

## Introduction

### Purpose

This document provides instructions to install the Intercom Call Interface Board (M14595A00X) or Intercom Interface Board (M09751A00X) in Encore® 300/500/700 S units.

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### Parts List

The following table lists parts required to install the Intercom Interface Board in Encore 300/500/700 S units:

Item#	Description	Part Number	Quantity
1	Cable, Next Generation Payment (NGPM) Intercom Call Interface	M14762A001	1
2	Cable, NGPM Intercom Call Interface	M14762A002	1
3	Printed Circuit Assembly (PCA), Intercom Interface with Call ~OR~ PCA, Intercom Interface	M14595A00X M09751A00X	1
4	Cable, NGPM Intercom Call Power	M14763A001	1
5	Assembly, Mounting Bracket, Intercom	M14690A001	1
6	Screw, Sems, PPHD Extlw	Q12083-15	4
7	Nut, Metric, Hexagonal Serrated Flange	M00414B001	2

### Related Documents

Document Number	Document Title	GOLD <sup>SM</sup> Library
MDE-3804	Encore and Eclipse® Start-up/Service Manual	<ul style="list-style-type: none"><li>• Encore and Eclipse</li><li>• CRIND® and TRIND®</li></ul>
MDE-4902	Encore 700 S Startup and Service Manual	<ul style="list-style-type: none"><li>• Encore and Eclipse</li><li>• CRIND and TRIND</li></ul>

## Abbreviations and Acronyms

Term	Description
AFP	Auxiliary Feature Processor
CD	Computer Display
CPU	Central Processing Unit
CRIND	Card Reader in Dispenser
DCM	Dispenser Communication Module
ESD	Electrostatic Discharge
FCB	FlexPay™ Control Board
HIP	Hub Interface PCB
LED	Light Emitting Diode
NEC®	National Electrical Code
NFPA	National Fire Protection Association
NGPM	Next Generation Payment
OSHA	Occupational Safety and Health Administration
PCA	Printed Circuit Assembly
PCB	Printed Circuit Board
PIP	Peripheral Interface PCB
TRIND	Transmitter/Receiver in Dispenser
VDC	Voltage Direct Current

# Important Safety Information

**Notes:** 1) *Save this Important Safety Information section in a readily accessible location.*

2) *Although DEF is non-flammable, Diesel is flammable. Therefore, for DEF cabinets that are attached to Diesel dispensers, follow all the notes in this section that pertain to flammable fuels.*

This section introduces the hazards and safety precautions associated with installing, inspecting, maintaining, or servicing this product. Before performing any task on this product, read this safety information and the applicable sections in this manual, where additional hazards and safety precautions for your task will be found. Fire, explosion, electrical shock, or pressure release could occur and cause death or serious injury, if these safe service procedures are not followed.



## Preliminary Precautions

You are working in a potentially dangerous environment of flammable fuels, vapors, and high voltage or pressures. Only trained or authorized individuals knowledgeable in the related procedures should install, inspect, maintain, or service this equipment.

## Emergency Total Electrical Shut-Off

The first and most important information you must know is how to stop all fuel flow to the pump/dispenser and island. Locate the switch or circuit breakers that shut off all power to all fueling equipment, dispensing devices, and Submerged Turbine Pumps (STPs).

**⚠ WARNING**

The EMERGENCY STOP, ALL STOP, and PUMP STOP buttons at the cashier's station WILL NOT shut off electrical power to the pump/dispenser. This means that even if you activate these stops, fuel may continue to flow uncontrolled.

You must use the TOTAL ELECTRICAL SHUT-OFF in the case of an emergency and not the console's ALL STOP and PUMP STOP or similar keys.

## Total Electrical Shut-Off Before Access

Any procedure that requires access to electrical components or the electronics of the dispenser requires total electrical shut off of that unit. Understand the function and location of this switch or circuit breaker before inspecting, installing, maintaining, or servicing Gilbarco equipment.

## Evacuating, Barricading, and Shutting Off

Any procedure that requires access to the pump/dispenser or STPs requires the following actions:



- An evacuation of all unauthorized persons and vehicles from the work area
- Use of safety tape, cones, or barricades at the affected unit(s)
- A total electrical shut-off of the affected unit(s)

## Read the Manual

Read, understand, and follow this manual and any other labels or related materials supplied with this equipment. If you do not understand a procedure, call the Gilbarco Technical Assistance Center (TAC) at 1-800-743-7501. It is imperative to your safety and the safety of others to understand the procedures before beginning work.

## Follow the Regulations

Applicable information is available in National Fire Protection Association (NFPA) 30A; *Code for Motor Fuel Dispensing Facilities and Repair Garages*, NFPA 70; *National Electrical Code (NEC)*, Occupational Safety and Health Administration (OSHA) regulations and federal, state, and local codes. All these regulations must be followed. Failure to install, inspect, maintain, or service this equipment in accordance with these codes, regulations, and standards may lead to legal citations with penalties or affect the safe use and operation of the equipment.

## Replacement Parts

Use only genuine Gilbarco replacement parts and retrofit kits on your pump/dispenser. Using parts other than genuine Gilbarco replacement parts could create a safety hazard and violate local regulations.

## Safety Symbols and Warning Words

This section provides important information about warning symbols and boxes.

### Alert Symbol



This safety alert symbol is used in this manual and on warning labels to alert you to a precaution which must be followed to prevent potential personal safety hazards. Obey safety directives that follow this symbol to avoid possible injury or death.

### Signal Words

These signal words used in this manual and on warning labels tell you the seriousness of particular safety hazards. The precautions below must be followed to prevent death, injury, or damage to the equipment:



**DANGER:** Alerts you to a hazard or unsafe practice which will result in death or serious injury.



**WARNING:** Alerts you to a hazard or unsafe practice that could result in death or serious injury.



**CAUTION** with Alert symbol: Designates a hazard or unsafe practice which may result in minor injury.

**CAUTION** without Alert symbol: Designates a hazard or unsafe practice which may result in property or equipment damage.

## Working With Fuels and Electrical Energy

### Prevent Explosions and Fires

Fuels and their vapors will explode or burn, if ignited. Spilled or leaking fuels cause vapors. Even filling customer tanks will cause potentially dangerous vapors in the vicinity of the dispenser or island.

DEF is non-flammable. Therefore, explosion and fire safety warnings do not apply to DEF lines.

## Important Safety Information

### No Open Fire



Open flames from matches, lighters, welding torches or other sources can ignite fuels and their vapors.

### No Sparks - No Smoking



Sparks from starting vehicles, starting or using power tools, burning cigarettes, cigars or pipes can also ignite fuels and their vapors. Static electricity, including an electrostatic charge on your body, can cause a spark sufficient to ignite fuel vapors. Every time you get out of a vehicle, touch the metal of your vehicle, to discharge any electrostatic charge before you approach the dispenser island.

### Working Alone

It is highly recommended that someone who is capable of rendering first aid be present during servicing. Familiarize yourself with Cardiopulmonary Resuscitation (CPR) methods, if you work with or around high voltages. This information is available from the American Red Cross. Always advise the station personnel about where you will be working, and caution them not to activate power while you are working on the equipment. Use the OSHA Lockout/Tagout procedures. If you are not familiar with this requirement, refer to this information in the service manual and OSHA documentation.

### Working With Electricity Safely

Ensure that you use safe and established practices in working with electrical devices. Poorly wired devices may cause a fire, explosion or electrical shock. Ensure that grounding connections are properly made. Take care that sealing devices and compounds are in place. Ensure that you do not pinch wires when replacing covers. Follow OSHA Lockout/Tagout requirements. Station employees and service contractors need to understand and comply with this program completely to ensure safety while the equipment is down.

### Hazardous Materials

Some materials present inside electronic enclosures may present a health hazard if not handled correctly. Ensure that you clean hands after handling equipment. Do not place any equipment in the mouth

#### WARNING

In the event of inclement weather, including snow, ice, or flooding that makes driving conditions dangerous, please avoid servicing units. Always use available door stops to secure upper doors against unwanted/unexpected movement, especially during high winds. If necessary, reschedule service to avoid damage to the equipment. Weather may change unexpectedly; be aware of local weather conditions. During service, if conditions develop making service unsafe, close the unit(s) and proceed to a safe location.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause cancer.

#### WARNING

The pump/dispenser contains a chemical known to the State of California to cause birth defects or other reproductive harm.



Gilbarco Veeder-Root encourages the recycling of our products. Some products contain electronics, batteries, or other materials that may require special management practices depending on your location. Please refer to your local, state, or country regulations for these requirements.

## In an Emergency

### Inform Emergency Personnel

Compile the following information and inform emergency personnel:

- Location of accident (for example, address, front/back of building, and so on)
- Nature of accident (for example, possible heart attack, run over by car, burns, and so on)
- Age of victim (for example, baby, teenager, middle-age, elderly)
- Whether or not victim has received first aid (for example, stopped bleeding by pressure, and so on)
- Whether or not a victim has vomited (for example, if swallowed or inhaled something, and so on)

#### WARNING



Gasoline/DEF ingested may cause unconsciousness and burns to internal organs. Do not induce vomiting. Keep airway open. Oxygen may be needed at scene. Seek medical advice immediately.

#### WARNING

DEF generates ammonia gas at higher temperatures. When opening enclosed panels, allow the unit to air out to avoid breathing vapors. If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention.

#### WARNING



Gasoline inhaled may cause unconsciousness and burns to lips, mouth and lungs. Keep airway open. Seek medical advice immediately.

#### WARNING



Gasoline/DEF spilled in eyes may cause burns to eye tissue. Irrigate eyes with water for approximately 15 minutes. Seek medical advice immediately.

#### WARNING



Gasoline/DEF spilled on skin may cause burns. Wash area thoroughly with clear water. Seek medical advice immediately.

#### WARNING

DEF is mildly corrosive. Avoid contact with eyes, skin, and clothing. Ensure that eyewash stations and safety showers are close to the work location. Seek medical advice/recommended treatment if DEF spills into eyes.

**IMPORTANT:** Oxygen may be needed at scene if gasoline has been ingested or inhaled. Seek medical advice immediately.

### Lockout/Tagout

Lockout/Tagout covers servicing and maintenance of machines and equipment in which the unexpected energization or start-up of the machine(s) or equipment or release of stored energy could cause injury to employees or personnel. Lockout/Tagout applies to all mechanical, hydraulic, chemical, or other energy, but does not cover electrical hazards. Subpart S of 29 CFR Part 1910 - Electrical Hazards, 29 CFR Part 1910.333 contains specific Lockout/Tagout provision for electrical hazards.

*Note: Some intercom systems (such as Aiphone) require series capacitors in series to their speaker connection. Therefore, all intercom interface boards include series capacitors on the boards, and no external capacitors are required. However, these capacitors do create a small signal loss and the M14595 includes jumpers to bypass these capacitors (thus reducing the loss). Refer to “Jumpers” on [page 15](#).*

## Before You Begin

Read all the safety information found in *MDE-3804 Encore and Eclipse Start-up/Service Manual*.

### CAUTION



A properly grounded Electrostatic Discharge (ESD) wrist strap must be worn while servicing any electronic devices or components. Failure to use electrostatic precautions may damage electronic components and void warranty.

To prepare the site and unit for the installation, proceed as follows:

- 1 Inform the manager.
- 2 Barricade the unit to be worked on.
- 3 Power down the dispenser at the breaker panel. Follow OSHA lockout/tagout procedures.
- 4 Remove the lower panel and then open the dispenser door.
- 5 Isolate two-wire to the unit.

### WARNING

Failure to turn off the unit during the installation of the kit may cause injury or bodily harm from electrical shock. Ensure that all power to the unit is switched off before opening the door to the unit and during kit installation.

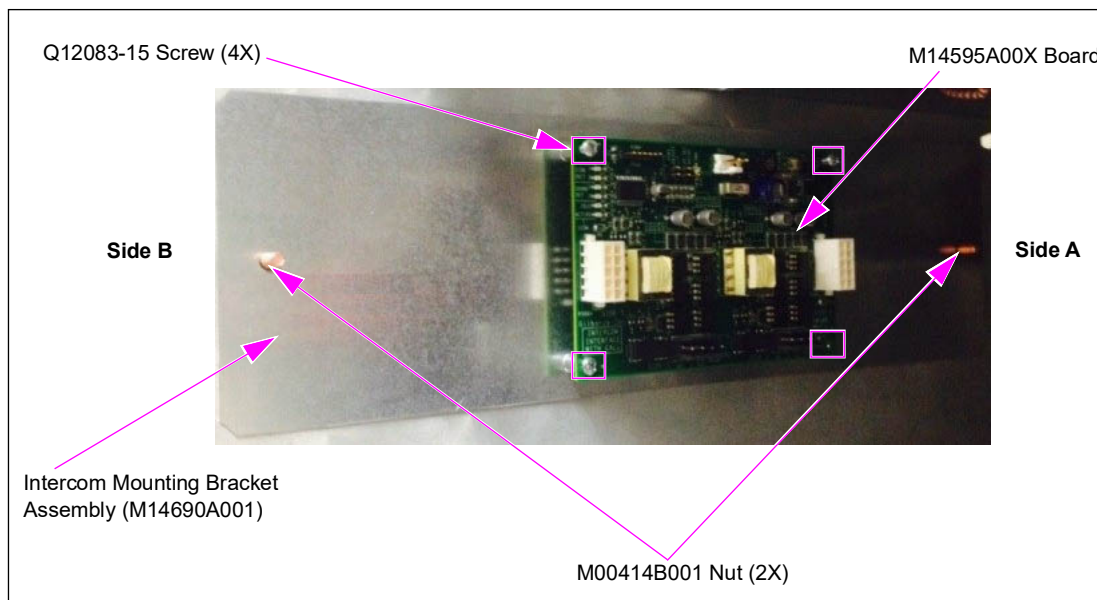
## Installing Intercom Call Interface Board (M14595A00X) in Encore 300/500/700 S Units

To install the intercom call interface board in Encore 300/500/700 S units, proceed as follows:

- 1 Mount the board on the Intercom Mounting Bracket Assembly (M14690A001) using four Q12083-15 Screws. Mount the board assembly inside the Computer Display (CD) module as shown in [Figure 1](#). Board mounting should be such that the power connector P511 on board is on the top, and side A and B mentioned on the board match the dispenser sides. Use M00414B001 Nuts to fix the assembly to the side wall of the CD module.

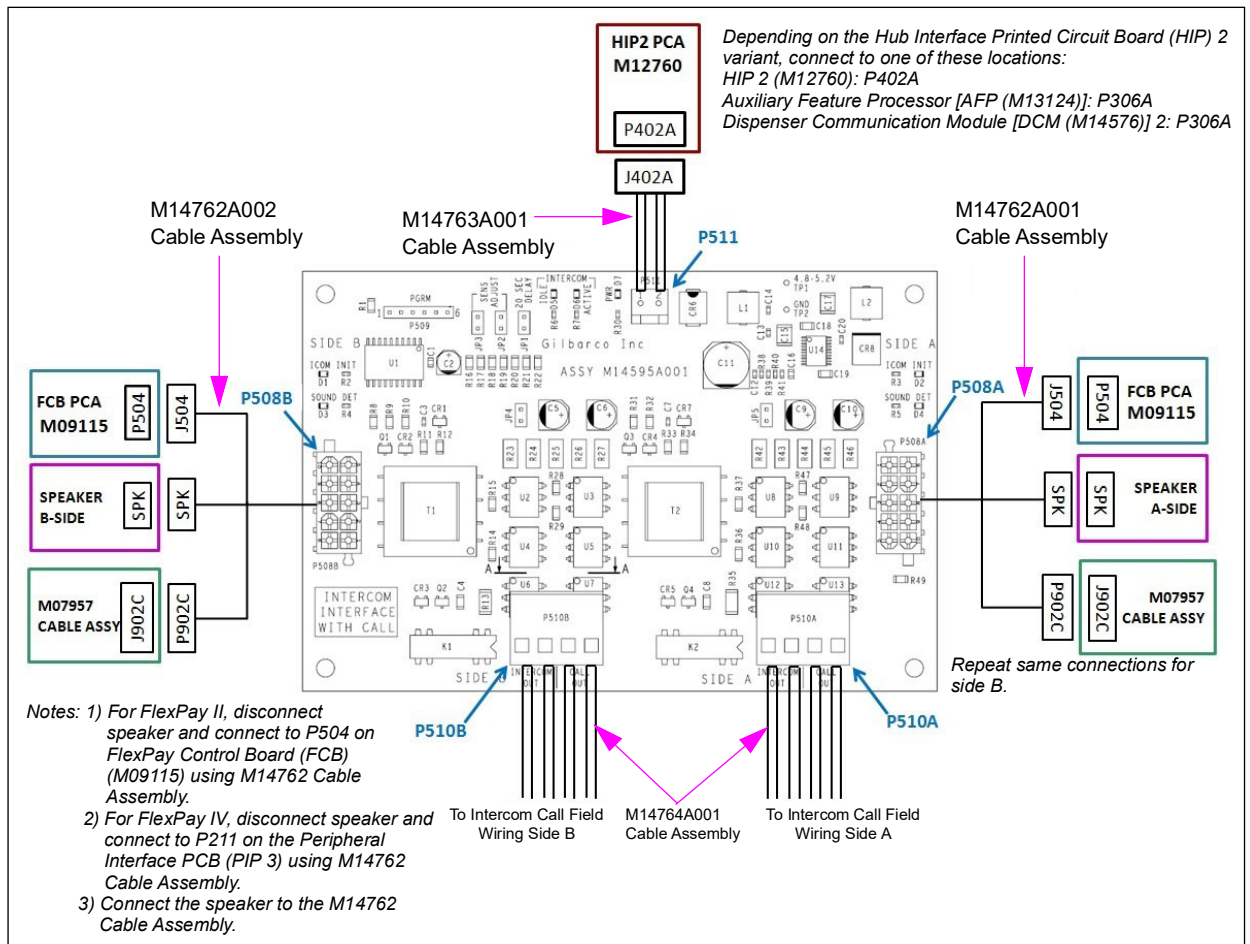
*Note: The side wall for intercom assembly mounting is opposite to the side wall where +24 V power supply is mounted.*

**Figure 1: Installing the Intercom Call Interface Board in CD Module**



- 2** For wiring instructions, see [Figure 2](#).

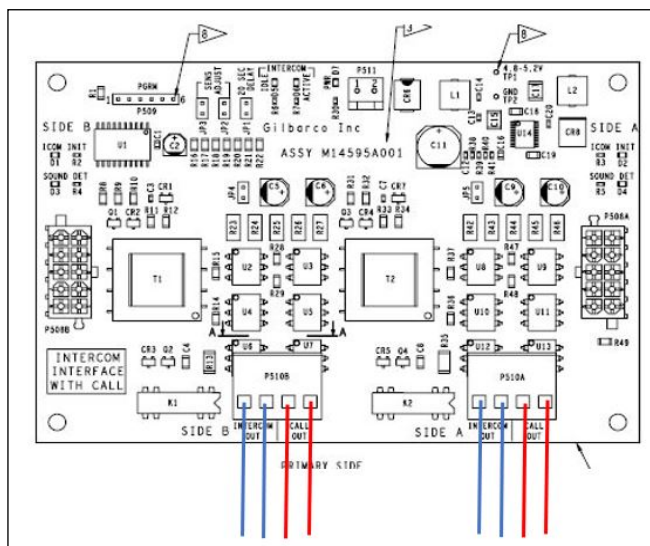
### Figure 2: Wiring Instructions



## Forecourt Connections to Intercom Systems

Forecourt wiring for intercom systems that have one set of wires for the call and a second set of wires for the speaker. (This is the most common case).

**Figure 3: Forecourt Connections to Intercom Systems**



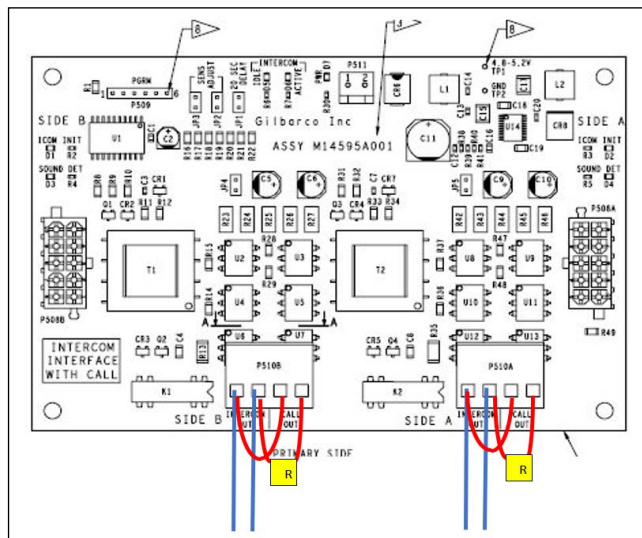
In this case, wire the intercom base station speaker connection to the “intercom out” terminals and the intercom call connection to the “call out” terminals. If the base station only has one intercom selection for both sides of the dispenser, it is allowed to wire the blue and red wires in parallel.

Forecourt wiring for Aiphone or other systems that have one set of wires for the call and speaker signals. These intercom systems require a capacitor to be in series with the speaker. The capacitor is built into the intercom boards, so wiring the call and speaker input in parallel works.

*Notes: 1) JP4 and JP5 must not be installed if the board is wired this way.*

*2) Additionally, for Aiphone systems, add a 470 Ohm resistor at each “R” as indicated.*

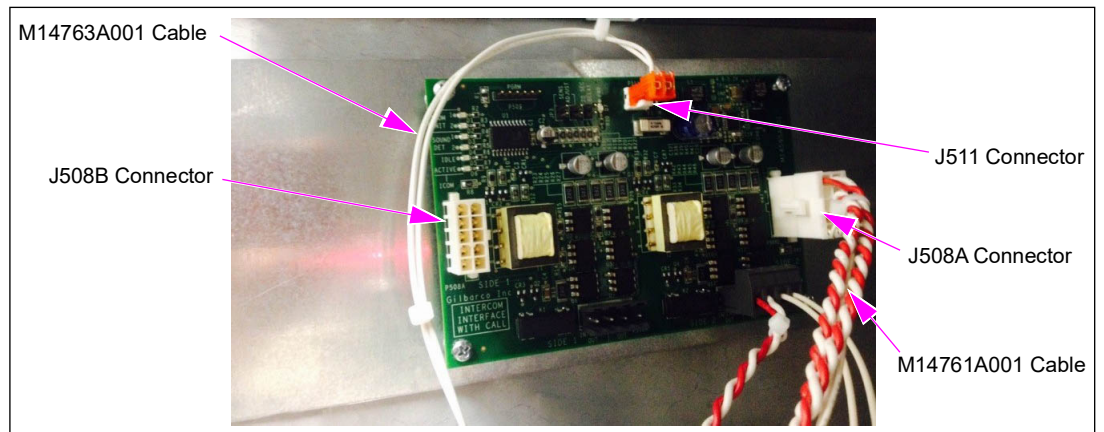
**Figure 4: Forecourt Wiring for Aiphone**





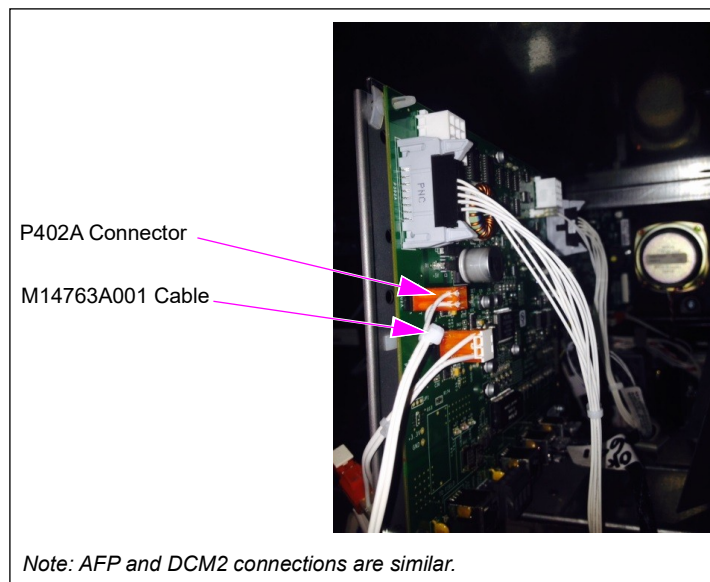
- 1 Install the cable assemblies.
  - a Connect the 10-pin J508A connector of the M14762A001 Cable to P508A of the intercom call interface board.
  - b Connect the 10-pin J508B connector of the M14762A002 Cable to P508B of the intercom call interface board.
  - c Connect the 2-pin J511 connector of the M14763A001 Cable to P511 of the intercom call interface board. [Figure 5](#) shows all the board connections.

**Figure 5: Board Cable Assembly Connections**



- d Connect the other 2-pin J402A connector of M14763A001 Cable Assembly to P402A connector on HIP 2 PCA (M12760A00X). [Figure 6](#) shows the HIP 2 PCA connection details.

**Figure 6: HIP 2 PCA Connection**



- e** Connect the 2-pin connectors (marked SPK) of M14762A001 and M14762A002 Cables to corresponding speakers mounted on doors.
- f** Connect the 2-pin J504 connector of M14762A001 Cable to P504 connector on FlexPay Control Board (FCB) board of side A and J504 of M14762A002 Cable to P504 connector on FCB board of side B. [Figure 7](#), and [Figure 8](#) on [page 11](#) show FCB and speaker connections for FlexPay II and FlexPay IV systems, respectively.
- Note: For FlexPay II, disconnect speaker and connect to P504 on FCB PCA using M14762 Cable Assembly. For FlexPay IV, disconnect speaker and connect to P211 on the PIP 3 using M14762 Cable Assembly.*

### Figure 7: M14762 Cable Intercepting FlexPay II Audio Signal

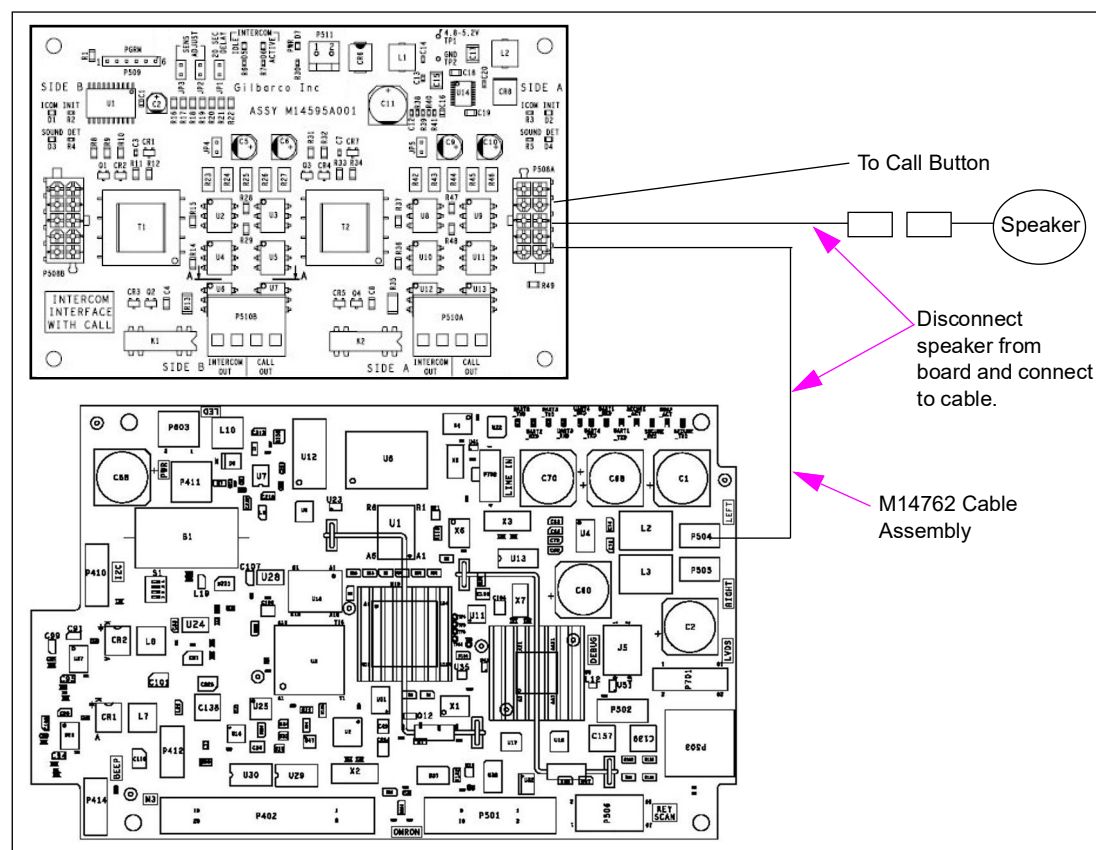
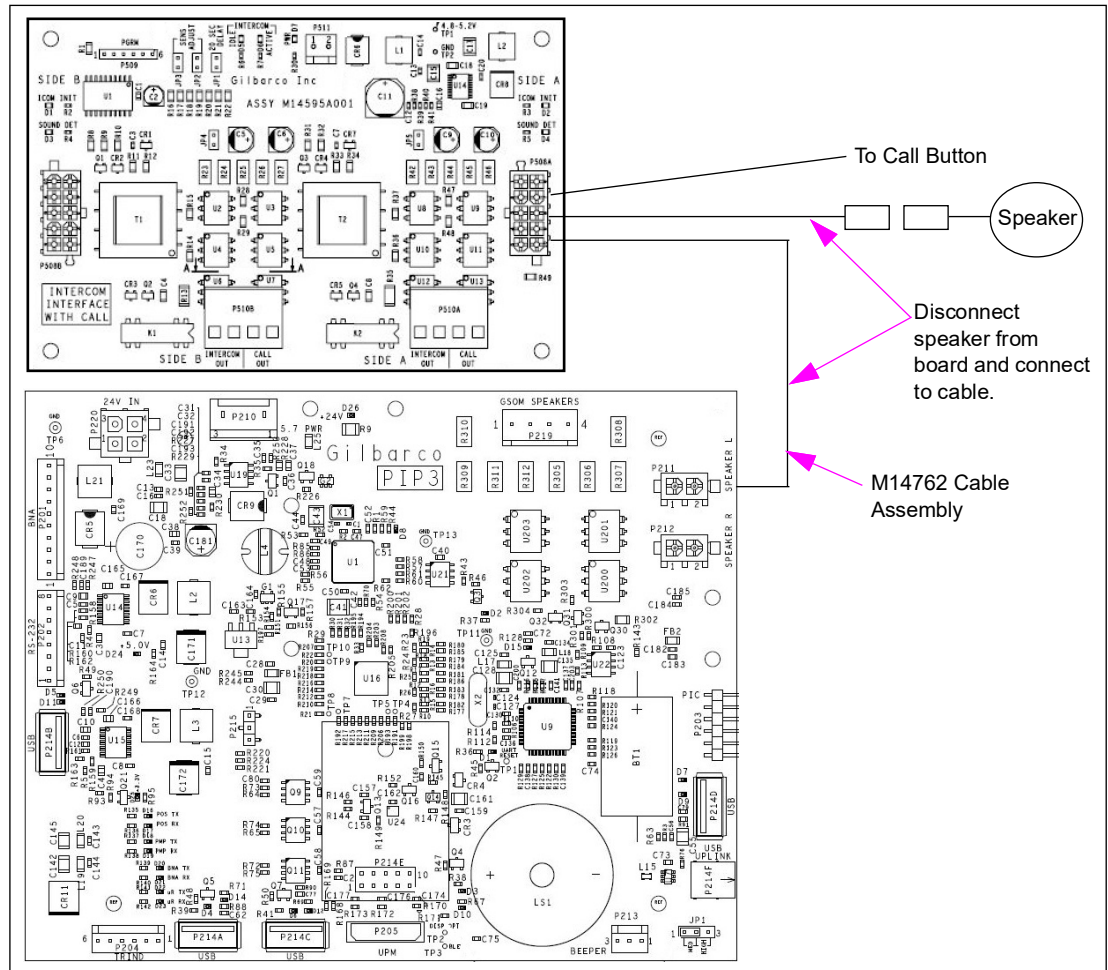
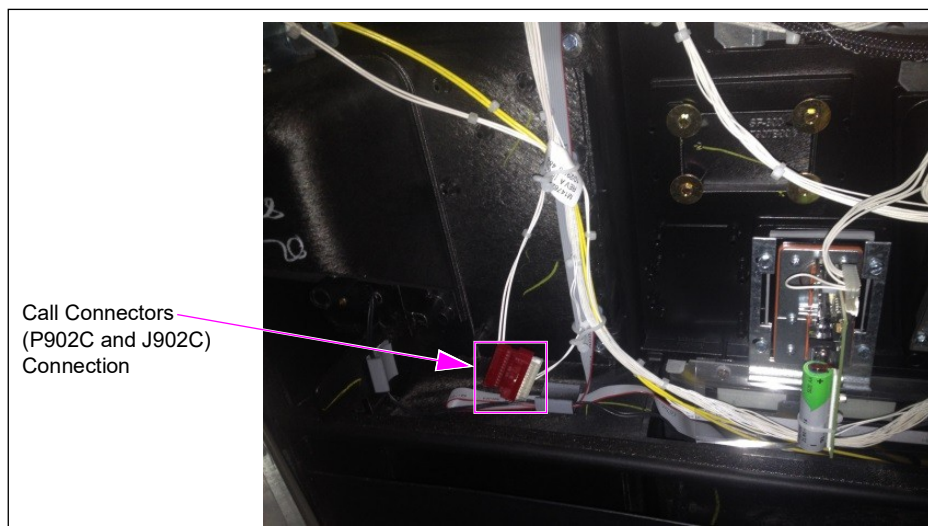


Figure 8: M14762 Cable Intercepting FlexPay IV Audio Signal



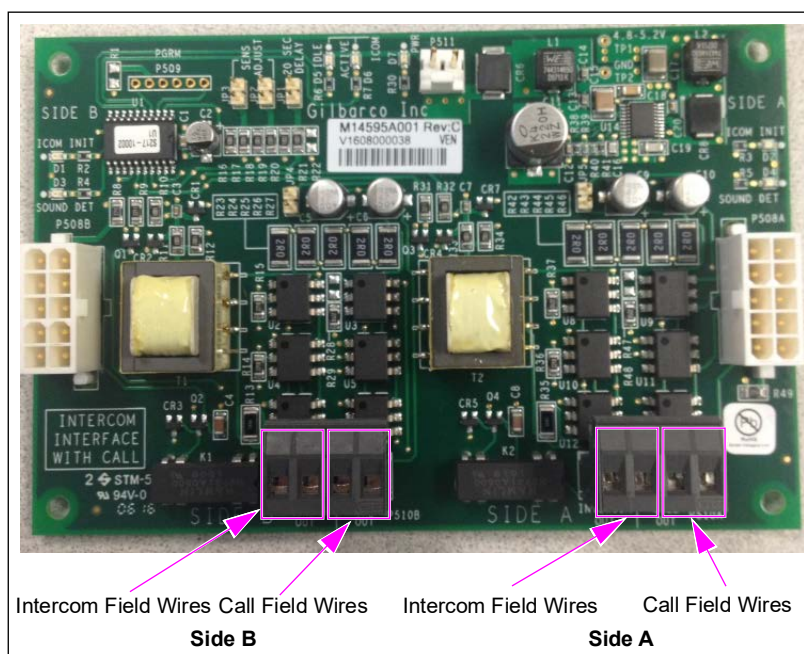
- g** Connect the 12-pin P902C connector of M14762A001 Cable to J902C of M07957A0XX Cable of side A and P902C connector of M14762A002 Cable to J902C of M07957A0XX Cable of side B (see [Figure 9](#) on [page 12](#)). This connection is done at the bottom of the door.

**Figure 9: Call Connector Connection**



- h** Screw wire the intercom and call interface field wires to connectors P510A (side A) and P510B (side B) on the intercom call interface board. See [Figure 10](#) for field wiring connections.

**Figure 10: Field Wiring Connections to Board**



This completes all cable assemblies and field wiring connections.

The installation of the intercom call interface board in Encore 300/500/700 S units is now complete.

## Testing the Intercom Call Interface Board

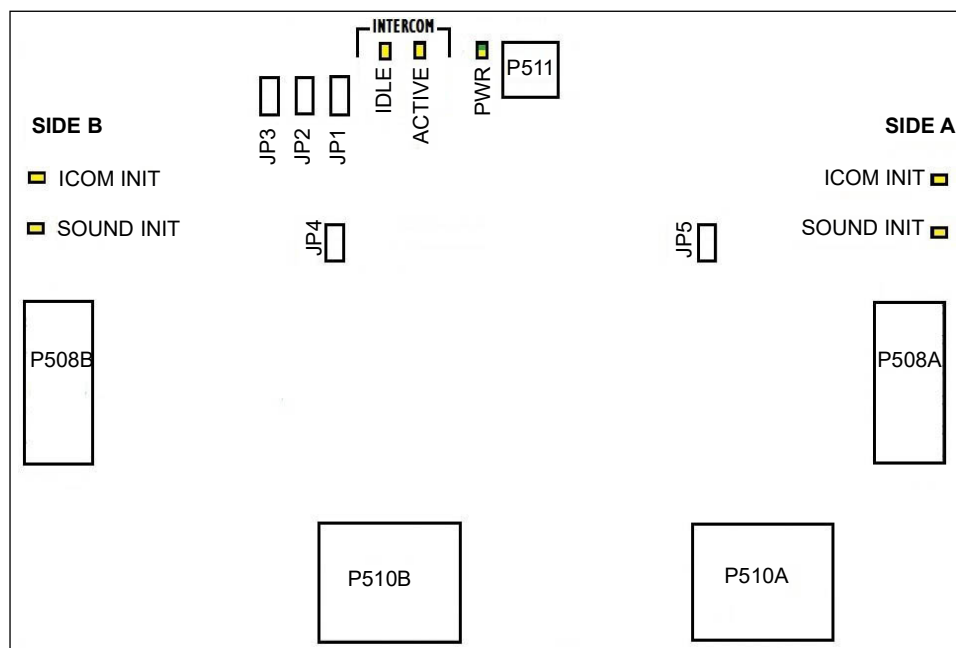
To test the intercom call interface board, proceed as follows:

- 1** After power ON, ensure that PWR Light Emitting Diode [LED (D7)] on M14595A00X Board is lit. If Applause™ Media System audio is present, then it should be audible on both side speakers. Also ensure that ICOM IDLE LED (D5) is lit, indicating that the intercom operation is in idle state.
- 2** Press the Call button on side A to initiate intercom operation. As the attendant talks, the SOUND DET LED (D4) will blink, and the ICOM INIT LED (D2) and ICOM ACTIVE (D6) LEDs will be lit. The audio of side A speaker will switch from Applause Media System audio to attendant audio. The audio conversation between both the sides should continue now. Once the conversation is over, after 10-20 seconds delay, the board will switch to the idle state. In this state, ICOM IDLE and PWR LEDs are ON and audio will switch back to Applause Media System audio.
- 3** For side B testing, press side B call button to initiate the conversation and monitor corresponding LEDs and the audio output of side B, as explained in step [2](#). For side B, SOUND DET LED is D3 and ICOM INIT LED is D1.
- 4** Use JP2 and JP3 (SENS ADJUST) jumpers to adjust the tolerance levels to noise. If the board is wrongly entering the intercom mode (SOUND DET LED blinks and ICOM ACTIVE LED is lit) due to noise on intercom lines, then JP2 and JP3 can be used to deal with four levels of noise. Minimum level (both out) to the significant noise (both in).
- 5** Use JP1 to extend the default 10 seconds (JP1 out) attendant listen period to 20 seconds (JP1 in). Depending on this JP1 setting, intercom will remain connected to speaker for that period of time after attendant talks.



## Detailed Guide to the Intercom Call Interface Board

Figure 11: Intercom Call Interface Board Layout



### Connectors

Connector	Description
P511	+24 VDC power input connector.
P508A	This connector gets audio input from FCB, Call button input from keypad, and gives audio output to speaker (side A connections).
P508B	This connector gets audio input from FCB, Call button input from keypad, and gives audio output to speaker (side B connections).
P510A	This connector gets inputs from field intercom and call interface wires (side A).
P510B	This connector gets inputs from field intercom and call interface wires (side B).

## Jumpers

Jumper	Description
JP1 (20 SEC DELAY)	This extends the “customer talk time” from default 10 seconds to 20 seconds. The customer signal level is very low, so a timer is used to allow the customer’s side of the conversation. The timer is restarted when the attendant’s voice is detected.
JP2 and JP3 (SENS ADJUST)	These jumpers are used to raise the detection threshold used for determining that the attendant has talked. These must be populated if the board triggers without the intercom being active (this can happen in a site with noisy wiring).
JP4 and JP5	These jumpers can be inserted to reduce intercom signal loss PROVIDED that the internal capacitors are NOT being utilized for Aiphone intercom system.

## Default Jumper Setting

Jumper	Description
JP1	OPEN
JP2	OPEN
JP3	OPEN
JP4	OPEN
JP5	OPEN

## LEDs

LED	Description
PWR	This green LED indicates that the board has power.
SOUND DET	This yellow LED blinks when the intercom’s input is above the required threshold. It must only blink when the attendant talks. If this blinks when the intercom is inactive, it indicates that there is noise in the wiring. Use JP2 and JP3 to raise the threshold above the noise floor. There are two sound detect LEDs each indicating the corresponding sides (A or B).
ICOM INIT	This yellow LED indicates that the threshold has been crossed, speaker is connected to the intercom system, and “customer talk time” is running. There are two ICOM INIT LEDs each indicating the corresponding side (A or B).
ICOM IDLE	This yellow LED is on if the intercom is idle. The speaker is connected to the Encore 300/500/700 S CRIND.
ICOM ACTIVE	This yellow LED indicates that the board is in Intercom mode. Either of the sides has initiated the intercom operation. Speaker of corresponding side is connected to intercom system.

## General Operation

The M14595A00X Board works by “listening” for activity from the intercom base station. When it detects activity, the SOUND DET LED will blink and the speaker is switched from the Encore 300/500/700 S CRIND to the intercom base station. Based on the side selected at intercom base station, the corresponding ICOM INIT LED will be lit when the speaker is connected to the base station. ICOM ACTIVE LED is lit till the intercom mode is on. Board will remain connected to the intercom base station for a fixed time, which is extended each time the activity from the base station is detected. JP1 can be inserted to extend this time from 10 seconds to 20 seconds. Call function can be tested by pressing the Call button. This will create audible beep or other signal based on third-party intercom system.

## Troubleshooting

Problem	Solution
Intercom Board never goes active.	<ul style="list-style-type: none"> <li>Try turning up the base station volume and ensure that the attendant is close to the microphone and is correctly keying the fueling position.</li> <li>Ensure that the intercom base station is correctly wired to the Intercom Board. To check this, power down the dispenser, disconnect the speaker from the Encore 300/500/700 S CRIND, and temporarily wire it to the intercom field wiring. You must be able to clearly hear the attendant. If not, suspect a problem with the wiring or the base station.</li> <li>Verify if the PWR LED is lit. If not, and the dispenser has 24 V to the HIP 2 board, suspect that the fuse on the M14595A00X Board has been blown.</li> </ul>
Significant amount of static in the audio.	If this is a 3M™ intercom system, earth the external case of the intercom base station.
PWR LED Off	Check the voltage at TP1 (4.8 to 5.2 V). If different, then check the M14763A001 Cable Assembly connections. Replace the cable. If the issue still exists, then try replacing the board.
Intercom stays connected to the base station.	<ul style="list-style-type: none"> <li>If the site is running audio, such as Muzak® through the intercom system, it will trick the intercom board into switching the speaker to the intercom base station. Constant background music is not compatible with the Applause Media System audio.</li> <li>If there is no background music, but you observe the SOUND DET LED occasionally flickering, you might have significant noise in your intercom wiring. As a last option, you can use JP2 and JP3 to raise the detection threshold to hopefully avoid false triggering.</li> </ul>

## Installing Intercom Interface Board (M09751A00X) in Encore 300/500/700 S Units

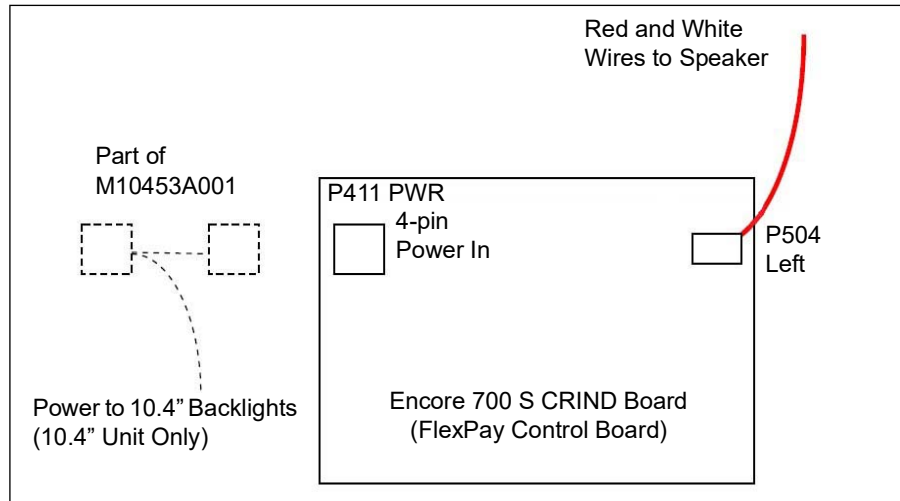
*Note: Before you begin, ensure that the mounting plate of the intercom interface board mounting plate is installed with a PIP or BEEP Board.*

To install the intercom interface board in Encore 300/500/700 S units, proceed as follows:

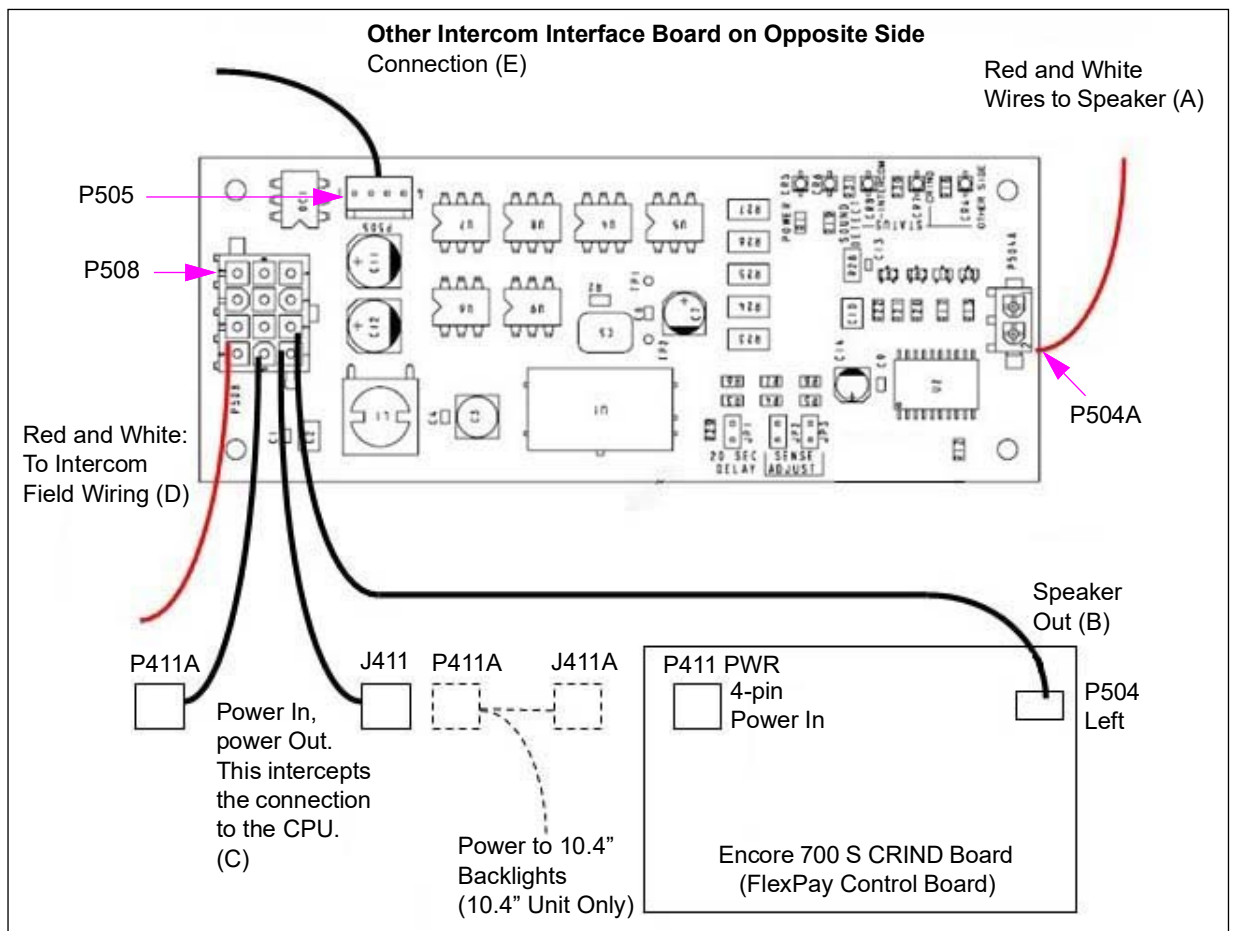
- 1 Attach the intercom interface board to the metal bracket that supports the PIP or BEEP Board using the four Q10651-02 Stand-offs. Adjust the board so that the 12-pin Connector (P508) is towards the door hinge.
- 2 For wiring instructions, see [Figure 1](#) on [page 6](#) and [Figure 2](#) on [page 7](#).



**Figure 12: Before Installing the Intercom Interface Board**



**Figure 13: After Installing the Intercom Interface Board**



- 3** Connect the 12-pin connector of the M10590A001 Cable to P508 of the intercom interface board.
  - a** Move the speaker connection from the CPU Board to P504 on the intercom interface board.
  - b** Connect the 2-pin mate-n-lock connector on the M10590A001 Cable to the CRIND audio output.
  - c** Intercept the 24 V power input to the CPU using the male and female connectors on the M10590A001 Cable.
  - d** The red and white twisted-pair in the M10590A001 Cable are the intercom field connections. Wire-nut these to the intercom wiring from the intercom base station.
  - e** Connect the intercom interface boards on side A and side B of the dispenser to each other using the M11870A001 Cable.
- 4** Power up the dispenser.

The installation of the intercom interface board in Encore 300/500/700 S units is now complete.

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