

Introduction

Purpose

This document provides instructions to install the FlexPay™ EMV® Card Reader IN Dispenser (CRIND®) Door Upgrade Kit (EPK EMV 500 S) on Encore® 500 S units.

Table of Contents

Topic	Page
Introduction	1
Important Safety Information	4
Installing FlexPay EMV CRIND Door Upgrade Kit (EPK EMV 500 S) on Encore 500 S Units	6
Installing FlexPay EMV CRIND Retrofit Kit with Existing TRIND Option	18

Abbreviations and Acronyms

Term	Description
CCN	CRIND Control Node
CRIND	Card Reader IN Dispenser
EMV	Europay® MasterCard® Visa®
ESD	Electrostatic Discharge
E-CIM™	Enhanced Customer Interface Module
HIP	Hub Interface PCB
LON	Local Operating Network
PCB	Printed Circuit Board
POS	Point of Sale
PPU	Price per Unit
SIP	SPOT Interface PCA
TRIND®	Transmitter/Receiver IN Dispenser
UL®	Underwriters' Laboratory
USB	Universal Serial Bus

Required Tools and Materials

Following tools and materials are required for installing the FlexPay EMV CRIND Door Upgrade Kit (EPK EMV 500 S):

- Phillips® Screwdriver
- 1/4-inch Socket (Nut Driver)
- mm Socket Set
- Diagonal Cutters
- Double-sided Tape
- Needle Nose Pliers
- Wrench

Parts List

Following table lists the parts included in the FlexPay EMV CRIND Door Upgrade Kit (EPK EMV 500 S):

Hub Interface PCB (HIP) Assembly

Item	Description	Part Number	Quantity	
			2-sided	1-sided
1	Assembly, EMV HIP	M07931A002	1	1
2	Cable, SMART Connect™	M07970A001	1	1
3	Cable, Special Two-wire	M00491A001	1	1
4	Nut, Metric	M00414B005	3	3

EMV Door Assembly

Item	Description	Part Number	Quantity	
			2-sided	1-sided
1	Door, Main E-CIM, with Boots	M07997A101	2	1
2	Display, EMV Generic ~OR~ Display, EMV Global Pay	M08001A001 ~OR~ M08001A002	2	1
3	Keypad, 7-key Option	M07754B002	2	1
4	Cable, 7-button Keypad	M07957A005	2	1
5	Screw Sel Tp Hex Head 6-20X	Q11677-26	42	21
6	PCA, SPOT Interface (SIP)	M07793A001	2	1
7	Cable, Two-wire/Cash A/SP	M07946A001	2	1
8	Cable, SPOT Power, EMV	M07947A001	2	1
9	Cable, SPOT to SIP TCR	M07949A001	2	1
10	Cable, DC Power SIP, EMV	M07974A001	2	1
11	Assembly, Bracket Electrostatic Discharge (ESD) Grounding	M08191A002	2	1
12	Cable, HIP to SIP Serial	M07979A002	2	1
13	Cable, Work Area 6 feet	Q13850-10	2	1
14	Cable, Ground EMV Display	M04431A002	2	1
15	Nut, Metric, Flange	M00414B005	6	3
16	Gasket Set	M13128K004	2	1
17	Reader, Secure Tribid	M07999B001	2	1
18	Cable, TCR/SP Interface	M07702A011	2	1
19	Cable, Encrypted Card	M07709A001	2	1
20	Bracket, Card Reader	M07574B001	2	1
21	Screw Sel Tp Hex Head 6-20X	Q11677-28	2	1
22	Keypad, SPOT	M08003B001	2	1
23	Cable, SPOT Secure Keypad	M07956A002	2	1
24	Cable, Ground Hengstler®	M04431A003	2	1
25	Assembly, Speaker	M08072A001	0	1

Contactless Antenna Option

Item	Description	Part Number	Quantity	
			2-sided	1-sided
1	Assembly, Contactless Antenna	M08285A001	2	1
2	Cable, Antenna Encrypted	M07703A001	2	1
3	Screw Sel Tp Hex Head 6-20X	Q11677-26	8	4

Printer Assembly

Item	Description	Part Number	Quantity	
			2-sided	1-sided
1	Assembly, Printer 6-inch Sliding	M07885A001	2	1
2	Screw Sel Tp Hex Head 6-20X	Q11677-24	2	1
3	Cable, USB/Ground/+24 V	M06745A003	2	1
4	Label, Paper Loading	M06807B004	2	1

Transmitter/Receiver IN Dispenser (TRIND) to EMV Interface (Optional Units with TRIND)

Item	Description	Part Number	Quantity	
			2-sided	1-sided
1	TRIND/SPOT Interface	M08472A002	1	1
2	Cable, Gateway to TRIND	M08520A002	1	1
3	Cable, TRIND/SPOT	M08521A001	1	1
4	Cable, Power Supply	M05859A001	1	1

Related Documents

Document Number	Title	GOLD Library
MDE-3804	Encore and Eclipse® Start-up and Service Manual	<ul style="list-style-type: none"> Encore and Eclipse Service Manual
MDE-4771	FlexPay CRIND Start-up/Service Manual	<ul style="list-style-type: none"> FlexPay Encore and Eclipse
MDE-4785	FlexPay Outdoor Payment Terminal - Canada Installation and Service Manual	FlexPay
PT-1936	Encore Illustrated Parts Manual	<ul style="list-style-type: none"> Parts Manual Encore and Eclipse Encore and Eclipse Installers
PT-1937	Encore 300/500/500 S/550 & Eclipse Recommended Spare Parts	<ul style="list-style-type: none"> Parts Manual Encore and Eclipse

Important Safety Information

Note: Save this Important Safety Information section in a readily accessible location.

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 a Gilbarco Authorized Service Contractor or call the Gilbarco Support Center at 1-800-800-7498. 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.

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

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.

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 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



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

WARNING



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

WARNING



Gasoline 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.

Installing FlexPay EMV CRIND Door Upgrade Kit (EPK EMV 500 S) on Encore 500 S Units

To install FlexPay EMV CRIND Door Upgrade Kit (EPK EMV 500 S) on Encore 500 S units, proceed as follows:

Before you begin, read and understand all safety information in *MDE-3804 Encore and Eclipse Series Start-up and Service Manual - Safety Instructions*.

Inform the Manager that the power will be removed and remove all the power supplied to the unit at the breaker located in the building. Block off the unit from customers.

WARNING

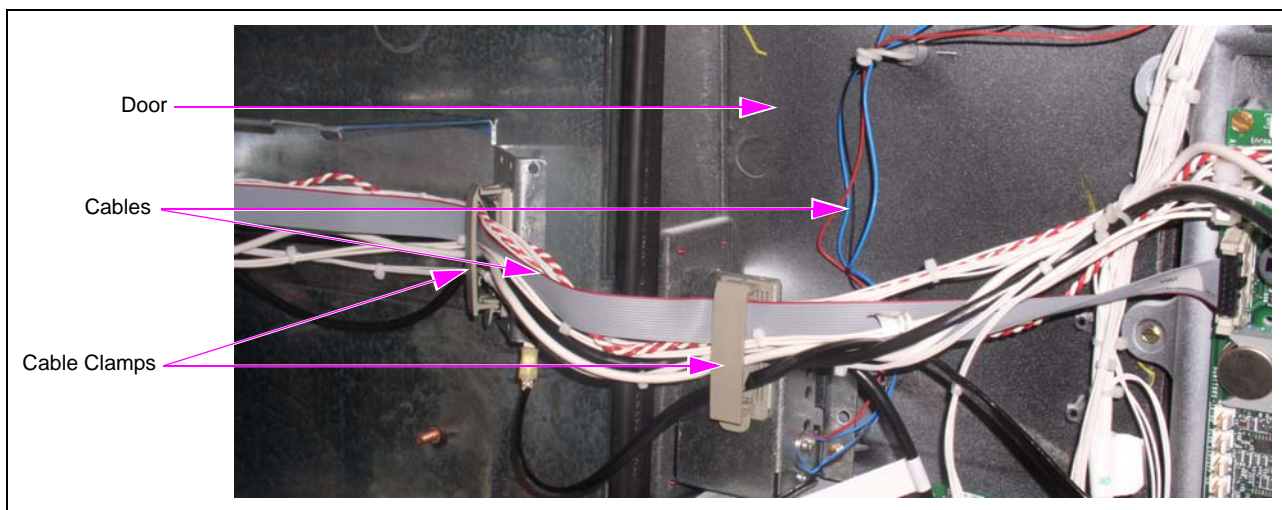
Failure to turn off the unit during the installation of the kit may cause injury or bodily harm from electrical shock. Ensure that all power to the unit is switched off before opening the door to the unit and during kit installation.

Removing Non-FlexPay CRIND Door

To remove the non-FlexPay CRIND door, proceed as follows:

- 1 Disconnect the following cables from all the peripherals on the door:
 - Door Node (Main Display)
 - Grade Select Buttons
 - Price Per Unit (PPU) Panel
 - Nozzle Boot Switches
 - Totalizers
 - Speaker
 - Door Prop Rod
 - TRIND (if supplied)
 - Contactless Antenna (if supplied)
- 2 Open the cable clamps located on the door, so that the cables are free when the door is removed.

Figure 1: Disconnecting Cables from Door Components

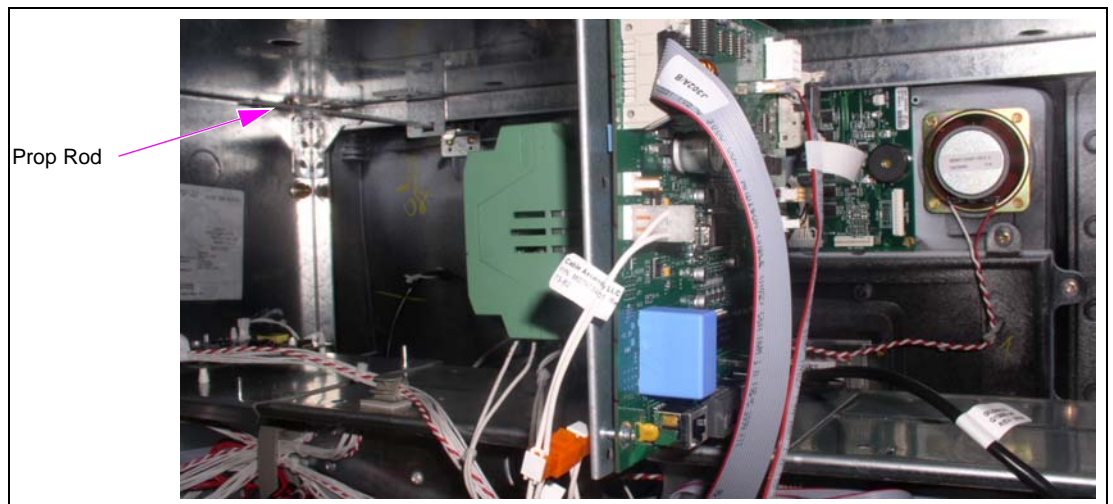


- 3 Remove and retain components from the door (see [Figure 2](#)) that must be reused on the new door. The following hardware components can be reused:

- Door Node (Main Display)
- Grade Select Buttons
- PPU Panel
- Nozzle Boot Switches
- Totalizers
- Speaker
- Door Prop Rod
- TRIND (if supplied)
- Contactless Antenna (if supplied)
- Call Button Board
- Weather Shield

Note: Do not reuse the card reader, monochrome display, or printer.

Figure 2: Removing Prop Rod



Note: Before you remove the door, ensure that all cables going to the door are disconnected.

- 4 Remove the Printer Module. If the unit was supplied with printer, remove the printer housing from the CD Module cabinet by removing the four screws.

Note: This printer housing has the dispenser serial number label affixed to it and therefore must remain inside the dispenser (in a location where it must not interfere with other components).

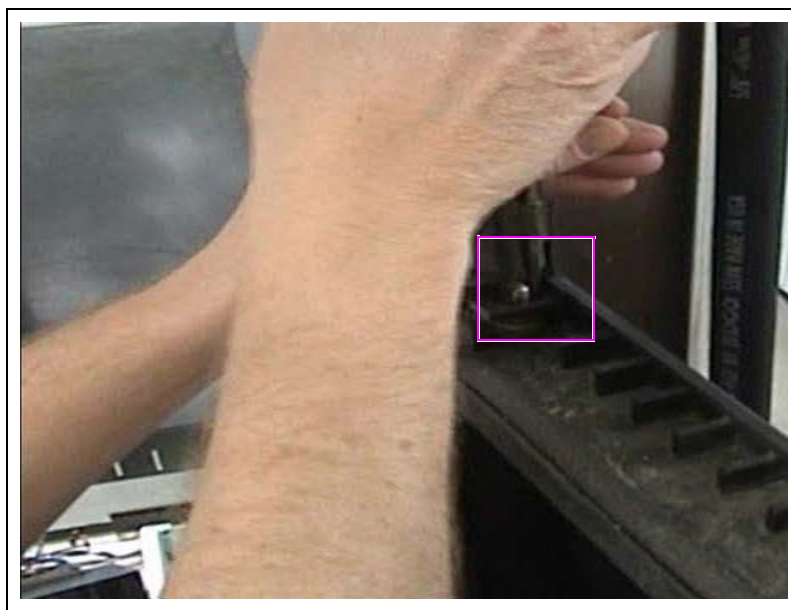
- 5 Remove the existing door (see [Figure 3](#)) from the dispenser.

Notes: 1) After you open both doors, the top sheathing must slide over enough to remove the pin. If not, you may have to remove the inner sheathing, so that you can slide the top cover and gain access to the pin.

2) Remove the pin at the upper door hinge. Ensure that you hold the door steady with one hand while removing the pin.

3) After you remove the pin, lift the door from the lower mounting slot and move the door to a safe location.

Figure 3: Removing Existing Door



To install a new printer, proceed to [“Installing New Printers”](#) on [page 11](#). If there is no printer in the dispenser, proceed to [“Removing Existing UL Bucket and CRIND Control Node”](#) on [page 9](#).

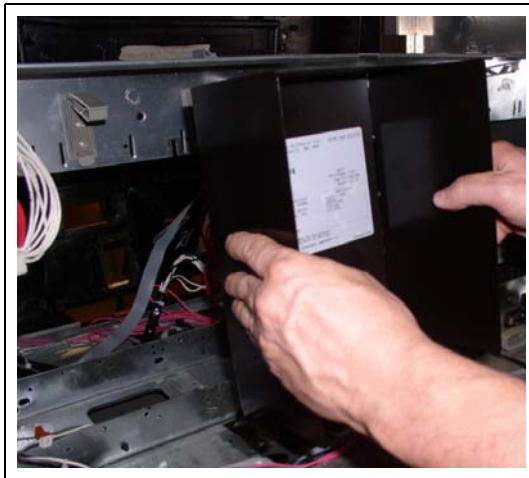
Removing Existing UL Bucket and CRIND Control Node

Retain the Underwriters' Laboratory (UL) Bucket that contains the serial number information of the unit. Remove the side panels that are not required, and use double-sided tape to adhere the panel to an available spot inside the electronics cabinet.

To remove the existing UL Bucket, proceed as follows:

- 6 Remove the four 8 mm screws that secure the existing UL Bucket and set aside for reuse (see [Figure 4](#)).

Figure 4: Removing UL Bucket



- 7 Bend and remove the side panels of the bucket, while you retain the panel (facing you) that contains the serial number and UL listing information (see [Figure 5](#)).
Note: Serial number plates are reused.

Figure 5: Removing Side Panels of UL Bucket



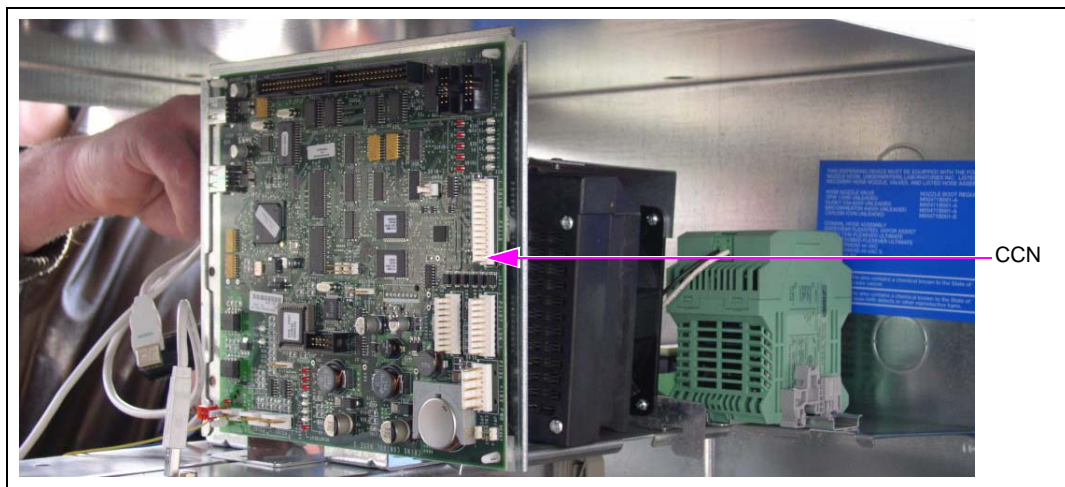
- 8 Attach the UL Bucket to T-rail [use self-tapping M00417B01 Screw (see [Figure 6](#))].

Figure 6: Attaching UL Bucket to T-rail



- 9 Disconnect the cables from the existing CRIND Control Node (CCN) and remove the CCN Assembly.
- 10 Remove the Local Operating Network (LON) Cable from the CCN to Pump Control Node (PCN) and remove the LON cable from the PCN to Side 1 Door Node (see [Figure 7](#)).
Note: The CCN cables are not reused.

Figure 7: Removing CCN

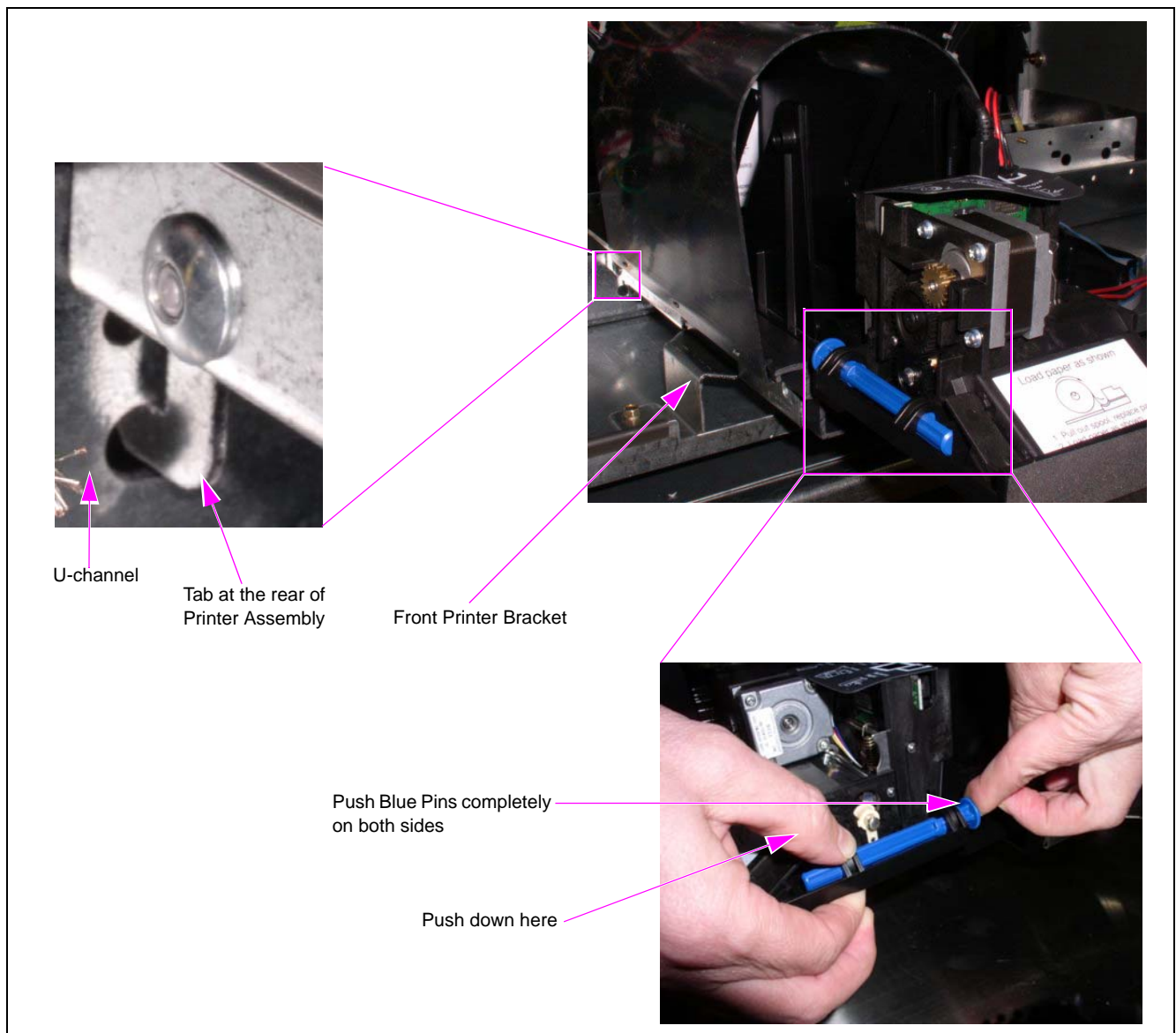


Installing New Printers

To install new printers on both sides of the dispenser, proceed as follows:

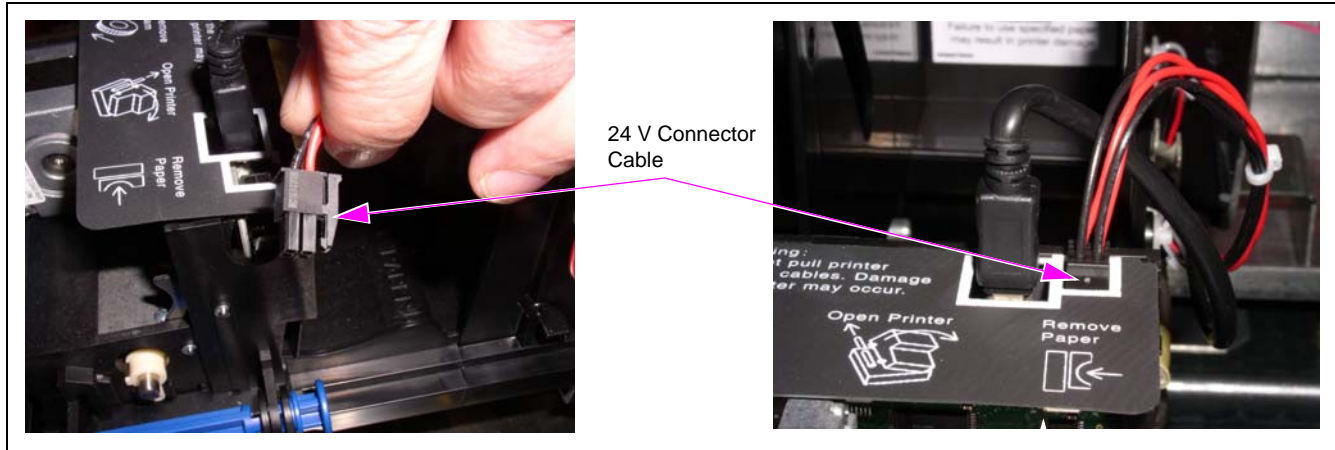
- 11 Insert the tab at the rear of the 6-inch Printer Assembly into the U-channel in the electronics cabinet (see [Figure 8](#)). Lower the front printer bracket into position and line up the four mounting holes in the CD Module lower plate.
- 12 Ensure that you stay clear of existing cables. Do not pinch the cables between the mounting bracket and electronics cabinet.
- 13 Use the four screws removed in step 4 on [page 7](#) to secure the printer.

Figure 8: Installing New Printer



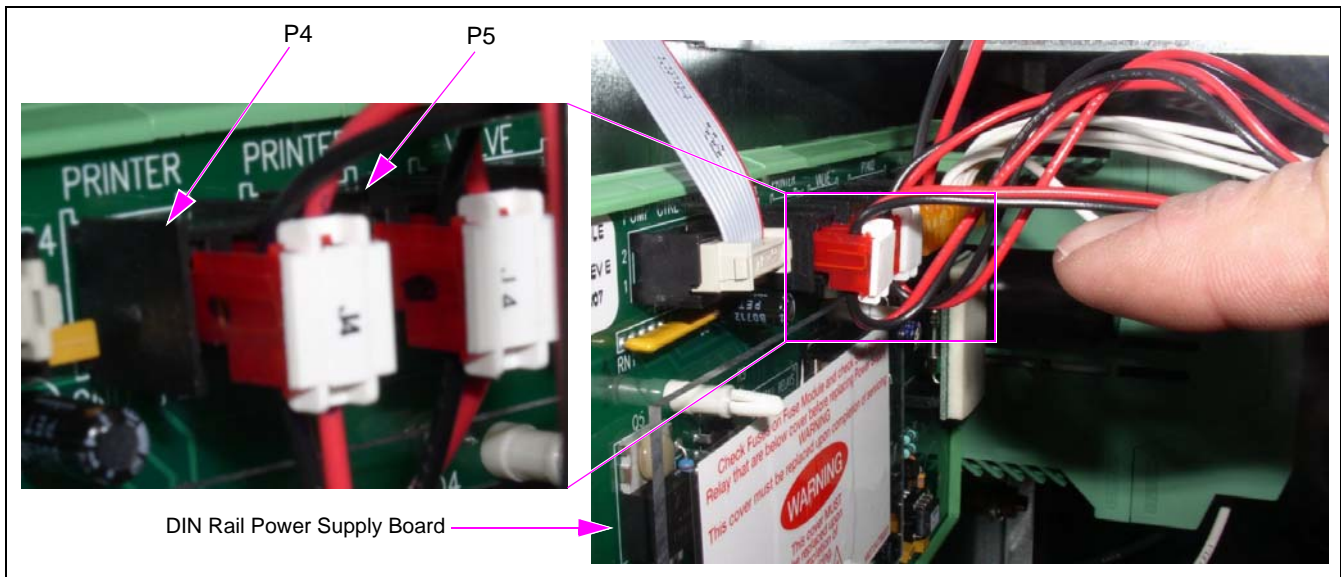
- 14 Connect the 24 V Connector Cable to the printer and Universal Serial Bus (USB) Connector (see [Figure 9](#)).

Figure 9: Connecting Printer Cables and Orientation of 24 V Connector Cable



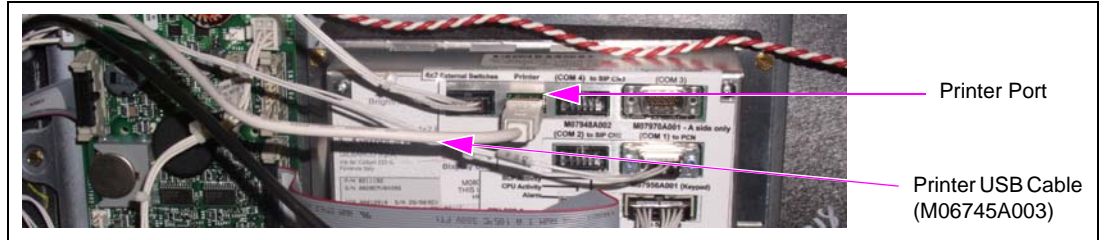
- 15 Connect the 24 V Connector Cable to P4 and P5 on the DIN Rail Power Supply Board [use existing Encore S 24 V Connector/DIN Rail Power Supply (see [Figure 10](#))].

Figure 10: Connecting 24 V Connector Cable



- 16 Connect the Printer USB Cable (M06745A003) to the printer port at the rear of the FlexPay EMV CRIND (see [Figure 11](#)).

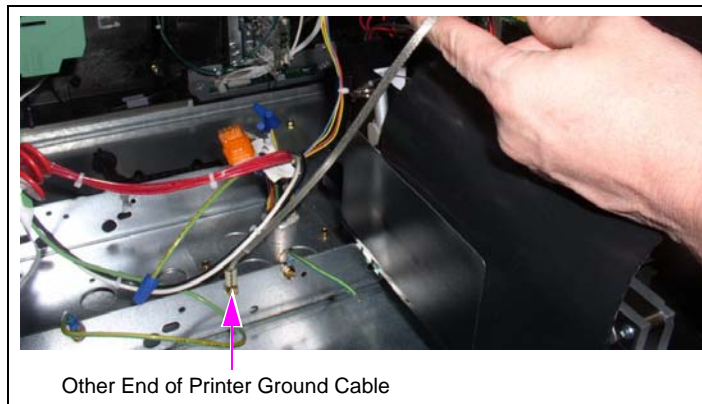
Figure 11: Connecting Printer USB Cable



Note: This step must be performed after you install the FlexPay EMV CRIND door (refer to “[Installing FlexPay EMV CRIND Door](#)” on page 14).

- 17 Connect the printer ground cable and route the printer cables.
- 18 Connect the ground wire from the Printer Assembly to the U-channel to an available position [use 8 mm self-tapping screw (see [Figure 12](#))].

Figure 12: Connecting and Routing Printer Ground Cable



Installing FlexPay EMV CRIND Door

To install the FlexPay EMV CRIND door, proceed as follows:

- 19 Place the lower hinge pin of the existing door over the lower hinge bracket.
- 20 Align the new door to the upper hinge bracket and drop the upper hinge pin into the new door (see [Figure 13](#)).

Figure 13: Installing FlexPay EMV CRIND Door



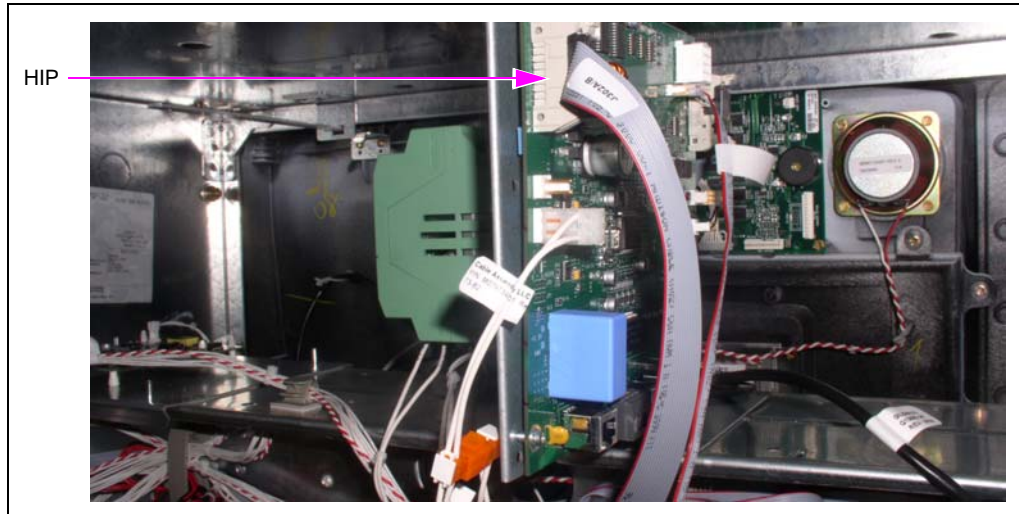
Reinstalling Hardware Components

To reinstall the hardware components, proceed as follows:

- 21 Reinstall the following hardware components:
 - Door Node (Main Display)
 - Grade Select Buttons
 - PPU Panel
 - Nozzle Boot Switches
 - Totalizers
 - Speaker
 - Door Prop Rod
 - TRIND (if supplied)
 - Contactless Antenna (if supplied)
 - Call Button Board
 - Weather Shield
- 22 Reconnect all cables to the reinstalled components using the cables disconnected in step 1 on [page 6](#).

- 23 Install the HIP Assembly.

Figure 14: Installing HIP Assembly

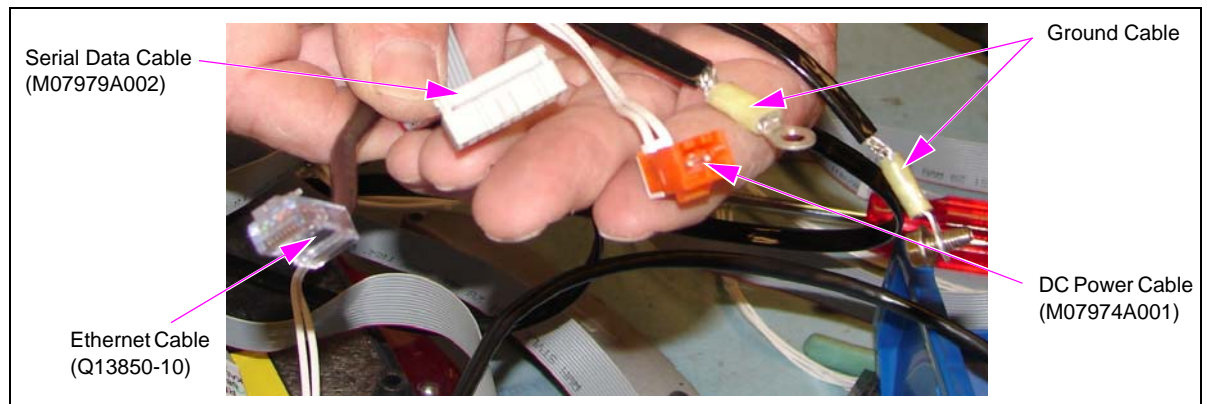


- 24 Route the cables from the door and ensure that they are connected as per instructions in “Connecting Cables from FlexPay EMV CRIND Door”.

Connecting Cables from FlexPay EMV CRIND Door

To connect cables from the FlexPay EMV CRIND door, proceed as follows:

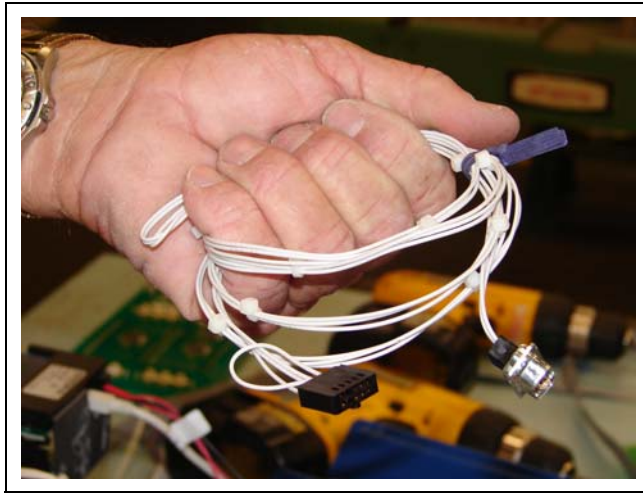
Figure 15: Cables from SIP Board/FlexPay EMV CRIND Door



- 25 Connect the Serial Data Cable (M07979A002) from the SIP Board on the FlexPay EMV CRIND door to the HIP Assembly.
- 26 Connect the DC Power Cable (M07974A001) from the SIP Board to the respective connector on the M07973A003 Power Cable on the HIP Assembly (P301A/P301B to J301A/J301B).

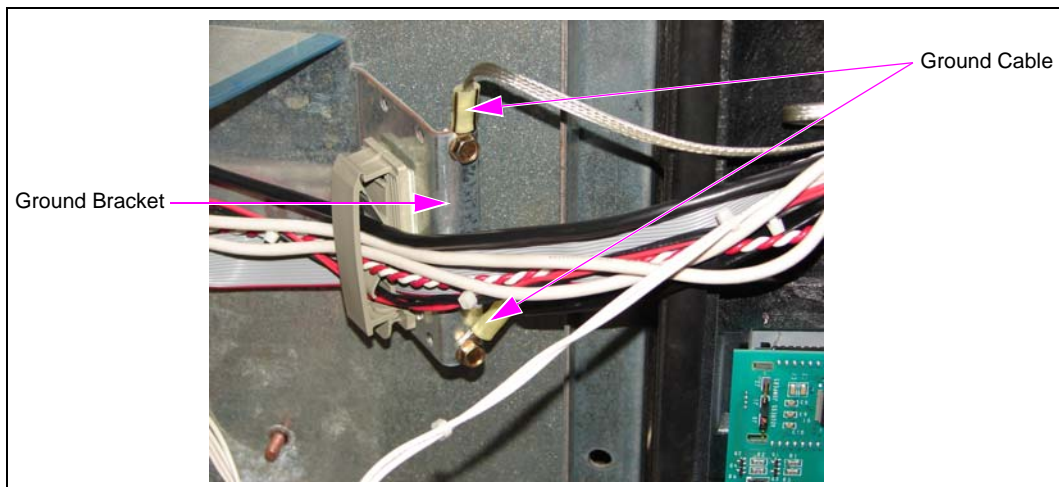
- 27 Connect the Ethernet® Cable (Q13850-10) from COM 5 Port on the SPOT display to the respective port on the HIP Assembly (A or B).
- 28 Connect the M07970A001 Cable from COM 1 Port on the SPOT display unit to the base electronics on Side A of the Encore 500 dispenser (to J1111).

Figure 16: Connecting Cable from COM 1 Port



- 29 Connect the ground cable for the printer and SPOT display to the ground bracket on the CD Module.

Figure 17: Connecting Ground Cable on Ground Bracket



- 30 Connect the CRIND two-wire cable from J404 to P404 on the HIP Assembly (see [Figure 18](#)).

If you are using the G-SITE® or Passport® Point of Sale (POS) system, connect the two-wire cable from J403 on the Pump Control Board to P403 on the HIP Assembly.

Figure 18: Connecting CRIND Two-wire Cable from Pump Control Board to HIP Assembly

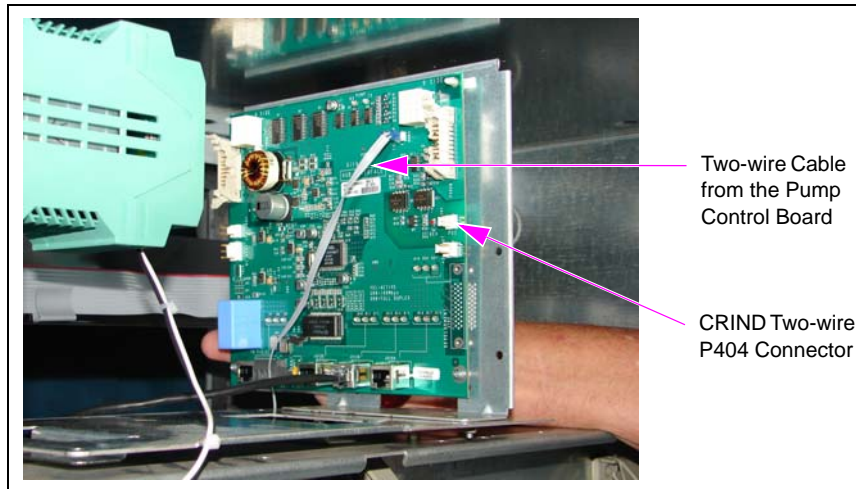


Figure 19: Upgraded FlexPay EMV CRIND Door



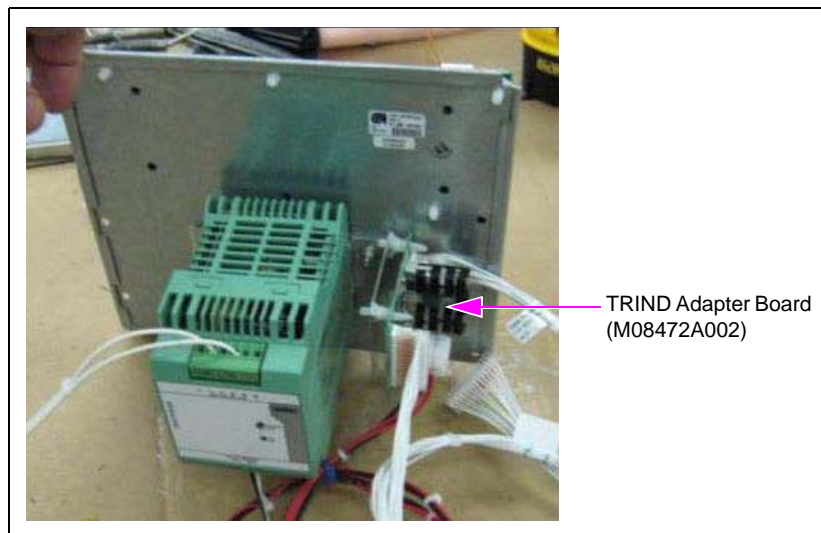
Installing the FlexPay EMV CRIND Door Upgrade Kit on Encore 500 S units is now complete.

Installing FlexPay EMV CRIND Retrofit Kit with Existing TRIND Option

To install the FlexPay EMV CRIND Retrofit Kit with existing TRIND option, proceed as follows:

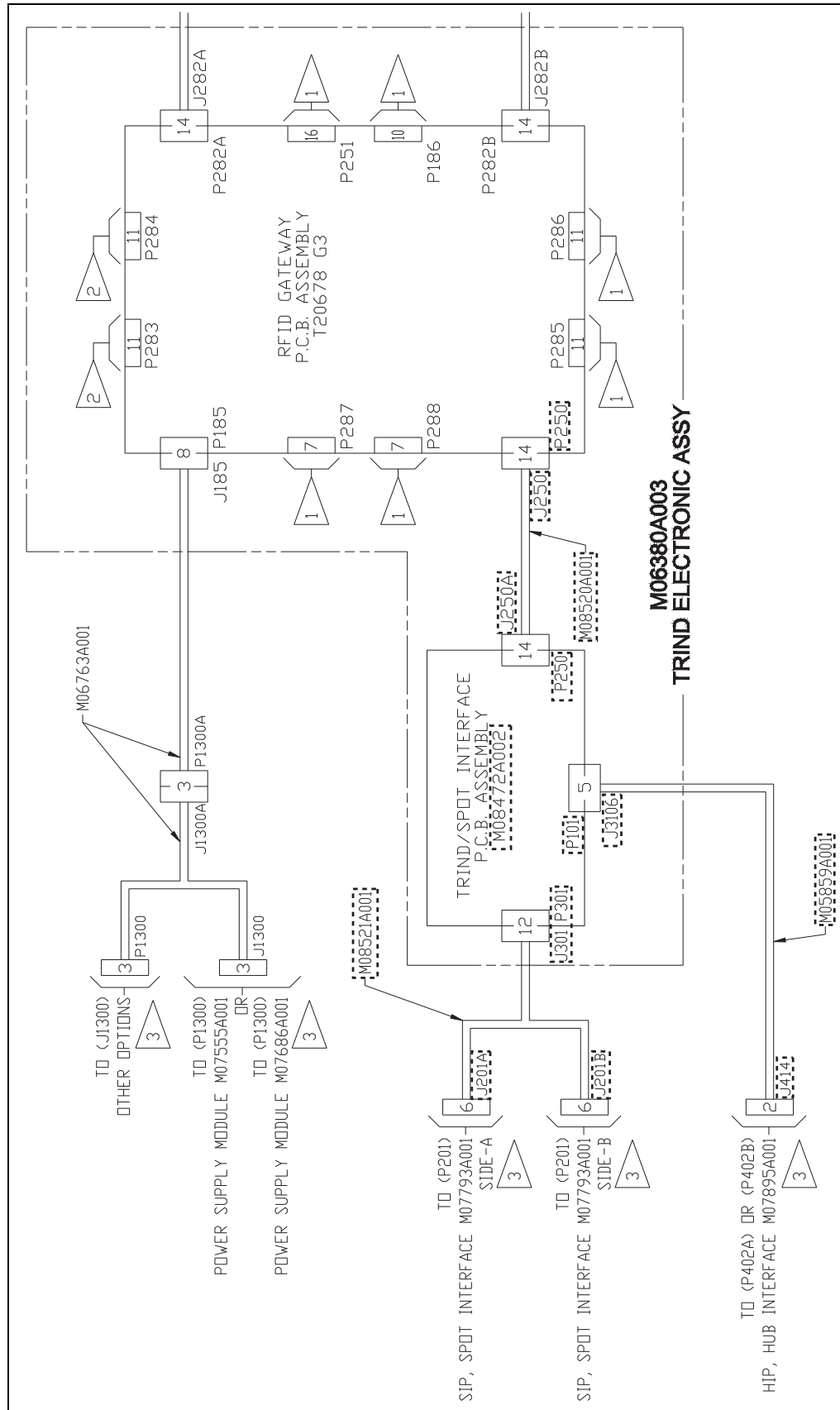
- 1 Locate the TRIND Adapter Board (M08472A002) mounted on the HIP Assembly.

Figure 20: TRIND Adapter on HIP Assembly



- 2 Connect cables from the TRIND Adapter Board as follows (see [Figure 21](#) on [page 19](#)):
 - a Route the M05859A001 Cable to the HIP Board and connect J414 to P402A or P402B on the HIP Board.
 - b Route the M08520A002 Cable to the TRIND Gateway Board (T20678-G3) and connect J250 to P250 on the Gateway Board.
 - c Route the M08521A001 Cable to the SIP Board (M07793A001) mounted on the Side A and Side B doors.
 - d Connect J201A and J201B Connectors as follows:
 - J201A Connector to P201 on the SIP Board mounted on the Side A door.
 - J201B Connector to P201 on the SIP Board mounted on the Side B door.
- 3 Connect the two M07948A002 Cables to each door assembly by plugging the end with COM 2 and COM 4 connectors to the EMV display connectors marked with the same designation.
- 4 Plug the connectors on other end of the SIP Board as follows:
 - J103 Cable into the P103 Connector.
 - J105 Cable into the P105 Connector.

Figure 21: TRIND/SPOT Interface Board (M08472A002) Connections



- 5 Restore the power to the Encore 500 S unit at the breaker located in the building.

Installing the FlexPay EMV CRIND Retrofit Kit with existing TRIND option is now complete.

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