

# **SERVICE LAUNCH PACKAGE For ENCORE® 700 S For Authorized Service Contractors**

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# Overview

This launch package covers the Encore® 700 S Card Reader In Dispenser (CRIND). It is not intended to serve as a replacement for installation, service, parts manuals or training curriculum. A list of reference manuals is provided in this launch package. Always ensure you have the most current documentation. Manuals can be obtained on the Gilbarco Veeder-Root website on Gilbarco On Line Documentation (GOLD®) in the Gilbarco Extranet ([www.gilbarco.com](http://www.gilbarco.com)).

Encore 700 S is the next generation of CRIND for North America. It provides a secure fueling experience that meets Payment Card Industry (PCI) requirements. Encore 700 S introduces different CRIND components. This launch package highlights the components, and introduces the Encore 700 S CRIND system.



# **Manuals, Spare Parts and Software**

## **New Encore 700 S Manuals**

**MDE-4902** - Encore 700 S Start-up, Service, and RKL Manual

**MDE-4925** - Personality Guide

## **Existing documents updated with Encore 700 S information:**

**MDE-4185** - Encore® 500 and Eclipse® Electronics CRIND BIOS Configuration Interface Manual (CRIND Diagnostics)

**MDE-4301** - Applause™ Media System Quick Reference Guide

**MDE-4349** - Applause™ Media System Control Center User Manual

**PT-1937** - Encore® and Eclipse® Recommended Spare Parts Manual

**PT-1936** - Encore Pump and Dispenser Illustrated Parts Manual

## **Related Manuals**

**MDE- 4784** FlexPay™ Encrypting Pin Pad (EPP) Service Manual

<b>Encore 700 S Recommended Spares</b>					
	Part Number	Part Description	QTY ASC 100	QTY Distributor 100	QTY Distributor 500
New	M11930K001 (Kit)	FlexPay Control Board in plastic housing w/ tamper proof housing	1	1	2
New	M09232A001	Beeper Interface Board	1	2	3
New	M10369B001	Display, Color 5.7" (Just the display)	1	1	2
New	M10370B001	Display, Color 10.4" (Just the display)	1	1	2
New	M10371A001	Inverter Board for 10.4" Display Backlight	2	4	6
New	M12234B001	Replacement Activation Rod/Pin for 10.4 Bracket (pack of 3)	1	1	2
New	M10402A001	Scanner Interface Board	1	2	4
New	M09751A001	Intercom Interface Board	1	2	4
New	M10206B001	Right Soft Key (10.4)	2	4	8
New	M10206B002	Left Soft Key (10.4)	2	4	8
New	M10370B002	Replacement Backlight Bulbs for Color Display (4 bulb set - this covers one display)	2	2	8
<b>The additional parts below already exist. They are part of Encore 700 S.</b>					
Exists	M07713A001	USB to LON Interface Board (Used for	1	1	2

		Applause)			
Exists	M09112A001	Peripheral Interface PCB (PIP) Board	1	2	2
Exists	M07895A001	Hub Interface Board (HIP)	1	2	4
Exists	M10661B001	EPP 2.0	2	2	4
Exists	M08631K001	Heater Kit Option for EPP	1	2	2
Exists	M10728B001	SCR 2.0	2	4	4
Exists	M04219A001	Same Standard USB Printer	2	4	4

Note: 5.7-inch Color softkeys are the same as today's 5.7-inch monochrome screen keys.

# Glossary of Abbreviations/Definitions

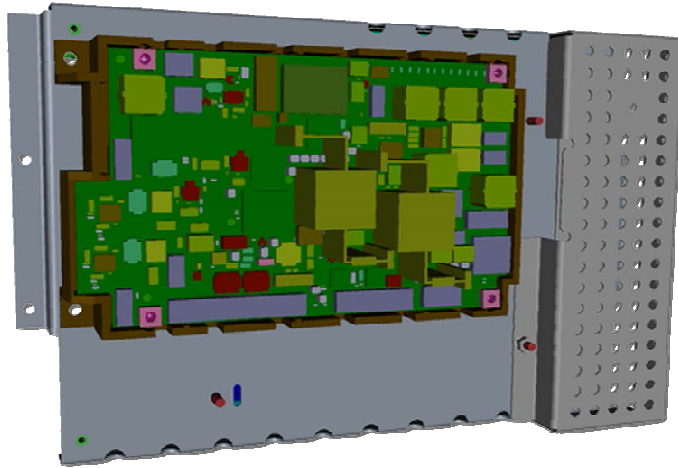
<b>BCS</b>	Bar Code Scanner
<b>CCN</b>	CRIND Control Node. Refers to the Sandpiper CRIND CPU board.
<b>CDU</b>	CPU Display Unit (this is the FCB, the FCB plastic housing, and the display 10.4 or 5.7 Color).
<b>CRIND</b>	Card Reader In Dispenser.
<b>EPP</b>	Encrypting PIN Pad. A secure, tamper-responsive keypad device that is responsible for encrypting PIN data for a debit account as entered by the customer. It shall also be capable of allowing other non-PIN data to be entered.
<b>FCB</b>	Encore 700 S FlexPay™ Control Board (CRIND controller -1 on each door)
<b>HIP</b>	Hub Interface PCB. Designed for EMV Canada, reused in Encore 700 S product.
<b>NGP</b>	Next Generation Payment
<b>PCI</b>	Payment Card Industry
<b>PIN</b>	Personal Identification Number.
<b>PIP</b>	Peripheral Interface PCB
<b>POS</b>	Point-of-sale device in the typical retail-fueling environment that owns the interface to the card acquirer.
<b>DES</b>	Data Encryption Standard
<b>TDES</b>	Triple DES A more secure variant of the DES encryption algorithm, uses a 112 bit key, and uses a basic DES algorithm 3 times per 8-bit block
<b>RKL</b>	Remote Key Load
<b>RS232</b>	Standard for serial binary data signals connecting between data terminal equipment and data circuit terminating equipment
<b>SCR</b>	Secure Card Reader (may also be referred to as the ECR)
<b>SPOT</b>	Secure Pin Pad for Outdoor Terminals. The EMV-compliant terminal deployed by GVR Italy in M2 (combined PIN + display with separate card reader) and M3 (separate module) configurations.
<b>UPT</b>	Unattended Payment terminal

# The Encore 700 S CRIND System

The Encore 700 S system processes CRIND transactions using a secure “Triple Data Encryption Standard (DES)” payment CRIND Processor. The Encore 700 S CRIND uses either a 5.7-inch color or 10.4-inch color display. Encore 700 S also includes EPP 2.1 and SCR 2.0.

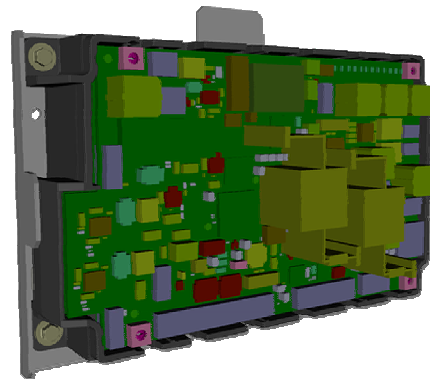
## CRIND Options Available:

1. Transmitter Receiver In Dispenser (TRIND)
2. Bar Code Scanner (BCS)
3. Cash Acceptor
4. Contactless Card Reader (future)
5. Applause with Audio/Video



10.4-inch Color Screen – Rear view

5.7-inch Color Screen –Rear view

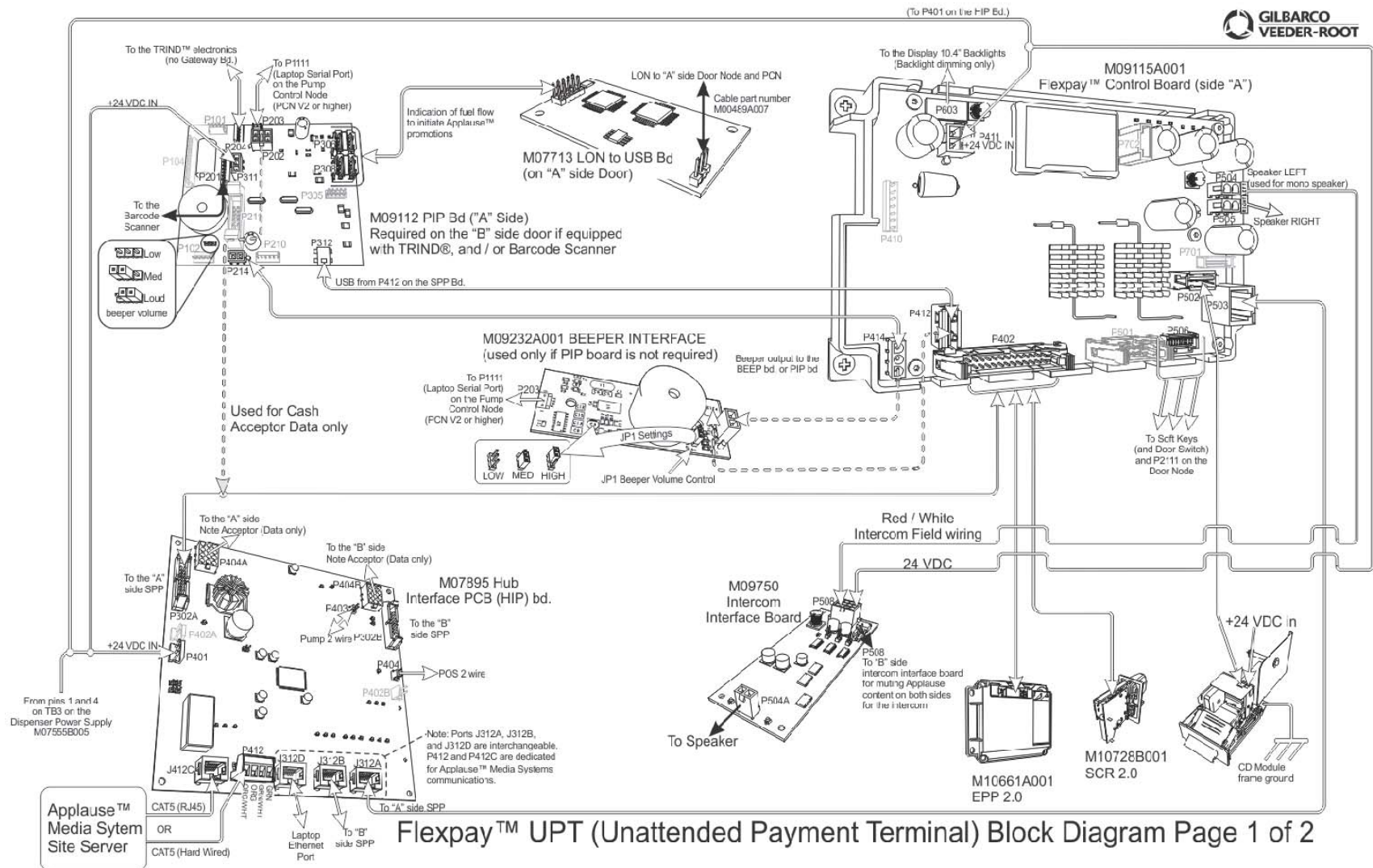


The next 2 pages show 2 block diagrams.

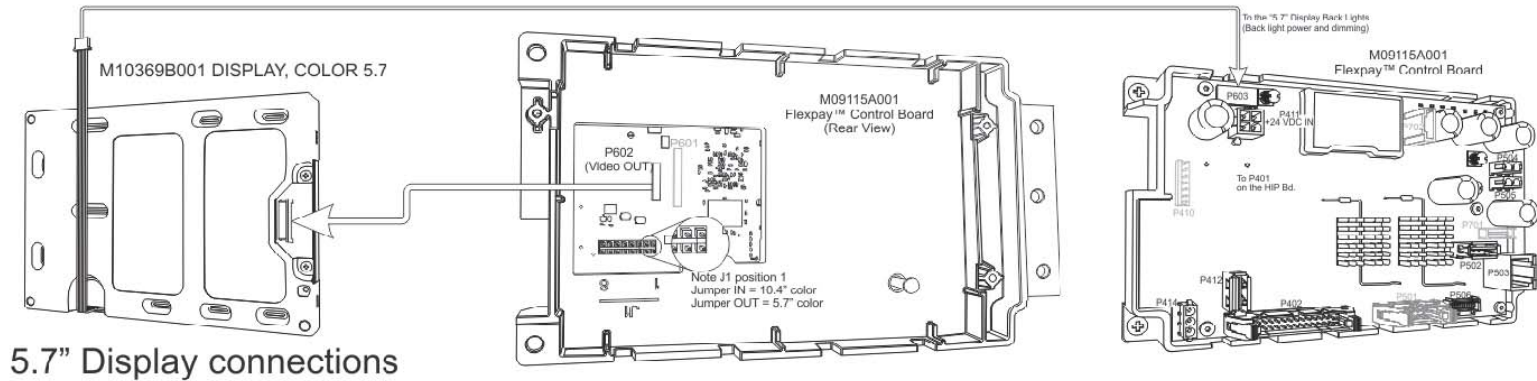
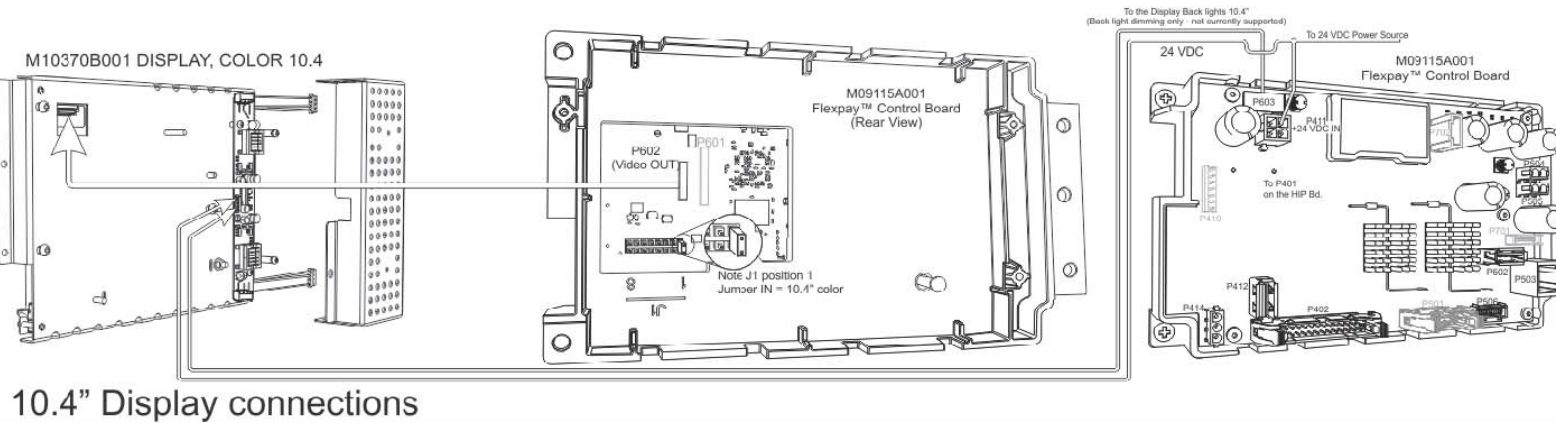
1. Page 1 block shows the CRIND connectivity mostly on the main door, including the HIP on the T-Rail
2. The second block shows the 2 display types (10.4 and 5,7 – both Color Screen)



## BLOCK Diagram Page 1



## BLOCK Diagram Page 2



Flexpay™ UPT (Unattended Payment Terminal) Block Diagram Page 2 of 2

## M11930K001 Kit

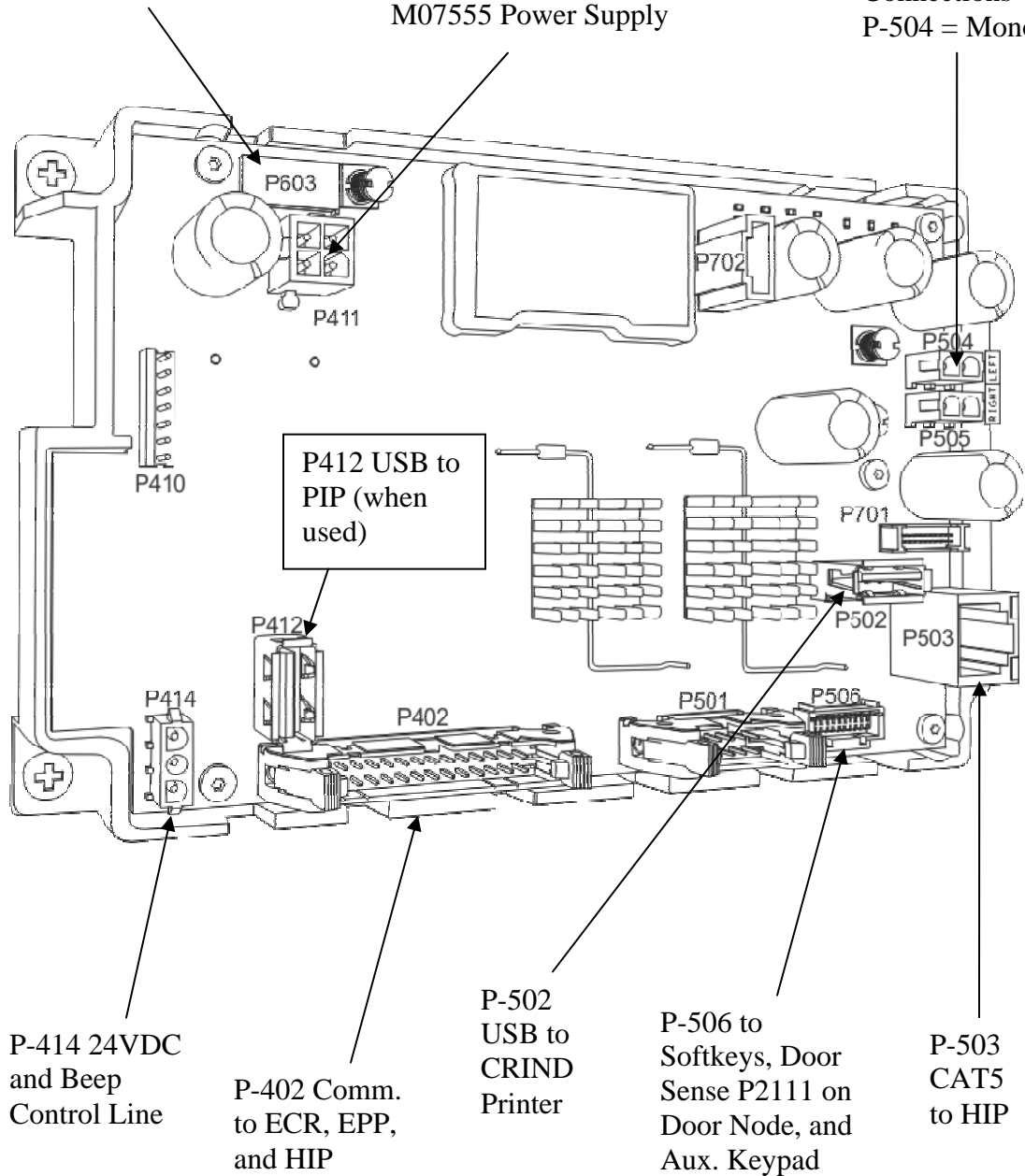
The M11930K001 Kit consists of a FlexPay Control Board (FCB) and a tamperproof plastic housing. The FCB provides secure CRIND functionality. The FCB is located on main door directly behind the CRIND display.

P-603 =

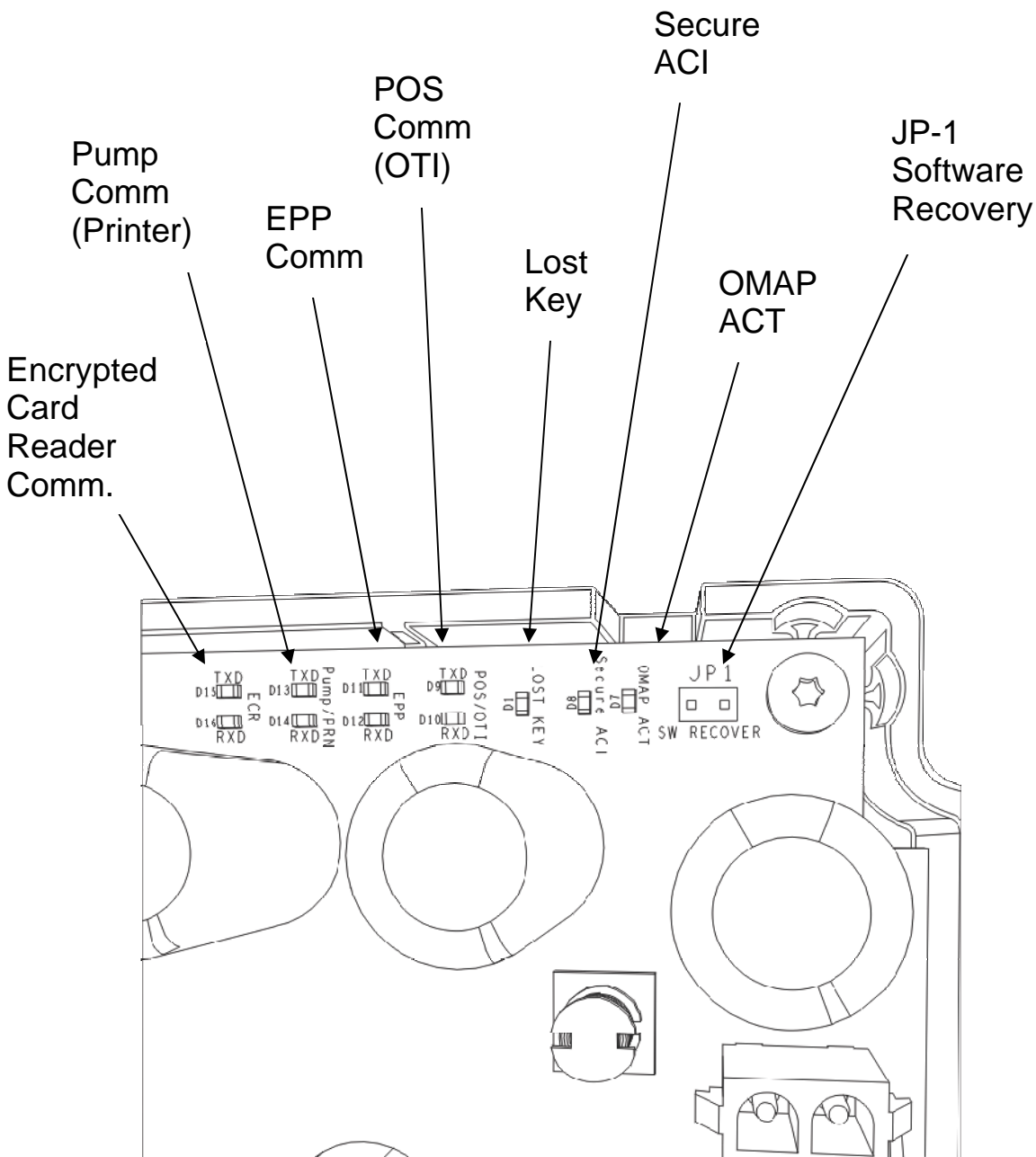
- Dimming Only for 10.4
- Power and dimming for 5.7

P-411 = 24 Volt DC  
feed from TB-3 on  
M07555 Power Supply

P-504/P505  
Speaker  
Connections  
P-504 = Mono



## FCB Light Emitting Diodes (LEDs) and Jump Jack Assignment



FCB CRIND Board

**The software recover jump jack JP-1 allows the FCB to boot from duplicate software and configuration if the FCB were to become corrupt. Do NOT use JP-1 unless directed by Gilbarco Engineering. This could cause damage to the FCB and its stored application. Reference MDE-4902 manual for complete LED descriptions.**

## **M11930K001 Encore 700 S Control Board (FCB) Kit**

The M11930K001 Kit (FlexPay Control Board and its plastic housing), must be Remote Key Loaded (RKL'd) and activated if the kit is ever replaced. If the kit is removed, and re-installed (not replaced), then the kit would only need to be activated. Activation is done by calling Gilbarco Support Center or TAC. Reference MDE-4902 for complete activation instructions.

If the FlexPay Control Board (FCB) is removed from the plastic housing, it must be removed from the unit and sent back to Gilbarco for re-initialization, as the keys will be erased/destroyed. Key refers to the customer specific encryption.

Most units are RKL'd from the factory, and all units should be already activated at the factory. The only time a unit may not be RKL'd from the factory is when the key is unknown during the time of order entry. The pump/dispenser would normally indicate no RKL by *not* being able to process a debit transaction. Another indication that the unit is not RKL'd is no cursor is displayed on the CRIND display when customer is prompted to enter a PIN. Factory built units will also have a bright red sticker on the EPP stating that the unit has not been RKL'd. RKL is required before putting the unit in service.

RKL is performed by using the SPOT Update Tool. Spot Update Tool is covered more in this service launch package and covered in detail in MDE-4902 - Encore 700 S Start-up, Service, and RKL Manual.

Once the Encore 700 S Control Board is RKL'd, activation must be done to put the unit in operation. A green screen at boot up indicates the unit has not been activated.

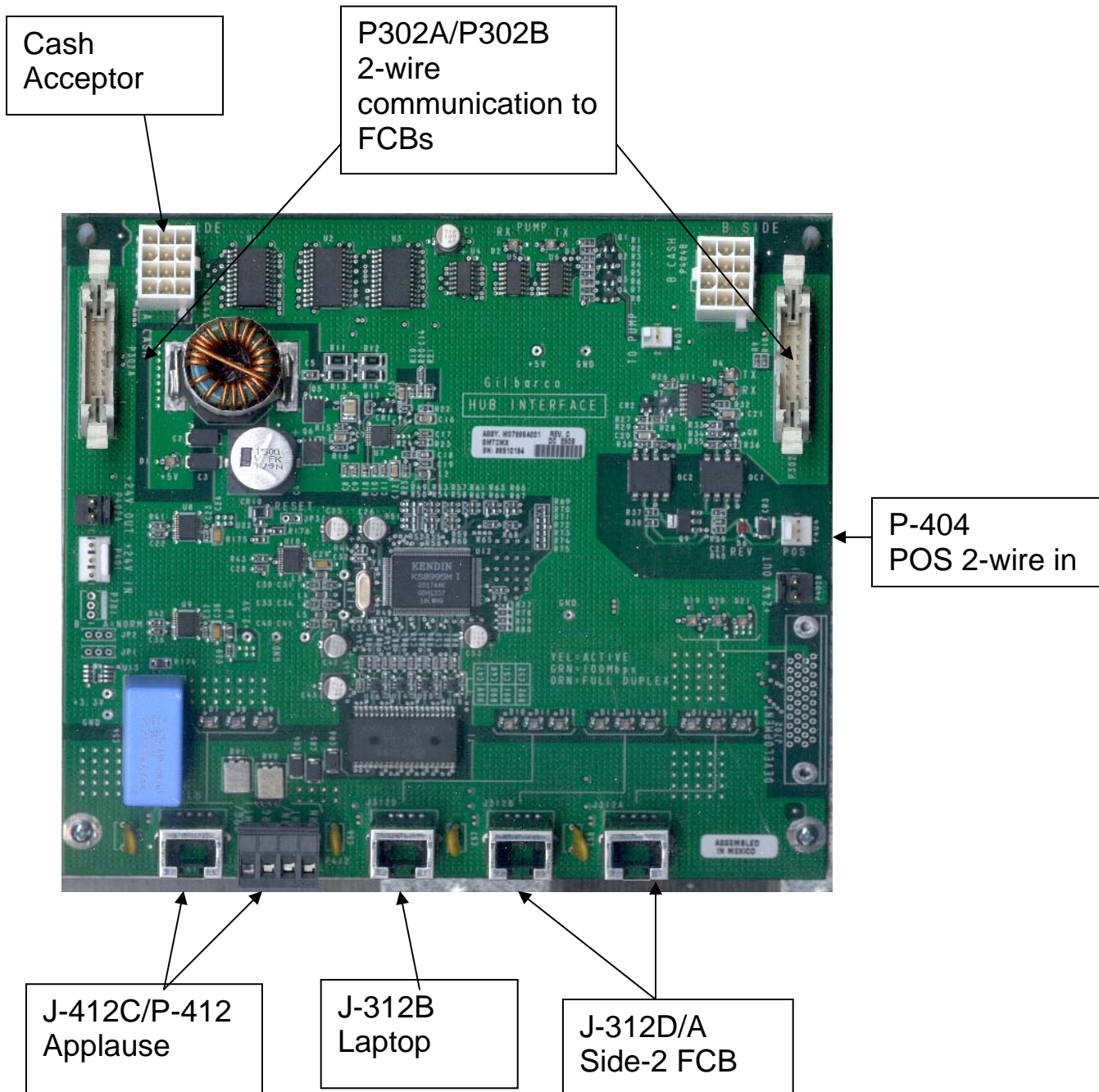
To activate the CRIND, follow the directions on the CRIND display. Once the Activation pass code has been entered, be sure to press "1" to save the Activation. This is instructed on the CRIND display.

Both the RKL and Activation are done through Gilbarco Service and Support Center or TAC.



## M07895A001 – Hub Interface PCB (HIP)

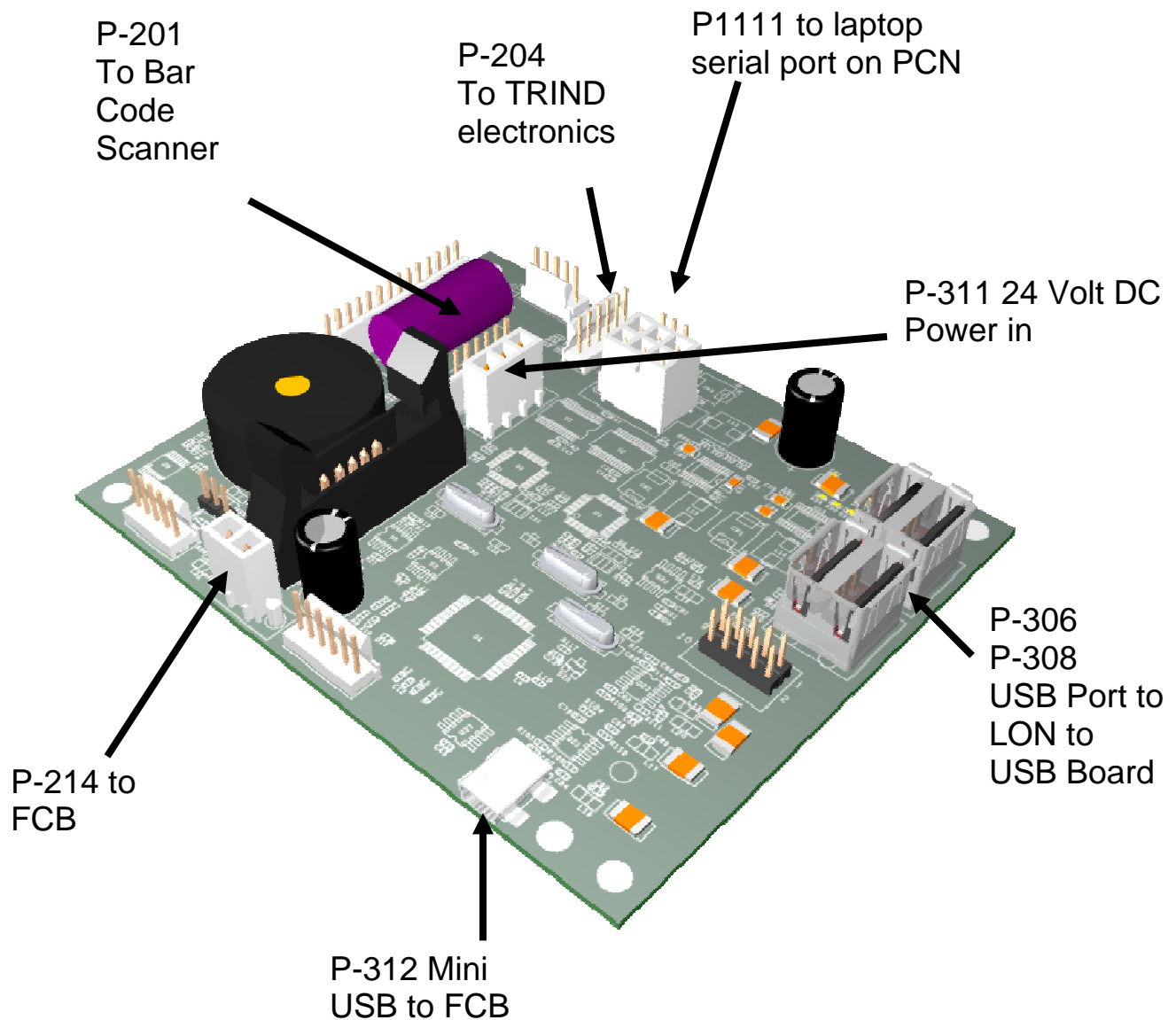
The HIP is located in the center of the dispenser (where CRIND Node was mounted) on the T-Rail and provides communications to the POS, to Applause, and provides the interface between the two FCBs. The HIP also provides interface for the cash acceptors, Bar Code Scanner, and TRIND.



Note: These 3 connectors are interchangeable. A laptop can use any available port.

## M09112A001 – Peripheral Interface PCB (PIP)

The PIP is required on both main doors when TRIND, Cash Acceptor, and Bar Code Scanner (BCS) exist on a Encore 700 S dispenser. The PIP is located on Side 1 of the unit without TRIND, Cash Acceptor, and BCS. It is required on side 1 of the unit to support Applause functionality.



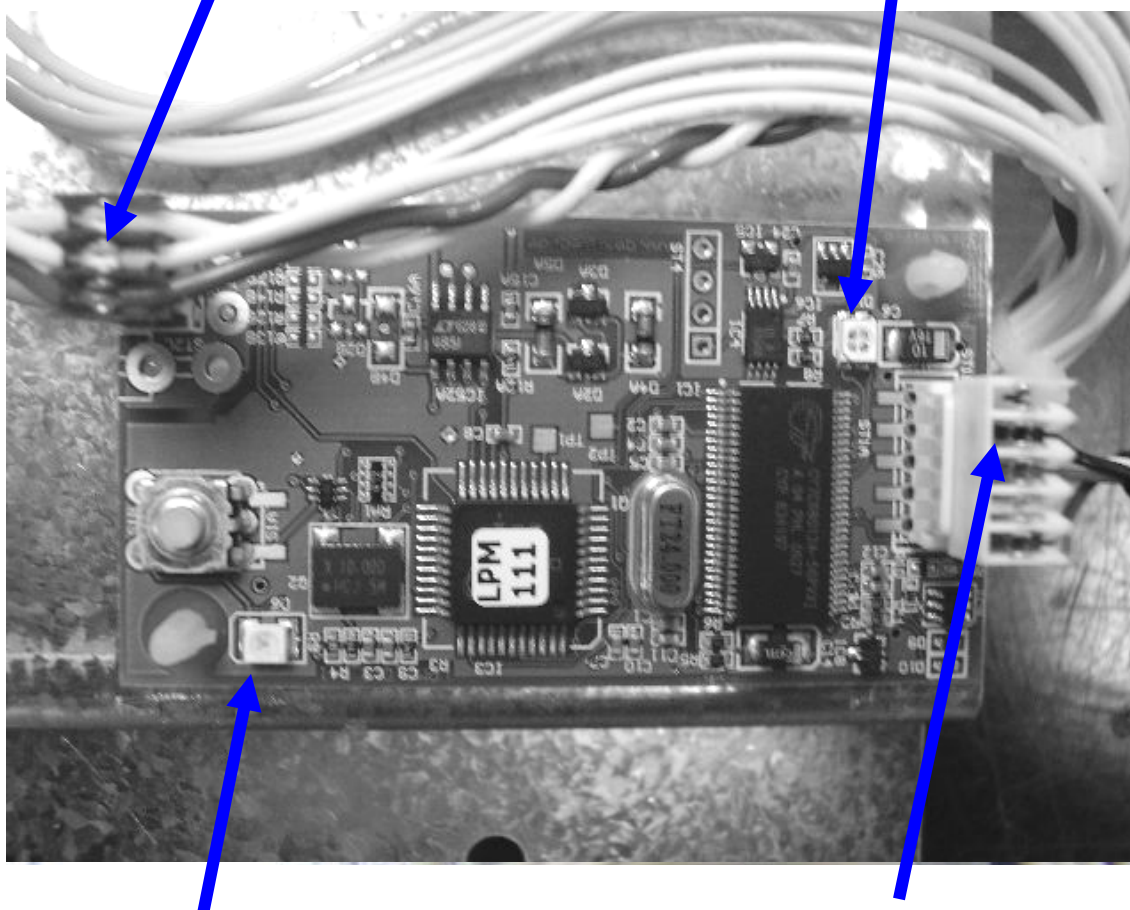
## M07713A001 LON to USB Board

The LON to USB Interface Board provides a means for the Pump to communicate to the CRIND CPU. Its function is to let the CRIND know that the unit is dispensing fuel in order to display Applause media.

Troubleshooting Tip: If a unit displays Applause media while simulating an Applause session in CRIND Diagnostics, however, media will not display during a fueling transaction, check connections on this LON to USB board. This board is located on Side 1 door.

LonWorks Connector from Side-1  
Door Node and PCN

USB Connector LED comes on  
and blinks (heartbeat).



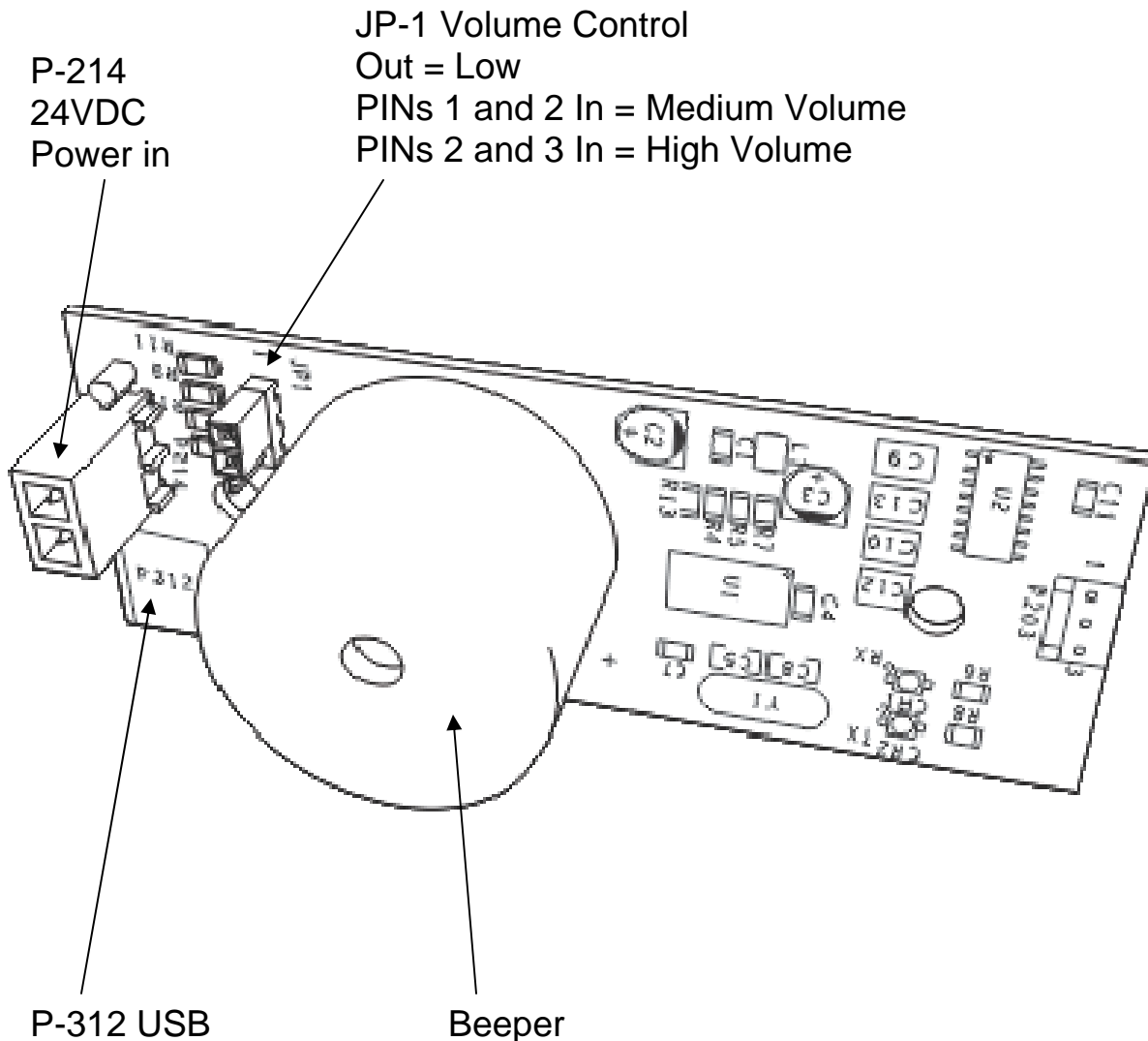
LED on during boot up of  
CPU Board.

USB to PIP on  
Main Door



## M09232A001 – Beeper Interface PCB

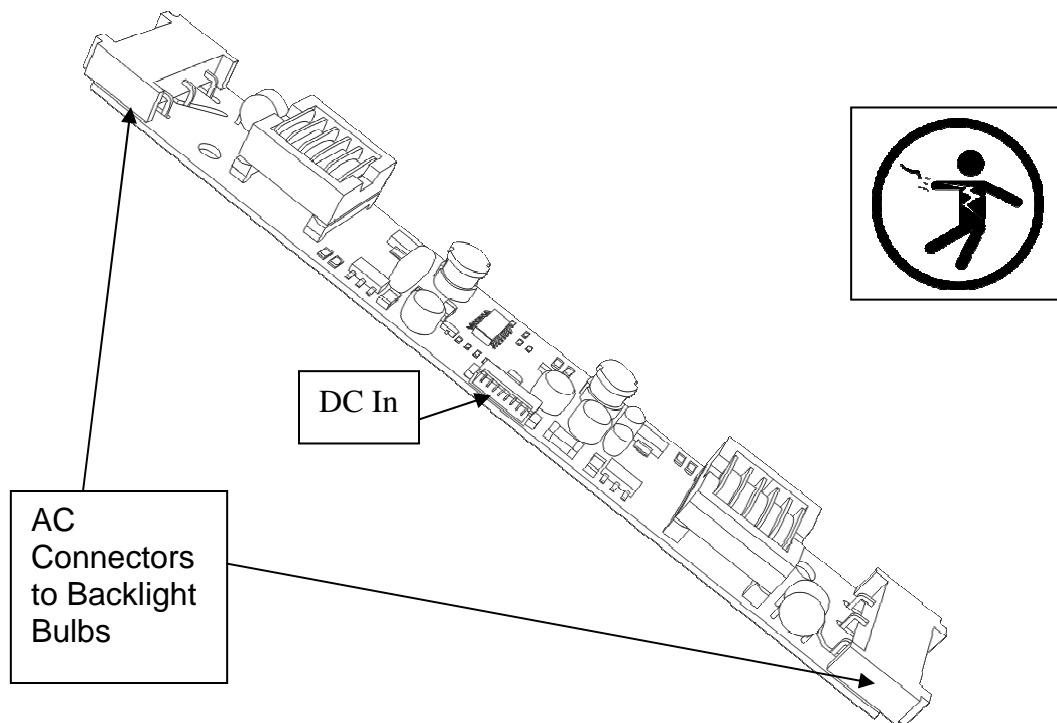
The Beeper Interface PCB (AKA - Beep Board) provides the “Beep” function for the CRIND. It’s an audio reply when CRIND keypad buttons are pressed, etc. The Beep Board connects to the FCB through discrete wire cables. A jump jack setting allows beeper volume control. The Beep Board is used when the PIP is not present in the dispenser. Each side should have either a PIP or Beep Board to support the Beep function.



# M10371A001 Inverter Board

Encore 700 S utilizes either 10.4-inch or 5.7-inch Color Display. The 10.4-inch display backlight is driven by the M10371A001 Inverter Board. It is protected by a metal cover. The metal cover is required due to high voltage present. Always power unit down to service and insure no pinched cables when doing any service where the cover is removed. The Inverter Board provides a conversion from low voltage 24 VDC to Isolated high voltage AC.

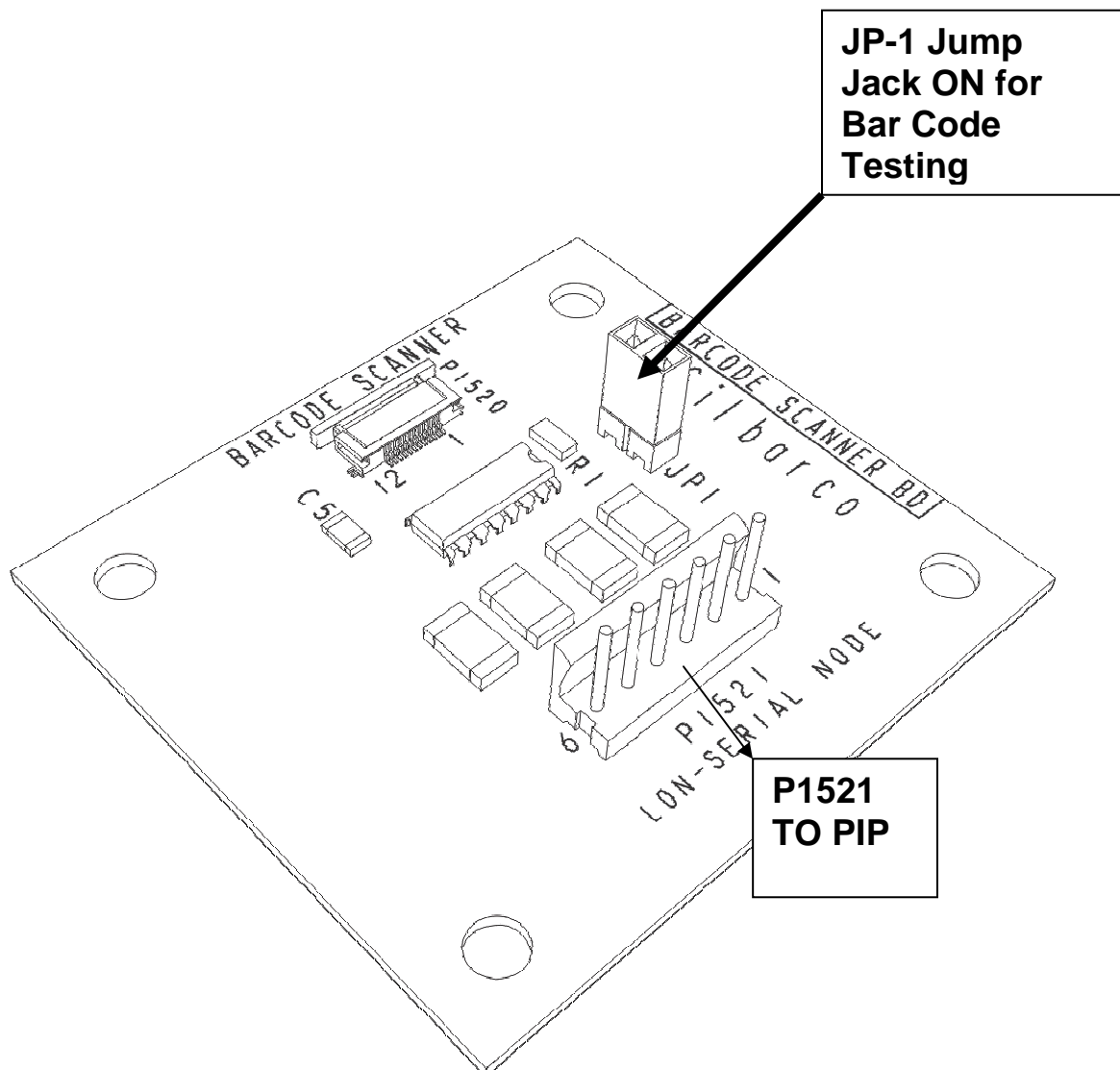
## M10371A001 - Inverter Board for 10.4 Color Display



**High Voltage Present! – Remove Power before Servicing**

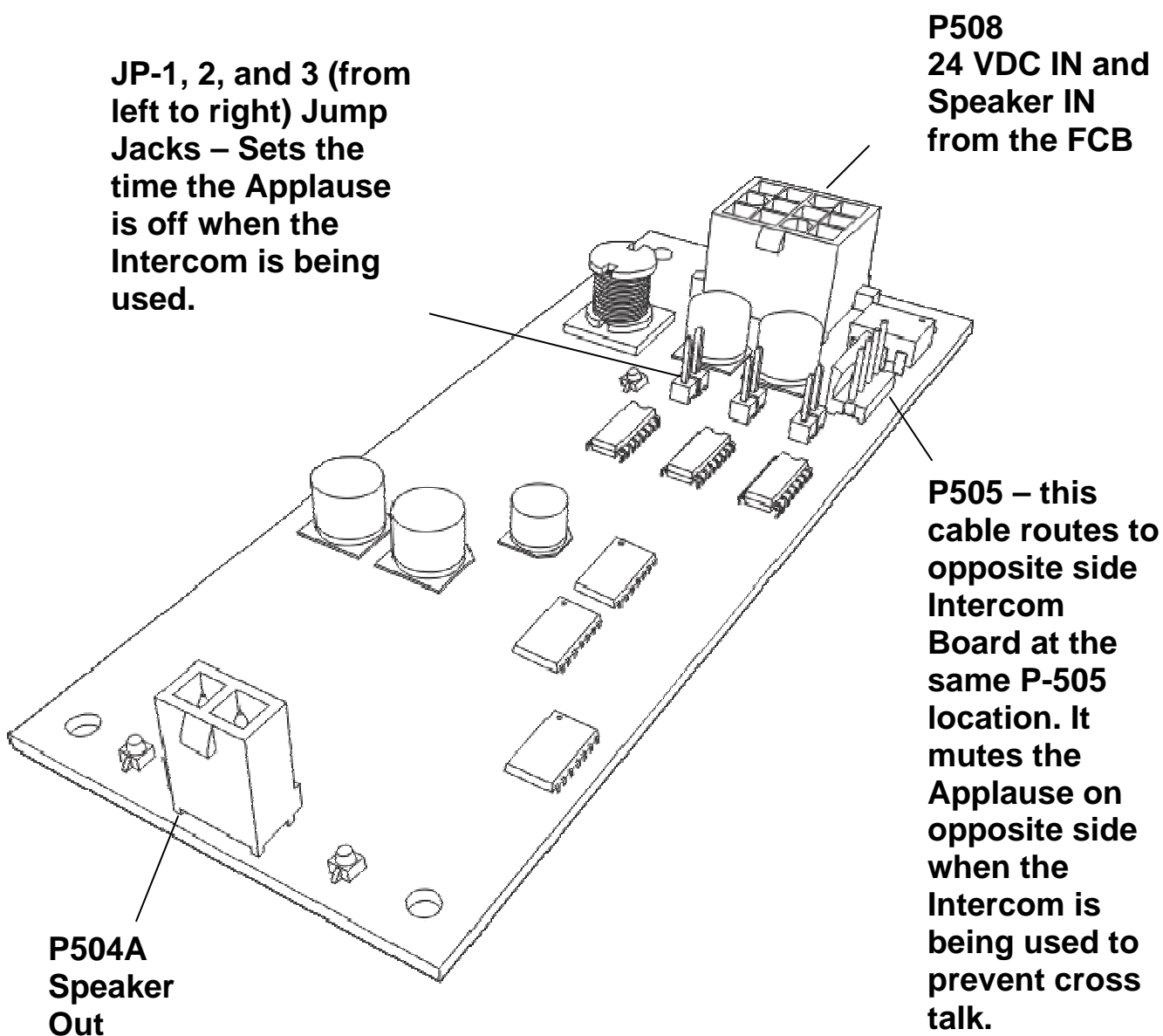
## M10402A001 – Scanner Interface Board

The Scanner Interface Board is the PCB that interfaces the Bar Code Scanner (BCS) to the Peripheral Interface PCB (PIP) for the corresponding side. It's very similar to today's BCS.



## M09751A001 – Intercom Board

The Intercom Board is used to provide an Intercom function to the dispenser. It drives the speaker (from the FCB) when the Intercom is used inside the store. If Applause Audio is being utilized at the time, it will interrupt the Applause promotion audio, and then hand it back to Applause after the determined time (set by the jump jacks on the Intercom Board).



# CRIND Programming

Encore 700 S CRIND programming is very similar to that of the Encore 500 S LON based CRIND. The only difference is a few added features.

Once the unit is fully booted and ready for programming.....

Insert Standard Diagnostic Card and program/set:

1. CRIND IDs
2. CRIND Mode
3. Any options required to be enabled (e.g. Bar Code Scanner, TRIND, etc.)
4. Audio Level for Applause (start around a setting of '90')
5. CRIND IP addresses if non standard default (must be set on both sides of the dispenser)
6. CRIND Time (necessary for log collection if required by Gilbarco Engineering, etc.)
7. Background personality screen
8. Plus any other standard CRIND programming

## Important CRIND Programming tips:

1. Each CRIND side is it's own individual side
  - a. You must use the diagnostic card on each side (if a dual unit)
  - b. Both sides will display as "side 1" or "side A" when programming
2. You **MUST** press "Enter" on the CRIND Keypad after each numeric key-press selection while in CRIND Diagnostics. ***This is important to remember*** because it can save unnecessary troubleshooting time, and is different from previous CRIND types.
  - a. This includes, for example, setting a CRIND ID of "10". To set CRIND ID of 10, once you are in the Set CRIND IDs screen.....
    - i. Press "1"
    - ii. Press "Enter"
    - iii. Press "0"
    - iv. Press "Enter"
    - v. Press "Enter" again to save the CRIND ID of "10" setting
3. The SCRs (Secure Card Readers) are sensitive to light. When servicing the unit, there may be times on a bright day with the door open when the Card Reader may not respond or not respond properly. Simply close the door and try swiping the card again. It may be necessary to close both doors to get a card read response. There should be no problem reading cards when doors are closed. If you continue to have a problem reading cards with the doors closed, troubleshoot the card reader issue as normal.

## **CRIND Log Capture**

**There are times when Gilbarco Engineering, Product Support, or TAC may request CRIND logs.**

Note: Log's will be collected only under Gilbarco Engineering's/Product Support's/TACs direction and supervision.

**CRIND Logs can be captured with a standard flash stick/drive.**

### **Procedure:**

- 1. On your flash drive, create a folder in the root directory called "gvr". In the "gvr" directory, create a folder called "log".**
- 2. Insert flash stick into available USB port on the Encore 700 S (FCB or PIP Board) for the side you wish to collect logs from. If no port available, unplug printer USB connection and use that USB port. Remember to re-plug printer cable when complete. A power cycle may be necessary to re-establish USB connection with printer.**
- 3. If the audio is functioning properly, an audio prompt (or 3 beeps) will signal that the log collection has started and alert you when complete. The audio prompt will be "starting log collection, right speaker – both speakers" if you have gvr/log set up correctly on your flash drive. If gvr/log set up incorrectly on you flash drive you will hear "starting log collection" and within 5 seconds hear "log collection complete".**
- 4. Once log collection is complete, remove the flash stick. The logs are captured and zipped together in one .bz2 file under the /gvr/log directory. The files are named with the crind's id and a timestamp so they can be uniquely identified.**

**Note: If for some reason the audio or the beeps are not heard, continue with the log collection and wait approximately 5 minutes, and then remove the flash stick. Waiting 5 minutes allows the logs to be collected in most cases. There may be times when the logs cannot be collected due to inoperative FCB. It may be necessary to power cycle the unit to recover from a "locked up" state, they you can continue with log collection.**

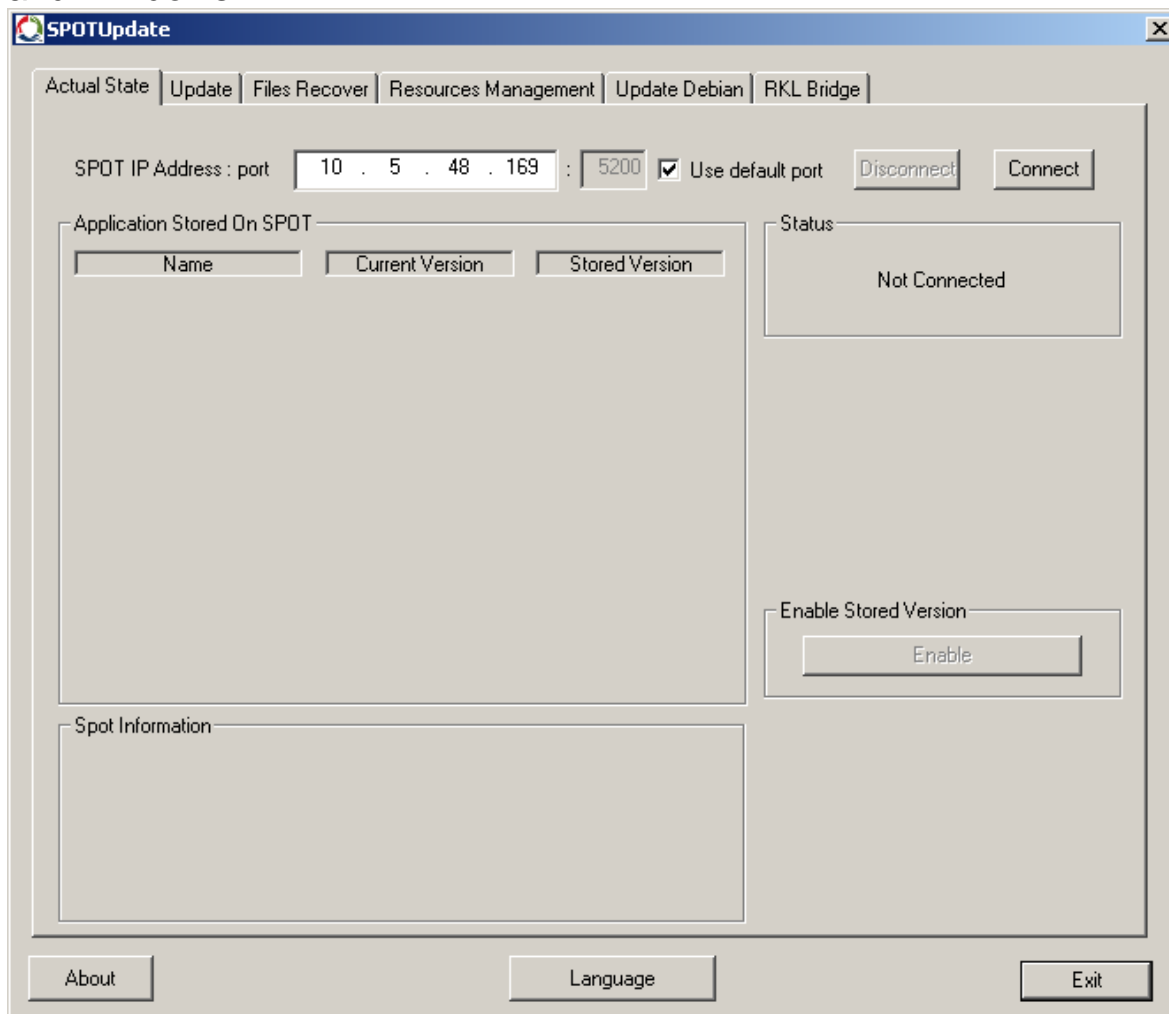
## RKL for Encore 700 S and SPOT UPDATE TOOL

RKL for Encore 700 S is similar to that of EPP, except a **different tool** is used to remotely load the key. EPP RKL uses RKL.exe. Encore 700 S uses the SPOT Update Tool to RKL. The RKL Bridge Tab shown below is used for RKL. Follow the instructions on the screen when RKLing. The SPOT Update Tool is available via a Secure File Transfer Protocol (sFTP) Gilbarco Server OR through Laptop Tool on the Extranet.

The sFTP is accessible through WinSCP. WinSCP is a program available on the Internet that allows connection to the sFTP Server.

To load and operate the SPOT Update Tool, reference MDE-4902.

SPOT Update Tool has been tested and runs successful with Windows XP and Windows 7.

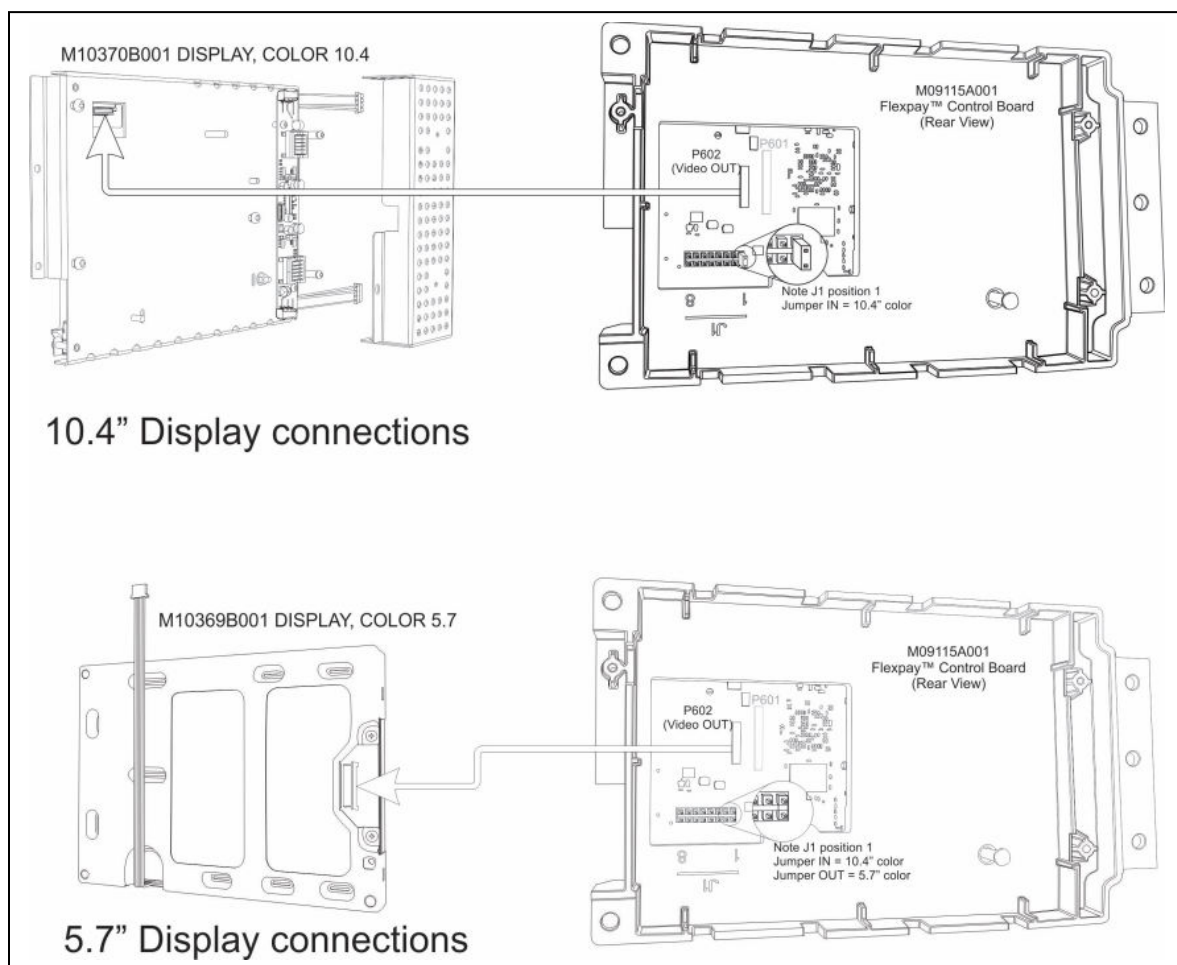


# Service Tips and Tools Required

Reference MDE-4902 for detailed service information.

**Important Jump Jacks to be aware of in the system:**

1. Display Type Jump Jack J1 (should be set properly on factory builds). See graphic below. However, this jump jack will need to be set anytime the M11930K001 FCB Kit is replaced. The jump jack sets the size of the display being used.



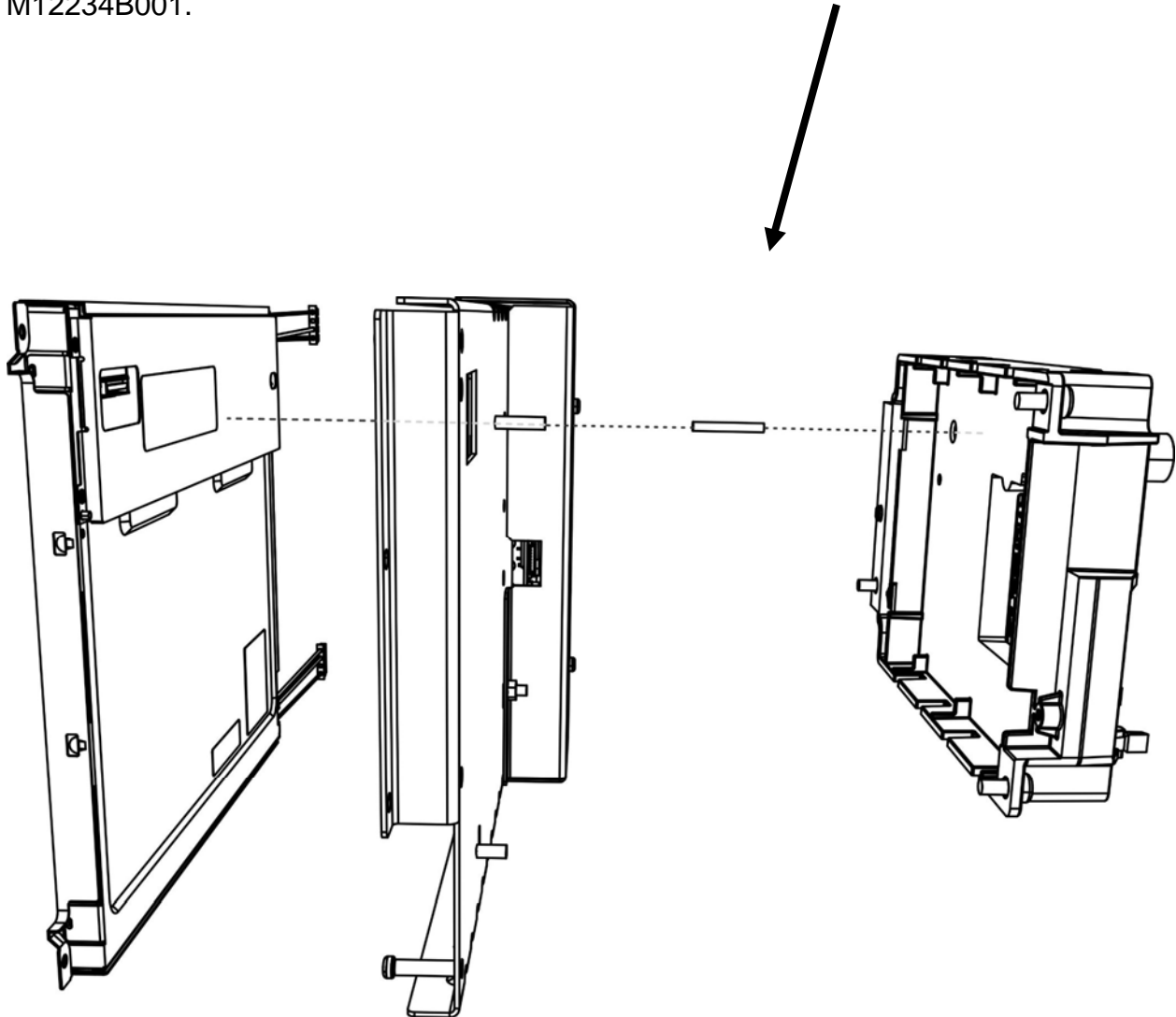
2. JP-1 Volume of Beeper is set on the Beep Board or the PIP Board
3. JP-1, 2 and 3 Applause Audio Delay Time is set on Intercom Board



## Service Tips and Tools Required (continued)

### When replacing a display or FLeXPay Control Board Assembly

Any time a display or a FlexPay Control Board Assembly is replaced, you must call the Gilbarco Service Center to activate the new (replaced) component. Gilbarco has instituted an activation pin that is located between the display and FlexPay Control Board (see picture below). The pin slides through the metal and plastic assembly and is spring loaded. The CRIND unit (FlexPay Control Board) will be de-activated any time these components are separated. Take care when replacing the display or the FlexPay Control Board. The pin is not fastened to either assemble and could fall when separating the components. Make sure to re-insert the pin after service. If you forget to insert the pin, you will not be able to activate the unit. Activation Rod/Pin part number is M12234B001.



## **Service Tips and Tools Required (continued)**

### **Tools Required for Encore 700 S Support**

1. SPOT Update Tool loaded on laptop
2. Any 'Post' Software Release
3. Standard CAT5 Cable
4. Wireless Card/Tethering Phone/Etc. (for RKL)
5. CRIND Diagnostic Card (Standard)
6. Regular Truck Tools
7. Laptop Tool loaded with current PCN versions (Blink)
8. Flash drive for Engineering log collection (if requested by Gilbarco Engineering or Service and Support)

#### **EPP Activation:**

A challenge response (activation through Gilbarco Service and Support) is required after replacing an EPP. Activation is not required when replacing the Card Reader. If an EPP is replaced, the new EPP will automatically pull customer key information and mapping from the CRIND FCB. Therefore, there will be no need to RKL if the EPP is replaced.

#### **Side Identification:**

For Encore 700 S, identification of Side 1 and Side 2 on the unit is the same as previous LON – based Encore CRIND units – cal switch is located on Side 1 (A-Side). The Lon to USB Board for the Applause will also be located on Side 1.

#### **Ground Wires:**

Ground wires should be installed from (-) on DIN Rail Power Supply to chassis (earth). Units are shipped from factory with ground wires installed.

There are no chassis (earth) ground wires installed on the card readers. If a chassis ground wire is mistakenly connected to the card reader, it should be removed.

## Service Tips and Tools Required (continued)

### How to Set Personality Screen in CRIND Diagnostics

The personality screen (customer specific screen background/images) is set through CRIND diagnostics (new feature - see menu sequence below). The Personality Screen needs to be set at startup or when a new FCB is installed, where the default personality (blue screen background) is not desired.

CRIND Diagnostics procedure:

1. Main Menu
6. Parameters
1. Display Manager
1. Set default Personality

A customer may elect to create a personality screen. To create and submit alternate Personality Screens, see MDE-4925 Encore 700 S Personality Guide

**Note:** Reference MDE-4902 for service.

## Training Curriculum

An online Encore 700 S training curriculum will be available upon product release on the LMS. Email [technicaltraining@gilbarco.com](mailto:technicaltraining@gilbarco.com) for details.

## Warranty

Standard warranty on factory installed CRIND. \*\*\*2 years\*\*\*