

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

SUBJECT: BIWEEKLY PROGRESS REPORT FOR AN/FSQ-7 (XD-1), AUGUST 21, 1953

To: AN/FSQ-7 Planning Group

From: A. P. Kromer, P. J. Gray

Equipment Power Supplies

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By: LLC:extt

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Specifications have been written for the large motor-generator sets and sent to manufacturers. Several quotations have been received and orders should be placed within a week. In addition, specifications have been sent to manufacturers for 400 cycle motor-generator sets to be used as the power source for high-voltage supplies.

#### Cooling Equipment

Work is starting on the preparation of a proposal for the cooling equipment for use in AN/FSQ-7. The design will take into consideration cooling of future production models as well as XD-1. Present plans call for the design and construction of a standby system, complete except for water tower, for AN/FSQ-7. Under normal conditions, the central cooling system for the entire Lincoln Laboratory will be used. The standby system, using city water, would be used during times when the central system is not running or is running too near its capacity. Joint meetings between MIT, IBM and Francis Associates, consultants, will be held next week to begin work on the equipment.

#### Arithmetic Element & Control

The model of the adder at IBM is not working at present. Design changes are currently under way to correct this situation.

An investigation of etched wiring has been underway at MIT for the past few weeks. A pluggable unit containing a high speed flip-flop using etched wiring and one employing conventional island construction were constructed and tested. As a result of the favorable performance of the etched wiring, a program will be initiated at IBM for the use of etched wiring in the equipment. Jim Lego at IBM has been assigned to lay out present circuits for etching. The actual fabrication will probably be done by the etched circuits group at IBM. Bill Hughes (IBM) is currently working on a design for incorporating etched boards in the pluggable units. It appears that the use of etched wiring will significantly shorten procurement time, in addition to its other advantages.

#### Maintenance & Operation Console

Work on the logical design of the console is progressing at IBM. It has been decided that cyclic programs will be used for test purposes. Various means of realizing these programs are currently being investigated.

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Input Buffer Drum

A discussion of the input system was held August 20. The following conclusions were reached:

- 1) A low-speed flip-flop development is justified if the write register on the drum can (as contended) be connected directly to the writing gates without using the intermediate cathode followers.
- 2) The In-Out registers and their control will be essentially as previously proposed.
- 3) The write registers will be shared between input fields.

Radar Inputs

A new block diagram for input counters has been received from IBM and is now under study. It appears that certain simplifications will be possible.


Auxiliary Memory Drum

The number of fields on the auxiliary memory drum for program and table storage appears to be inadequate. Wes Clark is looking into the matter and will present a recommendation as to the number of fields required. Dave Israel estimates that from 10 to 12 fields will be necessary.

Central Display Generator & Selector: Display Console

Several charactron tubes have been ordered from Convair for further study. Youtz, Corderman, and Group 25 are cooperating in this effort. Recent intensity tests on a P-7 scope have shown that intensifying a point for 5 microseconds and a 1/2" line for 20 microseconds produces satisfactory persistence at a frequency of once every 2 seconds. Other tests have shown that it is possible to have two intensity levels in the display system. A memorandum entitled "Recommendations Concerning Displays for the Transition System" has been received from Group 38. This concerns the psychological aspects of display. For details contact vonBuelow.

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