



Passport®

Competitive Pump and CRIND (CPC) Hardware/Software Start-up and Service Manual

MDE-4318D

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U L File#	Products listed with U L
MH1941	All Gilbarco pumps and dispensers that bear the UL listing mark.
MH8467	Transac System 1000 and PAM 1000
E105106	Dell DHM Minitower
E165027	G-SITE and Passport Systems

California Air Resources Board (CARB):

Executive Order #	Product
G-70-52-AM	Balance Vapor Recovery
G-70-150-AE	VaporVac

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02-019	Encore	Nxx	02-036	Legacy	Jxxx
02-020	Eclipse	Exx	02-037	G-SITE Printer (Epson)	PA0307
02-025	Meter - C Series	PA024NC10		G-SITE Distribution Box	PA0306
	Meter - C Series	PA024TC10		G-SITE Keyboard	PA0304
02-029	CRIND	---		G-SITE Mini Tower	PA0301
	TS-1000 Console	---		G-SITE Monitor	PA0303
	TS-1000 Controller	PA0241	G-SITE Printer (Citizen)	PA0308	
02-030	Distribution Box	PA0242	02-038	C+ Meter	T19976
	Meter - EC Series	PA024EC10	02-039	Passport	PA0324
	VaporVac Kits	CV	02-040	Ecometer	T20453

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4,938,251	4,939,730	4,967,366	4,986,445	5,040,577	5,098,179	5,134,548	5,156,199	5,269,353	5,228,084	5,325,706	5,345,979	5,355,915	5,363,988
5,384,850	5,407,115	5,417,256	5,448,638	5,450,883	5,464,466	5,501,246	5,535,130	5,542,458	5,543,849	5,546,981	5,557,084	5,571,310	5,602,745
5,626,649	5,630,528	5,708,580	5,719,779	5,719,781	5,720,325	5,724,067	5,734,851	5,755,854	5,782,275	5,794,667	5,798,931	5,803,136	5,843,212
5,857,500	5,868,179	5,871,651	5,890,520	5,954,080	5,956,259	5,969,691	5,971,042	5,979,705	5,980,090	6,026,866	6,052,629	6,073,840	6,078,888
6,078,896	6,082,415	6,085,775	6,087,954	6,089,284	6,092,410	6,098,879	6,102,085	6,109,477	6,112,134	6,113,039	6,116,505	6,119,110	6,123,118
6,149,033	6,167,923	6,176,421	6,184,846	6,185,307	6,185,893	6,196,065	6,227,227	6,244,310	6,250,151	6,253,779	6,263,319	6,275,746	6,296,148
6,302,165	6,313,737	6,325,112	6,326,934	6,336,479	6,338,369	6,347,649	6,352,176	6,357,493	6,360,137	6,363,299	6,364,206	6,380,853	6,381,514
6,386,246	6,418,983	6,421,616	6,422,464	6,431,226	6,438,452	6,460,579	6,463,389	6,466,842	6,470,233	6,493,440	6,499,516	6,505,134	6,522,947
6,523,744	6,529,800	6,532,999	6,535,726	6,546,882	6,571,151	6,571,201	6,573,884	6,574,603	6,578,145	6,618,362	6,644,360	6,681,814	6,685,089
6,690,275	6,697,705	6,704,774	6,708,797	6,710,701	6,712,101	6,721,669	6,736,313	6,741,909	6,745,104	6,761,190	6,763,974	6,766,949	RE35,238
D262,971	D265,092	D306,719	D309,144	D316,471	D413,124	D413,311	D413,336	D413,337	D413,610	D413,901	D413,902	D414,192	D414,501
D414,778	D414,779	D414,780	D414,781	D414,782	D415,166	D415,167	D415,168	D415,169	D415,170	D415,171	D415,172	D415,501	D415,777
D416,915	D416,916	D417,226	D418,523	D420,684	D421,612	D422,285	D422,604	D426,555	D428,424	D428,897	D429,739	D429,740	D431,039
D431,252	D431,573	D432,140	D432,141	D432,548	D432,552	D433,031	D433,032	D433,033	D433,034	D433,035	D433,036	D433,037	D433,420
D433,421	D433,422	D433,423	D433,424	D433,685	D433,686	D433,687	D433,688	D434,424	D434,780	D435,051	D440,579	D443,624	D456,820
D457,084													

Point of Sale/Back Office Equipment

4,967,366	5,228,084	5,448,638	5,798,931	5,980,090	5,708,580	5,719,779	5,719,781	5,724,067	5,734,851	6,073,840	6,078,888	6,116,505	6,185,307
6,263,319	6,275,746	6,326,934	6,360,137	6,363,299	6,364,206								

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ECR™	Highline™	SmartPad™
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1 – Passport CPC Overview

Purpose

This document provides instructions to install and configure the Passport® Point Of Sale (POS) system for use with Competitive Pump and CRIND (CPC). This installation must be performed only by a Gilbarco® Authorized Service Contractor (ASC) with spare parts on site.

Introduction to Passport CPC

The CPC feature is used to interface competitive forecourt equipment with the Passport system. Currently, the Passport system supports the following competitors' equipment:

- Dresser® Wayne®
 - Dispensers
 - Customer Activated Terminals (CATs)
- Tokheim®
 - Domestic F8 and UDC
 - Dispenser Payment Terminal (DPT) and Insight

Though non-Gilbarco dispensers may be installed, the CPC feature assumes their behavior and sequences to be similar to that of the Gilbarco forecourt equipment.

Abbreviations and Acronyms

Term	Description
ASC	Authorized Service Contractor
BIOS	Basic Input Output System
CAT	Customer Activated Terminal
CPC	Competitive Pump and CRIND
CRIND®	Card Reader IN Dispenser
DCB	Data Control Board
DPT	Dispenser Payment Terminal
DSM	Debit Security Module
DUKPT	Derived Unique Key Per Transaction
GSM	Gilbarco Security Module
IEC	International Electrotechnical Commission
LED	Light Emitting Diode
MOC	Major Oil Company
PCB	Printed Circuit Board
POS	Point Of Sale

Term	Description
PPU	Price Per Unit
RFID	Radio Frequency Identification Device
SPC	Submersible Pump Controllers
TED	Tokheim Encryption Device
UL®	Underwriters Laboratories
UPS	Uninterruptible Power Supply

Requirements

For CPC to operate with the Passport system, you will require the following components:

- Passport software V4.03 or later (Wayne only)
Note: If you are using V4.03.31.05, install the latest available service pack for proper CPC operation.
- Passport Software V8.02 or later (Wayne or Tokheim)
- PA0338X000 Distribution Box (D-Box) for Wayne interface
- PA0338X001 Distribution Box (D-Box) for Tokheim interface
- Q12534-170 Card Reader IN Dispenser (CRIND) Diagnostics Card

An RS-485 D-Box Board (T20488-G2), a Tokheim Interface Board (T20636-G1), and an RS-485 and two-wire D-Box Transformer (R20433-G3) are recommended as spare parts for service.

IMPORTANT INFORMATION

When you commission a Passport site with CPC, you must report that the location uses the CPC feature. Along with the site information and serial numbers, inform the Gilbarco Support Center specialist of the following:

- The Passport Software Version (including Service Pack).
- The site uses “CPC” feature.
- Dispenser Type is “Wayne” or “Tokheim”.

This information is required when you report a Passport CPC commissioning. Commissioning can be performed by contacting the Claims Support Team at 1-888-800-7498.

Model Number Breakdown

Model Number PA0338ABCD

Refer to the table below for details of the convention used for the last four digits of the model number.

Digit	Description	Possible Value	Denotes
A	Voltage	0	115 VAC
		1	230 VAC
B	Reserved	-	-
C	Reserved	-	-
D	Dispenser Interface	0	Wayne
		1	Tokheim

IMPORTANT INFORMATION

For proper operation, it is critical that all electrical wiring (for both the dispensers/CATs and POS system) conform to National Electrical Code (NEC), NFPA 30A, and local wiring codes. On new installations, ensure that all wiring meets specifications. For existing locations, it is important that existing electrical wiring is inspected and approved before installing the Passport POS system equipment.

Ensure the following when you install a Passport system for use with CPC:

- One conduit from the breaker panel to the D-Box is required. The conduit must contain a dedicated/isolated circuit with three 14 AWG wires: 115 VAC hot, neutral and ground or 230 VAC L1, L2, and ground. Do not use the same electrical conduit to provide an earth ground.
- An AC outlet must be located within 6 feet of the D-Box. Do not use extension cords to obtain a power source for the D-Box.
- The circuit powering the D-Box must not power other devices. The circuit must not share a conduit with wiring for other devices that draw high amperage (for example, compressor, freezer, and so on) or devices that are sources of Radio Frequency Interference (for example, TV, microwave, intercom, and so on).
- All non-Gilbarco devices and dispensers must be on the same phase as the Gilbarco Passport system.
- Wiring for variable speed STPs cannot occupy the same space as communication wires (either in conduit or within a wiring trough).
- Data wires cannot be shared between CATs or dispensers (daisy-chaining at the forecourt, wiring trough, or D-Box is not allowed).
- Any concerns found with electrical wiring must be addressed before installing the Passport system. Refer to FE-346 Field Wiring Diagram - Wayne CPC for additional wiring and installation considerations.

Supported Competitive Devices

The following is a list of competitive devices supported in this version of the CPC software:

Tokheim CPC

Tokheim Domestic F8 and UDC Dispensers including the following units:

- Domestic 162 and 262 Dispensers
- 330 and 333 Series MMDs
- Retron Dispensers
- TCS Dispensers
- Stand Alone MMD Dispensers
- 262A Dispensers
- TCS Electronic Blending Dispensers
- TCS Variable Blending Dispensers
- Model 242/244 Dispensers
- Premier B and C Pump

Wayne CPC

- All Wayne CATs
- Wayne SpeedPass™ devices
- Up to six Wayne Submersible Pump Controllers (SPCs)
- Wayne Debit Security Modules (DSMs) (Outdoor DSMs for DUKPT Encryption)
- All Wayne electronic dispensers except for the following:
 - Vista™ HS3 High Speed
 - Global Vista [Wide Body and Narrow Body - specifically meets European ATEX and International Electrotechnical Commission (IEC) requirements]
 - E85 Fuel Dispensers
 - Global Star™ Series
 - Global Century™ Series

The CPC feature supports an interface of up to 24 Wayne CATs and dispensers.

Notes: 1) CAT softkeys are supported by Passport V8 or later.

2) Bar Code Readers at CAT are supported by Passport V6 or later.

Unsupported Devices

The Passport CPC interface currently does not support the following devices:

- All Wayne cash acceptor devices
- All Wayne MSMs

Supported Features

The following is a list of features in this version of the CPC software:

- Simulation of Gilbarco Major Oil Company (MOC) Z180 single-line CRIND devices
- CPC CRIND text-only displays (at least 2 lines by 16 characters)
- CPC CRIND graphic displays that support text-mode emulation
- Simultaneous use of the Passport system and competitive CRIND devices and pumps
- Maximum of 24 competitive fueling positions (pump with CRIND device or pump only)
- CRIND debit - Derived Unique Key Per Transaction (DUKPT) only

IMPORTANT INFORMATION

Verify if the software version of the Passport system supports CPC before performing an installation. Else, you may have to perform a service pack installation or software upgrade (if there is an upgrade path).

Forecourt Configuration

Programming the Forecourt

To use CPC at a location, dispenser and CAT configuration must be programmed in the Forecourt Installation area of the Manager Workstation. The Forecourt Installation screen consists of seven tabs, which require specific site configuration information. Each tab must be completed before the CPC unit is brought online.

Listed below are descriptions of each tab:

- **Dispensers:** Indicates the type of dispensers at the site.
- **Payment Terminals:** Indicates the type of payment terminals used at the site.
- **Product:** Indicates the type of fuel dispensed at the site (for example, Unleaded or Super).
- **Grade:** Indicates the grade of mixture used for each product dispensed.
- **Tanks:** Indicates the diameter and capacity of each tank.
- **Grades to Dispensers:** Indicates the grade of fuel to be dispensed from each pump.
- **Tank-Product to Dispensers:** Indicates the grade of fuel for all pumps onsite.

IMPORTANT INFORMATION

If you are replacing an existing POS with the Passport system, obtain a configuration report from the existing system to assist you in completing Forecourt Installation programming.

The following sections provide instructions to program the forecourt hardware for each tab.

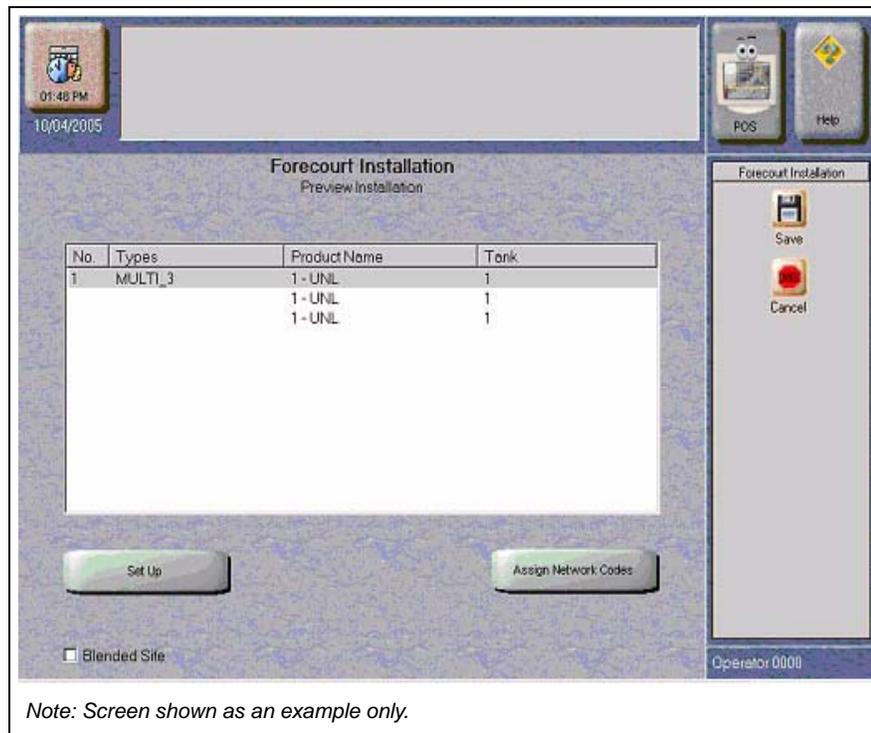
Note: These programming instructions will focus on programming steps required specifically for a Passport site using CPC. Refer to the appropriate Passport Software Installation Manual, for additional details regarding forecourt setup for Passport system locations.

Accessing the Forecourt Installation Screen

To access the Forecourt Installation screen, proceed as follows:

- 1 On the Manager Workstation menu, click **Setup > Forecourt > Forecourt Installation**.
The Forecourt Installation - Preview Installation screen appears.

Figure 1-1: Forecourt Installation - Preview Installation



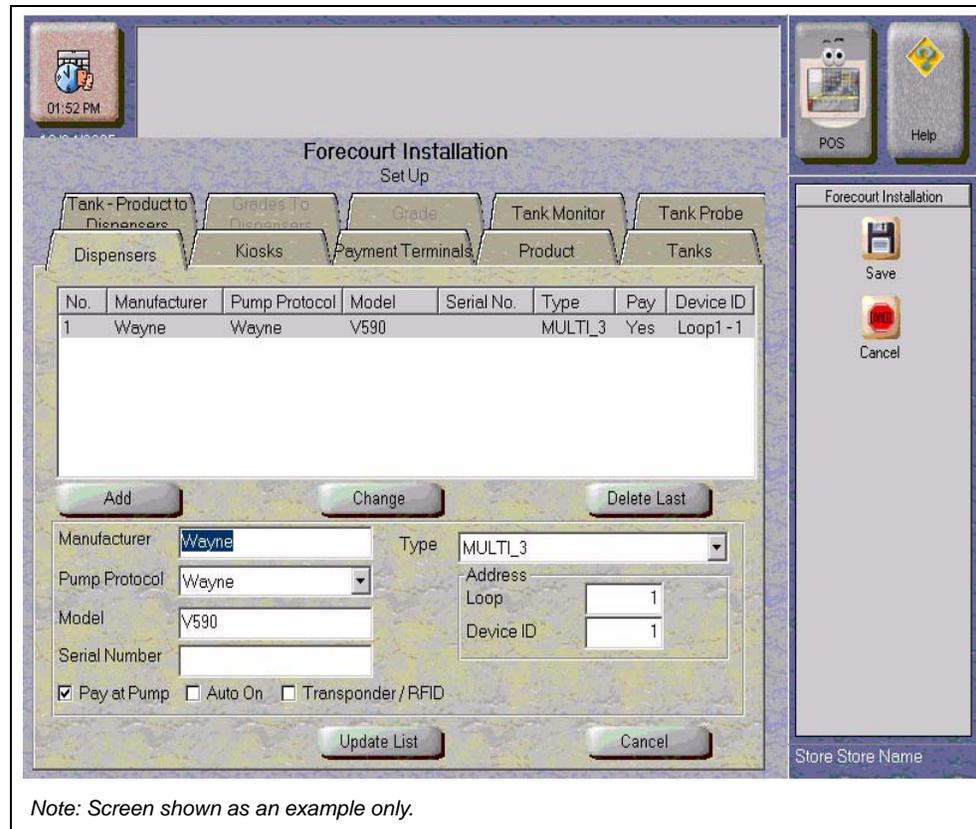
- 2 If the site is a blending site, select the checkbox beside the Blended Site field in the lower left corner of the screen.
- 3 Click **Set Up**. The Forecourt Installation Setup screen appears with the Dispensers tab in the forefront.

To program the forecourt, proceed as follows:

Dispensers Tab

- 1 On the Dispensers tab, highlight the required fueling position and click **Change**.

Figure 1-2: Forecourt Installation Screen (Dispensers Tab)



- 2 Enter or select data for the following fields:
 - **Manufacturer:** Enter the manufacturer's name.
 - **Pump Protocol:** Select the communication protocol for the fueling position.
Note: Supported protocols are Gilbarco, Wayne, and Tokheim. These protocols may be mixed. However, the devices must be on separate loops.
 - **Model:** Enter the model number.
 - **Serial Number:** Enter the serial number.
 - **Pay at Pump:** Select the checkbox if a CRIND/CAT is associated with the pump.
 - **Type:** Select the type of fueling unit from the drop-down list.
 - **Address (Loop):** Enter the number of the pump loop that is used by this fueling unit to communicate.
 - **Address (Device ID):** Enter a fueling position number between 1–24 in this field.
Note: This is the physical address of the position as programmed within the dispenser electronics. This address may not always be identical to the number assigned by the Passport system in the "No." column.

- **Auto On:** Select the checkbox if the pump changes to the calling state when the nozzle is removed.
- **Transponder/Radio Frequency Identification Device (RFID):** Select this checkbox if this fueling position is equipped with an RFID device (for example, Speedpass).
- **Slow Down:** This is a user configurable field that may be used to adjust the dispenser slow down value. The valid value for this field ranges from 0.00 to 0.50 gallons.
- **SPC:** Select this checkbox if this fueling position uses an SPC to activate submersible turbines.

3 Click **Update List** to save your entries.

4 Perform one of the following:

- To add another dispenser, click **Add** and repeat steps 2 to 3.

~ OR ~

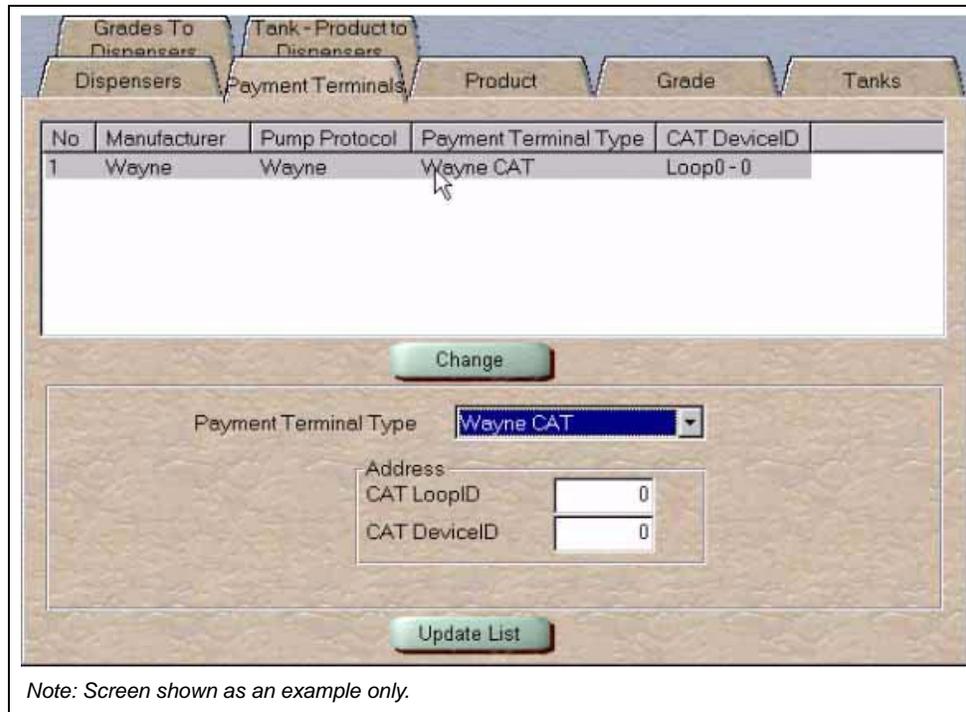
- Click the **Payment Terminals** tab to continue.

Payment Terminals Tab

A payment terminal is a device that allows customers to pay for transactions directly from the forecourt. Such transactions include fuel sales or car wash purchases. The CPC feature supports Wayne CATs as a payment terminal, Tokheim DPT and Insight. CATs are the equivalent of a Gilbarco CRIND. If units have CATs present, payment terminal programming must be performed. These devices can be programmed to control transactions for specific fueling positions.

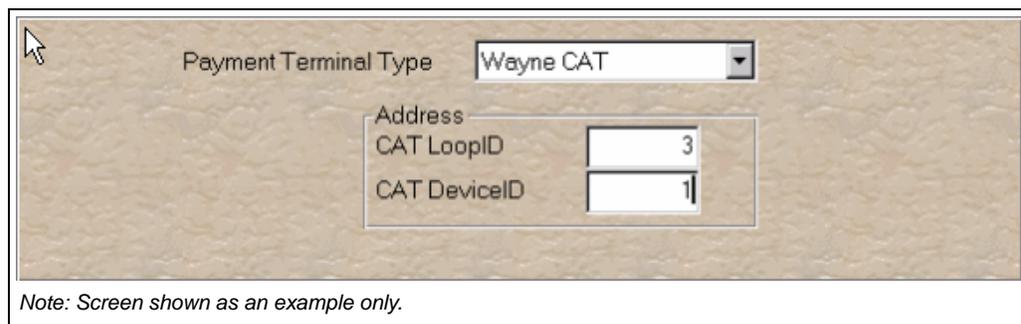
- 1 On the Payment Terminals tab, select a payment terminal from the list displayed and click **Change**.

Figure 1-3: Forecourt Installation Screen (Payment Terminals Tab)



- 2 After you click **Change**, options are displayed in the lower portion of the screen, which are specific to the selected payment terminal.

Figure 1-4: Forecourt Installation Screen (Payment Terminal Type Options)



Enter or select data for the following fields:

- **Payment Terminal Type:** Select the type of payment terminal from the drop-down list (for example, Wayne CAT).
- **CRIND/CAT LoopID:** Enter the loop ID for the payment terminal.
Note: Payment terminals cannot share the same communication loop as a dispenser.
- **CRIND/CAT DeviceID:** Enter the device ID for the payment terminal. This is the physical address of the position as programmed within the payment terminal's electronics. Ensure that the proper device ID is mapped to the appropriate fueling position in the "No." column.
Note: This CAT Device ID may not always be identical to the Device ID of its associated fueling position.
- **Data Control Board (DCB) Address:** If an RFID device is in use for this fueling position, enter the address of the DCB in this field. Valid entries are 1 to 16.
Note: Each DCB requires a unique address.
- **DCB Side:** If an RFID device is in use for this fueling position, specify the side of the DCB used by that ID.
- **DSM:** Select this checkbox if a DSM is used to process outside debit transactions. If there is no DSM in use, then do not select this checkbox.
Note: Use a configuration report from an existing POS system to obtain DCB data. If configuration is not available, the DCB address and side may have to be obtained directly from the RFID hardware inside the dispenser.

3 Click **Update List** to save your entries.

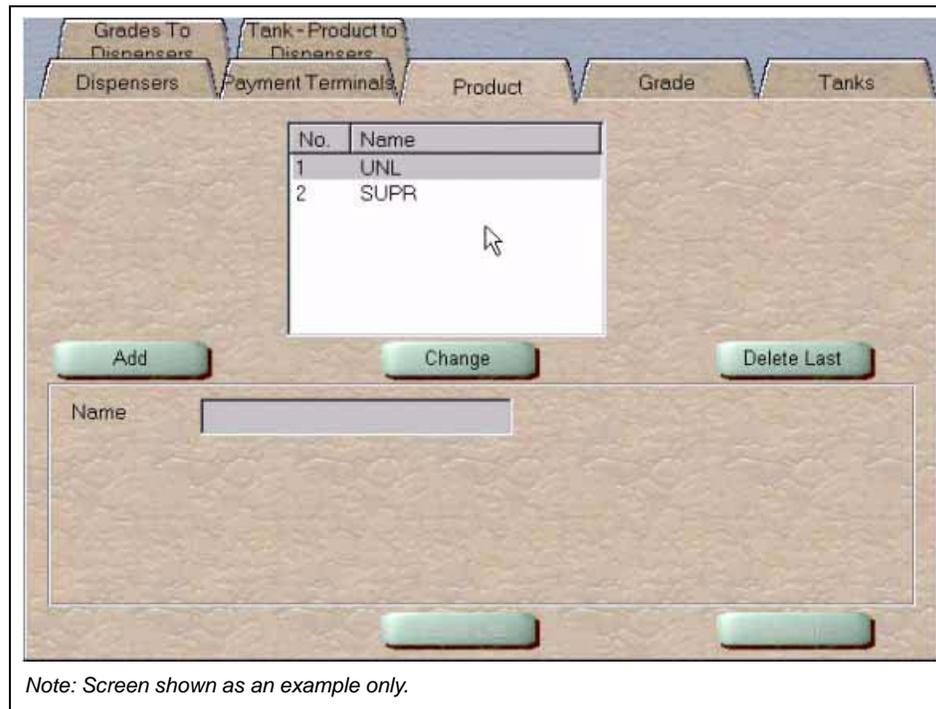
4 Perform one of the following:

- To program another payment terminal, repeat steps **2** and **3**.
- To continue, click the **Product** tab.

Product Tab

- 1 On the Product tab, select the name of each product available at the site from the list (some software applications may display a text entry field instead of a list or drop-down list for the product name).

Figure 1-5: Forecourt Installation Screen (Product Tab)

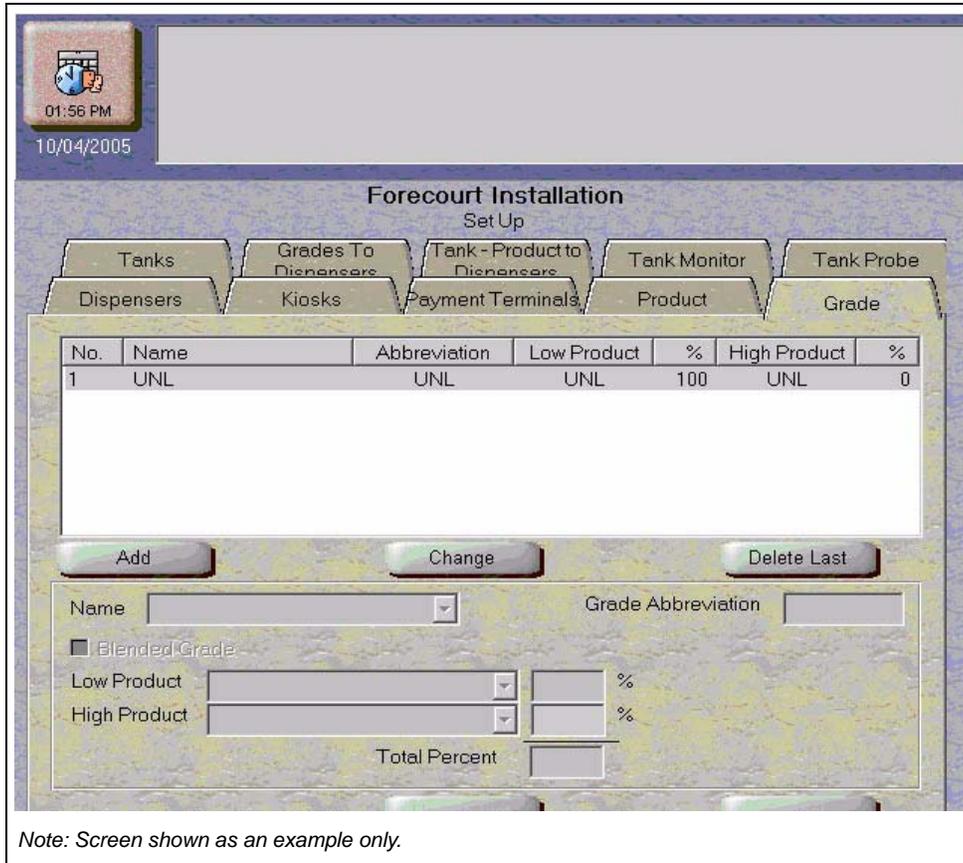


- 2 To set up a new product, click **Add** and enter the new product information.
- 3 Click **Update List** to save your entries.
- 4 If this is a blending location, click the **Grade** tab to continue. For non-blending locations, proceed to programming under the Tanks tab (refer to [“Tanks Tab”](#) on [page 13](#)).

Grade Tab

- 1 On the Grade tab, click **Add**.

Figure 1-6: Forecourt Installation Screen (Grade Tab)

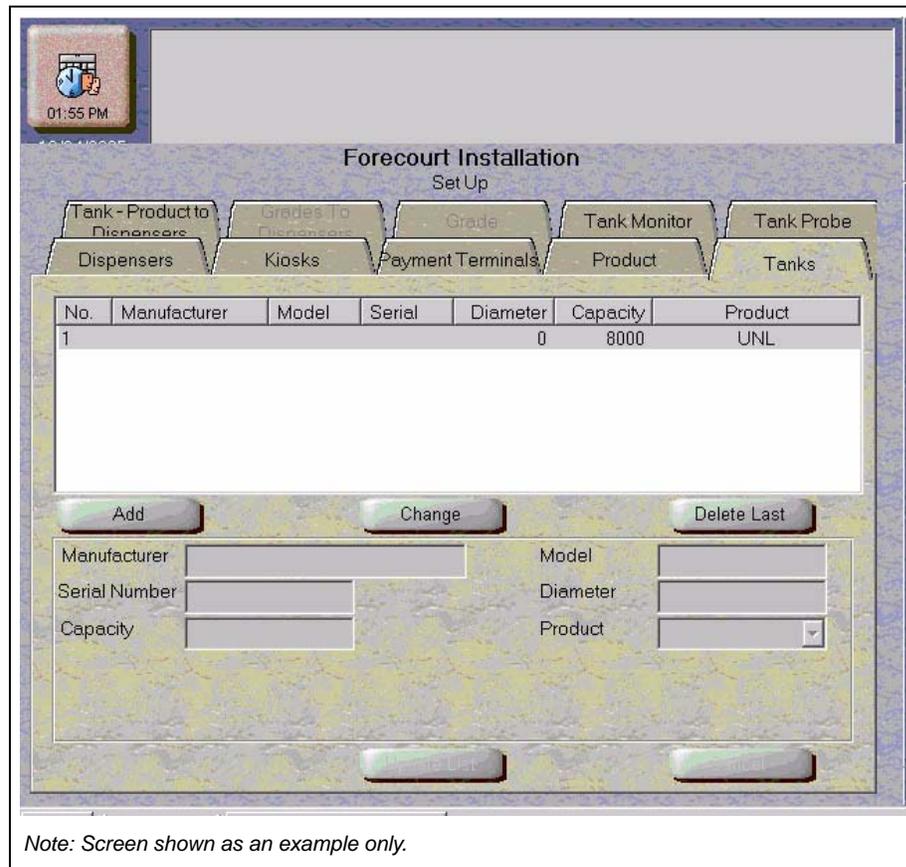


- 2 Enter or select data for the following fields:
 - **Name:** Enter the name of the grade.
 - **Grade Abbreviation:** Enter the grade abbreviation (must consist of 3 alphanumeric characters and all of them must be in uppercase. For example, UNL, PREM, MID, and so on).
- 3 To blend grades, select the checkbox beside the Blended Grade field.
- 4 Select the low and high products that make up the grade from the Low and High Product fields.
- 5 Enter the mixture percentage in the entry field beside the Low Product field (the high product percentage is automatically filled when you save your entries).
- 6 To add a new grade, click **Add** and repeat steps 2 to 5.
- 7 Click **Update List** to save your entries.
- 8 Click the **Tanks** tab to continue.

Tanks Tab

- 1 On the Tanks tab, select the required tank and click **Change**.

Figure 1-7: Forecourt Installation Screen (Tanks Tab)



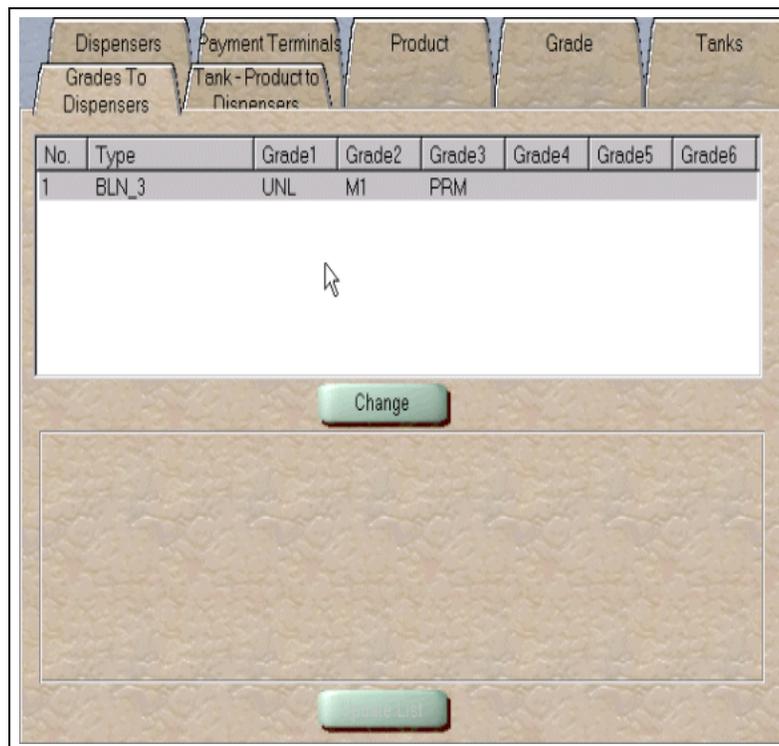
- 2 Enter or select data in the following fields for each tank:
 - **Manufacturer:** Enter the name of the tank manufacturer.
 - **Serial Number:** Enter the serial number for the tank.
 - **Capacity:** Enter the capacity of fuel for the tank (this field is required).
 - **Model:** Enter the model number for the tank.
 - **Diameter:** Enter the diameter of the tank.
 - **Product:** Select the product dispensed from the tank (this field is required).
 - **Wayne SPC:** If a Wayne SPC is used to dispense this product, select this checkbox. Each tank must also be mapped to the appropriate relay within the SPC that activates the submersible turbine.
- 3 Click **Update List** to save your entries.
- 4 Click **Add** and follow steps 2 and 3 for all remaining tanks.
- 5 If the site is a blending location, click the **Grades to Dispensers** tab to continue. If the site is non-blending, click the **Products to Dispensers** tab.

Grades to Dispensers Tab

Note: The Grades to Dispensers tab will only be accessible if Blended Site is selected on the initial Forecourt Installation screen. Grade positions on other dispensers may differ from those that are traditionally used by Gilbarco dispensers (the position of HIGH and LOW products are typically reversed when comparing Wayne and Gilbarco fueling positions). Ensure that grades are properly mapped to the appropriate Price Per Unit (PPU) window.

- 1 On the Grades to Dispensers tab, select the required dispenser and click **Change**.

Figure 1-8: Forecourt Installation Screen (Tanks Tab)

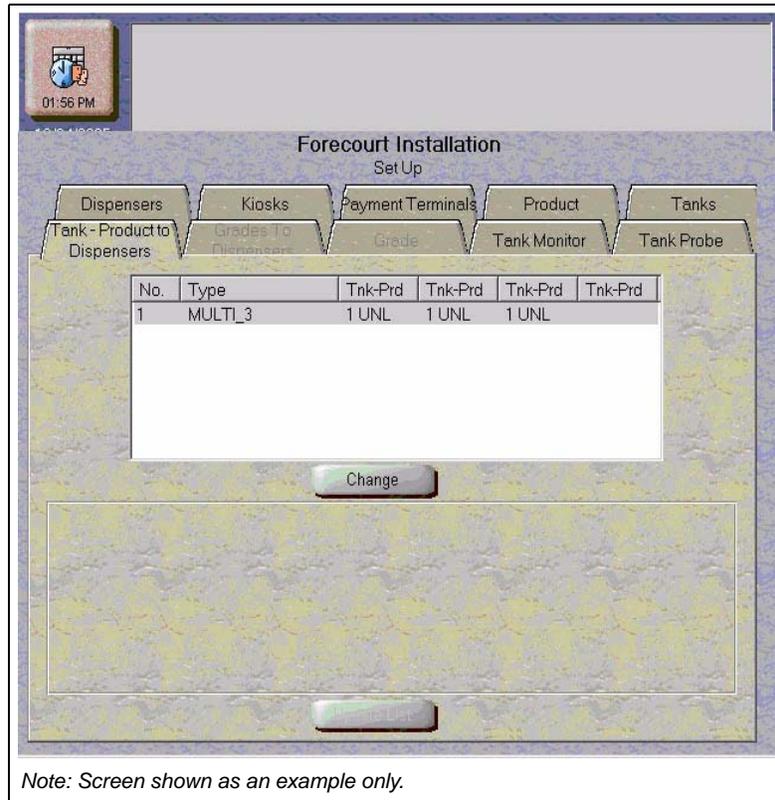


- 2 Select the appropriate grade assigned to each dispenser from the drop down menu.
Note: Refer to the labeling at the dispenser to ensure that grades are mapped to the appropriate positions.
- 3 Click **Update List** to confirm your mapping for this fueling position.
- 4 To set up another dispenser, repeat steps 1 to 3.
- 5 Click the **Tank - Product to Dispensers** tab to continue.

Tank - Product to Dispensers Tab

- 1 On the Tank - Product to Dispensers tab, select the required dispenser and click **Change**.

Figure 1-9: Forecourt Installation Screen (Tanks Tab)

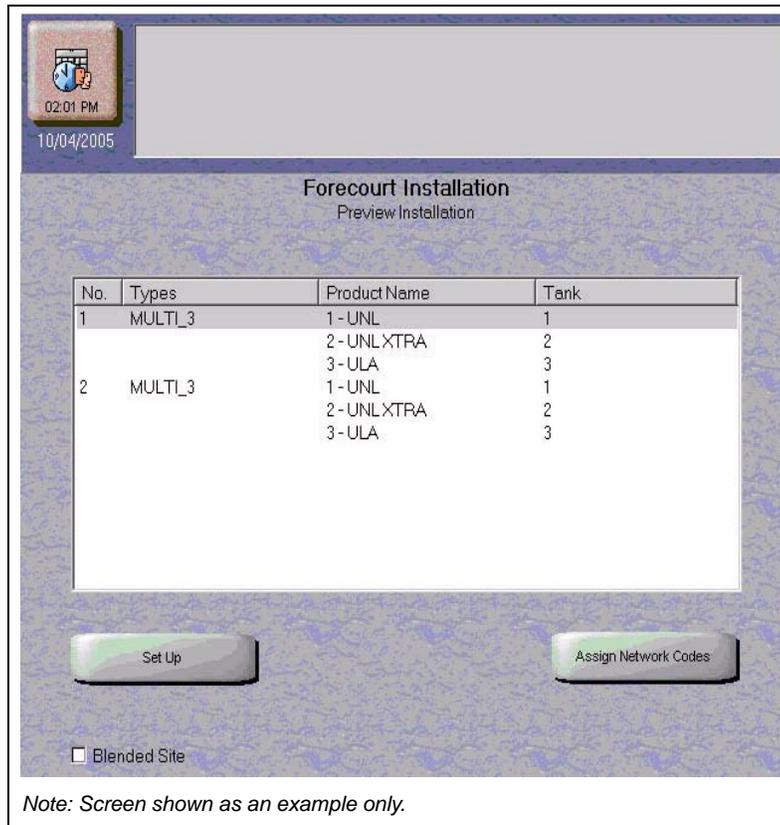


- 2 Select the appropriate product assigned to each dispenser from the drop down menu.
Note: Refer to the labeling at the dispenser to ensure that products are mapped to the appropriate positions.
- 3 Click **Update List** to confirm your mapping for this fueling position.
- 4 To set up another dispenser, repeat steps 1 to 3.
- 5 Click **Save** to save your entries. The Preview Installation screen appears.

Preview Installation

- 1 On the Preview Installation screen, verify if all information is correct.

Figure 1-10: Forecourt Installation Preview Screen (Complete)



- 2 Perform one of the following:
 - If the information is incorrect, click **Set Up** and select the appropriate tab. Make the necessary corrections on the tab.
 - If all information is correct, stop and restart the Passport application on the server and all clients (in that order). Proceed to the Non-Forecourt Installation instructions listed in the appropriate Passport Software Installation Manual. Proceed to step 3 when you are ready to establish forecourt communication.
- 3 Ensure that the Passport system has network connectivity.
- 4 Proceed to [“PA0338X00X D-Box Installation”](#) on page 17.

2 – PA0338X00X D-Box Installation

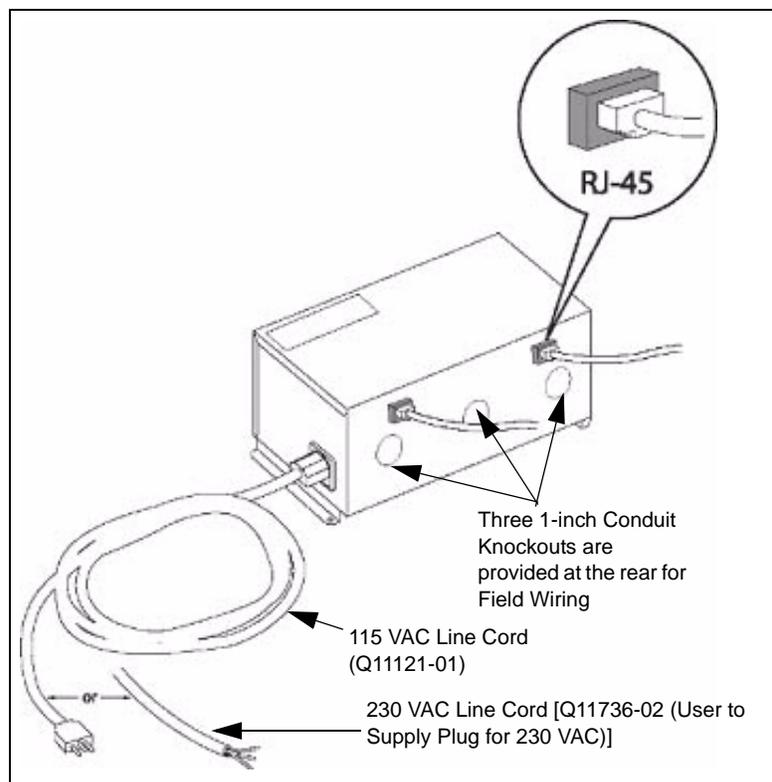
Installation Overview

Wayne D-Box (PA0338X000)

The PA0338X000 D-Box provides an interface between the Gilbarco Passport system and Wayne CATs and dispensers. The loop to Wayne dispensers is currently set to 34 mA, JP10 installed.

One D-Box supports eight Wayne pump loops (eight dual-sided dispensers for a total of 16 fueling positions) and 16 Wayne CAT (CRIND) pairs.

Figure 2-1: Wayne D-Box (PA0338X000)



IMPORTANT INFORMATION

A PA0306XXXX D-Box may be used to control dedicated pump loops. The T19547 two-wire Distribution Board must be jumpered for a 34 mA interface (refer to ["Distribution Board \(T19547\) - Settings for CPC"](#) on page 19).

Boards (T20488 and T19547)

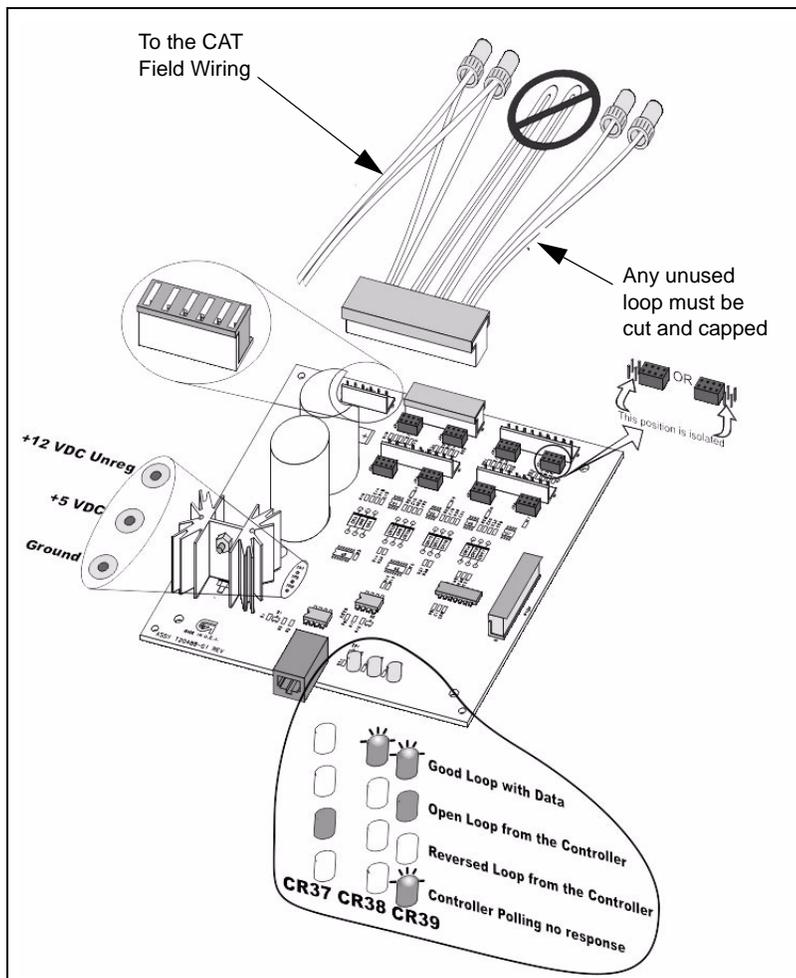
The D-Box houses one transformer and a removable tray with two Printed Circuit Boards (PCBs) (T19547-G1 and T20488-G2). Each PCB contains an on-board power supply, an optically-coupled current loop interface, and an automatic isolation circuitry between output loops.

The T20488-G2 Board provides four 4-channel (totally 16 channels) MTA connectors for field wiring. The four MTA connectors on this board are capable of driving 16 Wayne RS-485 CATs.

Note: Refer to FE-346 Field Wiring Diagram-Wayne CPC for a diagram of these connections. Ensure that each distribution board is dedicated for use with 34 mA Wayne UL-listed CATs or dispensers.

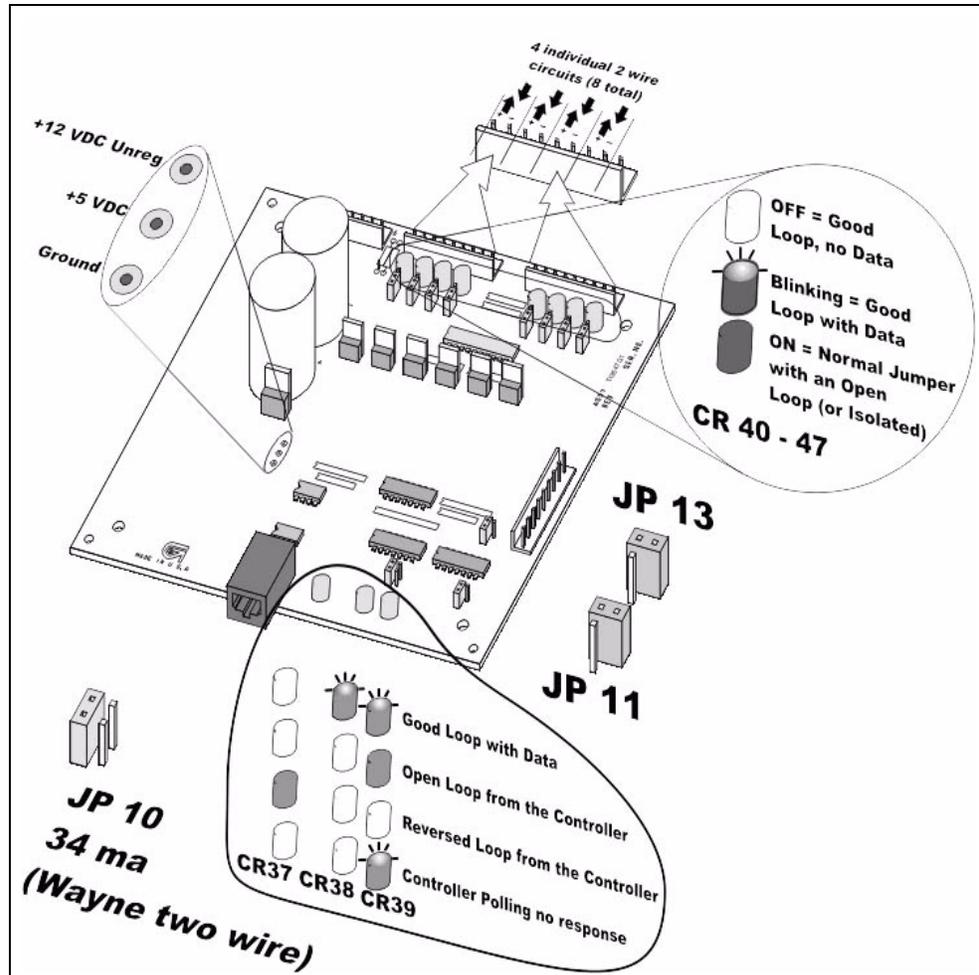
D-Box Board (T20488)

Figure 2-2: D-Box Board (T20488)



Distribution Board (T19547) - Settings for CPC

Figure 2-3: Distribution Board (T19547)



IMPORTANT INFORMATION

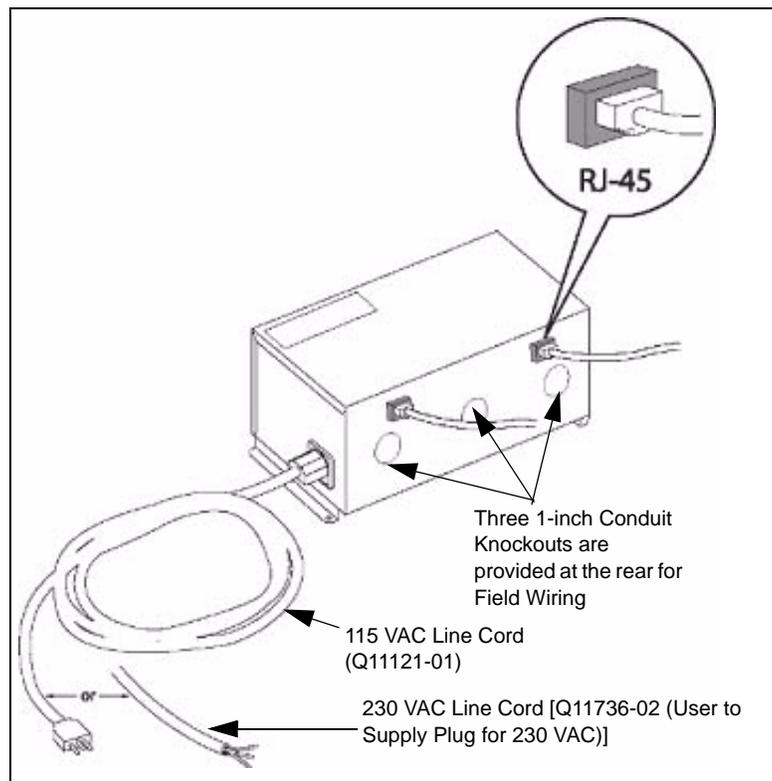
You can connect only one dispenser to any one data loop channel. The wiring length between the D-Box and dispensers must not exceed 800 feet, and requires stranded 14 AWG wires. Daisy chaining of the two-wire loops is not allowed with this unit.

Tokheim D-Box (PA0338X001)

The PA0338X001 D-Box provides an interface between the Gilbarco Passport system, Tokheim DPT/Tokheim Encryption Device (TED), and dispensers. Unlike the Wayne D-Box, the Tokheim D-Box presumes that the Tokheim dispensers are already installed. It is designed to connect to the Tokheim Model 69 Box (or the TED box if it is installed) for the DPTs, and the Model 67 Box for the dispensers.

One D-Box supports eight Tokheim pump loops (eight dual-sided dispensers for a total of 16 fueling positions and 16 Tokheim DPT/TED).

Figure 2-4: Tokheim D-Box (PA0338X001)



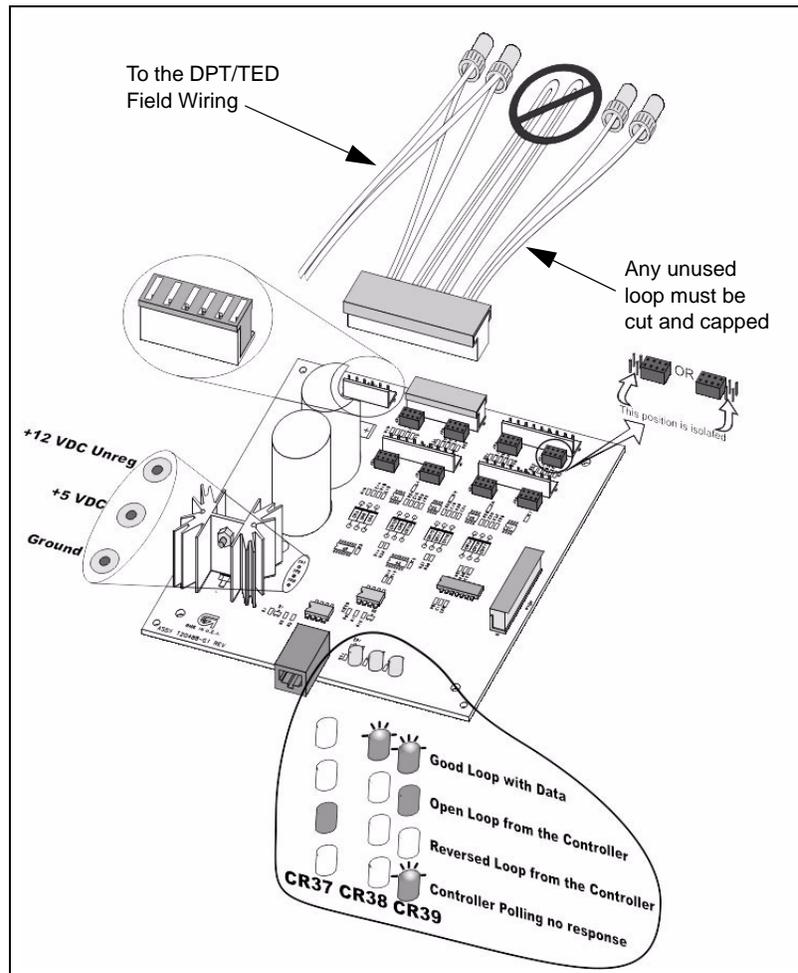
Dispenser Interface Boards

The PA0338X001 D-Box contains one transformer and a removable tray with two PCBs, T20636-G1 and T20488-G2. Each PCB contains an on-board power supply and an optically-isolated current loop interface.

D-Box Board (T20488-G2)

The T20488-G2 Board provides four 4-channel (totally 16 channels) MTA connectors for field wiring. The four MTA connectors on this board are capable of driving 16 Tokheim RS-485 DPTs. When a Tokheim site is using a TED, the T20488-G2 is field wired directly to the TED. The TED then communicates to the DPTs.

Figure 2-5: D-Box Board (T20488)



The connection to both the TEDs and the Model 69 Interface box are both through a 4-pin field wired connector with the following pin-out:

- 1 -RS-485
- 2 +RS-485
- 3 DC Ground
- 4 Chassis Ground

To connect both the TED and the Model 69 Interface box, proceed as follows:

- 1 Run a pair of field wires from the D-Box to the TED or Interface box.
- 2 Connect one wire from the D-Box to pin 1 of the TED or Interface box.
- 3 Connect another wire from the D-Box to pin 2 of the TED or Interface box.

D-Box Board (T20636-G1)

The T20636-G1 D-Box Board provides an interface to the Tokheim Model 67 Box for connecting dispenser communications. While it has no jumper settings, it has the same LEDs and test points as the other D-Box Boards. A R20003-G1 Cable provides a connection to a circular connector on the outside of the D-Box. It is designed to accommodate the barrel connector included with the Tokheim 67 Box.

Configuring the 67B Box

The Tokheim 67B Interface Box supports both standard RS-422 and a Tokheim proprietary interface. The PA0338X001 D-Box supports the Tokheim proprietary interface. If a third-party POS that supports the RS-422 interface is being replaced, the 67B Interface Box must be reconfigured.

Note: The older Tokheim 67 Box only supports the Tokheim proprietary interface and must not be configured.

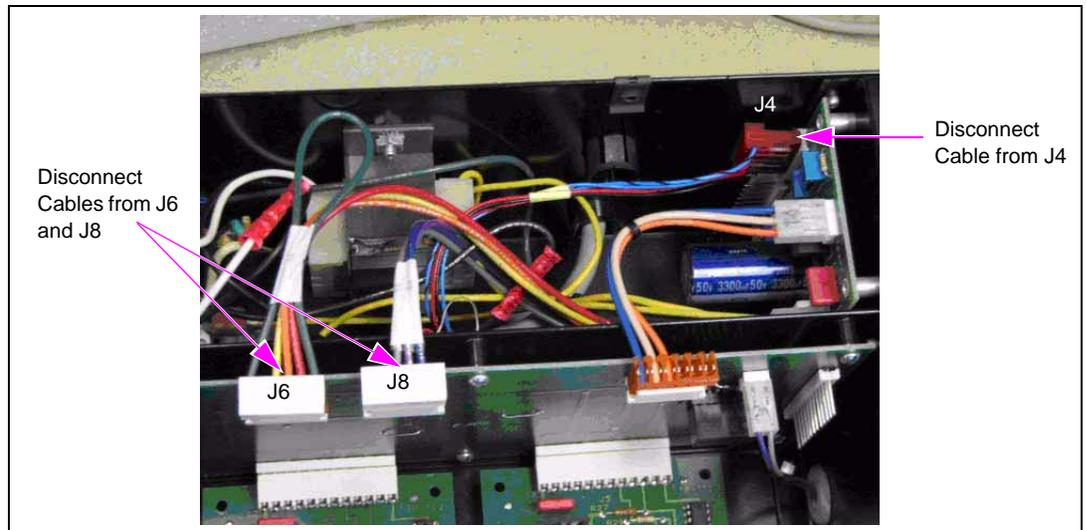
To determine how the Model 67B Interface Box is configured, verify the following:

- In a typical installation, the 67B Interface Box is mounted with the gray POS Cable, which exits the 67B Box from the top.
- Inside, the POS Cable terminates in one of the following locations:
 - When using the Tokheim proprietary interface, the POS Cable will terminate to J6, which is the left-most connector on the motherboard in the largest compartment in the 67B box. See [Figure 2-7](#) on [page 24](#).
 - When using the RS-422 interface, the POS Cable will terminate to J4 on the Power Supply Board on the right hand side of the compartment at the top of the 67B Box. See [Figure 2-6](#) on [page 23](#).

If the Model 67B Interface Box is configured for RS-422, proceed as follows to configure it for the Passport system:

- 1 Turn off power to the 67B Box, using the switch on the top.
- 2 Disconnect J6 and J8 (the two left-most connectors) on the motherboard (Figure 2-6).

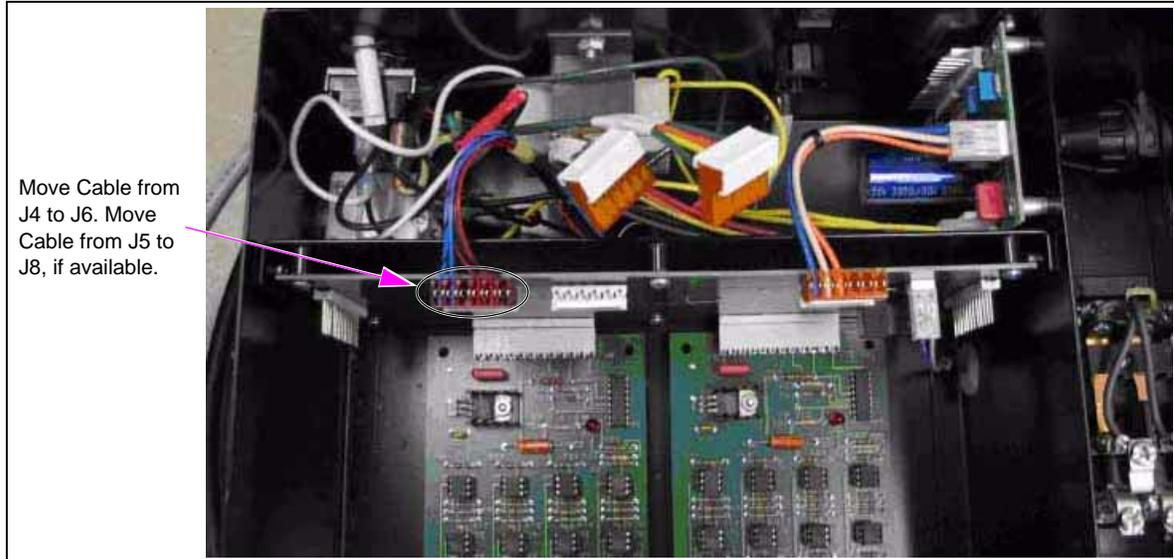
Figure 2-6: Disconnecting Cables from J4, J6, and J8 connectors



- 3 Disconnect the gray POS Interface Cable from J4 on the Power Supply Board and connect it to J6 (the left most connector) on the motherboard.

- 4 Disconnect J5 on the Power Supply Board and connect it to J8 on the motherboard, if applicable (Figure 2-7).

Figure 2-7: Connecting the J6 and J8 Connectors



Note: The two cables connected to J6 and J8 must not be connected anywhere. Stuff the cables down into the box and ensure that the contacts do not touch the chassis.

- 5 Turn on power to the 67B Box, using the switch on the top.

Preparing for Installation

Unpacking Equipment

When the equipment arrives at the installation site, each unit must be unpacked and inspected for possible shipping damage. Report any damage to the carrier. Shipping damage is not covered under Gilbarco's warranty policy. After visual inspection, place the unit back in the shipping carton and store it indoors until it is ready for installation.

Returning Components

Components returned to Gilbarco under warranty or for repairs are subject to severe shipping damage, if not packaged properly. If the original packing materials are unavailable, use a durable reinforced corrugated box and obtain suitable packing material such as "Pakon" polyfoam chips, polyurethane foam chips, or polystyrene foam chips.

Basic Site Criteria

D-Box installation must be in accordance with NEC NFPA 70, Automotive and Marine Service Station Code NFPA 30A, and state/local electrical requirements. For Canadian installations, use Canadian Electrical Code CSA 22.1. The site must be equipped with electric service allowing compliance with all installation requirements of a complete fueling system and with MDE-3620 POS Site Preparation Manual.

Physical Placement

Install the D-Box in an area not subjected to extreme temperature variations. The ambient temperature must remain relatively constant. Do not install the D-Box in a position subjected to direct sunlight. If a stable temperature environment is unavoidable, provide a suitable sunscreen.

Electrical Wiring Requirements

The receptacle that provides power to the D-Box must be a properly installed isolated ground receptacle (Hubbell® #IG5261 or equivalent). This type of receptacle is easily identified by its bright orange color and by the triangle embossed into the face of the outlet. The green grounding screw must be attached to the grounding conductor.

Ensure the following:

- All electrical wiring must conform to the NEC and local wiring codes, as well as the criteria provided in this manual (refer to “Requirements” on page 2).
- One conduit from the breaker panel to the D-Box location is required. The conduit must contain a dedicated/isolated circuit with three 14 AWG wires: 115 VAC hot, neutral, and ground or 230 VAC L1, L2, and ground. Do not use the electrical conduit to provide an earth ground. It is necessary to have the D-Box on the same phase as the CATs.
- The circuit powering D-Box must not power other devices. The circuit must not share a conduit with wiring for devices drawing high amperage (for example, compressor, freezer, and so on) or devices that are sources of Radio Frequency Interference (for example, TV, microwave, intercom, and so on).
- An AC outlet must be located within 6 feet of the D-Box. Do not use extension cords.

Note: For 230 VAC operation, a nine-foot detachable line cord is provided. It is the customer's responsibility to supply a plug for the cord that meets local electrical codes and UL requirements.

Installing the PA0338X00X D-Box

The PA0338X00X D-Box cannot be used until it is properly installed and configured. The procedural steps below must be completed in the specified order before the D-Box is brought online.

- Step 1: “Preparing the D-Box” on page 26
- Step 2: “Installing the D-Box” on page 26
- Step 3: “Connecting Field Wires to MTA Pigtails” on page 27
- Step 4: “Configuring the D-Box Jumper Settings” on page 29
- Step 5: “Establishing Pump Loop Communication” on page 30

Preparing the D-Box

To prepare the D-Box, proceed as follows:

- 1 Loosen the two screws under the bottom front area of the D-Box and then lift the lid.
- 2 Carefully remove and discard any packing material from the D-Box.
- 3 Disconnect the cable from the distribution board(s) at P101 (refer to [“Configuring the D-Box Jumper Settings”](#) on page 29 for connector locations).
- 4 Slide the distribution board mounting plate and boards up and out of the D-Box. This avoids unnecessary damage to the components when you mount the unit to the wall.

Installing the D-Box

To install the D-Box, proceed as follows:

- 1 Power down the equipment to which the D-Box will be connected (for example, CAT/DPTs and dispensers, SPC, TED, TRAC Controller, and so on). This step ensures that there is no damage to the inputs on the connected equipment and that they initialize properly with the Passport system.
- 2 Mount the D-Box to the wall ensuring that you allow clearance on the left side to connect the AC cable, on the right side to connect the Tokheim 67 Box, if applicable, and above, so that the cover can be removed. The D-Box must also be within 6 feet of the closest AC receptacle.
- 3 Install the conduit for the data wires between the wiring trough and the D-Box.
- 4 Pull the data wires up and into the D-Box leaving 16 inches of wire inside the D-Box (this step allows for easy installation of the wiring pigtails, explained later in this section).
- 5 Connect the data wires to the R19263-G1 wiring pigtails (refer to [“Connecting Field Wires to MTA Pigtails”](#) on page 27 for instructions).
Note: If jumpers are installed on the unused pigtail positions, cut the unused pigtail loops connected to the T20488-G2 Board, and cap the wires with wire nuts. If jumpers are not installed in the unused pigtail positions, then do not cut the unused pigtail loops.
- 6 Replace the distribution board mounting plate.
- 7 Reconnect P101.
- 8 Connect P106, P107, P108, and P109 as required to the board(s).
- 9 Connect the Data Cable(s) to the 8-pin modular jack connectors.
- 10 Verify if the jumper settings are correct. Refer to [“Configuring the D-Box Jumper Settings”](#) on page 29.
- 11 Install the jump jacks (JP1–JP8, Q13804-01) one at a time for the positions being used. The jumper may be offset by two positions to connect only one pair.

- 12 Verify if all positions on JP1–JP8 are installed correctly on the T20488-G2 Board and are connected to CATs.
Note: Do not install jump jacks in positions that are not connected to CATs.
- 13 When installing Tokheim dispensers, connect the cable coming from the Tokheim 67 Box to the barrel connector on the right hand side of the D-Box.
- 14 Restore power to each of the dispensers.
- 15 Proceed to [“Establishing Pump Loop Communication”](#) on page 30.

Connecting Field Wires to MTA Pigtails

Communication wiring from each Wayne dispenser and CAT must be connected to an appropriate channel on the T20488-G2 (CATs) or T19547-G1 (dispensers) Distribution Boards. Refer to the information below when connecting field wiring to the D-Box.

Communication wiring from each Tokheim Box (TED or 69) must be connected to an appropriate channel on the T20488-G2. The wiring from the pump Box (67) must be connected to the barrel connector on the outside of the D-Box.

Connecting Dispenser Field Wiring

Each Wayne dispenser must have a pair of data wires (positive and negative) used for two-wire communication (dual-sided positions will communicate over one pair). These wires must be connected to a channel on either P106 or P107 of the T19547-G1 Distribution Board. Data pairs cannot be shared between separate sets of dispenser electronics. Daisy-chaining is also not allowed.

Connecting SPC Field Wiring

Each Wayne SPC must have a pair of data wires (positive and negative) used for two-wire communication. These wires must be connected to a channel on either P106 or P107 of the T19547-G1 Distribution Board. Data pairs cannot be shared between a SPC and other dispenser electronics. Daisy-chaining is also not allowed.

Connecting CAT/DPT/TED Field Wiring

Each CAT/DPT/TED dispenser must have a pair of data wires (positive and negative) used for RS-485 communication (dual-sided positions will communicate over one pair). These wires must be connected to a channel on P106, P107, P108, or P109 of the T20488-G2 Distribution Board. Data pairs cannot be shared between separate sets of CAT electronics. Daisy-chaining is also not allowed.

Note: If jumpers are installed in the “NORMAL” position, cut the unused pigtail loops connected to the T20488-G2 Board and cap the wires with wire nuts. If jumpers are not installed in the unused pigtail positions, then do not cut the unused pigtail loops.

IMPORTANT INFORMATION

Failure to follow the jumper methods described in the note above will result in communication problems with the CATs.

Connecting TRAC Controller Field Wiring

The Wayne TRAC Controller has a pair of data wires (positive and negative) used for RS-485 communication. These wires must be connected to a dedicated channel on P106, P107, P108, or P109 of the T20488-G2 Distribution Board. This means that no CATs may be wired to this specific channel on any remaining connectors once a TRAC controller is in use (for example, if a TRAC controller is wired to the first channel on P106, then the first channel on P107, P108 and P109 cannot be used for communication to any other devices). Data pairs cannot be shared between a TRAC controller and other electronics. Daisy-chaining is also not allowed.

IMPORTANT INFORMATION

Failure to follow the wiring methods described above will result in communication problems with the CATs.

Connecting DSM Field Wiring

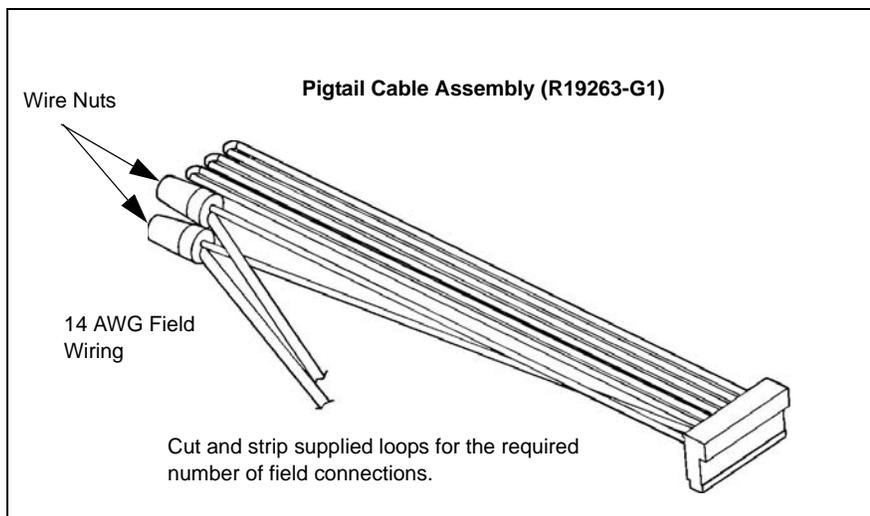
The Wayne DSM contains a pair of data wires (positive and negative) used for RS-485 communication. These wires must be connected to a channel on P106, P107, P108, or P109 of the T20488-G2 Distribution Board. Data pairs cannot be shared between a DSM and other electronics. Daisy-chaining is also not allowed.

See [Figure 2-8](#) for an example of connecting field wiring to the R19263-G1 Pigtail Cable assembly.

Connecting the TED Field Wiring

The Tokheim TED contains a pair of data wires used for RS-485 communication. These wires must be connected to a channel on P106, P107, P108, or P109 of the T20488-G2 Distribution Board. When a site has a TED installed, the TED then connects to the DPTs such that the Passport system communicates to the TED, which then communicates to the DPTs.

Figure 2-8: Pigtail Cable Assembly



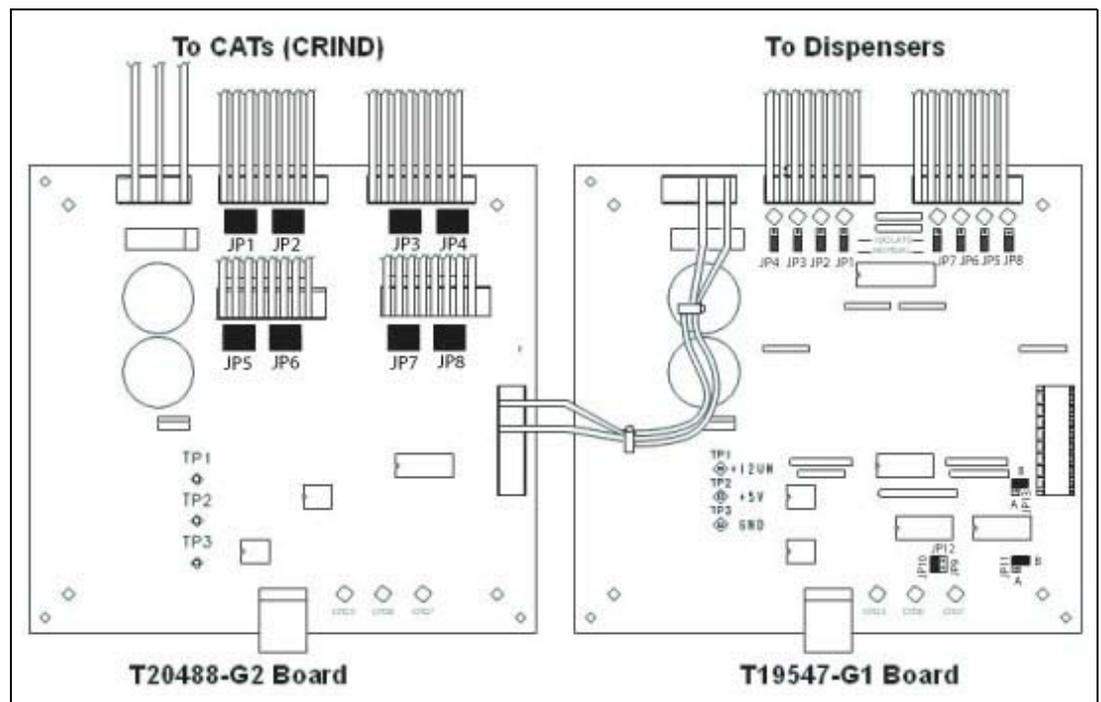
The table below provides a quick reference to field wiring and proper connections for a CPC installation.

Tokheim Dispenser	Wayne Dispenser	CAT/DPT/TED	TRAC Controller	SPC	DSM
Barrel connector	P106 or P107 on T19547	P106, P107, P108, or P109 on T20488	Dedicated channel on P106, P107, P108, or P109 on T19547	P106, P107, P108, or P109 on T19547	P106, P107, P108, or P109 on T20488

Configuring the D-Box Jumper Settings

The T19547-G1 D-Box Board must be jumpered for a 34 mA loop for proper communication to Wayne dispensers. See [Figure 2-9](#) and “Description of Jumper Settings” for details regarding jumper settings for the CPC D-Box.

Figure 2-9: D-Box to CATs and Dispensers



Description of Jumper Settings

Description	T19547-G1 Board Jumper Settings	T20488-G2 Board Jumper Settings
2 boards, 2 input, 8 loops, 34 mA for Wayne UL-listed dispensers	JP10 “In” JP11B “In” JP13B “In”	<ul style="list-style-type: none"> • JP1-JP8 “In” on positions connected to CATS • JP1-JP8 “Out” on positions not connected to CATS

Establishing Pump Loop Communication

The D-Box links fuel dispensers to the Passport system. The D-Box communicates with the Passport system through the Dispenser Hub. To establish communication between the CPC forecourt equipment and Passport POS, proceed as follows:

- 1 Mount the Dispenser Hub in a location that is powered by an isolated ground and is free from Radio Frequency Interference. For more details, refer to MDE-3760 Passport Dispenser Hub Installation Instructions.
- 2 After the Dispenser Hub is securely mounted, connect an Ethernet Cable between the LAN port and an available port (ports 1 to 8) of the router. Connect all CAT-5 Cables from the pump and Wayne CAT loops at the D-Box to the appropriate loop on the Dispenser Hub.
- 3 Apply power to the Dispenser Hub by connecting the AC cable to the Dispenser Hub's Power Input connection (for existing locations, perform a reboot of the Dispenser Hub through the System Maintenance Toolbar).

Note: The Dispenser Hub is shipped from Gilbarco with a pre-programmed IP address of 10.5.48.5. If communication between the Dispenser Hub and the Passport POS is present, the Dispenser Hub begins a download (indicated by rapid blinking of the green and amber LEDs on the LAN port). If communication is not present, refer to [“Appendix B: Testing Connection to the LAN”](#) on page B-1 for testing the LAN connection and [“Appendix C: Resetting the NGCRIND.exe Process”](#) on page C-1 for programming the Dispenser Hub's IP address.

- 4 For new installations, ensure that all clients have the Cashier Workstation application running and are ready for use. For existing locations, ensure that all clients have been rebooted (through **More > Tools > Reboot**).
- 5 After the Dispenser Hub completes downloading (refer to [“Troubleshooting Steps”](#) on page 47), apply AC power to the D-Box.
Note: When downloading to Wayne CATs, it is important that all units download at the same time. After all connections are made and DHUB power restored, the download begins. Evaluate all fueling positions to ensure that each position is downloading simultaneously. If for some reason one or more positions are out of sync, perform a stop and start of the Passport Server application. This must synchronize the download. If it does not synchronize the download, power off any fueling position that is out of sync and power it back up, after the other downloads are complete.
- 6 Verify proper LED activity on the T19547-G1, T20488-G2, or T20636-G1 Boards in the D-Box.
- 7 Replace the D-Box cover and secure it with screws. After communication is established to the CATs and dispensers, proceed to [“Keypad Programming”](#) on page 31.

3 – Keypad Programming

Introduction

CPC Basic Input Output System (BIOS) diagnostics is a special application that is activated only at competitive CRIND devices. It allows programming and diagnostics to be performed at the competitive CRIND devices.

The diagnostics application is started and stopped by swiping the CAT Diagnostics Card. The diagnostics application resides in the CPC control system in the Passport system. It is different from the Gilbarco MOC diagnostics application that resides in the CAT device. The application can only be started when the Passport system is able to communicate with a CAT device.

Keypad Programming Concerns

Wayne CATs may use a membrane overlay or a mechanical doublewide keypad. The Passport system does not require any specific steps for programming mechanical keypads as opposed to membrane overlays. Also, certain competitive CRIND keypads have special keypad programming rules that must be followed to program the keypad correctly. The Passport system supports standard numeric keypads, as well as keypads that have the numeric keys mapped in unique positions (calculator style, and so on). The keypads must be programmed according to how the overlay is mapped for proper operation.

General Programming

For general programming, proceed as follows:

- 1 Pick any CRIND device with the base keypad and perform the keypad programming as follows:
 - Perform application key programming (Help, Outside Cash/Credit, Inside Cash/Credit, and so on).
 - At the competitive CRIND device, select “Update All” to update ALL CRIND keypads at the site.
- 2 Update similar keypads at each competitive CRIND device by loading the default keypad (refer to step 7 on [page 32](#)).
- 3 For each competitive CRIND keypad that differs from the base keypad, perform programming that is unique to that, as required; then perform the following:
 - Perform application key programming (Help, Outside Cash/Credit, Inside Cash/Credit, and so on).
 - At the competitive CRIND device, update only the CRIND keypad being programmed.

Programming Keypads with Standard Numeric Overlays

To program keypads with standard numeric overlays, proceed as follows:

- 1 If you have not already established communications, do so at this time. After communications have been established, the CAT displays the message “Press the **YES** key”.

Figure 3-1: CAT Display and Keypad Locations - Membrane Keypad



- 2 Press **YES** located on the CAT keypad.
- 3 The CAT display will prompt you to press **NO**. Press **NO** located on the CAT keypad.
- 4 The CAT display will prompt, “Program keypad?”. Press **YES** to continue with keypad programming.
- 5 The CAT display will prompt, “Use Standard Numeric Keypad?”. Press **YES** to continue.
- 6 The CAT display will prompt, “Program the CLEAR key?”. Press **YES** to continue. Refer to the chart in “[Keypad Programming - Standard Numeric Overlays](#)” on [page 33](#) to continue keypad programming.
- 7 After the programming is complete, the CAT display will prompt, “Update all keypads?”. If all units have the same overlay, press **YES**. On each subsequent fueling position, you can bypass keypad programming and press **YES** to the prompt “Use Default Keypad?”.

Note: If only a few keypads are unique, update all keypads and then program the unique positions individually. This will save time when you program multiple CAT overlay layouts.

Keypad Programming - Standard Numeric Overlays

CAT Display	Action
"Program the CLEAR key?"	Press NO if CLEAR key is not present on keypad/ Press YES if CLEAR key is present.
"Press CLEAR key"	Press CLEAR key. CLEAR key programmed.
"Press CLEAR key again"	Press CLEAR key. CLEAR key programming verified.
"Program the ENTER key?"	Press NO if ENTER key is not present on keypad/ Press YES if ENTER key is present.
"Press ENTER key"	Press ENTER key. ENTER key programmed.
"Press ENTER key again"	Press ENTER key. ENTER key programming verified.
"Program the HELP key?"	Press NO if HELP key is not present on keypad/ Press YES if HELP key is present.
"Press HELP key"	Press HELP key. HELP key programmed.
"Press HELP key again"	Press HELP key. HELP key programming verified.
"Program the CANCEL key?"	Press NO if CANCEL key is not present on keypad/ Press YES if CANCEL key is present.
"Press CANCEL key"	Press CANCEL key. CANCEL key programmed.
"Press CANCEL key again"	Press CANCEL key. CANCEL key programming verified.
"Program the PRESET key?"	Press NO if PRESET key is not present on keypad/ Press YES if PRESET key is present.
"Press PRESET key"	Press PRESET key. PRESET key programmed.
"Press PRESET key again"	Press PRESET key. PRESET key programming verified.
"Program the OUTSIDE CASH key?"	Press NO if OUTSIDE CASH key is not present on keypad/ Press YES if OUTSIDE CASH key is present.
"Press OUTSIDE CASH key"	Press OUTSIDE CASH key. OUTSIDE CASH key programmed.
"Press OUTSIDE CASH key again"	Press OUTSIDE CASH key. OUTSIDE CASH key programming verified.
"Program the OUTSIDE CREDIT key?"	Press NO if OUTSIDE CREDIT key is not present on keypad/ Press YES if OUTSIDE CREDIT key is present.
"Press OUTSIDE CREDIT key"	Press OUTSIDE CREDIT key. OUTSIDE CREDIT key programmed.
"Press OUTSIDE CREDIT key again"	Press OUTSIDE CREDIT key. OUTSIDE CREDIT key programming verified.
"Press OUTSIDE DEBIT key again"	Press OUTSIDE DEBIT key. OUTSIDE DEBIT key programming verified.
"Program the OUTSIDE DEBIT key?"	Press NO if OUTSIDE DEBIT key is not present on keypad/ Press YES if OUTSIDE DEBIT key is present.
"Press OUTSIDE DEBIT key"	Press OUTSIDE DEBIT key. OUTSIDE DEBIT key programmed.
"Press OUTSIDE DEBIT key again"	Press OUTSIDE DEBIT key. OUTSIDE DEBIT key programming verified.
"Program the INSIDE CASH key?"	Press NO if INSIDE CASH key is not present on keypad/ Press YES if INSIDE CASH key is present.
"Press INSIDE CASH key"	Press INSIDE CASH key. INSIDE CASH key programmed.
"Press INSIDE CASH key again"	Press INSIDE CASH key. INSIDE CASH key programming verified.
"Program the INSIDE CREDIT key?"	Press NO if INSIDE CREDIT key is not present on keypad/ Press YES if INSIDE CREDIT key is present.
"Press INSIDE CREDIT key"	Press INSIDE CREDIT key. INSIDE CREDIT key programmed.
"Press INSIDE CREDIT key again"	Press INSIDE CREDIT key. INSIDE CREDIT key programming verified.
"Program the INSIDE DEBIT key?"	Press NO if INSIDE DEBIT key is not present on keypad/ Press YES if INSIDE DEBIT key is present.
"Press INSIDE DEBIT key"	Press INSIDE DEBIT key. INSIDE DEBIT key programmed.
"Press INSIDE DEBIT key again"	Press INSIDE DEBIT key. INSIDE DEBIT key programming verified.

CAT Display	Action
"Program the LANGUAGE SELECT key?"	Press NO if LANGUAGE SELECT key is not present on keypad/ Press YES if LANGUAGE SELECT key is present.
"Press LANGUAGE SELECT key"	Press LANGUAGE SELECT key. LANGUAGE SELECT key programmed.
Press LANGUAGE SELECT key again"	Press LANGUAGE SELECT key. LANGUAGE SELECT key programming verified.
"Program the CHECKING key?"	Press NO if CHECKING key is not present on keypad/ Press YES if CHECKING key is present.
"Press CHECKING key"	Press CHECKING key. CHECKING key programmed.
"Press CHECKING key again"	Press CHECKING key. CHECKING key programming verified.
"Program the SAVING key?"	Press NO if SAVING key is not present on keypad/ Press YES if SAVING key is present.
"Press SAVING key"	Press SAVING key. SAVING key programmed.
"Press SAVING key again"	Press SAVING key. SAVING key programming verified.

Programming Keypads with Non-standard Overlays

Wayne CATs may be equipped with keypads that have the numeric keys in unique positions as opposed to those used by standard overlays. To program non-standard keypads, proceed as follows:

- 1 If you have not already established communication, do so at this time. After communication has been established, the CAT displays the message, "Press the **YES** key" (if you require to access diagnostics again, swipe the CRIND diagnostics card at the card reader).
- 2 Press **YES** located on the CAT keypad.
- 3 The CAT display will prompt you to press **NO**. Press **NO** located on the CAT keypad.
- 4 The CAT display will prompt, "Program keypad?". Press **YES** to continue with keypad programming.
- 5 The CAT display will prompt, "Use Standard Numeric Keypad?". Press **NO** to continue.
- 6 The CAT display will prompt, "Program the 0 key?". Refer to the chart in "[Keypad Programming - Standard Numeric Overlays](#)" on [page 33](#), to continue keypad programming.
- 7 After the programming is complete, the CAT display will prompt, "Update all keypads?". If all units have the same overlay, press **YES**. Diagnostics will automatically exit. Keypad programming will automatically be updated to each fueling position.

Note: If only a few keypads are unique, update all keypads and then program the unique positions individually. This will save time when you program multiple CAT overlay layouts.

CAT Display	Action
"Program the 0 key?"	Press NO if 0 key is not present on keypad/ Press YES if 0 key is present.
"Press 0 key"	Press 0 key. 0 key programmed.
"Press 0 key again"	Press 0 key. 0 key programming verified.

CAT Display	Action
"Program the 1 key?" "Press 1 key"	Press NO if 1 key is not present on keypad/ Press YES if 1 key is present. Press 1 key. 1 key programmed.
"Press 1 key again"	Press 1 key. 1 key programming verified.
"Program the 2 key?" "Press 2 key"	Press NO if 2 key is not present on keypad/ Press YES if 2 key is present. Press 2 key. 2 key programmed.
"Press 2 key again"	Press 2 key. 2 key programming verified.
"Program the 3 key?" "Press 3 key"	Press NO if 3 key is not present on keypad/ Press YES if 3 key is present. Press 3 key. 3 key programmed.
"Press 3 key again"	Press 3 key. 3 key programming verified.
"Program the 4 key?" "Press 4 key"	Press NO if 4 key is not present on keypad/ Press YES if 4 key is present. Press 4 key. 4 key programmed.
"Press 4 key again"	Press 4 key. 4 key programming verified.
"Program the 5 key?" "Press 5 key"	Press NO if 5 key is not present on keypad/ Press YES if 5 key is present. Press 5 key. 5 key programmed.
"Press 5 key again"	Press 5 key. 5 key programming verified.
"Program the 6 key?" "Press 6 key"	Press NO if 6 key is not present on keypad/ Press YES if 6 key is present. Press 6 key. 6 key programmed.
"Press 6 key again"	Press 6 key. 6 key programming verified.
"Program the 7 key?" "Press 7 key"	Press NO if 7 key is not present on keypad/ Press YES if 7 key is present. Press 7 key. 7 key programmed.
"Press 7 key again"	Press 7 key. 7 key programming verified.
"Program the 8 key?" "Press 8 key"	Press NO if 8 key is not present on keypad/ Press YES if 8 key is present. Press 8 key. 8 key programmed.
"Press 8 key again"	Press 8 key. 8 key programming verified.
"Program the 9 key?" "Press 9 key"	Press NO if 9 key is not present on keypad/ Press YES if 9 key is present. Press 9 key. 9 key programmed.
"Press 9 key again"	Press 9 key. 9 key programming verified.
"Program the CLEAR key?" "Press CLEAR key"	Press NO if CLEAR key is not present on keypad/ Press YES if CLEAR key is present. Press CLEAR key. CLEAR key programmed.
"Press CLEAR key again"	Press CLEAR key. CLEAR key programming verified.
"Program the ENTER key?" "Press ENTER key"	Press NO if ENTER key is not present on keypad/ Press YES if ENTER key is present. Press ENTER key. ENTER key programmed.
"Press ENTER key again"	Press ENTER key. ENTER key programming verified.
"Program the HELP key?" "Press HELP key"	Press NO if HELP key is not present on keypad/ Press YES if HELP key is present. Press HELP key. HELP key programmed.
"Press HELP key again"	Press HELP key. HELP key programming verified.

CAT Display	Action
"Program the CANCEL key?" "Press CANCEL key"	Press NO if CANCEL key is not present on keypad/ Press YES if CANCEL key is present. Press CANCEL key. CANCEL key programmed.
"Press CANCEL key again"	Press CANCEL key. CANCEL key programming verified.
"Program the PRESET key?"	Press NO if PRESET key is not present on keypad/ Press YES if PRESET key is present.
"Press PRESET key"	Press PRESET key. PRESET key programmed.
"Press PRESET key again"	Press PRESET key. PRESET key programming verified.
"Program the OUTSIDE CASH key?"	Press NO if OUTSIDE CASH key is not present on keypad/ Press YES if OUTSIDE CASH key is present.
"Press OUTSIDE CASH key" "Press OUTSIDE CASH key again"	Press OUTSIDE CASH key. OUTSIDE CASH key programmed. Press OUTSIDE CASH key. OUTSIDE CASH key programming verified.
"Program the OUTSIDE CREDIT key?"	Press NO if OUTSIDE CREDIT key is not present on keypad/ Press YES if OUTSIDE CREDIT key is present.
"Press OUTSIDE CREDIT key"	Press OUTSIDE CREDIT key. OUTSIDE CREDIT key programmed.
"Press OUTSIDE CREDIT key again"	Press OUTSIDE CREDIT key. OUTSIDE CREDIT key programming verified.
"Program the OUTSIDE DEBIT key?" "Press OUTSIDE DEBIT key"	Press NO if OUTSIDE DEBIT key is not present on keypad/ Press YES if OUTSIDE DEBIT key is present. Press OUTSIDE DEBIT key. OUTSIDE DEBIT key programmed.
"Press OUTSIDE DEBIT key again"	Press OUTSIDE DEBIT key. OUTSIDE DEBIT key programming verified.
"Program the INSIDE CASH key?"	Press NO if INSIDE CASH key is not present on keypad/ Press YES if INSIDE CASH key is present.
"Press INSIDE CASH key"	Press INSIDE CASH key. INSIDE CASH key programmed.
"Press INSIDE CASH key again"	Press INSIDE CASH key. INSIDE CASH key programming verified.
"Program the INSIDE CREDIT key?"	Press NO if INSIDE CREDIT key is not present on keypad/ Press YES if INSIDE CREDIT key is present.
"Press INSIDE CREDIT key" "Press INSIDE CREDIT key again"	Press INSIDE CREDIT key. INSIDE CREDIT key programmed. Press INSIDE CREDIT key. INSIDE CREDIT key programming verified.
"Program the INSIDE DEBIT key?"	Press NO if INSIDE DEBIT key is not present on keypad/ Press YES if INSIDE DEBIT key is present.
"Press INSIDE DEBIT key"	Press INSIDE DEBIT key. INSIDE DEBIT key programmed.
"Press INSIDE DEBIT key again"	Press INSIDE DEBIT key. INSIDE DEBIT key programming verified.
"Program the LANGUAGE SELECT key?" "Press LANGUAGE SELECT key"	Press NO if LANGUAGE SELECT key is not present on keypad/ Press YES if LANGUAGE SELECT key is present. Press LANGUAGE SELECT key. LANGUAGE SELECT key programmed.
"Press LANGUAGE SELECT key again"	Press LANGUAGE SELECT key. LANGUAGE SELECT key programming verified.
"Program the CHECKING key?"	Press NO if CHECKING key is not present on keypad/ Press YES if CHECKING key is present.
"Press CHECKING key"	Press CHECKING key. CHECKING key programmed.
"Press CHECKING key again"	Press CHECKING key. CHECKING key programming verified.
"Program the SAVING key?"	Press NO if SAVING key is not present on keypad/ Press YES if SAVING key is present.
"Press SAVING key" "Press SAVING key again"	Press SAVING key. SAVING key programmed. Press SAVING key. SAVING key programming verified.

Using the Keypad Programming Tool

This section provides instructions to program Wayne and Tokheim keypads, using the Keypad Programming Tool, to make the keypads compatible with the Passport system.

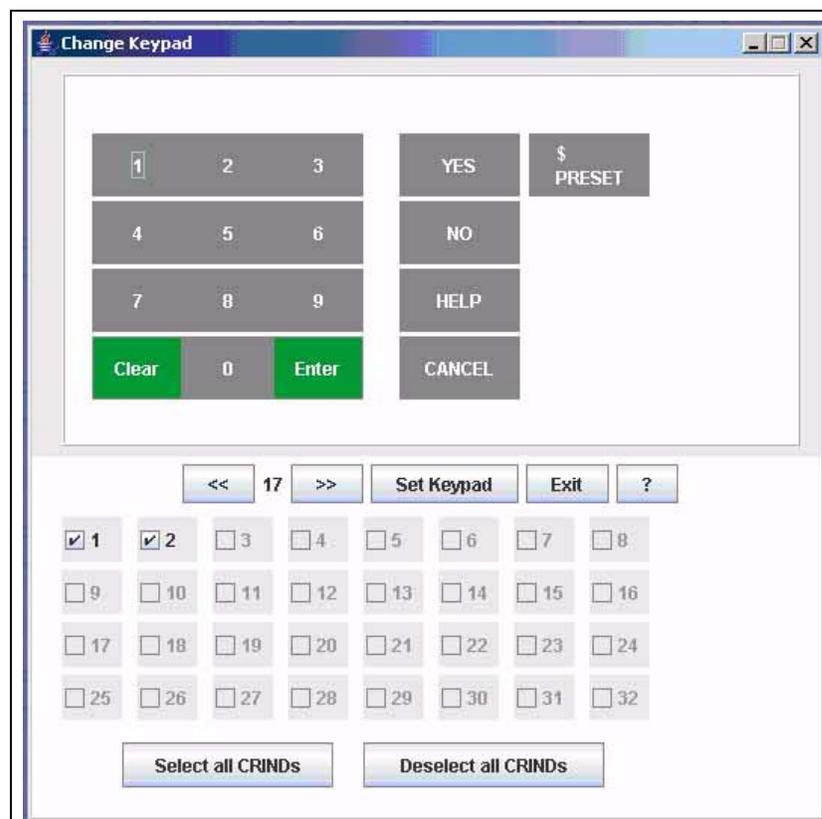
To program the keypads, proceed as follows:

- 1 Connect the Wayne/Tokheim dispenser to the Passport system and start up the Keypad Programming Tool.

The site's default keypad layout appears (for example, Chevron, Shell, and so on).

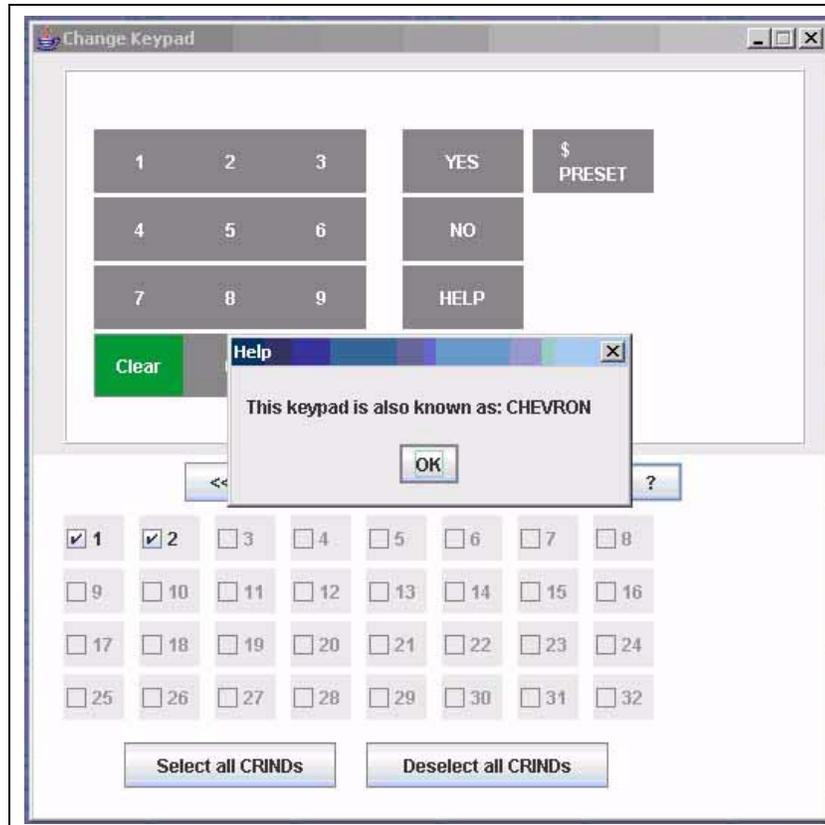
Note: This is the first screen that appears for Gilbarco/Wayne keypads.

Figure 3-2: Default Screen



- 2 To view the name of the site to which the default layout belongs to, press ?. The site's name appears in a dialog box as shown in [Figure 3-3](#).

Figure 3-3: Keypad Name

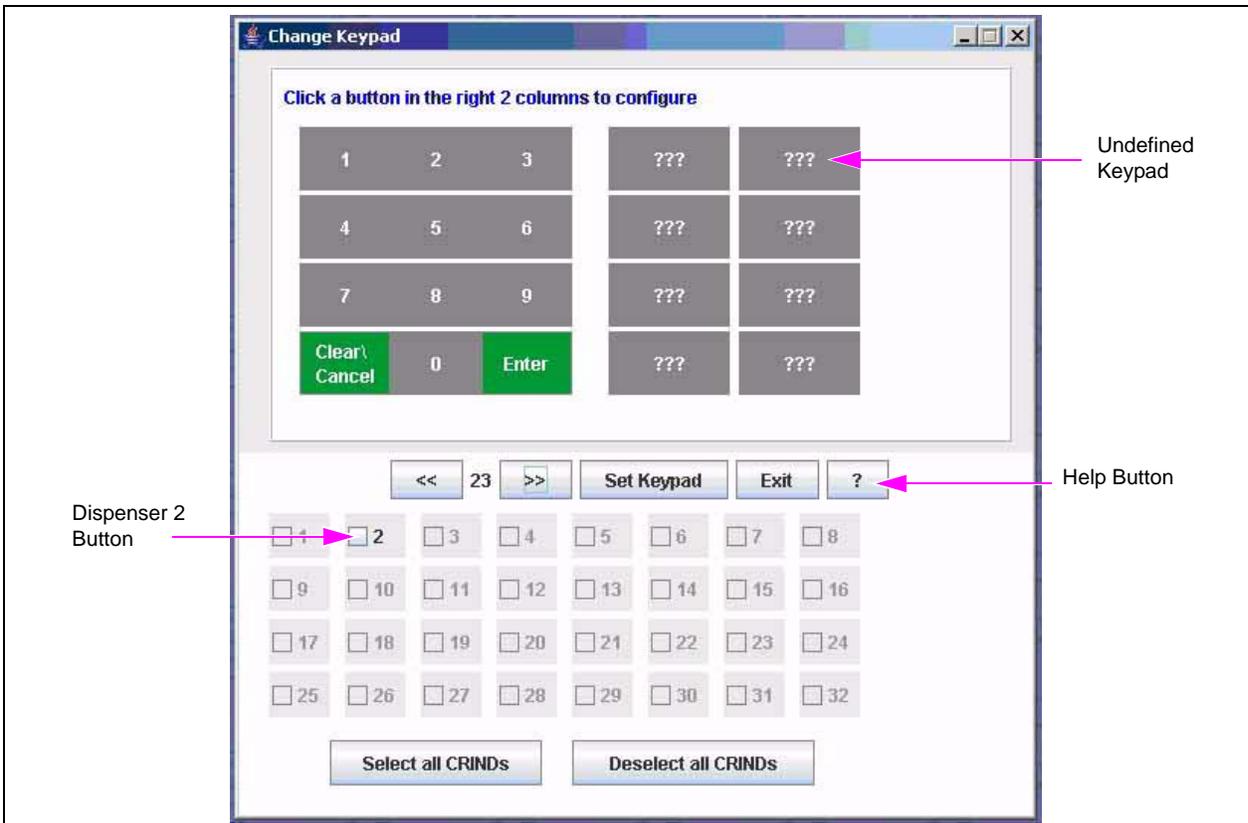


Programming the Wayne Keypad

To program the Wayne keypad, proceed as follows:

- 1 Select the CRIND which contains the keypad to be programmed. The customizable keypad screen appears. The ??? buttons indicate that the keys are currently undefined and have to be programmed.

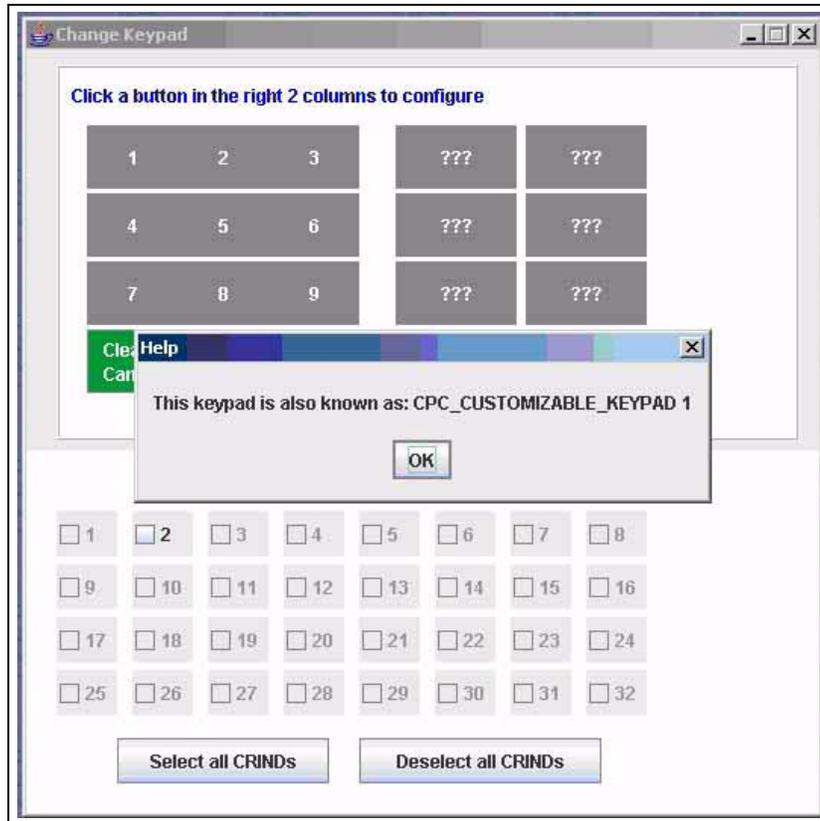
Figure 3-4: Selecting the Dispenser



Note: The CRIND 1 option is deactivated because it belongs to a Gilbarco dispenser, which does not allow customization.

- 2 Select ?. The following screen appears, which indicates that this is the first customizable keypad.

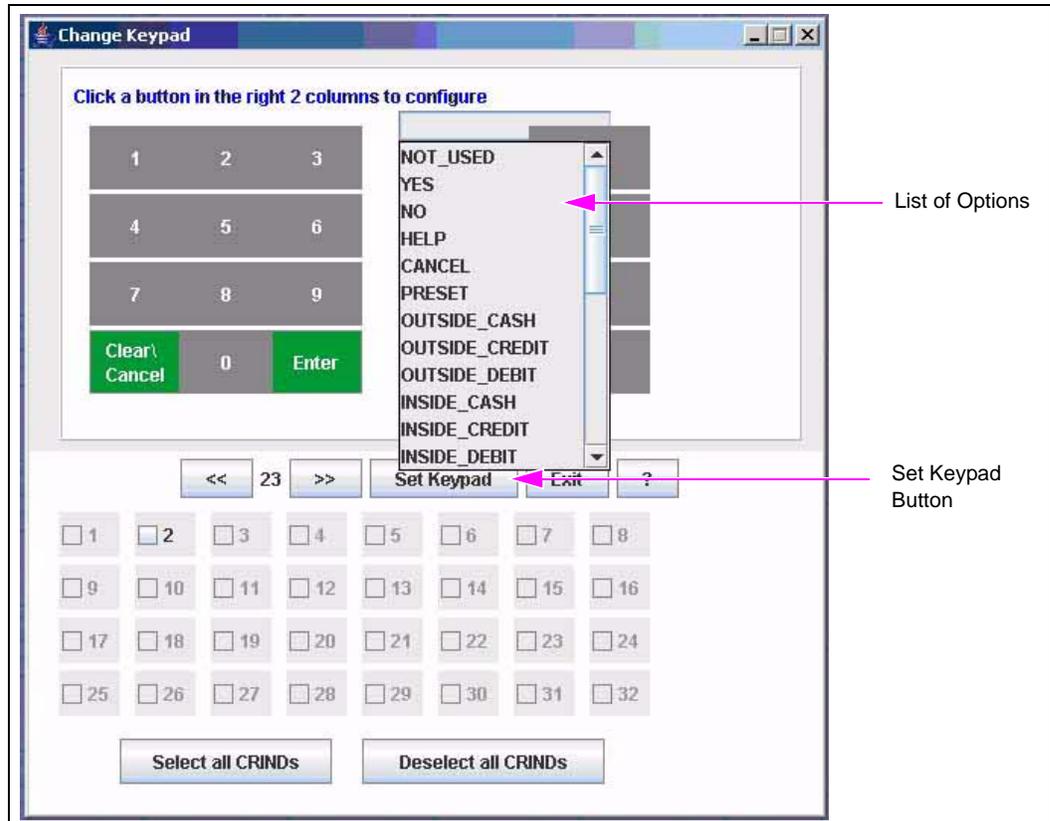
Figure 3-5: Customizable Keypad



Note: The Keypad Programming Tool allows to program one keypad per device, if necessary.

- 3 Select ????. The list of options with key names appears.

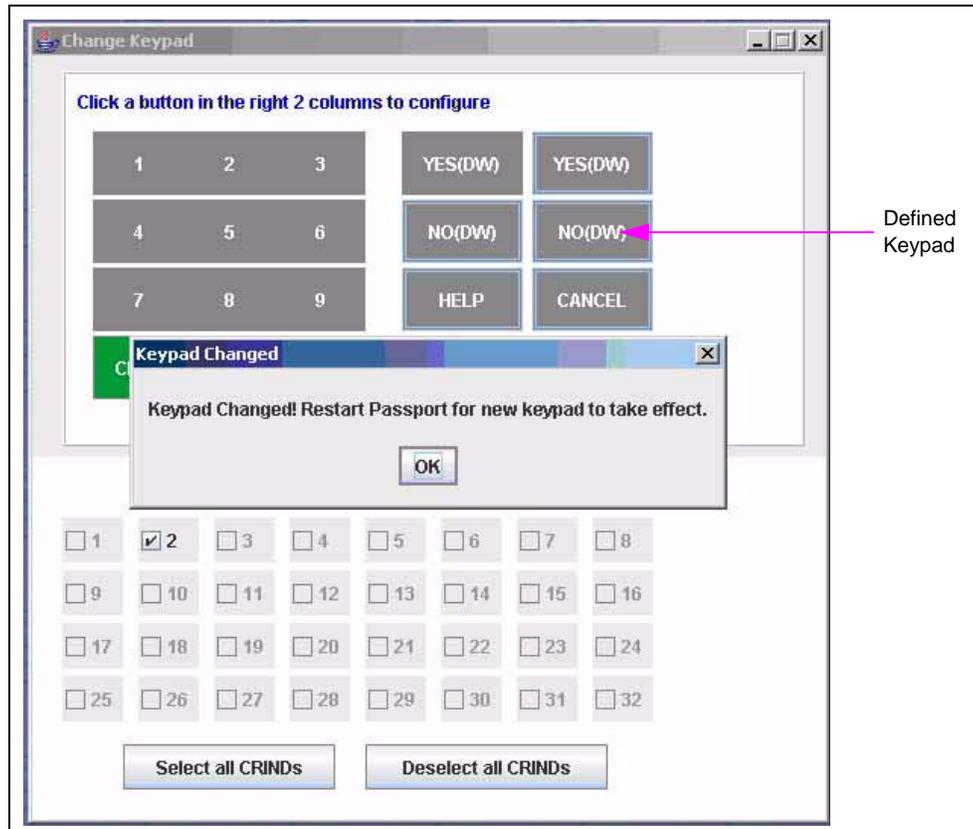
Figure 3-6: List of Key Names



- 4 Select the required name for the key.
- 5 Repeat steps 3 and 4 to program the other keys.

- 6 After programming the keypad with a valid setup, press **Set Keypad**. This will store the customizable keypad as a file that the Passport system can use. The following message appears, showing the status of the keypad setup.

Figure 3-7: Keypad Setup



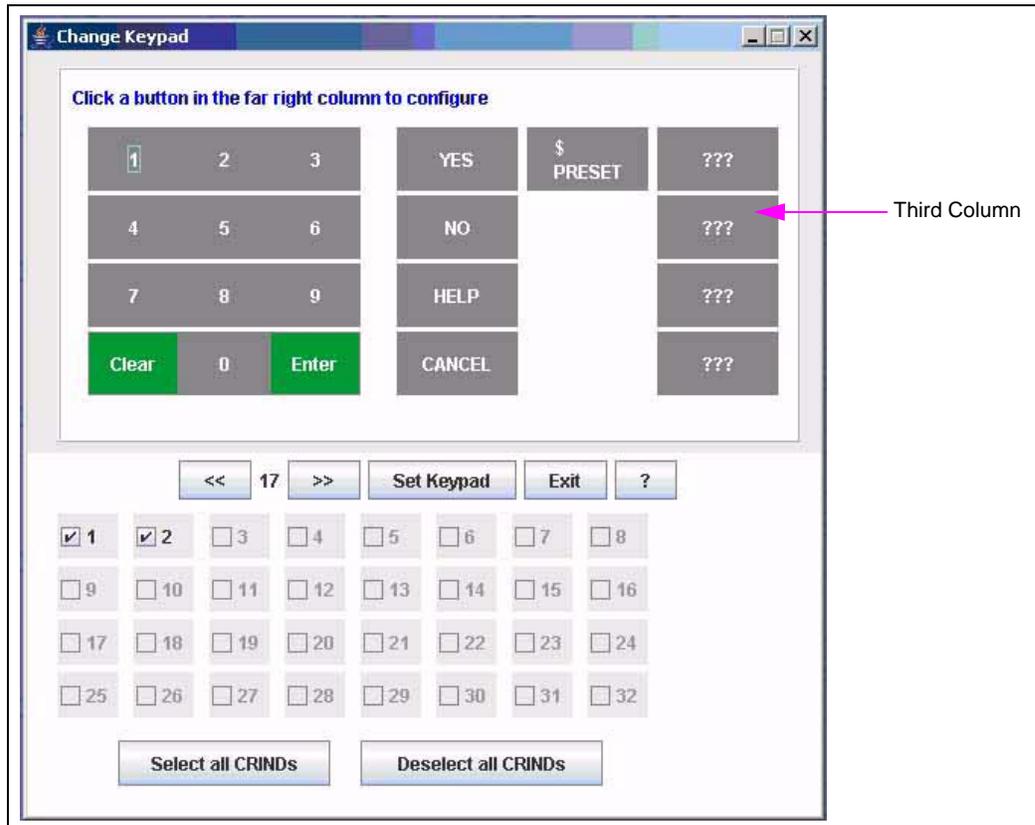
Notes: 1) If the keypad is not programmed appropriately, a message will be displayed to indicate that there is an issue.

2) The YES and NO keys are double-wide, and the HELP and CANCEL keys are single-wide. If a position on the keypad does not have a button associated with it, you can set the button to "NOT USED".

Programming the Tokheim Keypad

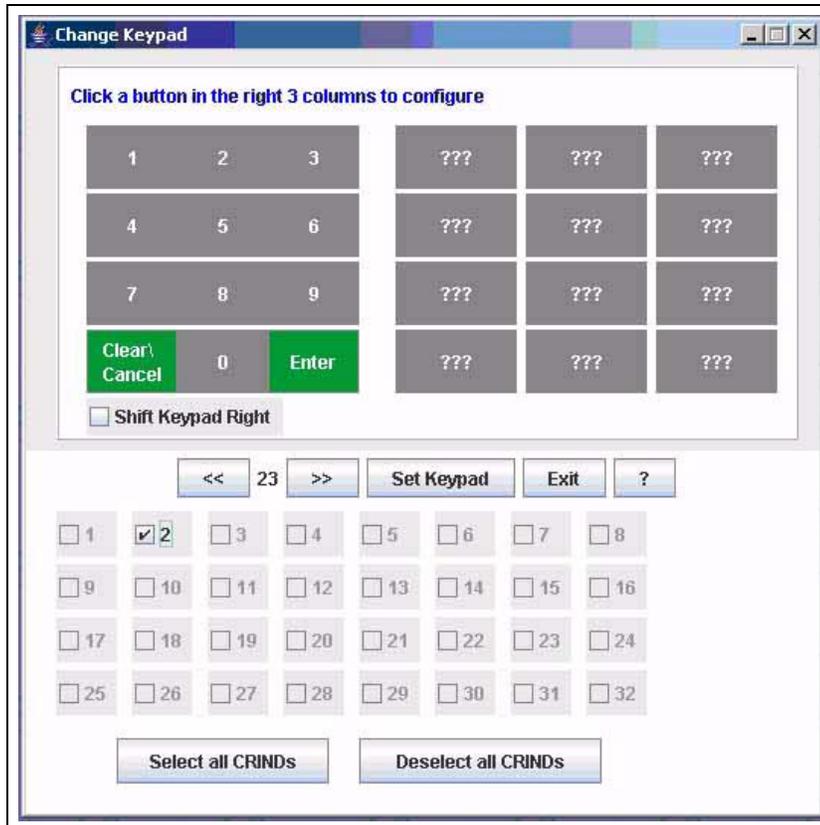
When you are programming a Tokheim keypad, at start-up, you will only be allowed to program the third column; that is, extend an existing keypad. When the keypad is set, the entire keypad will become a customizable keypad (see [Figure 3-8](#) and [Figure 3-9](#) on [page 44](#)).

Figure 3-8: Tokheim Keypad



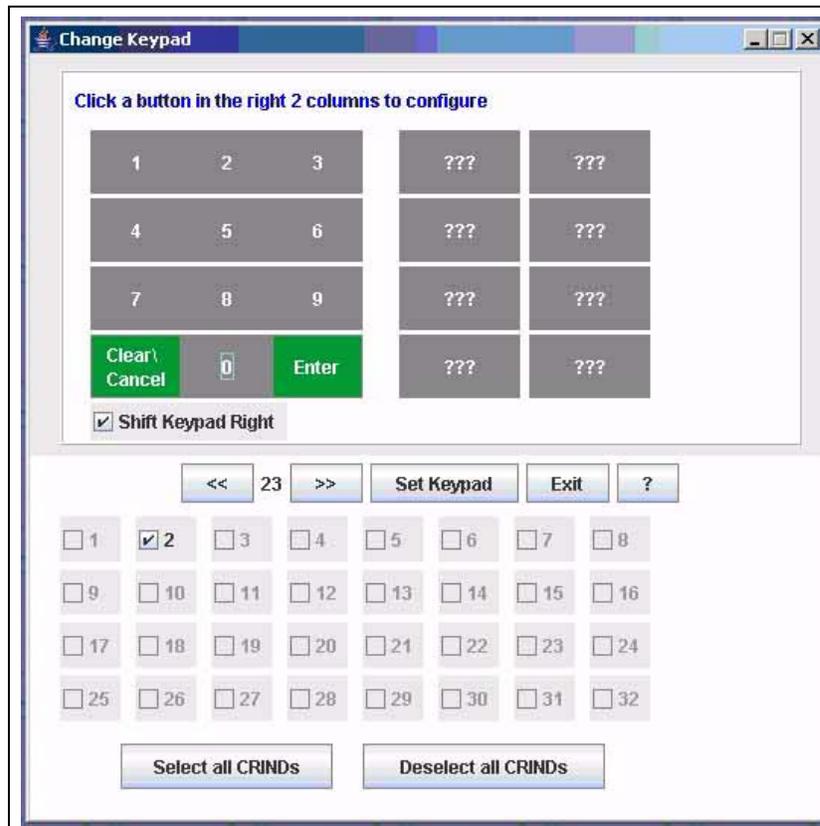
A fully configurable keypad for Tokheim has three columns (see [Figure 3-9](#)).

Figure 3-9: Fully Configurable Tokheim Keypad



Shell keypads for Tokheim dispensers generally have the keys shifted one column to the right. Therefore, an option appears to shift the keypad when programming for Tokheim. Select the **Shift Keypad Right** option to remove the third configurable column.

Figure 3-10: Shell Keypad



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4 – Troubleshooting Steps

This section provides possible solutions to problems concerning the following:

- Passport display messages
- Wayne CAT display messages
- Keypad issues
- D-Box

WARNING

Dispensing devices use high voltage. A potential shock hazard exists when working on or around a dispensing device.

For information regarding important safety and power requirements, refer to MDE-3620 POS Systems Site Preparation Manual.

Verify Software Versions

Before you begin the troubleshooting steps, verify if the Passport system meets the minimum software requirements for CPC:

- V4.03 or later
- If you are using V4.03.31.05, the latest available service pack must be installed.

Communication Issues - Checklist

The following list details installation concerns that may negatively affect communication at Passport system locations that use CPC. When troubleshooting communication issues, these items must be investigated, in addition to following the procedures provided for specific communication related issues.

Indoor Verification

Is the Distribution Box on the same electrical phase as the POS?

This is a Gilbarco installation requirement. If the distribution box is installed on a separate electrical phase, then the communication from the POS to forecourt may be affected by electrical noise.

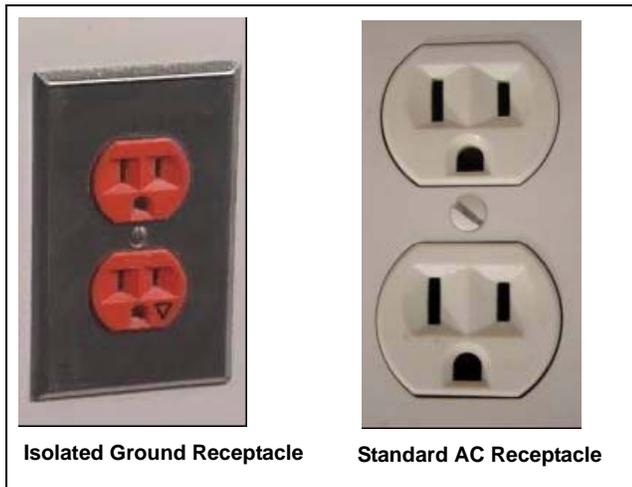
Is the Distribution Box on the same electrical phase as the Competitive dispensers?

This is also a Gilbarco installation requirement. If the dispensers are on a different electrical phase when compared to the POS, there may be variances that introduce electrical noise. This will negatively impact communication.

Is voltage provided to the Distribution Box by an isolated ground receptacle?

The distribution box must be powered by an isolated ground receptacle as per Gilbarco installation requirements (these receptacles may be identified by their bright orange color and triangular marking on the facing). This receptacle must be within 6 feet of the distribution box. The distribution box must be powered directly by the AC receptacle through its Power Cable. Extension Cables, surge protectors or UPS devices must not be installed in-line with the distribution box. If an isolated ground receptacle is not in use, you will have to install one as per Gilbarco requirements.

Figure 4-1: Isolated Ground Receptacle and Standard AC Receptacle Examples



What voltage is present at the isolated ground receptacle?

The voltage powering the distribution box must be no more than $\pm 10\%$ of the required AC feed.

115 VAC Installations	103.5 – 126.5 VAC
230 VAC Installations	207 – 253 VAC

Note: Voltages exceeding this range may impact communication.

Are any other devices that are powered by the receptacle used by the Distribution Box? If so, identify these devices.

In a G-SITE® installation, this circuit must power NO other devices.

In a Passport installation, the only additional acceptable equipment on this circuit is the Passport Dispenser Hub and a dedicated UPS powering the Dispenser Hub only. Any additional devices on this receptacle must be relocated as required.

What are the outgoing voltages of the CPC D-Box Transformer?

Red Wire (Pin 1) to Red Wire (Pin 2)	Must be between 12 – 13 VAC
Green and Yellow Wire (Pin 3) to Chassis Ground	Must be 0 VAC as this is a reference from ground to ground
Blue Wire (Pin 4) to Blue Wire (Pin 6)	Must be between 14 – 15 VAC

If outgoing voltages are not present (and incoming voltage is present on the primary), then:

- Inspect the Q12682-01 fuse in the power block as it may have to be replaced.
- The transformer itself may have to be replaced.

Are any pump loop data wires daisy-chained?

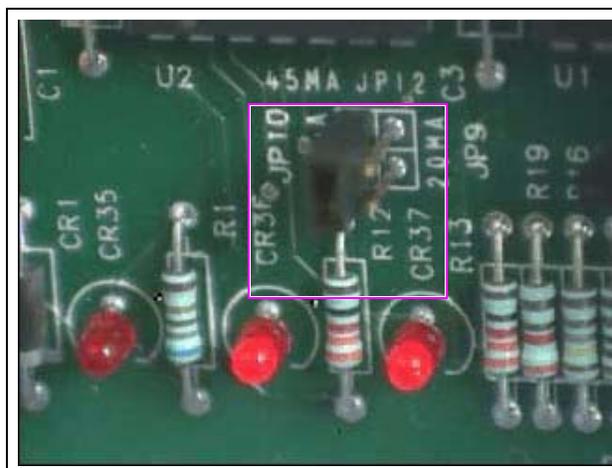
Note: Verify this by removing a pair of wires from the distribution box for a fueling position. If multiple positions lose communication, data wires are daisy-chained at some point at that location.

Field wiring cannot be daisy-chained at any point of the installation (at the distribution box, inside the wiring trough, and so on). Daisy-chaining will compromise communication from the POS to the forecourt. Wiring found to be daisy chained will require reinstallation as per Gilbarco installation requirements.

Is the T19547 Distribution Board jumpered for 34 mA?

The T19547 two-wire distribution box Board must be jumpered for 34 mA communication (JP10 installed) when interfaced with Wayne dispensers. If this jumper is not positioned properly, the variance in amperage will affect communication.

Figure 4-2: T19547 Distribution Board Jumpered for 34 mA



What voltage is present on TP1 of the T19547 Distribution Board?

This must be approximately 13 VDC (unregulated). If this voltage is not present (or out of specifications), then the T19547 Distribution Board (or transformer) will have to be replaced.

What voltage is present on TP2 of the T19547 Distribution Board?

This must be between 4.75 and 5.25 VDC (regulated). If this voltage is not present (or out of specifications), then the T19547 Distribution Board (or transformer) will have to be replaced.

What voltage is present when referencing TP3 on the T19547 Distribution Board to Chassis?

Note: Test with field wiring at P106 and P107 disconnected.

This must read 0 VDC. If this voltage is not present (or out of specifications), then the T19547 Distribution Board (or transformer) will have to be replaced.

What voltage is present when referencing TP3 on the T19547 to TP3 on the T20488 Distribution Board?

This must read 0 VDC. If this voltage is not present (or out of specifications), then disconnect the expansion cable connecting the two boards (from P104 to P104) and obtain voltage readings again.

CAUTION

Ensure that you power down the D-Box before you disconnect this cable to avoid blowing the fuse.

If voltage is now 0 VDC, the R19262-G2 expansion cable may have to be replaced.

Note: If you cannot isolate the expansion cable as the reason for the fault, reconnect the cable before you proceed.

If voltage is still present, then disconnect the field wiring connector at P106 and P107 and obtain voltage readings again.

- If voltage is now 0 VDC, then stray voltage may have been introduced by a fueling position. Isolate fueling positions individually and obtain voltage readings to locate the suspected fueling position.
- If voltage is still present after removing field wiring, the T20488 Board will have to be replaced.

What voltage is present on TP1 of the T20488 Distribution Board?

This must be approximately 13 VDC (unregulated). If this voltage is not present (or out of specifications), then the T20488 Distribution Board (or transformer) will have to be replaced.

What voltage is present on TP2 of the T20488 Distribution Board?

This must be between 4.75 and 5.25 VDC (regulated). If this voltage is not present (or out of specifications), then the T20488 Distribution Board (or transformer) will have to be replaced.

What voltage is present when referencing TP3 on the T20488 Distribution Board to Chassis?

Note: Test with field wiring at P106 and P107 disconnected.

This must read 0 VDC. If this voltage is not present (or out of specifications), then the T20488 Distribution Board, T19547 Distribution Board, R19262-G2 expansion cable or transformer may have to be replaced. Troubleshoot each independently until the root cause is identified.

Is an analog voltmeter being used to record the voltage present between data wires for all fueling positions and CATs?

An analog voltmeter is required for this checklist item as a digital meter will not properly capture this information. There must be no more than 2-3 VDC present between any pair of communication wires. If the voltage between an identified pair exceeds this range, it indicates an issue (faulty electronics, an electrical issue, a wiring issue, and so on) that has to be investigated at the fueling position itself.

Are other wires present in the conduit that contains the dispenser data communication wires? If so, identify these wires.

Communication wiring may be affected by Radio Frequency Interference. If any wiring exists that may potentially introduce Radio Frequency noise, wiring must be relocated to address this concern.

What wires are present in the wiring trough?

Communication wiring may be affected by Radio Frequency Interference. If any wiring exists that may potentially introduce Radio Frequency noise, wiring must be relocated to address this concern.

Are variable speed STP wires in proximity to dispenser data communication wires?

Variable speed submersible turbine wiring must not be in the same conduit or wiring trough with communication wires. This will introduce noise that affects communication between the POS and forecourt. If this wiring is present, communication wiring or STP wires must be relocated as required, to address this concern. Refer to the manufacturer's specifications for additional information.

Are all unused data pairs on the T20488 cut and individually wire capped?

For RS-485 communication, all unused data pairs must be cut and individually wire capped, if isolation jumpers are in a "Normal" position. If you fail to do so, it will prevent RS-485 communication, as the loop will be shorted.

If the issue occurs frequently, proceed as follows:

- 1 Isolate a fueling position using the NORMAL/ISOLATE jumper in the distribution box.
- 2 Wait for 30 to 45 minutes.

- 3 If the issue persists, change the position back to normal operation and repeat this process on the next fueling position.

If communication issues can be mitigated by isolating a unit from either the two-wire loop or RS-485 loop, it indicates that the root cause exists outside the POS system. Further investigation is required at the forecourt.

Outdoor Verification

What type of communication wiring is used?

Ensure that all communication wiring meets manufacturer's specifications (solid core as opposed to stranded, non-shielded as opposed to shielded, and so on). Wiring that does not meet the manufacturer's installation requirements may impede proper communication.

What is the distance from the farthest fueling position to the Distribution Box?

Although two-wire can be run over a maximum of 1000 feet, RS-485 communication has a maximum range of 800 feet. Since Wayne CATs use RS-485 communication to the Gilbarco CPC distribution box, installations over 800 feet may compromise communication.

Is an intercom system in use? If so, do the intercom wires and dispenser data wires in separate conduits?

Intercom wiring must not share the same conduit as communication wiring. Refer to the manufacturer's installation specifications for further details regarding wiring considerations.

Are other wires present in the conduit that contains the dispenser data communication wires? If so, identify these wires.

Additional wiring, such as intercom wiring, must not share the same conduit as communication wiring. Refer to the manufacturer's installation specifications for further details regarding wiring considerations.

What voltage is present when referencing ground (position 8 in the Wayne junction box) to the junction box itself?

Note: This test must be performed at each unit.

No voltage (DC or AC) must be read at this point. If voltage is present here, there is a grounding concern that may introduce noise into communication between the POS and forecourt.

Passport Display Messages

The following are checklists of actions that can help resolve Passport system issues.

Note: The following steps are based on an assumption that all clients are exhibiting the same symptom.

Single Fueling Position Offline

If one dispenser is not communicating with the POS, try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Verify proper CPC programming at the Passport Manager Workstation.
- Stop/Start the Passport system on the Passport server.
- Reset the Dispenser Hub.
- Check loopback connection on the pump D-Box Board.
- Check loopback connection on the CAT D-Box Board.
- Cycle power at CAT and/or dispenser or power fail.
- Cycle power at CPC D-Box or power fail.
- Verify dispenser ID.

Note: This requires knowledge of servicing competitive devices and dispensers.

- Swap dispenser IDs.

Note: This requires knowledge of servicing competitive devices and dispensers.

All Fueling Positions Offline

If all the dispensers are not communicating with the Passport system, try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Check power to the fueling positions.
- Verify proper Dispenser Hub operation.
- Check for communication to Dispenser Hub through the LAN.
- Check pump loop LEDs for proper operation (refer to [“Troubleshooting Dispenser Hub LEDs”](#) on page 59).
- Verify proper Dispenser Hub address in System Maintenance Toolbar.
- Verify communication to router.
- Reset the Dispenser Hub.
- Verify proper CPC programming at the Passport Manager Workstation.
- Check cable connectivity from the Dispenser Hub to CPC D-Box.
- Reset Dispenser Hub.
- Check power to CPC D-Box to see if voltage is present.
- Check if all unused loopback connections on the CPC D-Box Wayne CAT Board are cut and wire nipped, if required.
- Check polarity of field wiring connections and ensure that wiring is not swapped between CATs and dispensers.
- Verify if pump CPC D-Box Board is jumpered for a 34 mA loop (JP10).
- When you are using a PA0338xxxx CPC D-Box, verify if JP11 and JP13 are in the “IN” position.
- Check if any of the LEDs [CR35 (reverse loop), CR36 (receive) or CR37 (transmit)] are lit.

Periodic Offline Condition

If an offline symbol periodically flashes on the pump screen for one or more fueling positions, try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Check the CPC D-Box to ensure that it is wired correctly for each fueling position.
- Check for possible bad CAT Board (refer to “[CAT Board Isolation Testing](#)” on [page 56](#)).
- Ensure that a ferrite kit is installed and the Dispenser Hub is not located in an area prone to Radio Frequency Interference.

Ghost Sales Pop Up on Passport Cashier Workstation Screen

If this problem occurs, ensure that electrical connections at the Passport system and the CPC D-Box are correct.

If the site has variable speed STPs, check PSB 28-98 for information about symptoms of STP communication problems and troubleshooting techniques.

Card Stuck in CRIND

If this error is generated, it means that the CAT electronics detected a card in the card reader. Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Check and ensure that a card is not present in the CAT card reader.
- Attempt to clear the Card Stuck message by performing another card swipe or using a card reader cleaning kit.
- If present, ensure “Invert Card Signal” is not set in CAT BIOS programming.
- Warmstart the affected CAT electronics.
- Reset the NGCRIND application for that position.

If the steps above do not resolve the problem, then the CAT Control Board inside the Wayne dispenser could be defective.

Outside Debit Offline

If this error is generated, this means that the POS has lost communication with the Wayne DSM. Try the following steps until the problem is resolved.

- Ensure that a DSM is actually in use. If no DSM is in use, disable this feature for the affected fueling position.
- Cycle power to the DSM.
- Verify proper wiring from the DSM to the D-Box.
- Restart the Dispenser Hub.

If the steps above do not resolve the problem, then the DSM could be defective.

SPC Device Offline

If this error is generated, then communication has been lost to the SPC device. Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Ensure that a SPC is actually in use. If no SPC is in use, disable this feature for the affected fueling position.
- Cycle power to the SPC.
- Verify proper wiring from the SPC to the D-Box.
- Restart the Dispenser Hub.

If the steps above do not resolve the problem, then the SPC could be defective.

TRAC XXX Offline

If this error is generated, then communication has been lost to a TRAC Controller (XXX will be the address of the TRAC that lost communication. Valid errors are **149**, **150**, or **???** if forecourt has never communicated with the TRAC device). Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Ensure that a TRAC Controller is actually in use. If no TRAC Controller is in use, disable this feature.
- Cycle power to the TRAC Controller.
- Verify proper wiring from the TRAC Controller to the D-Box.
- Restart the Dispenser Hub.

If the steps above do not resolve the problem, then the SPC could be defective.

DCB XX - Side A Offline

If this error is generated, this means that the a specific DCB and/or side has lost communication with the POS. Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Check the DCB address and side in Forecourt Installation programming to ensure that it is correct.
- Cycle power to the affected fueling position.
- Verify proper wiring from the TRAC Controller to the affected fueling position.
- Restart the Dispenser Hub.

If the steps above do not resolve the problem, then the DCB could be defective.

Wayne CAT Display Messages

The following are checklists of actions that can help diagnose Wayne CAT issues.

Please Pay Inside (E01)

This message is displayed when there is no communication between the CAT and the Passport system. You can attempt to re-establish communication to the CAT by resetting NGCRIND.exe, which is responsible for polling each CAT and controlling its behavior. If resetting the NGCRIND.exe (refer to [“Resetting NGCRIND.exe”](#) on [page C-1](#)) does not clear this message, refer to procedures for [“Single Fueling Position Offline”](#) on [page 53](#). If this does not resolve the problem, then the CAT Control Board inside the Wayne dispenser could be defective.

Configuring CAT

This message must appear briefly when communication is established with a CAT. The Passport system will attempt to configure the device so that it can be used. If the message “Configuring CAT” does not clear from the display, attempt the following:

- Reset NGCRIND.exe.
- Cycle power at CAT and/or dispenser or power fail.

Please Wait

This message indicates one of the following:

The POS is sending data to the CAT.

~ OR ~

The POS is awaiting data from the host for transaction completion.

If this message does not clear from a CAT display, reset NGCRIND.exe.

CAT Display Message Prompts Flashing Too Fast (Cannot Read)

Power fail or cycle power at the CAT.

CAT Display Prompt Overwrites Itself

Power fail or cycle power at the CAT.

CAT Board Isolation Testing

To locate the dispenser that is not working correctly, proceed as follows:

- 1 Switch off power to one fueling position at a time, while all remaining fueling positions are powered on.
- 2 Try to determine the problem unit/fueling position.

Keypad Issues

The following is a checklist of actions that can help resolve a keypad issue.

Buttons Not Working (No Beep)

If buttons on the keypad are not working correctly, try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Warmstart CAT.
- The keypad may not be programmed correctly. Reprogram the keypad.
- Replace the keypad.

CPC D-Box

The following procedures can help resolve CPC D-Box issues.

No Power

If there is no power to the CPC D-Box, proceed as follows:

- 1 Check for 120 VAC at the power cord. If the voltage is correct, proceed to step 2.
- 2 Check connector P101 for voltages. The following voltages are in reference to ground.

Measure Between	Voltage
Red wire (pin 1) and Red wire (pin 2)	Between 12 to 13 VAC
Green and Yellow wires (pin 3)	0 VAC
Blue wire (pin 4) and Blue wire (pin 6)	Between 14 to 15 VAC
Blank	N/A

- If there are no voltages, replace the transformer.
- If all voltages are fine, and there is still no power, check the following test points located on the CPC D-Box Board.

Test Points	Voltage
+12un to Ground	Approx. 13 VDC
+5un to Ground	Approx. 5 VDC
Gnd to Ground	Approx. 0 VDC

After checking the test points, if voltages are correct and there is still no power, check the jump jacks and loop back connectors. Do one of the following:

- If jumpers are installed in the unused pigtail positions, cut the unused pigtail loops connected to the distribution board and cap the wires with wire nuts.
- If jumpers are not installed in the unused pigtail positions, do not cut the unused pigtail loops.

Transmit LED (CR37) on CPC D-Box Board is not Lit

Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Ensure that the appropriate pump loop LED (transmit) is lit on the Dispenser Hub (refer to [“Troubleshooting Dispenser Hub LEDs”](#) on page 59). If not, verify the following:
 - Forecourt installation programming is correct
 - Dispenser Hub has obtained a download after the forecourt programming is complete.

If the Dispenser Hub is transmitting properly, perform the following:

- Check cable connectivity from Dispenser Hub to D-Box.
- Warmstart or cycle power at CPC D-Box.
- Verify if JP10 (34 mA) jumper is installed.
- Check voltage at D-Box power supply.
- Check voltage at D-Box power Board.

Receive LED (CR36) on CPC D-Box Board is not Lit

Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Check if loop back connector wires are reversed. Switch the wires and check if it resolves the problem.
- Verify if the Forecourt Installation is correct.
- Verify if the JP10 (34 mA) jumper is installed.
- Verify if unused loop back connectors are either cut or jump jacks removed.
- If CR36 stays lit on the T20488-G2 when the Dispenser Hub system to CPC D-Box two-wire cable is disconnected and reconnected, there is a short on one of the CAT RS-485 pairs.

Slow/Sluggish Response to Customer Actions

If this problem occurs, the CAT Control Board or the Computer Base (Pump) could be defective. Try the following steps until the problem is resolved.

Note: These steps are not in sequential order.

- Power fail or cycle power at the dispensers (refer to [“CAT Board Isolation Testing”](#) on page 56).
- Ensure that the site is using the latest version of the Passport software for use with the CPC interface.
- Check for electrical noise (refer to MDE-3620 POS Site Preparation Manual).

Troubleshooting Dispenser Hub LEDs

Port	Solid Green LED	Blinking Green LED	Solid Amber LED	Blinking Amber LED
LAN	A solid green LED on the LAN port indicates a link between the Dispenser Hub and another TCP/IP device (for example, Router).	Refer to Note 1	NA	A blinking amber LED on the LAN port indicates data is being transmitted and received by the Dispenser Hub through TCP/IP (current production Dispenser Hubs - refer to Note 1).
Pump (refer to Notes 3 and 4)	A solid green LED on a PUMP loop indicates an open loop between Dispenser Hub and the D-Box.	A blinking green LED on the LAN port indicates that data from at least one pump/CRIND on this specific loop is being received by the Dispenser Hub.	NA	A blinking amber LED on a PUMP loop port indicates that this loop is active and the Dispenser Hub is attempting to transmit data through this port.
Probe	NA	A blinking green LED on the PROBE port indicates that data is being received through the PROBE port.	NA	A blinking amber LED indicates data transmission through the PROBE port. Refer to Note 2.

Notes: 1) To date, two main boards have been shipped in the Dispenser Hub. In T20039-G1, the green LED was used as a transmit LED and the amber as a receive LED. In T20039-G2, the green LED is used as a link indicator, and the amber is used for both transmit and receive.

- 2) The Probe port is only used when programming or diagnostics is being performed on the Dispenser Hub. There is no cable connection to the Probe port during typical operation. The amber LED (Transmit) flashes briefly during Dispenser Hub power-up. However, there is no LED activity on this port during normal operation.*
- 3) When both green and amber LEDs are blinking, it does not indicate communication between the POS system and the dispensers, but between the dispensers to the Dispenser Hub itself. The Dispenser Hub is the conversion point of TCP/IP to wire-wire and vice versa.*
- 4) When both green and amber LEDs are off (and the Dispenser Hub has AC power), it indicates that there is a complete loop between the Dispenser Hub and the D-Box, but the Dispenser Hub is not attempting to transmit any data over this loop.*

Passport CPC Diagnostics

Passport CPC Diagnostics helps you to identify if an issue is Passport related, or internal to the Wayne CAT. You can access CPC Diagnostics by swiping a Gilbarco CRIND Diagnostics card through the card reader at the CAT. CPC Diagnostics allows you to either program the Wayne CAT keypad, or perform CAT diagnostics.

To use the Passport CPC Diagnostics, proceed as follows:

- 1 Swipe the Gilbarco CRIND Diagnostics card through the card reader at the CAT. The CAT prompts for the Keys test.

Do Key
Diagnostics?

- 2 Select **Yes**.
- 3 The CAT prompts you to press keys. The key you pressed appears on the screen.

Press Keys
9-OUTSIDE_CREDIT

- 4 To move to the next prompt, wait for five seconds, or press **CLEAR** or **CANCEL** twice in succession. The CAT prompts for the Card test.

Do Card
Diagnostics?

- 5 Select **YES**. The CAT prompts you to insert a card. After you remove the card, the diagnostic result for the card is displayed (None or Good for track1 and track 2), and the CAT prompts you to insert another card.

Insert Card Now

REMOVE CARD
QUICKLY

T1: None
T2: Good

- 6 To proceed to the next prompt, wait for five seconds, or press **CLEAR** or **CANCEL** twice in succession. The CAT prompts for the Printer test.

Do Printer
Diagnostics?

- 7 Select **Yes**. The CAT displays the diagnostic information for the printer (OK, Low, Down), and prints out a receipt with some CAT configuration data.

Printer: OK

The CAT prompts for the Beeper test.

Do Beeper
Diagnostics?

- 8 Select **Yes**. The test display appears and the CAT will beep four times rapidly.

Testing
Beeper...

After the Beeper test is complete, the “Exit Diagnostics?” display appears.

Figure 4-3: Passport with CPC Installation – Wayne High-level Installation Diagram

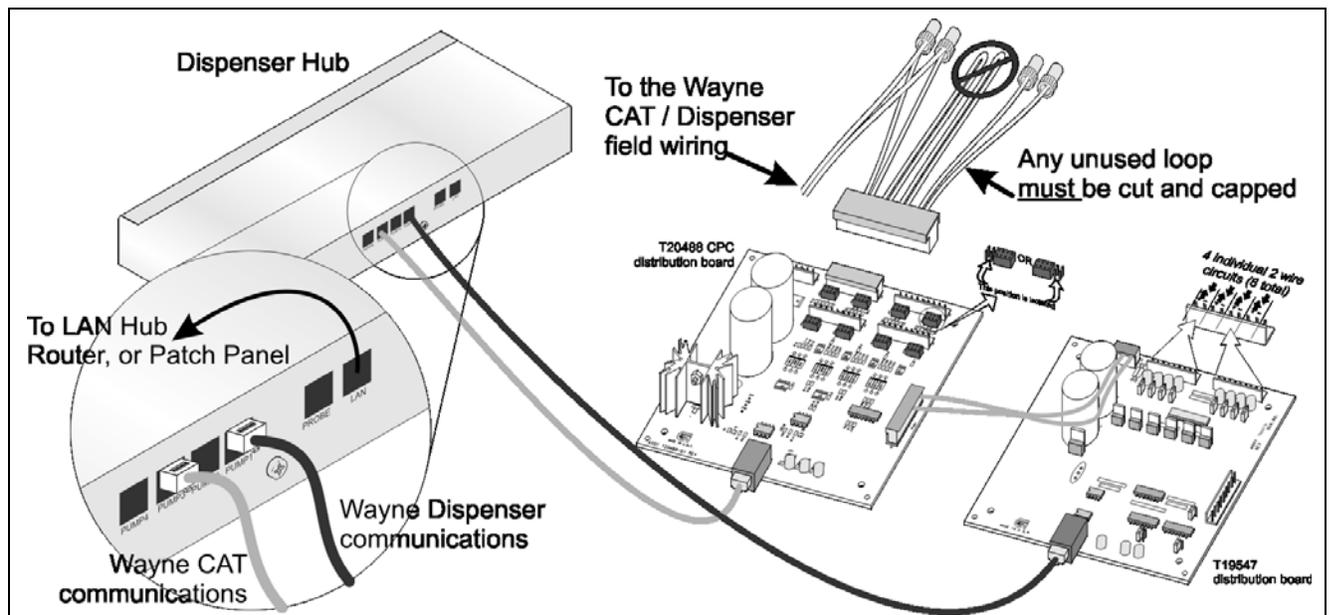


Figure 4-4: Passport with CPC Installation – Tokheim High-level Installation Diagram

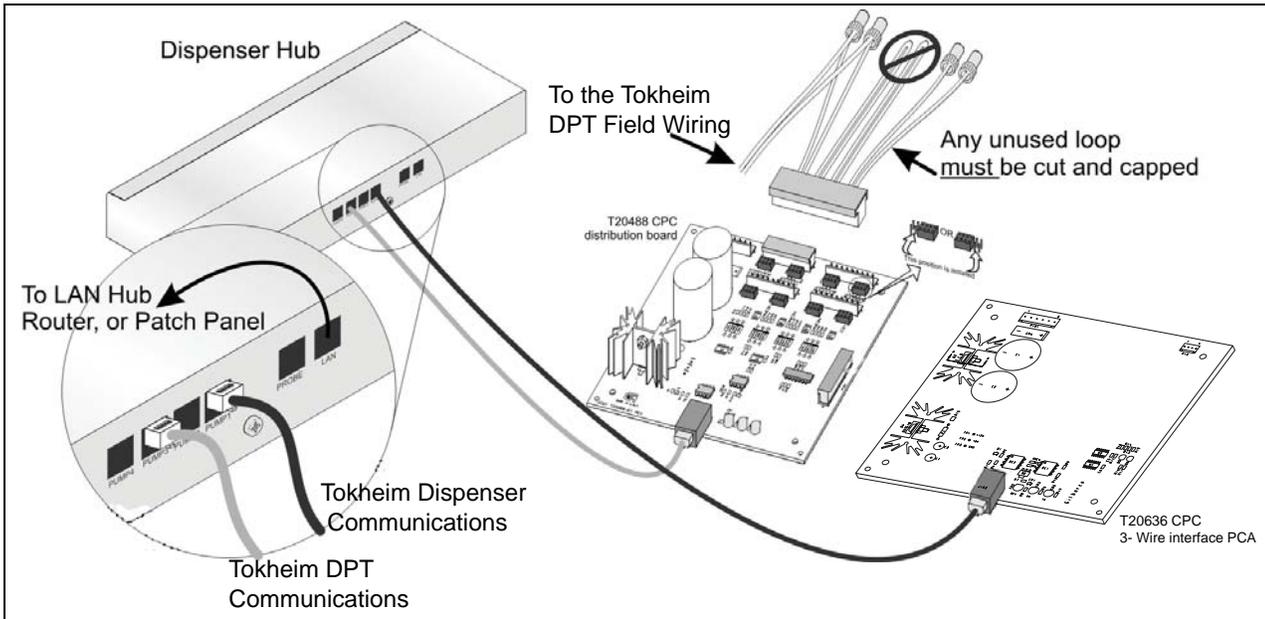
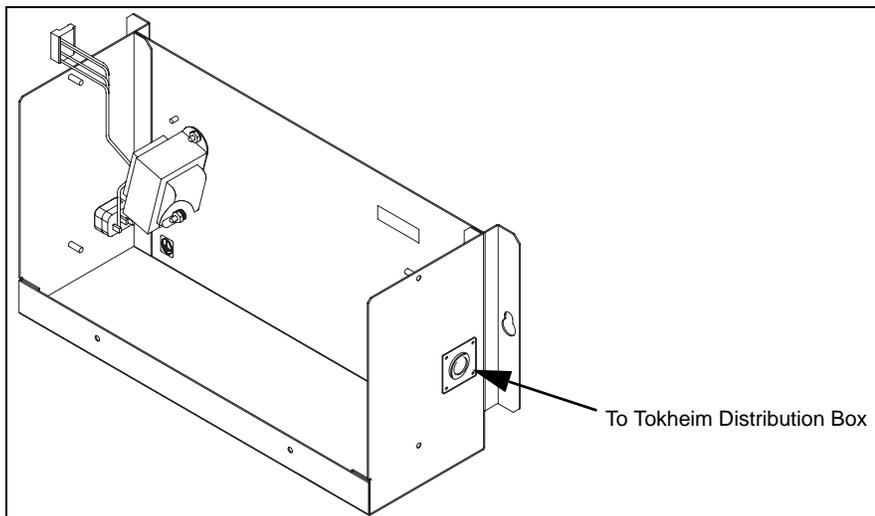


Figure 4-5: Tokheim Distribution Assembly



Appendix A: CPC Frequently Asked Questions (FAQs)

What is a Default Keypad?

After programming keypads through diagnostics, subsequent programming can be performed by using a “default” keypad. The default keypad is based on the last update to all keypads. This file is stored on the Passport system and is overwritten each time an update to all keypads is performed.

How do I Program Blends when using Wayne Dispensers?

Wayne dispensers blend the products based on the percentage of high product rather than the percentage of **low product**. This differs from the way Gilbarco dispensers handle blending and blend ratios. The Passport CPC feature automatically accounts for this difference. Blend ratio programming must be programmed at the Manager Workstation based on the percentage of **low product**.

Do I need a Gilbarco Security Module (GSM) when CPC is used?

No. Debit enabled Wayne CATs utilize encrypted keypads with network or customer specific debit encryption keys. Debit encryption occurs completely within the Wayne CAT. Therefore, a GSM is not required. A Wayne DSM may also be used to convert PIN blocks encrypted under one key to a PIN block encrypted under another key. In both cases, ensure that the debit devices (encryption keypads and Wayne DSM) are appropriate for the specific credit network or customer in use.

How can I Obtain Addresses for the DCBs?

If you are replacing an existing POS with the Passport system, addresses for the DCBs can be obtained by referring to a configuration report. If a configuration report is not available, the addresses can be obtained directly from the hardware itself. You will require access to the Wayne hardware to obtain these addresses.

The DCB has a bank of four dip switches used for addressing. These switches are binary and may be combined to address form addresses, 1 through 16.

4 = DCB 1	4,1 = DCB 9
3 = DCB 2	3,1 = DCB 10
4,3 = DCB 3	4,3,1 = DCB 11
2 = DCB 4	2,1 = DCB 12
2,4 = DCB 5	4,2,1 = DCB 13
3,2 = DCB 6	3,2,1 = DCB 14
4,3,2 = DCB 7	4,3,2,1 = DCB 15
1 = DCB 8	All Off = DCB 16

Appendix B: Testing Connection to the LAN

To test the connectivity of the Dispenser Hub to the LAN, proceed as follows:

- 1 At the server or client, press **CTRL+ ALT +P** simultaneously.
- 2 Enter **passport_tech** in the User ID field; then press **Enter**. A message appears with a code instructing you to call the Gilbarco Support Center to obtain a single-use password.
- 3 Provide the code to the Support Center analyst.
- 4 Enter the password obtained from the Support Center analyst in the Password field. The System Maintenance toolbar appears.
- 5 Click **MS-DOS** to open the Command Prompt window.
- 6 At the command prompt, enter the following command:

ping [IP Address]

where [IP Address] = the IP address of the Dispenser Hub (for example, ping 10.5.48.5)

- 7 Press **Enter**; then view the response. You will receive one of the following responses:
 - Reply from [IP Address]: Component is communicating with the server.
 - “Request Timed Out”: Component is not communicating with the server.
- 8 Type **exit** at the prompt; then press **Enter** to close the Command Prompt window.
Note: The power fail process in the Dispenser Hub must be performed through the Power Cable and not the Power Connector.

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Appendix C: Resetting the NGRIND.exe Process

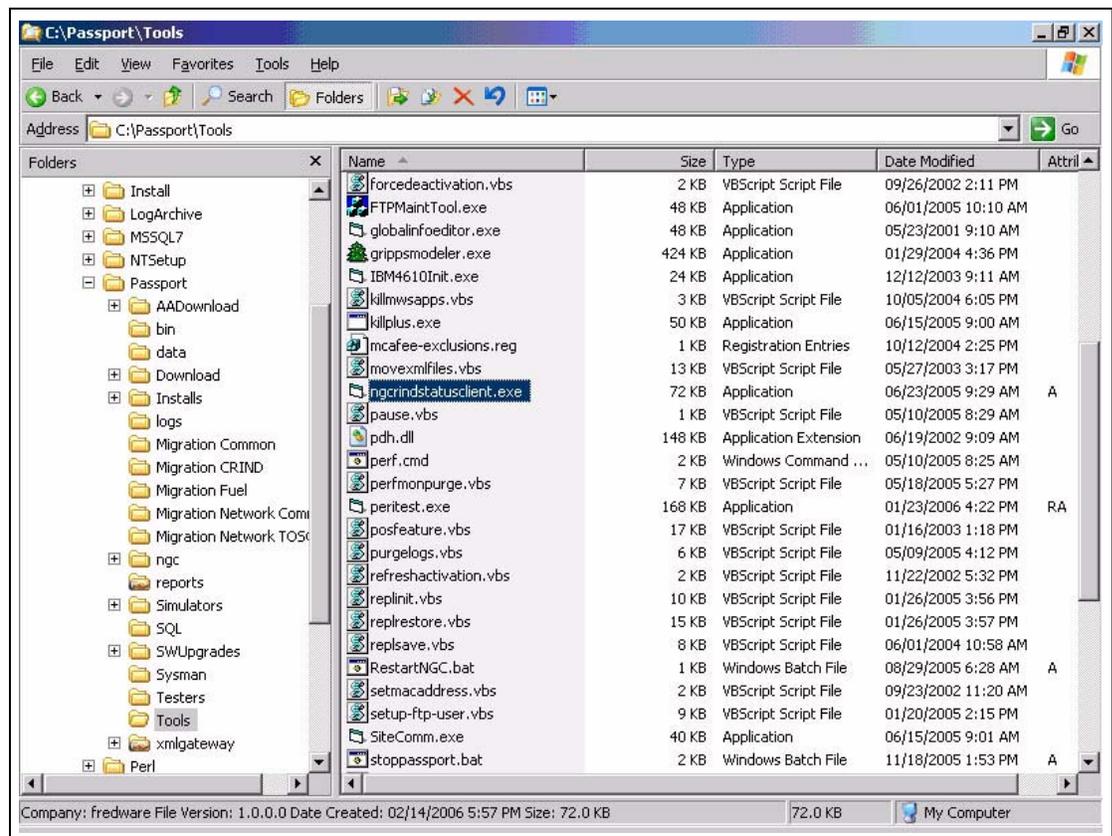
Resetting NGRIND.exe

Resetting the NGRIND Application for a Single Fueling Position

When issues appear to impact all fueling positions, it may become necessary to restart the NGRIND.exe process. To reset the NGRIND application, proceed as follows:

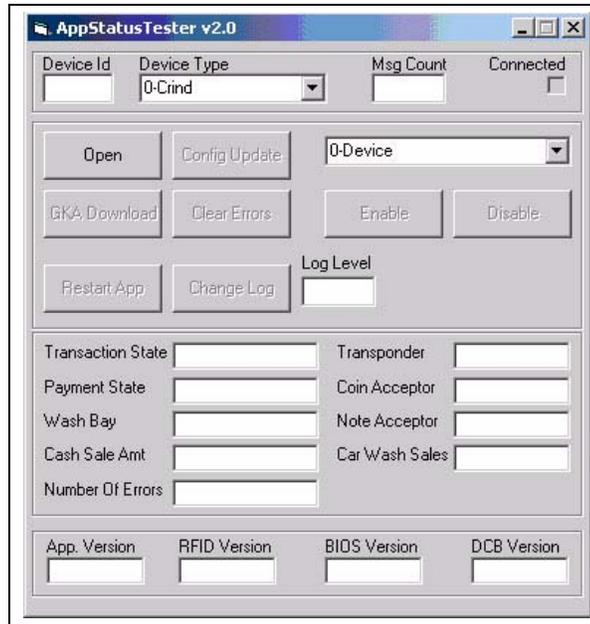
- 1 Access Windows Explorer through System Maintenance at the Passport Server.
- 2 Navigate to the **C:\Passport\Tools** folder.

Figure C-1: Windows Explorer Screen - C:\Passport\Tools



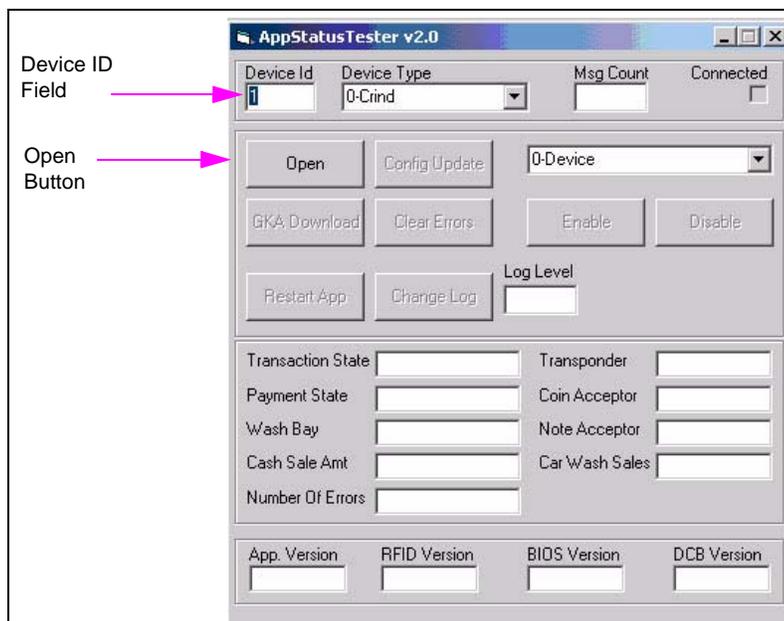
- 3 Double-click **ngcrindstatusclient.exe** to launch the “AppStatusTester” program. The following screen appears.

Figure C-2: AppStatusTester Screen



- 4 Enter the ID for the required fueling position in the **Device ID** field (for example, to restart the NGRIND application for position 1, enter 1 in this field). Click **Open** when complete.

Figure C-3: AppStatusTester Screen - Device ID



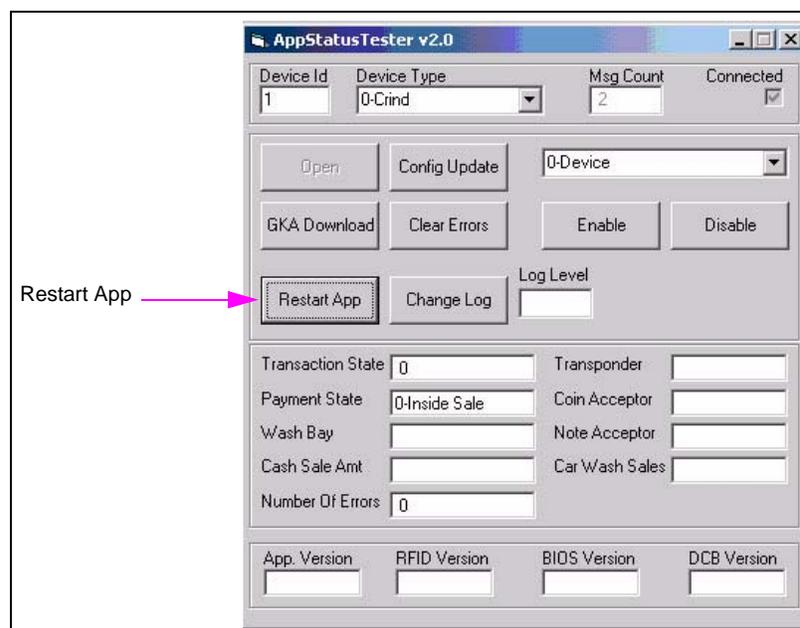
- 5 After you click **Open**, you will be connected to NGRIND for this position. All other buttons will no longer be gray and will be available for selection.

Figure C-4: AppStatusTester Screen - Config Update



- 6 Click **Restart App**. The NGRIND application must restart within 30 seconds.
Note: There will be no change to this window. You will have to verify the NGRIND status by checking the displays shown at the CAT.

Figure C-5: AppStatusTester Screen - Restart App.



Restarting the NGCRIND.exe Process

When issues appear to impact all fueling positions, it may become necessary to restart the NGCRIND.exe process.

To restart the NGCRIND.exe process, proceed as follows:

- 1 Access the System Maintenance toolbar on the Passport Server.
- 2 Select **Task Mgr** from the System Maintenance Toolbar. A Windows Task Manager Screen appears.
- 3 Click the **Processes** tab to view all active processes.
- 4 Click **Image Name** to sort the processes alphabetically, or use the scroll bar to search for the NGCRIND.exe process.
- 5 After you locate the NGCRIND.exe process, click **Process** to highlight it. Click **End Process** to terminate the NGCRIND.exe process.
- 6 A Task Manager Warning popup appears with the message “Terminating a process can cause undesired results...”. Click **Yes** to end the process.
- 7 The NGCRIND.exe process must regenerate itself within 15-30 seconds. If the process does not regenerate, a “stop/start off Passport” will be required.

Appendix D: CPC Installation Site Survey

Passport with CPC Site Survey Form

The purpose of this form is to inform all involved parties of the site's equipment and provide relevant information. Upgrading the site and/or equipment may be necessary before installing a new POS System, new software version, and so on.

Site Information

Location #:	Date of Survey:
Customer type/Brand:	
Station Name:	ASC Company:
Address:	ASC Number:
City, St. Zip	Technician Performing Survey:
Site Phone #:	ASC Contact:
Hours of Operation:	ASC Contact Phone:
Site Contact:	Site Contact Phone:
Phone Lines How many dedicated phone lines come into the building and how are they used?	
Additional Comments: (relative to site operation)	

Inside Store Demographics

POS Installed

Note: Use this section if a third-party POS exists, which will be replaced with the Passport system.

Third-party POS			
Third-Party POS Type:	Model:	Software Version Number:	
Number of existing workstations:	1	2	3 4
What type of network connection does this site have?			
Satellite)	Lease Line)	Dia	<input type="checkbox"/>
Manufacturer: _____			
If Satellite, is there a Ethernet (NIC) card installed in the Personal Earth Station?			
Quantity of UPCs/PLUs -	Less than 2,500	Less than 10,000	<input type="checkbox"/> More than 10,000
Debit Accepted:	<input type="checkbox"/> Inside Only	<input type="checkbox"/> Outside only	<input type="checkbox"/> Inside and Outside <input type="checkbox"/> Site does not Accept Debit
DSM/MSM Installed:	Yes	No	
SPC (Sub Pump Controller) Installed:	Yes	No	
Comments:			

Note: Use this section for G-SITE system to Passport system upgrades.

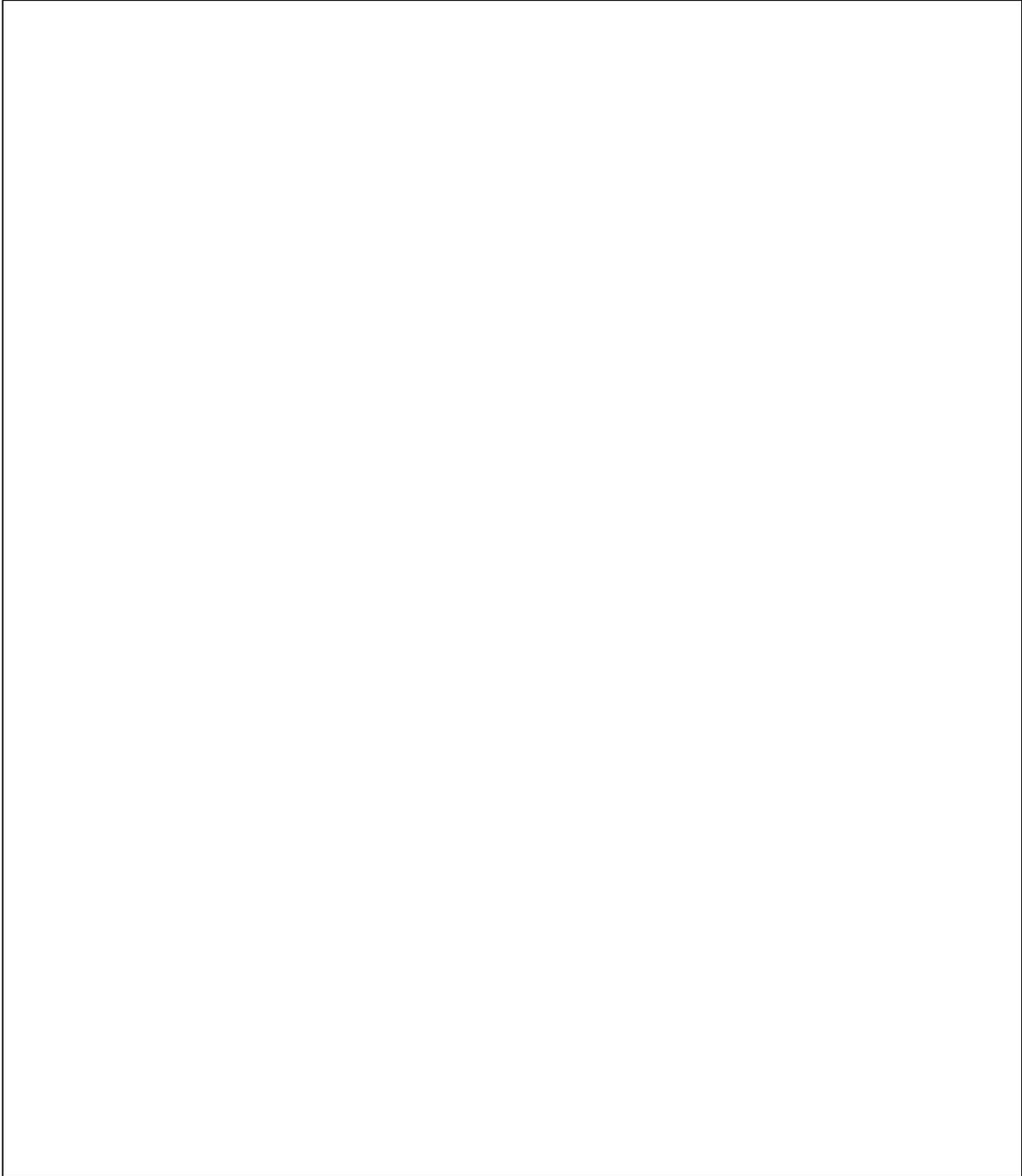
G-SITE Information
Reports Information
Print and enclose G-SITE Configuration Report along with this completed site survey.
Print and enclose CPC Plug-In Configuration Report along with this completed site survey.
Number of existing workstations 1 2 3 4
Is There Adequate Shelf Space Under the Counter for the CPU, Tower Unit and the Line Printer? (Space Needed - 10'W x15' H x22' D per each CPU and Tower Unit)
Scanner - How many are installed?
- Who is the manufacturer of the scanner(s) installed?
Quantity of UPCs/PLUs - Less than 2,500 Less than 10,000 More than 10,000
Network Connectivity
What type of network connection does this site have?
Satellite) Lease Line) Dial)

If Satellite, is there a Ethernet (NIC) card installed in the Personal Earth Station?				
Pin Pad - How many are installed and attached? - How many are installed and remote?				
Debit Accepted:	Inside Only	Outside only	Inside and Outside	Site does not Accept Debit
DSM/MSM Installed:	Yes	No		
Local Cards, House Accounts, etc.?				
Does this site currently operate process cards over an auxiliary network connection?				
Does this site currently accept proprietary fleet cards?				
Does the site use Unattended Operation (or does the site allow customers to dispense using the CATs once the after normal C-Store hours)? Yes No				
Does the site use fuel discounting? Yes No				
If "Yes", then how is this being used?				

Connected Devices

Car Wash Interfaced with POS? Yes No				
Who is the manufacturer of Car Wash controller installed? Ryko CAW II) Ryko CAW IV) Unitec) Other)				
How many Car Wash controllers are installed?				
What is the model #?				
What is the software version installed?				
How many Car Wash packages are programmed and available?				
Does the site currently have an entry terminal (kiosk) in use at its wash bay?				
Back Office PC Interfaced with POS? Yes No				
Who is the Manufacturer of the Back Office PC Accounting software installed (PDI, TWS, SSCS, and so on)?				
What is the Software Version #?				
Supported NACS Standard (check all that apply): 1.0 3.2 3.3				
Tank Monitor™ Interfaced with POS? Yes No (Note: All Tank Monitor-related questions require a response.)				
Who is the manufacturer/model of the Tank Monitor installed?				
Is the Tank Monitor BIR-ready? Yes No				
Is BIR in use? Yes No				
TRAC Controller installed? Yes No				
Indoor or Outdoor TRAC Controller? Indoor Outdoor				
Gilbarco Distribution Box Installed? Yes No				
How many?				
Model number(s) of distribution box(es):				
Wayne SPC (Sub Pump Controller) Installed: Yes No				

CAT Keypad Layout(s) (Sketch)



Note: If there are more than twenty-four fueling positions, attach all other fueling position information.

Outside Store Demographics

Pump Hardware/Software Information

Fueling Position	1/2		3/4		5/6		7/8	
Pump Information/Description								
Model #								
Software version								
CAT Information								
RFID?	Yes	No	Yes	No	Yes	No	Yes	No
Display Type	2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video	
CAT Software Version								
CAT Printer Type	Robust	Tear Bar						
ADA available; At CRIND At Nozzle put-down								
Cash Acceptors Installed	Yes	No	Yes	No	Yes	No	Yes	No
Fueling Position								
	9/10		11/12		13/14		15/16	
Pump Information/Description								
Model #								
Software version								
CAT Information								
RFID?	Yes	No	Yes	No	Yes	No	Yes	No
Display Type	2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video	
CAT Software Version								
CAT Printer Type	Robust	Tear Bar						
ADA available; At CRIND At Nozzle put-down								
Cash Acceptors Installed	Yes	No	Yes	No	Yes	No	Yes	No

Fueling Position	17/18		19/20		21/22		23/24	
Pump Information/Description								
Model #								
Software version								
CAT Information								
RFID?	Yes	No	Yes	No	Yes	No	Yes	No
Display Type	2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video		2 x 16 dual line 4 x 21 dual line 64 x 240 4-line 10.4" VGA 480 x 640 Color 10.4" Full Motion Video	
CAT Software Version								
CAT Printer Type	Robust	Tear Bar						
ADA available; At CRIND At Nozzle put-down								
Cash Acceptors Installed	Yes	No	Yes	No	Yes	No	Yes	No

Electrical Information

AC Panel/Breakers:
Is the site equipped with a known, good ground rod/system?
Is all the POS equipment on the same phase?
Is each dispenser on its' own breaker?
Is there adequate space in the A/C panel to add breakers for new POS equipment?
Is an additional sub-panel required?
Is there a isolated ground receptacle available for the CPU/Server?
Is there a isolated ground receptacle available for the Tower/Client Terminal?
Is there a UPS or surge support system for the SITE/POS installed?
Wire Trough/ Conduit:
Are the POS Data Cables and Power Cables in a separate <i>wire trough</i> ?
Are the LAN Cables installed to meet TIA-568A Standards?
Does the Manager have a LAN Test Report From LAN installer?
Are the dispenser Data Cables and Power Cables in a separate <i>conduit</i> ?
Are any wires for variable speed motors located near any Gilbarco Data Cables? (For example, FE Petroserve, Red Jacket™, and so on)
Are there an adequate Number of Dedicated I/G Outlets for Passport POS equipment and the peripheral devices?:
Front Counter:
Tower Units:
Back Room:

Existing Site Issues/Serviceability Challenges

Authentication

Technician Signature	Manager/Site Contact Signature
Date	

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