

Startup and Shutdown Procedures Xcalibur-1 system



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Startup Procedures

- 1) Boot the computer.
- 2) Turn on the Xcalibur-1 water lines on the central services pillar. The water taps are on when they are parallel to the pipe.
- 3) Start the CCD chiller, CCD camera, and video camera: -
 - a) Turn the KMW150CCD chiller on by turning the key on the chiller. This actually controls power to the CCD chiller, the CCD camera, and the video camera. Turn the video camera on by pressing the power button, which is the top button on the right edge of the camera.
 - b) Wait between 30 min and 2 hrs for chiller to cool down. The instrument is ready when the GREEN lights are lit on both the chiller and the top of the CCD camera. All RED lights must be OFF. If this never happens, turn off the chiller and contact the instrument scientist or the technical staff.
- 4) Once the CCD chiller is cooled, power up the Xrays:
 - a) Open the 3 red valves on the KMW3000 chiller. The valves are open when they are parallel to the water lines.
 - b) Turn the KMW3000 chiller on by turning the key. The GREEN light on the chiller should be lit and all RED lights should be off. If any RED lights are lit, turn off the chiller and contact the instrument scientist or the technical staff.

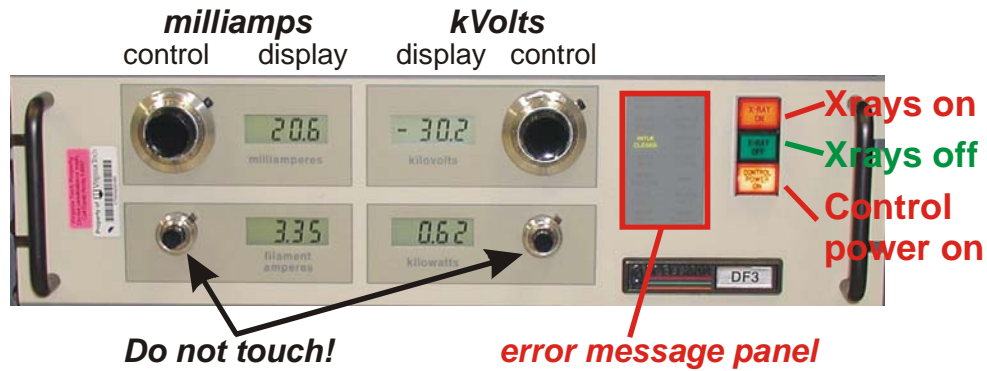


Figure 1: Spellman Generator Controls

- c) Turn on the MAINS switch inside the lower left of the generator cabinet (green switch). All of the small green lights on the power supply module should light up.
- d) On the generator, press the orange CONTROL POWER ON button (Fig 1). You should see:
 - the mA, kV, filament amperes, and kW windows illuminate.
 - The green XRAY OFF button should light up (Fig 1).
 - a green INTLK CLOSED message should illuminate in the error message panel (Fig 1). If INTLK OPEN is lit, then there is no cooling water, so check the KMW3000 chiller. If these three things don't happen exactly as described (for example, if additional messages appear), discontinue the startup procedure and contact the instrument scientist or the technical staff.
- e) While holding down the green XRAY OFF button, set the mA = 10 and the kV = 20 with the LARGE control potentiometers. NEVER adjust the small potentiometer labeled filament amperes or kilowatts.
- f) Press the red XRAY ON button. The generator will ramp up to 10 mA and 20 kV. If this doesn't happen, then the most likely problem is a dead light bulb in one of the safety interlock systems—contact the instrument scientist or the technical staff.
- g) Adjust the voltage and current to the desired values (typically 50 kV and 40 mA).

Shutdown Procedures

ONLY PERFORM SHUTDOWN IF YOU ARE SPECIFICALLY INSTRUCTED TO DO SO OR IN CASE OF EMERGENCY. IF POSSIBLE, CONTACT THE INSTRUMENT SCIENTIST OR THE TECHNICAL STAFF BEFORE PERFORMING AN EMERGENCY SHUTDOWN.

- 1) Power down the Xrays:
 - a) Reduce the current to 5 mA and voltage to 10 kV. Wait 5 minutes.
 - b) Press the green XRAY OFF button.
 - c) Press the orange CONTROL POWER ON button. The displays will go off. Wait 5 minutes.
 - d) Toggle the MAINS switch in the lower left to the off position.
 - e) Turn the KMW3000 chiller off by turning the key and turn all 3 red valves to the off position (perpendicular to the water lines).
- 2) Shut down the CCD chiller, CCD camera, and video camera by turning of the KMW150CCD chiller with the key.
- 3) Turn off the Xcalibur-1 water lines on the central services pillar The water taps are off when they are perpendicular to the pipe.
- 4) Shut Down the computer.