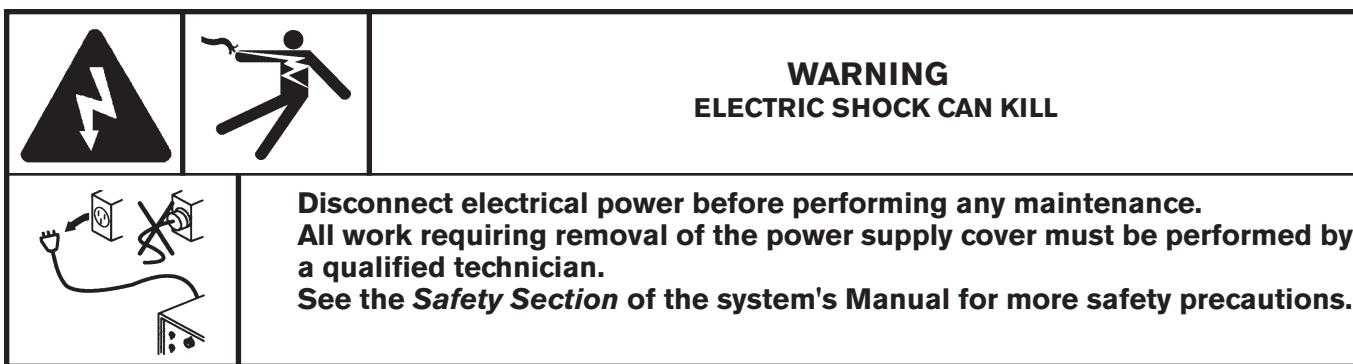


# ***HPR Firmware Upgrade***

## **Field Service Bulletin**

***805060 – Revision 4 – November, 2009***

***Hypertherm®***



## Introduction

### Purpose

This field service bulletin enables a trained technician to upgrade the firmware in a HPR130 or HPR260 power supply and in the HPR automatic or manual gas consoles.

The upgrade has 2 parts. Certain conditions must be met before performing the upgrades. Please read each section carefully to ensure that the upgrades are performed on the correct PCBs.

### 228035 – Kit Contents

Part Number	Description	Qty
027338	Tool: All purpose chip extractor	1

### PART 1 – HPR130 and HPR260 power supply

Part Number	Description	Qty
081107 (labeled 081094)	Firmware: HPR130/260 power supply	1

### PART 2a – HPR manual gas console

Part Number	Description	Qty
081109 (labeled 081093)	Firmware: manual gas console	1

### PART 2b – HPR auto gas console (selection and metering consoles)

Part Number	Description	Qty
081110 (labeled 081096)	Firmware: auto gas console	2

### Changes in 081094, revision T

How the software manages CAN messages that have been received, was improved to avoid possible missed messages. This should help with random or intermittent 116 (watchdog interlock) and 181 (Metering console CAN timeout) error codes.

Added an error code log that retains the last 4 error codes in the system (only active when the system is operating) and a serial command (ID #134) to retrieve the data.

### Changes in 081094, revision S

The coolant over-pressure trip limit was increased from 200 psi to 225 psi, because there are some configurations that can approach 190 psi, and that was too close to the trip point. A serial command was added to query for the coolant pressure.

Added separate error codes (180 and 181) for CAN timeout.

## PART 1 – HPR130 and HPR260 power supply

Only install this firmware upgrade in the power supply if the following condition is met:

1. The HPR power supply control board part number is 041909 (see the label on the control board).

## PART 2a – Manual gas console

Only install this firmware upgrade in the manual gas console if BOTH of the following conditions are met:

1. The manual gas console control board part number is 041912 (see the marking on the rear of the control board and the control knobs will NOT have hex screws).
2. The manual gas console firmware part number is 081092 (see the label on the existing firmware chip).

If both conditions above are not met, please discard the 081109 (081093) firmware chips provided in this kit.

**NOTE:** Installing the 081109 (081093) firmware chips in a 041814 manual gas console control board may result in poor cut quality or consumable life

## PART 2b – Auto gas consoles (selection console and metering console)

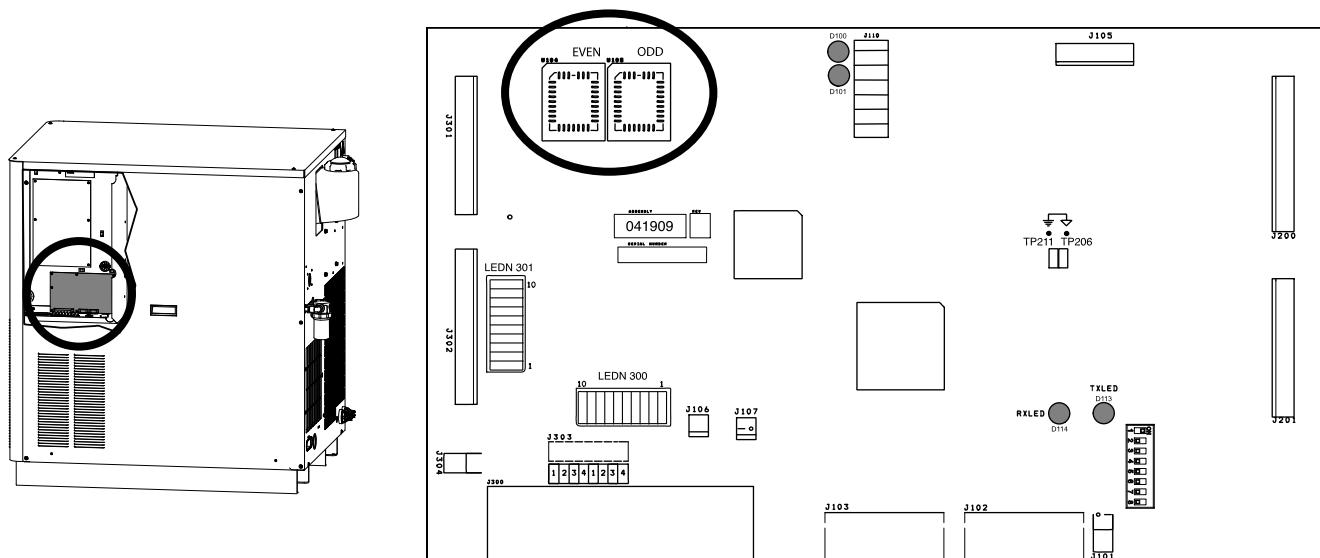
Only install this firmware upgrade in the selection console and the metering console if the following condition is met:

1. The automatic gas console firmware (part number is 081096) is revision A, B, C, or D (see the labels on the existing firmware chips).

If the condition above is not met, please discard the 081096 Rev E firmware chip provided in this kit.

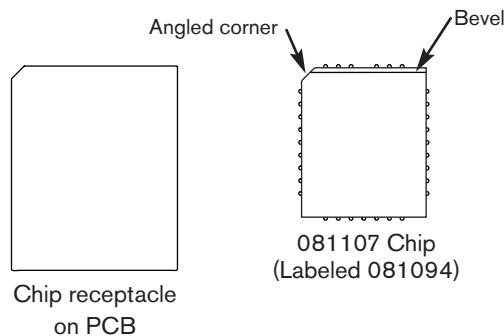
**IMPORTANT NOTE: The auto gas firmware upgrade will also require an upgrade to the cut charts in the CNC controller. Please contact your CNC manufacturer to upgrade the cut charts to match the new 081096 Rev E firmware.**

## PART 1 – HPR130 and HPR260 power supply



1. Turn OFF all power to the system.
2. Remove the right side cover from the power supply to access the control PCB (see figure above).
3. Remove the even (U104) and odd (U105) chips from the board using the extraction tool (027338) provided in this kit.
4. Install new chips 081107 (labeled 081094) onto the control board.

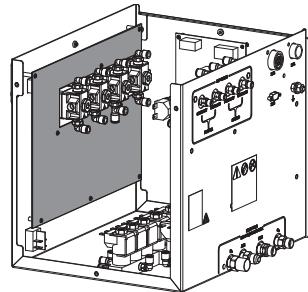
**NOTE:** Make sure the chips are oriented correctly before installation. There is a bevel on the top edge of each chip and the upper left corner is angled (see figure below).



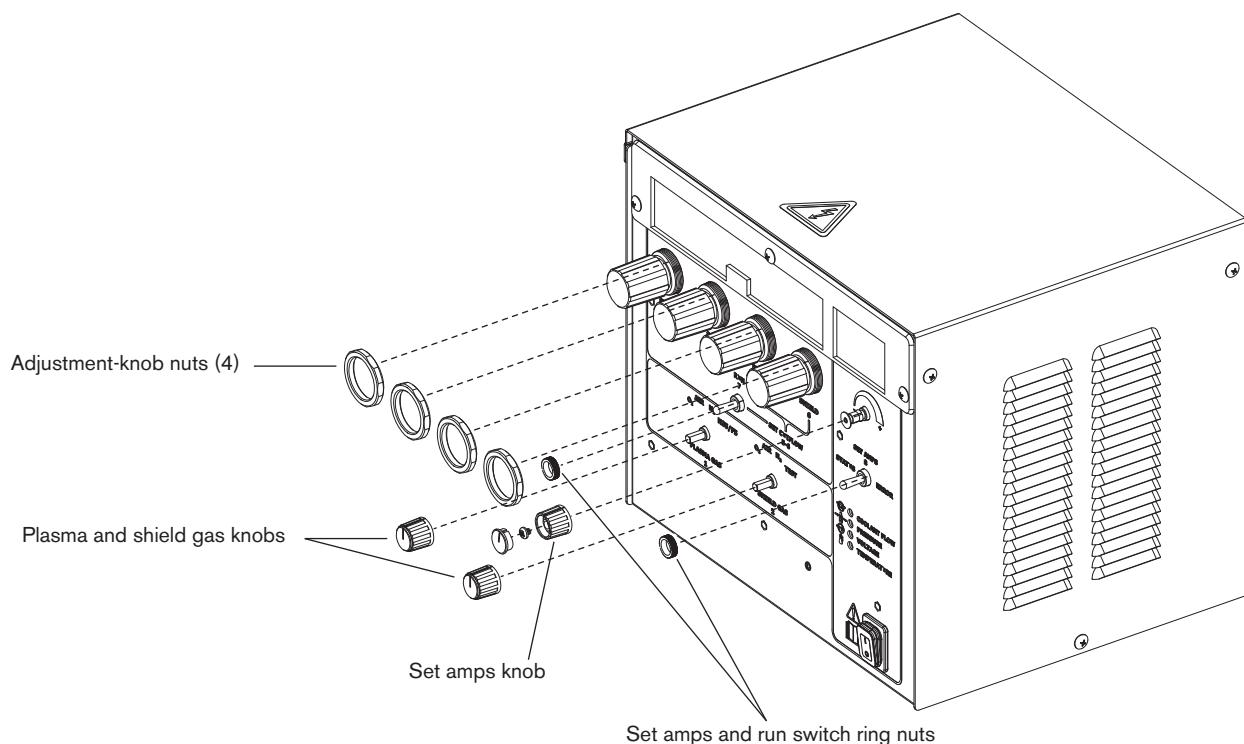
5. Replace the right side cover and turn ON the power. The system will be idle while the software code is being updated. The update process may take up to 1 minute to complete. The system may show a “watchdog interlock” error after the update. Turn the power OFF and then ON to clear the error.

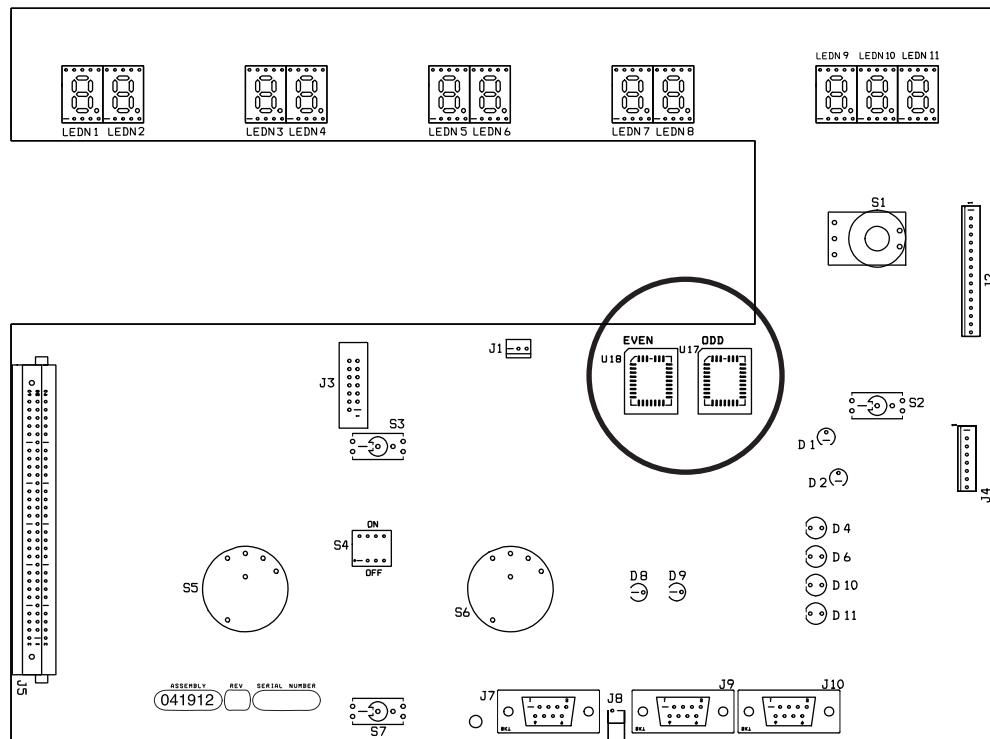
## PART 2a – HPR manual gas console

1. Turn OFF all power to the system.
2. Remove the top/side cover from the gas console to access the control PCB.



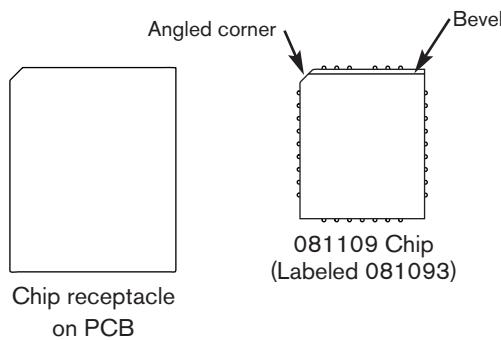
3. The PC board needs to be removed from the console to access the firmware chips.
  - 3.1 Remove the ring nuts from the SET AMPS (8) and RUN (7) toggle switches.
  - 3.2 Loosen the hex head screws (older models) on the PLASMA GAS (1), SHIELD GAS (2) and SET AMPS knobs. Remove the knobs. The hex head screw is 1/16".
    - 3.2.1 On newer gas consoles the PLASMA GAS (1) and SHIELD GAS (2) knobs can be pulled off. You must remove the cap from the SET AMPS knob and remove the screw before you can remove the knob.
  - 3.3 Remove the 4 plastic nuts from the adjustment knobs
  - 3.4 Remove all connectors from the back of the PC board.
  - 3.5 Remove 8 screws from the back of the PC board.
  - 3.6 Carefully remove the PC board. It will require some patience and careful manipulation to remove the board without damage.





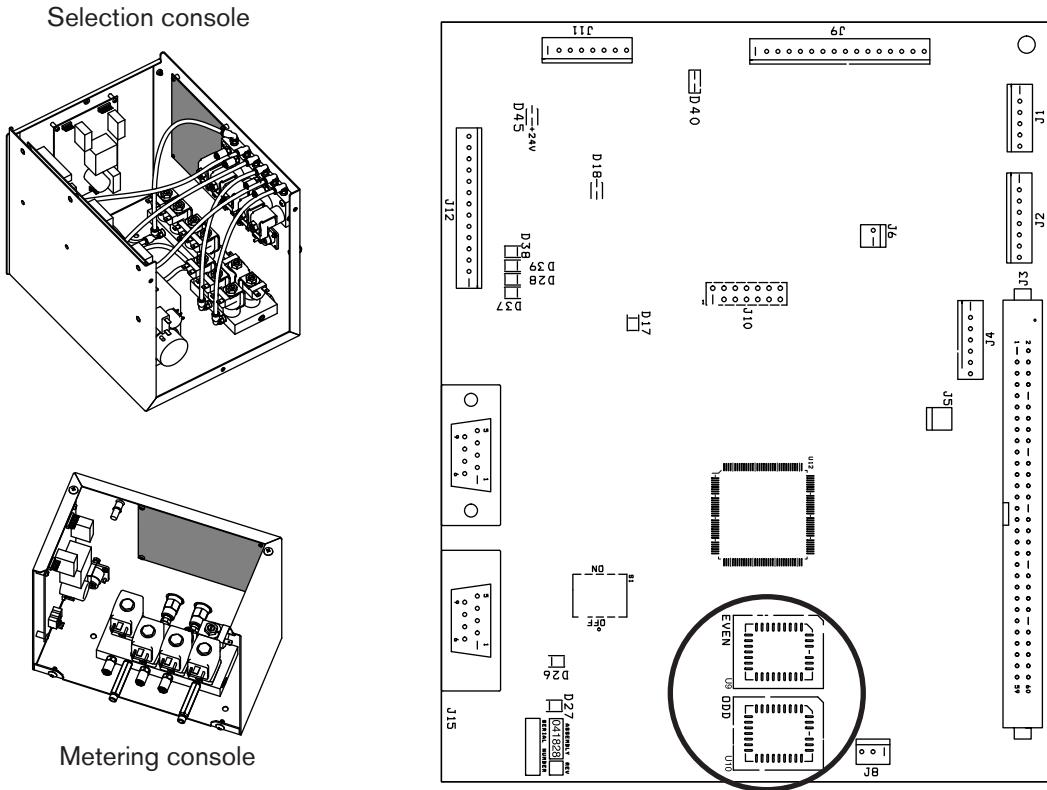
3. Remove the even (U18) and odd (U17) chips from the board using the extraction tool (027338) provided in this kit.
4. Install the new chips 081109 (labeled 081093) onto the control board.

**NOTE:** Make sure the chips are oriented correctly before installation. There is a bevel on the top edge of each chip and the upper left corner is angled (see figure below).



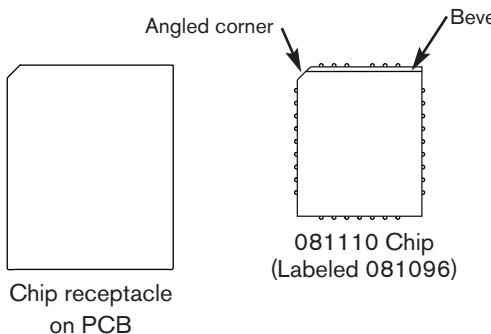
5. Replace the right side cover and turn ON the power. The system will be idle while the software code is being updated. The update process may take up to 1 minute to complete. The system may show a "watchdog interlock" error after the update. Turn the power OFF and then ON to clear the error.

## PART 2b – HPR automatic gas console



1. Turn OFF all power to the system.
2. Remove the covers from the selection console and the metering console to access the control PCB (see figure above).
3. Remove the even (U9) and odd (U10) chips from the boards using the extraction tool (027338) provided in this kit.
4. Install the new chips 081110 (labeled 081096) onto the control board.

**NOTE:** Make sure the chips are oriented correctly before installation. There is a bevel on the top edge of each chip and the upper left corner is angled (see figure below).



5. Replace the covers and turn ON the power. The system will be idle while the software code is being updated. The update process may take up to 1 minute to complete. The system may show a “watchdog interlock” error after the update. Turn the power OFF and then ON to clear the error.

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