

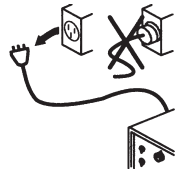


# ***HPR HD4070 PC-104 Upgrade HyPerformance HD4070***

**Field Service Bulletin**

***805720 – Revision 2 – May, 2008***

***Hypertherm®***

		<b>DANGER</b> <b>ELECTRIC SHOCK CAN KILL</b>
		<p><b>Disconnect electrical power before performing any maintenance.</b>  <b>All work that requires the removal of the power supply cover must be performed by a qualified technician.</b>  <b>See the <i>safety Section</i> of the system Manual for more safety precautions.</b></p>



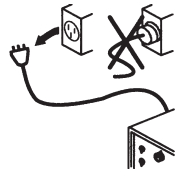
## Introduction

### Purpose

This field service bulletin describes the steps necessary to replace the 041920 PC-104 stack with a 141024 PC-104 stack.

### Kit 229169 contents

Part number	Description	Qty
PC-104 Stack, consisting of:		
041990	Board 1: HD4070 CPU	1
141022	Board 2: HD4070 IDE Flash with HPR HD4070 Firmware	1
042359	Memory Card: CompactFlash with HPR HD4070 Firmware	1
041622	Board 3: HD4070 Dual Serial	1
041623	Board 4: HD4070 48ChanDigital I/O	1
042357	IC: NEC uPD71055C Parallel Interface	2
041623	Board 5: HD4070 48ChanDigital I/O	1
042357	IC: NEC uPD71055C Parallel Interface	2
041624	Board 6: HD4070 Anlg/Digital	1
041687	Board 7: PC-104 Test	1
229169	Cable: PC-104 Upgrade Power	1
123469	Ribbon Cable: 26/C 20" (B6J1)	1
123470	Ribbon Cable: 50/C 24" (B5J1)	1
123471	Ribbon Cable: 50/C 24" (B5J4)	1
123472	Ribbon Cable: 20/C 21" (B3J1)	1
123473	Ribbon Cable: 50/C 22" (B4J4)	1
123474	Ribbon Cable: 50/C 18" (B1J2)	1
123475	Ribbon Cable: 50/C 31" (B4J1)	1
123490	Ribbon Cable: 34/C (B1J3 Floppy)	1
123491	Ribbon Cable: 40/C 25" (B1J4-B2J2 IDE)	1
108114	Hardware: M3x15 M/F Standoffs	32
805720	FSB:HD4070 PC-104 Replacement Kit	1

		<p style="text-align: center;"><b>DANGER</b> <b>ELECTRIC SHOCK CAN KILL</b></p>
	<p><b>Turn off all electrical power before removing the power supply cover. Press the power supply OFF (0) pushbutton switch and set the line disconnect switch to OFF. In the U.S., use a “lock-out and tag-out” procedure until the service or maintenance is complete. In other countries, follow appropriate local or national safety procedures.</b></p>	

### Remove the old PC-104 stack and cables (041920)

Note: the existing ribbon cables should be removed with the old PC-104 stack. The new PC-104 stack has new cables attached to it when shipped.

1. Turn OFF main power.
2. Remove the cables that lead to the PC-104 stack from the breakout board and the floppy drive in the following order (see figure 1). The power source cable is removed at the PC-104 stack (B1, J25). The connector on the end of the power cable is designated as P50.
  - a. J5 on the Breakout Board (Analog/Digital I/O ribbon cable to B6, J1)
  - b. J6 on the breakout board (Digital I/O ribbon cable to B5, J1)
  - c. J8 on the breakout board (Digital I/O ribbon cable to B5, J4)
  - d. J15 on the breakout board (Digital I/O ribbon cable to B4, J1)
  - e. J11 on the breakout board (Digital I/O ribbon cable to B4, J4)
  - f. J10 on the breakout board (Serial ribbon cable to B3, J1)
  - g. J13 on the breakout board (I/O ribbon cable to B1, J9)
  - h. J1 on the Floppy Drive (I/O ribbon cable to B1, J5)
  - i. B1, J25 (PC-104 power cable to the DC Power Supply). The connector on the end of the power cable is designated as P50.

The following items are for reference. No actions are required:

- j. B6, J3 (No cable connection)
  - k. B2, J2 (IDE ribbon cable to B1, J6)
  - l. B1, J4 (IDE ribbon cable to B2, J2)
3. Remove the four (4) screws that secure B1 to the Control Box. Keep the screws for installing the replacement PC-104 stack (141024).
4. Remove the old PC-104 stack (041920) and cables. Remove the compact flash card from the old PC-104 stack, carefully package it, and ship it back to Hypertherm for a return credit.

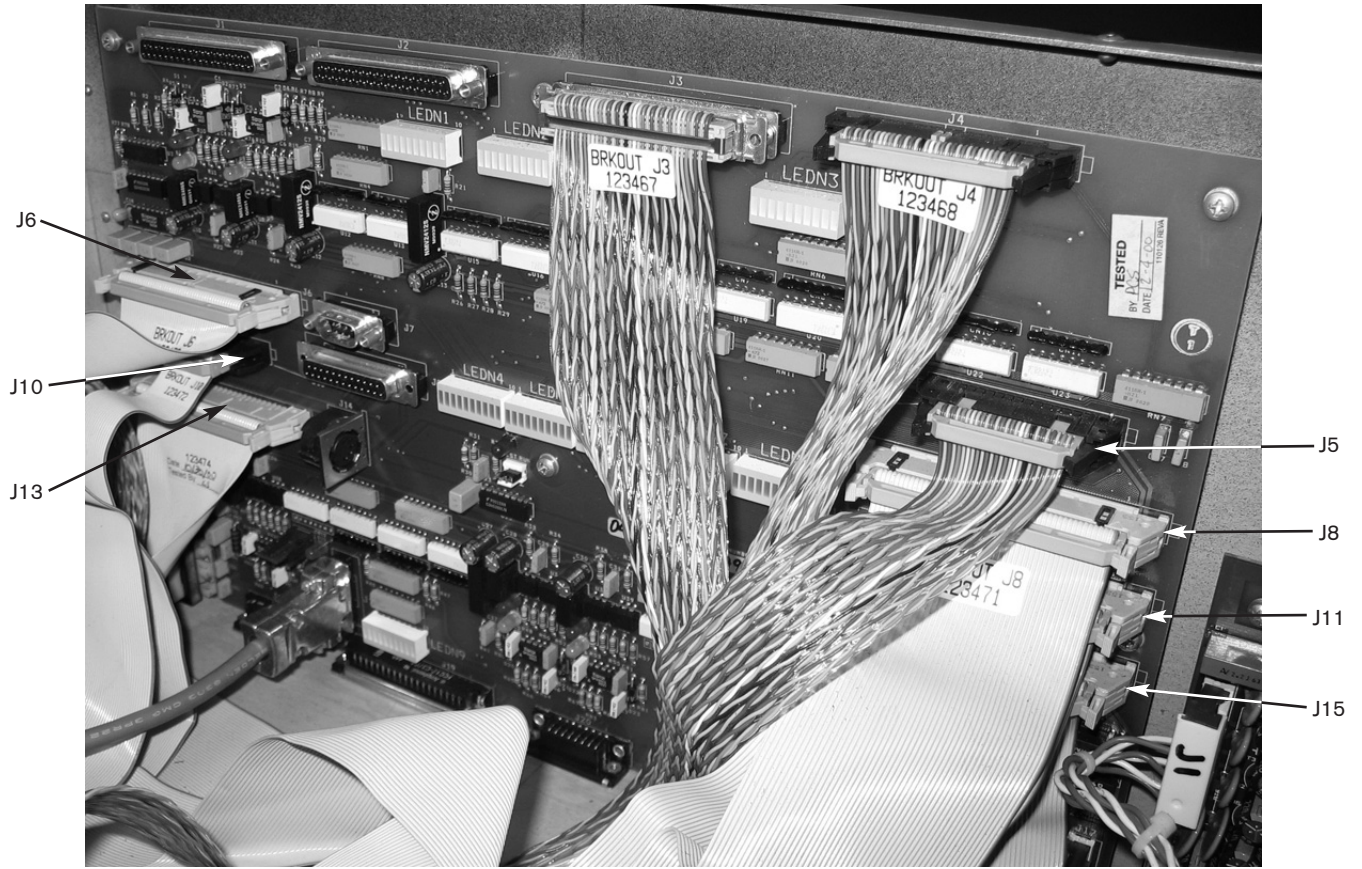


Figure 1 - Breakout board

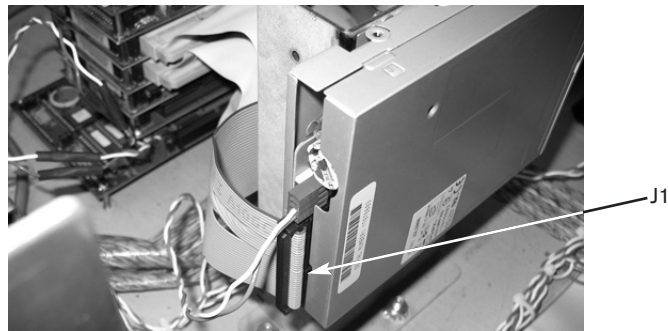


Figure 1.1 - Floppy disk drive

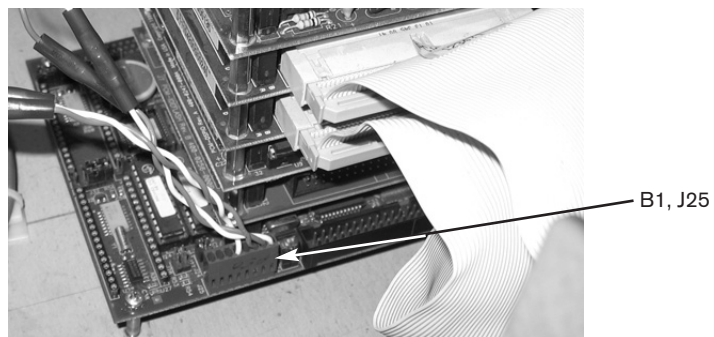
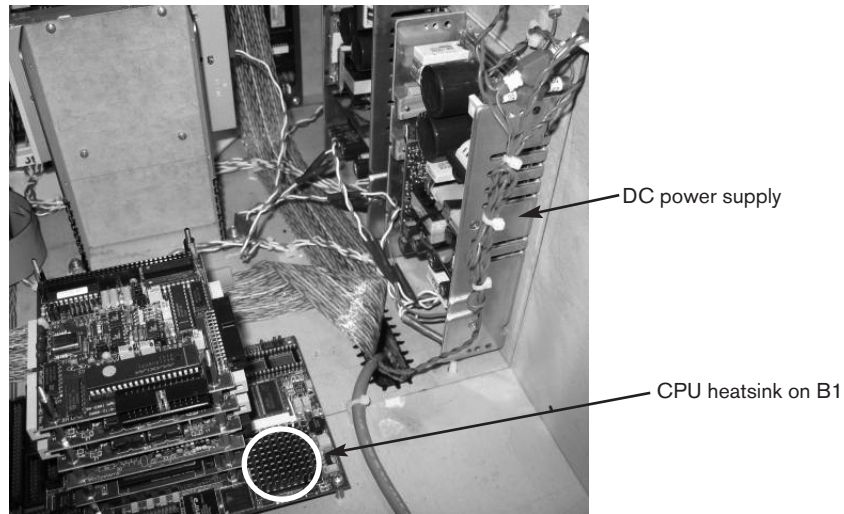


Figure 1.2 - Power cable

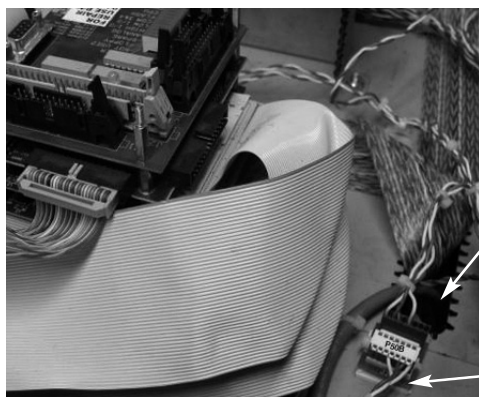
## Install the new PC-104 stack and cable (141024)

1. Place the new PC-104 stack (141024) into the Control Box, and orient it so that the CPU heatsink on B1 is on the same side as the DC Power Supplies (See figure 2).

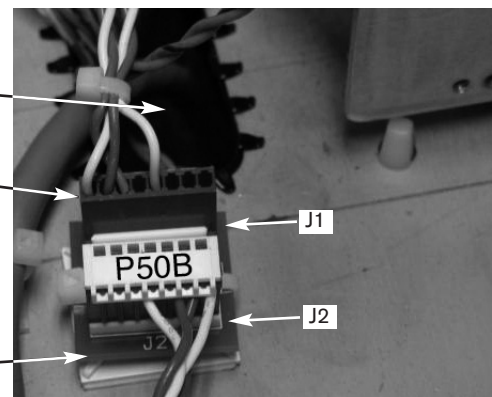


**Figure 2**

2. Reinstall the four (4) screws on B1 that were removed earlier.
3. Place the PC-104 Power Cable (229169) so that the PCB is near the access hole next to the DC Power Supply (041626). Clean the area where the cable tie will be installed, remove the adhesive backing from the cable tie base under the PCB, and secure the PCB to the bottom of the Control Box (see Figure 3).



**Figure 3**



**Figure 3.1**

4. Connect the P50 cable end to J1 on the power cable PCB.

Note: PC-104 power cable connections:

P50A cable end is connected to B1, J13 on the PC-104 stack.

P50B cable end is connected to J2 on the power cable PCB.

P50 cable end from the power source connects to J1 on the power cable PCB.

4. Reinstall the PC-104 ribbon cable connectors to the breakout board and the floppy drive in the following order (see Figure 1 and Figure 4\*).

Items with an asterisk (\*) are for reference only:

- a. J5 on the Breakout Board (Analog/Digital I/O ribbon cable to B6, J1)
- b. J6 on the breakout board (Digital I/O ribbon cable to B5, J1)
- c. J8 on the breakout board (Digital I/O ribbon cable to B5, J4)
- d. J15 on the breakout board (Digital I/O ribbon cable to B4, J1)
- e. J11 on the breakout board (Digital I/O ribbon cable to B4, J4)
- f. J10 on the breakout board (Serial ribbon cable to B3, J1)
- g. J13 on the breakout board (I/O ribbon cable to B1, J9)
- h. J1 on the Floppy Drive (I/O ribbon cable to B1, J5)

The following items are for reference. No actions are required:

- i. B6, J3 (No cable connection)
- j. B2, J2 (IDE ribbon cable to B1, J6). Comes installed from the factory.
- k. B1, J4 (IDE ribbon cable to B2, J2). Comes installed from the factory.

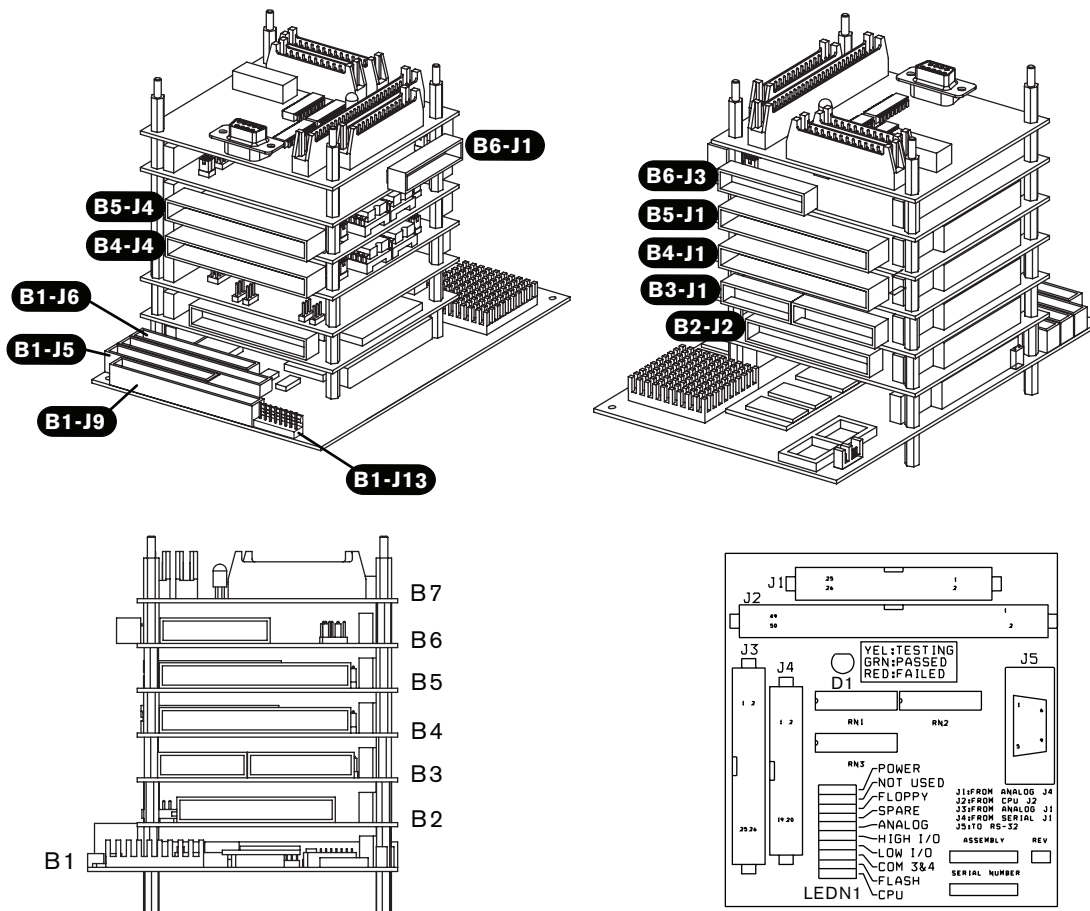


Figure 4 - 141024 PC-104 stack

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