# MASS MEMORY II ROM


INCLUDES

SELECTIVE CATALOG OPERATING INSTRUCTIONS

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## INTRODUCTION

The Infotek Mass Memory II ROM and Bootstraps provide a significant increase in the efficiency of operation and hence, the speed of execution of Mass Memory instructions associated with the Hewlett-Packard Model 9880 A/B Hard Disk Memory System.

The Mass Memory II System achieves its functions by precluding unnecessary disk system mechanism operations through a combination of software improvements in the Mass Memory II ROM and Bootstraps. In order to achieve these objectives, it is necessary to utilize a segment of memory addresses in the HP-9830A/B READ/WRITE Memory which previously were unavailable. By utilizing this block of memory locations, the most frequently used Mass Memory instructions such as MAT READ, MAT PRINT, FILES, and IF END, are defined in the 9830A/B resident memory for instantaneous access. Previously, the definition of these instructions had to be found and retrieved from the bootstrap area of the disk system.

In order to gain access to the unused block of READ/WRITE memory addresses, it was necessary to design a "smart" memory controller for the 9830. The facilities to accomplish this are unavailable in the HP memory controller (M register board). Accordingly, the Infotek Mass Memory II ROM requires Infotek's EM-30B 32K Byte Extended Memory. A 16K Byte EM-30B cannot be used because the available segment of memory required by Mass Memory II is accessible only when more than 30K bytes of READ/WRITE memory are installed. This is because the unused block of memory locations have absolute addresses above the 30,000th byte of memory. Consequently, the HP-30K byte B Model Memory similarly will not function with Mass Memory II. Also, Infotek's "A" Model M register board will not function with Mass Memory II. 9830 systems equipped with Infotek EM-30A must have the M register board replaced with the B model M register.

## INSPECTION AND UNPACKING

The MM-II ROM has been thoroughly inspected and tested prior to shipment and is ready for operation when received. However, before installation and use, the MM-II ROM should be inspected for any possible damage incurred during shipment.

If shipping damage has occurred, it is necessary to retain the packing container.

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## TABLE OF EQUIPMENT SUPPLIED

| ITEM | DESCRIPTION | QTY. |
|---|---|---|
| 1 | Mass Memory II ROM Model MM-II | 1 ea. |
| 2 | MM-II System Tape | 1 ea. |
| 3 | Instruction Manual | 1 ea. |

## INSTALLATION

1. Confirm that the HP-9830A/B is equipped with Infotek's EM-30B Memory.

2. Install the Infotek Mass Memory II ROM in place of the HP Part No. 11273B Mass Memory ROM. As previously, the Mass Memory II ROM must occupy the top external ROM location.

3. Following the procedures set forth in the HP-9880 Mass Memory Systems Manual (see pag 1-12), transfer the Infotek bootstraps to your disk. You need not be concerned that data will be lost or altered during the rebooting operation because only the tracks and sectors associated with the system bootstrap area are referenced. Short of random failure of the disk system itself, there is no danger of loss or alteration of data.

## OPERATIONS

The Hewlett-Packard Mass Memory operations are initialized when machine power is first applied. The Infotek Mass Memory II, because it transfers a large block of instructions from disk to resident memory, requires an initialization statement to accomplish this transfer. This is done by executing a FILES* statement. If a program contains a FILES statement preceding any other disk operation, you need only GET the program and run it. However, if disk operations are to be performed immediately following an initial power-up, it is necessary to execute a FILES* statement from the keyboard. This operation transfers resident bootstraps and initializes the Mass Memory II System. Thereafter, the system will remain initialized even if binary programs are loaded or SCRATCH/ALL executed. Only an interruption of input power can cause the resident bootstraps to be lost. In such an event, a FILES* statement must be executed.

The Infotek Mass Memory II System assumes that the disk contains the corresponding Infotek bootstraps. In multiple drive systems, all disks must be re-booted. If a disk is not re-booted, the system may be operated by removing the Infotek Mass Memory II ROM and installing the original HP Mass Memory ROM. A multi-disk system using a mix of Infotek and HP boostrapped disks WILL NOT FUNCTION. However, while such mix in non-functional and will produce random results, including loss of machine control, over-writing of data will not occure.

## INITIALIZING A NEW DISK

The MM-II Systems tape will initialize a new disk in the same manner as the HP Mass Memory Systems Tape. The binary file on FILE 60 is the beginning of the initializing process.

## LOADING THE BOOTSTRAPS

The Infotek MM-II ROM uses the bootstraps provided on the Infotek Systems tape. If requested, the MM-II systems tape will be supplied on floppy disk! MM-II will NOT work with the HP bootstraps, therefore, it is necessary to re-boot all disks with the new bootstraps. The procedure is the same as for the HP systems tape as described in the HP 9880 operating manual. The re-booting of a disk WILL NOT affect any existing data on the disk.

### TO BOOT FROM CASSETTE

1. Insert Infotek Systems Tape
2. LOADBIN 2
3. UNIT #
4. BOOT

### TO BOOT FROM FD-30 FLOPPY DISK

1. Insert Infotek Systems Floppy
2. LOADBIN#SC,2
3. UNIT #
4. BOOT SC
   SC = Select Code of FD-30

### TO VERIFY FROM CASSETTE

1. LOADBIN 3
2. UNIT #
3. VERIFY

### TO VERIFY FROM FD-30

1. LOADBIN#SC,3
2. UNIT #
3. VERIFY SC
   SC = Select Code of FD-30

## NEW MM-II COMMANDS

The following are a list of commands unique to MM-II. These commands are in addition to the commands normally found in the HP Mass Memory ROM.

1. KILLS, "file name" - This command "kills" the program contained in quotation marks, performs DAVTP (if 770 words of memory are available) and saves the program in memory under the same name.

2. SAVEB, "file name" - Allows a binary program to be stored on the 9880. These programs will be identified as a file Type B in the catalog.

3. GETB, "file name" - Gets a binary program from the 9880.

4. DPACK - This statement is programmable and performs a REPACK only if 1,856 words of READ/WRITE memory are available in the 9830. The DPACK does not erase memory nor does it require a binary program.

5. OPEN "file name" - In an OPEN statement, when the number of records is unspecified, the MM-II ROM will open the largest file possible. Using the FSIZE statement of FBI, the size of the record opened by the new default mode of the OPEN statement can be conveniently determined, or the catalog may be run.

6. RXREF - Used in conjunction with the Infotek FB-III ROM, MM-II eliminates the need for the binary program which is provided with FB-III ROM. See the FB-III ROM manual for an explanation of RXREF.

7. DCOPY, "1st file name", unit number, TO "2nd file name", unit number. Simple variables are now permitted for unit numbers. Subscripted variables are not allowed.

8. PLATTER DUPLICATE - A record-by-record verification of the destination platter is now incorporated.

## DAVTP

The DAVTP instruction is not used in the Mass Memory II System. The equivalent of this instruction is executed each time a file is killed or resaved (KILLS). This "automatic" DAVTP will be executed whenever 770 words or more of READ/WRITE memory are

available. Should a DAVTP be required and 770 words of memory are not available, the data or program in READ/WRITE memory, must be temporarily stored on the disk, the machine memory cleared and a KILL operation executed. It may be necessary to open a temporary one record file to accomplish this.

A recommended procedure is to execute a SCRATCHALL and SAVE the following program.

```
10  REM DAVTP DUMMY FILE

20  END
```

Now execute a SAVE "DAVTP". Each disk should have this or a similar file. If you suspect that all KILL or KILLS operations during the course of a day's activities had not resulted in an availability table repack (DAVTP), it is a recommended procedure to GET and KILLS, the DAVTP file.

## PLATTER DUPLICATION

File 1 on the Mass Memory II System's tape is a binary program required to perform a PLATTER DUPLICATION. Rather than bring this program in from the systems cassette each time, it is recommended that it be stored on every platter and retrieved from the platter as necessary, using the new SAVE BINARY and GET BINARY capabilities of the Mass Memory II. Save the PLATTER-DUPLICATE binary utility on the disk by performing a LOAD BIN 1 from the systems cassette followed by SAVEB,"PDUP".

## SELECTIVE CATALOG


For the selective catalog listing described on page 5 a binary program is required. Two copies of the binary utility program are located on files 100 and 101 of the systems cassette. The binary file is usually stored on a disk as SAVEB,"SCATBU". The selective catalog also requires a basic program. Two copies are stored on the systems cassette in files 102 and 103. While the selective catalog binary utility is still in memory, load file 102 or 103, the selective catalog basic program and perform a straightforward save "SCAT".

# SELECTIVE CATALOG

This program requires the following ROMS; Strings, Matrix, Extended I/O, AP-III, FBI, FBIII, MM-II and EM-30B (32K bytes).

| From Systems Cassette | From 9880 If Previously Stored |
|---|---|
| 1. LOAD BIN 100 or 101, EXECUTE | 1. GETB, "SCATBU", EXECUTE |
| 2. LOAD 102 or 103, EXECUTE | 2. GET"SCAT", EXECUTE |

3. RUN, EXECUTE
   DISP "CATALOG MASS MEMORY FILES"

4. DISP "ENTER PRINTER SELECT CODE?"
   RESPONSE: TYPE IN SELECT CODE OF PRINTER & EXECUTE

5. DISP " UNIT NUMBER TO CATALOG?"
   RESPONSE: TYPE IN UNIT NUMBER BETWEEN 0 AND 3, EXECUTE

6. DISP "SORT BY FILE NAME?"
   RESPONSE: "YES" - GO TO 7
   "NO" - GO TO 10

7. DISP "LETTER TO BEGIN LISTING?"
   RESPONSE: FOR ENTIRE ALPHABETICAL LISTING PRESS SPACE BAR, EXECUTE.

   FOR LISTING BEGINNING WITH ANY OTHER LETTER, PRESS THE LETTER AND EXECUTE.

8. DISP "NAME, TIME & DATE (32 CHARS.)?"
   RESPONSE: TYPE IN ANY INDENTIFYING INFORMATION UP TO 32 CHARACTERS AND EXECUTE.

9. GO TO 13

10. DISP "SORT BY FILE ORIGIN?" - Prints files in the order in which they were stored on the disk by track and record number.
    RESPONSE: "YES" - GO TO 8
    "NO" - GO TO 11

11. DISP "ENTRY NUMBER TO BEGIN LISTING?" - Prints out the directory starting at any entry point.

    RESPONSE: NUMBER BETWEEN 1 and 768, GO TO 12.

12. DISP "KILL UNPROTECTED AND LISTED FILES?"
    RESPONSE: "YES" - KILLS ALL FILES THAT ARE UNPROTECTED BEGINNING WITH THE SPECIFIED ENTRY NUMBER.

    "NO" - GO TO 13

13. THE CATALOG IS PRINTED.