initial tests were commenced, and, although these tests were incomplete at the time, the equipment was moved to the Connaught Ranges on September 15 at the request of the user. From that date to the end of the period under review efforts were concentrated on making the equipment ready for the field trials.

MICROWAVE ZONE POSITION INDICATOR Mk.II

(Modified A.A. No.4, Mk.VI)

Flight trials have been carried out using the new antenna and rotating coupler. The expected advantages have been obtained — namely, greater bandwidth and more reliable A.F.C. operation.

It has not yet been possible to investigate the improvement in power-handling capacity. No improvement in range can be obtained from the antenna, except at the expense of coverage. This work has been described in Report ERA-193, "Trials of a New Antenna and Rotating Coupler for A.A. No.4, Mk.VI (MZPI)".

Further trials were made using the new antenna and rotating coupler and also a new experimental preamplifier of improved noise figure. The results are presented in Report ERA-194, "Flight Trials of Cascode Preamplifier for MZPI". The report demonstrates the actual improvement in range to be expected if the i-f noise figure is reduced to 1.7 db. Detailed charts are presented of the actual echo received from Vampire and Dakota aircraft, receding and approaching, at altitudes of from 5,000 to 40,000 feet. An appendix summarizes some of the more reliable data on aircraft echoing area.

Construction of an experimental polarization duplexer has begun. This G.E. development will probably provide the best means for duplexing at the higher power output. Several simpler systems which would involve much less modification to the existing r-f components are under active experimental investigation. These are based on the use of the British tube, Type-CV294, a very inexpensive tube, which, when correctly mounted, can serve as either a pre-TR or ATR switch. During the course of this work a shunt wave-guide tee has been developed with a greater bandwidth than is obtained by using conventional techniques.

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