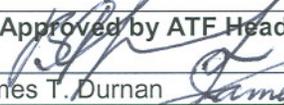
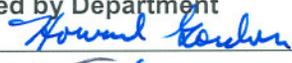
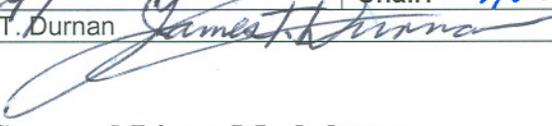


BROOKHAVEN NATIONAL LABORATORY PHYSICS DEPARTMENT		Number: PO-P-ATF-0011	Revision: 2
		Effective: 09/01/2006	Page 1 of 2
Subject: ATF Gun and Linac Modulator PFN Tuning Procedure		Prepared by: Marc Montemagno	
Reviewed by ES&H Coordinator: 	Approved by ATF Head: 	Approved by Department Chair: 	
BNL Electrical Safety Officer: James T. Durnan 		for 	

ATF Gun and Linac Modulator PFN Tuning Procedure

The ATF Gun and Linac Modulator PFN is essentially a bank of capacitors, the total capacitance is about half a microfarad charged up to a maximum 40 thousand volts. Along with the capacitors are variable inductors which are tuned to match the load and to provide a flat RF pulse. This tuning must be done with High Voltage near its operating level and RF drive on the Klystron. The cavity input power is displayed on a scope as is the PFN output voltage, the inductors are then tuned for a proper match and RF pulse flatness. There is essentially no practical way to tune the PFN unless running in its operational mode, High Voltage and RF power on.

Note 1: This is not a working on or near procedure. This procedure has been developed to preclude a working energized situation. LOTO will always be enforced when entering the PFN [High Voltage] cabinet. The Prohibitive Approach Boundary will not be crossed during this procedure.

Note 2: The two-man rule shall be used for this procedure. [Both must be authorized with at least one qualified to the responsible level for this equipment].

Note 3: Safety glasses shall be worn by all personnel within the barricaded area when High Voltage is on and the wire mesh door [or other approved tuning barrier] is in place.

Note 4: Unit shall never be left unattended with barrier in place unless High Voltage is Locked/Tagged out.

1. Establish an eight foot (8') barricade to keep unauthorized personnel at a safe distance from modulator being tuned.
2. Secure modulator via LOTO, shunt all high voltage points to ground, and place grounding stick on HV wire ("grounding maneuver").
3. The PFN front door can now be removed and replaced with wire mesh door [or other approved tuning barrier].
4. The High Voltage probe may be connected at this time. Remove grounding stick.

5. LOTO may now be undone and High Voltage turned on. See Note #3 and Note #4.
6. PFN may now be tuned by inserting insulated end of grounding stick [or other approved tool] through wire mesh door [or other approved barrier]. Adjustment of inductor wire must be preceded by LOTO.
7. Entry to PFN to adjust wire on inductor must be preceded by LOTO and grounding maneuver.
8. After tuning is completed, de-energize and secure High Voltage source following LOTO and grounding maneuver.
9. Remove grounding stick and wire mesh door [or other approved tuning barrier] and reinstall front door, remove barricade, undo LOTO, unit may now be turned on.