

Memorandum 6M-3075

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Division 6 - Lincoln Laboratory
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Lexington 73, Massachusetts

SUBJECT: BIWEEKLY REPORT FOR SEPTEMBER 24, 1954

To: Jay W. Forrester

From: Division 6 Staff

Approved: for John B. Bennett *(JWB)*
John B. Bennett

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SECTION I - CAPE COD SYSTEM

1.1 Group 61

1.10 General

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

Group 61 has now been reorganized into the following six Sections. The Sections are further broken down into Subsections with an Assistant Section Leader in charge of each one. The following table outlines this new breakdown:

- System Operation - G. Zraket
- Training - G. Zraket
- Test Coordination - R. Davis
- Direction Center Operation - G. Zraket
- Data Analysis - G. Zraket
- Programming - G. Zraket
- XD-1 Programming - R. Walquist
- Air Surveillance - J. Ishihara
- Weapons Direction - G. Grandy
- Identification & Manual Inputs - R. Walquist
- Master Control & Display - H. Benington
- Utility Program Card Preparation - C. Gaudette

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1.31 Activities of Group 65 (Continued)

(P. Youtz) (UNCLASSIFIED) (Continued)

Simultaneously work is continuing on optimizing the P7 screen for the AN/FSQ-7 application.

Some work was done in furtherance of the projection display development. Cadmium sulphide plates were prepared and sent to Group 25 for evaluation. A 19-inch Charactron tube with an aluminized P11 screen was made and sent to C. L. Corderman. Lloyd Sanford will photograph situation displays on this tube to evaluate certain photographic techniques to be used in projection display systems.

Saul Twicken attended two meetings of the JETEC on computer tubes. Saul Twicken and A. Zacharias visited DuMont with the IBM High Street Tube Group to review DuMont's progress and engineering specifications on the video mapper tube and the photomultiplier tubes.

Some attention was given to Sylvania program on the SR-1782A. A trip will be made to Poughkeepsie early next week to discuss this with the tube group.

1.33 Research and Development

(P. C. Tandy) (UNCLASSIFIED)

Life-test equipment for three 19-inch Charactron tubes was set up.. Equipment for more tubes will be available in a few days.

One tube has already completed 278 hours, while the other tube has been on life test 76 hours. The difficulty encountered with transfer-characteristic measurements has been resolved, and more curves will be taken shortly. As soon as a third tube is received, it will be put on life test.

(A. Zacharias) (UNCLASSIFIED)

The SR1782A life rack was submitted to Production Control, and delivery is expected by 1 October 1954. The telescope frame for Charactron face testing has been designed, and the sketch was given to Production Control and the machine shop.

The aluminizing process was investigated further. As it stands now, the remaining problem is keeping aluminum on the sides of the envelope during lacquer bakeout. On 16 September, a trip was made to DuMont where inquiries concerning this trouble were made. On the basis of these discussions, an experiment is being conducted to test the effect of the

1.33 Research and Development (Continued)

(A. Zacharias) (UNCLASSIFIED) (Continued)

cushion solution on aluminizing the glass sides. Preliminary results show that two buffers (separate phosphor and lacquer cushions) gain no advantage. The third part of the experiment is still being carried out. This involves the extra step of baking the phosphor after it has been laid down, then applying a cushion for lacquer. The experiment should be completed by 28 September.

(L. B. Martin) (UNCLASSIFIED)

On 14 and 15 September I visited Hughes Aircraft and reported on the MIT Typotron Life Test. This covered the logical design, periodic tests, summary of failures, and plans for expansion. During the discussions it became clear that some uniform terminology should be agreed upon among Hughes, IBM, and MIT. I examined the newly-completed Typotron production-line tester and life-test units under construction. Their life test will have 10 tube positions. Conversations with W. J. Cronin, in charge of life test at Hughes, have resulted in an agreement of closer cooperation that will save much duplication of effort as well as opening a channel of communication for minor technical details. In addition to the above, I participated in the conference on test specifications for the Typotron.

On 16 and 17 September I sat in on the discussion at Convair of the Charactron test specifications and life test. Their life test had been in operation 1700 hours at the time. At present they are life testing with a 50% duty cycle. However, P. Youtz and C. L. Corderman convinced them that a duty cycle of less than 1% would yield more significant results. Convair has agreed to take periodic pulse-transfer tests with the new duty cycle. For comparative purposes the pulse-transfer curves of the Typotron tubes are now being drawn from MIT life-test data. Copies of these curves will be sent to Convair.

Preliminary work has been started with H. Beatty to coordinate the planned Typotron life test at IBM with the life test at MIT.

A 4000-hour report, 6M-3032, on the Typotron life test is now available. A progress report on the life-test expansion is now in preparation.

1.33 Research and Development (Continued)

(L. B. Martin) (UNCLASSIFIED) (Continued)

The following tubes are now on test:

<u>Tube</u>	<u>Hours</u>	<u>Condition</u>
265	4472.0	marginal
280	3654.0	satisfactory
335	2837.0	"
366	2135.2	"
389	2051.4	"
390	2135.2	"
392	2135.2	"
394	1353.1	marginal