Audio Operator Interface Installation Instructions

Introduction

This publication describes the installation procedure for the following:

- 4100-1243 Microphone
- 4100-1244 Remote Microphone
- 4100-1252 Audio Operator Interface – 1 Channel
- 4100-1253 Audio Operator Interface – 1.5 Channel
- 4100-1254 Audio Operator Interface – 2 Channels
- 4100-1255 Audio Operator Interface – 3-8 Channels

This product is compatible with 4100U and 4100ES Fire Alarm Control Panels (FACP).

In this Publication

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Cautions and Warnings

Cautions and Warnings

READ AND SAVE THESE INSTRUCTIONS- Follow the instructions in this installation manual. These instructions must be followed to avoid damage to this product and associated equipment. Product operation and reliability depend upon proper installation.

DO NOT INSTALL ANY SIMPLEX® PRODUCT THAT APPEARS DAMAGED- Upon unpacking your Simplex product, inspect the contents of the carton for shipping damage. If damage is apparent, immediately file a claim with the carrier and notify an authorized Simplex product supplier.

ELECTRICAL HAZARD - Disconnect electrical field power when making any internal adjustments or repairs. All repairs should be performed by a representative or authorized agent of your local Simplex product supplier.

STATIC HAZARD - Static electricity can damage components. Handle as follows:

- Ground yourself before opening or installing components.
- Prior to installation, keep components wrapped in anti-static material at all times.

EYE SAFETY HAZARD - Under certain fiber optic application conditions, the optical output of this device may exceed eye safety limits. Do not use magnification (such as a microscope or other focusing equipment) when viewing the output of this device.

FCC RULES AND REGULATIONS – PART 15 - This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

SYSTEM REACCEPTANCE TEST AFTER SOFTWARE CHANGES To ensure proper system operation, this product must be tested in accordance with NFPA 72® after any programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions, known to be affected by a change, must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

The Audio Operator Interface

Overview

The Audio Operator Interface consists of an LED/switch module and a microphone. The LED/switch module is one of the following:

- 4100-1252 Audio Operator Interface – 1 Channel
- 4100-1253 Audio Operator Interface – 1.5 Channel
- 4100-1254 Audio Operator Interface – 2 Channels
- 4100-1255 Audio Operator Interface – 3-8 Channels

One of the above modules, along with a microphone, provides the operator with manual control over the audio system.

User interface functionality is driven by the 4100-1288 LED/Switch Controller Card, which mounts behind the audio operator interface module.

Optional Modules

Additional varieties of LED/switch cards can be added next to the audio operator interface module and microphone:

- 4100-1280 8-Switch/8-LED Display Card. With red LEDs.
- 4100-1281 8-Switch/8-LED Display Card. With yellow LEDs.
- 4100-1282 8-Switch/16-LED Display Card. With one red and one yellow LED per switch.
- 4100-1283 8-Switch/16-LED Display Card. With two yellow LEDs per switch.
- 4100-1284 8-Switch/16-LED Display Card. With one red and one green LED per switch.
- 4100-1285 16-Switch/16-LED Display Card. With red LEDs.
- 4100-1286 Hands Off Auto (HOA) Switch Display Card. Provides 24 switches and 24 LEDs. The HOA uses an overlay to group every 3 switches together, denoting on, off, and automatic control of smoke control components. For every group of 3 switches, there are 3 LEDs (green-red-green).
- 4100-1287 24-Switch/24-LED Display Card. With red LEDs.

Each LED/switch module contains between 8 and 24 switches and LEDs, each one separately configurable.

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Illustration

Figure 1, below, is an illustration of an audio operator interface bay from the user's perspective.

Note: The rules shown in Figure 1 apply to all audio operator bays, regardless of the type of audio operator interface used. The 4100-1255 Audio Operator Interface (3-8 Channels) depicted in Figure 1 represents all of the four types of audio operator interfaces.

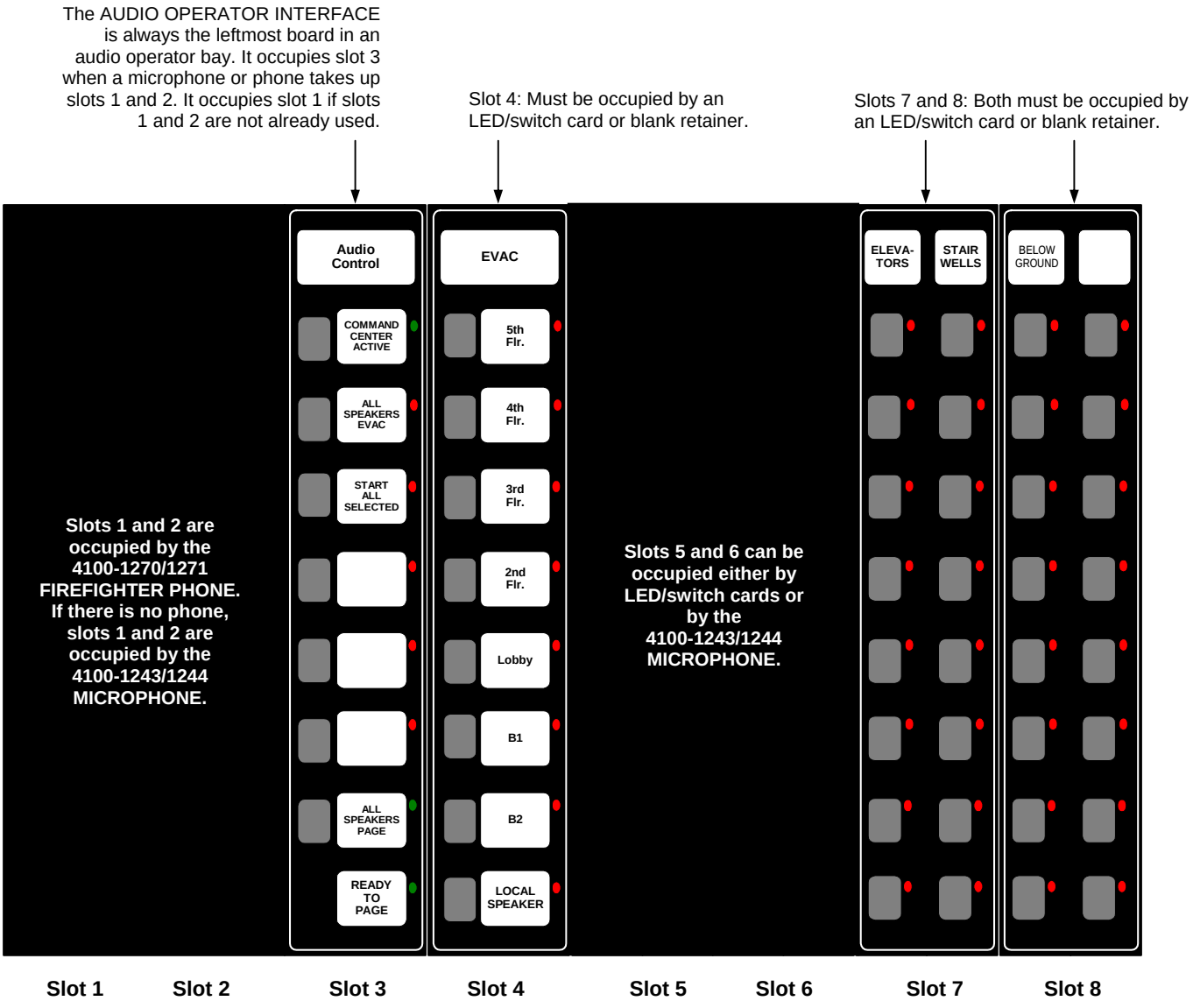

Figure 1. The Audio Operator Interface Bay

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Specifications

Table 1 lists electrical specifications for the LED/switch controller, which must be used in an audio operator interface bay. Environmental specifications apply to the audio operator interface, as well as to all LED/switch modules.

Table 1. Operator Interface Bay Specifications

Electrical Specifications for LED/Switch Controller	
Input voltage	24 VDC Nominal
Nominal current, no LEDs on	20 mA @ 24 VDC
Maximum current with all 64 LEDs ON	210 mA @ 24 VDC
Environmental Specifications for All LED/Switch Modules	
Operating temperature	32° to 120° F (0° to 49° C)
Humidity	10% to 93% non-condensing @ 32° C

Step 1: Configuring the Cards

Overview

The LED/switch controller is the only user interface module that requires physical configuration. Configuration consists of setting jumper P1 and setting the device address. This section covers configuration for both cards.

Activating the Communication Loss Feature

If the LED/switch controller is used in a remote annunciator, it can make the UI card annunciate a communication loss condition. If communication loss occurs when this setting is activated, LED 1 of the first connected display card illuminates, and the piezo on the LED/switch controller sounds. The indication is silenced via the corresponding switch (switch 1 on the first display card).

Use jumper port P1 to activate or deactivate the communication loss feature.

- Positions 1 and 2 deactivate the feature (default).
- Positions 2 and 3 activate the communication loss feature.

Setting the Controller Address

4100-1288 LED/Switch Controller only. The controller device address is set via DIP switch SW1, which is a bank of eight switches. From left to right (see Figure 3, below) these switches are designated as SW1-1 through SW1-8. The function of these switches is as follows:

- **SW1-1**. This switch sets the baud rate for the internal 4100 communications line running between the card and the 4100 CPU. Set this switch to ON.
- **SW1-2 through SW1-8**. These switches set the card's address within the 4100 FACP. Refer to Table 2 for a complete list of the switch settings for all of the possible card addresses.

  Note: You must set these switches to the value assigned to the card by the Programmer.

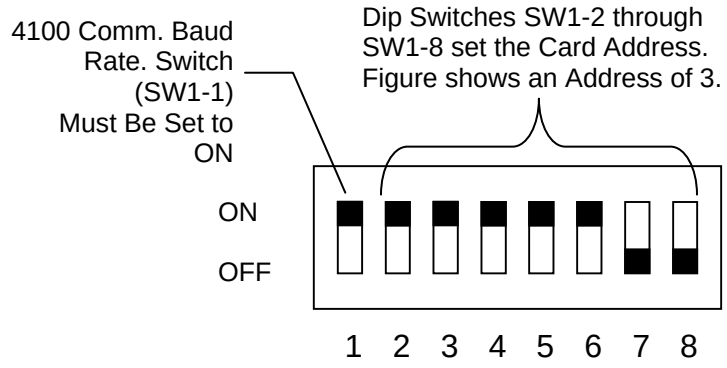

Figure 2. DIP Switch SW1

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Step 1: Configuring the Cards, *Continued*

Setting the Controller Address

Table 2. Controller Addresses

Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8	Address	SW 1-2	SW 1-3	SW 1-4	SW 1-5	SW 1-6	SW 1-7	SW 1-8
1	ON	ON	ON	ON	ON	ON	OFF	61	ON	OFF	OFF	OFF	OFF	ON	OFF
2	ON	ON	ON	ON	ON	OFF	ON	62	ON	OFF	OFF	OFF	OFF	OFF	ON
3	ON	ON	ON	ON	ON	OFF	OFF	63	ON	OFF	OFF	OFF	OFF	OFF	OFF
4	ON	ON	ON	ON	OFF	ON	ON	64	OFF	ON	ON	ON	ON	ON	ON
5	ON	ON	ON	ON	OFF	ON	OFF	65	OFF	ON	ON	ON	ON	ON	OFF
6	ON	ON	ON	ON	OFF	OFF	ON	66	OFF	ON	ON	ON	ON	OFF	ON
7	ON	ON	ON	ON	OFF	OFF	OFF	67	OFF	ON	ON	ON	ON	OFF	OFF
8	ON	ON	ON	OFF	ON	ON	ON	68	OFF	ON	ON	ON	OFF	ON	ON
9	ON	ON	ON	OFF	ON	ON	OFF	69	OFF	ON	ON	ON	OFF	ON	OFF
10	ON	ON	ON	OFF	ON	OFF	ON	70	OFF	ON	ON	ON	OFF	OFF	ON
11	ON	ON	ON	OFF	ON	OFF	OFF	71	OFF	ON	ON	ON	OFF	OFF	OFF
12	ON	ON	ON	OFF	OFF	ON	ON	72	OFF	ON	ON	OFF	ON	ON	ON
13	ON	ON	ON	OFF	OFF	ON	OFF	73	OFF	ON	ON	OFF	ON	ON	OFF
14	ON	ON	ON	OFF	OFF	OFF	ON	74	OFF	ON	ON	OFF	ON	OFF	ON
15	ON	ON	ON	OFF	OFF	OFF	OFF	75	OFF	ON	ON	OFF	ON	OFF	OFF
16	ON	ON	OFF	ON	ON	ON	ON	76	OFF	ON	ON	OFF	OFF	ON	ON
17	ON	ON	OFF	ON	ON	ON	OFF	77	OFF	ON	ON	OFF	OFF	ON	OFF
18	ON	ON	OFF	ON	ON	OFF	ON	78	OFF	ON	ON	OFF	OFF	OFF	ON
19	ON	ON	OFF	ON	ON	OFF	OFF	79	OFF	ON	ON	OFF	OFF	OFF	OFF
20	ON	ON	OFF	ON	OFF	ON	ON	80	OFF	ON	OFF	ON	ON	ON	ON
21	ON	ON	OFF	ON	OFF	ON	OFF	81	OFF	ON	OFF	ON	ON	ON	OFF
22	ON	ON	OFF	ON	OFF	OFF	ON	82	OFF	ON	OFF	ON	ON	OFF	ON
23	ON	ON	OFF	ON	OFF	OFF	OFF	83	OFF	ON	OFF	ON	ON	OFF	OFF
24	ON	ON	OFF	OFF	ON	ON	ON	84	OFF	ON	OFF	ON	OFF	ON	ON
25	ON	ON	OFF	OFF	ON	ON	OFF	85	OFF	ON	OFF	ON	OFF	ON	OFF
26	ON	ON	OFF	OFF	ON	OFF	ON	86	OFF	ON	OFF	ON	OFF	OFF	ON
27	ON	ON	OFF	OFF	ON	OFF	OFF	87	OFF	ON	OFF	ON	OFF	OFF	OFF
28	ON	ON	OFF	OFF	OFF	ON	ON	88	OFF	ON	OFF	OFF	ON	ON	ON
29	ON	ON	OFF	OFF	OFF	ON	OFF	89	OFF	ON	OFF	OFF	ON	ON	OFF
30	ON	ON	OFF	OFF	OFF	OFF	ON	90	OFF	ON	OFF	OFF	ON	OFF	ON
31	ON	ON	OFF	OFF	OFF	OFF	OFF	91	OFF	ON	OFF	OFF	ON	OFF	OFF
32	ON	OFF	ON	ON	ON	ON	ON	92	OFF	ON	OFF	OFF	OFF	ON	ON
33	ON	OFF	ON	ON	ON	ON	OFF	93	OFF	ON	OFF	OFF	OFF	ON	OFF
34	ON	OFF	ON	ON	ON	OFF	ON	94	OFF	ON	OFF	OFF	OFF	OFF	ON
35	ON	OFF	ON	ON	ON	OFF	OFF	95	OFF	ON	OFF	OFF	OFF	OFF	OFF
36	ON	OFF	ON	ON	OFF	ON	ON	96	OFF	OFF	ON	ON	ON	ON	ON
37	ON	OFF	ON	ON	OFF	ON	OFF	97	OFF	OFF	ON	ON	ON	ON	OFF
38	ON	OFF	ON	ON	OFF	OFF	ON	98	OFF	OFF	ON	ON	ON	OFF	ON
39	ON	OFF	ON	ON	OFF	OFF	OFF	99	OFF	OFF	ON	ON	ON	OFF	OFF
40	ON	OFF	ON	OFF	ON	ON	ON	100	OFF	OFF	ON	ON	OFF	ON	ON
41	ON	OFF	ON	OFF	ON	ON	OFF	101	OFF	OFF	ON	ON	OFF	ON	OFF
42	ON	OFF	ON	OFF	ON	OFF	ON	102	OFF	OFF	ON	ON	OFF	OFF	ON
43	ON	OFF	ON	OFF	ON	OFF	OFF	103	OFF	OFF	ON	ON	OFF	OFF	OFF
44	ON	OFF	ON	OFF	OFF	ON	ON	104	OFF	OFF	ON	OFF	ON	ON	ON
45	ON	OFF	ON	OFF	OFF	ON	OFF	105	OFF	OFF	ON	OFF	ON	ON	OFF
46	ON	OFF	ON	OFF	OFF	OFF	ON	106	OFF	OFF	ON	OFF	ON	OFF	ON
47	ON	OFF	ON	OFF	OFF	OFF	OFF	107	OFF	OFF	ON	OFF	ON	OFF	OFF
48	ON	OFF	OFF	ON	ON	ON	ON	108	OFF	OFF	ON	OFF	OFF	ON	ON
49	ON	OFF	OFF	ON	ON	ON	OFF	109	OFF	OFF	ON	OFF	OFF	ON	OFF
50	ON	OFF	OFF	ON	ON	OFF	ON	110	OFF	OFF	ON	OFF	OFF	OFF	ON
51	ON	OFF	OFF	ON	ON	OFF	OFF	111	OFF	OFF	ON	OFF	OFF	OFF	OFF
52	ON	OFF	OFF	ON	OFF	ON	ON	112	OFF	OFF	OFF	ON	ON	ON	ON
53	ON	OFF	OFF	ON	OFF	ON	OFF	113	OFF	OFF	OFF	ON	ON	ON	OFF
54	ON	OFF	OFF	ON	OFF	OFF	ON	114	OFF	OFF	OFF	ON	ON	OFF	ON
55	ON	OFF	OFF	ON	OFF	OFF	OFF	115	OFF	OFF	OFF	ON	ON	OFF	OFF
56	ON	OFF	OFF	OFF	ON	ON	ON	116	OFF	OFF	OFF	ON	OFF	ON	ON
57	ON	OFF	OFF	OFF	ON	ON	OFF	117	OFF	OFF	OFF	ON	OFF	ON	OFF
58	ON	OFF	OFF	OFF	ON	OFF	ON	118	OFF	OFF	OFF	ON	OFF	OFF	ON
59	ON	OFF	OFF	OFF	ON	OFF	OFF	119	OFF	OFF	OFF	ON	OFF	OFF	OFF
60	ON	OFF	OFF	OFF	OFF	ON	ON								

Step 2: Mounting

Overview

The master microphone, as well as all display cards, must be mounted to the front of an expansion box. A remote microphone must be mounted differently to a remote back box. The section describes how to mount local and remote microphones, as well as the audio display card.

Mounting the Audio Operator Interface

Refer to Figure 4, below, to mount the audio operator interface display card and microphone.

Note: The microphone assembly is the same for the 4100-1243 and -1244 versions. The only difference in the remote microphone is the addition of a field wiring terminal block for connection to the 4100-1210 or 4100-1211 Audio Controller Card.

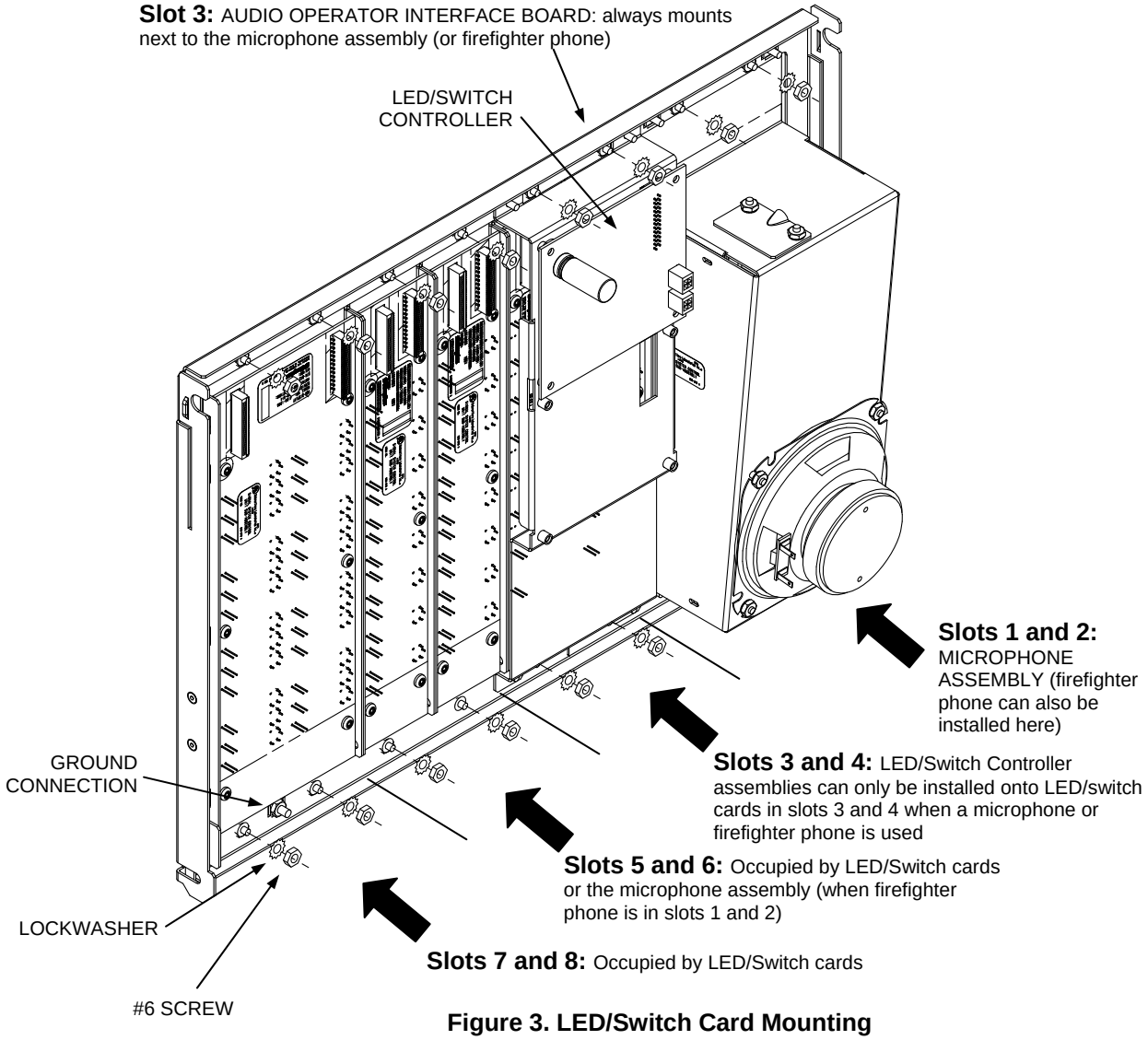

Figure 3. LED/Switch Card Mounting

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Mounting the Controller Card Assembly

Refer to the figures and instructions below to mount the controller card assembly to the back of the audio operator card, or any other LED/switch card in the same bay.

1. Use four 322-123 Nuts and four 268-009 Washers to secure the 637-141 Bracket to the inside front of the expansion box. Note that there are only two locations where the bracket can be mounted, as shown in Figure 4.
2. Attach the header connector on the back side of the controller (P4) to the connector on the back side of one of the LED/switch modules.
3. Secure the controller card to the board using four #6 screws, as shown in Figure 5.

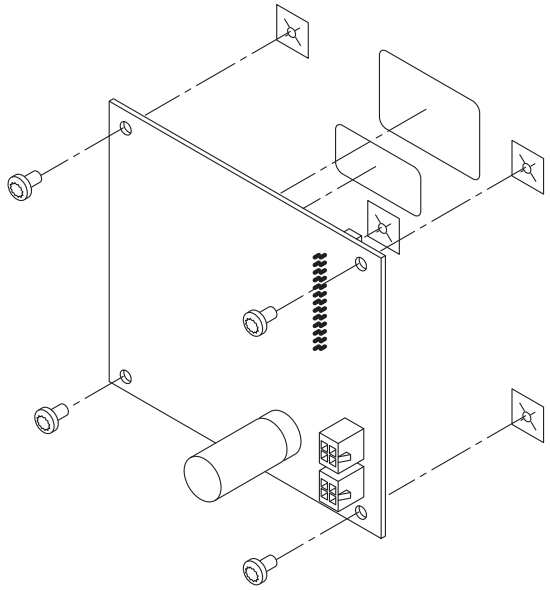

Figure 4. Controller Card Mounting

Step 3: Wiring

Overview

User interface wiring consists of connecting the LED/switch controller card to the expansion box's power distribution interface (PDI), and connecting display cards to each other. This section describes both of these procedures.

Card Interconnections

The following directions are complete instructions on interconnecting display cards and connecting the controller card to a power source.

1. Use Harness 734-008 to connect P2 on the controller card to one of the 4-pin connectors on the PDI.
2. If there are multiple controller cards, use Harness 734-036 to connect P3 on the controller card to P2 on another controller card.
3. Interconnect all LED/switch display cards with the ribbon cables (provided). Connector P1 is the input; connector P2 is the output.

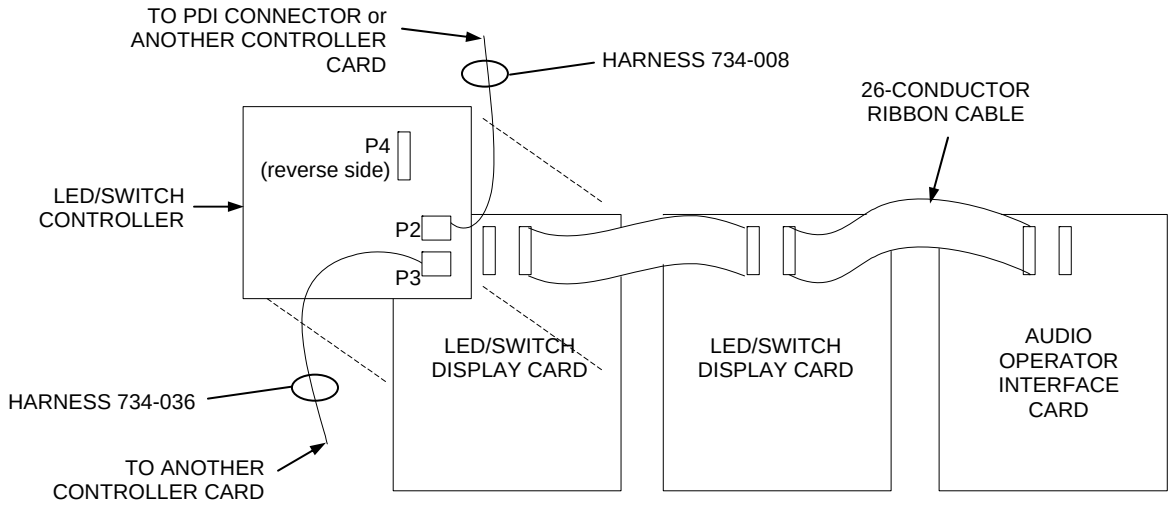

Figure 5. Audio Operator Interface Bay Wiring

Microphone Wiring

Microphone connections must be made to the audio controller card or audio input card. Refer to *Analog Audio Controllers - Installation Instructions* (579-159) for microphone wiring instructions.