MX-30 FAST PROCESSOR

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INTRODUCTION

The Infotek MX-30 Fast Processor converts your 9830 from an 8-bit serial processor to a 16-bit parallel processor. The processor incorporates a sophisticated bit slice technique ensuring your 9830 a place with the current "state of the art" desk top computers.

Extreme care was taken throughout the design process to maintain 100% software integrity and 100% peripheral compatibility.

INSPECTION AND UNPACKING

The MX-30 has been thoroughly inspected and tested prior to shipment, and is ready for operation when received. However, before installation and use, the MX-30 must be inspected for damage incurred during shipment.

WARRANTY

Infotek Systems warrants the MX-30 to be free of defects in material and workmanship for a period of one year following receipt by the original purchaser. This warranty covers the repair or replacement, at Infotek's option, of said product if it fails during the warranty period. This warranty does not cover physical damage resulting from abuse or modification.

Any Infotek product returned under warranty must be adequately packaged for the method of shipment selected and must be shipped with transportation charges prepaid. Recovery for loss or damage in shipment shall be the sole responsibility of the Buyer.

CAUTION

The calculator boards are easily damaged by static electricity. Wrap boards completely in aluminum foil before packing. Failure to do so could VOID WARRANTY.

TABLE OF EQUIPMENT SUPPLIED

Qty.	Description	Infotek Part #	Coloring of Extractor Handles
MX-30 Fast Processor			
1	I/O Register Board	13074	Brown/Brown

1	Basic ROM Board	13706	Brown/Red
1	M Register II Board	13731	Red/Gray
1	T Register II Board	13729	Orange/Gray
1	32K Mem Board	13237-1	Yellow/Gray

MP-30 I/O Processor

1	Mass Memory I/O Processor	13138
1	Systems Test Tape & Manual	

Opt. 100 Memory Expansion

1	64K Memory Board	13237-2	Yellow/Gray
	Delete 32K Mem Board	13237-1	

Accessories

1	Triple Connector	13083	Ribbon Cable
2	Dual Connector	13084	Ribbon Cable
1	Screwdriver		
1	Manual "MX-30"		
1	MX-30 Air Baffle	13171	
1	Yellow Warranty Card		
1	System Test Tape		

INSTALLATION

CAUTION

The MX-30 Fast Processor will not function with the Hewlett-Packard Memory boards or Hewlett-Packard ROMs. Any attempt to operate the MX-30 Fast Processor with Hewlett-Packard Memory may damage the MX-30, and the calculator.

GENERAL

Installation of the MX-30 Fast Processor system requires removal of the designated plug-in circuit cards and replacing them with FP-30/MX-30 cards. The FP-30/MX-30 circuit cards have color-coded extractor handles and edge connectors which are keyed to fit the same sockets as the H-P circuit cards.

IT IS NOT POSSIBLE TO INSTALL A CARD THAT MAKES CONNECTION TO AN IMPROPER MATING SOCKET.

A. Removal of Hewlett-Packard Circuit Cards.

1. Position input power switch to OFF.

2. Remove input power cord from wall outlet and power jack at the rear of the 9830A/B.

3. Remove any I/O cards and cables connected to the 9830.

4. Lift thermal printer (9866A/B) and Infotek Floppy Disk (FD-30A/S) if your 9830 is so equipped, and place to one side.

5. Using the screwdriver supplied with MX-30, remove the six screws from the top cover of the calculator.

6. Using the plastic handles at the back of the cover, slide the cover about two-thirds of the way back.

7. Remove the single screw that retains the two crossed aluminum brackets. These brackets are not used with MX-30 in place. There is no risk that the boards will loosen unless the unit is shipped.

8. Refer to Fig. 1 for drawing of the 9830 and for location of major components.

9. If the Infotek MX-30 processor is installed, go to Section B.

10. If the Infotek AM-30 memory is installed, go to step 11. You can tell if the Infotek Memory is installed by removing a board from location 3 (note its location) and locating the model number which should read 13237-1-rev(). If the right Memory Board is installed go to step 11. If the model number is not found remove the board from location 3 (and location 2 if you have HP MEM or EM-30B).

11. Beginning with location 4, remove ALL boards through location 10 by raising the extractor handles and pressing outward with even pressure. The cards will resist for the first 1/4 inch of travel. Lift card from slot and place to one side.

12. Remove all ROMs in locations 13, 14, 15 and 16 and ROMs in the External ROM slot.

13. DO NOT REMOVE HP BOARD IN LOCATION 17.

14. Go to Section C.

B. Removal of Infotek Systems FP-30 Fast-Processor Cards

1. Remove ribbon connectors, CAREFULLY!

2. Remove 1 or 2 memory boards in locations 2 & 3.

3. Moving toward keys, remove 4 boards.

4. Remove all ROMs (Note: Infotek Systems FB-IV, FB-V and ROM Clock are MX-30 compatible; it may remain)

IMPORTANT

Do not use HP ROMs with the MX-30!

C. Installation of MX-30 Circuit Boards.

1. Locate Infotek I/O Register Board #13074 (the model number is found on the upper left-hand corner of the component side of the ciruit board).

2. Install the FP/MX-30 I/O Register in location 10 with the components facing the rear of the 9830 as follows:

a. Position the circuit card over the card guide with the component side of the card facing to the rear of the calculator. Confirm that guide and handle color match.

b. Carefully lower circuit card down the guides and into the connector well until contact is made with the connector.

c. Apply even pressure with the thumbs to the top of the handles to seat the circuit card in the connector. The card is fully seated when the card moves approximately 1/4 inch down after pressure is exerted.

3. Similarly, install the MX-30 Basic ROM Board #13706 in location 6.

4. Install the MX-30 M-Resister II Board #13731 in location 5.

5. Install the MX-30 T-Register II Board #13729 in location 4.

6. If you did not order MX OPT 100 and had already an AM-30 board 13237-1 go to 7. Install the Memory Board #13237-1 (32K) or #13237-2 (64K) identified by a yellow handle on the left side and gray handle on the right side, in location 3. Confirm that the colors of the handles match the color of the guides. This card is the only Memory card required for 64K bytes R/W.

7. Install the I/O Register Cable (identified by 4 inches of ribbon cable with 3 connectors attached). The cable is installed by grasping the single connector end between the thumbs and forefinger of both hands and pressing over the contacts on the I/O Register (location 10). The dual connector end is secured simultaneously to the M-Register (location 5) and T-Register (location 4).

8. Install the two remaining M-Register/T-Register cables to the connectors between locations 5 and 4.

9. Install the MX-30 Air Baffle between location 11 and 12 with the slot toward the front of the calculator.

10. Install the Infotek MX-30 ROMs (designated MX-30) in their appropriate slots. External ROMs may go in any External ROMs location and Internal ROMs may fit in locations 13, 14 or 15. The MX-30 FB-II ROM goes in location 16. MX-30 ROMs integrated onto the Basic Rom Board will be installed by the factory. NOTE: Infotek Systems does not provide manuals for the HP compatible ROMs contained in MX-30. Manuals may be ordered from your local Hewlett-Packard sales office using the part numbers listed in Appendix A.

11. INSPECT AND VERIFY THAT ALL CIRCUIT CARDS AND CABLES ARE FULLY SEATED IN THE CONNECTORS.

12. DO NOT replace aluminum brackets.

13. Slide cover forward and secure with six screws.

14. Replace thermal printer and floppy disk on calculator.

15. Verify input power switch is in OFF position.

16. Reinsert I/O cards.

17. Connect power cord to calculator and then to wall outlet. This completes the installation.

CAUTION

When power is first applied to the HP-9830A after installation of the MX-30, watch for the lazy T on the display. If it does not appear when the ON/OFF switch is placed in the ON position, immediately place switch to the OFF position and refer to the Troubleshooting prodecure.

OPERATION

PROGRAMMING

The MX-30 does not require modification of any HP-9830 program or peripheral interfaces. All programs which previously functioned with the Hewlett-Packard Processor will function exactly as before, the only difference being that the execution times will be significantly shorter.

DIAGNOSTICS

The Infotek MX-30 system test tape contains two binary test programs. Both are stored on file 0 and again on file 1. LOADBINO CPUTEST EXECUTE tests the central precessor within the calculator. The calculator should repeatedly display PRECESSOR TEST OK then beep until the STOP key is pressed. Pressing any other key will change the test to fast mode, the display will be blank, and the calculator will beep at the end of each pass. Any error messages displayed while attempting to run CPUTEST will require the MX system to be returned to Infotek for repair. Please call Infotek for a return authorization number prior to returning. THE CALCU-

LATOR BOARDS ARE EASILY DAMAGED BY STATIC ELECTRCITY. Wrap completely in aluminum foil before packing. Failure to do so could void warranty.

LOADBINO MTEST EXECUTE (or LOADBINO CPUTEST EXECUTE STOP MTEST EXECUTE) tests the read/write and memory read only memory boards and any internal or external plug in ROMs within the calculator. The calculator normally will display MEMORY XXXXXX OK where XXXXXX is an ascending sequence of memory addresses. For a 64K byte system the highest number displayed should be 17777. For a 32K byte system 137777.

TROUBLESHOOTING

Check all boards and cable assemblies to insure that they are installed correctly and fully seated. If the Lazy T still does not appear, remove all MX-30 boards and reinsert to insure proper contact. If, after applying power the "Lazy" T still does not appear, or erroneous operation occurs, replace the MX-30 with Hewlett-Packard Processor boards by reversing the procedure followed during the MX-30 installation. Remeber that Hewlett-Packard systems using only one Memory Board, require that the board be installed in the REAR memory card slot.

If you still do not get a "Lazy" T contact your INFOTEK representative or INFOTEK directly for immediate assistance in the repair or replacement of the MX-30. If normal operation is not restored after replacing the HP memory, arrangements should be made for service by Hewlett-Packard, as the problem exists in some part of the machine unrelated to the processor.

SYSTEMS TEST

If the "Lazy" T comes on when power is applied but the machine operates incorrectly, install the MX Test cassette and execute LOAD BIN 0. Follow the instructions under diagnostics. Note any messages that appear which are different than those expected. (Use PRT-ALL). Replace the MX-30 with the Hewlett-Parkard boards and repeat the test, using the HP SYSTEMS test cassette. If the machine functions normally, contact you INFOTEK representative. If the machine continues to malfunction with the HP Processor, Hewlett-Packard service is necessary.

APPENDIX A

Additional manuals for the ROMs contained in MX-30 may be obtained from your local Hewlett-Packard sales office using the part numbers listed below.

INFOTEK	DESCRIPTION	HP MANUAL PART NUMBER
MX-Integrated	Matrix	09830-90004
MX-Integrated	Plotter	09830-90003
MX-Integrated	Extended I/O	09830-90029
MX-Integrated	String	09830-90002
MX-77	Terminal I	09830-90010
MX-78	Batch Basic	09830-90011
FP-79/MX-Integrat.	Advanced Programming I	09830-90016
MX-83	Printer-Plotter	09830-90067
FP-89/MX-Integrat.	Advanced Programming II	09830-90019
MX-96	Data Com I	11285-90005
MX-97	Data Com II	11285-90006
MX-98	Data Com III	11285-90007

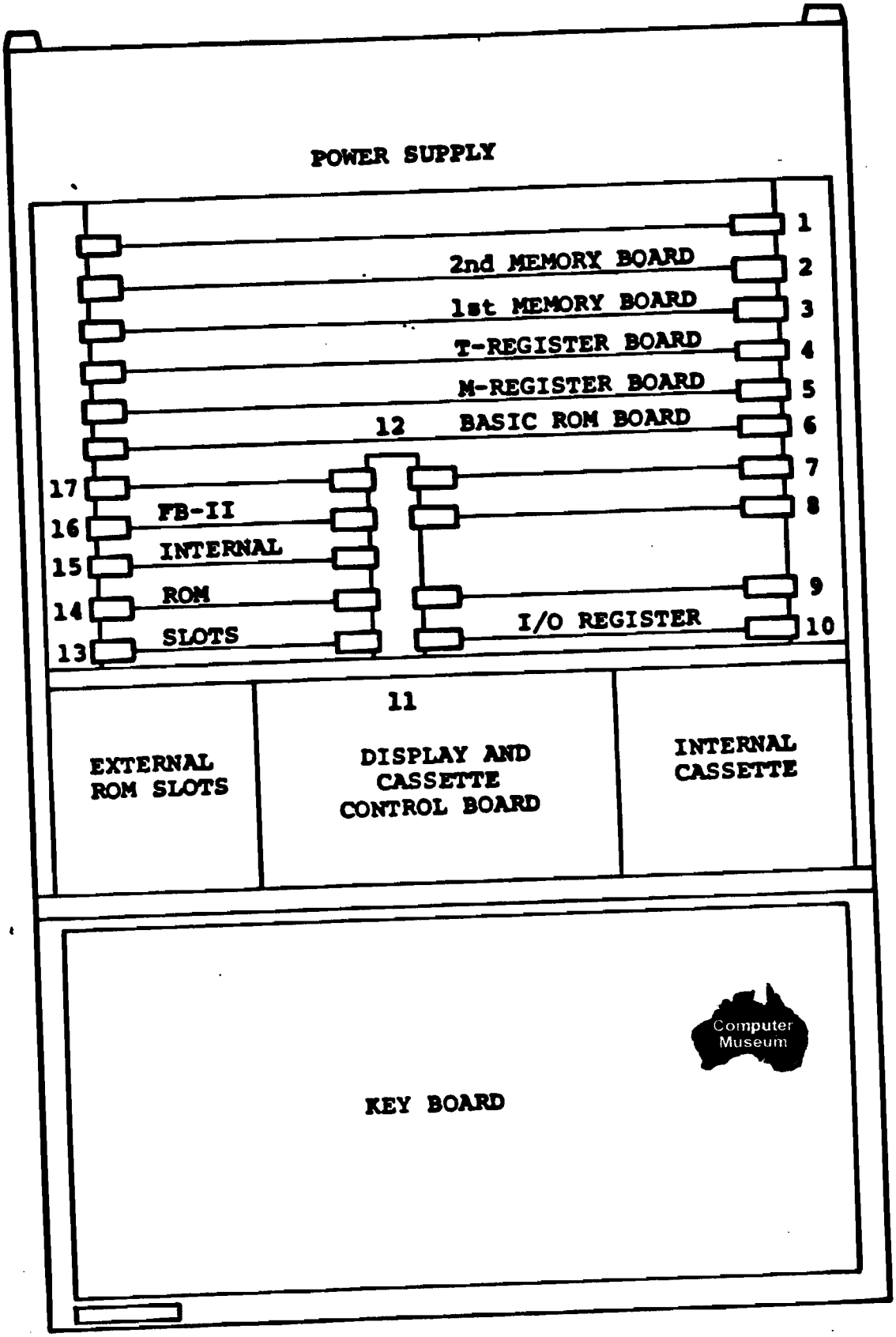
POWER SUPPLY
1
2nd MEMORY BOARD
2
1st MEMORY BOARD
3
T-REGISTER BOARD
4
M-REGISTER BOARD
5
12
BASIC ROM BOARD
6
7
17
8
FB-II
16
INTERNAL
15
9
ROM
14
I/O REGISTER
10
SLOTS
13
11
EXTERNAL ROM SLOTS
DISPLAY AND CASSETTE CONTROL BOARD
INTERNAL CASSETTE
Computer Museum
KEY BOARD

FIGURE 1