

UNCLASSIFIED
Division 6 - Lincoln Laboratory
Massachusetts Institute of Technology
Lexington 73, Massachusetts

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To: Jay W. Forrester

From: Division 6 Staff

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SECTION I - CAPE COD SYSTEM

1.1 Group 61

1.12 Data Screening

(R. L. Walquist) (CONFIDENTIAL)

The remaining two memos defining the tracking operation in the 1954 Cape Cod System (the automatic tracking memo and the monitoring memo) are close to completion; they will be issued early in the next biweekly period. Computer programming for the tracking function is from one-half to two-thirds completed. Individual program checkout is about one-third completed. It is expected that the various track-while-scan programs will be ready for integration into a single operating program by the last week in September.

Analysis of the computer-recorded data for the track-while scan function in the 1953 Cape Cod System is still being done by . . W. Attridge and J. Levenson. Evaluation of the automatic-initiation function has been completed; a memo will be issued the first part of the next biweekly period. The results indicate that for the present radar-data quantization, a five-scan initiation period is not sufficient to distinguish aircraft tracks from radar noise. The results also indicate that the initiation program spends over 90% of its time on clutter returns.

(W. S. Attridge) (CONFIDENTIAL)

Preparation for the training program starting next week has occupied most of my time during the past two weeks.

1.3 Group 65

1.31 Activities of Group 65

(P. Youtz) (UNCLASSIFIED)

Several 19-inch Charactron tubes were constructed at MIT this period. One tube had the optimum electron optical system with the new small matrix. This tube was sent to Lexington for evaluation with MTC. The remaining tubes will be put on the life-test rack at the Barta Building. A preproduction tube was also received for Convair evaluation. After tests have been completed on this tube, it will be put on life test at Barta.

Work continued on making and evaluating an optimum aluminized P7 screen for the Charactron. J. A. Klein, P. C. Tandy, and A. Zacharias continued their assignment of building a test setup for evaluating these aluminized phosphor screens.

A trip was scheduled to the west coast for the monthly meeting with Convair and Hughes Aircraft. H. Beatty of the IBM High Street Tube Group will also make the trip.

1.33 Research and Development

(S. Twicken) (UNCLASSIFIED)

In conjunction with the IBM Tube Group a trip was made to the Evans Signal Labs to discuss possible means of marginal-checking a thyatron. We also discussed what test conditions most readily indicate a deteriorating tube. A suggested means of marginal-checking some of the 2D21 pulse generators in XD-1 has been the voltage across a resistor between shield and cathode. Some tests here have indicated that this may not be so. Apparently a much higher current level during the pulse may be necessary to differentiate between good and failing tubes. This will be investigated. Another matter to be looked into is whether the rate of rise of cathode current is indicative of the state of the thyatron.

Fifty 5844's were tested as our portion of the JETEC round-robin evaluation of the design of our intermittents detector.

(A. Zacharias) (UNCLASSIFIED)

Design was begun and completed on an SR-1782A life rack; the drawings are now in Production Control. The rack will be for 90 tubes, 45 of which may be operated in two separate conditions, and the remaining 45 in two other separate conditions. In each of these sections 15 tubes operate under identical conditions. The four major operating conditions are concerned with G3, namely E_{c3} at: - 15 volts, 0 volts,