

Gamma Transition Power Supply **Manual Ramp / Jump Procedure**

1.0 Scope

- 1.1 This procedure describes the methods used to manually ramp and jump one Gamma Transition power supply at a time.
- 1.2 To ramp / jump all the supplies supply refer to the “Gamma Transition Power Supply Automatic Ramp / Jump Procedure” available at the link provided below.
- 1.3 Graphical representation of the jump will not be possible on the computer when ramped manually. If ramp/jump performance needs to be observed, an oscilloscope will be required at the power supply or all of the supplies will need to be jumped using the automatic procedure noted above.
- 1.4 There is a way to observe previous jumps performed in operation of the accelerator. This can be used as a reference when the normal appearance of a jump is not known. Refer to **Appendix 1** for a procedure to observe previous jumps. Figures 2 and 3 also show normal jumps.

2.0 Requirements

- 2.1 A computer with a network connection logged into a Sun server. Usually the ATR account is used.
- 2.2 **If the accelerator is running, you will need permission from MCR in order to perform this procedure.**

3.0 Background Information

- 3.1 Gamma Transition supplies are located at all the A and C alcoves in the ring.
- 3.2 Information about the supplies, their locations, rack positions, other procedures and some schematics can be found by following the links from the Collider Electrical Power Supply Group On-Line Documentation web page at <http://www.c-ad.bnl.gov/ceps/onlinedocs.htm>

4.0 Supply Operation

- 4.1 In order to jump these supplies, an appropriate capacitor voltage must be set first. This is best done while the supply is in standby mode, at least for the first jump.
- 4.2 The supplies are designed so that the polarity of the capacitor voltage and the polarity of the output current must match in order to perform a jump to the opposite polarity. However the readback of the capacitor voltage only appears as a positive number.
- 4.3 Only positive output currents can be entered on the pet page but the current will be negative if the capacitor voltage is negative.

5.0 Setup

- 5.1 After logging into a Sun server, run the pet program by typing **pet&** at a console or terminal prompt.
- 5.2 Run the magnet pet page for the alcove containing the supply to be ramped. This is done by choosing **FECs** on the PET window. Then choosing **Magnets** from the drop down menu. Then choosing the appropriate Front End Computer from the drop down list. The PS1 Front End is usually for Blue supplies and PS2 is usually for Yellow supplies. This is followed by another drop down menu where **Magnets** is selected.
- 5.3 An example would be to choose **cfe-1a-ps1** and **Magnets** which brings up a pet page for bi12-qgt in alcove 1A. Figure 1 shows what the area of interest on this page looks like.

6.0 Procedure

- 6.1 If the supply is off, you will need to go through the normal procedures of resetting and standby to get the supply in the standby mode.
- 6.2 If the supply is in any other state it is recommended that the current setpoint be ramped to zero as described in steps 6.3.9 and 6.3.10. Then set the supply to standby then the off state.
- 6.3 In order to perform a positive to negative jump do the following:
 - 6.3.1 Starting with the power supply in the standby state with zero current out and a zero setpoint, set the capacitor voltage to positive 150 Volts. The + sign is not necessary for positive voltages. Use the data entry box labeled **dacmain.powersupplyname**. And press enter.
 - 6.3.2 Set the power supply to the on state. The capacitor voltage will slowly go up. When the capacitor is fully charged perform the following steps.
 - 6.3.3 Set a 30 second ramp time.
 - 6.3.4 Set a 1 Amp. current setpoint
 - 6.3.5 Click **DoIt**.
 - 6.3.6 When the supply reaches 1 Amp, set a current setpoint of 20 Amps and **DoIt**.
 - 6.3.7 When the supply reaches 20 Amps it can be jumped by double clicking the **Trigger** button.
 - 6.3.8 The jump process takes 8 to 10 seconds to show up on the pet page. When it's done the p.s. current and voltage readbacks will be negative and the capacitor voltage will still be positive.
 - 6.3.9 To now manually make a negative to positive transition, ramp the supply from 20 Amps to 1 Amp in 30 seconds.
 - 6.3.10 Then ramp the supply from 1Amp to zero Amps in 30 seconds.
 - 6.3.11 Set the supply to standby.
 - 6.3.12 Enter in a negative capacitor voltage of -150 Volts.
 - 6.3.13 Repeat the steps from 6.3.2 to 6.3.7.

7.0 Appendix 1 – Use to observe previous jumps made during an accelerator run.

- 7.1 The StartUp program is required for this procedure. It usually starts during the logon process. If it does not, then type **StartUp&** at a console or terminal prompt.
- 7.2 In the StartUp program select **Start**, then select **RHIC PS Management**, then select **barshow**.
- 7.3 When the barshow program starts up select **Main_Quad** from the top menu bar. Then select **GAMMA** from the drop down menu.
- 7.4 Next select a power supply from the list on the left. This will bring up a list of events on the right. Pick an event to view and this will bring up a plot in the “two” window.
- 7.5 This window will show a plot of the jump current vs. time. See Figures 2 and 3 for examples of positive to negative and negative to positive transitions respectively.

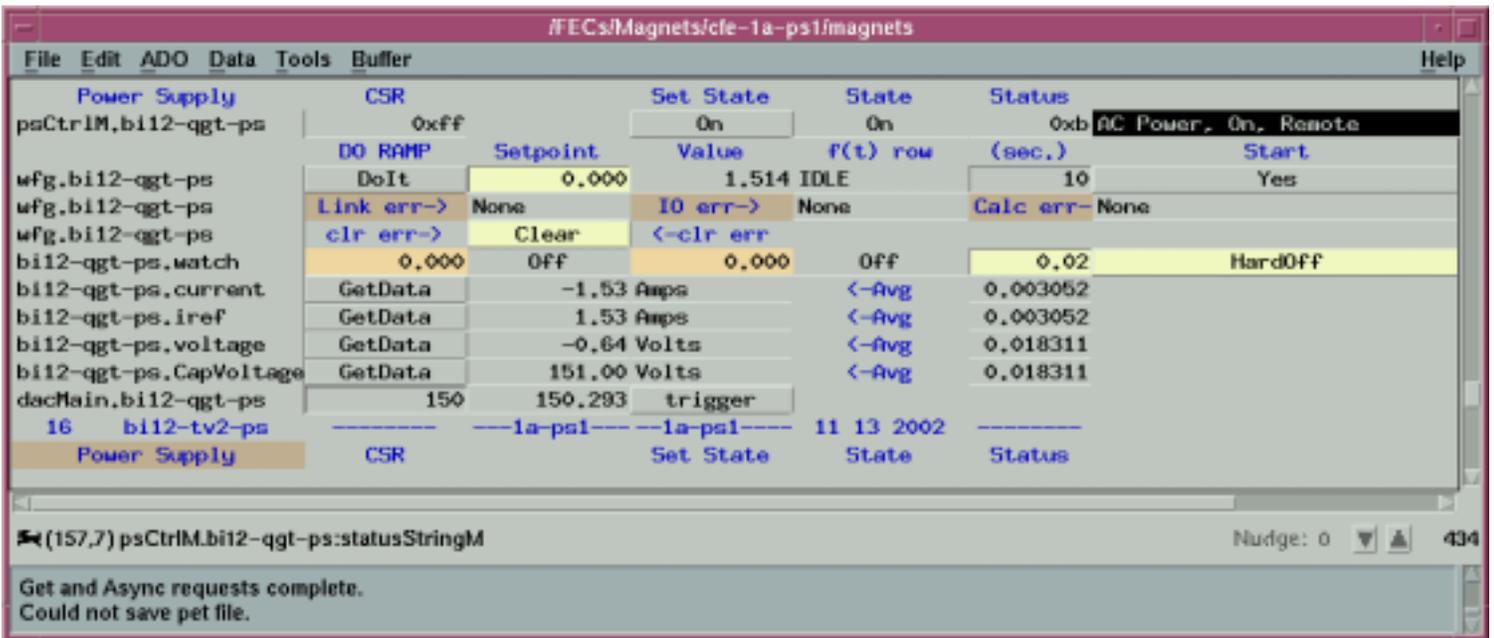


Figure 1

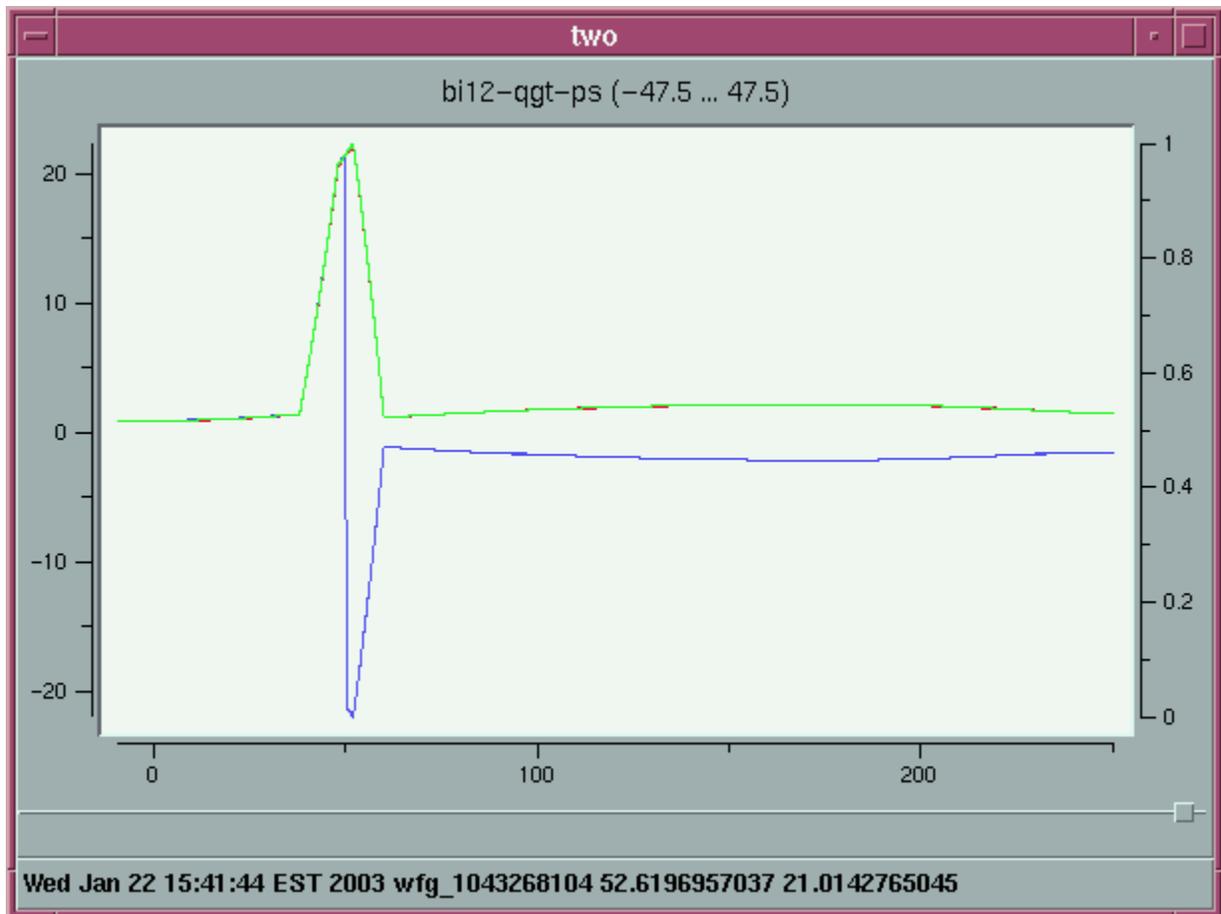


Figure 2

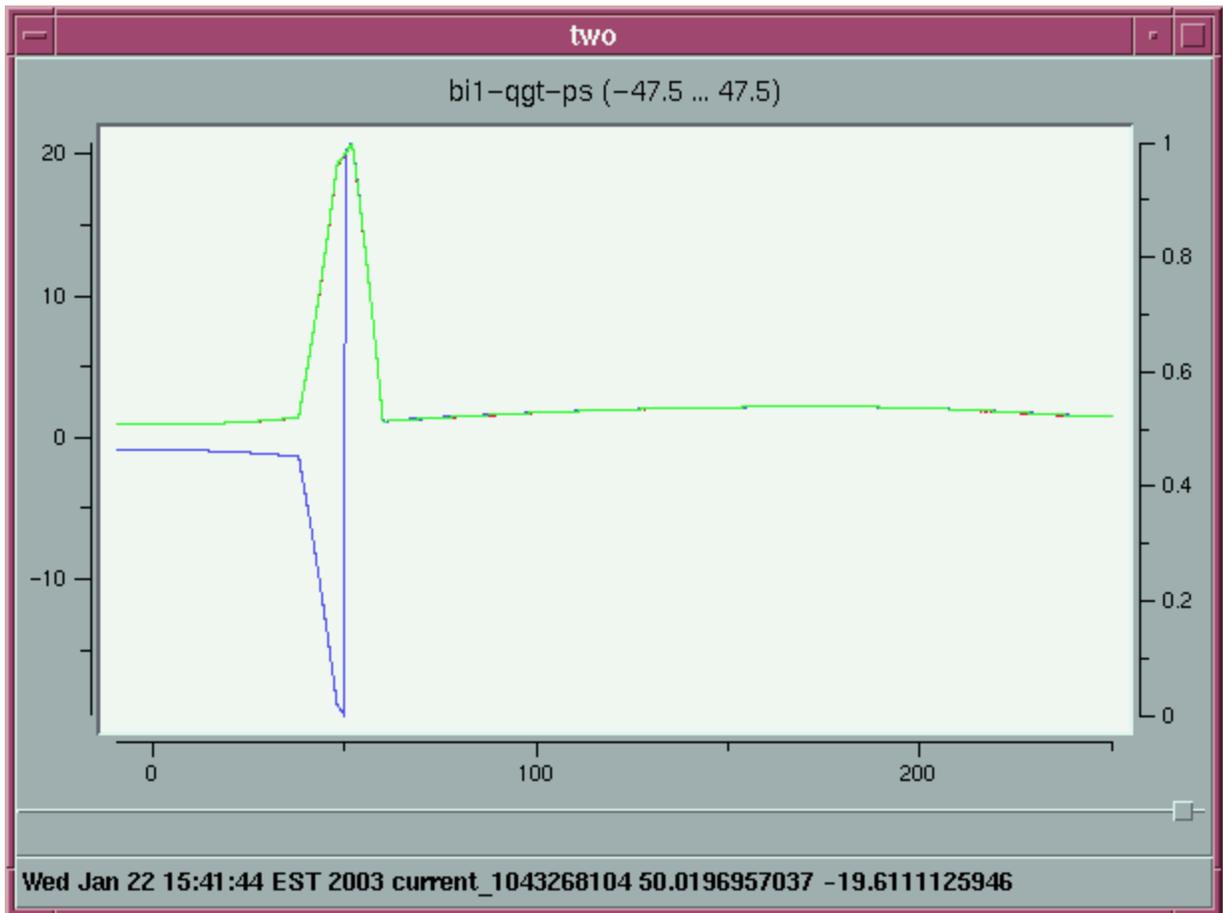


Figure 3