

NATIONAL BUREAU OF STANDARDS REPORT

NBS PROJECT
0201-30-2303
0201-30-2328

NBS REPORT

3647

July 1, 1954

IMPROVEMENT OF VISUAL AIDS FOR AIR NAVIGATION

Progress Report
March 1, 1954 to June 30, 1954

Prepared by
F. C. Breckenridge

Sponsored by
Airways Engineering Division
Civil Aeronautics Administration



U. S. DEPARTMENT OF COMMERCE NATIONAL BUREAU OF STANDARDS

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IMPROVEMENT OF VISUAL AIDS FOR AIR NAVIGATION
PROGRESS REPORT

1. OBJECTIVES

It is the purpose of this project to carry on research and testing, develop specialized equipment and provide technical services for the Airways Engineering Division of the Office of Federal Airways, Civil Aeronautics Administration.

2. TESTING

At the beginning of the period covered by this report, there were two tests in progress. These have been completed and reported. During the report period six additional tests have been requested. Five of these have been carried thru and reported. Detailed dates and costs for each test are given in the financial summary.

3. RESEARCH ACTIVITIES

3.1 Study of exposure characteristics of metal protective paints.

The accelerated exposures of the 28 paint specimens have been completed and a report on this part of the project has been started. It is anticipated that the results will be found sufficiently definite to warrant the discontinuance of this part of the test. The natural exposures should be continued for the coming fiscal year but this will entail little expense except for a report at the close of the year.

3.2 Study of green plastics for beacon covers.

The results of the measurements made in the previous period have been computed and analyzed and diagrams have been prepared to show how the signal colors produced by the plastics with light sources of different color temperatures compare with the specification tolerances. The final report on this project is nearing completion.

3.3 Study of optical system for traffic control projectors.

During the previous period candlepower distribution measurements were made for a considerable number of lamp, reflector, and lens combinations. This material was organized into a report covering the characteristics of the projector originally submitted for test, possible modifications of that projector to improve its performance, and the alternative of a design using a very light weight plastic lens. The work was then discontinued because developments within the C.A.A. made it impossible to utilize the results in the foreseeable future.

SECTION 1

It is the purpose of this report to present a summary of the results of the study conducted by the Office of the Chief of Staff, Department of the Army, in connection with the study of the Army's personnel management system.

SECTION 2

The study was conducted in accordance with the plan of work approved by the Joint Chiefs of Staff and the Department of the Army. The study was conducted in three phases: (1) a study of the Army's personnel management system; (2) a study of the Army's personnel management system in other countries; and (3) a study of the Army's personnel management system in other branches of the Armed Forces.

SECTION 3

3.1 Study of the Army's personnel management system

The study of the Army's personnel management system was conducted in three phases: (1) a study of the Army's personnel management system; (2) a study of the Army's personnel management system in other countries; and (3) a study of the Army's personnel management system in other branches of the Armed Forces.

3.2 Study of the Army's personnel management system in other countries

The study of the Army's personnel management system in other countries was conducted in three phases: (1) a study of the Army's personnel management system in other countries; (2) a study of the Army's personnel management system in other countries; and (3) a study of the Army's personnel management system in other countries.

3.3 Study of the Army's personnel management system in other branches of the Armed Forces

The study of the Army's personnel management system in other branches of the Armed Forces was conducted in three phases: (1) a study of the Army's personnel management system in other branches of the Armed Forces; (2) a study of the Army's personnel management system in other branches of the Armed Forces; and (3) a study of the Army's personnel management system in other branches of the Armed Forces.

3.4 Standardization of signal-light colors.

Diagrams were prepared to illustrate the text of Part 1 of the proposed standard for signal light colors and a conference arranged with representatives of the Kopp Glass Co. and the Corning Glass Works. Some criticisms were offered to the text but they were of a tentative sort and need not preclude the use of this draft for wider circulation. The diagrams proved inadequate and new diagrams are in process of preparation. This is a joint project with the Bureau of Aeronautics, that bureau carrying the major part of the cost.

3.5 Technical services.

This item includes correspondence, conferences, administrative reports and other general activities incident to the conduct of the project. The costs for this period include the expenses involved in preparing the progress report for the previous period.

Financial Summary, March 1, 1954 to June 30, 1954

C.A.A. Fund 13341330.001

N.B.S. Project 0201-30-2328

Balance 2-28-54 (see last report)	\$1626
Supplementary transfer	<u>600</u>
Funds available for period	\$2226

Cost of tests

<u>Test No.</u>	<u>Date of Request</u>	<u>Date of Report</u>	<u>Current Costs</u>
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General testing

G15248	----	3-31-54	\$39.
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Two fused rubber-covered connectors, tested electrically and mechanically for conformity to specifications and suitability for intended service.

G15259	3-23-54	4-13-54	70.
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Radio antenna housing, measured for loss tangent.

G15426	4-12-54	4-21-54	35.
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Paint, tested for conformity to specifications.

G15505	5-7-54	5-12-54	127.50
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Three portable A-C and D-C thermal voltmeters calibrated.

Project Tests

21A-10-53	11-16-53	3-12-54	155.
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15 portable approach-light photometers calibrated, furnished with calibration charts, and shipped.

Research Activities

Study of exposure characteristics of metal protective paints.	\$550.
Study of green plastics for beacon covers.	310.
Study of optical system for traffic control projectors.	216.
Standardization of specifications for signal colors.	198.
Technical services.	<u>650.13</u>

\$2350.63

Final deficit 124.63

General Fund Balance Sheet

Assets - Total \$100,000.00

Liabilities - Total \$100,000.00

Statement of Income

Particulars	1952-53	1951-52
Income	100,000.00	100,000.00
Expenses	100,000.00	100,000.00
Surplus	0.00	0.00

The Board of Directors has approved the financial statements for the year ending March 31, 1953, and has authorized the Treasurer to sign the same.

Assets - Total \$100,000.00

Liabilities - Total \$100,000.00

Income - Total \$100,000.00

Expenses - Total \$100,000.00

Surplus - Total \$0.00

Total Income - \$100,000.00

Project Data

Assets - Total \$100,000.00

Liabilities - Total \$100,000.00

General Ledger

Assets - Total \$100,000.00

Liabilities - Total \$100,000.00

Income - Total \$100,000.00

Expenses - Total \$100,000.00

\$100,000.00

\$100,000.00

Total Income

Financial Summary, March 1, 1954 to June 30, 1954

C.A.A. Fund 13x1305.001
N.B.S. Project 0201-30-2303

Balance 2-28-54 (See last report) \$2659

Cost of Tests

<u>Test No.</u>	<u>Date of Request</u>	<u>Date of Report</u>	<u>Current Costs</u>
21A-6/54	5-26-54	6-25-54	\$231.

Radar irradiator, filter transmittance measured in visible and ultra-violet regions, the conditions of use surveyed, and a solution for control tower difficulties proposed.

21A-7/54	6-18-54	Incomplete	80.
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Two LOOPAR-56 lamps measured for candlepower distribution.

Research Activities

Standardization of specifications for signal colors	90.
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Technical Services	<u>150.</u>
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Total for period	\$551.
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Balance available 7-1-54	\$2108.
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Financial Summary, 1954-55, 1955-56, 1956-57

2011-1954
1955-1956

1954-1955 (1954-55)
1955-1956 (1955-56)

1954-55	1955-56	1956-57	1957-58
1954-55	1955-56	1956-57	1957-58

These figures, which represent the average of the four years, are based on the average of the four years, and are not intended to represent the average of the four years.

1954-55 1955-56 1956-57 1957-58

The 1954-55 figure shows the average of the four years.



1954-55 1955-56

1954-55 1955-56 1956-57 1957-58

1954-55 1955-56 1956-57 1957-58

1954-55 1955-56 1956-57 1957-58

1954-55 1955-56 1956-57 1957-58

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 **Esselte**

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