ATF LASER INTERLOCK SYSTEM SEARCH PATTERNS

I. Introduction

In order to properly secure the various rooms containing Class IIIB or IV lasers at the ATF it is necessary for the trained laser operator to carry out a search of the area in a prescribed manner. This section gives details of the search patterns shown pictorially in Figures 1 and 2.

II. Searching Area

Enter the room to be secured and check that the (SOR) Safety Officer Reset light is illuminated on the interlock box.

If the light is not illuminated check that all Emergency stops are reset and then reset the SOR latch with the SOR key.

Follow the recommended search pattern for the room. Press the button box marked Start Search and note that the light on the box illuminates when the button is pressed. Search the room in the recommended areas for personnel and announce the area is being secured. After you are assured that there are no personnel left in the area, exit and close the door.

Note: The EH search has three buttons that must be pressed in order before exiting the EH room. The check station order is: SS, CS-2 and CS-3, exit the EH and press CS-E.

Press the Complete Search button located outside the area to be secured and note the light on the button box illuminates. In the FEL room the search must be completed inside the room.

An audible warning will sound for 15 seconds and then the area will be secured.

III. Interlock Shutdown

In order to enter the room without enabling the alarms you may bring the interlock to an orderly shutdown by pressing the *Interlock Off* button located either in the room on the interlock box or outside of the room. If the *Interlock Off* is not used and the door is opened there will be an audible warning for 5 seconds in the room and in the control room.

IV. To Enter Secured Area and Maintain Security

To access the area and maintain the interlock press the *Passage* button located outside the door. The *Passage* button for all areas is the black button in the gray box. After pressing the button the Red light will illuminate signaling you that the door is OK to open. The door may be open for a maximum of 20 seconds. If the light does not illuminate this means that another door for that area is open and you will have to wait to access that area.

Once on the other side of the door close the door, and press the button. This will cancel the passage for that door and allow others to access the area. If the button is not pressed, the passage will be automatically canceled after 20 seconds and the search reinitiated.

Access to the CO_2 Main and FEL rooms can be made through a Vestibule. The Vestibule door leads to the driveway outside the building. There is a keypad to gain passage to the Vestibule from outside the building. Open the weatherproof enclosure and enter the four-digit code. If the code is correct and no other personnel are trying to enter the Vestibule, the Red light on the keypad will illuminate. The door can then be opened and accessed the same as in the other areas.

V. Emergency Stop

In all rooms there are Emergency stop buttons, they are Blue in all rooms except the EH where they are Red. In the EH the Emergency stops are for both the Laser system and for the Radiation interlock. In the rooms with Blue emergency stops they are for the laser system only. If the emergency stop is pressed, the laser that delivers laser radiation to that room will be shut off. To reset the button pull it out. The SOR latch is dropped out when an emergency stop is pressed, it must be reset by an operator or the person responsible for laser safety. The SOR latch must be reset before the area can be interlocked. The laser power can be reset with the SOR key in the event of a trip.

The control room Emergency stop shuts off all Lasers in the ATF facility.

VI. Shutter Operation

All shutters may be operated from the control room or from the room that they are related to. Each shutter can only be operated by using the unique key assigned to that shutter. There is only one key for each shutter. The person in possession of the key has sole control of that shutter. For alignment and adjustment purposes the shutter may be controlled from within the interlocked areas.

To open a shutter, turn the key to the clockwise position. The indicator located next to the key will show the position of the shutter. If the position of the shutter does not respond to the command, the closed indicator will flash. An example of this would be a shutter stuck in the closed position, the key when turned to the open position would cause the closed indicator to flash. If security is broken and the shutter closes, then the area is re-secured. The shutter will not re-open until the shutter key is moved to the closed position and then back to the open position. This is to prevent unintentional operation of the shutter when the area is secured.

The shutter may be opened when the ready light is illuminated.

VII. Unintentional Breaking of Security

In the event of an area having security broken unintentionally, an audible warning will sound in the control room and in the area for 5 seconds. The secured status of all rooms is indicated on a control room panel.

VIII. Module Fail

The Module Fail indicator on the control room panel alerts an operator that there is a system failure. In the event of a module failure contact the C-AD Interlock Group.

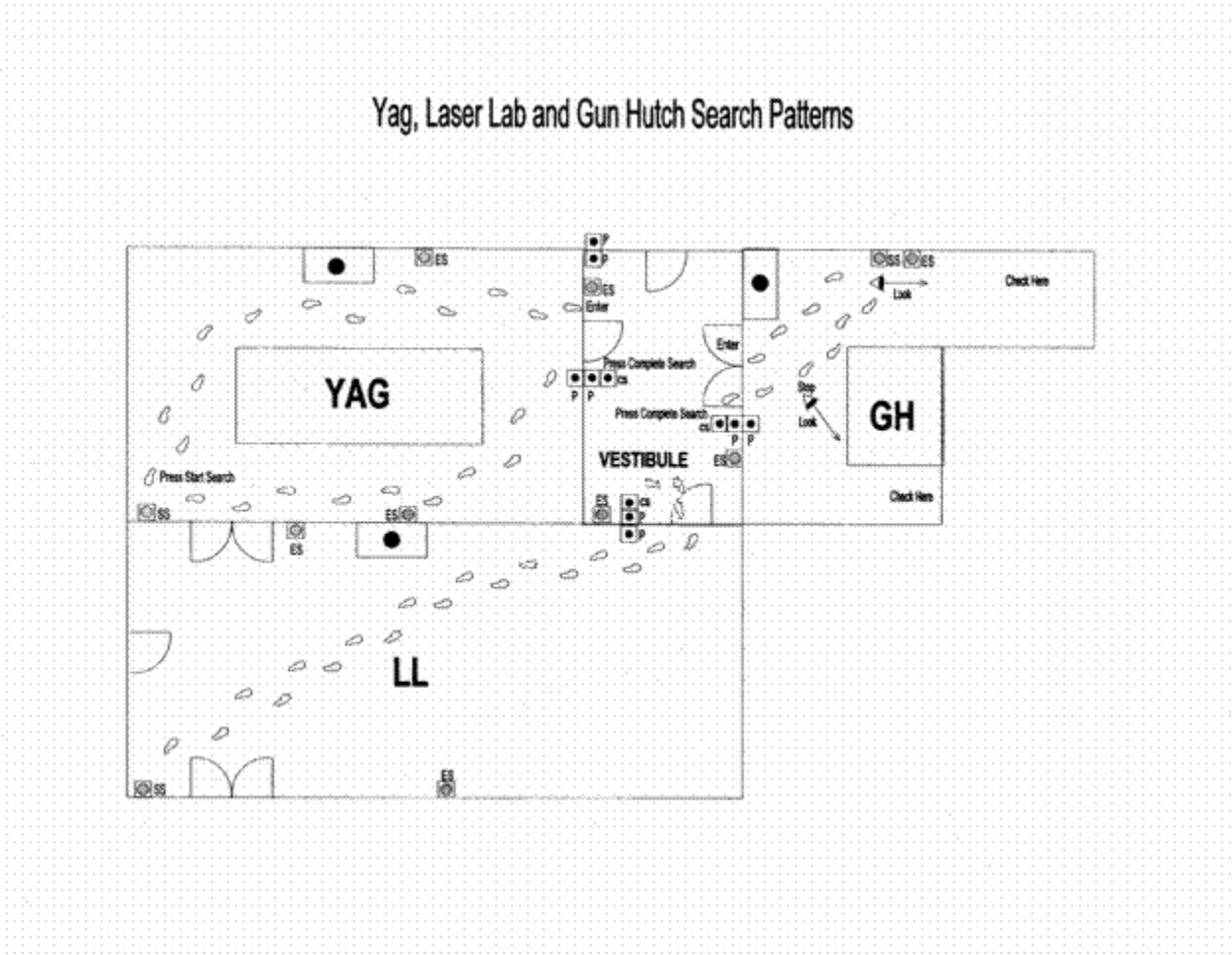

Figure 1. YAG, Laser Lab and Gun Hutch Search patterns.

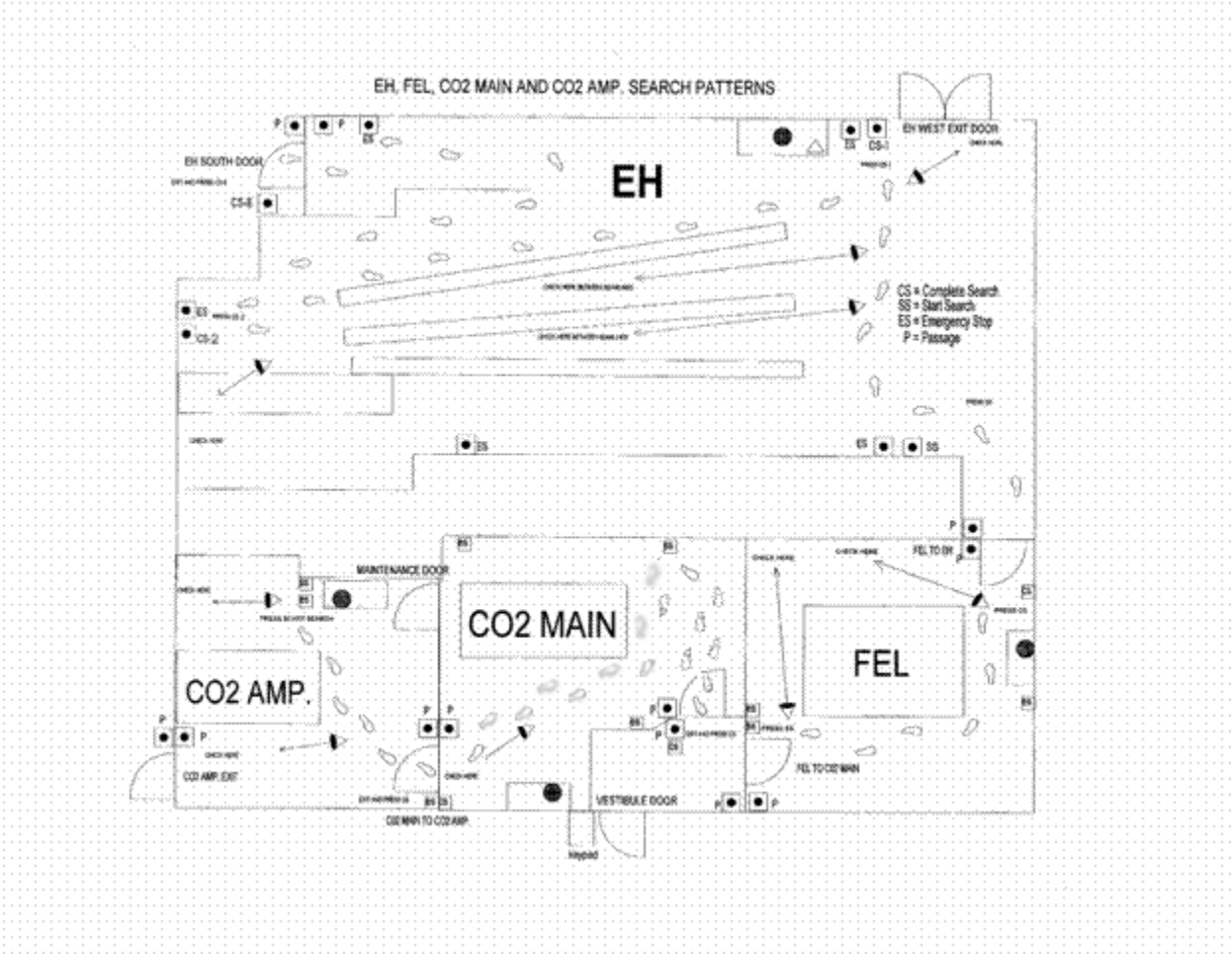

Figure 2. EH, FEL, CO_2 main, and CO_2 amplifier search patterns.