



Service Bulletin 00.002.020

## Ion Pump System Short Circuit Isolation

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### Purpose

This bulletin is used to isolate a short circuit in an ion pump system. It can determine if the short is in the pump, high voltage cable, or the controller.

### Scope

This procedure can be used when there is a suspected short in the system. A short is possible when the voltage does not increase above approximately 400 volts in the system. The DIGITEL Small Pump Controller (SPC) and Multiple Pump Controller (MPC) will typically provide the error codes Err7 and Error 9, respectively, in this scenario.

### Warnings

- Voltages as high as 8000 volts may be present in the power supply. These voltages can exist at peak currents as high as 500 mA. As a result, this power supply can be lethal if certain precautions are not taken. Never handle any of the external high voltage connections while high voltage is present. Always turn off the power supply and disconnect it from the power source before opening this power supply. Never operate the power supply around water. When performing maintenance on the power supply, in addition to the above precautions, only use one hand when working with the power supply. The other hand should always be kept away from an electrical circuit or ground.

### Required Tools and Materials

- Ion Pump
- Ion Pump Controller
- High Voltage Cable

### Procedure

- 1) Turn off HV.
- 2) Disconnect the HV cable from the back of the controller and bypass the Safeconn (SC) connection (small gold SMB connector), if applicable.
- 3) Turn on HV (minding that there is HV on the back of the SPC).
  - Note current/voltage (should be zero/~7000).
  - Note front panel HV neon light should illuminate
- 4) Turn off HV (repeat steps #1 to #3 if there is a second HV section).
- 5) Reconnect the HV cable, but leave SC bypass.
- 6) Turn on HV (minding that there is HV on the cable end connector). Note current/voltage (should be zero or some nominal value/~7000).
- 7) Turn off HV.
- 8) Reconnect pump to HV cable and disconnect SC bypass and reconnect SC cable connector.
- 9) Turn on HV and note current and voltage again.