

HP 12945A
User Control Store Board
installation and service manual



HEWLETT-PACKARD COMPANY
11000 WOLFE ROAD, CUPERTINO, CALIFORNIA, 95014

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MICROFICHE PART NO. 12945-90002

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INTRODUCTION

This manual provides installation instructions and service information for the HP 12945A User Control Store Board, which is an accessory for the HP 21MX Computer Series. Additional information is provided in the following manuals:

- HP 21MX Computer Series Installation and Service Manual, part no. 02108-90006.
- Microprogramming 21MX Computers Operating and Reference Manual, part no. 02108-90008.
- HP 12909B pROM Writer Operating and Reference Manual, part no. 12909-90009.

DESCRIPTION

The user control store board includes 12 integrated circuit (IC) sockets to accommodate two modules of control store. Each module of control store requires six read-only-memory (ROM) IC's which have been tested, burned, and verified according to the user's need.

The 4096 words of addressable ROM are divided into sixteen 256-word modules: module 0 through module 15. Modules 0, 1, 14, and 15 hold the HP 21MX instruction set and are not available to the user microprogrammer. Modules 12 and 13 are reserved exclusively for user microprograms. Any other control store space not filled by microprogrammed option is available to the user microprogrammer. Figure 1 summarizes the allocation of control store.

The HP 12945A User Control Store Board Accessory Kit consists of the following:

DESCRIPTION	HP PART NO.	QUANTITY
Screw, machine, pan-head, 6-32, 5/16 in. (with captive lock washer)	2360-0115	3
Wire, jumper	8159-0005	3
User Control Store Board	5060-8391	1

INSTALLATION

Figure 2 shows the locations of the module jumpers and ROM IC's. The shaded area shows the location of each ROM. Table A on figure 2 gives module jumper connections and table B lists the locations of each ROM IC and its assigned 4-bit set. Proceed as follows:

- On the user control store board, load the 12 ROM IC's into the 12 IC sockets. Ensure that the IC's are

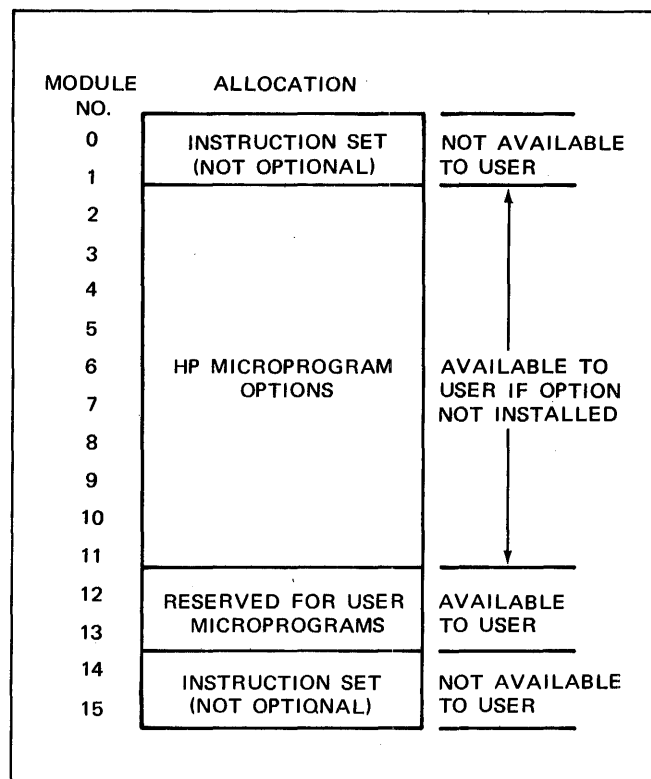


Figure 1. Control Store Module Allocation

oriented with the notched ends facing in the same direction as U1 and U8.

- Solder jumpers W1 through W3 into positions for the desired module or modules. If module(s) 12 and/or 13 is selected, for example, the jumpers are soldered into positions as indicated by the solid lines in figure 2, detail A.

WARNING

Hazardous voltages are present inside the processor mainframe!! Before installing the user control store board, set the \sim LINE and BATTERY switches to OFF and DISCONNECT THE POWER CORD!! Failure to observe this precaution can result in serious injury or DEATH!!

- Set \sim LINE and BATTERY switches to OFF and disconnect the power cord.
- Disconnect I/O extender cable assembly (if present) from CPU PCA edge connector.
- Loosen screw located in rear fold of bottom cover; slide cover toward rear and remove.
- Connect P1 of user control store board to J2 of existing control store board (A7 or A8). Secure user control store board to standoffs with the three screws and lock-washers. (See figure 3.)

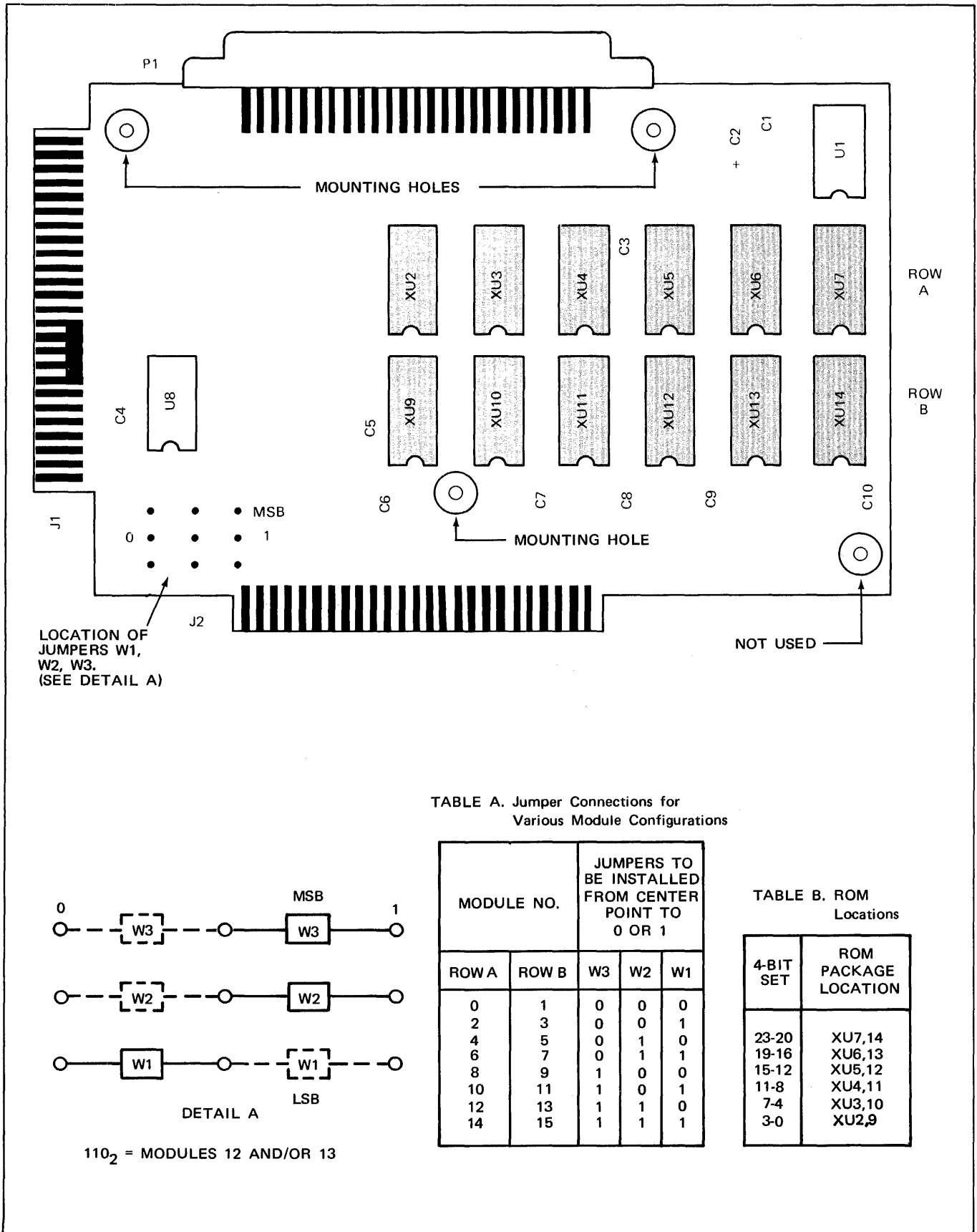


Figure 2. HP 12945A User Control Store Board

- g. Replace processor bottom cover.
- h. Connect I/O extender cable assembly (if present) to CPU PCA edge connector.
- i. Plug processor power cord into power mains receptacle and set \sim LINE and BATTERY switches to ON.
- j. On the processor operator panel, rotate key-operated switch to R (reset) then to OPERATE.

Installation is now complete and ready for the user's control store microprogramming application.

SERVICE INFORMATION

Figure 4 is a schematic diagram of the user control store board. Replaceable parts information and a list of manufacturers are provided in tables 1 and 2, respectively. Refer to figure 2 for location of replaceable parts. A list of HP Sales and Service Offices is provided in the **HP 21MX Computer Series Installation and Service Manual**, part no. 02108-90006.

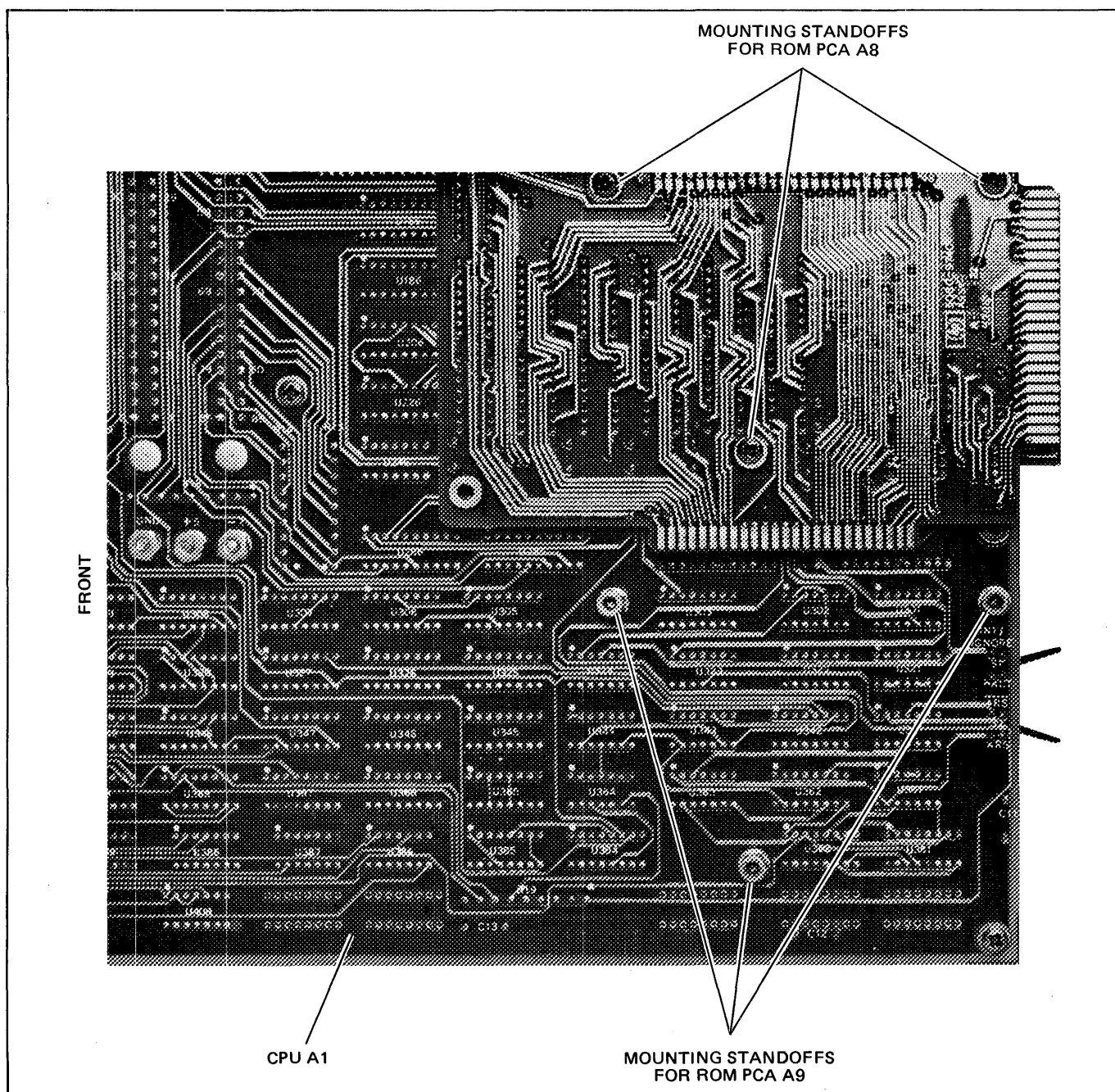


Figure 3. Bottom View of HP 21MX Processor (Bottom Cover Removed)

Table 1. User Control Store Board, Replaceable Parts

REFERENCE DESIGNATION	HP PART NO.	DESCRIPTION	MFR CODE	MFR PART NO.
C1, 4	0150-0121	Capacitor, Fxd, Cer, 0.1 μ F, +80 -20%, 50 VDCW	56289	160P22296 PMD
C2	0180-0374	Capacitor, Fxd, Elect, 10 μ F, \pm 10%, 20 VDCW	56289	150D106X9020B2-DYS
C3, 5 thru 10	0160-2055	Capacitor, Fxd, Cer, 0.01 μ F, +80 -20%, 100 VDCW	56289	C023F101F103ZS22-CDH
P1	1251-3106	Connector, PC edge, 50-pin	05574	3VM25/1JN5
U1	1820-0373	Integrated Circuit, Dual 4-input nand gate, TTL	01295	SN74H20N
U8	1820-1199	Integrated Circuit, Hex inverter, TTL	01295	SN74LS04N
XU2 thru 7, 9 thru 14	1200-0482	Socket, Integrated Circuit, 16-pin	91506	S16-AG10D

Table 2. Code List of Manufacturers

The following code numbers are from the Federal Supply Code for Manufacturers Cataloging Handbooks H4-1 and H4-2, and the latest supplements.		
CODE NO.	MANUFACTURER	ADDRESS
01295	Texas Instruments, Inc., Semiconductor Components Division	Dallas, Texas
05574	Viking Industries Inc.	Chatsworth, Cal.
28480	Hewlett-Packard Co.	Palo Alto, Cal.
56289	Sprague Electric Co.	North Adams, Mass.
91506	Augat Inc.	Attleboro, Mass.

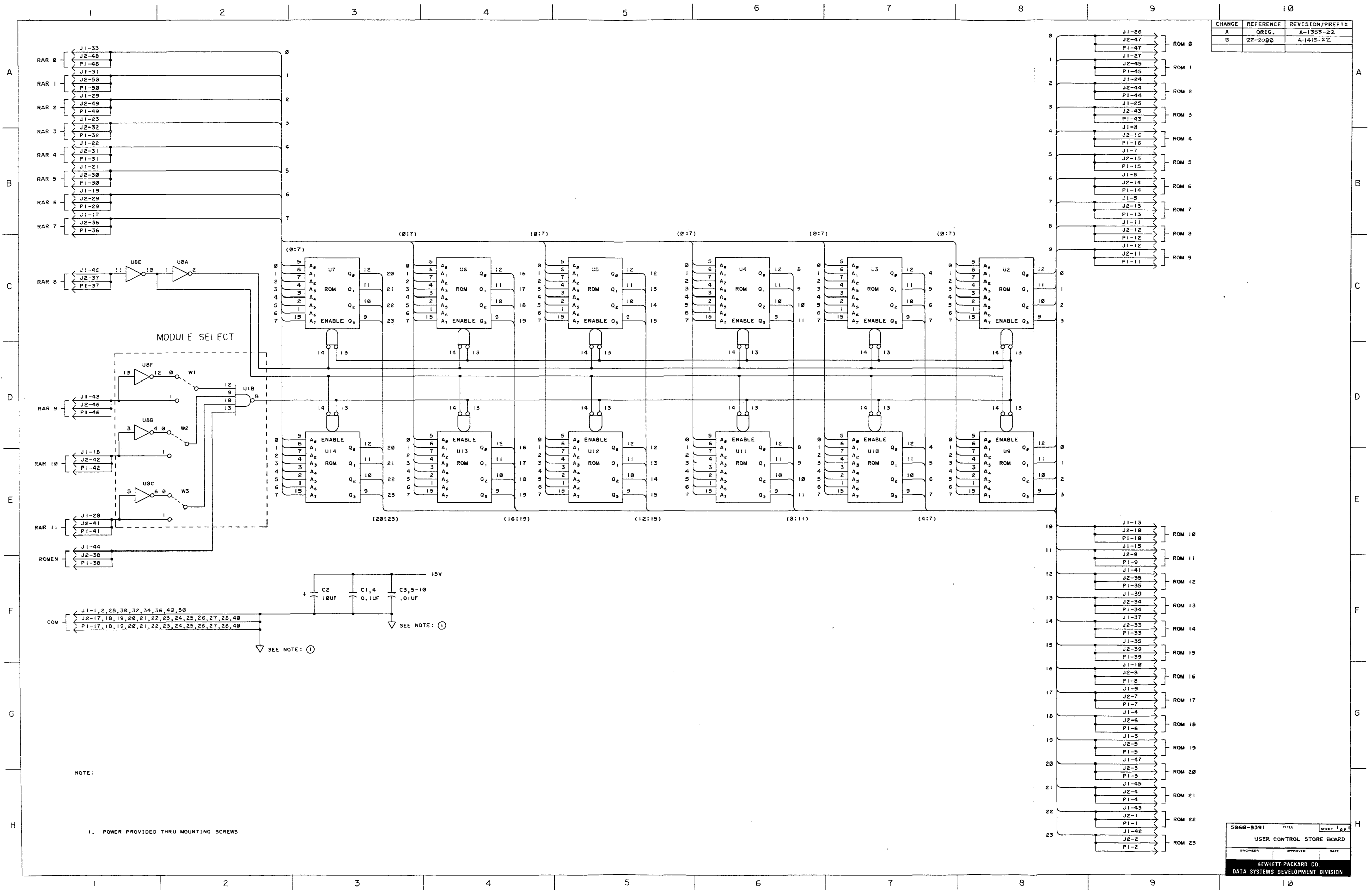


Figure 4. User Control Store Board, Schematic Diagram