

HyDefinition[®]

HD-3070

**Automatic Gas Console
Input Gas Selection &
Gas Line Purge
Upgrade**

Field Bulletin
802570 - Rev. 1

HYPERTHERM[®]


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**Automatic Gas Console
Input Gas Selection & Gas Purge
Upgrade**

**Field Bulletin
IM-257
(P/N 802570)**

Revision 1 June, 1996

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AUTOMATIC GAS CONSOLE UPGRADE

PURPOSE

This field bulletin addresses a potentially damaging situation to the torch when an oxygen and methane gas combination is accidentally selected or connected to the automatic gas console (078022). Three potentially damaging situations are:

- Selecting O₂ and AUX B SHIELD (methane) with switches on gas console.
- Mistakenly connecting oxygen to AUX A PLASMA with methane connected to AUX B SHIELD.
- Leaving a residue of a potentially combustible gas mixture in the lead set gas lines.

This upgrade removes the potential problems listed above by replacing the firmware IC (U1) on the control PCB A1, replacing the input gas fittings, and installing a wiring harness.

TOOLS REQUIRED

2 Phillips head screwdriver
5/8-inch wrench
3/4-inch wrench
Loctite 57141 thread sealant or equivalent

UPGRADE KIT (128060-Rev 1)

<u>Part No.</u>	<u>Description</u>	<u>Quantity</u>
081024	Firmware, Rev. 8 automatic gas console control PCB	1
015009	Adapter, 1/4 NPT X right handed (RH) 'B' male brass	1
015103	Adapter, 1/4 NPT X right handed (RH) 'B' inert female brass	1
015230	Adapter, 1/4 NPT X left handed (LH) 'B' male brass	1
129095	Harness, wiring	1
027338	Tool, removal, firmware IC	1
802570	Field Bulletin, HD-3070 Automatic Gas Console Input Gas Selection & Gas Line Purge Upgrade	1

UPGRADE PROCEDURE



WARNING



Before removing the front panel from the automatic gas console, turn off all power to HD-3070 system. Always press the power unit OFF (O) pushbutton switch and set the line disconnect switch to OFF. Lock-out and tag-out switch. Electrical shock can cause serious injury or death.

- Turn off gas supplies to automatic gas console and disconnect gas hoses.

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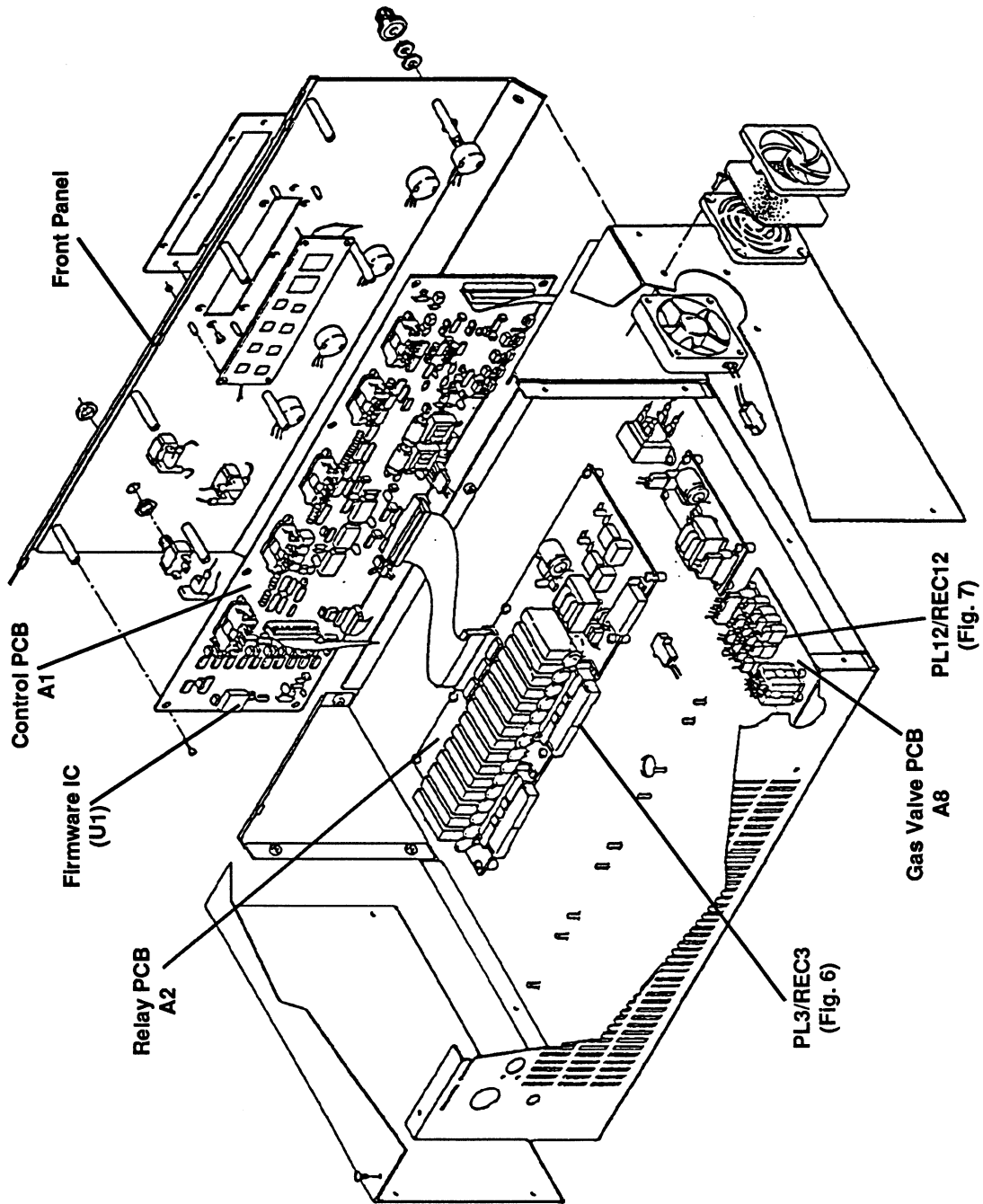


Figure 1 Automatic Gas Console Component Locations

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Replace Firmware

1. At the automatic gas console, remove the front panel by removing the five screws (Fig. 1).
2. Carefully slide the front panel out and then tilt the front panel forward.
3. Locate control board A1 and install the firmware upgrade (081024 Rev. 8) as follows:
 - a. Locate and remove the high frequency cover on the right side of A1 in order to access existing firmware IC (U1).

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

- b. Remove old firmware IC (U1) by referring to Fig. 2. Use removal tool 027338 from kit.
- c. Install new firmware IC by referring to Fig. 3.
- d. Reinstall high frequency cover.

Caution: The high frequency cover shields firmware IC (U1) and other control circuit components from high frequency noise. If the cover is not reinstalled, system operation could be erratic or reduced.

- e. Replace front panel.

- a. Insert removal tool into corner slot. Ensure bend on removal tool catches on bottom of IC.
- b. Pull removal tool straight out until IC releases from socket.
- c. If IC only partially releases, repeat steps a. and b. at opposite corner.
- d. Discard IC.

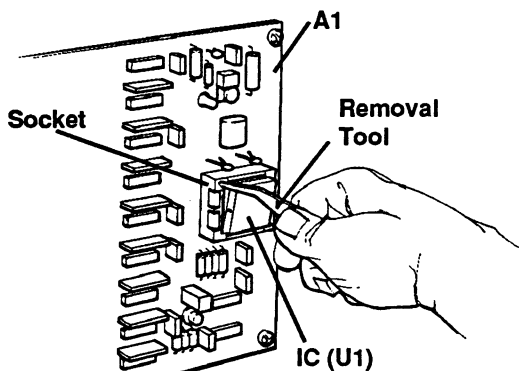


Figure 2 Old Firmware IC Removal

Caution: The contacts on the IC can be damaged or misaligned during installation. Use care when performing the following steps.

- a. Orient dot on bevel of IC (U1) with dot on socket as shown. Note that dot on IC is pin 1 identifier.
- b. Press IC into place. When properly installed, IC will be flush with top of socket.

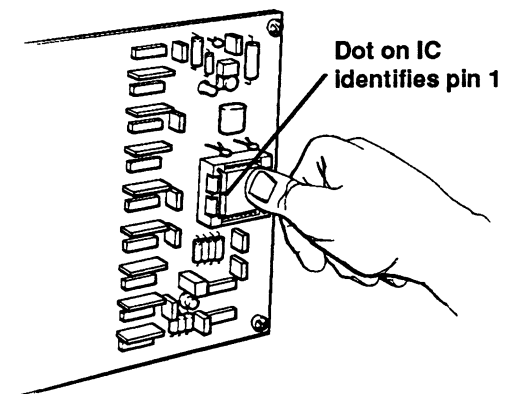


Figure 3 New Firmware IC Installation

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Replace Gas fittings

1. At the rear of the automatic gas console, remove the O₂, AUX A PLASMA, N₂ and AUX B SHIELD gas fittings using 5/8-inch wrench and discard. (Fig. 4)
2. Apply a light coat of Loctite 57141 thread sealant or equivalent to the mating threads on gas fittings 015009, 015103 and 015230.
3. Install the new gas fittings as follows: 015009 in O₂, 015103 in N₂ and 015230 in AUX B. Use a 5/8- inch wrench on the O₂ and AUX B fittings and a 3/4- inch wrench on the N₂ fitting (Fig. 5). **If the user needs to use the AUX A port, ensure the adapter fitting is different than the O₂ 015009 fitting, so that oxygen cannot be accidentally connected to the AUX A port. The fittings on the gas supply hoses may have to be changed in order to be connected to the new fittings installed on the gas console.**
4. Reconnect the gas hoses and turn on gas supplies. Always connect the gas hoses by referring to HD-3070 IM-218 (802180), Section 3, Installation.
5. Ensure there are no gas leaks at the rear of the gas console.

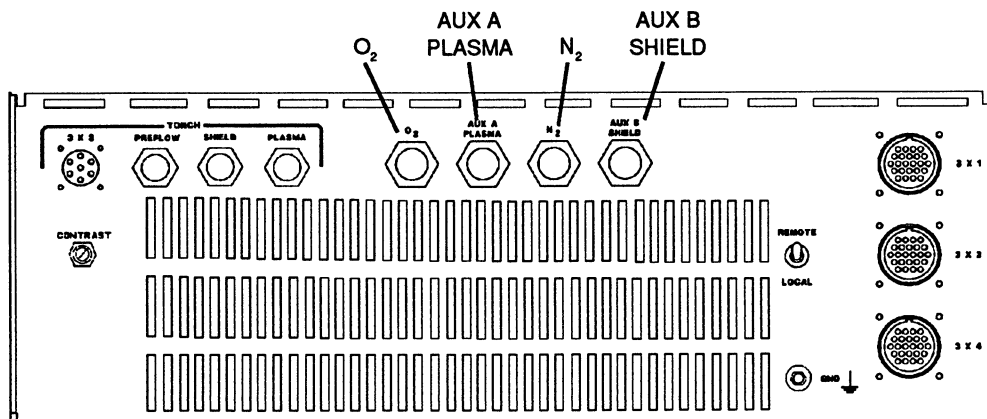


Figure 4 Remove Gas Fittings

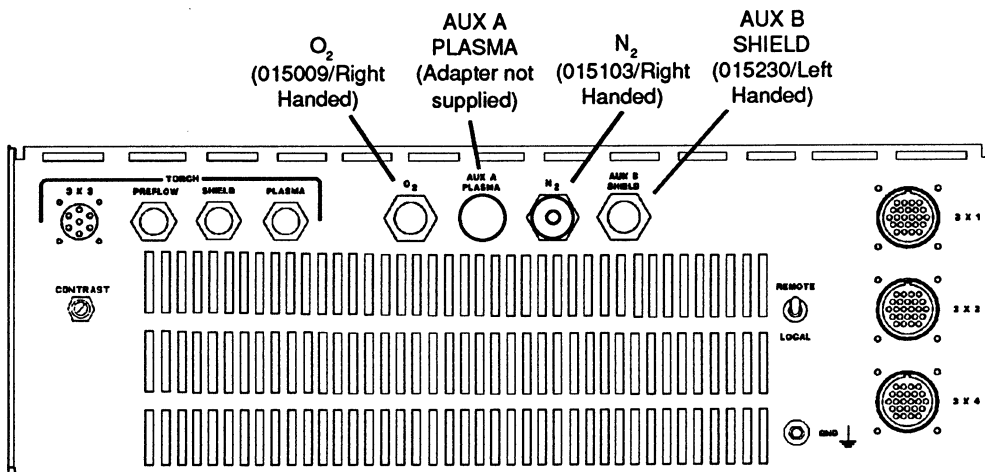


Figure 5 Install New Gas Fittings

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Install Wiring Harness

1. At relay PCB A2, locate plug/receptacle PL3/REC3 (Fig. 1).
2. Disconnect PL3 from REC3.
3. On PL3 insert wire harness red/black wire into hole location 9 and and the red wire into hole location10. Reconnect PL3 to REC3 (Fig 6).
4. Route the other end of the wiring harness to gas valve PCB A8 (Fig. 1).
5. At gas valve PCB A8, locate plug/receptacle PL12/REC12 (Fig. 7).
6. Disconnect PL12 from REC12.
7. Connect the other end of wiring harness to PL3.
8. Replace front panel.

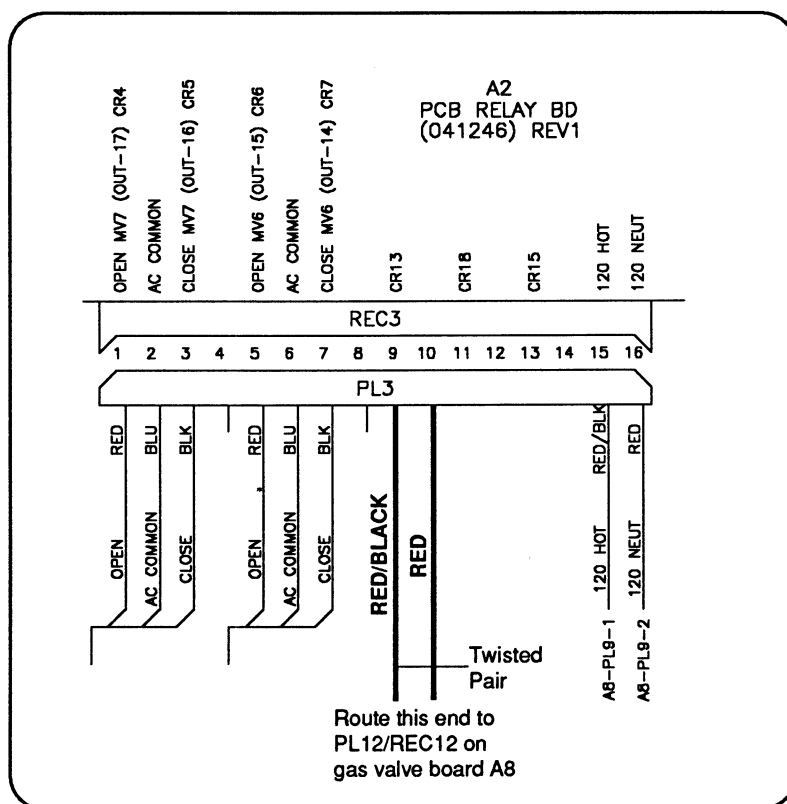


Figure 6 Wire Harness Connections at PL3/REC3 on Relay PCB A2

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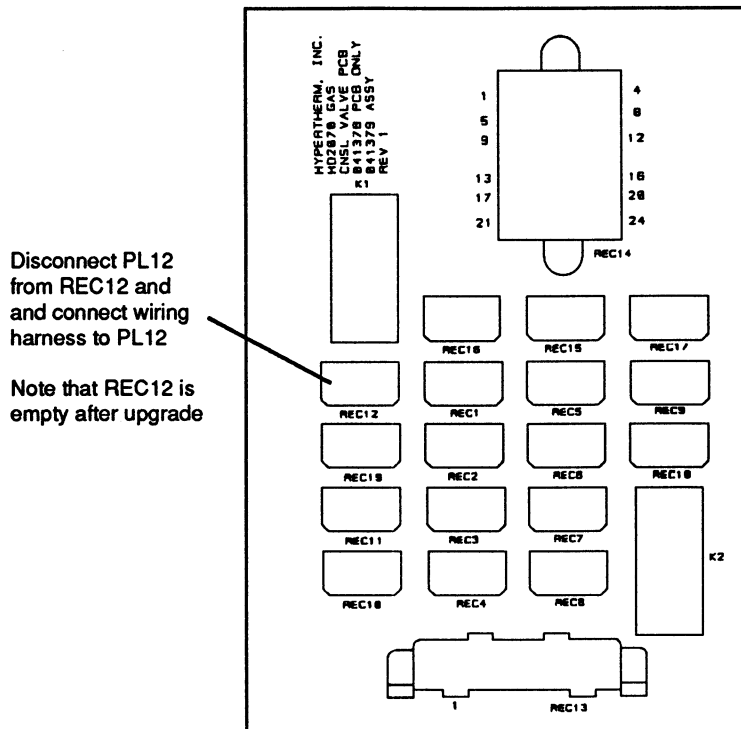


Figure 7 Wire Harness Connection to PL12 at Gas Valve PCB A8

Upgrade Checkout

Checkout the upgrade as follows:

1. Always set the gas selection switches **PLASMA** and **SHIELD** on the front panel of the automatic gas console as follows:
 - Select **O₂** and **N₂** or **AUX A** and **AUX B**. (Fig. 8)

Caution: Do not select **O₂** and **AUX B** or **N₂** and **AUX A**. Selecting either of these gas combinations will cause a **GAS ERROR 20** to be displayed and cause the power supply to shut down. Refer to step 3 below.

2. Upon initial power up of the HD-3070 system, the automatic gas console LCD should display **REV 8** indicating that the new firmware has been installed.

Note: **REV 8** is only displayed upon initial automatic gas console power up.

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3. Also at initial startup note that the gas lines will be automatically purged for 40 seconds total (20 seconds for preflow and 20 seconds for cut flow).
4. If the gas inputs are not properly selected, the LCD should display **GAS ERROR 20** indicating an improper selection of gas combinations. When this occurs the power supply will shut down. To correct this error condition, proceed as follows:
 - Select either **O₂** and **N₂** or **AUX A** and **AUX B** at the automatic gas console. Refer to the Cut Charts for the proper selection of input gas combinations.
 - At the power supply, depress the ON (1) pushbutton switch. The system should power up and the gas error condition cleared. The gas lines will be automatically purge for 40 seconds total (20 seconds for preflow and 20 seconds for cut flow).
5. Set the gas selection switches on the automatic gas console to **AUX A** and **AUX B**. The gas lines will be automatically purge for 20 seconds.

Set flow control knobs 2 and 5 to zero. Solenoid valve SV33 should deenergize (close).

Set both or either flow control knobs 2 and 5 to a flowrate other than zero. Solenoid valve SV 33 should energize (open).

6. The system is now ready for operation.
7. For technical assistance, call Hypertherm Technical Service at 1-800-643-9878.
8. The system is now ready for operation.
9. For technical assistance, call Hypertherm Technical Service at 1-800-643-9878.

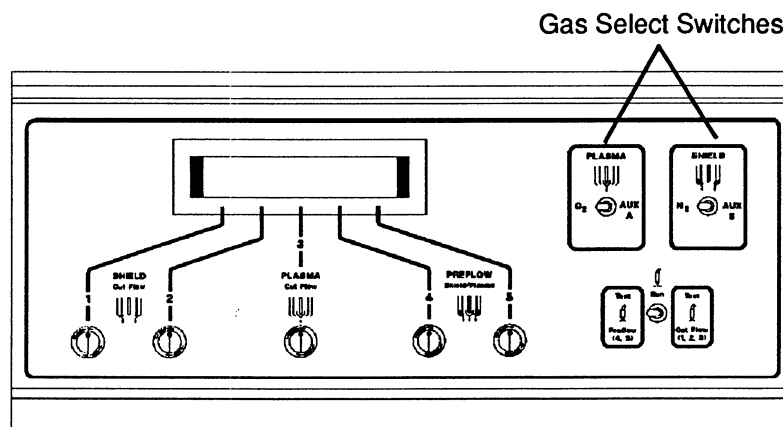


Figure 8 Gas Select Switches

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