

Memorandum 6M-4160

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

SUBJECT: MIT-IBM MAINTENANCE LIAISON MEETING NO. 1

To: Distribution List

From: C. W. Watt

Date: 18 February 1956

Approved:   
J. A. O'Brien

**Abstract:** Meetings between MIT-IBM personnel will be held periodically to discuss equipment troubles. This meeting was the first of the series; tape drive troubles and XD-1 maintenance policy in general were discussed. IBM believes that the practice of cleaning the tape mechanism every 8 hours will markedly reduce tape failures, which caused about 25% of all MIT lost time in January. It was agreed that Group 67 and IBM would work closely to try to determine the exact nature of tape failures. In the future when errors of any sort appear in XD-1 a serious attempt will be made by IBM Maintenance personnel to correct them on the spot rather than wait until routine maintenance periods.

Distribution List

Those Present	H. D. Benington
N. H. Taylor	W. J. Canty
J. F. Mills	E. S. Rich
R. W. Bottomley	

A meeting was held Thursday, 8 February, between representatives of MIT and IBM to air some of the equipment troubles that have been causing lost time during the past month or two. The following people were present:

<u>IBM</u>	<u>Group 67</u>	<u>Group 62</u>	<u>Group 60</u>
R. E. Butler	P. R. Vance	C. W. Watt	N. T. Jones
F. A. Weber	W. Ball	J. A. O'Brien	
R. W. Shur	J. McGovern	P. Harris	
T. A. Puorro			
F. M. Dellinger			
R. C. Irwin			

The subjects discussed were:

1. IBM Tape Drive Troubles
2. Establishment of a new policy of trouble correction during scheduled operating time.
3. Establishment of periodic meetings for maintenance liaison

#### I. IBM TAPE DRIVE TROUBLES

The importance of magnetic tape as a storage medium in XD-1 has constantly been increasing and it is now being counted on so heavily that unreliability of the tape equipment would make preparation of the master program very difficult, if not impossible. All utility programs which will be used in the assembly and checkout of the master program will be stored on tape. During January, approximately 25% of the time lost by MIT operators was due to tape difficulties. The question arises therefore whether or not this is a transient condition or one that is likely to continue. Discussion brought out the following facts:

1. When Group 67 started to use the tapes they were unaware of some of the precautions that must be taken in using them. When their programs were modified as suggested by IBM improved operation resulted. Present programs are so arranged that if a parity error occurs in reading a particular record, the tape automatically reverses at the completion of reading and returns to the starting point. A second pass is attempted and if successful readout occurs, the program continues. If a second parity error occurs, a third pass is tried and after the third unsuccessful readout attempt, the program halts. A record is kept in the program of the number of halts that occur for this reason, but no record is now kept of how many tape parities actually occur. It was suggested that IBM and Group 67 jointly work out a programmed method of counting tape parities and of determining the types of errors that actually occur. This work will be done by collaboration between Shur and Vance.

2. IBM pointed out that up until recently their standard procedure had been to clean the tape transport mechanism and the reading heads every 24 hours in accordance with recommendations made by Poughkeepsie. Recent recommendations, however, have been made that this cleaning job be done every eight hours, and such routine cleaning has been instituted in XD-1. Apparently this has improved the tape situation considerably because in the past two weeks tape parities have dropped significantly although no quantitative figures were immediately available. The number of tape errors compared with errors causing lost time in other portions of the machine are illustrated graphically for the month of January in the attached figure.
3. Some discussion was held on the mechanics of tape errors. The majority of errors due to the tape drive itself appear to be lost bits. When ones are picked up these appear to be almost always due to external influences causing transients of one sort or another.

## II. ESTABLISHMENT OF NEW POLICY ON TROUBLE CORRECTION

In the past, the practice has been for the IBM shift supervisor to evaluate troubles as they occur and if it appears that the correction of the troubles will take more than a few minutes to postpone such correction until the routine maintenance period at night. O'Brien presented the idea of changing this general policy and, while still leaving the decision up to the IBM shift supervisor, to make the practice in general to be that of tracking down the trouble when it appears even if it takes all of the scheduled time for a particular user. In this way, the trouble will be investigated by the same people who detect it and the problem of communication between shifts will be reduced or eliminated. Group 67 agreed that this be done, for in the past troubles have sometimes continued to recur from day to day causing perhaps more lost time over a period of weeks than if the time necessary to find the trouble had been taken in a block when the trouble was detected. It was agreed that this would be the policy in the future and that the IBM shift supervisors will be so informed.

## III. ESTABLISHMENT OF PERIODIC MEETINGS FOR MAINTENANCE LIAISON

It was agreed that periodic meetings between MIT and IBM personnel would be useful in bringing to light and highlighting any areas in which persistent troubles occur. These meetings probably will be held biweekly but at the start we will hold meetings every week. The next one will be Thursday, 16 February, at 9:30 AM in B-210.

Attachment: A-75933

Signed: C. W. Watt

C. W. Watt

CWW:eta

TIME LOST IN VARIOUS AREAS OF XD-1 JAN, 1956

