Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Cambridge, Massachusetts

SUBJECT: BIWEEKLY REPORT FOR FEBRUARY 26, 1954

To: Jay W. Forrester

From: Division 6 Staff

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SECTION I - CAPE COD SYSTEM

1.1 Group 61

1.10 General

(R.J. Horn, Jr.) (CONFIDENTIAL)

A large part of the Group's effort this biweekly period has been spent studying proposals for the 1954 Cape Cod System. The goals are improvement in System operation and evaluation and provision for testing ideas and procedures for the XD-1 installation.

In connection with XD-1 activities, floor plans are being prepared, preliminary estimates of switch requirements have been made, and tentative specifications for the tactical telephone system have been written.

The problems of simulation and of making measurements during live interceptions have been discussed in joint Bell Telephone Laboratories-Project Lincoln meetings.

Flight tests this biweekly period included five simultaneous intercepts, the use of the automatic ground-to-air data link, interceptions involving AI radar (APG-33) contact, and the successful calibration of the South Truro radar. Interceptors may now be scrambled and returned to base at South Weymouth.

1.3 Group 65

1.33 Activities of Group 65

(P. Youtz) (UNCLASSIFIED)

Most of the effort of the Group during this biweekly period was expended on problems concerning the 19-inch Charactron and 5-inch Typotron tubes. I spent the second week of the biweekly period on the West Coast visiting Convair and Hughes Aircraft. Convair is making progress on improving the electron optic of the Charactron for better registration. They have moved into a new building which they have purchased for Charactron work. This building was designed solely for this activity. They have not yet installed all of their tube-production equipment.

Hughes Aircraft has completed the design and construction of an improved Typotron. I brought back with me one of these new Typotrons, so that C. L. Corderman can evaluate its operation with MTC. Millard Smith, project supervisor in the Tube Division of Hughes Aircraft, will bring more Typotron tubes the week of the MIT Physical Electronics Conference. The Hughes Tube Group had a two-color-on-black storage tube. The two phosphors were yellow and green. They can easily make a four-color-on-black storage tube. All of these features could be incorporated in a Typotron later in the year. Hughes Aircraft has also been working on construction techniques to make a 19-inch Typotron.

Three days of the first week of this biweekly period were spent at Poughkeepsie on reliable-receiver-tube and Charactron problems.

Group 65 is continuing to work with George Sponsler of Group 25 to set up an automatic electron-trajectory tracer in cooperation with the MIT Dynamic Analysis and Control Laboratory. This is being used to study the relative merits of helical vs. multiple-ban post-deflection acceleration.

The program of Joe Klein of Group 25 to evaluate aluminized phosphor screens is continuing. A trip to GE Syracuse Laboratories is scheduled for next week.

Work on helical coatings continues.

There has been some work this biweekly period on tubes for the cathode studies of H. B. Frost.

1.33 Research and Development

(J. S. Palermo) (UNCLASSIFIED)

During the past period a 16-inch cathode-ray tube involving basic construction techniques of the Charactron was prepared and sealed onto the vacuum system for processing. This tube, Cht 18, was primarily

1.33 Research and Development (Continued)

(J. S. Palermo) (UNCLASSIFIED)

constructed to investigate the effect of helical-dag coatings on deflection-plate sensitivity. Although only a very small section of this tube could be helically coated with dag, it is expected that some data may be obtained.

Work continues for Group 25 on the preparation of the formed glass plates for the automatic electron-trajectory tracer.

Research on helical coatings continues because of the inability to successfully reproduce uniform and consistent readings.