

RF Technical Note

Swapping the Upper and Lower 40/50-kV High Voltage EMI Power Supplies in the Linac Modulators

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This Note outlines the steps involved to swap the upper and lower (or failed and back-up) 40/50-kV High Voltage EMI Power Supply (PS) in the Linac Modulators without replacing the supplies. This work may be required to be done at any time during the Linac operation in order to restore normal operation after failure of the previously operated PS, and does NOT need an APS Work Request to be filed.

The RF Group personnel is responsible for making the decision to swap the PS, if the normal operation of it is not possible any longer due to the PS failure. The MCR operators must be notified, and their permission obtained before the work may be started.

At least two qualified members of RF Group must be present during performance of this work.

NOTE 1: This work involves electrical safety.

NOTE 2: Two qualified members of the RF Group must be present while performing the work.

NOTE 3: Refer to Safety Procedure # 121-00030 (1110-00082) “Lockout/Tagout Procedure for the Linac Modulator Systems”.

Procedure:

1. Have the Work Request approved, keep a paper copy with you.
2. Obtain permission to start this work from the Ops.
3. Shut the modulator completely OFF including the klystron and thyatron filament power supplies.
4. LOTO the modulator (refer to **Safety Procedure # 121-00030 (1110-00082) - Lockout/Tagout Procedure for the Linac Modulator Systems**) (Fig. 1 through 5).



Figure 1. Open and LOTO Fused Disconnect (FD) switch L#:MO1.



Figure 2. Check operation of the Fluke volt meter do not turn the meter off or change its scale.



Measure all 3 phase-to-phase and 3 phase-to-ground voltages

Points of measurement

Phases

Ground

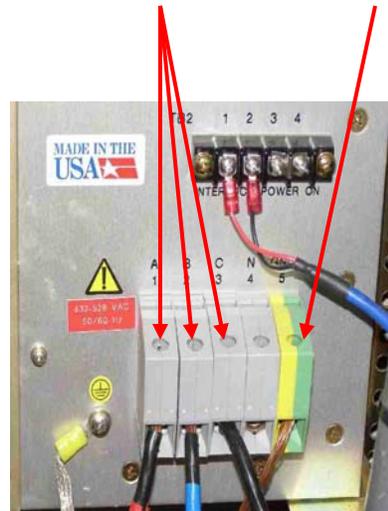


Figure 3. Verify absence of 480 V in the EMI supply power connector.



Figure 4. Check operation of the Fluke volt meter again.



Figure 5. Open PFN doors. Touch all open HV parts of the PFN with the grounding rod. Leave the grounding hook in the designated grounding ring. Close PFN doors.

5. Disconnect ONLY the Control, Feed Back, and HV cables from the rear panel connectors of the failed PS. Touch a grounded metal surface by the end of the cable in order to make sure the cable is completely discharged. Wipe out old grease, inspect and regrease the cable (Fig. 6).

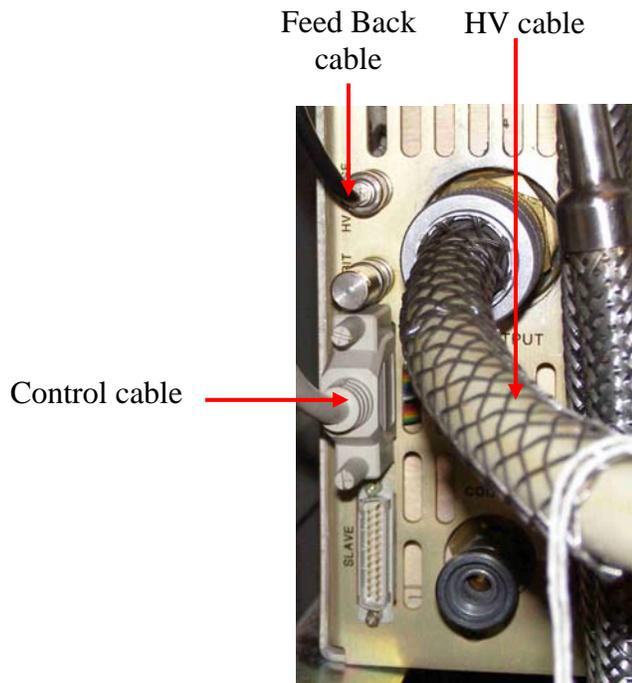


Figure 6. EMI power supply cables to be disconnected.

6. Connect Control, Feed Back, and HV cables to the back-up PS.

NOTE 5: Modulator ACIS validation is NOT required before the work may be considered complete.

7. File the failure date, symptoms, and Serial Numbers of both failed and back-up PSs in the Log book.

8. Unlock the 480 VAC switch and turn the modulator ON.

9. Bring the modulator and klystron to required voltage and RF power. Resume the Linac operation.