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

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**SUBJECT:** AN/FSQ-7 (XD-1) PROTOTYPE SCHEDULE AND INSTALLATION.

**To:** Lincoln Steering Committee

**From:** Jay W. Forrester

**Date:** 26 February 1954

As discussed at the last Steering Committee Meeting, I will summarize here the status of the XD-1 program and some future steps which we expect to take.

STATUS OF THE PROGRAM:

In 1952, a schedule for the prototype systems was made which called for completion of installation and testing by July 1955, at which time the XD-1 prototype was to be ready for use by the Cape Cod groups. Working back from this, various dates were set for specifications, design, construction, and test. A recent careful study of the present status indicates that the program is about four months behind schedule at the present time. In order to avoid losing more time and to make up any which is possible, we have been restudying the Lincoln Laboratory's part in the XD-1 program.

RESPONSIBILITIES TO BE ASSUMED BY DIVISION 6.

One way to relieve the overloaded condition of the IBM engineering in Poughkeepsie is for us to take formal responsibility for certain elements of the system which we are able to handle or which we would have done informally because of our capabilities or location. Consequently, we have agreed to handle the following:

1. Design of the central display frame part of the FSQ-7. This involves the scope deflection system and the controls that are associated with it and the display drum system. This arrangement seems reasonable since most of the work so far has been done here, and the

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group here is working closely with the IBM group in Endicott where the consoles themselves are being designed.

2. Lincoln will handle the design of the digital-data transmission system used for cross-telling between computers. This is the device for which Bell Laboratories' TSQ-7 was once proposed. It is a fairly simple device which involves primarily Lincoln Laboratory work and the telephone company.
3. Installation. We will take on the primary engineering responsibility for installation of the XD-1 in Building F at Lexington. I think this will not take more effort than it would have been required of us had IBM normally handled the work. This is an engineering job covering the wiring, wireways, air-conditioning, lighting, and actual placing of equipment in the building.

FINANCES:

IBM expects to pay or reimburse the costs incurred by us in the preceding three activities. This will not include staff and Lincoln personnel whom we have assigned to the program, but will include sub-contracts and outside hired services which we may employ. A problem arises of how to handle this expeditiously. IBM will place large sub-contracts directly and the sub-contractor will receive his instructions from us. These should include air-conditioning and electrical work. On small purchase orders, it will undoubtedly be necessary to place these through our own purchasing organization to avoid delays, and the question arises whether or not and how to have IBM absorb the costs. Harris Fahnestock is studying this.

ASSISTANCE FROM OTHER LINCOLN DIVISIONS:

Division 6 is heavily overloaded and will need any assistance which is possible. We will probably employ sub-contractor services wherever we can, but, in particular, would like help in two areas from other Lincoln Divisions.

1. From Division 7, we would like to have the full-time help of William Ahern for the next nine or ten months to the extent that he is not occupied with Building F in which the equipment is to be housed. We would like

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to have Ahern handle liaison between our program and that of Division 7, the architect, Francis Associates, and the builder.

Also from Division 7, we would like to have the full-time assignment of Philip Morrill as long as necessary on power and electrical work associated with the installation program.

From other divisions, we would like any assistance which is possible in staffing the XD-1 test program as equipment begins to arrive. This will occur some time about November, but any persons who are to be useful then should have a preliminary period of several months to study the equipment and to work on initial frame tests in order that they can be fully trained for usefulness when the peak load descends on us. It is in this testing phase of the program that we can have the greatest influence on the ultimate completion date of the system. We will attempt to run the test program on three shifts and with as many simultaneous teams as we can find manpower. Division 6 can provide the experienced men to guide this work but not sufficient engineers to work under them.

BUILDING F:

The lateness of the prototype program places greater, rather than less, urgency on Building F, since one of the possible ways to make up time is to bring equipment to Lexington early and do some of the testing here which would otherwise have been done in Poughkeepsie. There is every indication that the building will be needed earlier instead of later than the original schedule.

  
Jay W. Forrester  
Head, Division 6

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