C-A OPERATIONS PROCEDURES MANUAL

ATTACHMENT

11.4.3.c STAR Power Supply Polarity Change Check Off List

C-A-OPM Procedures in which this Attachment is used.		
11.4.3		

Hand Processed Changes

HPC No.	Date	Page Nos.	Initials
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Approved: _____***Signature on File***_____ _____
Collider-Accelerator Department Chairman Date

P. Rosas

STAR Power Supply Polarity Change Check Off List

1. All STAR Power Supplies shall be shut down and **locked out** in accordance with the **"STAR Power Supply SHUT-DOWN Check Off List"** prior to changing polarity for any power supply. All completed check off sheets shall be signed and kept in a binder in the STAR Control Room.

Warning:
Current can flow after the power supply is turned off due to the stored energy in the magnet. In addition to the energy stored in the magnet the power supply contains filter capacitors which decay with a 1-minute time constant. Entrance into the power supply enclosure shall be delayed for approximately 5 minutes after de-energizing the power supply.

2. Main Magnet PS, PTT-EAST PS, and PTT-WEST PS Polarity reversal.

2.1 The polarity reversal is accomplished by unbolting the reversing bus bars and moving each bus (2) to the opposite positions. Wait five (5) minutes after PS turn off before unlocking the rear doors.

Main Magnet PS:

- Observe the front door polarity indicator light for current polarity position. [ ]
- Unlock the external capacitor cabinet door with the 1D key. [ ]
- Verify external capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage panel. [ ]
- Unlock main magnet rear doors with the 1D keys. [ ]
- Verify capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage panel. [ ]
- Place a ground stick on the positive and negative bus and leave them in place until the polarity reversal is completed. [ ]
- Unbolt reversing bus bars, 2 each. [ ]
- Clean and inspect bus connections. [ ]
- Apply a new light coating of silicone grease to all bus contact surfaces. [ ]
- Mount the bus bars in the new polarity position and torque the bolts to the proper torque value. See Power Supply Manuals for bolt torque values. [ ]
- Observe the front door polarity indicator lights for proper polarity indication. [ ]
- Remove both ground sticks. [ ]
- Lock Power Supply and capacitor bank cabinet doors and move 1D keys to Power Supply Transfer Lock 'D '. [ ]

PTT-EAST PS:

- Observe the front door polarity indicator light for current polarity position. [ ]
- Unlock rear doors with the 2C keys. [ ]
- Verify capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage panel. [ ]

- Place a ground stick on the positive and negative bus and leave them in place until the polarity reversal is completed. [ ]
- Unbolt reversing bus bars, 2 each. [ ]
- Clean and inspect bus connections. [ ]
- Apply a new light coating of silicone grease to all bus contact surfaces. [ ]
- Mount the bus bars in the new polarity position and torque the bolts to the proper torque value. See Power Supply Manuals for bolt torque values. [ ]
- Observe the front door polarity indicator lights for proper polarity indication. [ ]
- Remove both ground sticks. [ ]
- Lock doors and move 2C keys to Power Supply Transfer Lock 'C'. [ ]

PTT-WEST PS:

- Observe the front door polarity indicator light for current polarity position. [ ]
- Unlock rear doors with the 3E keys. [ ]
- Verify capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage panel. [ ]
- Place a ground stick on the positive and negative bus and leave them in place until the polarity reversal is completed [ ]
- Unbolt reversing bus bars, 2 each. [ ]
- Clean and inspect bus connections. [ ]
- Apply a new light coating of silicone grease to all bus contact surfaces. [ ]
- Mount the bus bars in the new polarity position and torque the bolts to the proper torque value. See Power Supply Manuals for bolt torque values. [ ]
- Observe the front door polarity indicator lights for proper polarity indication. [ ]
- Remove both ground sticks. [ ]
- Lock doors and move the 3E keys to Power Supply Transfer Lock 'E'. [ ]

3. Space Trim East and West Polarity reversal:

3.1 The polarity reversal is accomplished by moving the manual reversing switch to the opposite position. Wait five (5) minutes after PS turn off then unlock the front door.

Space Trim East:

- Unlock the front door using the **5B** key. [ ]
- Verify capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage din terminals 1 and 3. [ ]
- Place a ground stick across the positive and negative bus terminals and leave them in place until the polarity reversal is completed. [ ]
- Move the Reversing switch to the new position. [ ]
- Remove both ground sticks. [ ]
- Lock PS door and move the **5B** key to the 'B' Transfer lock. [ ]

Space Trim West:

- Unlock the front door using the **4B** key. [ ]
- Verify capacitor bank voltage at zero volts, using a volt meter across the capacitor bank voltage din terminals 1 and 3. [ ]
- Place a ground stick across the positive and negative bus terminals and leave them in place until the polarity reversal is completed. [ ]
- Move the Reversing switch to the new position. [ ]
- Remove both ground sticks. [ ]
- Lock PS door and move the **4B** key to the 'B' Transfer lock. [ ]

4. Record on the Power Supply logbook, the Polarity Change completion. [ ]

NOTES:

Completed By: _____	Date: _____