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NAVY DEPARTMENT

Report of Test

on

Condensers for Sound Powered Telephones

submitted by

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Brooklyn, New York

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ANACOSTIA STATION  
WASHINGTON, D. C.

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Date of Test: May and June 1940.

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## Table of Contents

Authorization for Test	Page 1
Object of Test	1
Abstract of Test	1
Conclusions	1a
Recommendations	1b
Description of Material	2
Method of Test	2
Results of Tests	2
Conclusions	4

## Appendices

Measured Capacities and Leakages	Table 1
Photograph of Sample Condensers	Plate 1

### AUTHORIZATION FOR TEST

1. This test was authorized by reference (a), and other additional references pertinent to this test are listed as references (b) and (c).

Reference: (a) BuEng and BuC&R ltr.S65-1(4-9-SS) of 13 May 1940.  
(b) Specification RE-13A-488C of 22 August 1936.  
(c) Control Inst. Co. ltr. of 9 April 1940 to  
BuEng via INM, N.Y.

### OBJECT OF TEST

2. The object of the test was to determine conformance of the sample condensers with the specifications, reference (b), and suitability for service in sound powered telephone circuits.

### ABSTRACT OF TEST

3. The sample condensers were subjected to tests to ascertain compliance with the specifications relative to accuracy of capacity ratings, direct current leakage, direct potential flash test, and efficacy of the sealing method used.

Conclusions

(a) The subject condensers comply with the specifications except that the cases are not marked in accordance with paragraph 3-11.

(b) No drawings were furnished for checking purposes, and the manufacturer of the tubular type condenser was not identified.

Recommendations

(a) It is recommended that the subject condensers be approved for Naval use subject to the proper marking of the cases, and submission to the Bureaus of identifying data.

DESCRIPTION OF MATERIAL

4. The tubular condenser (of unidentified manufacture) is enclosed in a tinned brass case and is provided with a terminal on each end of the case. The rating, as furnished by the exhibitor, was 0.2 microfarad, 100 volts d.c. working voltage.

5. The block condenser, manufactured by Electrical Utilities Company, is provided with three terminals on one side of the tinned brass case. It is rated, 0.4 microfarad with a tap at 0.2 microfarad, 100 volts d.c. working voltage.

6. Further details of the construction of the samples are shown by photograph, Plate 1.

METHOD OF TEST

7. The capacities of the condensers were measured with a 1,000-cycle "capacitance bridge."

8. The d.c. leakage of the condensers was measured with a microammeter, at a potential of 220 volts.

9. Each condenser was given a direct potential flash test of 200 volts for 15 seconds between terminals and terminals and case.

10. The samples were subjected to 5 complete cycles of heating to 65° C. and chilling to 0° C. by alternate immersion for two hours in saturated salt water baths held at these temperatures. Next, they were immersed in saturated salt water at 20° C. for 24 hours. After washing in fresh water, they were allowed to dry for 1 hour and were again subjected to a flash test of 200 volts. Following this, the capacitance and leakage measurements were again made.

RESULTS OF TESTS

11. The results of the tests were as follows:

<u>Requirements</u>	<u>Tubular</u>	<u>Test Values</u> <u>Block</u>
Marking: Case shall be permanently marked with Navy type number, rated capacitance, and continuous working voltage, d.c.	*Not marked.	*Only rated capacitances marked.
Capacitance variation: Shall not vary from rated value at 20° C. more than +10 or -3 %.	Complied. Measured: 0.202 mfd. Rated: 0.2 mfd.	Complied. Measured: 0.217 mfd. Rated: 0.2 mfd. 0.4 mfd.

<u>Requirements</u>	<u>Tubular</u>	<u>Test Values</u>	<u>Block</u>
Leakage: Shall not exceed 0.8 microampere per microfarad at the d.c. working voltage prior to immersion.	Complied. Could not be read at 100 volts (See table) for leakage at 220 volts	Complied. Could not be read at 100 volts (See table) for leakage at 220 volts.	
Flash test: Shall withstand twice the d.c. working voltage between terminals and terminals and case.	Complied.	Complied.	
Temperature and immersion test: Tested as outlined in par.8 of this report.	Complied. (See table)	Complied. (see table)	

\*Denotes non-compliance with the specifications.

## CONCLUSIONS

12. The subject condensers comply with the specifications except that the cases are not marked in accordance with paragraph 3-11.

13. No drawings were furnished for checking purposes, and the manufacturer of the tubular type condenser was not identified.



Control Instrument Company  
Tubular condenser      0.202 Mfd.  
Block condenser      0.400 Mfd. -Term. 1&2  
                         0.217 Mfd. -Term. 3&2



Plate 1