



HyDefinition[®]

HD-1070

100 Amp Upgrade

Field Bulletin
802290 - Rev. 1

HYPERTHERM[®]


HyDefinition® HD-1070

100 Amp Upgrade

**Field Bulletin
IM-229
(P/N 802290)**

Revision 1 March, 1997

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HD-1070 100 AMP UPGRADE

INTRODUCTION

This field upgrade bulletin describes how to convert the HD-1070 power supply from a 70 amp output unit to a 100 amp output unit. After the upgrade, systems will be capable of outputting up to 100 amps with all existing capabilities unaffected.

Tools required:



- # 1 Phillips head screwdriver
- # 2 Phillips head screwdriver

100 Amp Upgrade Kit 028871:

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
004555	Tool, consumable	1
041491	Assembly, PC BD control	1
120410	Electrode, 100 amp	10
120272	Nozzle, 100 amp	10
120266	Cap, inner, 100 amp	2
120273	Shield, 100 amp	5
020637	Ring, swirl	2
020687	Cap, shield w/tab	1
010920	Label, thumbwheel	1
010926	Label, upgrade data	1
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100 AMP UPGRADE

In order to upgrade the power supply to operate at 100 amps, proceed as follows:

**WARNING**

Turn off all power to HD-1070 system. Always press the power unit OFF (O) pushbutton switch and set the line voltage disconnect box to Off. Lock out and tag out switch.

Power Requirement Change

The input current ratings for the power units with the 100 amp upgrade have changed due to the output power rating increasing from 9.1 kw to 15 kw. **This requires that the fuses in the line voltage disconnect box be resized, as indicated, to accommodate the increased higher current rating. Note that the incoming service lines must also be rated to handle the higher current. This must be done according to local and national electrical codes by a licensed electrician.**

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<u>Input Voltage</u>	<u>Phase/Hz</u>	<u>Rated Input Current @ 15 kw Output</u>	<u>Recommended Fuse Size</u>
200 VAC	3/50-60	60 amps	70 amps
220 VAC	3/50	54 amps	70 amps
240 VAC	3/60	50 amps	60 amps
380 VAC	3/50	30 amps	40 amps
415 VAC	3/50	28 amps	40 amps
480 VAC	3/60	25 amps	30 amps
600 VAC	3/60	20 amps	25 amps

Power Supply Changes



WARNING



Turn off all power to HD-1070 system before removing covers! Always press the power unit OFF (O) pushbutton switch and set the line voltage disconnect box to Off. Lock out and tag out switch.

1. Remove front cover from power supply and locate control board 1XPCB3. Fig. 1
2. Carefully disconnect PL6 - PL11 from receptacles by squeezing the PL locking tabs while pulling.
3. Remove eight screws to remove control board. Discard old board.

Caution: Electrical Static Discharge! Before removing new control board from protective packaging, ground yourself to the power supply chassis (bare metal) to reduce chance of electrical static discharge damaging the control board.

4. Install new control board (041491) and secure with eight screws. Reconnect PL6 - PL11 to receptacles. **IMPORTANT: Do not force or bend pins of PLs when reconnecting PL6 - PL11 to the receptacles as shown in Fig. 1. Reconnecting a PL to the wrong receptacle or bending a PL pin could cause a power unit failure.** Replace front cover.
5. Clean the surface above thumbwheel switch on control panel and affix label (010920) to remind operator to **select 00 for 100 amp cutting.** Fig. 2
6. Clean the surface above the existing data tag on rear of power supply, affix upgrade data label (010926) and fill in data on the spaces provided. Fig. 3
7. On wiring diagram 013-4-203 that came with HD-1070 Instruction Manual IM-203 (802030), cross out old control board part number 041251 and write in new number 041491.

Duty Cycle

After making the above changes the duty cycle is now 80% at 100 amps. The duty cycle for 70 amp and lower cutting currents remains at 100%.

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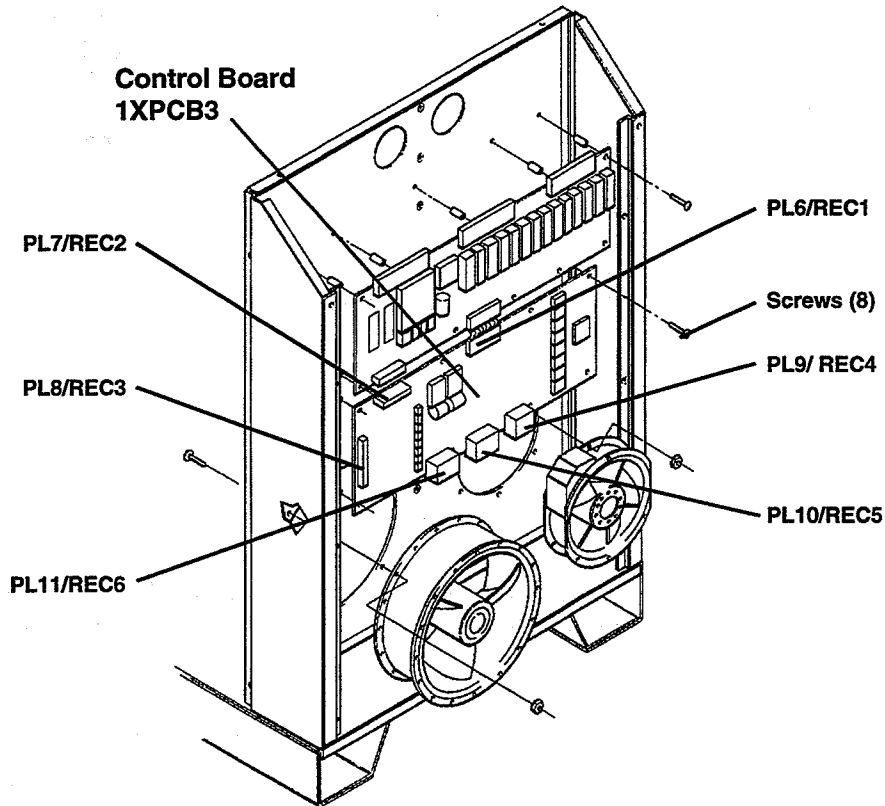


Figure 1 Control Board 1XPCB3 Location

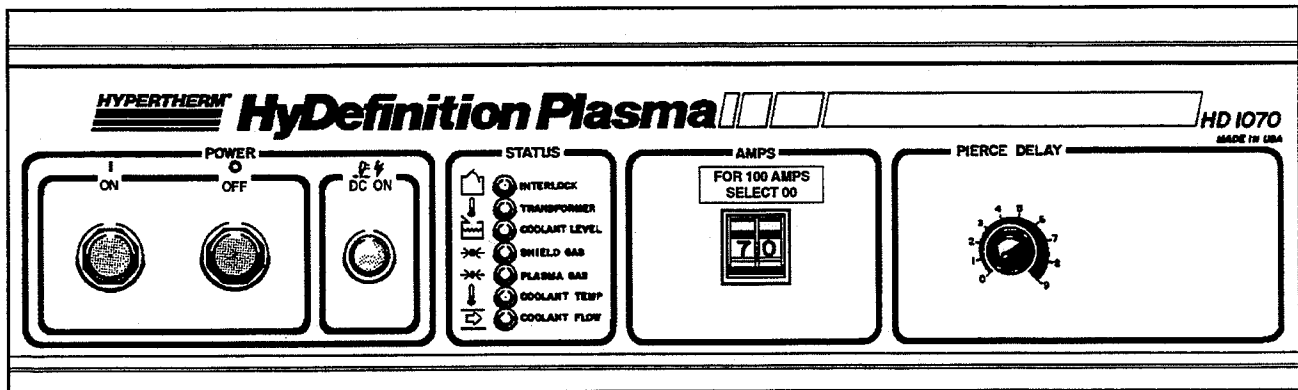
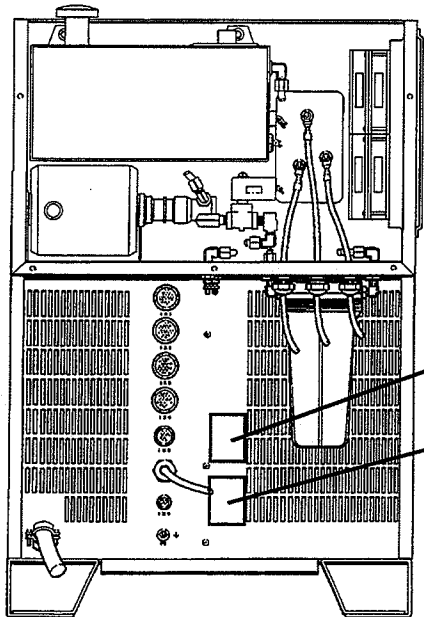


Figure 2 Thumbwheel Switch 100 Amp Label Location

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upgrade data label location
existing data tag

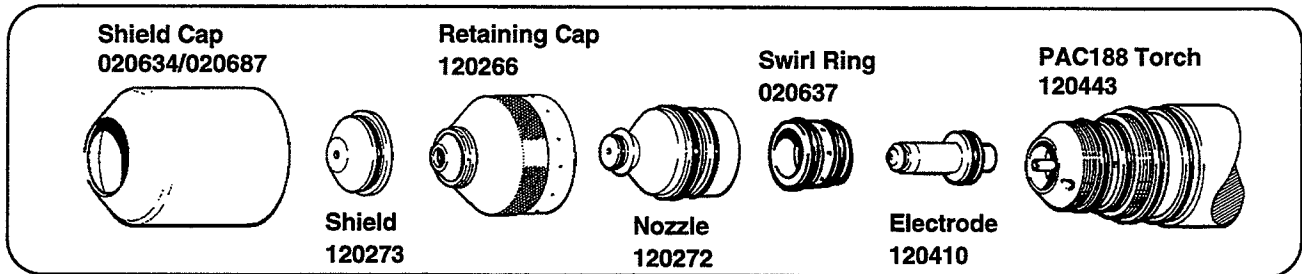
THIS PLASMA POWER SUPPLY UNIT HAS BEEN UPGRADED TO:	
X	80%
I ₂	100A
U ₂	150V
ON _____	BY _____
date	name
OF _____	# _____
company	phone number
010926 REVA	

Figure 3 Upgrade Data Label and Mounting Location

Torch Consumable Changes

Refer to the Cut Chart below for the new 100 amp cutting data. The required new consumables for 100 amp cutting are supplied in the upgrade kit.

HD-1070 Operating Data (Cut) Charts Mild Steel - 100 Amp Cutting O₂ Plasma/O₂ & N₂ Shield



Material Thickness (in) (mm)	Test Cut Flowrates (%)			Test Preflow Flowrates (%)		Arc Voltage (V)	Torch Standoff *		Travel Speed		Initial Height		Pierce Delay (dial)	External Pierce Delay (sec)
	PLASMA	SHIELD		PREFLOW			(in)	(mm)	(ipm)	(m/min)	(in)	(mm)		
	O ₂ (MV1/FM1)	O ₂ (MV4/FM2)	N ₂ (MV6/FM3)	O ₂ (MV5/FM2)	N ₂ (MV7/FM3)									
1/8 3.2	60	35	90	30	80	138	0.125	3.2	275	7.0	0.180	4.6	0	0.00
1/4 6.4	60	35	90	30	80	141	0.125	3.2	135	3.43	0.300	7.6	0.4	0.22
3/8 9.5	60	35	90	30	80	144	0.125	3.2	95	2.41	0.300	7.6	0.7	0.27
1/2 12.7	60	35	90	30	80	149	0.125	3.2	64	1.62	0.300	7.6	1.0	0.37

O₂ and N₂ gas inlet pressures remain at one setting of 120 psi (8.2 bar) for all material thickness.

* The torch standoff tolerances are ± 0.005 inch / ± 0.125mm. When using a THC, the tolerances are ± 1 volt.

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Upgrade Checkout

Checkout the 100 amp upgrade as follows:

1. Install 100 amp consumables.
2. Power up the HD-1070 system. If the system does not power up, check the line voltage disconnect box and the connections to the control board just installed.
3. Set up cutting parameters according to cut chart above.
4. Cut material. To obtain optimum cut quality, make sure that the cut chart parameters have been properly set. Ensure that the consumables have been properly installed and not damaged. Refer to HD-1070 Instruction Manual IM-203 (802030), Section 4, Operation for information on proper cutting techniques and consumable inspection.
5. For technical assistance, call your distributor or Hypertherm Technical Service at 1-800-643-9878.