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SMD Operations Procedures Manual

8.1.1.21 OPERATION OF TRIM POWER SUPPLIES FOR HORIZONTAL MAGNET TESTING

Text Pages 1 through 5
Attachment 1

Hand Processed Changes

<u>HPC No.</u>	<u>Date</u>	<u>Page Nos.</u>	<u>Initials</u>
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8.1.1.21 Operation of Trim Power Supplies for Horizontal Magnet Testing

1.0 Purpose and Scope

- 1.1 The purpose of this Procedure is to provide step by step instruction in the start-up, operation, and shut-down of the Horizontal Test Facility Trim Power Supplies (Supplies). They are located on the upper level of the 902 high bay, above the dipole calibration magnets.
- 1.2 There are three trim power supplies: one 150 amp unit (TPS1), and two 80 amp units (TPS2 and TPS3).

2.0 Responsibilities

- 2.1 Authorized Operators (Operators) of the Horizontal Test Facility will perform the procedure.
- 2.2 The Operator will maintain a Horizontal Testing log book for the magnet under test. Entries will include notes of any irregularities encountered regarding the Supplies.

3.0 Prerequisites

- 3.1 The Operator shall be trained and qualified by the following people:
 - A. Cognizant Engineer for the Trim Supplies, or the CE's designee.
 - B. Cognizant Engineer or Cognizant Scientist for horizontal magnet testing, or the CE/CS's designee.
- 3.2 The Operator shall be an "authorized employee" as defined by SEAPPM 1.5.1, "Lockout/Tagout Requirements".

4.0 Precautions

Noted in section 5.0 before individual steps requiring precautions.

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5.0 Procedure

5.1 Verify that the safety interlocks have been tested within the past six months.

IF the test approval has expired,

THEN stop work and immediately notify the Cognizant Engineer. Do not continue performing this procedure.

NOTE A "Safety Interlock Test Approval" form (see Attachment 1) is posted on the Remote Control Rack. The form indicates the last test date, and the expiration date.

5.2 Verify that the following initial conditions are true:

1. Controls on each of the three chassis labeled "REGULATOR CHASSIS" as follows:
 - A. PARK toggle switch in the ON position
 - B. REMOTE/LOCAL toggle switch in the REMOTE position.
 - C. PS switch in the OFF position.
 - D. TIME CONSTANT toggle switch set to MAGNET position.

Do not change the potentiometer settings.

2. Doors at the back of the TPS racks closed.
3. Input disconnect switches on the TPS racks in the OFF position.
4. 208V power plugs from TPS racks unplugged from wall sockets.
5. Magnet temperature NOT above 4.8° K.
6. Gas-cooled lead flow on.

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WARNING

Failure to follow proper Lock Out/Tag Out procedures while performing the next step could result in severe injury.

- 5.3 Connect the output leads of the trim power supplies to the magnet trim leads by performing the following steps:
 - 5.3.1 Lock and tag the three input disconnect switches on TPS racks 1, 2, and 3.
 - 5.3.2 Remove the protective covers from the TPS connector block on the magnet.
 - 5.3.3 Connect the output leads to the magnet trim leads.
 - 5.3.4 Tighten all connections.
 - 5.3.5 Replace protective covers.
 - 5.3.6 Remove locks and tags.
- 5.4 Activate power to the data acquisition/control rack. This rack is located to the left of the TPS racks.
- 5.5 Start the control software on the computer adjacent to the data acquisition/control rack. Start the control software on the computer in the Horizontal Control Room. Verify that communication is established with the remote data acquisition/control rack.
- 5.6 Start Supplies as follows:

At the Supplies:

 - 5.6.1 Plug in the 208V power cords of the three Supplies.
 - 5.6.2 Place the three input disconnect switches in the ON position.
 - 5.6.3 If the POWER switches on the front panels of the Supplies are in the OFF position, then place them in the ON position.

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In the HCR:

- 5.6.4 Set the Quench Detectors to the highest value by performing the following steps:
 - 1. Place the toggle switch in the SET position.
 - 2. Turn the potentiometer to the highest value.
 - 3. Place the toggle switch in the NULL position.
 - 4. Repeat for all Quench Detectors.
- 5.6.5 Reset faults through computer command.
- 5.6.6 Turn on Supplies through computer command.
- 5.6.7 Set Quench Detectors to 40uA by performing the following steps:
 - 1. Place the toggle switch in the SET position.
 - 2. Adjust the potentiometer for a 40uA setting.
 - 3. Place the toggle switch in the NULL position.
 - 4. Repeat for all Quench Detectors.
- 5.7 Operate Supplies as follows:
 - 5.7.1 Enter desired current level for TPS1, TPS2, and TPS3 through computer command. Refer to the applicable ATP for the particular test being conducted.
 - 5.7.2 Start ramp through computer command.
- 5.8 Shut down Supplies as follows:
 - 5.8.1 Ramp Supplies to zero amps.
 - 5.8.2 Set Quench Detectors to highest value (see step 5.6.4).
 - 5.8.3 Turn off Supplies through computer command.

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- 5.9 IF any irregularities regarding the operation of the Supplies occurred,
 THEN provide a detailed description in the horizontal testing log book.

6.0 Documentation

- 6.1 Horizontal testing log book.

7.0 References

- 7.1 SEAPPM 1.5.1, "Lockout/Tagout Requirements".

8.0 Attachments

1. Interlock Test Approval Form

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Attachment 1

Interlock Test Approval Form

<u>Safety Interlock Test Approval</u>	
The safety interlocks of the HTF Trim Power Supply System have been tested and approved	Approval Date_____
The approval is valid until the expiration date shown. DO NOT OPERATE THE HTF TRIM POWER SUPPLIES AFTER THE EXPIRATION DATE.	
	Expiration Date_____
Approval Signature (CE or ESSH) _____	
Post on TPS Remote Control Rack	