

Brookhaven National Laboratory/National Synchrotron Light Source			
Subject:	BXD LOTO for Radiation Protection		
Number:	LS-ESH-0054	Revision:	A
		Effective:	2/19/2008
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[Revision Log](#)

Purpose: The Booster/X-ray Dipole (BXD) needs to be turned off and locked when the X-Ray tunnel is open and there is beam in the booster ring. Although, the x-ray injection shutter is in place to stop the beam from entering the x-ray tunnel, this additional action was determined to be used as an additional precautionary measure. It is anticipated that an interlock feature will be added in the future that will replace the need for applying LOTO to the BXD under these circumstances.

Scope: This procedure is applicable for radiation protection purposes for personnel in the X-Ray tunnel when beam is established in the Booster ring. The Operations Coordinators and Machine Operators will carry out this procedure when needed.

Procedure:

1. Obtain 1 padlock, 1 Hold tag, and 1 cable-tie.
2. Inform the control room operator that the BXD power supply disconnect switch will be Locked/Tagged.
3. Request for the Machine Operator to turn off the BXD PS via computer. Observe the meters on the BXD PS (Refer to figure 1) to verify that the voltage reads zero volts as the supply is turned off.
4. Once verified the supply voltage is at zero volts, identify the disconnect switch for the BXD PS (Refer to figure 3) located behind the BXD supply on the wall. Don the appropriate PPE in accordance with BNL SBMS and on the disconnect switch warning label (Refer to figure 2).
5. Throw the disconnect switch to the OFF position.
6. Verification: Switch the BXD PS to "Local" control. Attempt to turn ON the supply by pressing the ON button.
7. Once verified the PS will not turn ON, Press the OFF button and then apply a Lock and completed Tag to the BXD disconnect switch.
8. Log the LOTO application.
9. Inform the machine operator that the BXD Disconnect switch is Locked/tagged.
10. If the BXD PS will need to remain LOTOed past the current shift of the Machine Operator or Operations Coordinator that applied the Lock/Tag then the oncoming shift will need to transfer the LOTO devices in accordance with the [Lockout/Tagout \(LOTO\)](#) subject area.
11. Upon securing the X-Ray tunnel the BXD PS may return to service.
12. **BXD PS Return to Service:** Remove lock and tag. Don appropriate PPE. Throw BXD disconnect switch to the ON position. Switch the BXD PS to "Remote" Control.
13. Inform the machine operator that LOTO has been removed.

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Appendix: Equipment Photos

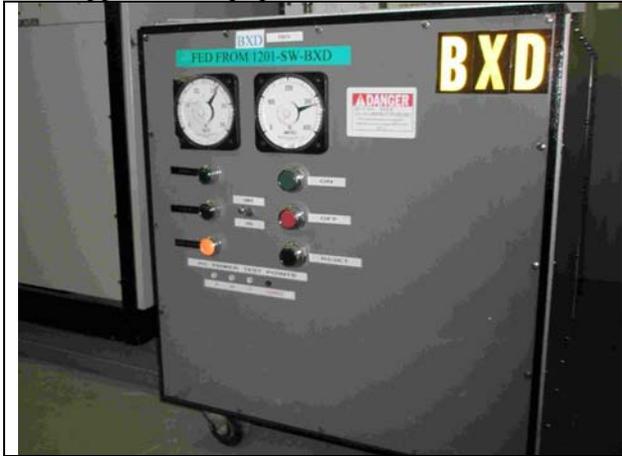


Figure 1: BXD Power Supply



Figure 2: BXD Disconnect

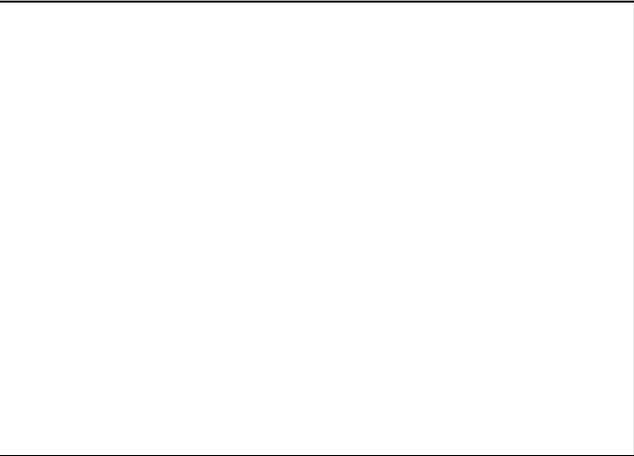


Figure 3: BXD power supply and Disconnect location

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