Field Instruction	OTIS
Pit Stop Switch/Acess Alert Wiring	**Florence**
G2S, G2O, HYD, HVS, Skyrise and MOD	**No.** 16-20-004
	Date: 10/1/2020 **Page:** 1 of 10

1. **List of tools Required:**

Item	Description, Photo & Part #	Quantity
1.	Mechanics tool kit	1
2.	Portable barricades	1
3.	8' Step Ladder	1
4.	Wire labels	1
5.	Tools and keys to access the pit	1
6.	LOTO equipment	1

2. **Material Required:**

Item	Description & Part #	Quantity
1	Pit Stop Switch Contact - AAA635L17	5
2	Square D Stop Switch - AAA635L12	1
3	AccessAlert Alarm Box Standard Pit - AAA22800AZ1	4
4	AccessAlert Alarm Box Walk in Pit - AAA22800AZ2	1
5	Replacement Battery Pit Buzzer Box Qty 2 - AAA27076HF100	10

Field Instruction

OTIS

Pit Stop Switch

Florence

G2S, G2O, HYD, HVS, Skyrise and MOD

No. 16-20-004

Date: 10/1/2020
Page: 2 of 10

3. Preparation:

1. Notify building owner of the work to be performed and verify the elevator will be taken out of service.

2. Complete an electronic Job Hazard Analysis in the Pronto Form App for the work to be performed.

3. Capture the elevator and place on independent service, if available. Otherwise, take measures to maintain control of the elevator removed from public service. Use portable barricades to protect the work area around the elevator entrance.

4. Take the elevator to the top landing. Use portable barricades to secure the work area.

5. Lock and Tag out the elevator following standard procedure. For HydroFit, close the hydraulic shutoff valve located in the machine/control space. Do not engage the shutoff valve if located in the elevator pit.

6. Move to the bottom landing or pit access door with the tools and equipment. Use portable barricades to secure the work area around the bottom landing entrance.

7. Access the pit using standard procedure.

8. Complete a confined space entry form, **do not enter the pit without a confined space entry form**. The form is included at the end of this documentation.

4. Work Instructions:

1. Enter the pit and remove the cover from the pit stop switch.

2. Verify the second contact was installed. Verify the wiring from the safety chain and the pit alarm box are installed on separate contacts (see Figure 1 on the next page).

Field Instruction

OTIS

Pit Stop Switch
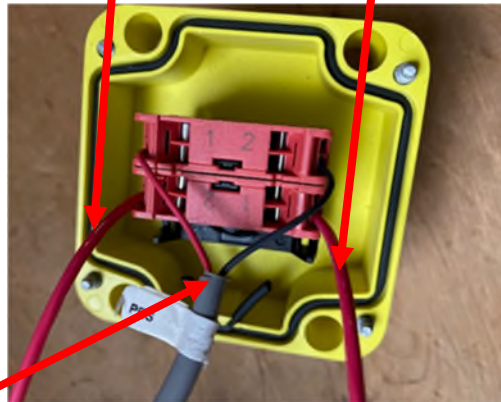
G2S, G2O, HYD, HVS, Skyrise and MOD

Florence

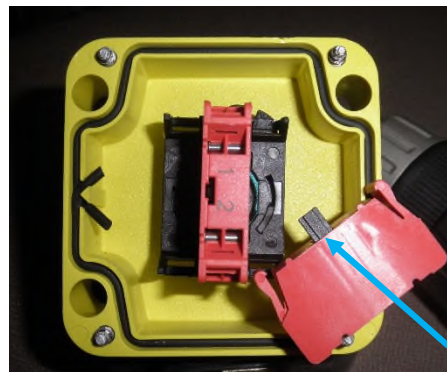**No.** 16-20-004

Date: 10/1/2020
Page: 3 of 10

Safety Chain Wiring

Pit Alarm Box Wiring

Figure 1

3. If the contacts and wiring are installed as described in step 2 (Figure 1), continue to step 6. If incorrect, remove the pit alarm box wiring from the contact and add the additional contact to the stop switch as shown in Figure 2.

The contact actuator button must be installed toward the center of the button so that it is activated by the switch plunger.

Figure 2

4. Terminate the wiring making sure each circuit is landed on a separate contact assembly as shown in Figure 1.

5. Install the cover of the stop switch and place in the stop position by pushing the stop button in.

Field Instruction

OTIS

Pit Stop Switch

Florence

G2S, G2O, HYD, HVS, Skyrise and MOD

No. 16-20-004

Date: 10/1/2020
Page: 4 of 10

6. Repeat step 2 through step 5 for each additional stop switch if applicable.

7. If there were any mistakes in wiring/contacts, the pit alarm box must be replaced, continue to step 17. Otherwise continue to step 8.

8. Perform a preliminary test of the alarm box activation by placing the pit stop button/buttons in the normal (run) position with the hoistway door not fully closed. The visual alarm should activate immediately, and the audible alarm should sound after a 5 second delay indicating that the elevator is not in a secure state. Both alarms should stop when the pit stop button is in the stop position.

9. If the pit alarm box did not function as described in step 8, then continue to step 10. Otherwise continue to step 31.

10. Remove the cover to the pit alarm box.

11. Unplug the battery from the circuit board.

12. Remove and properly discard the battery.

13. Install a new battery into the pit alarm back box.

14. Plug the battery back into the circuit board.

15. Install the cover of alarm box.

16. Press and hold the green "reset" button for a few seconds on the alarm box cover. Continue to step 30.

17. Remove the cover of the pit alarm box.

18. Unplug the battery from the circuit board.

19. Label the wiring from the reed switches to identify their origin (Car/Door).

20. Label the wiring from the pit switch auxiliary contact.

Field Instruction

OTIS

Pit Stop Switch

Florence

G2S, G2O, HYD, HVS, Skyrise and MOD

No. 16-20-004

Date: 10/1/2020
Page: 5 of 10

21. Disconnect the wiring for the reed switches and pit switch auxiliary contact from the circuit board by applying pressure to the raised square above each wire. Refer to figure 3 below.

Figure 3

22. Discard the pit alarm box cover.

23. Verify the part number of the new pit alarm box corresponds to the proper origin by using the chart below. The part number is located on the back of the box.

Origin	Alarm Box Part Number	Circuit Board Part Number
Standard/Deep Pit	AAA22800AZ1	5050-83-103A
Walk in Pit	AAA22800AZ2	5050-83-203A

24. Remove the cover from the supplied pit alarm box.

25. Terminate the wiring to the proper location using the labels from steps 19 and 20 for reference.

26. Remove the old battery from the existing pit alarm back box and replace with the battery from the new pit alarm box.

27. Plug the battery back into the alarm box circuit board.

28. Install the cover of alarm box.

29. Press and hold the green "reset" button for a few seconds on the alarm box cover.

30. Perform a preliminary test of the alarm box activation by placing the pit stop button/buttons in the normal (run) position with the hoistway door not fully closed. The visual alarm should activate immediately and the audible alarm should sound after a 5 second delay indicating that the elevator is not in a secure state. Both alarms should stop when the pit stop button is in the stop position.

31. Repeat step 30 for each additional stop switch as necessary.

32. Remove all tooling from the pit.

33. Place all pit stop switches to the run position by pulling them out.

34. Exit the pit and close the hoistway doors or pit door.

35. Restore power to the elevator.

36. Take the elevator to the bottom landing. Use portable barricades to secure the work area around the bottom landing entrance.

37. Test the AccessAlert, if the elevator has keyed access continue to step 38, if the elevator does not have keyed access continue to step 50. If the elevator has a walk-in pit continue to step 68.

38. Place the car on access operation.

39. Run the elevator up about 4" on access operation. After 5 seconds the audible alarm should sound. Move the elevator back to floor level using the access key switch. The Alarm should silence after the elevator is returned to floor level.

40. Place a door wedge tool in the hoistway door to block it open and use the access key switch to move the elevator up so that the pit is accessible.

41. Place the pit stop button in the stop position by pushing it in.

42. Test the stop button by attempting to move the elevator up and down using the access key switch. The elevator should not move.

43. Test the AccessAlert system by moving the stop button to the run position. The visual alarm should activate immediately and the audible alarm should activate after 5 seconds.

Field Instruction

OTIS

Pit Stop Switch

Florence

G2S, G2O, HYD, HVS, Skyrise and MOD

No. 16-20-004

Date: 10/1/2020
Page: 7 of 10

44. Place the pit stop button in the stop position. The alarm should silence.

45. Verify that each individual stop button in the pit will stop elevator movement when engaged.

46. Test all stop buttons in the pit to verify that with any individual stop button engaged the alarm will silence. When all stop buttons are dis-engaged the alarm should sound.

47. While still standing in the hall, move the stop button to the run position.

48. Use the access key switch to move the elevator down to floor level.

49. After the elevator sill is level with the hoistway sill the alarm should not sound.

50. Test the AccessAlert system using a hoistway door unlocking device to gain access to the elevator pit. Start at the bottom floor with the elevator on normal operation.

51. Place car calls for the next landing up and the top landing.

52. Step out of the elevator and allow the elevator to move up. Use the hoistway door unlocking device to stop the elevator after it has reached an elevation where the pit can be safely accessed. Verify that opening the hoistway door stops the elevator.

53. Open the hoistway doors fully and block the doors open with a door wedge tool.

54. The visual warning should activate when the hoistway doors are opened. The AccessAlert audible alarm should sound 5 seconds after the hoistway door is opened. Reach into the hoistway and place the stop button in the stop position. With the stop button in the stop position the alarm should silence.

55. Remove the door wedge tool and close the hoistway doors to verify that the stop button prevents the elevator from moving.

56. Re-open the hoistway doors and block the doors fully open using the door wedge tool.

57. Release the stop button and push the reset button on the AccessAlert Alarm box. If the hoistway doors are closed within 5 seconds the alarm will not sound.

58. Close the hoistway doors. If it takes longer than 5 seconds for the hoistway doors to close the alarm will sound and continue to sound for 30 seconds after the doors are closed. The alarm should not sound during normal operation.

Field Instruction

OTIS

Pit Stop Switch

Florence

G2S, G2O, HYD, HVS, Skyrise and MOD

No. 16-20-004

Date: 10/1/2020
Page: 8 of 10

59. Repeat the testing process without using the reset button.

60. Start at the bottom floor with the elevator on normal operation.

61. Place car calls for the next landing up and the top landing.

62. Step out of the elevator and allow the elevator to move up. Use the hoistway door unlocking device to stop the elevator after it has reached an elevation where the pit can be safely accessed. Verify that opening the hoistway door stops the elevator.

63. Open the hoistway doors fully and block the doors open with a door wedge tool.

64. The visual warning should activate when the hoistway doors are opened. The AccessAlert audible alarm should sound 5 seconds after the hoistway door is opened. Reach into the hoistway and place the stop button in the stop position. With the stop button in the stop position the alarm should silence.

65. Remove the door wedge tool and close the hoistway doors to verify that the stop button prevents the elevator from moving.

66. Re-open the hoistway doors and block the doors fully open using the door wedge tool.

67. Release the stop button but this time do not push the reset button on the AccessAlert Alarm box. Close the hoistway door. Verify that the alarm sounds. With the door closed the alarm should silence after 30 seconds. Continue to step 71.

68. Move to the location of the elevator pit door. Open the pit door, the light should energize and after 5 seconds the alarm should sound. Engage the stop button, the alarm should silence.

69. Verify that each individual stop button (of the related elevator) in the pit will stop elevator movement when engaged.

70. Test all stop buttons (of the related elevator) in the pit to verify that with any individual stop button engaged the alarm will silence. When all stop buttons are dis-engaged the alarm should sound.

Field Instruction

OTIS

Pit Stop Switch

G2S, G2O, HYD, HVS, Skyrise and MOD

Florence

No. 16-20-004

Date: 10/1/2020
Page: 9 of 10

9. Final work:

71. Egress the pit.

72. Verify normal operation of the elevator.

73. Remove barricades.

74. Return the elevator to service and notify the customer.

CONFINED SPACE ASSESSMENT & ENTRY PROCESS

This form MUST be completed prior to entering ANY potential Confined Space

Facility / Jobsite: _____   Date: _____

Unit Number or Bank: _____

Step 1: Confined Space Determination

If the space has a <u>full size walk-in door</u> that allows entry without use of a ladder or the <u>space is shallow, 30 inches or less</u> STOP. The space is not considered confined space. This form does not have to be completed.

NOTE: Hazards may still be present even if the space is not a confined space – Follow Otis Safety Rules.

Step 2: Permit Required Confined Space Assessment

NOTE: The space you are assessing is a **Permit Required Confined Space**. Before entering it MUST be reclassified to a non-permit required confined space. To do so, you must answer items A through G first. If you select No/**"No Go"**, you must STOP and contact supervision or EH&S before proceeding.

Space Assessment Criteria	Yes "Go"	No "No Go"
A. Coordinate with the Host Employer to ensure others will not introduce potential hazards in or near elevator pit(s)? NOTE: Such hazards will not allow Otis to classify space as Non-permit required and it is a "No Go"		
B. Confirm with the Host Employer that no atmospheric hazards are present in or near the space? *Host employer is responsible for air monitoring if needed.* NOTE: Combustion equipment, chemicals, heavy industrial processes in close proximity, and other unapproved materials could pose such a hazard. Contact supervisor or EH&S if you're unsure.		
C. No work will occur that will potentially create uncontrolled hazards during pit entry? (Welding, soldering, chemicals, heaters, etc.) NOTE: Only Otis approved processes and chemicals are allowed in the pit. Follow Silica rules.		
D. Have hazards, such as oil, standing water or other materials that prevent visual confirmation of pit depth been removed? NOTE: Such hazards prevent space being classified as Non-permit confined space and is a "No Go"		
. Are electrical hazards guarded or controlled before entry? NOTE: Follow proper lockout and tag-out, electrical safe work practices and other Otis safety polices		
E. Are mechanical hazards guarded or controlled before entry? This includes elevator, counter weights, sheaves, adjacent cars or counter weights, hydraulic and rotating equipment or any other form of hazardous energy! NOTE: Lockout/Tagout is REQUIRED whenever power is not needed for the task.		
A. Are other likely hazards eliminated without entering the pit? NOTE: Ensure proper risk assessment (JHA, prestart, etc.) is completed to eliminate other hazards		
F. After assessing items A through G have you eliminated all hazards and are you comfortable entering the space?		

Step 3: "Go" versus "No Go"

"Go" = If ALL conditions have been answered **Yes**, "Go", Otis employees will be able to enter the space as a <u>non-permit required confined space</u>. If any of the above conditions change, Otis employees must leave the pit immediately and notify EH&S or Supervision. Reentry can occur once hazards are eliminated and a new Confined Space Entry Process form has been completed.

"No Go" = If ANY question is answered **No**, "No Go", **Otis employees must** <u>not enter</u> **the pit.** Immediately contact your supervisor or EH&S Manager for procedures on how to proceed.

Completed form will be posted in the pit near the access point or stored electronically if Pronto Forms is used. <u>A Daily JHA is still required</u> to be documented prior to re-entry.

Person Completing Form: _____

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