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UNITED STATES ATLANTIC FLEET
OPERATIONAL DEVELOPMENT FORCE
U.S. Naval Base
Norfolk 11, Va.

in reply refer to
(72:gtw)

FF5-7/J15

Ser 078

28 Jan 1952

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SECURITY INFORMATION

From: Commander Operational Development Force
To: Commanding Officer, U.S.S. PEREGRINE (EAM-373)

Subj: Project Op/S238/S67, "Evaluate Electronic Countermeasures
Crystal Video Warning Receiver"; assignment of

Ref: (a) CNO ltr Op-373/1e ser 0502P37 of 11 Oct 1951

Encl: (1) Queen Test 238
(2) Data Sheet "A"

1. Reference (a) assigned project Op/S238/S67 to Commander Operational Development Force with priority "B". The subject project is hereby assigned to above addressee for prosecution in accordance with enclosure (1).
2. Evaluation will commence when directed by Commander Operational Development Force.
3. [] of the Material Department, Staff, Commander Operational Development Force is the supervisory officer for this project. Personnel will be furnished from the Staff, Commander Operational Development Force for assistance in evaluation, maintenance of equipment and records.

Copy to:

BUSHIPS

NRL

Op-371C

Op-373

Op-341D

Op-04E

Op-201X

ONR

CO, USS HARVESON (DER-316)

CO, VX-2

CO, VX-4

ALPHABETICALLY

Flag Secretary

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Queen Test 238

Project Op/S238/S67; "Evaluate electronic countermeasures crystal video warning receiver"; Priority "B".

PURPOSE OF TEST

1. The purpose of this test is to evaluate, under shipboard operating conditions, the desirability of furnishing lookouts with the crystal video warning receiver. The lookouts shall scan the sector assigned visually and also with the crystal video receiver horns attached to his helmet. A secondary part of this evaluation will be a comparison of the British and NRL receivers.

SCOPE OF TESTS:

1. Tests will be conducted as directed in the various phases to:

a. Determine the suitability of design and construction of the equipment supplied.

b. Determine the approximate maximum intercept range of the crystal video receiver used against submarine or small craft radars and airborne radars.

c. Determine if the first intercept represents any gain over the condition when the receivers are not used and visual sighting alone is obtained.

d. Use both types of receivers and determine if one gives any appreciable increase in maximum intercept range.

DESCRIPTION OF TEST EQUIPMENT:

1. The British type CX4/06 crystal video receiver covers the range of approximately 2300 to 11,000 megacycles, uses two horn type antennas to cover the range, has an audio output for headphones, and uses a 1.5 volt battery for filament supply and a 30 volt hearing aid battery for "B" supply. The antennas are held in the hand and pointed in the desired direction.

2. The NRL type AN/ULR-3(XB-1) crystal video receiver covers the range of approximately 2300 to 11,000 megacycles, uses two horn type antennas mounted on a battle helmet, has an audio output for headphones, and uses a 115 volt, 60 cycle power supply.

SERVICES REQUIRED:

Radar equipped submarine or small craft.

Radar equipped aircraft.

Services will be combined, when practicable, with Bu/S185/S67, Task Two.

REPORTS:

Reports will be prepared in each phase.

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ENCLOSURE (1)

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1. To determine the suitability of design and construction of equipment supplied.
2. To ensure that equipment under evaluation be maintained in optimum operating condition during tests.

PROCEDURE:

1. The Electronics Officer shall maintain a detailed equipment log containing the following information:
 - a. Record of preventive maintenance.
 - b. Record of corrective maintenance giving:
 - (1) Symptoms of failure.
 - (2) Action taken to remedy failure.
 - (3) Components repaired or replaced, time consumed, and difficulties encountered in making repairs.
 - c. Total operating time of each receiver.
2. Comment on the following:
 - a. Suitability of construction for maintenance.
 - b. Evidences of poor material or workmanship.
 - c. Method used to determine optimum operation of equipment.
 - d. The adequacy of test equipment available.
3. A monthly report listing all material failures and maintenance difficulties associated with this equipment will be submitted to Commander Operational Development Force. A final report containing detailed comments and recommendations shall be submitted upon completion of evaluation.

Phase 2PURPOSE:

1. Training of lookouts.

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ENCLOSURE (1)

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PROCEDURE

1. Through use of targets of opportunity, and under actual operating conditions, have the lookouts familiarize themselves with the equipment.
2. Train the lookouts in determination of different tones produced by different pulse rates.
3. Train the lookouts, in operation and with targets of opportunity, to recognize and evaluate new signals in terms of intensity and pitch with respect to background noise levels of own ships radars.

Phase 3

PURPOSE:

1. Determine the maximum approximate intercept range of the crystal video receivers.
2. Determine if the first intercept represents any gain over the condition when visual sighting alone is employed.
3. Use both types of crystal video receivers and determine if one type gives any appreciable increase in maximum intercept range.

PROCEDURE:

1. With the target craft making approaches on the ship, have a lookout posted in a position to cover the approach sector with optical equipment and the crystal video receiver. Record time first intercept, either visual or with crystal video receiver and time of intercept with both methods. These tests shall be made with exact bearing or approach unknown to the operator.
2. Record thru use of radar the range and bearing of the target craft at time of intercepts recorded in (1) above. If the target craft is aircraft also record height at which approach was made.
3. Supply one lookout with the CX4/06 crystal video receiver and another with the AN/ULR-3(XB-1) crystal video receiver. Have target craft make several approaches on ship. Record time of first intercept, the range bearing and type of receiver. At the end of each run have the lookouts exchange receivers.
4. Results of all runs are to be recorded on data sheet "A" and submitted to Commander Operational Development Force upon completion of evaluation

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Project Op./S238/S67
Data Sheet "A"

Type of target

Date:

Ship

Altitude of Aircraft

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ENCLOSURE (2)

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