10-2814
LOC Digital Paging Assembly
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1.0 ABOUT THIS MANUAL

This manual is intended to be a complete reference for the installation, operation, and service of the Fike LOC Digital Paging Assembly (P/N 10-2814). The information contained in this manual shall be used by factory trained service technicians who are authorized to work on this product. This manual also serves as the Operations Manual for the component.

The first-time installer and/or user should thoroughly read and understand the instructions contained within this manual before using this device. These instructions must be followed to avoid damage to the equipment itself or adverse operating conditions caused by improper installation and programming.

1.1 DOCUMENT HISTORY

Document Title: LOC Digital Paging Assembly, Product Manual

Document Reorder Number: 06-613

<table>
<thead>
<tr>
<th>Revision</th>
<th>Section</th>
<th>Date</th>
<th>Reason for Change</th>
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<td>0</td>
<td>All Sections</td>
<td>12/2011</td>
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<td>09/2015</td>
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1.2 PRODUCT SUPPORT

If you have a question or encounter a problem not covered in this manual, you should first try to contact the distributor who installed the Fike system. Fike has a worldwide distribution network. Each distributor sells, installs, and services Fike equipment. Look on the back of the cabinet door, there should be a sticker with an indication of the distributor who installed the system. If you can not locate the distributor, please call Fike Customer Service for locating your nearest distributor, or go to our web-site at www.fike.com. If you are unable to contact your installing distributor or you simply do not know who installed the system, you can contact Fike Technical Support at (888) 628-3453, Option 2, Monday through Friday, 8:00 am to 4:30 pm CST.
1.3 SAFETY INFORMATION

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment.

**Caution**

Cautions are used to indicate the presence of a hazard which will or may cause damage to the equipment if safety instructions are not followed or if the hazard is not avoided.

**Note:** Provides information on installation, operation, maintenance, performance or general tips that are important but not hazardous to anything or anyone.

1.4 TERMS USED IN THIS MANUAL

**Authority Having Jurisdiction** – The organization, office, or individual responsible for approving equipment, materials, and installation, or a procedure.

**Configure** – Panel set-up to properly recognize and supervise a device as the design requires.

**Dead-Front** – An inner door panel designed to isolate the live parts of the control panel from a person on the operating side of the system.

**Fire Alarm Control Unit (Panel)** – A system component that receives inputs from automatic and manual fire alarm devices and might supply power to detection devices and to a transponder(s) or off-premises transmitter(s). The control unit might also operate releasing circuits or solenoids, provide transfer of power to the notification appliances, or transfer of condition to relays or devices connected to the control unit. The fire alarm control unit can be a local fire alarm control unit or a master control unit.

**Fire Command Center (FCC)** – The principal attended or un-attended location where the status of the detection, alarm communications, and control systems is displayed and from which the system(s) can be manually controlled.

**Power Limited** – A circuit designation given for wiring purposes. The amount of current flowing through the circuit is limited versus being unlimited, or non-power limited.

**RS-485** – A data communication standard produced by the Electronics Industry Association (EIA). This standard was developed to allow for reasonable success in transferring data over specified distances and/or data rates. Maximum cable length is 4,000 feet (1,200 m) using Belden 9841 or equivalent twisted pair shielded low capacitance cable.

**Zone** – A defined area within the protected premises. A zone can define an area from which a signal can be received, an area to which a signal can be sent, or an area in which a form of control can be executed. This term is used to create the relationship between activation inputs to notification outputs and peripherals.

**Synchronization** – A means of coordinating notification appliances so that they operate in unison.
2.0 PRODUCT DESCRIPTION

The 10-2814, LOC Digital Paging Assembly (See Exhibit 1) provides remote paging and voice control capabilities from a location other than the fire command center (i.e., nurse stations, guard station, etc.). The assembly includes the LOC Digital Paging Card (P/N 10-2816), LOC Paging Control Card (P/N 10-2798), 20-pin ribbon cable (P/N 10-2815), and LOC Microphone Housing (P/N 10-2813). The assembly is the primary voice system component used in Fike’s Local Operating Consoles and Audio Adjunct Panels.

2.1 ORDERING INFORMATION

The LOC digital paging assembly can be ordered with either a red or black microphone housing using the following ordering format:

Part Number: 10-2814-c, where c = enclosure color (Red or Black)

Exhibit 1: LOC Digital Paging Assembly
2.2 COMPATIBILITY

The LOC digital paging assembly is compatible with Fike’s CyberCat 254, CyberCat 1016 and CyberCat 50 intelligent control panels that are equipped with firmware version 6.XX and higher.

The assembly can be mounted in any of the following local operating console enclosures:

- LOC Microphone enclosure (P/N 10-2800-x)
- LOC Microphone enclosure with 10-button remote display (P/N 10-2801-x)

2.3 RELATED DOCUMENTATION

Further details about the product referenced in this document can be found in the following manuals.

<table>
<thead>
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<th>Document Title</th>
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<td>CyberCat 254/1016 Installation Manual</td>
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<tr>
<td>CyberCat 254/1016 Operation &amp; Maintenance Manual</td>
<td>06-326-2</td>
</tr>
<tr>
<td>CyberCat 50 Operation &amp; Maintenance Manual</td>
<td>06-368</td>
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<tr>
<td>LOC Microphone Housing Installation Instructions</td>
<td>06-603</td>
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<td>LOC Enclosure Installation Instructions</td>
<td>06-599</td>
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<td>LOC Enclosure with RDU Installation Instructions</td>
<td>06-600</td>
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<tr>
<td>LOC Paging Control Card Installation Instructions</td>
<td>06-602</td>
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<tr>
<td>Amplifier Card Product Manual</td>
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Exhibit 2: Related Documentation
3.0 ASSEMBLY COMPONENTS

This section provides a complete description of the components that make up the LOC digital paging assembly.

3.1 LOC DIGITAL PAGING CARD (P/N 10-2816)

The LOC digital paging card (See Exhibit 3) provides removable plug-in terminal blocks (accepts 12 – 26 awg) that provide the connection points for the emergency communication system’s live audio bus, peripheral bus, and integral paging microphone. The specification for each of the card’s terminal block connections is provided as follows.

**Exhibit 4: LOC Digital Paging Card Specifications**

<table>
<thead>
<tr>
<th>Terminal Block</th>
<th>Terminal Labels</th>
<th>Function and Electrical Ratings/Requirements</th>
<th>Wiring Requirements</th>
</tr>
</thead>
</table>
| P1             | 24 VDC IN/OUT (+, -, SHLD, +, -) | • 15-30 VDC power input and output to next device (feed through)  
• Power-limited and Supervised  
• Operating Voltage: 15-30 VDC  
• Current Draw: Standby = 103 mA (power LED on)  
Alarm = 140 mA (all LEDs on) | • Power must be supplied by the host fire alarm control panel or by a battery backed, regulated, power-limited power supply listed for Fire Protective Signaling Use |
| P2             | PERIPH BUS (+, -, SHLD, +, -)    | • RS485 peripheral input  
• Class A or Class B  
• 9600/38400 Baud, 1 start bit, 2 stop bits, 8 data bits  
• Power-limited and Supervised  
• Connection to Peripheral Terminal P5 on CyberCat | • Belden 9841 wire or equivalent; maximum 4,000 ft. (1,219 m), panel to last device  
• 96 ohms max. line resistance  
• 100 ohm termination resistor on last device (Class B), P/N 02-2519  
• No t-tapping |
| P3             | MNS LINE LEVEL (+, -, SHLD)      | • NOT USED                                                                                                  |                                                                                                           |
**Exhibit 5: LOC Digital Paging Card Specifications – Continued**

<table>
<thead>
<tr>
<th>Terminal Block</th>
<th>Terminal Labels</th>
<th>Function and Electrical Ratings/Requirements</th>
<th>Wiring Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>P4</td>
<td>MNS CONTACT (+, -, SHLD)</td>
<td>• NOT USED</td>
<td></td>
</tr>
<tr>
<td>P5</td>
<td>AUDIO NETWORK (IN-, IN+, SHLD, OUT-, OUT+)</td>
<td>• Remote audio network input/output; used for live paging&lt;br&gt;• Power-limited and Supervised</td>
<td>• OUT on one component connects to IN on another.&lt;br&gt;• Belden 9841 wire or equal; maximum 4,000 ft. (1,219 m) between audio network components.&lt;br&gt;• No t-tapping</td>
</tr>
<tr>
<td>P6</td>
<td>PHONE RISER (+, -, SHLD, ++, --)</td>
<td>• NOT USED</td>
<td></td>
</tr>
<tr>
<td>P7</td>
<td>LOCAL PHONE (+, -, SHLD)&lt;br&gt;OFF HOOK (+, 1)</td>
<td>• NOT USED</td>
<td></td>
</tr>
<tr>
<td>P8</td>
<td>MICROPHONE (IN+, IN-, TRBL, GND, GND, PTT)</td>
<td>• Local microphone connection&lt;br&gt;• Power-limited and Supervised</td>
<td>• Use wiring harness supplied</td>
</tr>
<tr>
<td>P9</td>
<td></td>
<td>• Power-limited and Nonsupervised&lt;br&gt;• Supplies power and control to paging control card (P/N 10-2798)</td>
<td>• Use 20 pin ribbon interface cable (P/N 10-2815) supplied</td>
</tr>
<tr>
<td>P10</td>
<td></td>
<td>• Factory use only</td>
<td></td>
</tr>
<tr>
<td>SW1</td>
<td>Digital Paging Card reset button</td>
<td>See note below.</td>
<td></td>
</tr>
<tr>
<td>SW2</td>
<td>Dip-switches for assigning cards address on the panel’s RS485 peripheral bus (2-31)</td>
<td>See Section 4.5 for dip-switch settings.</td>
<td></td>
</tr>
<tr>
<td>SW3</td>
<td>VOL UP</td>
<td>Adjusts the paging volume of the LOC digital paging card UP.</td>
<td>See Section 4.6 for description.</td>
</tr>
<tr>
<td>SW4</td>
<td>VOL DEF</td>
<td>Sets the paging volume of the LOC digital paging card to factory defaults.</td>
<td>See Section 4.6 for description.</td>
</tr>
<tr>
<td>SW5</td>
<td>VOL DN</td>
<td>Adjusts the paging volume of the LOC digital paging card DOWN.</td>
<td>See Section 4.6 for description.</td>
</tr>
<tr>
<td>D11</td>
<td>Paging volume set LED</td>
<td>See Section 4.6 for description.</td>
<td></td>
</tr>
<tr>
<td>D12</td>
<td>Trouble LED</td>
<td>See Appendix B for a listing of the trouble conditions that may occur.</td>
<td></td>
</tr>
<tr>
<td>D13</td>
<td>Power OK LED</td>
<td>Indicates the presence of power on digital paging card.</td>
<td></td>
</tr>
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</table>

**Note:** The LOC digital paging card is equipped with a local audible that will sound upon detection of a trouble event on the card. The audible can be silenced by pressing the local audible silence switch on the LOC paging control card or by pressing silence or acknowledge switch on the control panel or remote display.

**Note:** The LOC digital paging card can be reset by pressing switch SW1 on the card itself or by resetting the control panel.
3.2 LOC PAGING CONTROL CARD (P/N 10-2798)

The LOC Paging Control Card (See Exhibit 6) provides the primary paging controls and status indication for Fike’s local operating consoles (LOC). The card provides status LEDs and control switches that allow the system operator to observe and change the status of the emergency communication system (ECS). Refer to Section 6.0 for a detailed description of the card’s LED and switch functions.

The card is designed to be mounted to the dead-front door panel of the local operating console enclosure. It communicates with and receives its operating power directly from the LOC digital paging card via a ribbon cable connection.

Refer to Fike document 06-602 for further details.

3.3 LOC MICROPHONE HOUSING (P/N 10-2813-C)

The LOC microphone housing (See Exhibit 7) is designed to be connected to the LOC digital paging card (P/N 10-2816) to provide manual paging capabilities to the emergency communication system.

The housing consists of an 18 gauge steel enclosure with a baked on enamel finish (C = Red or Black), paging microphone and cable for connection to digital paging card. The housing is designed to allow mounting inside either of the available LOC enclosures using hardware provided.

Refer to Fike document 06-603 for further details.
4.0 INSTALLATION

The following installation instructions must be strictly adhered to when installing the LOC digital paging assembly components to prevent potential damage to the components and the associated control panel.

**Caution**
The assembly components and associated control panel contains static sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use anti-static packaging to protect electronic assemblies removed from the unit.

**Caution**
Never remove or install boards, internal cables or components with power applied. Failure to follow the instructions provided in this section can result in irreparable damage to the system components. This damage may adversely affect the operation of the control unit but its effect may not be readily apparent.

4.1 MOUNTING OPTIONS

The LOC digital paging assembly can be mounted in either of the two available local operating console enclosures, as shown in Exhibits 8 and 9. Each enclosure is equipped with threaded press studs that allow mounting of the components to the enclosure back-box using the mounting hardware provided.
4.2 LOC DIGITAL PAGING CARD INSTALLATION

To install the card:

1. If the system is already powered, disable critical functions; then power down the system.
2. Remove the card and supplied mounting hardware (P/N 02-12420) from the packaging and check for shipping damage.
3. Locate the four threaded press studs in the LOC Microphone enclosure back-box for mounting the LOC digital paging card (See Exhibits 8 and 9) and install the four M/F standoffs onto the press studs as shown in Exhibit 10.
4. Position the card onto the standoffs and secure in place with supplied lock washers and hex nuts as shown in Exhibit 10.

![Diagram of LOC Digital Paging Card Installation]

Exhibit 10: LOC Digital Paging Card Installation

4.3 LOC PAGING CONTROL CARD AND MICROPHONE HOUSING INSTALLATION

Refer to the documentation supplied with the LOC paging control card (P/N 10-2798) and LOC microphone housing (P/N 10-2813) for instructions on how to install each component.
4.4 LOC DIGITAL PAGING CARD WIRING

Unless otherwise detailed in this manual or in other documents relating to this component, the designer, installation and service technician shall utilize published standards and references such as: NFPA 70 National Electrical Code; NFPA 72 National Fire Alarm Code; and other standards which may be relevant to the Local Authority Having Jurisdiction (AHJ) for field wiring installation requirements.

**Critical Note:** When installed in occupancies that employ voice alarm/emergency communication systems for relocation or partial evacuation, all circuits connected to the LOC digital paging card shall comply with the pathway survivability requirements of NFPA 72.

Exhibit 11 shows the LOC Digital Paging Cards terminal block designations and their general function for reference purposes. Wiring diagrams detailing each terminal block connection are provided as follows.

4.4.1 (P1) 24VDC POWER IN/OUT

Exhibit 12 illustrates how to connect 24Vdc power to the LOC digital paging card. Power must be provided by the host control panel.
4.4.2 (P2) PERIPHERAL BUS

Exhibit 13 illustrates how to connect the RS485 peripheral bus to the LOC digital paging card. This is a pass-thru connection so there is no in or out terminals. Land shield on outgoing wiring only. Insulate incoming shield wire, but do not land.

4.4.3 (P5) AUDIO NETWORK

Exhibit 14 illustrates how to wire the emergency communication system’s audio network. The audio network wiring originates from the FCC digital paging card’s “OUT” terminal and is connected to the “IN” terminal on the next amplifier (P/N 10-2726) or LOC digital paging card (P/N 10-2816). Additional amplifiers and LOC digital paging cards are connected to the audio riser using the same “OUT” to “IN” wiring scheme. The wiring connected to the “OUT” terminal on the last device must return to the digital paging cards “IN” terminal (Class A). The audio network wiring between each node can be run up to 4,000 ft. (1,219 m) using Belden 9841, twisted-shielded cable or equivalent.

Refer to the installation instructions supplied with the amplifier card (P/N 10-2726) and LOC digital paging card (P/N 10-2816) for audio network wiring instructions.

Exhibit 14: Audio Network Connections
4.4.4 (P8) INTEGRAL MICROPHONE INPUT

Exhibit 15 illustrates how to connect the LOC microphone to the LOC digital paging card. This connection allows the microphone to deliver live audio messages to the audio network.

\[\text{Exhibit 15: LOC Microphone Input}\]

\(\text{Note:}\) Fike offers a Mic Simulator Jack (PN 10-2886) that can be used for troubleshooting. It can also be used if the system does not require Live Page.

4.4.5 (P9) PAGING CONTROL CARD INTERFACE

Exhibit 16 illustrates how to connect the LOC paging control card (P/N 10-2798) to the LOC digital paging card. The paging control card is supplied with an interface cable (P/N 10-2815) for interfacing to the digital paging card terminal P9.

\[\text{Exhibit 16: LOC Paging Control Card Installation}\]
4.5 DIP-SWITCH SETTINGS

The LOC digital paging card requires a unique address for identification on the host control panel’s RS485 peripheral bus. DIP-switch SW2-1 through 6 are used to set the address for the device as shown in Exhibit 17. A maximum number of 31 devices can be connected to the RS485 peripheral bus circuit.

The peripheral device addresses do not need to be sequential and can be set to any number between 02 and 32. Note that 00 is not a valid address and 01 is reserved for the control panel. See Exhibit 18 for DIP-switch settings for each binary address (ID number).

Dip-switch SW2-7 is used to set the peripheral bus communication speed that will be used by the LOC digital paging card to communicate with the CyberCat panel. The selected communication speed set on the card must match the host control panel settings. In addition, all devices connected to the same peripheral bus must use the same communication speed setting. In the OFF position, the card will communicate at 9600 bps (standard). In the ON position, the card will communicate at 38400 bps (fast).

DIP-switch SW2-8 must be set to ON if ALL of the Fike products that participate on the Audio Bus are V2.30 or higher. If ANY of the products are not at V2.30 or higher then ALL products connected on the Audio bus must have DIP-switch 8 set to OFF.

Note: If the DIP-switch settings are changed for any reason, you must reset the digital paging card by pressing switch SW1 in order for the changes to take effect.
4.6 ADJUSTING THE PAGING VOLUME

The LOC digital paging card is equipped with three switches (SW3, SW4 and SW5) that allow you to adjust the paging volume of the local microphone. See Exhibit 19.

Exhibit 19: Paging Volume Switches

The function of each switch is described below.

**Switch SW3 (VOL UP)**
Momentarily pressing the switch will increase the microphone’s audio input gain. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. If the switch press causes the maximum gain adjustment threshold to be reached, the LED will illuminate solid for a few seconds and then turn off.

**Switch SW4 (VOL DEF)**
Momentarily pressing the switch will set the microphone’s audio input gain to factory default levels. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. Pressing the switch again will cause the LED to illuminate solid for a few seconds and then turn off.

**Switch SW5 (VOL DN)**
Momentarily pressing the switch will decrease the microphone’s audio input gain. The associated volume set LED (red) will flash for a few seconds; then will turn off to indicate that the gain adjustment was made. If the switch press causes the minimum gain adjustment threshold to be reached, the LED will illuminate solid for a few seconds and then turn off.
5.0 PROGRAMMING

Programming of the LOC digital paging assembly is accomplished using a lap top computer and Fike’s C-Linx software. Refer to Fike document 06-448, “C-Linx Software manual” for programming instructions. Programming cable P/N 10-1874B is used to download the configuration to the digital paging assembly components via the control panel’s P3 configuration port.

The following table identifies the configurable features of the LOC digital paging assembly that can be changed by using the panel’s programming software C-Linx. The table also identifies features that are available, but are not permitted to be used per the CyberCat system’s UL listing.

Exhibit 20: UL (90.23) Programming Features

<table>
<thead>
<tr>
<th>Circuit or Component</th>
<th>Program Feature or Option</th>
<th>Permitted in UL 864? (Y/N)</th>
<th>Possible Settings (Defaults shown bold)</th>
<th>Settings permitted in UL 864</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Microphone</td>
<td>Peripheral Address</td>
<td>Y</td>
<td>2 - 32</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restart Audio on new activation (for sync)</td>
<td>Y</td>
<td>Enabled / Disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Restart Audio Delay Time</td>
<td>Y</td>
<td>0 – 50 (seconds)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Audio Bus Fiber</td>
<td>Y</td>
<td>Enabled / Disabled</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Remote Microphone Settings</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Piezo</td>
<td>Y</td>
<td>Silenceable / Non-Silenceable</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Audio Bus</td>
<td>Y</td>
<td>Master / Slave</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Switch Configuration (01 – 13)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Settings</td>
<td>Y</td>
<td>Zone Assignments / Zones and Message ID</td>
<td>2,3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority</td>
<td>Y</td>
<td>Latching / Non-Latching</td>
<td>Latching 5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Switch Timeout</td>
<td>Y</td>
<td>0 – 250 (min.)</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

Notes:
1. Master = Audio Adjunct Panel; Slave = Local Operating Console
2. Zone assignments field is available only when switch is set to Voice Alert, Voice EVAC, Voice Page, Voice Record Page, MNS Page, and MNS Record Page.
3. Zones and Message ID field is available only when switch is set to Voice Play Message ID or MNS Play Message ID.
4. 1 = Highest and 254 = Lowest.
5. This is only allowed on MNS switch functions.
6. This programming option is only available for Audio Adjunct Panel (Master). When 485 to fiber converters are installed anywhere on the Audio Bus this must be selected as YES for Supervision. Refer to 06-803 for approved converters (UL ONLY).
5.1 PAGING CONTROL CARD SWITCH NUMBERING

The thirteen programmable switches on the paging control card are numbered as shown in Exhibit 21 for programming purposes.

6.0 OPERATION

The LOC digital paging assembly is designed to provide the basic indicators and controls switches that are necessary to deliver live voice commands (paging) and manual messages to the building occupants over the emergency communication system (ECS) speakers. The basic operation of the digital paging assembly and the voice system in general is described below.

Normal Standby

When no system alarm or trouble condition exists:

- All LEDs are off except the Power LED (green) located on the LOC digital paging card
- All audibles are off

System Event (Voice or MNS)

Upon detection of a fire alarm condition, supervisory condition, process condition or activation of the FCC digital paging cards MNS input:

- LEDs that correspond to the event will turn on to indicate the status of the system
- Amplifiers that correspond to the event will turn on
- Speaker circuits that correspond to the event will turn on
- Transmit the alerting tone before and after message (if programmed)
- Transmit the appropriate digital voice message
Upon restoration to normal:

- Turn off the digital voice message and tone
- Turn off the speaker circuits
- Turn off the amplifiers
- Turn off the status LEDs

**Paging (Voice or MNS)**

Paging requires the system operator to select the paging source: 1) FCC microphone, 2) FCC fire-phone(s) or 3) LOC microphone as well as the destination for the page. By default, the FCC microphone is the primary paging source and only one source can be active at a time.

Upon activation of a push button programmed for page operation (i.e., Page to Alert, Page to EVAC, Page to Zone or Page Record & Repeat to Zone):

- LEDs that correspond to the event will turn on or off to indicate the status of the system
  - If the buttons red LED is off (inactive), it will flash to indicate the button selection; then will illuminate steady to indicate the system is page ready. The green Local Page Active LED on the FCC paging control card will illuminate.
  - If the buttons red LED is already on (active) and the red Remote Page Active LED is illuminated, the selected page command has already been initiated from a remote location. If the selected button is set to a lower priority than the currently active page button, transfer of page control will be denied. The red LED will flash and then return to its current operational state (on or off). If the selected button is set to a higher or equal priority than the currently active page button, paging control will be transferred to this location causing the green Local Page Active LED to illuminate and the red Remote Page Active LED to turn off.
- Amplifiers that correspond to the event will turn on
- Speaker circuits that correspond to the event will turn on
- Lift the microphone from its holder, press the push-to-talk button on the side of the MIC and deliver your message.
- If using the microphone as the paging source, transmit the alerting tone if the microphone has not been keyed (page delivered) 30 seconds after the button press.
- Press the selected push button again to deactivate the page function. The red LED will flash and then turn off and the green Local Page Active LED will turn off to indicate restoration to normal operation.

**Manual Message Activation (Voice or MNS)**

Upon activation of a button programmed for Voice EVAC, Voice Alert, Voice Play Message ID or MNS Play Message ID:

- LEDs that correspond to the event will turn on to indicate the status of the system
  - If the buttons red LED is off (inactive), it will flash to indicate the button selection; then will illuminate steady to indicate the selected function is active.
  - If the buttons red LED is already on (active), the selected function has already been initiated from a remote location. If the selected button is set to a lower priority than the currently active button, cancellation of function will be denied. The red LED will flash and then return to its current operational state (on or off). If the selected button is set to a higher or equal priority than the currently active button, the function will cancel and the red LED will flash and then turn off upon confirmation.
6.1 LOC PAGING CONTROL CARD OPERATION

The LOC paging control card (P/N 10-2798) provides the primary paging controls and indicators for the LOC digital paging assembly. The card is equipped with several control switches and associated LEDs that allow the system operator to control and monitor the status of the ECS system. The function of the controls and indicators provided on the card are described as follows:

Local Page Active LED (green) – Illuminates solid when the control panel has acknowledged the page switch press for paging activation. Will turn off when the page is cancelled via switch press or a remote page with same or higher priority is initiated.

Remote Page Active LED (red) – Illuminates solid when the control panel has acknowledged the page switch press for paging activation from a remote location. Will turn off when the page is cancelled via switch press or a local page with same or higher priority is initiated.

Power LED (green) – Illuminates solid to indicate the presence of power on LOC digital paging card.

Trouble LED (yellow) – Blinks to indicate the presence of any trouble event associated with the LOC digital paging card. Will illuminate solid if the event is acknowledged at the associated control panel. Will turn off when the trouble event is cleared.

MNS/ECS Active LED (red) – Illuminates solid when the control panel has acknowledged the activation of the MNS contact input on the FCC digital paging card (P4) or a switch assigned to an MNS function has been pressed. Will turn off when the contact monitor input is no longer active (non-latching), MNS reset is pressed or the MNS button is pressed again to cancel the function.

Local Audible Silence Switch (red LED) - Pressing the switch will silence the local piezo on the LOC digital paging card, if active. The associated LED illuminates solid to indicate that the local piezo was silenced. Will turn off when the trouble event is cleared.

Custom Switch (red LED) – Pressing the switch initiates the programmed Voice/MNS command to the assigned zone(s). See command options below for details. The associated red LED will flash until the control panel acknowledges the button press, which is based on the priority level of the switch (See Section 6.2 for description of priority levels); then the associated LED will illuminate solid to indicate that the zone(s) are in the active state. If the command is not received by the control panel or if a switch or input of higher priority is active, the associated LED will flash and then will return to its current operational state (on or off).

Pressing the switch again will send a cancel command to the control panel. The associated red LED will flash until the control panel acknowledges the button press, which is based on the priority level of the switch (See Section 6.2 for description of priority levels); then the associated LED will turn off.

Voice Alert (by zone) - Places selected zone(s) into the Alert state. Assigned Alert message will be played in selected zone(s).

Voice EVAC (by zone) - Places selected zone(s) into the Evacuation state. Assigned EVAC message will be played in selected zone(s).

Voice or MNS Page (by zone) - Initiates page to selected zone(s). Use the system microphone or fire-phone to deliver live audio message to selected zone(s).

Voice or MNS Record Page (by zone) - Initiates a record and repeat page to the selected zone(s). Use the system microphone or fire-phone to deliver live audio message to selected zone(s). Message will be recorded and repeated over and over until canceled or over written.

Voice or MNS Play Message ID (by zone) - Plays the selected message ID(s) to selected zone(s).

Voice Page to Alert – Initiates a page to all active Alert zone(s).

Voice Page to EVAC – Initiates a page to all active EVAC zone(s).

MNS Reset – Resets the MNS system. Voice events are not affected.

MNS Silence – Silences the active MNS events. Voice events are not affected.
6.2 **CONTROL PRIORITIES**

Each switch on an FCC digital paging card, LOC paging card, audio control card and input/output card must be assigned a priority level from 1 – 254, with 1 being the highest priority and 254 being the lowest priority. These priority levels are used to resolve which switch or card has control priority over another switch or card that is programmed for the same operation. A switch or card with a lower priority setting cannot override a switch or card with a higher priority. A switch or card with the same or higher priority can override another switch or card with the same or a lower priority setting.

**Example 1:** A switch in the FCC enclosure and LOC enclosure are both programmed for EVAC Zone 1. The switch in the FCC enclosure has a priority level setting of 1, while the switch in the LOC enclosure has a priority level setting of 2. Pressing the switch in the FCC enclosure will cause Zone 1 to enter into the EVAC state. Both the switch in the FCC enclosure and the LOC enclosure will indicate that the EVAC state is active by turning on the corresponding switch LED. Since the switch in the LOC enclosure has a lower priority than the switch in the FCC enclosure, pressing the Zone 1 EVAC switch in the LOC enclosure to cancel the EVAC will have no effect. The corresponding switch LED will flash and then will return to its current operational state (on or off). The fire alarm control panel display will indicate that the requested switch selection has been denied by displaying (D) after the switch message.

**Example 2:** A switch in the FCC enclosure and LOC enclosure are both programmed for Page Zone 1. The switch in the LOC enclosure has a priority level of 2, while the switch in the FCC enclosure has a priority level of 1. Pressing the switch in the LOC enclosure will cause Zone 1 to enter into the PAGE state. Both the switch in the FCC enclosure and the LOC enclosure will indicate that the PAGE state is active by turning on the corresponding switch LED. The Local Page Active LED in the LOC enclosure will activate and the Remote Page Active LED in the FCC enclosure will activate. Since the switch in the FCC enclosure has a higher priority than the switch in the LOC enclosure, pressing the Zone 1 PAGE switch in the FCC enclosure will cause the PAGE control to transfer to the FCC enclosure. The Local Page Active LED in the FCC enclosure will activate and the Remote Page Active LED in the LOC enclosure will activate.

**Example 2A:** The MNS/ECS input on the digital paging card is programmed for priority level 1 (highest). Upon activation of the input, the MNS/ECS line level input on the digital paging card will become active. The MNS/ECS active LED in the FCC enclosure and LOC enclosure will activate to indicate that the MNS state is active in the system. The Local Page Active LED in the FCC enclosure will activate and the Remote Page Active LED in the LOC enclosure will activate. The microphone and fire-phone source selection on the FCC paging control card will be disabled until the MNS input is no longer active.

6.3 **AUDIO SYNCHRONIZATION**

During typical operation, it is possible for the audio messages generated by the system amplifiers to become out of sync (i.e., audio message starts and stops at different times). This can potentially cause an echo effect where multiple amplifiers serve a common audio zone due to message playback delay. Page operation is the most common cause for the amplifiers to become out of sync. For example: If a page is initiated to one or more amps, it temporarily interrupts the playback of the automatic audio message. Once the page is complete, the amplifier(s) will recommence playback of the automatic audio message, which will be out of sync with the amplifiers not affected by the page.

If your project requires audio synchronization, the following digital paging card configuration options must be utilized as described in Section 6.3.1.

**Restart Audio on new activation (for sync)** – When enabled, the Audio Restart feature forces all system amplifiers configured for sync operation (regardless of zone) to stop playing the current audio message and restart message playback simultaneously upon completion of the restart delay time. If used, this feature must be enabled on all FCC and LOC digital paging assemblies system wide.

**Restart Audio Delay Time (sec)** – Delays the restart of the system amplifiers for the set time frame (0 – 50 seconds). This feature gives all system amplifiers across the network enough time to restart prior to commencing message playback. If used, the time delay setting must be identical on all FCC and LOC digital paging assemblies system wide.
6.3.1 SYNCHRONIZATION CONFIGURATION OPTIONS

The following configuration options shall be used to properly configure the LOC digital paging card for sync operation. Configuration settings vary according to the system configuration and type of sync operation required.

**Option 1 – Single or Networked panel system with individual zone synchronization**

In this option, sync operation is isolated to each individual zone on a single panel or networked panel system and zones are not shared across the network. The Audio Restart feature on the FCC and LOC digital paging cards is not required and should be disabled. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play the “Configured Message ID”.

**Option 2 – Single panel with synchronization across zones**

In this option, sync operation is shared between multiple zones on a single panel system. The Audio Restart feature on the FCC and LOC digital paging cards must be enabled and a Restart Time Delay of 0 seconds must be used. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play the “Configured Message ID”.

**Option 3 – Networked panels with synchronization across zones**

In this option, sync operation is shared across networked panels and zones. The Audio Restart feature on the FCC and LOC digital paging cards must be enabled and a Restart Time Delay of 20 seconds minimum must be used. All amplifiers that are to be synchronized shall be configured with sync operation enabled and to play either the “Configured Message ID”, “Play Tones”, or “Play New Message ID” during the audio restart delay.

Note: Refer to Fike document P/N 06-576 for amplifier configuration options for sync operation.

7.0 TESTING AND PLACING INTO SERVICE

To ensure proper system operation, this product must be tested in accordance with the requirements of NFPA 72 after 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.

8.0 SERVICING

There are no serviceable components on this card.
APPENDIX A – APPLICATION EXAMPLE

The following Exhibit shows an example of how the LOC digital paging assembly is incorporated into the voice/MNS system.

A.1 MULTIPLE AMPLIFIER SYSTEM WITH LOC MICROPHONE

Exhibit A-1 shows the components that are necessary to form a multiple amplifier system with LOC. The system amplifiers and LOC digital paging card are connected together and to the digital paging card via the system’s live audio bus. This connection allows live paging from both the local and remote paging microphones to be distributed to all interconnected system amplifiers.

Exhibit A-1: Multiple Amplifier System with LOC
APPENDIX B - TROUBLESHOOTING

When an event occurs on the LOC Digital Paging Card the yellow LED (D12) on the LOC Digital Paging Card will blink and the card’s audible will turn on. In addition, the yellow Trouble LED on the Remote Paging Control Card will illuminate.

The following table identifies the possible trouble event messages that will be displayed on the control panel, followed by the event description and the recommended steps to restore the system to normal:

Exhibit B-1: Trouble Event Messages

<table>
<thead>
<tr>
<th>Event Display</th>
<th>Description</th>
<th>Suggested Corrective Action</th>
</tr>
</thead>
</table>
| MIC@#aa AUDIO BUS TR        | An open or short has been detected on the audio bus.                         | 1. Check for a wiring fault (open or short) on the audio bus circuit between a device that is in Audio Bus trouble and a device that is not in Audio Bus trouble.  
2. Install Fike PN 10-2939 485 Jumper to ensure wiring to and from device in trouble is not faulted  
3. Check the LOC Digital Paging Card for power and proper operation.  
4. Ensure DIP-Switch 8 is set appropriately for firmware version of ALL devices that participate on the Audio Bus.  
5. If ALL devices on the Audio Bus are reporting Audio Bus trouble then start troubleshooting for wiring/connections at the Digital Paging Module and then move on to its neighboring devices on the Audio Bus. |
| MIC@#aa AUDIO BUS CL        | The condition causing the AUDIO BUS TR has been cleared.                      | 1. Note the cause of the fault and the steps that were used (if any) to correct the event. |
| MIC@#aa CODEC COM TR        | The RPC at peripheral address #aa has developed a problem with the Codec chip. Either the RPC PIC cannot communicate with the audio Codec chip or the Power On Codec test failed. | 1. Perform a hard rest on the RPC by pressing switch SW1.  
2. Call Tech Support for possible further steps or return the RPC for repair or replacement. |
| MIC@#aa CODEC COM CL        | The condition causing the CODEC COM TR event on the RPC at peripheral address #aa has cleared. | 1. Note the cause of the fault and the steps that were used (if any) to correct the event. |
| MIC@#aa MICROPHON TR        | The RPC at peripheral address #aa has lost communication with its local microphone. | 1. Check the microphone connections at the microphone housing.  
2. Check the microphone wires for signs of damage.  
3. Locate the RPC identified on the 2nd line of the event display. Go to that RPC and check if the microphone is plugged in. |
| MIC@#aa MICROPHON CL        | The condition causing the MICROPHON TR event on the RPC at peripheral address #aa has cleared. | 1. Note the cause of the fault and the steps that were used (if any) to correct the event. |
| MIC@#aa MEM COMM TRB        | The RPC at peripheral address #aa has developed a communication problem between the PIC and flash memory chip or the Power On flash test failed. | 1. Return the RPC card for repair or replacement. |
| MIC@#aa MEM COMM CLR        | The condition causing the MEM COMM TR event on the RPC at peripheral address #aa has cleared. | 1. Note the cause of the fault and the steps that were used (if any) to correct the event. |
| MIC@#aa MSG MISSING         | The RPC at peripheral address #aa has developed a problem with the flash memory content. Configuration is corrupt or does not exist. | 1. Resend the configuration to the RPC. |
| MIC@#aa MSG MISS CLR        | The condition causing the MSG MISSING event on the RPC at peripheral address #aa has cleared. | 1. Note the cause of the fault and the steps that were used (if any) to correct the event. |