technical memo

HARDWARE INFORMATION, CUSTOMER SUPPORT HICS.4

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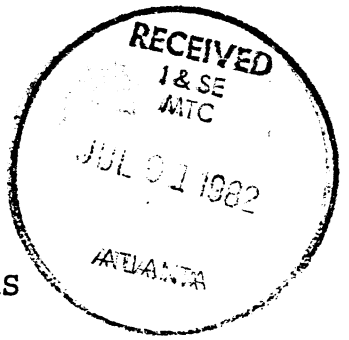

TO: LOTUS 700 Disc Controller Users

FROM: Hardware Customer Support

DATE: June 23, 1982

SUBJ: TECH TIPS ON LOTUS 700 HEAD SELECT PROMS AND GENERAL USAGE

I. HEAD SELECT PROMS--BOARD LOC. 22C

Table 1 lists common disc drives by manufacturer and model number and shows the associated prom codes.

A. The LOTUS 700 has four ports and the head select prom may be programmed for any mixture of drive types.

B. The codes used on the prom indicate the type of drive (SMD or CMD) and how many data heads can be selected.

C. The 'F' prom may be used for all versions of the CDC 9448 and Ampex DFR 996 drives.

D. When ordering head select proms, check the selections available in our Master Prom Set. Approximately 60 different combinations are available. If you can use one of them, it will save several weeks delay for burning a new prom.

E. For a good versatile prom use:

1. Code 'S' for any SMD, FMD, MMD, or LMD drive. This allows selection of any number of heads up to 19.

2. Code 'F' for any CMD-type drive. This allows up to 6 heads.

NOTE

When using a prom that allows you to select more heads than your drive has, you still select the correct parameters or mnemonics for your exact drive.

TABLE 1. COMMON DISC DRIVES

Name	Storage (MByte)	Type	Prom Code	No. of heads
Century Data				
Trident T82	80	SMD	E	5
Trident T302	300	SMD	S	19
Control Data				
9448	32,64,96	CMD	F	6
9455(LARK)	16	SMD	4	4
9762	80	SMD	E	5
9766	300	SMD	S	19
Ampex				
DM980	80	SMD	E	5
DFR996	32,64,96	CMD	F	6

II. PROM TEST

To determine prom coding and whether it is working properly, run the LOGIC TEST of the controller diagnostics (DC700). The test prints out a mapping of the head select prom (loc. 22C) and the sector prom (loc. 19C).

EXAMPLE:

PROM TEST RESULTS

DRV	LAST SECTOR	LAST SURFACE VOL 0	VOL 1
0	31	4	65535
1	31	18	65535
2	31	0	4
3	31	3	65535

where:

All numbers are counting from zero (0).
DRV is the port number on LOTUS 700 controller.
LAST SECTOR is the number of sectors; 31 (counting from zero) indicates 32 sectors.
LAST SURFACE:

VOL 0	VOL 1	DRV TYPE	PROM CODE
4 (5 Heads)	65535 (no heads)	80-MB SMD	E
18 (19 Heads)	65535 (no heads)	300-MB SMD	S
0 (1 Head)	4 (5 heads)	96-MB CMD	F
3 (4 Heads)	65535 (no heads)	16-MB LARK	4

VOL 1 applies only to CMD-type drives. For an SMD drive, 65535 will always appear in this column.

III. DISC DIAGNOSTICS (DC700 PROGRAM)

A. The DRIVE TEST writes on all surfaces of the disc so back-ups must be performed before running the test.

B. To run the LOGIC TEST, the drives must be off line and the I/O cables may have to be disconnected.

IV. DISCUTILITY PROGRAM

A. If, while doing a format, you have a 'hard error' always 'chain', do not 'flag' the error.

B. All existing data is written over when formatting, so back-up all disc packs before formatting.

C. If, at the beginning of a format, you get an "Illegal Command" error, it may mean the cables are connected incorrectly or the HEAD SELECT PROM is for another type drive.

D. DISCUTILITY Revision 1.4--Patches

1. Selecting all surfaces when formatting or copying an SMD-type drive may result in an R/W timeout. To alleviate the timeout, make the following patch to DISCUTILITY:

Location	New Contents	Old Contents
1676	776	14112

NOTE

If the program loops between location 1674 and 1676 after this patch is made, it indicates the 'done' bit is not being set.

2. Format and analysis on large megabyte drives requires considerable time. Normally, hard errors become apparent prior to the third pass of the surface analysis. The time required may be reduced by changing the number of analyze passes; make the following temporary patch to DISCUTILITY:

Location	New Contents	Old Contents
54	3	10

V. GENERAL USAGE NOTES

A. Another brand or type of disc controller can be used concurrently with a LOTUS 700 if its device code is other than 27.

B. Drives must be set up for 32 sectors for a LOTUS 700 controller.

C. A disc drive being used with an MCT SMC-902 controller is set for 33 sectors; the sectoring will have to be changed before using the LOTUS 700 controller with that drive.

D. A LOTUS 700 will not work with a Century Data TTL interface (T50, T80, T300). It will work with the SMD interface (T52, T82, T302).

E. Disc packs formatted with any other brand of controller are 'not' compatible with the LOTUS 700 format.