FlexPay™ IV CRIND® Retrofit Kit
Installation Instructions for The Advantage® Series

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SECTION 1 - INTRODUCTION

Purpose

This manual provides instructions to install a 5.7-inch Color Screen FlexPay™ IV CRIND® Retrofit Kit in The Advantage® Series (with or without CRIND). The FlexPay IV CRIND provides a secure payment platform that is EMV®-certified and Payment Card Industry PIN Entry Device (PCI-PED)-certified.

This manual also includes instructions for installing DCM2.2 (M15737A001) in the FlexPay IV units.

Intended Users

This manual is intended for Gilbarco®-trained and certified Authorized Service Contractors (ASCs).

Required Tools

- Phillips® and Flat-blade Screwdrivers
- 1/4-inch Socket Set (Nut Driver)
- 7- and 8-mm Socket (Nut Driver or Socket Set)
- Diagonal Cutters
- Needle Nose Pliers
- T15 Torx Driver
- Universal Joint Socket Adapter
- Putty Knife or Scraping Tool (if required)

Configured Kits - Parts List

FlexPay IV CRIND Retrofit Kits are configured based on the serial number of the pump/dispenser unit for which they are intended. Therefore, the parts list will vary for each configured kit and unit/option type.

For additional part details, refer to the Bill of Materials (BOM) in the kit, contact your distributor, or contact Gilbarco Customer Service.

A common FlexPay IV CRIND Retrofit Kit will include the following parts:
- CIM™ insert with Universal Payment Module (UPM) assembly (keypad), UX300/301 card reader, display, Peripheral Interface PCB (PIP)3
- T-rail assembly with Auxiliary Feature PCB (AFP)/Dispenser Communication Module (DCM) 2
- Universal Serial Bus (USB) Printer assembly

SECTION 1 - INTRODUCTION

1

Configured Kit Optional Components

The following parts are potential configured kit optional components:

- UX400/401 Contactless Card Reader
- Applause™ Media System, DCM2, and Gilbarco Systems on Module (GSoM)
- Cabinet Heater (optional for 5.7-inch display)
- Bank Note Acceptor (BNA)
- 2D Imager
- TRIND®

For a complete parts list of the configured kit, refer to the build ticket that is provided with the kit.
Note: Printers will be needed for non-CRIND units.

Critical Components

The following parts are critical components for FlexPay IV:

Location	Description	Part #	Notes
Located on Left Door	Assembly, Advantage Door	M14500	Variants are color
	5.7" Softkeys	M01254A003	
	5.7" Color Display	M10369B002 M10369B003	
	PCA, PIP3	M13987A00X	1, 3 = 5.7"
	Card Reader, VeriFone® UX300	M14330A001	
	Contactless Card Reader, VeriFone, UX400	M14331A001	
	Printer Assembly	M12479A001	Print head: M13832A001
	Cable, Wire and Speaker Next Generation Payment (NGP)	M09259A001	
Located on CRIND Tray	Assembly, UPM	M13888AXXX	"XXX" varies based on customer requirement
	AFP	M13124A001	
	DCM	M11071A001	
	Phoenix Supply	M04161B001	
	DCM2	M14576A001	
	Secure System on Module (SSoM)	M14579A101	
	Fuse Board	M05748A001	
	DCM2.2	M15341A101	
Located on Right door	TRIND	M06143A00X	1, 3 = Red, 2, 4 = Amber

SECTION 2 - IMPORTANT SAFETY INFORMATION

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.

Federal Communications Commission (FCC) Warning

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

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.

SECTION 2 - IMPORTANT SAFETY INFORMATION

2

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 fluid 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/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.

SECTION 3 - REMOVING COMPONENTS

Before You Begin

IMPORTANT INFORMATION

Ensure that the unit is functional. Check with the manager for any existing operational issues. If the unit has any special features, such as TRIND, barcode scanner, and so on, verify proper operation before removal. Print a system health report to verify printer and CRIND functions.

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:

1 Perform an inventory of the parts list provided. Ensure that there is no damage to the parts and that all the parts are accounted for based on the BOM shipped with the kit. Ensure that you carry the recommended spare parts to the installation site.

   Note: Retain all parts (including cables, nuts, bolts, screws, and so on) that are removed. These are required in case the unit must be reverted to the original as a fallback mitigation.

2 Read all the safety information found in "Important Safety Information" on page 3. Perform a Job Safety Analysis (JSA) before beginning the installation.

3 Inform the manager.

4 Barricade the unit to be worked on.

5 Remove power to the unit at the breaker panel. Follow OSHA lockout/tagout procedures.

6 Isolate two-wire, any network/DCM Ethernet® cabling, and any network connections from the unit.

⚠ WARNING

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

SECTION 3 - REMOVING COMPONENTS

Left Option Door

To remove the left option door:

1 Open the main door by loosening the lower screws that secure the lower portion of the main door and then open the left and right option doors. Release the four main door latches.

2 Disconnect all the cables from the left option door, CRIND display, card reader, and Contactless Smart Card (CSC) antenna (if applicable).
Note: Discard the CSC antenna cables as they cannot be reused.

Figure 1: Opening Left Option Door

3 Remove the left option door by pulling the hinge pin up through the hole.
Note: The left option and the main door must be open to gain access to the hinge pin.

4 Remove any existing old gaskets on the option door opening using a putty knife or scraping tool.

5 Remove any customer supplied locks and add to the new option door.

SECTION 3 - REMOVING COMPONENTS

CRIND Electronics

Note: If the unit is not equipped with CRIND, proceed to the installation instructions beginning with "FlexPay IV CRIND Retrofit Kit" on page 11.

To remove the existing CRIND electronics from the cabinet:

3

1 Disconnect all the cables connected to the CRIND tray.

2 Disconnect the cables that are connected to the printer. Then remove all the CRIND cables and place with the CRIND tray, when removed.

3 Remove the CRIND tray by pulling it out toward you and lifting it out of the support bracket (see Figure 2 (i) and (ii)).

Figure 2: Removing CRIND Tray

| (i) | (ii) |
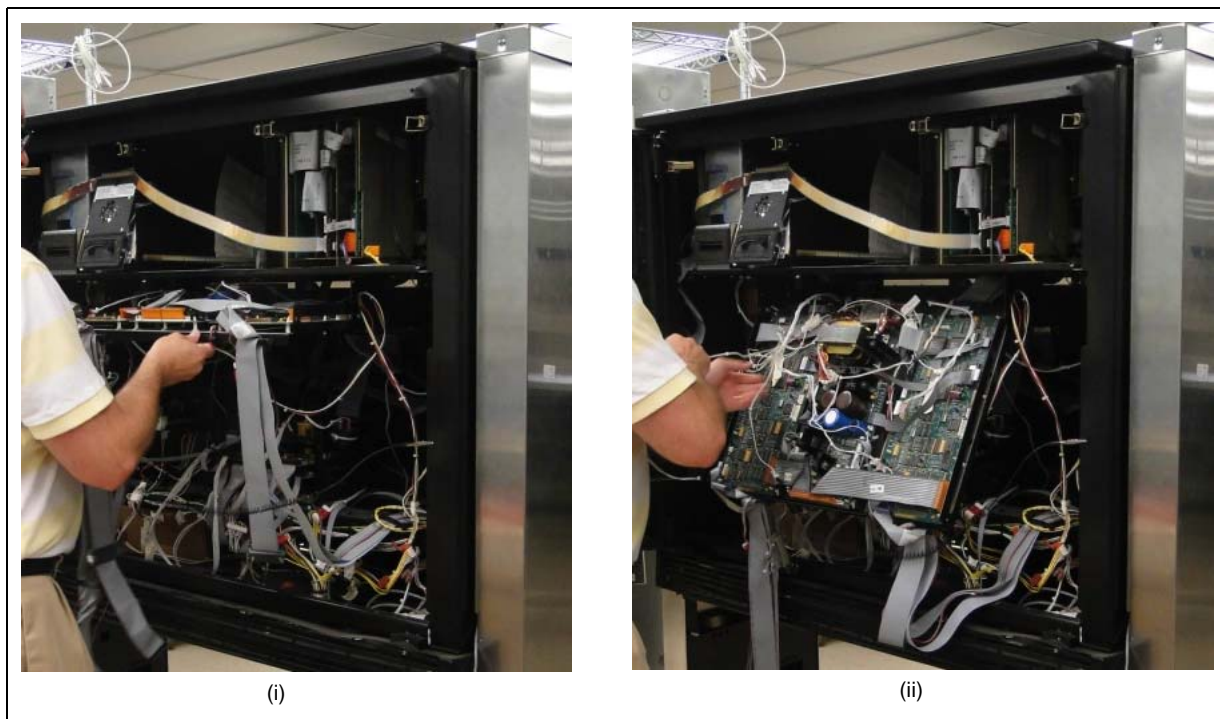
4 Remove the tray and carefully place it in a safe location.

SECTION 3 - REMOVING COMPONENTS

5 Remove the tray support slide rails.

Figure 3: Removing Tray Support Slide Rails

Tray Support
Slide Rail
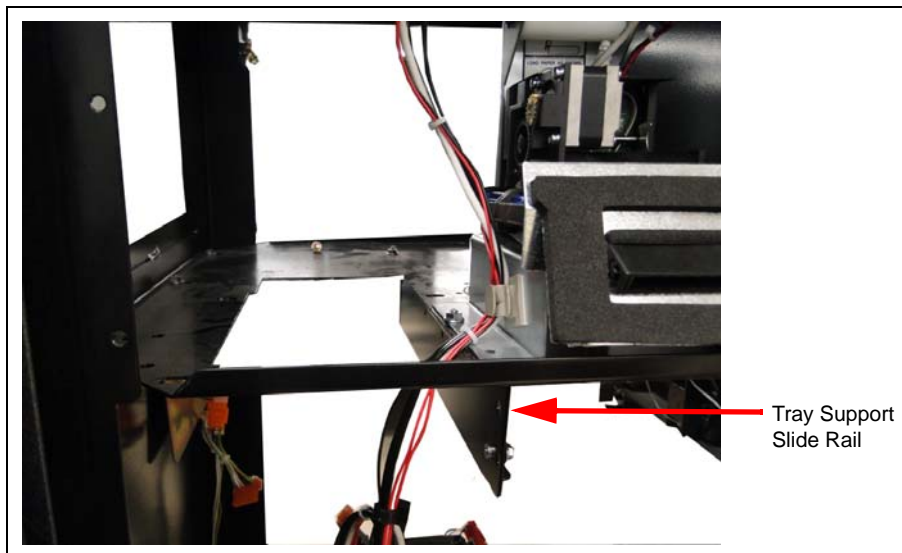
Printer

To remove the printer, disconnect all printer cables and remove the existing printer(s) by removing the three or four nuts underneath.
Note: The printer cables can be discarded.

Figure 4: The Advantage Series Printer

(i)	(ii)
Printer Front View	**Printer Rear View**
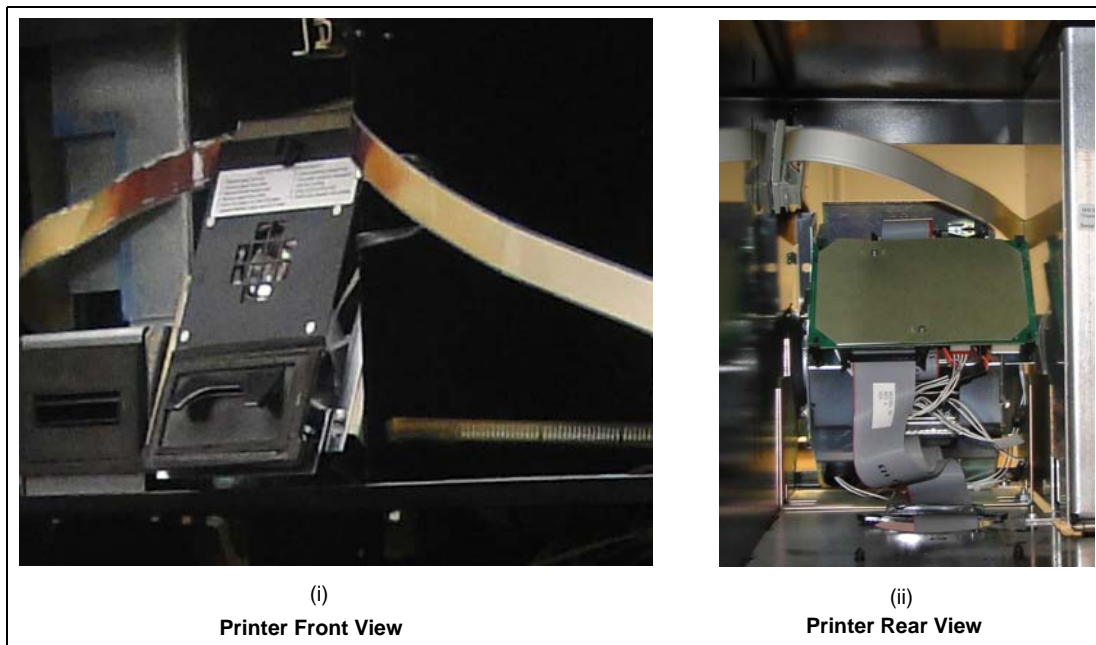
SECTION 3 - REMOVING COMPONENTS

AFP/HIP 2/DCM2/DCM2.1

To remove the Hub Interface PCB (HIP) 2/AFP/DCM2/DCM2.1 bracket:

1 Disconnect all the cables from the AFP, HIP 2, or DCM2/DCM2.1 (see Figure 5).

Figure 5: Disconnecting Cables
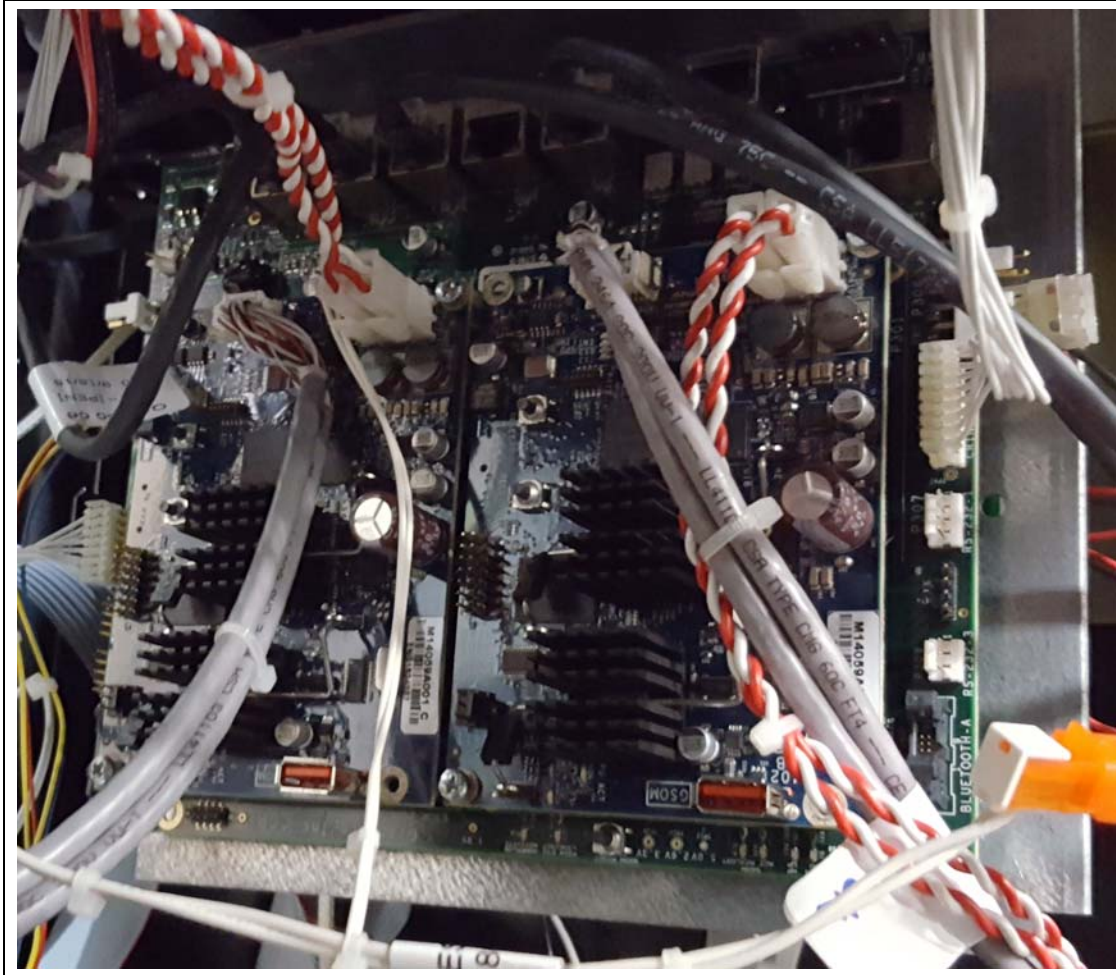
SECTION 3 - REMOVING COMPONENTS

2 Remove the two M00414B005 M4 Nuts to detach the AFP, HIP 2, or DCM2/DCM2.1 bracket.

Figure 6: Mounting Bracket

(i)   M4 Nuts   (ii)
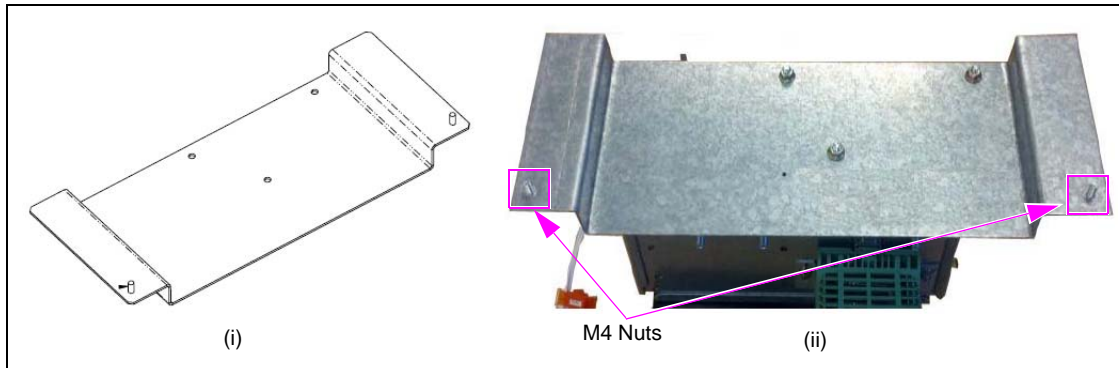
3 Remove the three 7-mm nuts from the HIP2/AFP/DCM2/DCM2.1 bracket and separate from the mounting bracket as shown in Figure 7. Retain the nuts for reuse.

Figure 7: Removing Nuts

7-mm Nuts
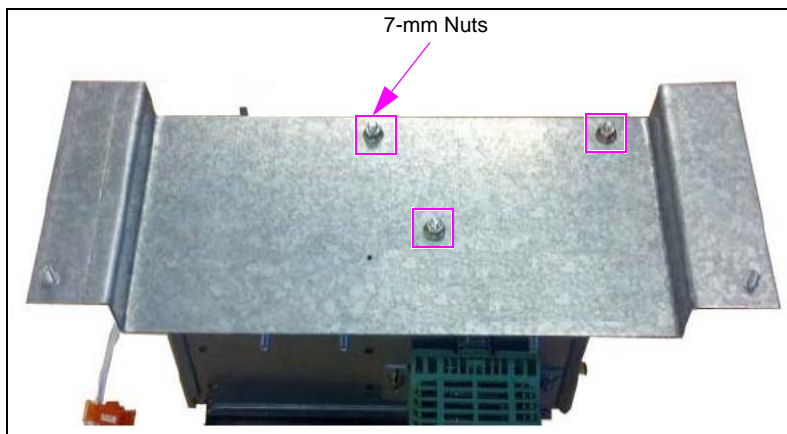
4 Remove the GSoMs from the existing assembly. Retain the GSoMs for reuse.

SECTION 4 - INSTALLATION

FlexPay IV CRIND Retrofit Kit

Left Option Door

To install the new left option door:

1 Place the new left option door in the opening.

2 Re-insert the hinge pin to secure the new left option door.

Figure 1: Installing Left Option Door

(i)

Rear View of Left Option Door

(ii)

Front View of Left Option Door

New Left Option Door Installed

4
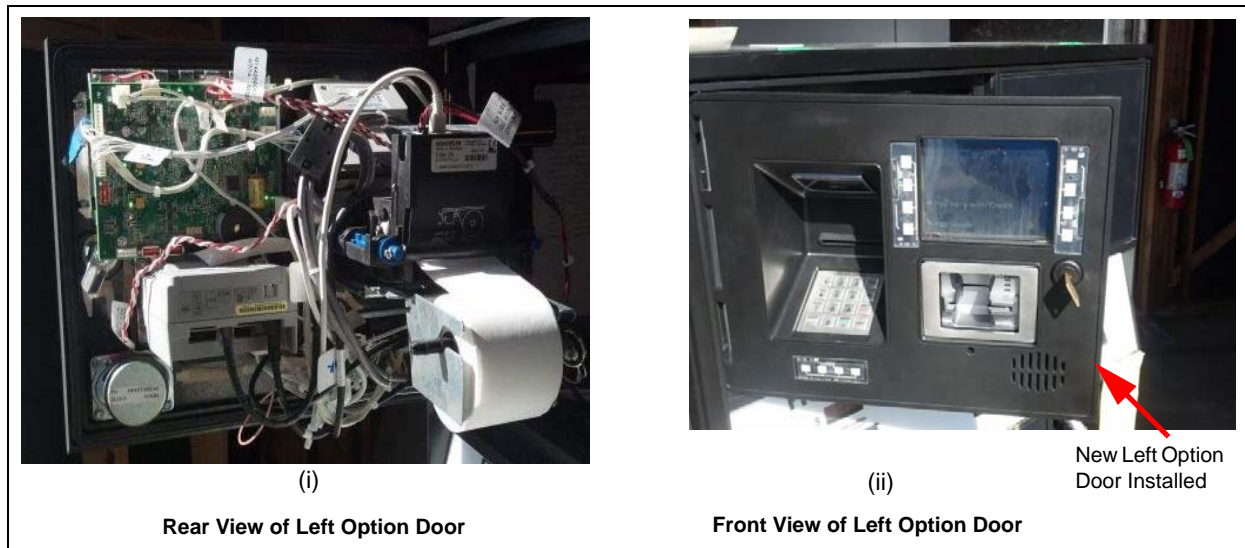
SECTION 4 - INSTALLATION

AFP Assembly

To install the AFP Assembly (M14202):

1 Attach the AFP bracket to Advantage AFP Mounting Bracket (M15122A001) using three M00414B005 M4 Nuts removed in step 3 on page 10.

Figure 2: Attaching AFP Bracket

(i)   (ii)
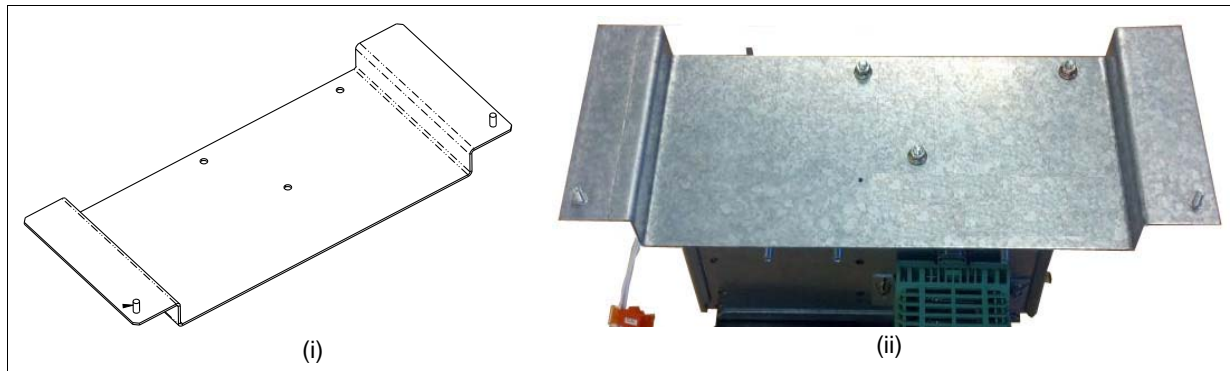
2 Attach this assembly underneath the Advantage printer shelf, opposite of the main power supply, using the two holes vacated by the right side CRIND tray rail. Secure with two M00414B005 M4 Nuts.

Figure 3: Mounting AFP Assembly

Printer Shelf

Adapter Bracket
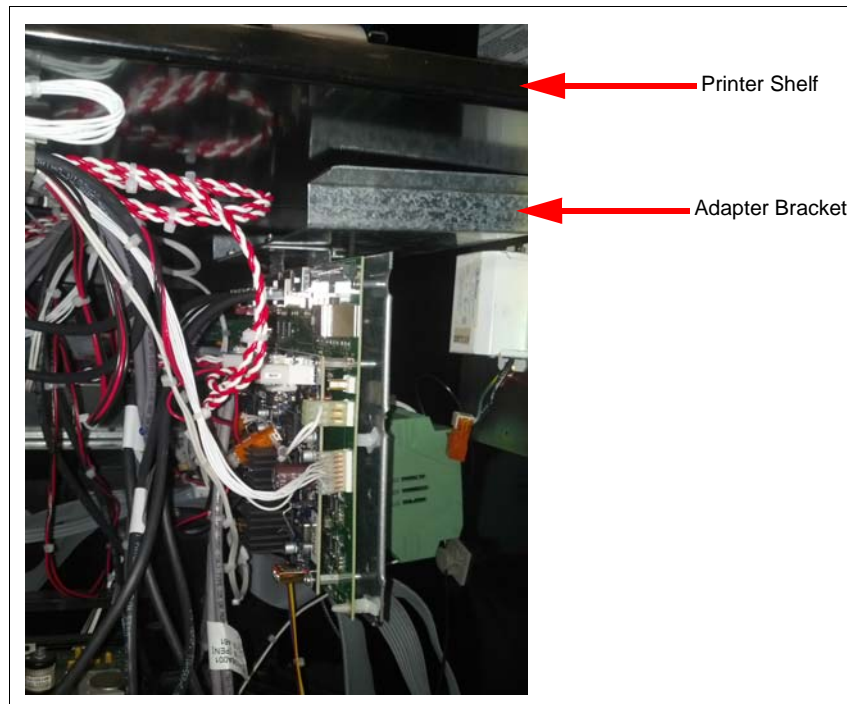
3 **Continue with instructions** to install "DCM2.1 Assembly" on page 16 or "DCM2.2 Assembly" on page 17.

SECTION 4 - INSTALLATION

Connecting Cables for AFP Assembly

For cable block diagram, refer to .

<table>
<tr><td>IMPORTANT INFORMATION

Cable routing is critical. It is very important to route and dress the cables properly. Exercise care in routing the cables, keeping in mind that the door(s) opens and closes for service. The cables must be dressed neatly. Ensure that there is no interference after the cables are connected and routed. Keep the ground cables isolated from the rest of the door cables.</td></tr>
</table>

To make the AFP/DCM2 assembly connections:

Side A

On the side A of the unit, connect the following cables from the door to the AFP/DCM2 assembly:

1. Connect the 24 VDC Power Cable (M14340A002) to J301A on the 24 VDC Power to AFP/Fuse Board Cable (M12777A003) on the AFP assembly.

2. Connect the 24 V printer power cable to one of the headers on the fuse board located on the AFP/DCM2 assembly.

3. Connect the P202 connector on the PIP3 to P302A connector on the AFP with M14339A001 AFP Serial Cable.

4. Connect the Category 5 (CAT5) cable from the UPM to J305A RJ-45 connector on the AFP/DCM2 assembly.

5. Connect the CAT5 cable from UX300 card reader to J305B RJ-45 connector on the AFP/DCM2 assembly.

Side B

On the side B of the unit, connect the following cables from the door to the AFP/DCM2 assembly:

1. Connect the M14340A002 UPM Power Cable to J301B on M12777A003 Cable on the AFP/DCM2 assembly.

2. Connect the 24 V printer power cable to one of the headers on the fuse board located on the AFP/DCM2 assembly.

3. Connect the P202 connector on PIP3 to AFP/DCM2 serial cable to P302B.

4. Connect the CAT5 cable from UPM to J305C RJ-45 connector on the AFP/DCM2 assembly.

SECTION 4 - INSTALLATION

5 Connect the CAT5 cable from UX300 card reader to J302B RJ-45 connector on the AFP/DCM2 assembly.

Figure 4: AFP Connections
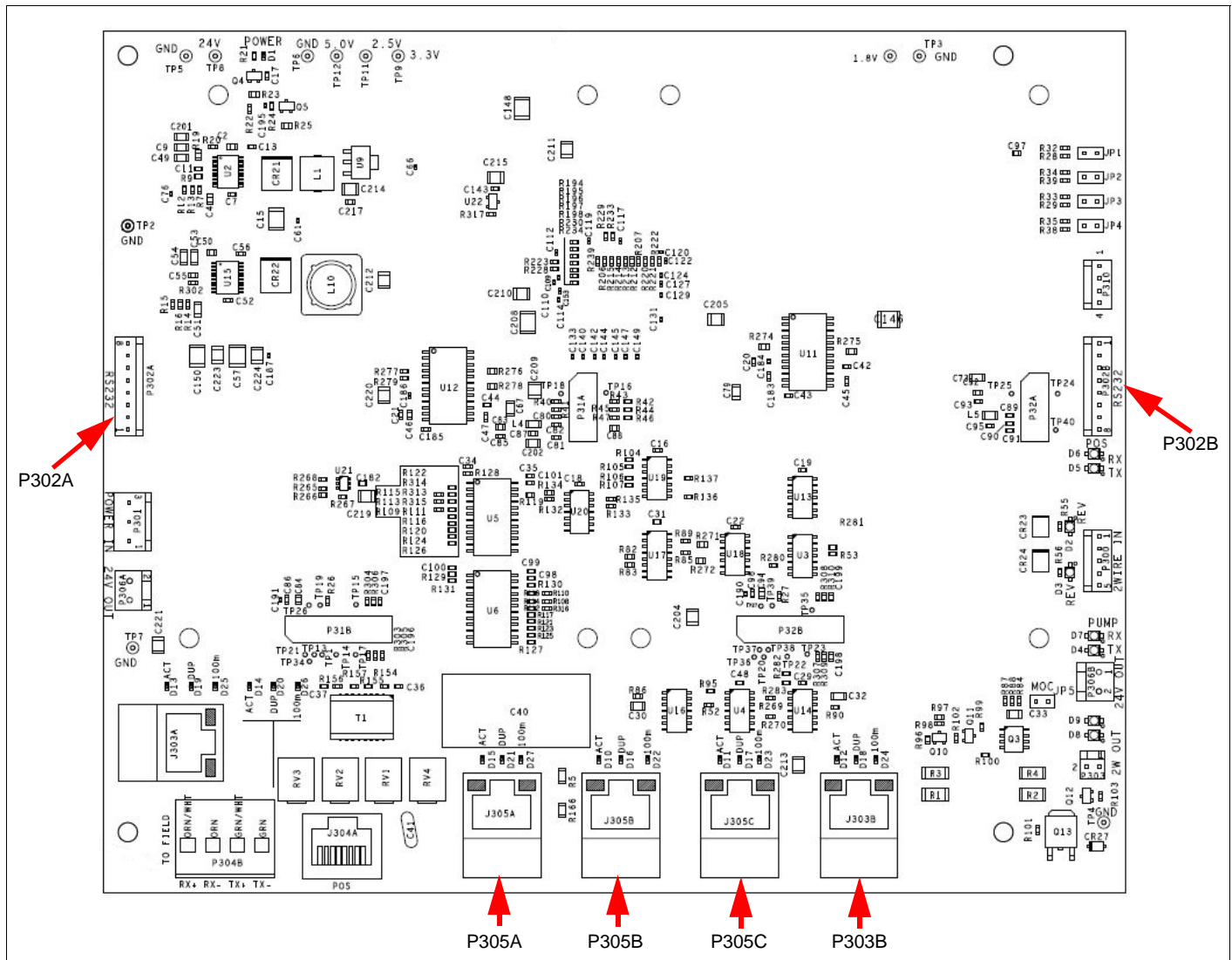
SECTION 4 - INSTALLATION

DCM2 Assembly

The DCM2 Assembly Board (M14576A001) mounts in the same location as the M13124A001 AFP Board, with the same cable connections. The M14576A001 DCM2 Board provides the same functionality as the AFP, along with a high-speed data connection for the Applause Media System, Insite360™, and future EMV applications. Similar to AFP, M14576A001 DCM2 Board can host two GSoM boards for Applause Media System. On the rear side of the M14576A001 DCM2 Board, there is a mounting point for the SSoM for Insite360 Encore.

4

Figure 5: Mounting DCM2 Assembly

If J3 is installed, the high-speed data is over the two-wire and these connectors are disabled.
**With J3 In, the high-speed connection comes over the pump two-wire in case J4 is removed.*
If J4 is also installed [Major Oil Company (MOC)], the pump and CRIND wiring functions are swapped so that the CRIND data wires are connected at the location where the pump data wire was previously connected.

SECTION 4 - INSTALLATION

DCM2.1 Assembly

The DCM2.1 Assembly Board (M15399A001) mounts in the same location as the M13124A001 AFP Board, with the same cable connections. The DCM2.1 Board provides the same functionality as the AFP, along with a high-speed data connection for the Applause Media System, Insite360 Encore, and future EMV applications. Similar to AFP, the M15399A001 DCM2.1 Board can host two GSoM boards for Applause Media System. On the rear side of the M14576A001 DCM2 Board, there is an SSoM for Insite360 Encore.

4

Figure 6: Mounting DCM2.1 Assembly

M15242A001 Cables to the M7 UPM

M02993A005 Two-wire Cables

Power Cable

M15242A001 Cables to the M7 Universal Payment Module (UPM)

Laptop Service Port

Note: P304 is dedicated for external Ethernet connections (FlexPay Connect and Direct Ethernet) to protect against surge suppression.
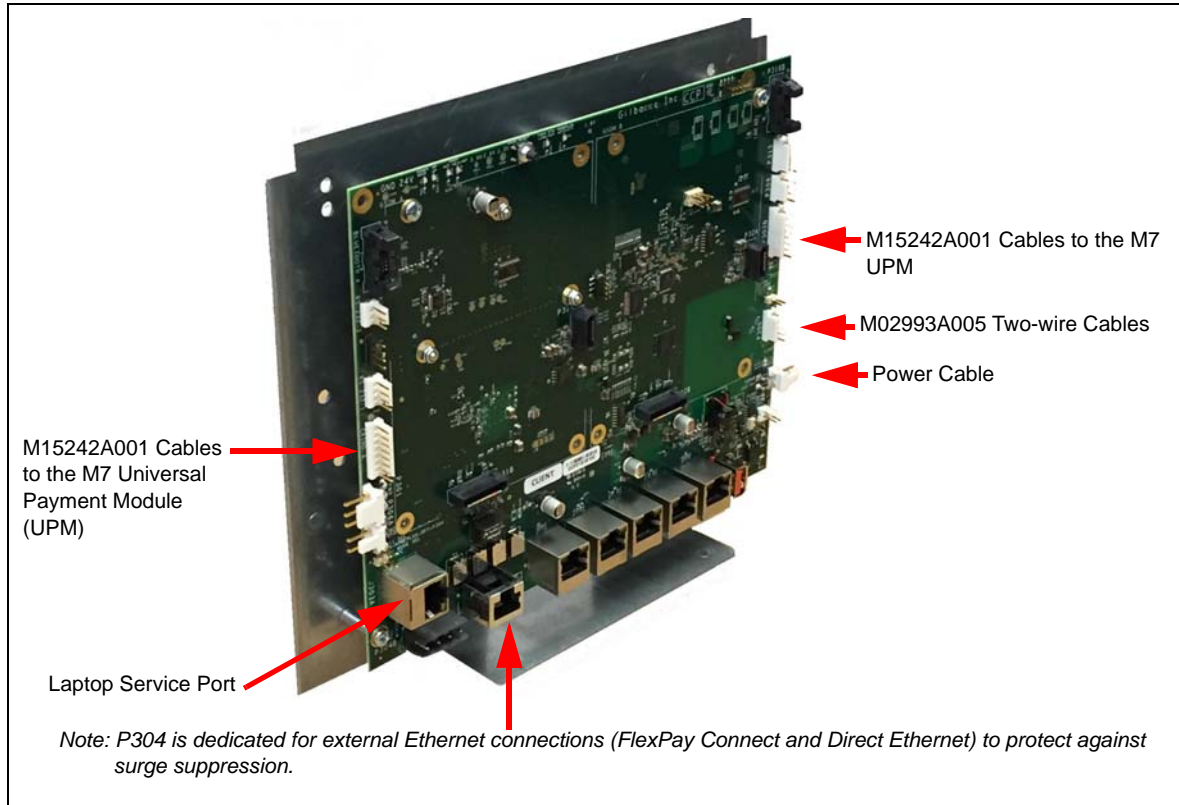
Note: The Advantage Series does not support the ZMODEM option for Insite360 Encore.

SECTION 4 - INSTALLATION

DCM2.2 Assembly

The DCM2.2 Assembly (M15737A001) mounts in the same location as the DCM2.1 Assembly (M15399A001). The M15341A101 CCP Board provides the same functionality as the AFP, along with a high-speed data connection for the Applause Media System (GSoMs), Insite360 Encore, and future EMV applications. DCM2.2 has a dedicated high-speed (P333) connection from the backroom, as well as a new LED that monitors the SSoM router functionality (refer to the "DCM2.2 LED Indicators" table on page 18).

To install DCM2.2:

1 If GSoMs were removed in step 4 on page 10, transfer the GSoMs to the new DCM2.2 assembly. *Note: Ensure that you transfer the GSoMs to the correct side (side A to side A; side B to side B).*

2 Mount the DCM2.2 assembly onto the mounting bracket using the three 7-mm nuts removed in step 3 on page 10.

3 Attach the mounting bracket. For instructions to attach the mounting bracket, refer to "AFP Assembly" on page 12.

4 For making DCM2.2 connections, refer to "Connecting DCM2.2 Cables".

Connecting DCM2.2 Cables

Connect all the applicable cables to the DCM2.2 assembly as shown in Figure 7.

Figure 7: DCM2.2 Connections
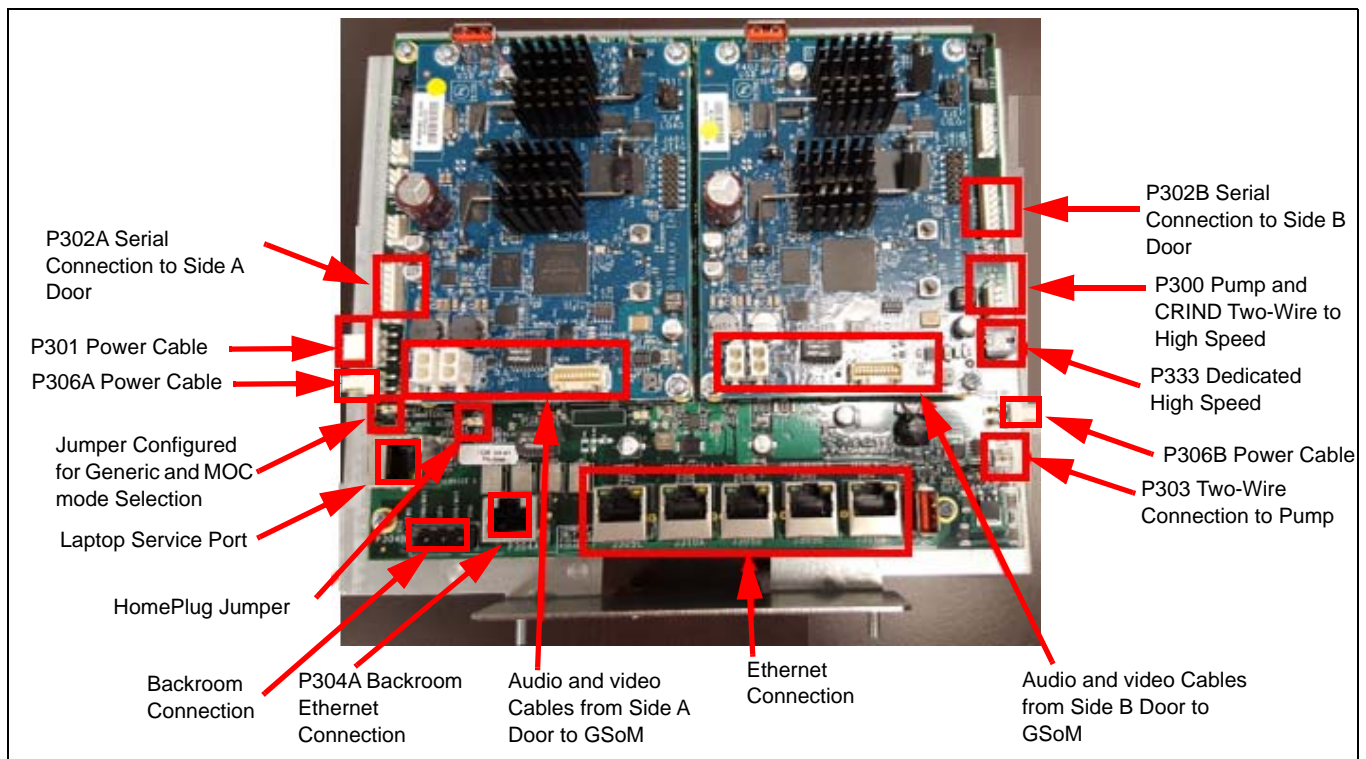
SECTION 4 - INSTALLATION

DCM2.2 Connectors

Connector	Port Number	Function
3-pin MTA .156"	P301	24 VDC power input
2-pin MTA .156"	P306A	24 VDC power output (fused). This is primarily used to power the DCM in Applause Media System
5-pin MTA .100"	P300	Two-wire from D-box (CRIND and Pump-Generic only)
2-pin MTA .100"	P303	Two-wire to PCN
8-pin MTA .100"	P302A	RS-232 pump and CRIND to PIP3A
4-pin	P333	Dedicated High Speed
8-pin MTA .100"	P302B	RS-232 pump and CRIND to PIP3B
RJ-45	P304A/B	Ethernet connection to the backroom. P304B is the optional discreet wire connection
	J305C	Ethernet connection to Side A of the CRIND
	J310A	Ethernet connection to UX300A
	J310B	Ethernet connection to Side B of the CRIND
	J303B	Ethernet connection to UX300B
	J303A	Laptop Service port 1
	J310A	Laptop Service port 2

DCM2.2 LED Indicators

Function	Color	Control
CCP Power_Good LED	Green	Driven when 2.5 V, 3.3 V, and 5 V are present.
HomePlug Power LED	Green	ON: Power Ready Flashing: Loading Firmware OFF: Power not ready
Home Plug Status LED	Green	ON: High Speed Link detected Flashing: TX or RX Activity OFF: High Speed Link not detected
Two-Wire	Orange	Flashing: TX and RX (Two-wire) detected ON: RX is solid and TX is OFF if there is an Open connection. Wire is not connected. OFF: No communication. Both TX and RX are OFF.
SSoM Activity	Green	ON: SSoM is detected Flashing: After SSoM Registered
Router Enable	Green	ON: When the SSoM installed and it has Cloud Connectivity.
P304 ETH Link/Act	Orange	ON: When using CAT5 Configuration OFF: When using high-speed connection

SECTION 4 - INSTALLATION

DCM2.2 Jumpers

The following table lists the status and functions of jumpers:

Connector	ON	OFF	Function
J3	X		High-speed connection active. P304 A/B disabled.
		X	High-speed connection inactive. P304A and P304B connects to CAT5 running through the conduit for high speed connection (if used).
J4	X		Unit is connected to a Passport Point of Sale (POS) MOC
		X	Unit is connected to a third party POS (Generic)
J5	X		VLAN is enabled
		X	VLAN is disabled
J6	B		Install the jumper on the B position, for the 45 mA Current loop

4

SECTION 4 - INSTALLATION

Field Communication Wiring

Depending on the dispenser type and whether or not it has factory-installed conduit, there are different specifications in the current loop wiring for generic or MOC configurations.

Considerations

4

- P300 is the current loop input for both the pump and the CRIND.
- P303 is the current loop output to the pump. It must be used even in the Generic CRIND mode.
- J3 ON enables the high-speed connection. If the high-speed connection is being transmitted on the current loop, it only connects through the red/yellow wires. If it is on, the J304A and J304B are disabled.
- J4 ON configures the board for Passport®, OFF for Generic CRIND mode.

Wiring Requirements

For Passport

- CRIND two-wire must be on the red/yellow wires. This is significantly different than previous CRINDs for ensuring high-speed connection.
- J4 must be ON.
- If high-speed connectivity is used, J3 must be ON.
- The pump two-wire input must be connected to P303.

If you are using two-wire connection, refer to Figure 8 and Figure 9 on page 21.

Figure 8: MOC/Passport Type Configuration Two-Wire
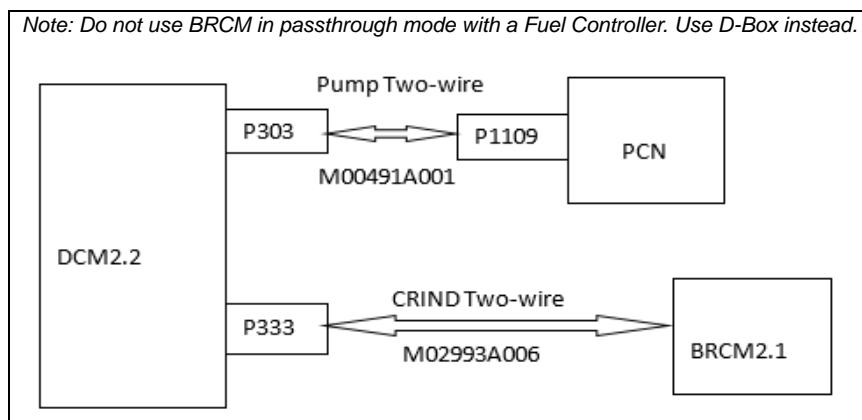
SECTION 4 - INSTALLATION

The following table lists wiring details for MOC mode:

Cable Part	Connector	Color	Description
M02993A006	P333.1	Yellow	High Speed
M02993A006	P333.2	Yellow	High Speed
M02993A006	P333.3	Red	CRIND+
M02993A006	P333.4	Blue	CRIND-

Note: There are no cables connected to P300.

For Generic CRIND

- CRIND two-wire must be connected to the blue/yellow wires. Pump two-wire must be connected to the red/yellow wires.

- J4 must be out.

- If high-speed connectivity is used, J3 must be ON.

- The pump two-wire input must be connected to P303.

Figure 9: Generic Type Configuration Two-Wire
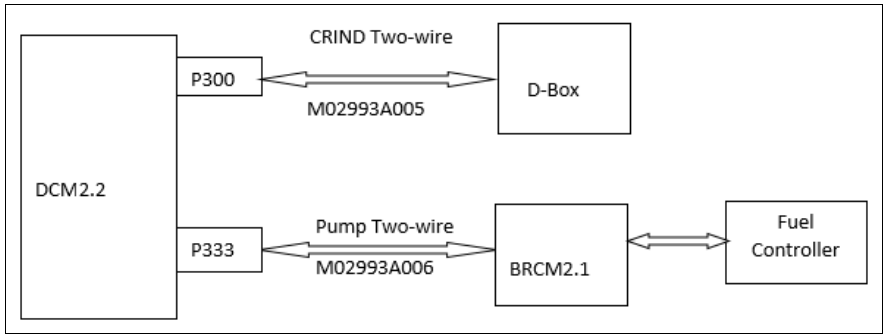
Physically Connecting Communications Wiring

Connecting and Configuring Forecourt

To make forecourt connections and configuration:

1 Locate M2993A005 Cable. Attach the 5-pin connector to P300. This is the CRIND and pump forecourt connection.

2 For Generic CRIND, wire nut the blue/yellow wiring to B9 and B19 and the red/yellow wiring to A9 and A19.

3 For MOC CRIND, wire nut the red/yellow wiring to A9 and A19.

4 For MOC CRIND, insert J4; remove it for Generic CRIND.

SECTION 4 - INSTALLATION

5 If the DCM2 board and high-speed communications over two-wire is being used, insert J3.

Depending on the age of The Advantage Series units, there are different methods of connecting the pump two-wire output from the AFP/DCM2 to the pump two-wire input.

4

SECTION 4 - INSTALLATION

Dedicated High-Speed Field Wiring (Non-POS) Instructions (DCM2.2 Only)

To install the dedicated High Speed connect the Dedicated High Speed Cable (M02993A006) from port P333 on DCM2.2 to the dedicated high-speed connection from the backroom as shown in Figure 10.

For MOC Type Configuration

Figure 10: MOC Type Configuration
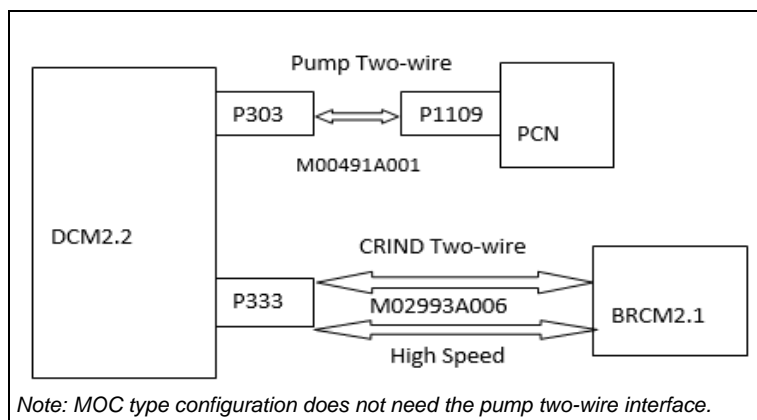
Note: MOC type configuration does not need the pump two-wire interface.

The following table lists wiring details for MOC mode:

Cable Part	Connector	Color	Description
M02993A006	P333.1	Yellow	High Speed
M02993A006	P333.2	Yellow	High Speed
M02993A006	P333.3	Red	CRIND+
M02993A006	P333.4	Blue	CRIND-

SECTION 4 - INSTALLATION

For Generic Type Configuration

If you are using the dedicated high-speed connection, refer to the following:

Connect the M02993A006 Dedicated High-Speed Cable from P333 on DCM2.2 to the dedicated high-speed connection from the backroom as shown in Figure 11.

Figure 11: Generic Type Configuration
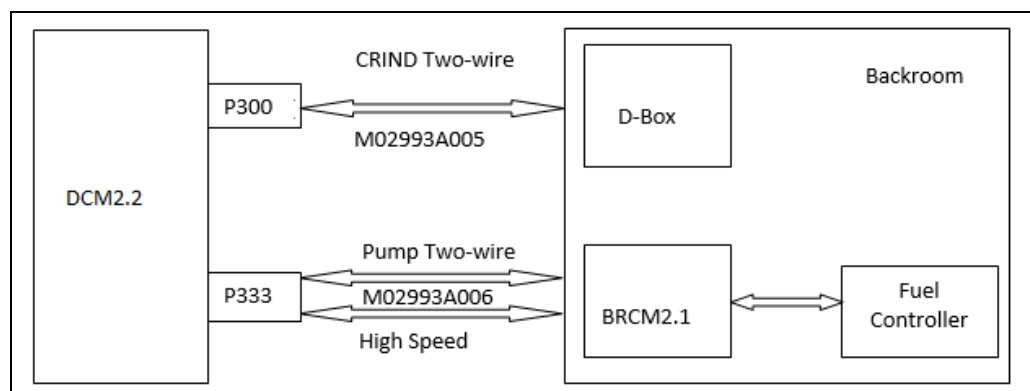
The following table lists wiring details for Generic mode:

Cable Part	Connector	Color	Description
M02993A005	P300.1	Red	CRIND+
M02993A005	P300.3	Yellow	CRIND-
M02993A006	P333.1	Yellow	High Speed
M02993A006	P333.2	Yellow	High Speed
M02993A006	P333.3	Red	Pump+
M02993A006	P333.4	Blue	Pump-

SECTION 4 - INSTALLATION

CRIND to Pump Communication

The Advantage Series Units Built After 1997

For The Advantage Series units built after 1997, connect P403 on the M12852A002 Cable from P303 on the AFP/DCM2 to the P402 connector on the pump board.

The Advantage Series Units with Modular Electronics Built Before 1997

4

1 For The Advantage Series units with modular electronics built before 1997, locate P402 and splice in the M12852A002 Cable. This is because P402 is the most accessible point to intercept the field wiring.

2 Cut the larger connector off of M12852A002 Cable and splice it into field wiring conduit side of P402 (see Figure 12).

Figure 12: Wiring Connections for The Advantage Series Units (Built Before 1997)
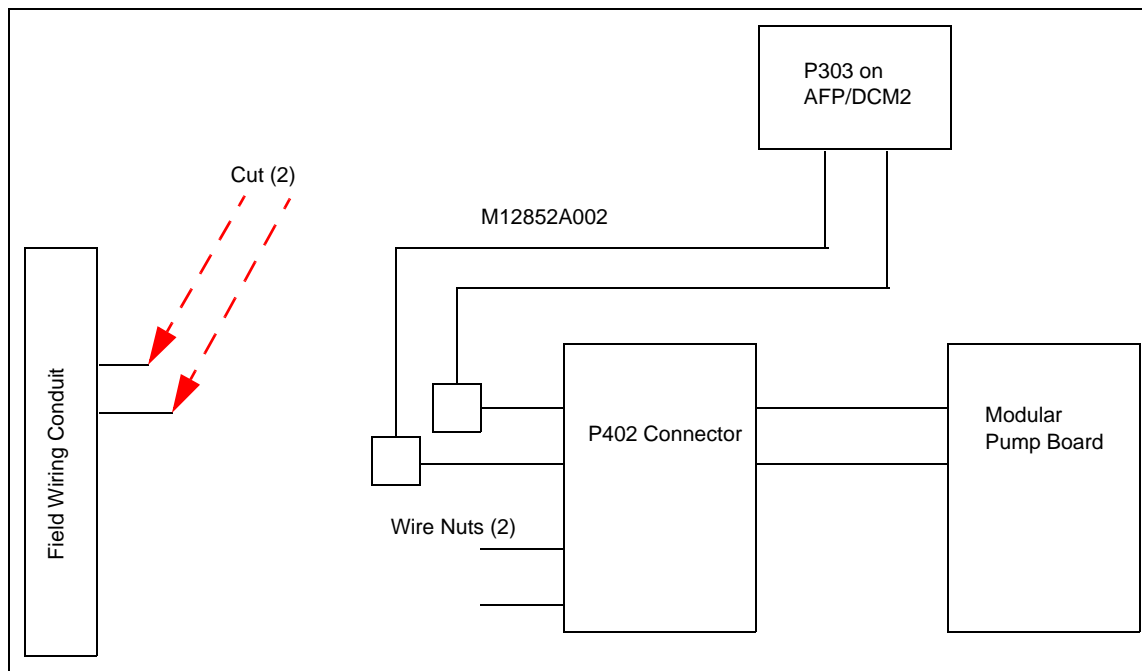
SECTION 4 - INSTALLATION

Figure 13: Wiring Diagram (AFP/DCM2 Board)

AFP/DCM2 Board

GSoM A

GSoM B

J3

J4

P300   Blue/Yellow

Red/Yellow

P303

M02993A005

J304-A and B

Note: For information on wiring requirements, refer to "Wiring Requirements" on page 20.

Wire Nuts (4)

CRIND to Pump Two-wire Input
(Refer to "Completing
Installation" on page 31.)

Generic CRIND Connections

MOC CRIND Connections

A19/B20   A9/B21   B19   B9

B19   B9

For Passport, connect to
CRIND Distribution Box
(D-Box).
For third-party Point of
Sale (POS), connect to
pump two-wire D-Box.

This is not used for
Passport.
For third-party POS,
connect to CRIND two-wire
D-Box.

SECTION 4 - INSTALLATION

Grounding

To make grounding connections to the chassis:

1 Route the two Braid Terminal Ground Cables [M04431A002 (one from the UX300 and one from the UPM)] on each Advantage left-hand side door under the printer tray and secure on the underside with the cable push mount provided.

2 Secure the two ring terminals to the support rail using a M00417B101 M5 Screw as shown in Figure 14.

4

Figure 14: Securing Ring Terminals
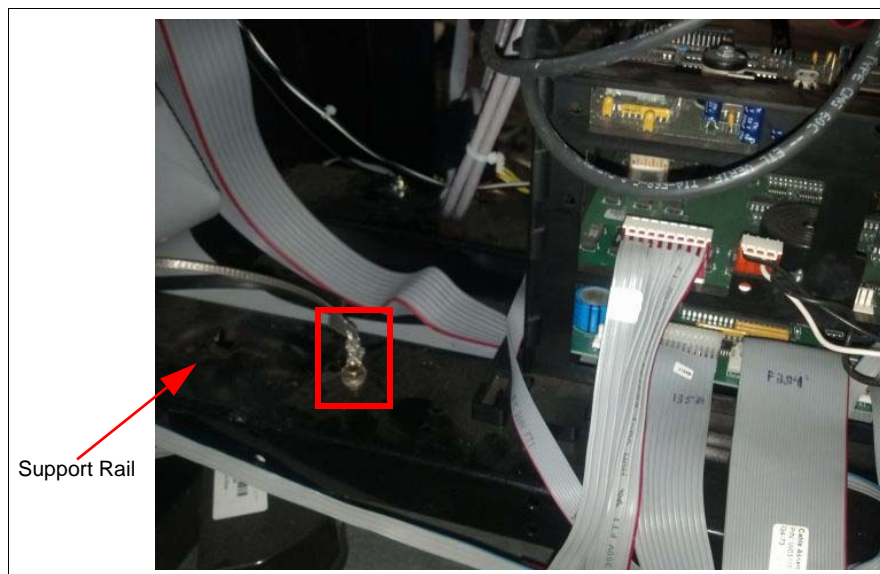
Support Rail

3 Repeat steps 1 through 2 for side B of the unit.

Power Supply Grounding Connection
To make grounding connection for the power supply, connect the M04431A002 Cable between the AFP assembly and the power supply support rail using a M00417B101 Screw.

SECTION 4 - INSTALLATION

AC Power

The Advantage Series Units Built Prior to 1999

To make AC power connections for The Advantage Series units built prior to 1999:

1 Install the AC Power Adapter Cable (R20580-G3) by inserting it between J601 and P601 (see Figure 15).

2 Plug the AC power input from the AFP assembly into P601 of R20580-G3 Cable.

Figure 15: Plugging AC Power Input from AFP to R20580-G3
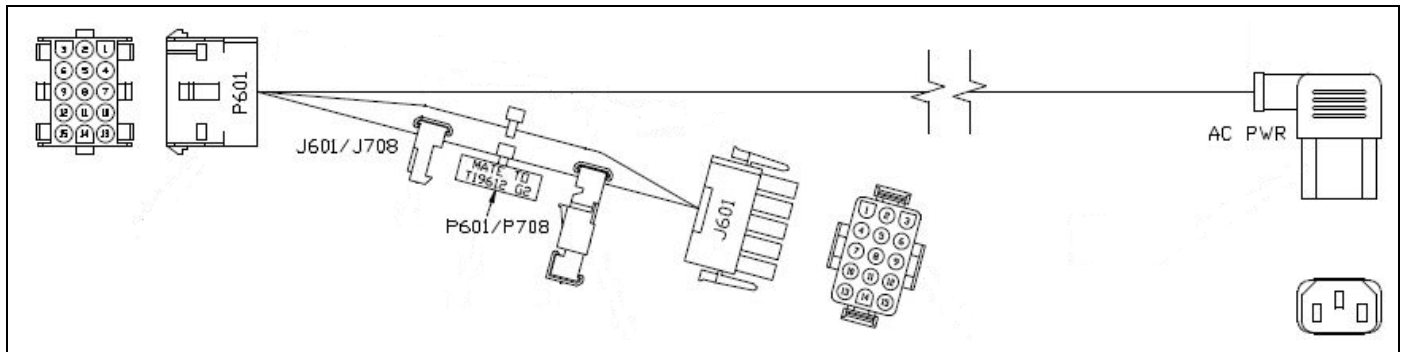
The Advantage Series Units Built After 1999

To make AC power connections for The Advantage Series units built after 1999:

1 Locate the AC Adaptor Cable Assembly (T19612-G2) from the pump power supply located across the bottom of the electronics cavity.

2 Plug the 3-pin power AFP connector into an available connection.

3 Ensure that all AC connections are paired as black-to-black, white-to-white, and green-to-green.

Note: After all the cables have been routed from the doors to the interior of The Advantage Series unit, ensure to route the cables to avoid pinching.

SECTION 4 - INSTALLATION

AC Power Distribution Cable for DCM2.1/DCM2.2

Use the T19612 Cable Assembly AC Adaptor to connect to the other modules in the dispenser that require AC voltage. The T19612 Cable Assembly AC Adaptor connects to the J401 connector attached to the conduit, from where it is connected to the modules in the dispenser wherever AC voltage is required (see Figure 16).

Figure 16: AC Power Distribution Cable Connection

T19612 Cable Assembly AC Adaptor

Figure 17 shows internal connections for T19612-G2 in the dispenser.

Figure 17: T19612-G2 Internal Connections
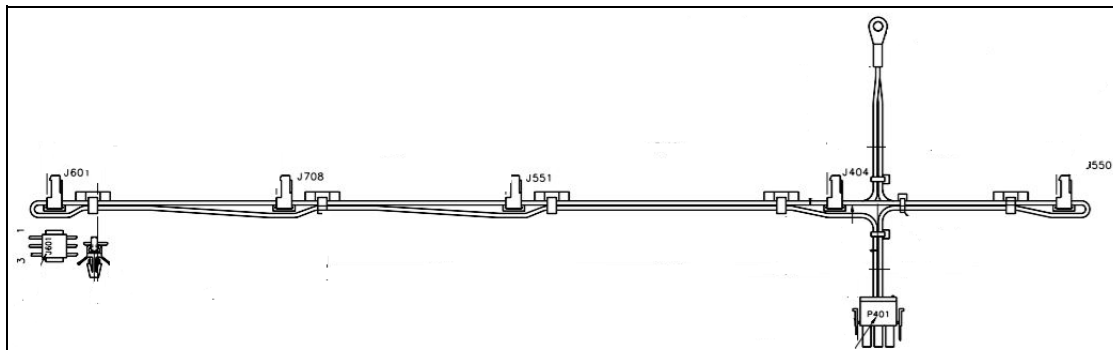
SECTION 4 - INSTALLATION

To route the cables:

1 Secure the door cables underneath the printer paper holder.

Figure 18: Securing Door Cables Underneath Printer Paper Holder
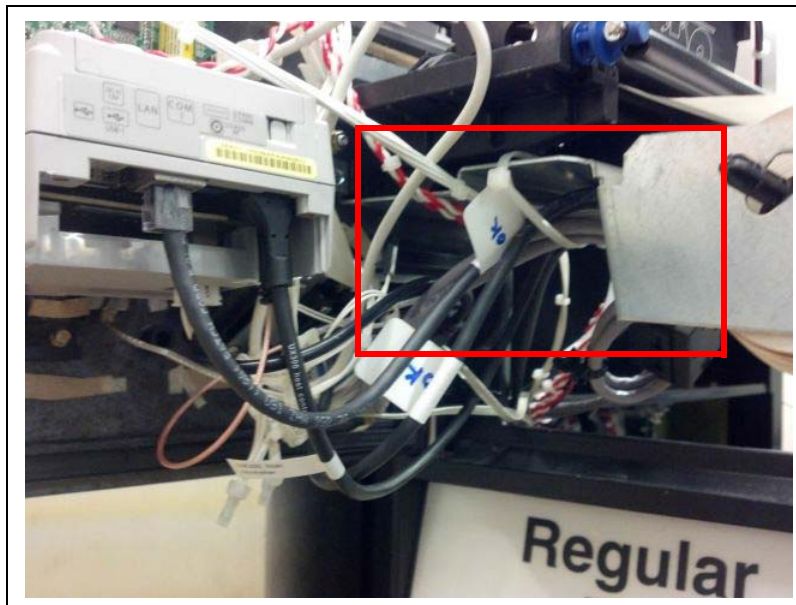
2 Tie-wrap the cables to the printer shelf, near the main door hinge, keeping both doors completely open. This will ensure there is sufficient space between the cables.

Figure 19: Securing Cables to Printer Shelf
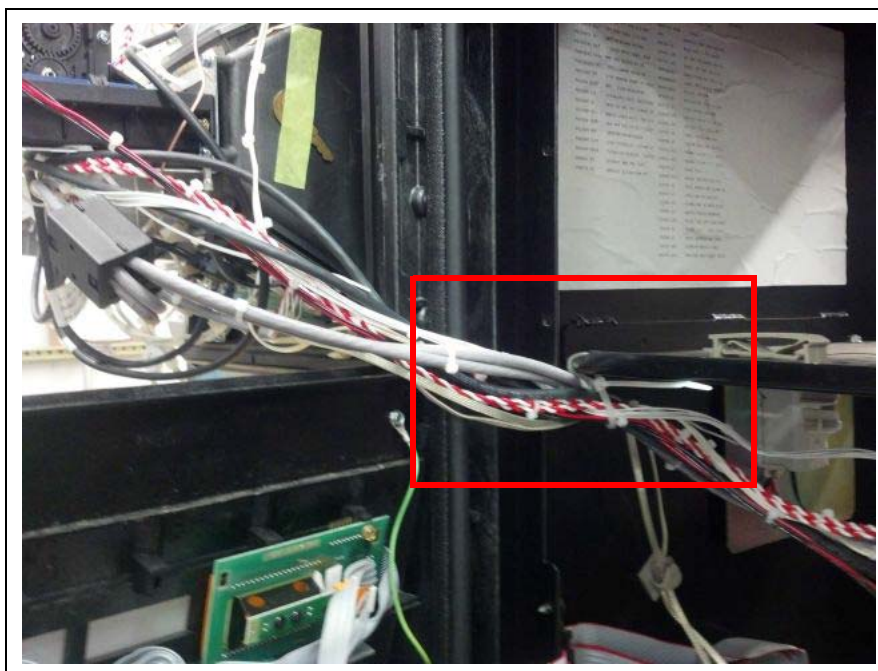
SECTION 4 - INSTALLATION

Completing Installation

To complete the installation, inspect all the connections and cable routing before applying power.

IMPORTANT INFORMATION
Cable routing is critical. It is very important to route and dress the cables properly. Exercise care in routing the cables, keeping in mind that the door(s) opens and closes for service. The cables must be dressed neatly. Ensure that there is no interference after the cables are connected and routed. ESD ground straps can be bundled together, but need to be separated from data and power cables.

IMPORTANT INFORMATION
For start-up information, refer to *MDE-5221 FlexPay IV CRIND Start-up Manual.*

For detailed block diagrams of cable connections, refer to "Block Diagrams" on page 35.

Registering Kits with Gilbarco Warranty

To register the kits with Gilbarco Warranty:

1 After the kits are successfully installed, register kits through web commissioning within 30 days.

2 Provide the correct model and serial numbers.
   Note: Registering the kits ensures that proper warranty is applied.

   The Advantage Retrofit Kit part number is EPK M7 ADV.

SECTION 4 - INSTALLATION

4

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SECTION 5 - REFERENCE INFORMATION

Related Documents

Document No.	Title
MDE-2531	Gilbarco Pump and Dispenser Start-up and Service Manual
MDE-5220	FlexPay IV CRIND Retrofit Kit Installation Instructions for Encore S E-CIM™
MDE-5221	FlexPay IV CRIND Start-up Manual
MDE-5223	FlexPay IV CRIND Service/Troubleshooting Guide
MDE-5227	M7 Maintenance Tool User Guide
MDE-5314	Insite360 Encore Installation, Start-up, and Service Manual
PT-1728	The Advantage Series Pumps and Dispensers Illustrated Parts Manual
PT-1869	Gilbarco Products Recommended Spare Parts for Domestic Products

Abbreviations and Acronyms

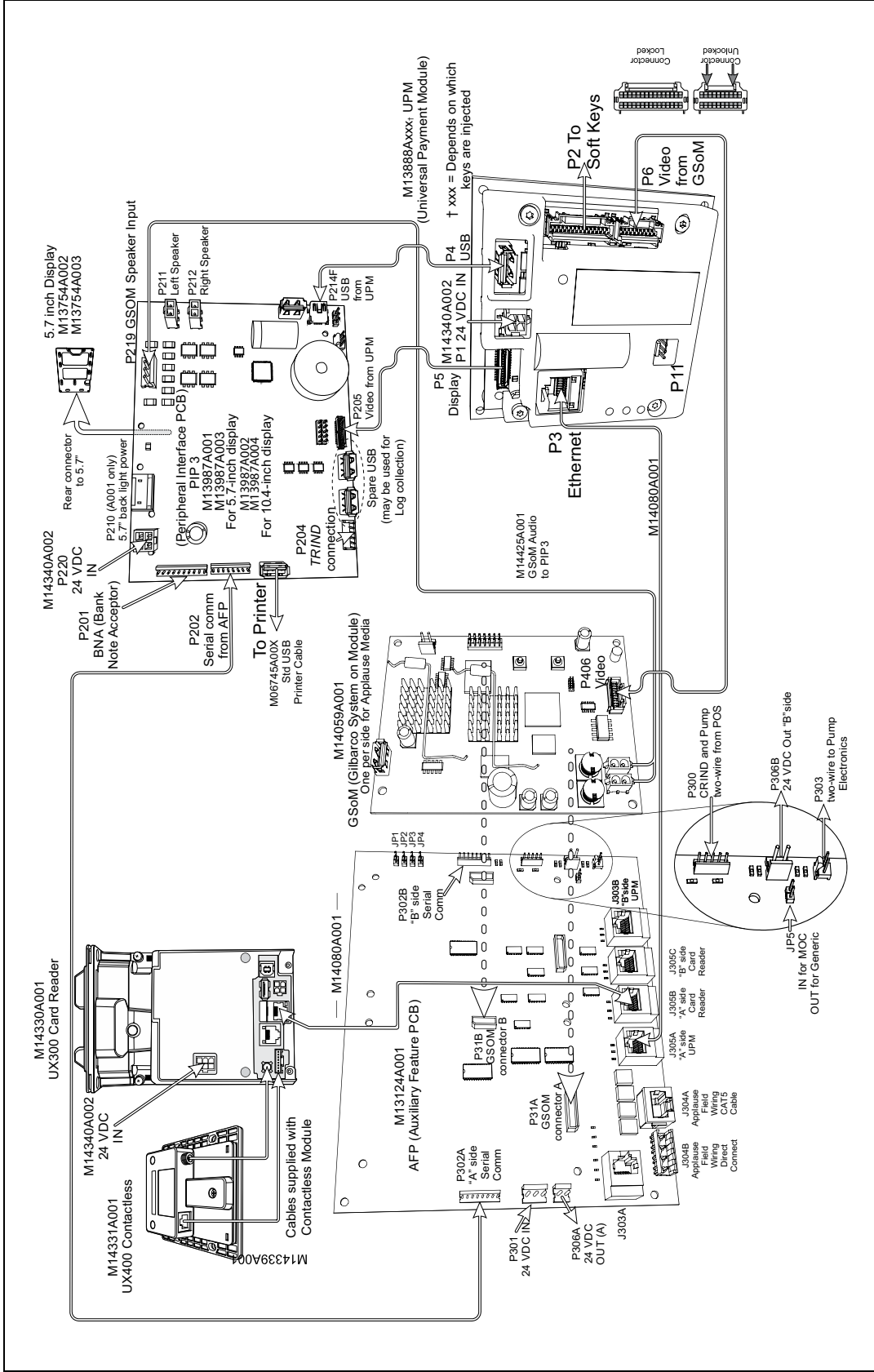| Term	Description
AFP	Auxiliary Feature PCB
ASC	Authorized Service Contractor
BNA	Bank Note Acceptor
BOM	Bill of Material
CAT5	Category 5
CIM	Customer Interface Module
CRIND	Card Reader in Dispenser
CSC	Contactless Smart Card
D-Box	Distribution Box
DCM	Dispenser Communication Module
EMV	Europay®, MasterCard®, and Visa®
ESD	Electrostatic Discharge
GSoM	Gilbarco Systems on Module
JSA	Job Safety Analysis
MOC	Major Oil Company
NGP	Next Generation Payment
OSHA	Occupational Safety and Health Administration
PCB	Printed Circuit Board
PCI	Payment Card Industry
PCI-PED	Payment Card Industry PIN Entry Device
POS	Point of Sale
PIP	Peripheral Interface PCB
SSoM	Secure System on Module
TRIND	Transmitter/Receiver in Dispenser
UPM	Universal Payment Module
USB	Universal Serial Bus
VDC	Voltage Direct Current

SECTION 5 - REFERENCE INFORMATION

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SECTION 6 - APPENDIX

Block Diagrams

Figure 1 shows cable block diagram for FlexPay IV CRIND.
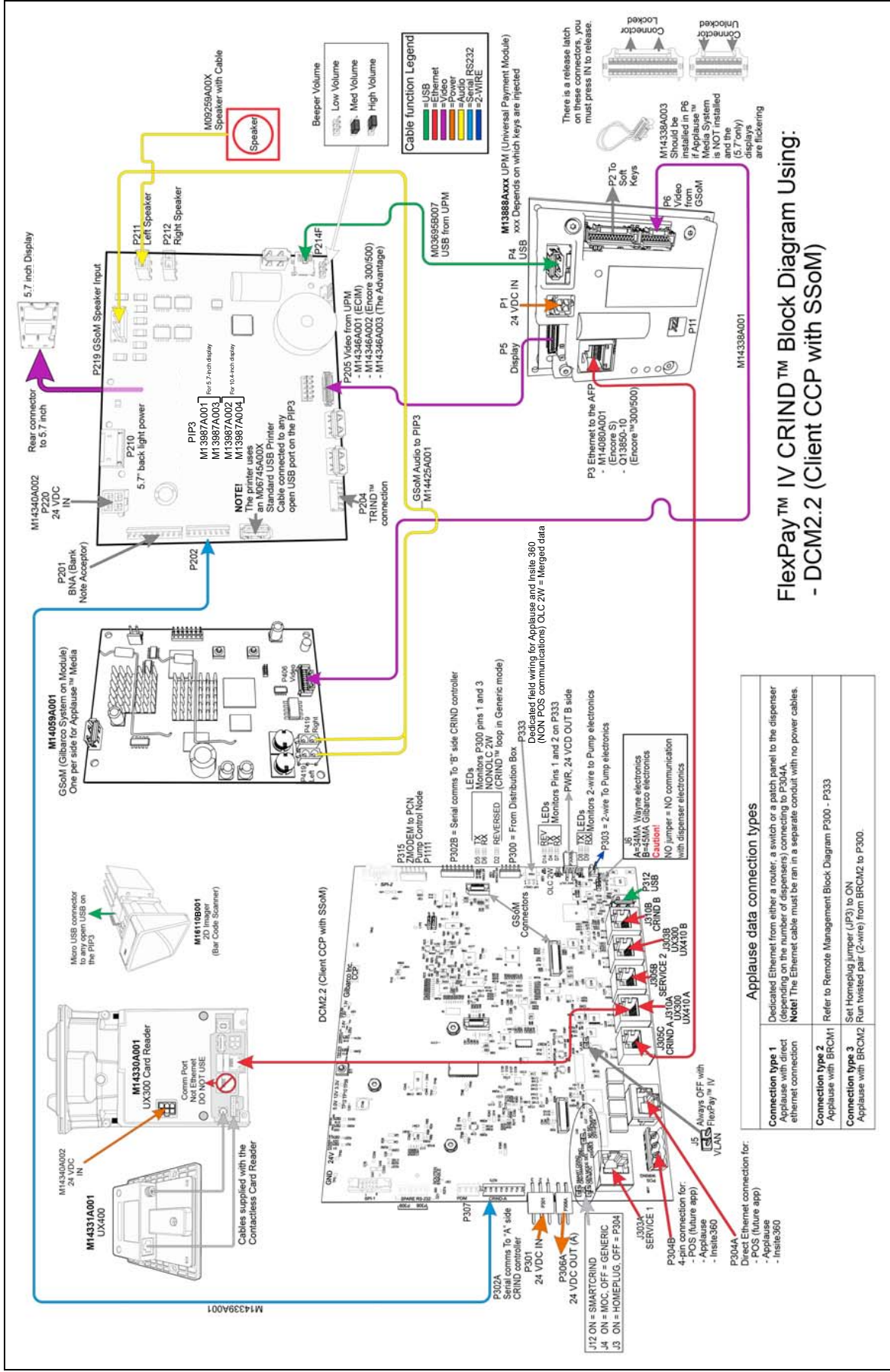
Figure 1: Cable Block Diagram for FlexPay IV CRIND Using AFP

Figure 2: Cable Block Diagram for FlexPay IV CRIND Using DCM2.2

FlexPay™ IV CRIND™ Block Diagram Using:
- DCM2.2 (Client CCP with SSoM)

Cable function Legend
- = USB
- = Ethernet
- = Video
- = Power
- = Audio
- = Serial RS232
- = 2-WIRE

There is a release latch on these connectors, you must press IN to release.

Connector Locked
Connector Unlocked

Beeper Volume
Low Volume
Med Volume
High Volume

M09259A00X Speaker with Cable

5.7 inch Display

Rear connector to 5.7 inch

P211 Left Speaker
P212 Right Speaker

P219 GSoM Speaker Input

P214F

P205 Video from UPM
- M14346A001 (ECIM)
- M14346A002 (Encore 300/500)
- M14346A003 (The Advantage)

M03695B007 USB from UPM

M13888Axxx UPM (Universal Payment Module) xxx Depends on which keys are injected

P2 To Soft Keys

M14338A003 Should be installed in P6 if Applause ™ Media System is NOT installed and the (5.7 only) displays are flickering

P6 Video from GSoM

P4 USB

P1 24 VDC IN

P5 Display

P11

M14338A001

P3 Ethernet to the AFP
- M14080A001
- Q13850-10 (Encore S)
(Encore™300/500)

PIP3
M13987A001
M13987A003
M13987A002
M13987A004
For 5.7-inch display
For 10.4-inch display

NOTE! The printer uses an M06745A00X Standard USB Printer Cable connected to any open USB port on the PIP3

P210 5.7" back light power

M14340A002 P220 24 VDC IN

P201 BNA (Bank Note Acceptor)

P202

P204 TRIND™ connection

GSoM Audio to PIP3 M14425A001

M14059A001 GSoM (Gilbarco System on Module) One per side for Applause™ Media

Micro USB connector to any open USB on the PIP3

M16110B001 2D Imager (Bar Code Scanner)

M14330A001 UX300 Card Reader

Comm Port Not Ethernet DO NOT USE

M14340A002 24 VDC IN

M14331A001 UX400

Cables supplied with the Contactless Card Reader

DCM2.2 (Client CCP with SSoM)

Dedicated field wiring for Applause and Insite 360 (NON POS communications) OLC 2W = Merged data

P333 Dedicated from Distribution Box P300 pins 1 and 2 on P333

P315 2/MODEM to PCN Pump Control Node P1111

P302B = Serial comms To 'B' side CRIND controller

P300 = From Distribution Box

P302B Monitors P300 pins 1 and 3 NONOLC 2W (CRIND™ loop in Generic mode)

LEDs REVERSED

LEDs REV Monitors Pins 1 and 2 on P333

OLC 2W LEDs Monitors 2-wire to Pump electronics

J6 A=34MA Wayne electronics B=45MA Gilbarco electronics Caution!

P303 = 2-wire To Pump electronics PWR, 24 VCD OUT B side

NO jumper = NO communication with dispenser electronics

GSoM Connectors

P312 USB
J310B CRIND B USB
J308B SERVICE 2 UX300 UX410 B
J305B
J310A CRIND A UX300 UX410 A
J305C CRIND A SERVICE 1

J5 Always OFF with FlexPay™ IV VLAN

P302A Serial comms To 'A' side CRIND controller

P301 24 VDC IN

P307

P304B 4-pin connection for:
- POS (future app)
- Applause
- Insite360

P306A 24 VDC OUT (A)

J303A SERVICE 1

P304A Direct Ethernet connection for:
- Applause
- Insite360

J12 ON = SMARTCRIND
J4 ON = MOC, OFF = GENERIC
J3 ON = HOMEPLUG, OFF = P304

M14339A001

Applause data connection types

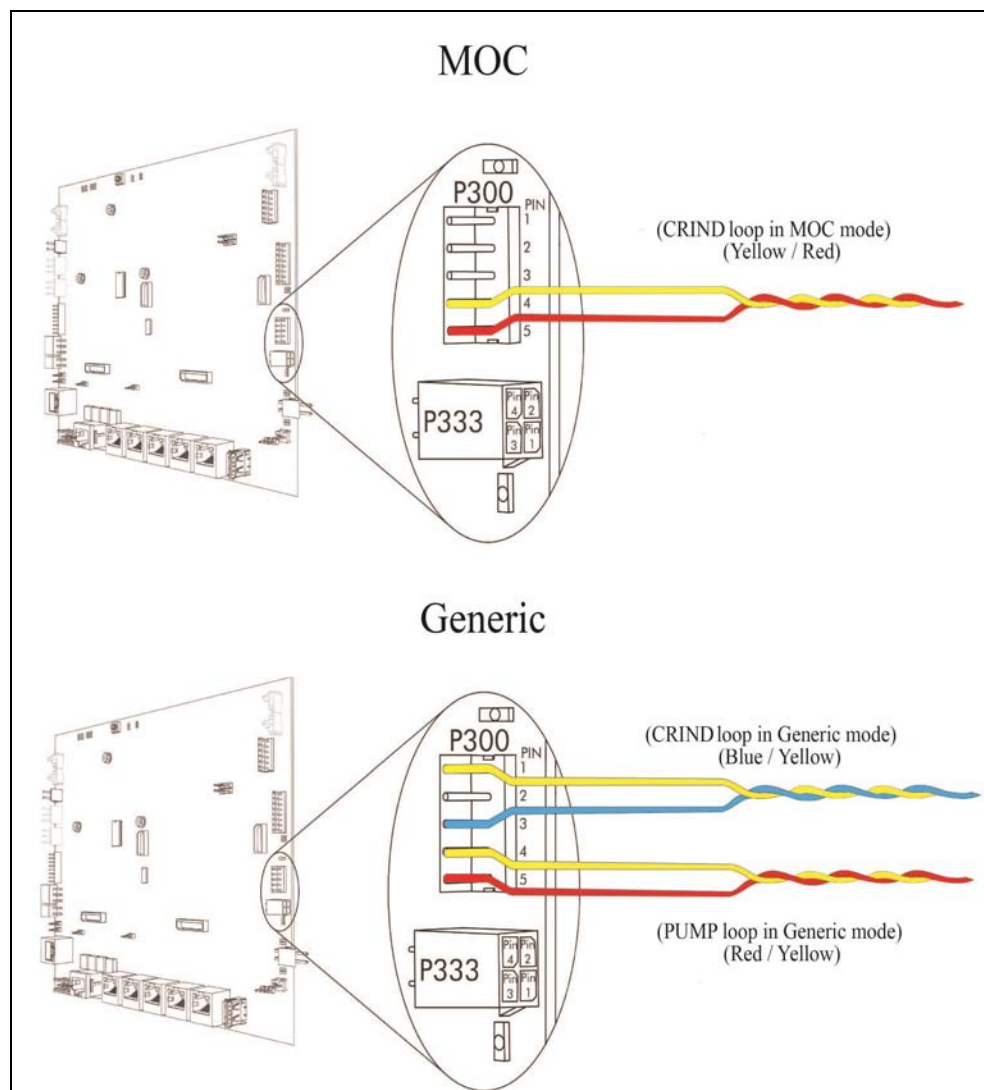|	
Connection type 1 Applause with direct ethernet connection	Dedicated Ethernet from either a router, a switch or a patch panel to the dispenser (depending on the number of dispensers) connecting to P304A. **Note!** The Ethernet cable must be ran in a separate conduit with no power cables.
Connection type 2 Applause with BRCM1	Refer to Remote Management Block Diagram P300 - P333
Connection type 3 Applause with BRCM2	Set Homeplug jumper (JP3) to ON Run twisted pair (2-wire) from BRCM2 to P300.

SECTION 6 - APPENDICES

Non-Dedicated High-Speed Field Wiring

If you are not using the dedicated high-speed connection, refer to the following diagram (see Figure 3).

Figure 3: Block Diagram for DCM2.2 Two-wire Configuration (Non-Dedicated)

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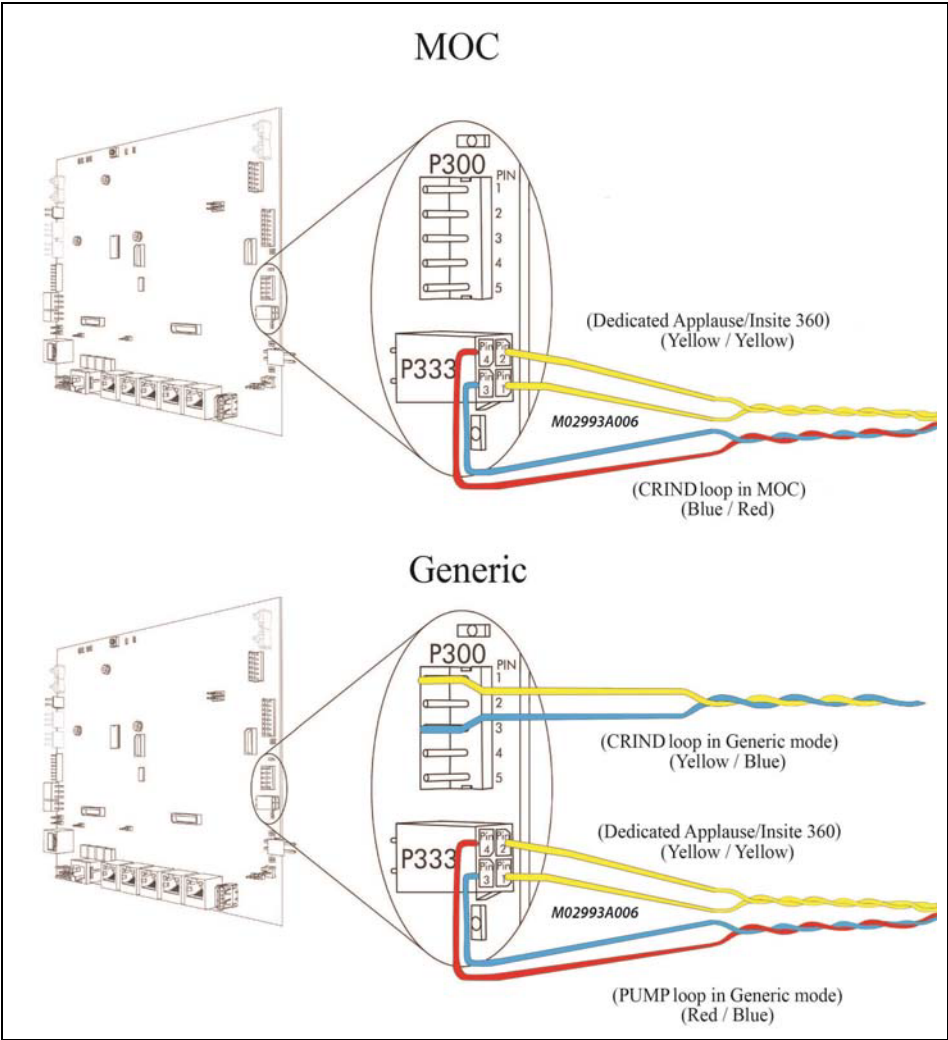*Note: Do not use the BRCM in passthrough mode with a Fuel Controller. Use D-Box instead.*

SECTION 6 - APPENDICES

Dedicated High-Speed Field Wiring (Non-POS) Instructions (DCM2.2 only)

MOC

If you are using the dedicated high-speed connection (MOC configuration), refer to the following:

Figure 4: Block Diagram for DCM2.2 Two-wire Configuration (Dedicated)

The following table lists wiring details for MOC mode:

Cable Part	Connector	Color	Description
M02993A006	P333.1	Yellow	High Speed
M02993A006	P333.2	Yellow	High Speed
M02993A006	P333.3	Red	CRIND+
M02993A006	P333.4	Blue	CRIND-

SECTION 6 - APPENDICES

Generic

If you are using the dedicated high-speed connection (Generic type configuration), refer to the following:

Connect the M02993A006 Dedicated High-Speed Cable (M02993A006) from P333 on DCM2.2 to the dedicated high-speed connection from the back room as shown in Figure 4 on page 38.

The following table lists wiring details for Generic mode:

Cable Part	Connector	Color	Description
M02993A005	P300.1	Red	CRIND+
M02993A005	P300.3	Yellow	CRIND-
M02993A006	P333.1	Yellow	High Speed
M02993A006	P333.2	Yellow	High Speed
M02993A006	P333.3	Red	Pump+
M02993A006	P333.4	Blue	Pump-

6