

# F-100™

## Technical Bulletin

### Installing a Revision 1.8 PCB



**Warnings:** Refer servicing to qualified personnel.

To prevent the risk of electrical shock, disconnect power before servicing.

The F-100™ fixture operates at approximately 460° F. If the fixture has been running, allow the fixture to cool for at least one hour before servicing.



This technical bulletin is provided with the following:

- Main PCB (Printed Circuit Board)
- 7" PCB Chassis Ground wire\*
- #8 Ring terminal\*
- Triple Lug Male ground\*
- 6-32 x 5/8 Machine screw\*
- two 6-32 Hex nuts\*
- three #6 internal Tooth Lock washers\*

*\*If you have a PCB Revision 1.4 or higher, the ground lug modification should have already been made to your fixture and you will have extra parts.*

If any of the items in the above list are missing or damaged, notify High End Systems Customer Service at (800) 890-8989.

## Remove the Existing PCB

Before removing your PCB, you must first determine its revision number. To locate your PCB revision number, remove the 21 Housing Cover screws, disconnect the fluid container tube, and lift off the fixture's cover. Locate the revision number printed on the bottom left-hand corner of the PCB (for example, "F100RV1.3" is Revision 1.3). Follow the directions listed below that correspond to your PCB revision number.

### PCB Revision 1.1 - 1.3

Disconnect the following items in the order listed below:

1. the Heater wire from P5 (Heater-2) on the PCB
2. the Heater wire from P6 (Heater -1) on the PCB
3. the Pump wires from P7 on the PCB
4. the Thermocouple wire from P1 on the PCB

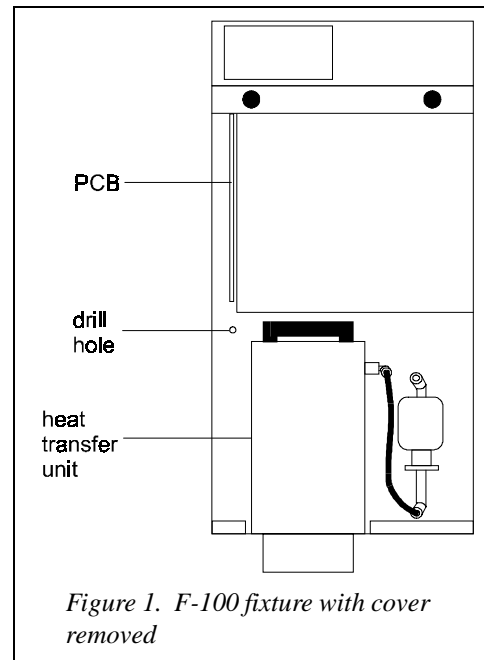
You must now modify the fixture's chassis. Use a 9/64" drill bit to drill a hole from the bottom of the chassis into the unit. The hole must be located between the heat transfer unit and the PCB and one inch from the edge of the chassis (see Figure 1). **Make sure you remove all metal shavings from the inside of the unit.** Use a medium grade sandpaper to remove the paint around the hole so the bare metal is visible.

If applicable, remove and discard the ground wire from the pump and the center lug of the 3-pin connector.

Remove the AC cord by disconnecting the following conductors:

- P4 (Earth) Green
- P3 (Live) Brown
- P2 (Neutral) Blue

Remove the five 6-32 PCB Mounting screws and the three #4 SCR Mounting screws. Lift the PCB off the chassis and discard.



## PCB Revision 1.4 - 1.7

Disconnect the following items in the order listed below:

1. the Heater wire from P5 (Heater-2) on the PCB
2. the Heater wire from P6 (Heater -1) on the PCB
3. the Pump wires from P7 on the PCB
4. the 3" Chassis/PCB ground from P4 (Earth) on the PCB from the Ground lug on the bottom of the chassis. (You may discard this wire because it will not be reused.)
5. the Double Spade grounding lug, screw, and nut from the bottom of the chassis (You may discard this lug, screw, and nut because they will not be reused.)
6. the Thermocouple wire from P1 on the PCB

If applicable, remove and discard the ground wire from the pump and the center lug of the 3-pin connector.

Remove the AC cord by disconnecting the following conductors:

- P4 (Earth) Green
- P3 (Live) Brown
- P2 (Neutral) Blue

Remove the five 6-32 PCB Mounting screws and the three #4 SCR Mounting screws. Lift the PCB off the chassis and discard.

## Install the New PCB

Note: It may be necessary to loosen the AC cord strain relief and lengthen the cord inside the unit to provide the needed clearance to connect the conductors to the terminals. You may also need to strip 1/4" of the outer jacket of insulation from the end of the conductors.

To install the new PCB, follow the steps listed below:

1. Place a #6 internal Tooth Lock washer over the 6-32 x 5/8 Machine screw and insert the screw in the hole in the bottom of the chassis. Hold the Machine screw in place, and place another #6 internal Tooth Lock washer over the screw on the inside of the chassis. Place a 6-32 Hex nut over the Machine screw and tighten securely.
2. Place the Triple Lug Male ground on the Machine screw.
3. Place the ring terminal from the AC cord over the Male ground terminal on the Machine screw.
4. Place the last #6 internal Tooth Lock washer on the Machine screw.
5. Place the last 6-32 Hex nut over the end of the Machine screw and tighten securely.
6. Mount the PCB and SCR to the Chassis using all of the original five 6-32 PCB Mounting screws and the three #4 SCR Mounting screws.



**Caution:** The PCB board may be damaged if you do not remount the PCB board to the Chassis using all of the original screws.

You must use heat sink compound on the back of the SCRs and tighten all screws firmly.

Reconnect the following items in the order listed below:

1. the Heater wire from the Block to P5 (Heater -2) on the PCB
2. the Heater wire from the Thermal Breaker to P6 (Heater -1) on the PCB
3. the Pump wire to P7 on the PCB
4. the 7" PCB/Chassis ground to the Triple Spade lug and to P4 (Earth) on the PCB
5. the Type K Thermocouple wire to P1 on the PCB (yellow is positive, red is negative)
6. the AC cord's Brown Conductor to P3 (Live) on the PCB
7. the AC cord's Blue Conductor to P2 (Neutral) on the PCB
8. the Block/Chassis ground to the Triple Lug Male ground

Use a multimeter to test the continuity of the grounding connections from the AC ground (at the plug end) to the machine screw with the Triple Lug Male ground and to the board.

When you are satisfied that continuity exists between grounds, and that all screws are securely in place, replace the cover and fluid container tube, and test the fixture's operation.

Temperature set points are preset at the factory and no adjustments should be necessary. However, for safe operation of your F-100 fixture, it is recommended that you verify the temperature settings. For more information, refer to the Technical Bulletin "Temperature Measurement and Adjustment for Revision 1.6/1.8 Main PCBs."