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

SUBJECT: SUMMARY OF MIT-IBM COLLABORATION - NOVEMBER 1 thru DECEMBER 31, 1954

To: J.W. Forrester, R.R. Everett, J.C. Proctor, C.R. Wieser, N.H. Taylor, D.R. Brown, S.H. Dodd and P. Youtz

From: A. P. Kromer

Date: January 7, 1955

Approved: N H Taylor
N. H. Taylor

Abstract: Construction of the XD-1 prototype system is nearing completion. Engineering refinement of design continues. Initial installation of equipment in Building F is underway. AFCRC Exhibit for both prototype and production system were revised. Equipment installation and check out of programs for the first production system is receiving detailed consideration. A joint MIT - IBM high level Coordination Committee has been established and has started a series of weekly meetings.

Engineering Visits

During the period a total of 123 man days were spent at IBM locations by MIT - Lincoln personnel. This is in addition to the MIT personnel stationed full time at Poughkeepsie in connection with testing the XD-1 System.

A total of 112 man days were spent at MIT - Lincoln by IBM personnel during the period. This is in addition to the full time representatives stationed at Lincoln in connection with the preparation of Building F, installation of the XD-1 System and development on both the prototype and production duplex systems.

Exchange of Publications

Approximately 45 M-Notes were sent to IBM during the period. Fourteen publications were received at Lincoln from IBM during this interval.

General Comments

A. The Prototype Systems

As development and construction of the XD-1 System approaches

The research reported in this document was supported jointly by the Department of the Army, the Department of the Navy, and the Department of the Air Force under Air Force Contract No. AF 19(122)-458.

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completion the engineering work has continued in all areas. This includes work in connection with plans and preparation of maintenance and diagnostic programs, procurement and application of magnetic cores, procurement of components including large display tubes, refinement of electronic circuits and preparation of equipment testing procedures.

The central display generating system design which has been carried on at MIT - Lincoln has been essentially completed and all design information forwarded to IBM for release to the manufacturing organization for construction.

The central computer frames (arithmetic element, memory, instruction and selection control) were given a comprehensive check out prior to removal from the test floor at IBM. Performance and margins were very acceptable.

Work in Building F, Lexington, has provided installation of the M-G sets and associated switch gear as well as the DC power supplies and central computer MCD frame. Wiring between these various units is proceeding in preparation for the arrival of the first group of electronic equipment frames, which are scheduled to be received at Lexington in the very early part of January.

A jointly agreed upon draft of Exhibit AFCRC-1A was released from MIT - Lincoln to the Air Force in November. This document incorporates the four amendments to the original AFCRC-1 Exhibit and other changes in the equipment specifications which have evolved during the development period.

The Production Duplex System

A draft of AFCRC Exhibit 17 describing the present engineering concept for the Duplex System was released by MIT - Lincoln to the Air Force about the middle of December.

MIT and IBM engineering groups continue discussions concerning the planning of the system and concurrence on the specifications for various portions of the machine.

The results of a study concerning the power distribution system for duplex centrals were reviewed by MIT, IBM and Burns & Roe representatives. An agreement upon a power distribution system and the number of generating units was reached. This plan will be used starting with the fourth direction central, since it had been necessary to decide upon a slightly different scheme for the first three direction centrals in order to meet schedules.

Several committees have been considering in detail the work to be done in the period between delivery of equipment from the IBM plant at Kingston and the desired start of operations by the Air Force. Original schedules allotted eight months for this interval. Detailed considerations by the committees indicate that an eight months period is

extremely tight but may be realized if a large number of trained personnel is available to work on a well integrated program for both equipment installation and check of the programs.

To provide further assurance for the success of the program thru close coordination of planning and engineering work, a series of weekly meetings were started by a group designated as the Coordination Committee. These people include representatives from both MIT and IBM. The MIT representatives are Messrs. Forrester, Everett, Dodd and Taylor. The IBM representatives are Messrs. McElwain, Zollinger, Coombs, Crago, Cullen, Beattie, Fraser, Sampson and Burke.

Signed: A. P. Kromar

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