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Memorandum M-2633

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By: R.R. Everett  
Date: 2-1-60

Division 6 - Lincoln Laboratory  
Massachusetts Institute of Technology  
Cambridge 39, Massachusetts

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SUBJECT: BIWEEKLY PROGRESS REPORT FOR AN/TSQ-7 15 January 1954  
To: J. W. Forrester, R. R. Everett, Division 6 Group Leaders  
From: P. J. Gray

Release Procedure

Work has been progressing on preparing a procedure for obtaining Lincoln sign-off and release for construction of equipment by IBM. A tentative outline of this procedure is contained in Memorandum M-2620 dated January 11, 1954.

Inputs

The logical plan for handling input material having a slow data rate is still under consideration. It is felt that some saving in tubes may be achieved if this kind of information is handled in toggle-switch registers instead of having it go onto the input buffer drum.

It has been agreed that it would be desirable to make a study of the need for gas tube registers for use with light gun and other manual inputs. K. H. Olsen of MIT will undertake this study, and prepare information which will serve as specifications for basic circuit development if it is found desirable to include this feature in XD-1.

Outputs

The work on outputs will be planned and coordinated by a committee which will set up a program for items to be developed and handled by engineering between January and July 1954. This committee comprises D. C. Ross, R. P. Crago and B. Housman of IBM; R. Hopkins and R. Jeffrey of MIT. It is planned to develop and secure agreement on the output system design specifications by March 1, 1954, and determine the kinds of circuitry to be used in the output equipment by April 1.

Since the AN/TSQ-7 transmitting equipment appears to be unavailable in the initial time period required for operation of XD-1, representatives of Division 2 and IBM are to undertake development of a substitute system for ground-to-ground data transmission.

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A design specification for the display system, both tactical and DID, has been issued as M-2606 for review by IBM and MIT personnel. On completion of study and return of comments this specification will be revised as necessary and then used as a basis for concurrence by the Systems and Engineering Design Offices, and subsequently for a design release from Lincoln to IBM.

Corderman of Group 62 is in charge of all circuitry associated with display equipment. Newitt of Group 61 is responsible for the coordination of the activity for all other aspects of the display console design, including such features as layout and kinds of switches, lighting, etc. Newitt has issued M-2582 as a proposal covering module plan for display console design, including both scopes and switching units. Mock-ups of the equipment discussed in this proposal are available in the Barta Building for examination.

Power

Previous estimates on the reduction of cost of some of the power equipment (through the changes in specifications to simplify the individual items and to reduce automatic parallel operation) have been confirmed by a revised quotation for the M-G sets received by IBM. The price on these units has been reduced from \$21,000. to approximately \$13,000. each. Gano of MIT is preparing several reports covering power transformers, motor generator sets, D-C supplies with the related associated switching and control. In addition, a report covering the distribution system for power, including on-off switching, method of switching, marginal checking, release fusing, etc., will be issued.

Duplex Central

A recent meeting resulted in the following plan regarding incorporation into the XD-1 system of the various switching features required in a duplex central. Although XD-1 will not be a complete duplex central it is felt desirable to include as many of these switching features in it as possible. Primary importance will be placed on doing this work without introducing delay of engineering for XD-1. Release and construction of XD-1 will proceed without those features that can not be completed in time.

- (a) The logic and hardware necessary to switch the output from the display decoder of either computer A or computer B to the output system will be designed and built into XD-1. (The selection of hardware, i.e., relays and associated equipment, to perform the switching, still remains to be made.)

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Duplex Central (Continued)

- (b) A drum field will be designated for crosschecking between computer A and computer B. This field and the associated circuitry will be designed and built into XD-1.
- (c) The initial design considerations for the manual inputs were made after the duplex central idea had been evolved. Therefore, the presently contemplated design for manual inputs is compatible with a duplex central.
- (d) It is probable that facilities necessary to read from the radar input core counters into two computers will be built into XD-1. This decision, however, is not definite.
- (e) The marginal checking of the XD-1 central computer will be substantially the same as that for the duplex central. The marginal checking system of the XD-1 input-output equipment will not necessarily be the same as that to be used for the duplex central.

Pluggable Unit Construction

An order for forty 7-tube pluggable units has been placed. About thirty of these will be used in the construction of the instruction control frame, and are in addition to the standard 6- and 9-tube units. Orders have also been placed for the printed cards to be used in the instruction control frame. (The 7-tube pluggable units are used to hold the large 5998 tube used in the high power cathode follower.)

Signed:   
P. J. Gray

Approved:   
A. P. Kroemer

PJG/mmt

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