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C-A OPERATIONS PROCEDURES MANUAL

4.39 Procedure for Operation of Booster Access Control System

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Hand Processed Changes

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Collider-Accelerator Department Chairman Date

J. Reich

4.39 Procedure for Operation of Booster Access Control System

1. Purpose

This procedure deals with operation of the Booster Access Control System (ACS). The Booster ACS is relay based safety interlock system utilizing the same type GE Control relay in use at the AGS except operating at 24-26 volts dc for improved electrical safety. Relay logic is configured to be fail-safety i.e., an open circuit or a relay failing to energize will place the Booster in safe condition. Redundancy in input sensing, wiring paths and shut-down methods is also provided. Normal access through gates is provided by electric strikes which must be energized every time a door is opened. Emergency access is always available via break-out glass panels, which allows use of a standard door knob on the inside of the gate.

2. Responsibilities

2.1 MCR Operators, Operations Coordinators (OC), and Collider-Accelerator Support CAS personnel are responsible for the implementation of this procedure.

3. Prerequisites

3.1 While work is underway and an abnormal condition arises, re-review the job against criteria in applicable SMBS Subject Areas, and/or work planning requirements. If unsure of further actions, discuss situation with supervisor.

3.2 User of this procedure must first be trained in Access Control System Operation

3.3 Access Points

Man-Lock (Booster on restricted access and plug door NOT open) normal access will be through the double gate configuration known as the Man-Lock. An AA256 key provides access by releasing the electrical strike on the outside door.

Man-Lock (Booster on controlled access) normal local control, the gate watch needs to use the H705 key to energize the electric strike on the outer door, inside the door allow free passage.

3.4 MCR Panels

Status of the Booster ACS is largely provided by the ACS Security PC in the MCR. In addition, there are two panels in the Main Control Room at MCR 2-1. The GH panel allows selection of:

Controlled/Restricted Access;
Open/Close of LTB Beam Stop
Enabling of HD1 Power Supply
Open/Close TTB beam stops;

The MCR 2-1 k panel^{*} provides the means to select the:

Simultaneous release of the electric strike at the gate;
Status of the Man-Lock.

4. **Precautions**

- 4.1 The emergency door at D5 is for exit only. Either two pieces of tape or two security (“Pull-Tite”) seals are to be applied to this door when in the Controlled Access state to assist in determining whether the door has been opened. If seals are used, the seals must be UL-approved for use on security doors. These seals easily can be broken in the event of emergency egress. If tape is used, the tape must be attached to both the security door and the door jamb so that opening of the door can be detected.
- 4.2 The hydraulically driven plug door can only be operated on Restricted Access while the Man-Lock outside gate is closed. When the Plug Door is open, control of personnel entering is provided by a pair of hinged gates equipped with an AA256 lock.
- 4.3 When not in Restricted Access, passage from the Booster into the AGS is permitted only if no other gate into the AGS is open.
- 4.4 The Access Control System is not intended to provide for electrical safety, although it does interlock the Booster Main Ring Dipole and Quad Power Supplies.
- 4.5 Room “A” in Bldg. 914 contains the Central Logic Enclosure 4521 and its power supply; this enclosure is locked and has no external indicator lamps.
- 4.6 To access the Booster a gate watch must be used during the controlled access mode. Remote key control is NOT permitted!

5. Procedure

- 5.1 Procedure steps for preparing Booster for beam, controlled and restricted access modes follow the AGS convention.
 - 5.1.1 In restricted access close the plug door if open.
 - 5.1.2 Check that the CRASH Buttons are OK using the Security PC (F8 Key) Reset before the sweep, if necessary.
 - 5.1.3 Sweep Booster according to [C-A-OPM-ATT 4.56.f](#).

*The k panel is not labeled

- 5.1.4 After the sweep is completed, again check the Security PC for interlocks. Indications displayed on a white background show de-energized relays generally indicating interlocks. The Booster Logic Diagram (D40-E100) may also be used to understand the interlocks.
- 5.1.5 If all interlocks are satisfied and beam is to be transported from the Linac to the Booster beyond the LTB beam stop then the LTB beam stop may be opened using the H693 key switch, on panel MCR2-1 GH. To close the beam stop and shut off the DH1 power supply. Depress the pushbutton above and to the left of the key switch. If DH1 is used as substitute for LTB2, turn PS off via spreadsheet (controls).
- 5.1.6 If beam is to be transported from the Tandem to the Booster beyond the TTB beam stops, then the area in HEBT where TTB crosses over must be swept according to the procedure [C-A-OPM-ATT 4.56.j](#). The H693 keyswitch on panel MCR 2-1 GH is then used to open the TTB beam stops.
- 5.1.7 Entry into the Booster while in Controlled Access Mode is made using local control only, an H705 key is necessary.

6. Documentation

None

7. References

- 7.1 [C-A-OPM-ATT 4.56.f, "Booster Sweep Checklist"](#)
- 7.2 [C-A-OPM-ATT 4.56.j, "Linac Sweep Checklist"](#).
- 7.3 Booster Logic Diagram (D40-E100).

8. Attachments

None