Altair 3200-series Disk Drive Errata

Martin Eberhard 19 March 2012

This Errata Sheet refers to MITS 3200 USER's MANUAL, by Pertec Computer Corporation, Document number 252084-A, April, 1978.

The wiring diagram on page A-13 will not work, because there is no connection to the +24V Return pin (pin 8) on the power supply, and the individual outputs of this power supply do not have a common ground. If wired according to this drawing, the disk drive will not get 24 volts.

Wiring harnesses found in several non-functioning MITS 3200s were wired as shown in this diagram. Additionally, the wire colors made no sense - one red wire was ground, another was +24V. Red and black wires were +5V, and ground was on red and black wires.

Note that the wiring diagram for this same harness that is shown on page A-9 is completely different, and is also completely wrong. However, this one shows the correct colors for the wires in the harness: red for +5V, yellow for -12V, green for +24V, and black for all ground returns.

I suspect that MITS installed another (undocumented) plug in J1, the third output connector of the power supply, which connected the output grounds together and made the 3200 work. I found such a plug installed in a partially-disassembled 3200, which connected all of the ground signals together, and also connected these to chassis ground, using the same ground lug on the power supply's mounting screw that grounds the disk drive chassis. You can see such a plug in the photo on page 1-5.

The wiring harness in the 3200 can be corrected without soldering, by simply moving the pins around at both ends. Here is the corrected wiring harness:

Power Supply		**Wire Color**	**Twist**	**Disk Buffer Board**	
Pin	**Function**			**Function**	**Pin**
1	-12V	Yellow	XX	-12V	6
2	-12V Return	Black		-12V Return *	7
3	Key	No wire		Key	2
4	+5V	Red		+5V Disk	4
5	+5V	Red	XX	+5V Disk Buffer	3
6	+5V Return	Black		GND Disk Buffer	1
7	+5V Return	No Wire			
8	+24V Return	Black	XX	+5V Return Disk *	5
9	+24V	Yellow		+24V	8

* Note: All of the Return lines are connected together in the Pertec FD510 disk drive, right at its edge connector. Thus, the 24V return is in fact the same trace on its circuit board as the +5V Return and the -12V Return.

You should also add a 9-pin grounding plug at connector J1 on the power supply, to tie the grounds together. Connect pin 2 to pin 6, and pin 7 to pin 8 and to a wire to the ground lug on the power supply's mounting screw. (Pins 6 and 7 are connected together on the power supply's circuit board.)