Introduction

Purpose

This manual provides field technicians with clear troubleshooting steps for EMV® hardware to minimize unnecessary replacement of hardware, thus saving the personnel time and effort spent on service calls, while decreasing unnecessary hardware returns.

Intended Users

This manual is intended for Gilbarco®-certified technicians.

Table of Contents

How to Use This Manual

This manual has been divided into following troubleshooting sections: TCR™, Hybrid Card Reader (HCR) 2, EMV keypad, Secured PIN Pad for Outdoor Terminal (SPOT) display, host issues, other devices, and Point of Sale (POS). Within each section, there is a list of symptoms that can be observed on the component itself or related to it.

When using the manual in the field, identify the most likely source of the problem, then search in the related section for the symptom that was observed. For each symptom there is a list of steps that should be followed to fix the underlying issue.

Required Tools

Following tools are required for troubleshooting EMV:

- Card Reader Cleaning Card (Q11482)
- CRIND® Diagnostic Card (Q12534-170)
- HCR 2 Dismount Sensor Clamp (M14601B001)

Related Documents

Document Number	Title	GOLD℠ Library
MDE-4770	TCR Installation Manual	Encore® and Eclipse®
MDE-4771	Encore S Enhanced FlexPay EMV CRIND Start-up/Service Manual	Encore and Eclipse
MDE-4785	FlexPay Outdoor Payment Terminal - Canada Installation and Service Manual	FlexPay EMV
MDE-5030	Hybrid Card Reader 2 (HCR 2) Kit (M12492KXXX) Installation Instructions	• Advantage® and Legacy® • Encore and Eclipse • FlexPay EMV
MDE-5062	FlexPay Maintenance Tool for FlexPay/SPOT CRIND System	• CRIND and TRIND® • FlexPay EMV
MDE-5082	Dispenser Gasket and Weather Shield Kits (M12962K0XX) Installation Instructions for Encore® S/E-CIM™/700	• Encore and Eclipse • Kit Selection
MDE-5112	EMV SPOT Canada TCR Activation Switch Kit (M13706KXXX) Installation Instructions	• Advantage and Legacy • Encore and Eclipse • FlexPay Connect • Encore and Eclipse Installers
TRP-2309	EMV Card Reader Activation Switch Screw Change	N/A
TRP-2452	Troubleshooting and Laptop Configuration Tips When Doing RKL (Canada Only)	N/A
TRP-2567	SPOT Software Version Update (Canada Only)	N/A
TRP-2677	ASC APP - SPOT Activation Tool User Instructions	N/A

Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
CAT-5	Category-5
CPU	Central Processing Unit
CRIND	Card Reader in Dispenser
D-Box	Distribution Box
E-CIM	Enhanced Customer Interface Module
EDH	Enhanced Dispenser Hub
EMV	Europay®, MasterCard®, and Visa®
FP	Fueling Position
GCM	Global Contactless Module
GOLD	Gilbarco Online Documentation
HCR	Hybrid Card Reader
HIP	Hub Interface PCB
LED	Light Emitting Diode
MOC	Major Oil Company
PCA	Printed Circuit Assembly
PCB	Printed Circuit Board
PCN	Pump Control Node
PES	Personal Earth Station
POS	Point of Sale
PPN	Product Part Number
RKL	Remote Key Loading
SIP	Serial Interface PCB
SPOT	Secured PIN Pad for Outdoor Terminal
TAC	Technical Assistance Center
TCR	Tribrid Card Reader
TRIND	Transmitter/Receiver in Dispenser

Troubleshooting TCR

Following table lists the symptoms, possible causes, and steps to resolve the issues related to TCR:

Symptom	Possible Causes	Steps to Resolve
Red-X on card reader ~OR~ Green screen ["Card Reader Dismounted" (appears in red)]	Activation switch	1 Verify operation using the new brackets and spacers per *MDE-5112 EMV SPOT Canada TCR Activation Switch Kit (M13706KXXX) Installation Instructions*. Ensure that the screw is tightened to snug and then another half turn. 2 Go to the setup screen and ensure to select Panasonic as the contact card reader. 3 Use Authorized Service Contractor (ASC) App tool or call Gilbarco for activation.
	Cabling	4 Check the cable between the TCR and Secured PIN Pad for Outdoor Terminal (SPOT) display.
	Connections	5 Verify on the Serial Interface PCB (SIP) board if the "ECR" Light Emitting Diodes (LEDs) (refer to "SIP Board" on page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure that the cable connections on the ECR, SPOT, and SIP board are seated. 6 Swap the cable with the opposite side. If problem follows the TCR, replace it.
	TCR	7 Swap the card reader with the opposite side. If problem follows the TCR, replace it.
	SPOT display	8 Swap the SPOT display with the opposite side. If problem follows the SPOT display, replace it.
Bulloch POS shows "card reader failure" during card transaction, but card transaction completes successfully	Bulloch POS known issue	1 Power down the dispenser and then disconnect the CRIND two-wire cable from the Hub Interface PCB (HIP) Assembly to install the card reader. 2 Once you have installed the card reader and power up to activate the new card reader wait until the SPOT prompts "Please Pay Inside" then reconnect the CRIND two-wire cable.
Double swipe	Dirty card reader head	1 Clean the card reader head with the Card Reader Cleaning Card (Q11482).
	Older software (V20.1.04 or earlier)	2 Verify the latest approved version with the customer. 3 Install the latest version, if approved.
No clamping on chip card [single Fueling Position (FP)]	Debris in card reader or faulty solenoid	1 Insert the chip card to verify that it works properly. 2 If it does not, clean the card reader head with the card reader cleaning card and try again. 3 Verify on the SIP board if the "ECR" LEDs (refer to "SIP Board" on page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure that the cable connections on the ECR, SPOT, and SIP board are seated. 4 If problem persists, swap with the opposite side. If problem persists, replace the card reader.
Clamping at power up	Connections	1 Verify on the SIP board if the "ECR" LEDs (see page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure the cable connections on the ECR, SPOT, and SIP board are seated.
	Cable	2 Swap the cable with the opposite side. If problem persists, replace.
	Card reader	3 Swap the card reader with the opposite side. If problem persists, replace.
	SIP board	4 Swap the SIP board with the opposite side. If problem persists, replace.
Card does not insert completely	Debris in card reader or faulty solenoid	1 Insert the chip card to verify that it works properly. 2 If it does not, clean the card reader head with the card reader cleaning card and try again. If problem persists, replace the card reader.
No response to card swipe	Dirty card reader head	1 Clean the card reader head with the card reader cleaning card. 2 Go to **CRIND Diagnostics** > **Card Reader Test Menu** and test for card reads.
	Connections	3 Verify on the SIP board if the "ECR" LEDs (see page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure the cable connections on the ECR, SPOT, and SIP board are seated.
	Card reader	4 Swap with the opposite side. If problem persists, replace the card reader.
No response to card insertion	Connections	1 Verify on the SIP board if the "ECR" LEDs (see page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure the cable connections on the ECR, SPOT, and SIP board are seated.
	Software frozen up	2 Power cycle the SPOT system and retry swipe.
	Card reader switch	3 Swap with the opposite side. If problem persists, replace the card reader.
Red-X with "Bad Certificate"	Card reader software not compatible with SPOT display	Replace the card reader.
Red-X with "Tamper"	Card reader	Replace the card reader.
"Please remove card" on display, but no card inserted in the reader	Debris, snow, or ice build up	1 Clean the card reader head with the card reader cleaning card and try again. 2 Move the card reader to a warm place to melt ice/snow. 3 If problem persists, replace the card reader.

Troubleshooting HCR 2

Following table lists the symptoms, possible causes, and steps to resolve the issues related to HCR 2:

Symptom	Possible Causes	Steps to Resolve
Red-X on card reader	Activation switch	1 If the LED is solid amber, go to step 3 (refer to "HCR 2 Card Reader LED Matrix" on page 16). ~OR~ If the LED is solid red, go to step 4 (refer to "HCR 2 Card Reader LED Matrix" on page 16). ~OR~ If the LED is off, go to step 5 (refer to "HCR 2 Card Reader LED Matrix" on page 16). ~OR~ If the LED is solid green, HCR 2 is good. 2 Go to the setup screen and ensure to select Panasonic when using bundle version 5x.x.xx and HCR2 when using bundle version 6x.x.xx.
	LED amber-solid	3 Use ASC App tool or call Gilbarco for activation.
	LED red-solid	4 If the LED stays solid red, swap the card reader with the opposite side. Use ASC App tool or call Gilbarco for activation. If problem persists, replace.
	LED completely off	5 Verify the power LED is on (green) on the SIP board. 6 If the LED is out, verify power supply is sending voltage to the SIP board. If so, replace the SIP board. 7 If the LED is on, swap the HCR 2 cable between the SIP board and HCR 2 with the opposite side. 8 If problem follows the cable, replace the cable. If problem persists on the same side, replace the card reader.
	LED does not show green after power up	9 Swap the card reader with the opposite side. Use ASC App tool or call Gilbarco for activation. If problem persists, replace the card reader.
	Cabling	10 Swap the card reader cable assembly with the opposite side. If problem persists, replace.
Bulloch POS shows "card reader failure" during card transaction, but card transaction completes successfully	Bulloch POS known issue	1 Power down the dispenser and then disconnect the CRIND two-wire cable from the HIP Assembly to install the card reader. 2 Once you have installed the card reader and power up to activate the new card reader wait until the SPOT prompts "Please Pay Inside" then reconnect the CRIND two-wire cable.
Card Reader Dismounted/Does not activate	Activation switch	1 Ensure that the dismount switches are working properly. 2 Power down the dispenser. 3 Remove the card reader and install the Dismount Sensor Clamp (M14601B001). 4 Apply power to the dispenser. 5 Activate the card reader. **If the card reader activates:** a Check the card reader gasket. Ensure that the gasket is squarely mounted against the card reader bezel when tightened. b Check for tears. Replace the gasket, if needed. c Check the bosses. Verify none are cracked or broken, if they are, use the Boss Repair Kit (M07450K999). d Ensure that the cable is good. Swap with opposite side of the dispenser. e Check the programming. Ensure that the card reader programming is set correctly. **If the card reader still does not activate:** a Ensure that the dismount sensor clamp is correctly installed. b Replace the HCR 2 card reader and then activate.
	Cabling	6 Swap the card reader cable assembly with the opposite side. If problem persists, replace.
No clamping on chip card	Debris in card reader or faulty solenoid	1 Insert the chip card to verify that it works properly. 2 If it does not, clean the card reader head with the card reader cleaning card and try again. 3 Verify on the SIP board if the "ECR" LEDs (see page 22) are flashing (both TX and RX LEDs must be flashing, see the SIP LEDs tab). Ensure the cable connections on the ECR, SPOT, and SIP board are seated. 4 If problem persists, swap with the opposite side. If problem persists, replace the card reader.
Clamping at power up	Card reader	1 Swap with the opposite side. If problem persists, replace the card reader.
Card does not insert completely	Debris in card reader or faulty solenoid	1 Insert the chip card to verify that it works properly. 2 If it does not, clean the card reader head with the card reader cleaning card and try again. If problem persists, replace the card reader.

Symptom	Possible Causes	Steps to Resolve
No response to card swipe	Dirty card reader head	1 Clean the card reader head with the card reader cleaning card.
	Card reader	2 Swap with the opposite side. 3 If problem persists, replace the card reader.
No response to card insertion	Software frozen up	1 Power cycle the SPOT system and retry swipe.
	Card reader switch	2 Swap with the opposite side. 3 If problem persists, replace the card reader.
Red-X with “Bad Certificate”	Card reader software not compatible with SPOT display	Replace the card reader.
Red-X with “Tamper”	Card reader	Replace the card reader.
“Please remove card” on display, but no card in reader.	Debris, snow, or ice build up	1 Clean the card reader head with the card reader cleaning card and try again. 2 Move the card reader to a warm place to melt ice/snow. 3 If problem persists, replace the card reader.

Troubleshooting EMV Keypad

Following table lists the symptoms, possible causes, and steps to resolve the issues related to EMV keypad:

Symptom	Possible Causes	Steps to Resolve
Red-X over keypad	Keypad dismount switch mounting	1 For Encore 300/500 dispensers, ensure the shims are in place under the support bracket fins. Refer to “Appendix: Troubleshooting EMV” on page 14. 2 Ensure that the gray gasket is used. For more information, refer to *MDE-5082 Dispenser Gasket Kits (M12962K0XX) Installation Instructions*. 3 If previous steps fail to activate, swap the cable from the SPOT to keypad with the opposite side. 4 For The Advantage Series or Encore 500 S E-CIM dispensers, ensure the metal bracket is fastened tight. 5 Use ASC App tool or call Gilbarco for activation.
	Cabling	6 Ensure that no moisture from the SPOT, card reader, or door is dripping on the keypad. 7 If previous steps fail to activate, swap the keypad with the opposite side. 8 If problem persists, replace the keypad.
Green screen on SPOT display showing “Keypad Disabled” (appears in red)	Keypad dismount switch mounting	1 For Encore 300/500 dispensers, ensure the shims are in place under the support bracket fins. Refer to“Appendix: Troubleshooting EMV” on page 14. 2 Ensure that the gray gasket is used. For more information, refer to *MDE-5082 Dispenser Gasket Kits (M12962K0XX) Installation Instructions*. 3 Call Gilbarco to reactivate. 4 For The Advantage Series or Encore 500 S E-CIM dispensers, ensure the metal bracket is fastened tight. Use ASC App tool or call Gilbarco for activation.
	Cabling	5 If previous steps fail to activate, swap the cable from the SPOT to keypad with the opposite side.
	Water intrusion	6 If there are signs of water intrusions, check the gaskets on the SPOT, card reader, and keypad. Replace gaskets as needed. For more information, refer to *MDE-5082 Dispenser Gasket Kits (M12962K0XX) Installation Instructions*. 7 If previous steps fail to activate, swap the keypad with the opposite side. If problem persists, replace the keypad.
Card Reader Dismounted/Won't activate	Activation switch	1 Verify the dismount switches are working properly. 2 Power down the dispenser. 3 Remove the card reader and install the dismount sensor clamp. 4 Apply power to the dispenser. 5 Try to activate the card reader. If the card reader activates: a Check the card reader gasket. Make sure the grey gasket is being used. Look for tears. Replace the gasket. b Check the bosses. Verify none are cracked or broken. If so, use boss repair kit (M07450K999). c Verify cable is good. Swap with opposite side of the dispenser. d Check the programming. Make sure card reader programming is set correctly. If the card reader still won't activate: a Make sure dismount sensor clamp is installed correctly. b Replace the HCR2 card reader and activate.

Symptom	Possible Causes	Steps to Resolve
Rows or single buttons on keypad not working	Ice or snow build up on keypad	1 Remove the keypad and move to a warm place. Reinstall and activate.
	Water intrusion	2 If there are signs of water intrusions, check the gaskets on the SPOT, card reader, and keypad. Replace gaskets as needed. For more information, refer to *MDE-5082 Dispenser Gasket Kits (M12962K0XX) Installation Instructions*. 3 Remove the keypad and move to a warm place. Reinstall and activate.
	Sand or grit stuck on buttons	4 Clean with isopropyl alcohol. 5 Use the CRIND Diagnostic Card (Q12534-170) to test buttons. 6 If previous steps fail to fix, swap the keypad with the opposite side. If problem persists, replace.
	Silicone used to seal keypad *Note: Never use silicone on or around an EMV keypad.*	7 Remove the keypad and clean off silicone.
	Mounting bracket	8 For Encore 300/500 dispensers, ensure the shims are in place under the support bracket fins (see Figure 10 on page 17). 9 For The Advantage Series or Encore 500 S E-CIM dispensers, ensure the metal bracket is fastened tight.
SPOT does not register keypad entries and no beep when keys depressed	SPOT display locked up	1 Reboot the SPOT display. 2 Reboot the entire dispenser and retry.
	SPOT and keypad out of sync after software download	3 If problem persists, reload resources (NOT on IP CRIND). 4 If using Ethernet to the CRIND, push resources from the POS. 5 If problem persists, swap the keypad with the opposite side. If problem persists, replace the keypad.
SPOT registers keypad entries, but no beep	Annunciator on SIP board	1 Look for a broken/failed annunciator on the SIP board. 2 Swap the SIP board with the opposite site; if problem persists, replace the SIP board.
	Cabling	3 Swap the cable between the keypad and SIP board on the opposite side. If problem persists, replace the cable.
Keypad beeps but SPOT does not register keypad entries	Software issue	Reload customer appropriate software.
“Bad Certificate”/ SPOT does not respond to keypad	The keypad was sent out with a “Test” key in it instead of a “Production” key	Replace the keypad.

Troubleshooting SPOT Display

Following table lists the symptoms, possible causes, and steps to resolve the issues related to SPOT display:

Symptom	Possible Causes	Steps to Resolve
Debit not working but credit works Single FP for Passport® sites: “Debit Not Available” on SPOT screen	Missing key Key exchange issue --- Host Locale, network, or registration issue --- SPOT issue	1 Attempt debit and watch the SPOT display sequence. If receipts are offered, select “Print receipt” and collect them. Is the POS Bulloch? • **YES** - go to step 2. • **NO** - go to step 7. 2 For magstripe debit: If the transaction gets canceled at any point before PIN entry screen, proceed to step 4. On the POS screen, you may see “Debit Unavailable” as the status of this particular CRIND. 3 For EMV debit: If the transaction gets canceled before the account selection (in the normal debit transaction flow, you would be prompted to select “Chequing/Savings”), proceed to step 4. If the transaction gets canceled after the account selection (“Chequing/Savings”), verify that the SPOT screen behavior, upon PIN entry, looks like: “PIN VERIFIED” > “PROCESSING TRANSACTION PLEASE WAIT…” (about 2 seconds) > “One moment please…” (1 second or so) > “TRANSACTION CANCELLED Please remove card Unable to process transaction”. On the POS screen, you may see “Debit Unavailable” as the status of this particular CRIND. 4 Approach the attendant and request him/her to exit POS from the POS menu, and enter it again. 5 Attempt debit. 6 If debit is canceled, but the cancellation happens under conditions different from those described in step 2 or 3, proceed to step 8. If the debit is still cancelled under the conditions described in step 2 or 3, collect the SPOT logs, take pictures of all the receipts you have collected during this troubleshooting, and contact Technical Assistance Center (TAC). 7 Reboot the dispenser. 8 Attempt debit again after synchronizing again with the POS. 9 Verify key exchange: a Passport POS - check the network journal for key exchange. b Third-party POS - check with host to see if they can see the key exchange. 10 Was the key exchanged? • **YES** - go to step 14. • **NO** or **Not Possible** - go to step 11. 11 Call the POS Help Desk and see if the Product Part Number (PPN) is registered. 12 If the SPOT was Remote Key Loaded (RKL), wait for 20 minutes and try again. 13 Is PPN Registered? • **YES** - go to step 15. • **NO** - go to step 14. 14 Provide the PPN to the POS Help Desk and have the SPOT registered, attempt debit. 15 Swap the CRIND IDs (two-wire)/IP address. Have the POS Help Desk swap the PPNs to match the locale. 16 Attempt debit: if same side fails = SPOT, if failure occurs on the other side, most likely POS or HOST, or bank issue. Notify TAC so they can contact the customer with SR# and customer to resolve issue for third-party POS. 17 If IOL, notify the customer’s Support Desk (TSU) to fix the problem with bank.

Symptom	Possible Causes	Steps to Resolve
Debit not working but credit works All FP	Enhanced Dispenser Hub (EDH) or third-party POS - missing keys GSM issue EMV tables - session key reload Host network issue	1 Attempt debit transaction. 2 If site is in backwards compatible mode, then check GSM status lights. If site is in full EMV mode, check for key exchange, if Passport. If third-party POS, check with the host before rebooting the POS. 3 Reboot the EDH. 4 Reboot the third-party POS. 5 Attempt debit transaction Y/N? 6 For Bulloch, on main keyboard, select **ALT**+**T** and download all CRINDs. 7 Force download of the EMV table/force key exchange - through the POS. 8 Attempt debit transaction. If debit fails on full EMV, contact the POS Help Desk. 9 Call the oil company Help Desk to investigate HOST issue. 10 Is network up Y/N?
Red-X on keypad - Alarm LED lit on back side of SPOT display	Water intrusion Tamper	Check alarm LED. If red, replace the keypad.
Red-X on keypad - No alarm LED lit on SPOT display	Lost activation Dismount error	1 Power down the unit. 2 Inspect cables for proper connection, wear, corrosion, etc.
	Gasket issues leads to dismount	3 Inspect and replace with new gasket, if needed. 4 Verify the mounting bracket is secured and shimmed (Encore 300/500 ONLY). 5 Power up. 6 Does the green reactivation screen display? • **YES** = Use ASC App tool or call Gilbarco for activation. • **NO** = red-X again, swap the keypad with the opposite side. 7 If red-X stays on same side - call TAC. 8 If red-X moves - replace the keypad.
Red screen system error secure module not responding	SPOT unit	1 Check alarm LED. If red, replace the SPOT.
	Drop in voltage (brown out) Cables - shorting out	2 Check the cable connected between J302 and J302 A/B for visible damage, or pinching. Replace if damaged. 3 Reboot the SPOT.
	SIP board	4 Replace the SIP board (check for a specific part number and replace it).
	SPOT unit	5 Swap the SPOT with the opposite side. If problem persists, replace.
Green screen SPOT display Display error (in red)	SPOT not activated or lost activation Display mounting switch disengaged	1 Use ASC App tool or call Gilbarco for activation. 2 Reboot. 3 If error displays again, swap with the opposite side. If problem persists, replace.
“Missing graphics” (normal fonts) Some graphics missing during user input	Resources issue Incomplete download	1 Reboot the SPOT. 2 Download graphics from the POS. 3 For two-wire POS - reload resources and software. 4 For TCP/IP POS - reload software ONLY.
SPOT softkey(s) not working	Resources issue	1 Test the SPOT softkeys via CRIND diagnostic card. 2 Reload resources. 3 Swap the SPOT display with the opposite side. If the SPOT softkeys fail CRIND diagnostic card, replace it.
Unit does NOT accept RKL	Previously injected	1 Does the SPOT have a sticker indicating factory injection? • **YES** - Replace SPOT. • **NO** - Attempt to RKL. If unsuccessful, replace.
SPOT display stuck with “One Moment Please” or “ONE MOMENT PLEASE”	Bulloch POS known issue. Not ready for transaction after restart	1 Raise and lower pump handle to return the CRIND to idle state. 2 Reboot the SPOT. Wait at least for 15 minutes. 3 If unsuccessful, reboot the POS.
After upgrading the software on the SPOT display, the SPOT display still shows the old version	Internal processes within the CRIND do not finish	1 Do a CRIND coldstart/purge.
Rainbow screen	• Voltage below 4.5 VDC • Water intrusion	1 Power cycle the unit. 2 Verify water damage. If water damage, replace. 3 If no water damage, swap with the other side. If problem persists, replace.

Symptom	Possible Causes	Steps to Resolve
Small fonts	Resource issue	1 Reboot. *Notes: 1) Symptom may disappear.* *2) Even if problem disappears, go to step 2.* 2 For two-wire POS - reload software and resources. 3 For TCP/IP POS - reload only software and have attendant push graphics to the SPOT.
SPOT slow responding to input or posting screens	File system fragmented	1 Purge the CRIND using the CRIND diagnostic card. 2 Reload existing software version.
SPOT screen frozen - Central Processing Unit (CPU) LED on	High CPU usage	1 Verify "CPU Activity LED" (see page 20) is flashing. 2 Purge CRIND using the CRIND diagnostic card.
SPOT screen frozen - CPU LED off	Internal issue to SPOT CPU activity LED off	1 CPU Activity LED is off (see page 20). 2 Record the screen that is stuck (take a picture). 3 Reboot the SPOT. 4 Contact Gilbarco engineering.
Slow transaction processing	PAM™ 5000	1 Verify PAM 5000 has the DSB492 board for CRIND loop with XXXX (4 X's) on it. 2 Install the correct board, if needed.
"Bad CERT" on SPOT display	Invalid certificate loaded in SPOT	Replace the SPOT.
SPOT stops at step 2 and displays KO	Fragmented file system	Replace the SPOT.
Message "Tampered" after software upgrade	Power loss during the software upgrade process	Replace the SPOT.
Black screen on SPOT display	CRIND frozen on black screen OR instead of PIN prompt get black screen (for example, may occur after a start up, or after a software upgrade)	1 Reboot. *Notes: 1) Symptom may disappear.* *2) Even if problem disappears, go to step 2.* 2 For two-wire POS - reload software and resources. 3 For TCP/IP POS - reload only software and have attendant push graphics to the SPOT.
SPOT reboots itself continuously	Power peripheral issue	1 Disconnect printers and card readers. 2 See if reboot stops. 3 Reconnect the printer and card reader one at a time to see which one is causing the reboot. 4 Replace the defective part.
Cannot read diagnostic ONLY	TCP/IP customers ONLY	1 Remove the Category-5 (CAT-5) cable from the SPOT. 2 Reboot the SPOT. 3 Enter the SPOT service menu. 4 For bundle version 5x.x.xx, change the printer port from USB to COM3 (switch back to USB when done). For bundle version 6x.x.xx change the printer port from USB to COM3 and mode select from SPOT to CRIND BIOS (switch back to USB and SPOT when done). 5 Insert the CAT-5 cable into the SPOT.
Red-X card reader	Caused by SPOT	1 Swap the SPOT with the opposite side; if problem persists, replace the SPOT.
Blue screen on SPOT system off-line	TCP/IP customers ONLY connection issue	1 Check the IP and subnet addresses of SPOT, fix if needed. 2 Ensure that DHCP is disabled. 3 Check connectivity from the SPOT to POS. Check the "Ethernet® Activity" LED (see Figure 12 on page 19) on the SPOT display. If it is blinking, activity is up. 4 Ping from the technician's laptop to SPOT. 5 Ping from the POS PC to SPOT.
Blue screen on SPOT system offline	Two-wire customers ONLY	1 Go to the SPOT service menu. 2 For bundle version 5x.x.xx, verify the printer port is set to COM3. For bundle version 6x.x.xx, verify the printer port is set to COM3 and mode select to CRIND BIOS.
Blue screen on SPOT system online	TCP/IP customers ONLY	1 The POS is stuck and did not update screen. 2 Reboot the POS.

Troubleshooting Host

Following table lists the symptoms, possible causes, and steps to resolve the issues related to host:

Symptom	Possible Causes	Steps to Resolve
Cannot perform debit transaction at entire site	Host issue	Contact the POS Help Desk to verify status of satellite/Personal Earth Station (PES).
Transactions failed by host	Host issue	1 Verify IP addresses/terminal ID and poll codes of the host. 2 Reboot the EDH if Passport, POS if third-party.
Transactions cancelled by host	Host issue	1 Reboot the EDH if Passport, POS if third-party. 2 Verify if debit, credit, or contactless transaction is being cancelled. 3 Call the host for further investigation.

Troubleshooting Other Devices

Following table lists the symptoms, possible causes, and steps to resolve the issues related to others devices:

Symptom	Possible Causes	Steps to Resolve
"Enter preset amount" showing on SPOT without any customer at pump	Auxiliary keypad	1 Replace the customer option keypad on the pump.
"INIT" on one dispenser and "downloading" all other dispensers displayed on Bulloch POS	Bulloch software versions 58 and above	1 Verify "INIT" on the POS is or has been present for more than three minutes. *Note: Ensure it is stuck in "INIT" since "INIT" is a naturally occurring state of the system. Reboot the Bulloch POS, if third-party.* 2 Reboot the CRIND that is in the "INIT" condition via a power cycle. *Note: The system should boot normally, the POS will download to the CRIND.*
SPOT stuck on "Starting Application" Major Oil Company (MOC) mode	CRIND not communicating internally with pump	1 Verify that the dispenser is set to two-wire mode.
	Pump node programming	2 Verify that the pump ID is set to 7-11. 3 Verify LED status as shown in "Appendix: Troubleshooting EMV" on page 14. 4 Reboot the EDH if Passport.
	Pump node	5 Verify wiring/connections in the dispenser. 6 Swap cables, if problem persists, replace the cable. 7 Swap the pump node, if problem persists, replace.

Symptom	Possible Causes	Steps to Resolve
CRIND display stuck at “Starting Application” when using MOC mode. POS shows “Busy” or “Offline: No Totals Received”. *Note: “Starting Application” may only show on a single side.*	CRIND system is attempting to gather information from the Pump Control Node (PCN).	*Note: Prior to proceeding, verify that there are no pending/unfinished transactions on the POS.* 1 If D9 (RX) on the PCN is solid: a Test for a physical break in the two-wire loop between the CRIND and PCN. b If the communication loop tests OK, then the issue is likely a component in the communication loop between the CRIND and the PCN. 2 If D9 (RX) is blinking, but D10 (TX) is off: a Is the PCN in standalone? - If the PCN is in standalone, the PCN will not respond to the CRIND. b Are the IDs programmed into the PCN 7/11? - In an MOC CRIND environment, the IDs must always be 7/11. c Are there errors showing on the door nodes or PPUs? - Some PCN errors may not allow the PCN to complete the startup sequence and must be remedied before the unit communicates with the CRIND. d Is CC 90 set to the correct unit type? - If the settings in the POS and PCN do not match, there may be a grade conflict. e Have CC 47 options been changed? - Check on a communicating unit to confirm proper settings. 3 If you have checked the above (steps 1 and 2) and the issue persists: a Place the unit in standalone. b Initialize a test transaction and allow the unit to reset to all zeroes, but **do not dispense**. c Terminate the test. d Repeat on the opposite side. e Remove the unit from standalone. f Warmstart the unit. 4 If you have checked the above (steps 1, 2, and 3) and the issue persists, there may be a problem with a component in the CRIND (example: HIP Printed Circuit Assembly (PCA), PCN or related cabling. Isolate components using known working components to determine which part needs to be serviced/replaced.
When car wash is purchased at CRIND, display shows “Printer out of order” and then receipt prints a couple of minutes later	Old Distribution Box (D-Box) board unable to handle baud rate (19200)	Replace the D-Box board for the CRIND loop (board only).
Ghost sale with no customer at dispenser	A contactless [Global Contactless Module (GCM)] error is reported to the POS with no customer present. An error receipt prints at the POS with no customer present at the FP. After this, the CRIND condition returns back to a normal operating state.	1 Tie the ground cables high and far away from the GCM. 2 Remove the ground cable from the left side of the keypad and place it on the right side. 3 Swap both GCMs with two other GCMs in other dispensers. Ensure to separate the removed GCMs when installing in different dispensers. For example, if dispenser one with FP1/FP2 has ghost issues, swap FP1 GCM with FP3 and FP2 GCM with FP5. 4 Bring all four FPs back up to standard operation. 5 Observe for proper operation before leaving the site (perform a contactless transaction on all four FPs involved). 6 If swapping GCMs to another fueling position does not work, replace the GCMs. If that does not work, replace them again 7 Instruct the site manager to communicate any future ghost sales and record the FP involved. 8 Note the position of the GCMs in the work order to maintain on file.
CRIND receipts for transactions, including car wash sales do not print, but other receipts and system health report print successfully	Bulloch POS known issue	Shutdown (not reset) POS from main menu and restart the Bulloch POS. *Note: Ensure complete shutdown.*

Troubleshooting POS

Following table lists the symptoms, possible causes, and steps to resolve the issues related to POS:

Symptom	Possible Causes	Steps to Resolve
Bulloch transaction cancels after PIN entered	POS/host/key exchange	Force key download from the POS ([ALT+T] to choose CRIND number on Bulloch).
“One moment please” with graphic on SPOT display	Looking for next command from POS	Wait until message times out and then reboot the Bulloch black box.
“Please pay inside” on SPOT display at Bulloch or other third-party site (one dispenser at site)	Loss of communication with POS	1 Check LED status on the HIP board (refer to “Appendix: Troubleshooting EMV” on page 14). 2 Verify two-wire connectivity with the D-Box/PAM 5000. 3 Verify the CRIND address. 4 Reboot PAM 5000 and Bulloch.
“Please pay inside” on SPOT display at Bulloch or other third-party site (all dispensers at site)	Loss of communication with POS	1 Verify two-wire connection on the pump. 2 Check LED status on the black box (refer to “Appendix: Troubleshooting EMV” on page 14). 3 Check for power and LED status on PAM 5000 (refer to “Appendix: Troubleshooting EMV” on page 14).
System error on Passport	EDH issue	Reboot the EDH.
No card pay now	Host, EDH, or CRIND disable issue	1 Check the CRIND status on Passport through system maintenance bar. 2 Check the key exchange.
Graphics constantly downloading	SPOT software	Verify proper SPOT software revision for the customer.
Reprint button on customer option keypad not working (Costco only)	Possibly missing option keypad software patch for Costco	Get software patch for Costco.

Appendix: Troubleshooting EMV

TCR Card Reader

EMV Card Reader (TCR) Activation Switch Kits

Following tables list the different EMV Card Reader (TCR) Activation Switch Kits:

EMV Card Reader (TCR) Activation Switch Kit (M13706K001) with M07450 Door for Encore E-CIM

Item	Description	Part Number	Quantity
1	Spacer Rectangular TCR Switch	M13695B001	1
2	Screw, Self-tapping Thread Forming Hexagonal Washer Head	Q11677-28	1
3	Mounting Bracket TCR Switch	M13648B001	1

EMV Card Reader (TCR) Activation Switch Kit (M13706K002) with M09253 Door for The Advantage Series

Item	Description	Part Number	Quantity
1	Spacer Rectangular TCR Switch	M13695B001	1
2	Screw, Self-tapping Thread Forming Hexagonal Washer Head	Q11677-28	1
3	Advantage Mounting, Bracket TCR Switch	M13697B001	1

EMV Card Reader (TCR) Activation Switch Kit (M13706K003) with M01208 Door for Encore 300/500

Item	Description	Part Number	Quantity
1	Spacer Rectangular TCR Switch	M13695B001	1
2	Screw, Self-tapping Thread Forming Hexagonal Washer Head	Q11677-33	1
3	Encore TCR Switch Mounting Block	M13650B001	1
4	Encore TCR Switch Plunger	M13651B001	1

HCR 2 Card Reader

Figure 7 shows the HCR 2 card reader.

Figure 7: HCR 2 Card Reader

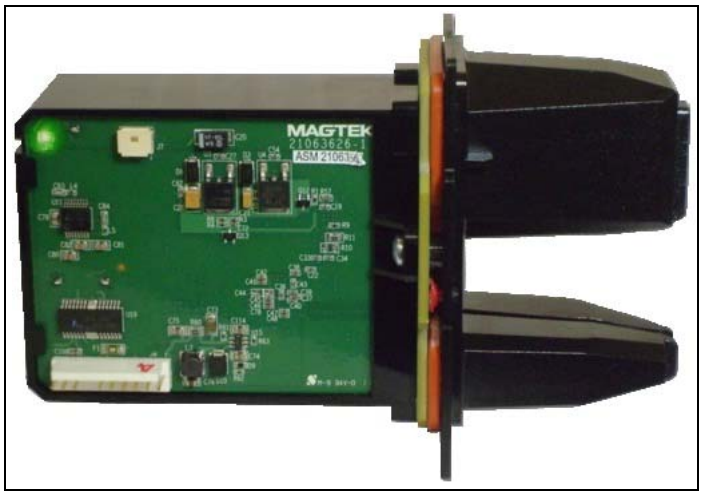
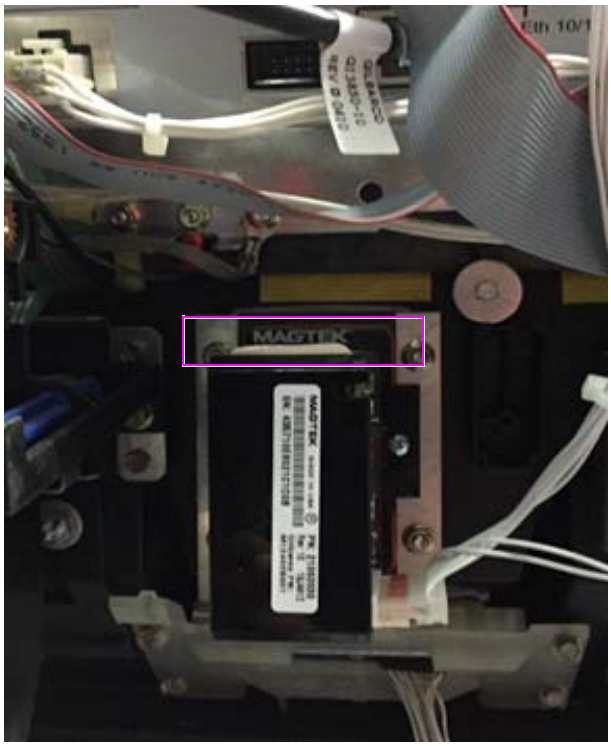
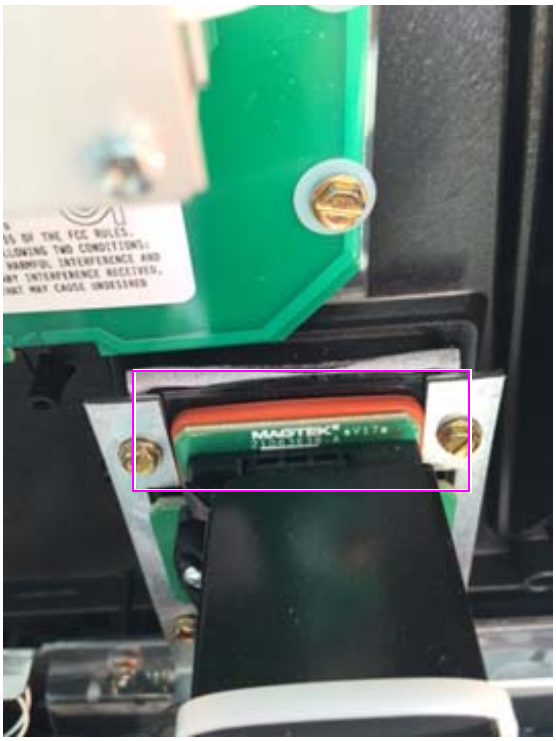


Figure 8: Installing Gasket on Card Reader



(i)

Correct Gasket Installation: Gasket is symmetrical with the card reader's bezel.

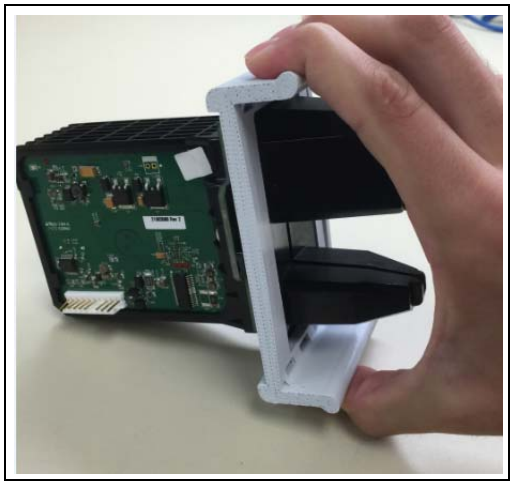


(ii)

Incorrect Gasket Installation: The mid portion of the gasket is not symmetrical to card reader's bezel.

HCR 2 Dismount Sensor Clamp (M14601B001)

Figure 9: HCR 2 Dismount Sensor Clamp



To install the dismount sensor clamp, apply pressure with both the thumb and the fingers to bend the clamp enough to fit the HCR 2 into the clamp as shown in Figure 9. To remove the HCR 2 from the clamp, again apply pressure with both the thumb and fingers to bend the clamp enough to remove the HCR 2.

HCR 2 Card Reader LED Matrix

Following table lists the LED matrix for the HCR 2 card reader:

LED	Display	Meaning
LED not lit	Solid red-X	Mesh tamper/no power.
Red/Green flashing Amber	Flashing red-X (solid with the latest SPOT software)	Other tamper (non-recoverable in the field).
Red	Solid red-X	Dismount (recoverable with recommissioning).
Red	Green screen	Dismount after a warm start (recoverable with recommissioning).
Green	Solid red-X	“Not authenticated” error [for example, card reader was reset (recoverable with a warm start)].
Green	Normal CRIND	Normal operation.

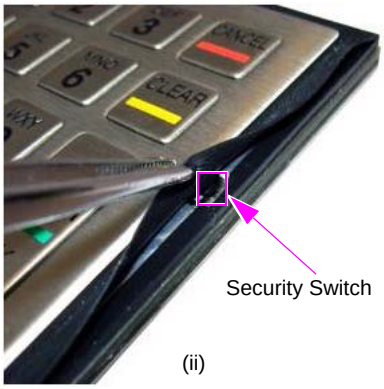
EMV Keypad

Figure 10 shows the EMV keypad.

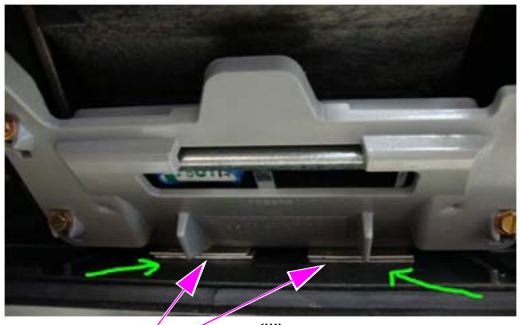
Figure 10: EMV Keypad - Rear View, Security Switch, and Shims

(i)

SPOT Keypad - Rear View



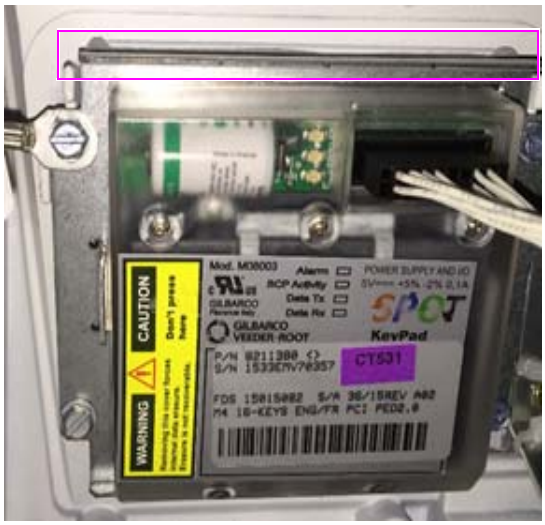
(ii)



(iii)

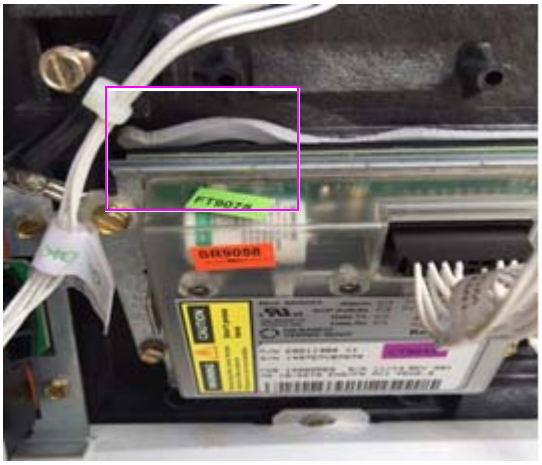
Shims

Figure 11: Installing Gasket on EMV Keypad



(i)

Correct Gasket Installation: Gasket is symmetrical with the keypad.



(ii)

Incorrect Gasket Installation: Gasket is not symmetrical with the keypad.

EMV Keypad LEDs

Following table lists the EMV keypad LEDs and their descriptions:

LED	Color	Status	Check	Description
Alarm	Red	On		Item suffers a tamper tentative. The system does not work, it is “out of order”. It needs to be replaced and must be sent to the factory.
		Off		Normal function.
SCP Activity	Green	Flashing		Security microprocessor program works properly. Flashing period is about one second.
		Off/On		The program is stuck.
Data TX	Red	Flashing		Item transmits data toward the display module.
		Off		The system does not transmit data on the gate.
Data RX	Green	Flashing		Item receives data from the display module.
		Off		The system does not receive data on the gate.

EMV SPOT Display

Figure 12 shows the EMV SPOT display.

Figure 12: EMV SPOT Display

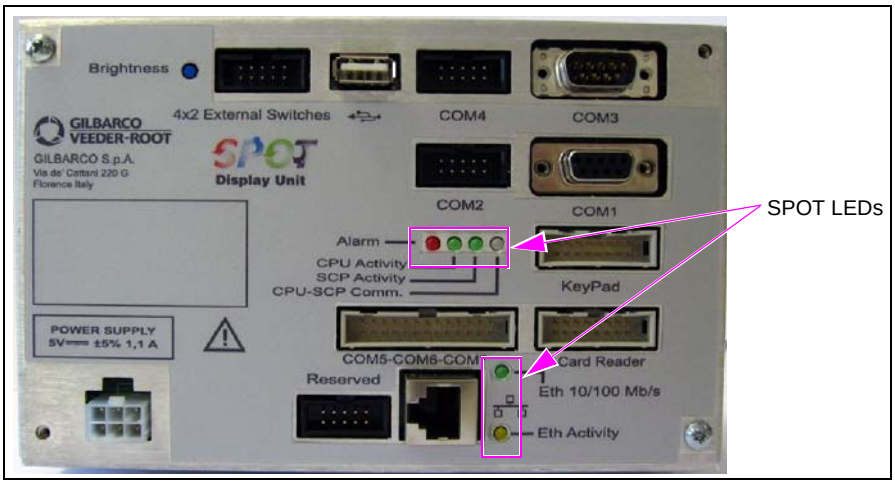


Figure 13: Installing Gasket on EMV SPOT Display

(i)

Correct Gasket Installation: Gasket is symmetrical with SPOT and cannot be seen.

(ii)

Incorrect Gasket Installation: Top portion of the gasket can be seen.

SPOT Display LEDs

Following table lists the SPOT display LEDs and their descriptions:

LED	Color	Status	Check	Description
SCP Activity	Green	Flashing		The security microprocessor program works properly. Flashing period is about one second.
		Off		The program is stuck.
Alarm	Red	On		Item suffers a tamper tentative. The system does not work, it is “out of order”. It needs to be replaced and must be sent to the factory.
		Off		Normal function.
Data TX/RX	Red	Flashing		This status shows the security microprocessor receives/transmits data from/to the display module.
	Green	On/Off		The security microprocessor does not receive/transmit data on the gate.
Card Reader TX/RX	Red	Flashing		This status shows the item receives/transmits data from/to the card reader module.
	Green	Off		The system does not transmit data on the gate.
24 V Present	Yellow	On		The 24 V power is present on the board.
		Off		The 24 V power is not present on the board. If the power supply is provided with the right voltage, it means the internal fuse is broken.
Power Good	Green	On		All the power voltages on the board are present.
		Off		All the power voltages on the board are NOT present.
24 V present	Yellow	On		24 V power is present on the board.
		Off		The 24 V power is not present on the board. If the power supply is provided with the right voltage, it means the internal fuse is broken.
ETH 10/100	Green	Flashing		100 mbps connection present on the gate.
		Off		10 mbps connection present on the gate.
ETH Activity	Yellow	Flashing		Data transmission on ETH gate.
Alarm	Red	On		Item suffers a tamper tentative. The system is in alarm and out of order. It needs to be replaced and must be sent to the factory.
		Off		Normal function.
CPU Activity	Green	Flashing		The main microprocessor program works properly.
		On/Off		The program is stuck.
SCP Activity	Green	Flashing		The security microprocessor program works properly. Flashing period is about one second.
		Off/On		The program is stuck.
CPU-SCP Comm.	Green	Flashing		The security microprocessor receives data from the main CPU.
	Red	Flashing		The main CPU receives data from the security microprocessor.
	Amber	Flashing		Data is exchanged between the main CPU and security microprocessor.
	-	Off		Data transmission is not present.

Port Connections on SPOT Display

Following table lists the Serial Ports on the SPOT display and their functions:

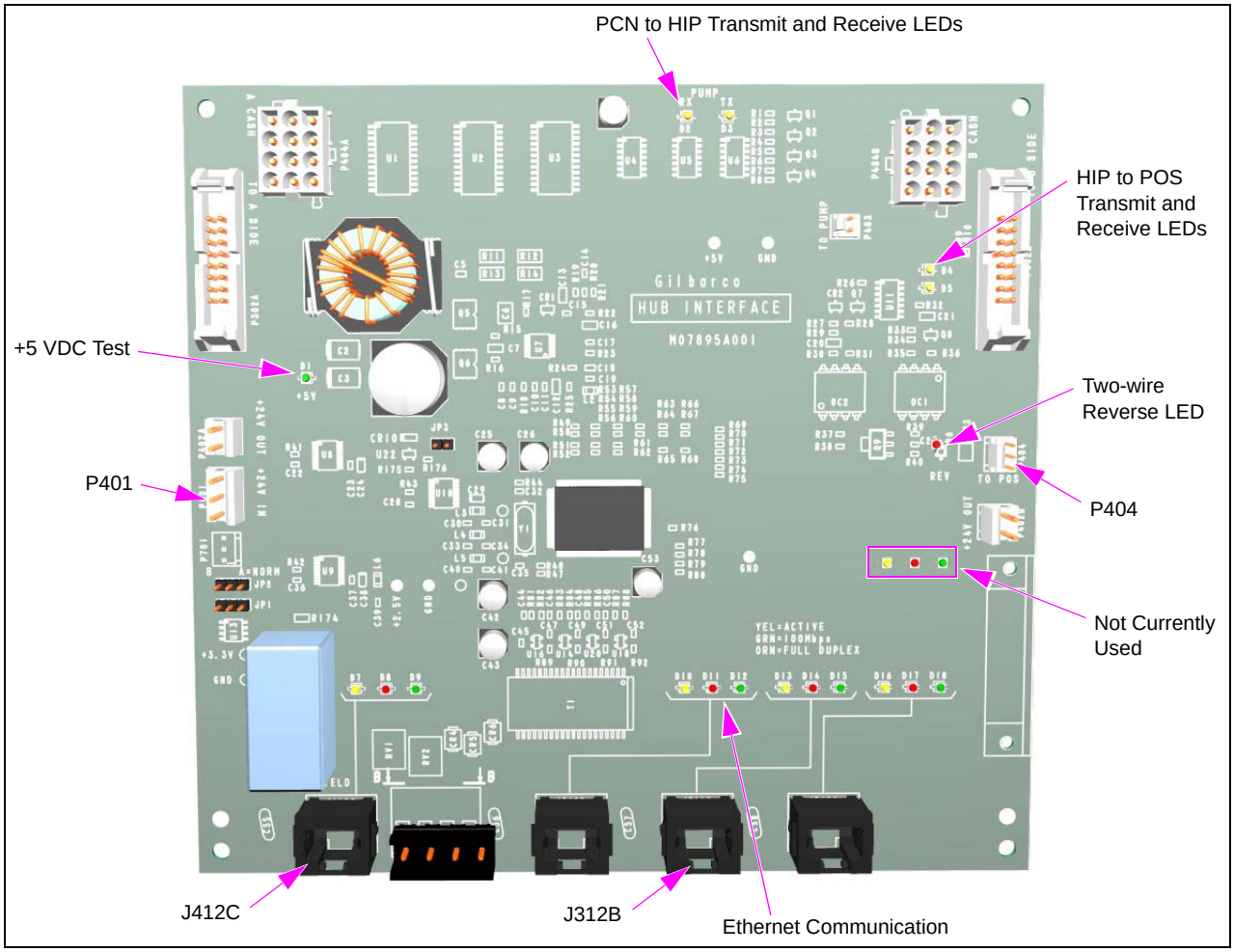
Serial Port	Function	Interface	Cable	Terminating Port or Hardware
COM9	Card reader	RS-232	M07949A001	SIP P109
	Power Supply	+5 V, GND	M07947A001	SIP P110
	Ethernet port	CAT-5	-	HIP P312X
	4 X 2 External switches	-	M07957A001	Call Interface (M04528A001) and Keypad (M07754B002)
COM8	Keypad	RS-232	M07956A002	Metal keypad
		RS-232	M07957A003	Plastic keypad

Serial Port	Function	Interface	Cable	Terminating Port or Hardware
COM7	Cash acceptor	TTL	M07946A001	SIP P108
COM6	POS			
COM5	Pump two-wire			
COM4	TRIND	RS-232	M07948A002	SIP P105
COM3	SMART Connect™ to pump (Side A only)	RS-232	M07970A001	To P1111 on PCN
COM2	Barcode scanner	RS-232	M07948A002	SIP P103
COM1	Service	RS-232	Not used	Not used

HIP Board

Figure 14 shows the HIP board.

Figure 14: HIP Board



Connections from HIP Board

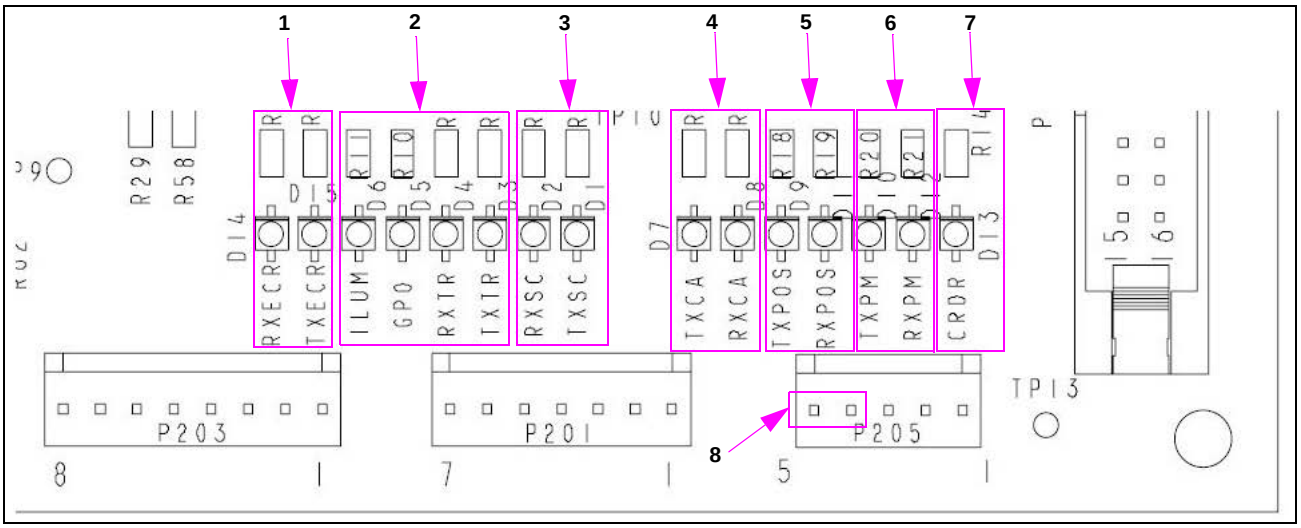
Following table lists the HIP board ports and their connections:

Initial Port	Connection/Interface	Terminate Port or Hardware
P401	Two-wire cable	Phoenix power supply (- and +4 A)
P404 (POS)	Two-wire	CRIND two-wire connection on D-Box
J412C	CAT-5	Network media
J312B	CAT-5	Other SPOT unit J412A

SIP Board

Figure 15 shows the SIP board.

Figure 15: SIP Board



SIP Board LEDs

Following table lists the general format of the labels and their descriptions:

Sl No.	Peripheral Name	Description
1	RXECR, TXECR	This port was originally intended for the ECR, but is now used for the TCR. Unused for the HCR 2. If the dispenser has an HCR 2, ignore these LEDs.
2	ILUM, GP0, RXTR, TXTR	These are the TRIND LEDs. Only RXTR and TXTR are used with EMV.
3	RXSC, TXSC	Indicates scanner COMMs.
4	TXCA, RXCA	Indicates cash acceptor COMMs.
5	TXPOS, RXPOS	Indicates CRIND to POS COMMs.
6	TXPM, RXPM	Indicates CRIND to pump COMMs. These LEDs are unused for generic CRIND.
7	CRDR	This LED mimics the “card read” LED array, used with the scanner.
8	-	Pins 4 and 5 of P205 connection < 4.5 VDC and ≤ 5.0 VDC.

Software Bundles

Refer to the softwares installed on other fueling positions to match. If a newer version is available, please contact your supervisor for further instructions.

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