



System2[®]

Bypass Version

Operator's Manual

FSC Version 29.02J

OPW Fuel Management Systems - System and Replacement Parts Warranty Statement

Effective September 1, 2002

System and Replacement Parts Warranty

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Table Of Contents

Part I - Introduction

1.0 Features	1
2.0 Equipment Overview	3
2.1 Fuel Island Terminal (FIT)	3
2.1.1 Installation	3
2.1.2 Card or Key Readers	4
2.1.3 Display	4
2.1.4 Printer Option	4
2.1.5 Keypad Operation	4
2.1.6 FIT Specifications	5
2.2 Outdoor Payment Terminal (OPT) Option	6
2.3 Pump Control Terminal (PCT)	7
2.4 Fuel Site Controller (FSC)	10
2.4.1 Installation Overview	10
2.4.2 External Computer Connections	10
2.4.3 Journal Printer	11
2.4.4 Modem Use	11
2.4.5 Battery Backup	11
2.4.6 STATUS LED	11
2.4.7 FSC Specifications	12
3.0 Operational Overview	15
3.1 MAIN MENU	15
3.2 SYSTEM ACCESS MENU	16
3.3 SYSTEM TIMES MENU	17
3.4 SYSTEM DEVICES MENU	17
3.4.1 FIT Programming Overview	17
3.4.2 PCT Programming Overview	17
3.4.3 UPC Programming Overview	18
3.5 CUSTOMER MESSAGES MENU	18
3.6 SYSTEM PARAMETERS MENU	19
3.7 RESTRICTIONS MENU	19
3.8 CARDS/ACCOUNTS MENU	19
3.9 TRANSACTION DATA MENU	20
3.10 SYSTEM TOTALS MENU	21
3.11 JOURNAL PRINTER MENU	21
4.0 Practice Session	23
4.1 SESSION OVERVIEW	23
4.2 STEP-BY-STEP PROCEDURE	24
4.2.1 Terminal Connection	24
4.2.2 Should You Use the Menus	25
4.2.3 Set the Time and Date	25
4.2.4 How Much Memory in the System?	26
4.2.5 What Kind Of Fuel?	27

4.2.6 What Kind Of Tank?	28
4.2.7 Introduce Yourself to the Customer	29
4.2.8 Tell The System About Your Transaction Records	31
4.2.9 How Many Cards? What Should They Say?	32
4.2.10 Configure and Install a PCT Position	33
4.2.11 Configure & Install a FIT	35
4.2.12 Create a Sample Card File & Account	37
4.2.13 Download Your Program	40
4.2.14 Try a Transaction	40

Part II - Programming

5.0 Menu Overview	43
5.1 USING THE MENUS	43
5.2 COMMANDS & OPTIONS	44
5.3 HELP SCREENS	45
6.0 System Access Menu	47
6.1 OPEN/CLOSE	47
6.2 HELLO/BYE	47
6.3 CALL	48
6.4 PASSTHRU	48
7.0 System Times Menu	49
7.1 TIME	49
7.2 TIME CHANGE	50
7.3 DATE	50
7.4 SYSTEM ON TIME	51
7.5 LIGHT ON TIME	51
8.0 System Devices Menu	53
8.1 FIT #	53
8.1.1 Show FIT #	54
8.1.2 Configure FIT #	54
8.1.3 Install FIT	55
8.1.4 Remove FIT	55
8.2 OPT #	56
8.2.1 Show OPT #	56
8.2.2 Configure OPT #	56
8.2.3 Install OPT	57
8.2.4 Remove OPT	57
8.3 PCT #	58
8.3.1 Configure PCT #	58
8.3.2 Install PCT #	59
8.3.3 Remove PCT #	59
8.4 PCT #/POSITION #	59
8.4.1 Configure PCT #/Position #	60
8.4.2 Install or Remove PCT/ Position #	62
8.5 PUMP #	62
8.6 PROGRAM	62

8.7 SET PUMP ON	62
8.8 DOWNLOAD	63
8.9 DOWNLOAD FIT #/OPT#/PCT #	63
9.0 Customer Messages Menu	65
9.1 WHAT'S A RECEIPT?	65
9.2 RECEIPT BODY	66
9.3 RECEIPT HEADER	67
9.4 RECEIPT TRAILER	68
9.5 RECEIPT BONUS POINTS	68
9.6 SAMPLE RECEIPTS	69
9.7 DISPLAY (#...)	72
9.7.1 Display Type Overview	72
9.7.2 Dual Languages	72
9.7.3 Special Characters	73
9.7.4 Format Display Default	73
9.7.5 Default FIT or OPT Prompts	74
9.7.6 Standard 2 x 16 Display	75
9.7.7 1 x 40 Display (Optional)	75
9.7.8 Graphics Display (Optional)	76
9.8 KEYBOARD (#...)	91
9.9 MESSAGING	91
9.9.1 Overview	91
9.9.2 Procedure	92
9.10 DATE	94
9.10.1 Procedure	94
9.10.2 Month Labeling	95
9.10.3 Date Order	95
9.10.4 Date Separators	95
10.0 System Parameters Menu	97
10.1 SYSTEM	97
10.2 SITE I.D.	98
10.3 FUELTYPES (#...)	98
10.4 FUELING UNITS	100
10.5 PASSWORD	101
10.6 LANGUAGE	102
10.7 MENU	102
10.8 ECHO	103
10.9 BONUS POINTS	103
10.10 RAM	103
10.11 VERSION	104
11.0 Restrictions Menu	105
11.1 ODOMETER REASONABILITY	105
11.1.1 Introduction	105
11.1.2 Bad Entry Options	106
11.1.3 Default Reasonability Ranges	106
11.1.4 Creating a Range	107
11.2 PUMP RESTRICTION	107

11.3	QUANTITY RESTRICTION	108
11.3.1	Overview	108
11.3.2	Quantity Restriction Procedure	109
11.4	SECURITY	109
11.4.1	PIN Number Generation	109
11.4.2	Procedure	110
12.0	Cards/Accounts Menu	113
12.1	INTRODUCTION	113
12.2	SHOW/PRINT CARDS or ACCOUNTS	114
12.2.1	Showing Or Printing Cards	114
12.2.2	Showing Or Printing Accounts	114
12.2.3	Showing or Printing Card Summaries	115
12.2.4	Showing or Printing Card Account Numbers	115
12.3	INSERT/DELETE/EDIT CARD or ACCOUNT	115
12.3.1	INSERT Card or Account	115
12.3.2	DELETE Card or Account	117
12.3.3	EDIT Card or Account	117
12.4	SET CARD	119
12.4.1	Specify Card/Account Buffer Size	119
12.4.2	Define Card/Account Record	121
12.4.3	Clear Card Record Totals	123
12.4.4	Reconcile Card Record Allocation	123
12.4.5	Clear All Account Record Totals	123
12.4.6	Reconcile Account Record Allocation	123
12.4.7	Month End Totals	124
12.4.8	Set Keyboard Card Control Data	124
12.4.9	Additional Options	124
12.5	COPY CARD #...	125
12.6	SORT	126
13.0	Transaction Data Menu	127
13.1	SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE .	127
13.2	SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY	129
13.3	SHOW/PRINT TRANS (#...)	129
13.4	SET TRANS	129
13.5	CLEAR TRANS	131
13.6	CLEAR TRANS DATE #... SEQUENCE #...	131
13.7	REPORT	131
14.0	System Totals Menu	133
14.1	SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE .	133
14.2	SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY	133
14.3	SHOW/PRINT MIDNIGHT	134
14.4	SHOW/PRINT DAY	135
14.5	SHOW/PRINT SHIFT	135
14.6	SHOW/PRINT/CLEAR PUMP #...TOTALS	136
14.7	SHOW/PRINT/CLEAR PCT #...TOTALS	136

14.8 SHOW/PRINT FUELTYPE #...TOTALS	137
14.9 SHOW/PRINT/SET TANK (#...)	137
15.0 Journal Printer Menu	139
15.1 SHOW/PRINT/SET JOURNAL PRINTER	139
15.2 LOCK/UNLOCK PRINTER	140
16.0 Bypass Network Functions	141
16.1 OVERVIEW	141
16.2 SET NETWORK	141
16.3 SHOW NETWORK	146
16.4 SET PROMPT	146
16.6 SET BANK	147
Appendix A - Setup Worksheet	155
Appendix B - Memory Levels & Allocations	171
Appendix C - Modem Use	173
C.1 INTRODUCTION	173
C.2 LOCAL MODEM CONFIGURATION	173
C.3 REMOTE MODEM CONFIGURATION	174
C.4 MODEM PASSWORD	174
Appendix D - External Computer Operation	175
D.1 CONNECTING A COMPUTER	175
D.1.1 Direct Connection	175
D.1.2 Modem Connection	176
D.2 TERMINAL EMULATION SOFTWARE	176
D.3 TRANSACTION DATA FORMAT	177
D.3.1 Description	177
D.3.2 Data Checksums	184
D.3.3 Suppressing SYSTEM2 Prompts	186
D.3.4 BACKUP & RESTORE Commands	186
Appendix E - Troubleshooting	191
E.1 COMMON PROBLEMS AND POSSIBLE SOLUTIONS	191
E.2 TROUBLESHOOTING FLOWCHARTS	193
Appendix F - Optional Report Package	203
F.1 What is the Report Package?	203
F.2 Modes of Operation	204
F.3 Functions	
F.3.1 Card Type Options	205
F.3.2 Card Range	205
F.3.3 Account Grouping	205
F.3.4 Billing Window	205
F.3.5 Subtotals Only	205
F.3.6 Custom Heading	205
F.3.7 Keyboard Field Label	205

F.3.8 Fueling Unit Type	205
F.4 Running the Report	206
F.4.1 Run-Time Only Mode	206
F.4.2 Quick/Permanent Mode	206
Appendix G - Receipt Printer/Card Reader Maintenance	207
G.1 RECEIPT PRINTER MAINTENANCE	207
G.1.1 Paper Feed/Cut Switch	207
G.1.2 Replacing Paper	207
G.1.3 Ribbon Replacement	208
G.1.4 Testing the Printer	209
G.2 CARD READER CLEANING	210
Index	211

Part I - Introduction

1.0 Features

Fleet operators and petroleum distributors now have a fueling system to match their business needs: the Petro Vend SYSTEM2, a flexible, powerful tool for fuel management that is easy to program and even easier to use. The **SYSTEM2** gives you security, accountability and control.

Features of your new SYSTEM2 include:

☐ **Superior Fuel Site Control**

Your system can track an extensive list of card record parameters and transaction data.

☐ **Multiple Card Formats**

The Fuel Island Terminal (FIT) and Outdoor Payment Terminal (OPT) are the customer interfaces containing the card readers, a keypad, and a display screen. The standard FIT in your **SYSTEM2** can be equipped to handle magnetic stripe cards, optical cards, and Petro Vend ChipKeys™.

☐ **Maximum Configuration Flexibility**

One Fuel Site Controller (FSC), the small desktop control box, can control up to four FITs (or 32 OPT “sides”) giving you the power to control up to 32 fueling positions in mechanical pumps. The FSC can also handle electronic and alternative fuel dispensers.

☐ **Petro Vend OPT (Outdoor Payment Terminal) Compatible**

☐ **Commercial Fueling Network Compatibility**

The **SYSTEM2** can accept commercial fueling cards, truck fleet cards, oil company cards and major bankcards.

☐ **Large Memory Capacity**

Four memory levels are available for your system, handling up to 140,000 proprietary cards or 10,000 transactions.

☐ **Menu-driven Programming**

Step-by-step menus guide you through most system functions.

☐ **Runs existing K2500 software**

☐ **On-site or remote access**

☐ **Automatic daily pump totals**

- ☐ **On-demand Pump, Product and Shift Totals**
- ☐ **Tank Inventory Levels with Low Level alert**
- ☐ **Sixteen Product or Quantity Restriction levels**
- ☐ **Cardless (keypad entry) operation allowed**
- ☐ **Single or Dual Card/Key Operation (Driver/Vehicle)**
- ☐ **Programmable customer messages and receipts**
- ☐ **Card, Key or Account Lockout**
- ☐ **Account discounts**
- ☐ **Programmable Open/Close system times**
- ☐ **Three password options**
- ☐ **Self-test and diagnostic functions.**

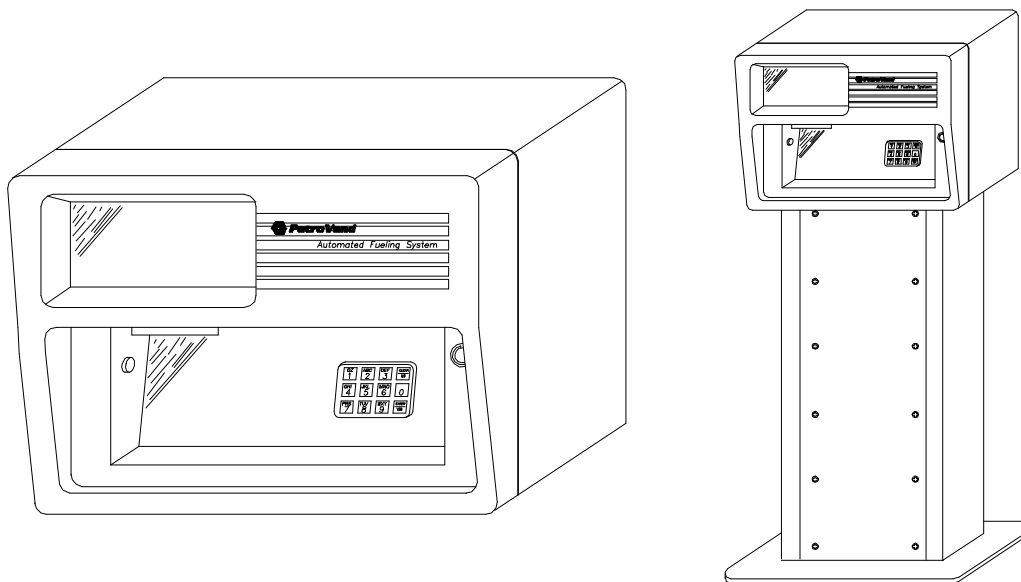
More information on these features is located in various parts of this manual.

2.0 Equipment Overview

An installation consists of FITs (Fuel Island Terminals) and/or OPTs (Outdoor Payment Terminals), PCTs (Pump Control Terminals), and an FSC (Fuel Site Controller). Section 2.1 describes the pedestal-mounted FIT. Section 2.2 briefly describes the OPT (the OPT has its own manual). Section 2.3 covers the Pump Control Terminal (PCT) while Section 2.4 explains the Fuel Site Controller (FSC).

2.1 Fuel Island Terminal (FIT)

The FIT contains the keypad (for user entries of data), one or two card readers, and the receipt printer. The FIT gathers information from the pumps, and sends it to the FSC.



Up to four FITs can be installed per site. The FIT has a display for prompting customers through the fueling process, a keypad for data entry, and one or two card or key readers.

2.1.1 Installation

Each FIT connects to the Fuel Site Controller using twisted pair wires and rigid steel conduit. The FSC manages the FIT(s) and the peripheral devices.

The FIT(s) must be installed as shown in the *System 2 Installation Manual*. The installation manual also details the FIT board and descriptions of its status LEDs and programming switches.

2.1.2 Card or Key Readers

You can use a card or key to access **SYSTEM2**. The FIT can have one or two readers for magnetic stripe cards, optical cards, or ChipKeys.

2.1.3 Display

Three types of display are available:

- Single-row of characters
- Double row of characters
- Graphics display

See the *Customer Messages Menu* section of this book for more details.

2.1.4 Printer Option

An optional receipt printer can be installed in the FIT to provide transaction information to the customer. Like the display, the data and format of the receipt are programmable.

2.1.5 Keypad Operation

[1] - [0] - Use the ten number keys to enter PIN numbers, pump numbers, odometer entries and miscellaneous information. As a memory aid, the data keys are labeled as on a telephone. For example, a fueler with the PIN "3733" could remember this as "FRED" by associating each number with a letter from the data key.

[ENTER/YES] - This key has two functions: as an **ENTER** key, it sends your keyboard entry to the system. Its other function is to answer **YES** to a **YES/NO?** prompt.

[CLEAR/NO] - This key, also dual-purpose, either clears a displayed entry or answers **NO** to a **YES/NO?** prompt.

[EMERG STOP] - Press the Emergency Stop button to immediately stop the fuel pumps. You can program which PCTs are affected by the Emergency Stop button on each FIT. **SYSTEM2** returns to normal operation when the next card or key is inserted.

NOTICE

The emergency stop switch on the FIT may not satisfy the National Electrical Code requirements, Article 514-5 of NFPA 70 specifies that emergency controls shall be located more than 20 feet but less than 100 feet from the dispensers. The emergency controls must shut off all power to all dispensing equipment at the station. This is as always subject to approval by the authority having jurisdiction.

2.1.6 FIT Specifications

Dimensions	Cabinet 15" H x 18" W x 11" D (38 x 46 x 28 cm) Pedestal: 48" H x 14" W x 8" D (122 x 36 x 20 cm)
Power Requirements	110-120 VAC, 50/60 Hz, 200 W max 220-240 VAC, 50/60 Hz, 200 W max
Operating Temperature Range	-40°F to +122°F (-40°C to +50°C) Heater required for FIT operation below freezing point (32°F or 0°C)
Display Options	Standard: 2-row x 16-character fluorescent Option 1: 1-row x 40-character fluorescent Option 2: 64,000 pixel (200 x 320) graphics screen*
Reader Options	Magnetic Stripe Reader ("Swipe" or motorized) Optical Reader ChipKey™

CAUTION! DO NOT USE HIGH-PRESSURE CLEANING EQUIPMENT TO CLEAN THE FIT. WIPE THE UNIT CLEAN WITH A CLOTH MOISTENED WITH COMMON HOUSEHOLD CLEANER.

* Graphics Display Options

2.2 Outdoor Payment Terminal (OPT) Option

The OPT is a dual-sided terminal. It emulates a standard System2 FIT, although it is designed to serve *both* sides of a fueling island. The OPT counts as two readers. The configuration procedure for an OPT is similar to that of a FIT as well.

Like the regular FIT, the OPT works with a System2 Fuel Site Controller (FSC); all System2 FSC software works with the OPT as well. With this configuration, a total of four card readers are supported (two regular FITs and one OPT).

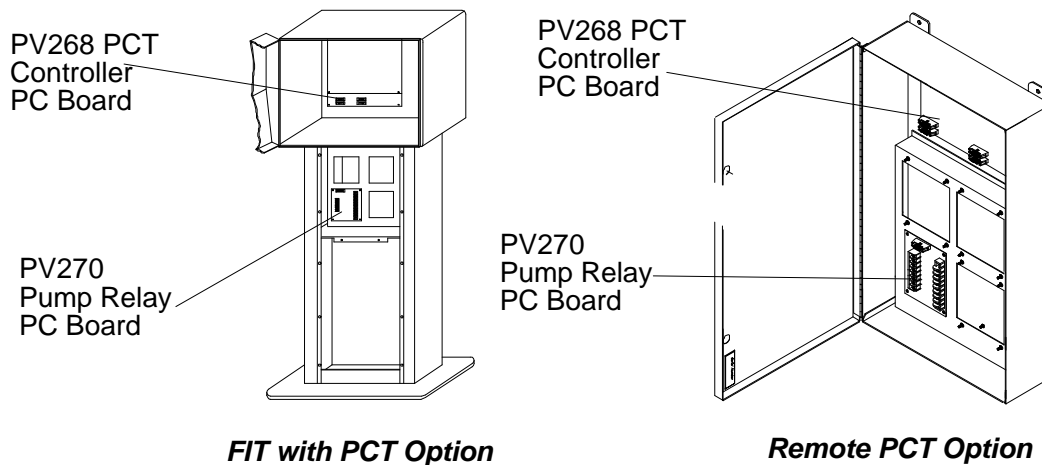
- ☐ Pedestal and housing are made of **treated steel**, and are very rust-resistant
- ☐ **Durable high-solid content paint** finish - custom colors are available
- ☐ Doors are made of **impact-resistant** polycarbonate ABS
- ☐ Hidden "**quick-clip**" door hinges - no ugly fasteners, and the doors slide out and pivot for easy removal with no tools
- ☐ Circuitry of one OPT is completely **separate** from the other - if one fails, the other one keeps going
- ☐ The OPT contains **no DIP switches** or EPROMs - all system configuration is done through software, and can be done on site, without a terminal. Future versions will permit remote downloading of configuration data via a modem.
- ☐ **Manager Mode** permits the following:
 - Password protected configuration data
 - Self-tests for display, keyboard, card reader, receipt printer and RAM
 - Printer and display contrast adjustable
 - Comm ports can be set up and tested
 - Multiple network number input
 - Keyboard tone can be adjusted
 - Keyboard backlight brightness adjustment
 - Configuration data can be printed out
- ☐ Standard thermostatically-controlled **heaters**
- ☐ The backlit 2x16 "Supertwist" **character display** is standard. An optional backlit graphics display has been improved in several ways:
 - Transflexive technology works better in direct sunlight
 - Tilted display for wider range of comfortable viewing
 - Contrast OPTimizer™ automatically sets display contrast for optimal viewing in all temperature and ambient lighting conditions.

- ☐ Graphics display screens are displayed quickly - a user can "type ahead" with their keypad entries, allowing faster fueling
- ☐ A precision-crafted push-pull **card reader** reads tracks 1 and 2. The high-reliability unit features a user-replaceable head (no special tools required for replacement). A motorized reader is also available.
- ☐ The illuminated **keyboard** is constructed of a durable weather-resistant material laid over stainless steel switch "domes". An alphanumeric keypad will be available in future releases of OPT.
- ☐ High-resolution thermal **receipt printer** has integral cutter, auto-paper loading, and self-test features. Can be configured to print multiple copies of a receipt. A 4-inch roll of paper can produce up to 1,100 receipts. And, because it's thermal, there are no ribbons to replace.

More information on OPT features is located in the *OPT User's Guide*.

2.3 Pump Control Terminal (PCT)

The PCT gathers the data from the pumps and formats it for the FSC. The PCT can either be built in to the FIT - as a PC board located behind the FIT PC board, or in the OPT counts as two readers. a separate indoor cabinet. See Figure below.



Up to four PCTs can be installed. There are two types of PCT installation.

- The PCT circuit board is located in the FIT cabinet and the pump control relays are mounted in the FIT pedestal

An OPT enclosure cannot contain any PCT components.

- The PCT board and pump control relays are placed in a separate, indoor cabinet.

Both types of installation provide the following:

- Easy access to pump control relays
- Active and passive pulser support
- Electronic and mechanical pulser support
- Pulser activation by current flow or handle activation.

With optional **Universal Pump Control** (UPC) software, the FSC can authorize fueling transactions via a pump control console (such as used in a self service station).

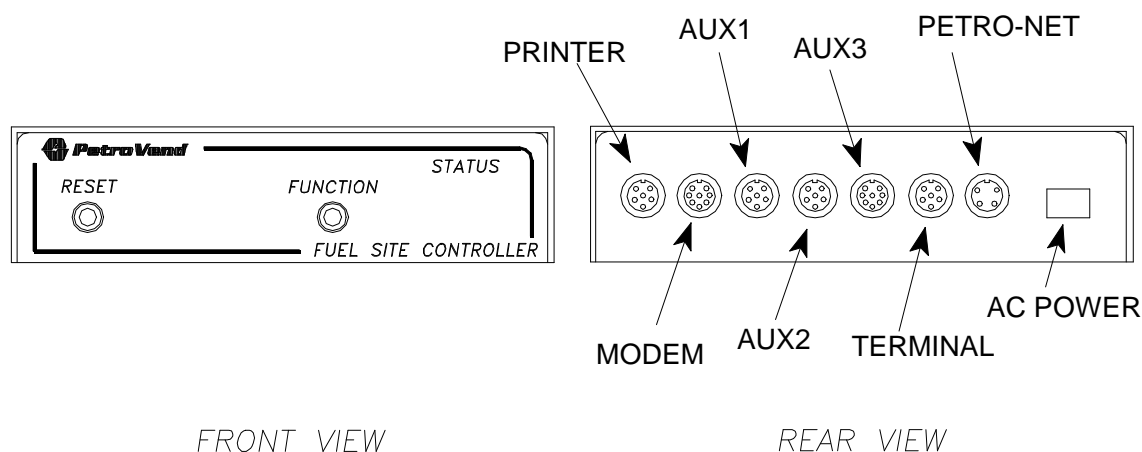
For pumps controlled by a UPC, refer to the UPC Operator Guide.

PCT Specifications

Dimensions (indoor cabinet style)	25" H x 16" W x 5" D (64 x 41 x 13 cm)
Power Requirements (indoor cabinet style)	110-120 VAC, 50/60 Hz, 100 W max 220-240 VAC, 50/60 Hz, 100 W max
Operating Temperature Range (indoor cabinet style)	32°F to +122°F (0°C to +50°C)
Pump Rating	3/4 HP, 120/240 VAC
Pulser	COMPATIBILITY Contact/12VDC electronic, 40 Ma max per pulser RATE RATIO 1:1 to 1000:1 in 1-pulse increments SPEED 6,000 pulses per second (mechanical type), 100,000 pulses per second (electronic type) DUTY CYCLE 50%

2.4 Fuel Site Controller (FSC)

The FSC processes data supplied over Petro-Net from the PCTs and FITs/OPTs. The FSC also contains all card information and system configuration data.



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The FSC manages the operations of the FIT(s) or OPTs, the terminal or computer, the journal printer, and an optional modem.

2.4.1 Installation Overview

The FSC must be installed indoors, and connected to one of the FITs or OPTs using twisted pair wiring and rigid steel conduit.

Install the FSC as described in the System2 Installation Manual. That manual also contains an illustration of the FSC board and descriptions of its status LEDs and switches.

2.4.2 External Computer Connections

To communicate with the system, the FSC must be connected to one of the following:

- A standard ASCII terminal
- An IBM® or compatible computer
- Any computer capable of ASCII communications.

If not using an ASCII terminal, the PC or mainframe computer must be running an emulation program to simulate the operations of an ASCII terminal. For terminal baud rate, see the table on the following page, or the *System2 Installation Manual*.

2.4.3 Journal Printer

The journal printer is connected to the FSC PTR port to record transaction data and to print reports.

2.4.4 Modem Use

For remote operation, the FSC connects to an optional modem to provide complete control from a remote terminal or computer over standard telephone lines. Refer to Appendix C for details on modem operation. The table opposite shows you how to set the baud rate for the MODEM port.

2.4.5 Battery Backup

The FSC has a built-in battery to protect its data in case of an interruption or loss of AC power. The battery can be disconnected when a total clearing of data is required.

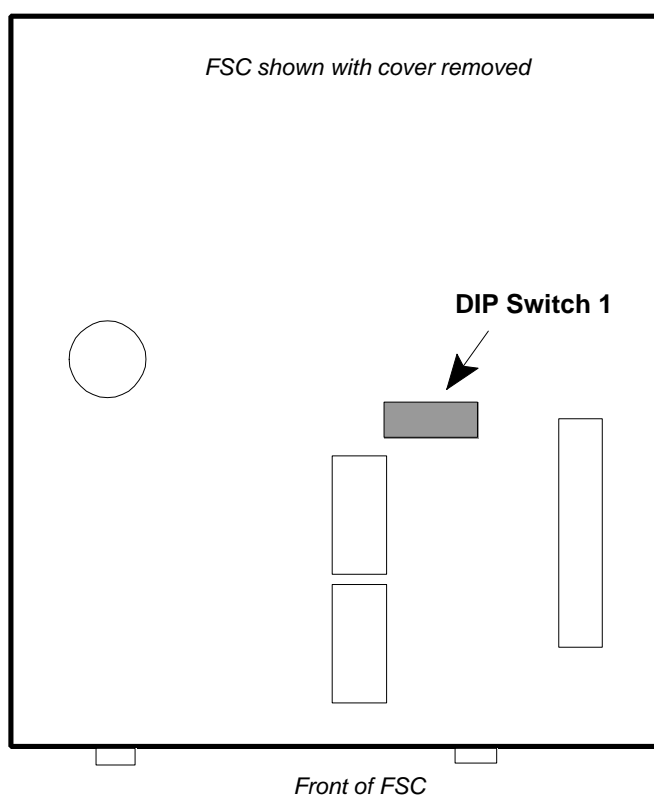
2.4.6 STATUS LED

The STATUS display shows, by blinking two numbers in sequence followed by a pause, the number of devices running on Petro Net. For example, when the display shows a "1", then a "6", followed by a pause, there are 16 devices attached. Up to 40 devices (32 OPTs, 4 FITs and 4 PCTs) can be connected.

2.4.7 FSC Specifications

FSC DIP SWITCH #1: Terminal and Modem Port Baud Rate		
Baud Rate	Position 6	Position 7
300	OPEN	OPEN
1200	OPEN	CLOSED
2400	CLOSED	OPEN
9600	CLOSED	CLOSED

DIP Switch 1 Location



FSC Specifications (continued)

Dimensions	2" H x 10" W x 11" D (5 x 25 x 28 cm)	
Power Requirements	110-120 VAC, 50/60 Hz (220-240 VAC, 50/60 Hz) 50W max	
Operating Temperature Range	32°F to +122°F (0°C to +50°C)	
Rear Port Protocols	PN (Petro-Net): RS-485 CAP (Terminal): Proprietary protocol MODEM (Modem): RS-232 AUX 1-3 (Auxiliary Inputs): RS-232	
Front Panel Controls & Indicators	RESET button FUNCTION button STATUS display	Press to "warm-start" system Use with RESET to "cold-start" system The number of devices the FSC is currently communicating with (0-32)

Notes:

3.0 Operational Overview

Upon initial power-up, the first menu to appear is the *non*-privileged Main menu. To enter privileged mode, either type HELLO at the ">" prompt, then enter the privileged password, OR use the MENU option in the SYSTEM PARAMETERS menu.

Section 4 (Page 22) is a practice session, giving you a chance to use most of the system features in a simulated site setup.

All commands can be reached via the menus; "regular" commands can be entered at the ">" prompt, if desired - use the MENUS option in the SYSTEM PARAMETERS menu to turn menus OFF or ON.

3.1 MAIN MENU

The first menu that appears after power is applied to **SYSTEM2** is the Main menu (see Page 43).

All system functions are accessed from the Main menu: System Access, System Times, System Devices, Customer Messages, System Parameters, Restrictions, Cards/Accounts, Transaction Data, System Totals, and Journal Printer. Each is briefly described below; for a full description, turn to the indicated page.

A "Main Menu Outline" of all submenus accessed from the main menu is on Page 22.

3.2 SYSTEM ACCESS MENU

See Page 47. Use this menu to open or close the system, to open a connection to a modem, to change passwords, or to use the "passthru" feature to communicate with other Petro-Vend products.

There are three levels of security in **SYSTEM2**: (1) normal, (2) restricted and (3) privileged.

Normal - The normal mode is the default mode. This mode does *not* have to be enabled. No password is required. In this mode, you can print and display all system, card/key, account, and transaction data.

Restricted - To safeguard **SYSTEM2** data from unauthorized viewing, you may enable the restricted mode. When System2 is in restricted mode, a password must be entered before any data can be displayed or printed. Restricted mode must be accessed before the privileged mode can be accessed.

When the restricted mode is enabled, no commands will be accepted and no characters will be echoed to the screen until the Restricted password is entered.

IMPORTANT

Only the normal or the restricted mode may be enabled at one time. When the '\$' prompt displays, the restricted mode is enabled and the restricted password must be entered to proceed.

Privileged - To configure **SYSTEM2**, the system must be in the privileged mode. To prevent unauthorized tampering with the system, a password is required.

To access privileged mode, select **SYSTEM ACCESS** from the MAIN MENU. From SYSTEM ACCESS menu, select **HELLO** and enter the main password (factory default "HELLO").. To exit privileged mode, enter **BYE**.

The system automatically exits from privileged mode if no keyboard entry is made for 10 minutes.

The '**DOWNLOAD**' command must be entered after all '**CONFIGURE**' and '**FORMAT**' commands. *You must enter the download command before the system will recognize any changes!* If several commands are entered, you do not have to do a download until after all commands are entered.

To access the system using a PC and/or a modem, refer to Appendix D.

3.3 SYSTEM TIMES MENU

See Page 49. Use the System Times menu set the following:

- ☐ Real time and date
- ☐ Date on which to change to (and from) daylight savings time
- ☐ When to turn the system ON and OFF
- ☐ When to turn the pocket lights ON and OFF.

3.4 SYSTEM DEVICES MENU

See Page 53. This menu lets you program the following:

- ☐ The FITs
- ☐ The OPTs
- ☐ The PCTs
- ☐ The optional UPC (Universal Pump Controller)-equipped PCT.

3.4.1 FIT Programming Overview

The FIT controls the card/key reader(s), keyboard, display and optional /receipt printer. The following features can be programmed for each FIT:

- ☐ Whether to issue transaction receipts
- ☐ The time limit for issuing receipts
- ☐ Whether to allow keyboard entry of data
- ☐ Which PCTs to shut off when the Emergency Stop button is pressed
- ☐ If the card reader error counter should be reset
- ☐ Which pumps should be activated.

3.4.2 PCT Programming Overview

The Pump Control Terminal boards are either in the FIT pedestal or in a separate cabinet. Each PCT board controls the following parameters for up to eight pumps:

- ☐ Pump Number
- ☐ Pump Status
- ☐ Product Name
- ☐ Tank Number
- ☐ Quantity Restriction

- Total Time for Fueling
- Maximum Time for Pump Handle
- Maximum Time for First Pulse
- Maximum Time for MPD
- Pulser Divide Rate
- Pump Handle monitor
- Pump Sentry feature

3.4.3 UPC Programming Overview

The UPC can emulate up to four PCTs for operation with a self-service console.

The UPC option enables **SYSTEM2** to connect to a site console and provide *simultaneous* unattended *and* self service fueling.

For complete details on UPC operation, refer to the *UPC Operator Guide*.

3.5 CUSTOMER MESSAGES MENU ---

See Page 65. This menu lets you:

- Define receipt format and bonus points
- Display prompts and keyboard responses
- Create individual messages for fuelers
- Specify a date/time format

3.6 SYSTEM PARAMETERS MENU

See Page 97. This menu lets you:

- ☐ Display a system status report
- ☐ Set a site ID
- ☐ Specify fuel units, prices, and names
- ☐ Define product "labels"
- ☐ Create new passwords
- ☐ Enable or disable the menus
- ☐ Enable or disable the response echo
- ☐ Specify a coupon value ("bonus points")
- ☐ Define the system memory size
- ☐ Display the software version
- ☐ Test the back-up battery

3.7 RESTRICTIONS MENU

See Page 105. This menu sets up the following:

- ☐ Odometer Reasonability
- ☐ Pump Restrictions
- ☐ Quantity Restrictions
- ☐ Security Table

3.8 CARDS/ACCOUNTS MENU

See Page 113. SYSTEM2 is activated via magnetic cards, optical cards, or programmable ChipKeys, depending on the reader supplied with your system.

The **SYSTEM2** can use single or dual card (or key) operation. Three distinct types of card or key are recognized:

- ☐ Single
- ☐ Driver
- ☐ Vehicle

A record is maintained for each card, key, and/or account within **SYSTEM2**. Each record can be programmed with some or all of the following:

- ☐ Account/department number
- ☐ Expiration date
- ☐ Monthly allocation
- ☐ Daily allocation
- ☐ PIN (Personal Identification Number)
- ☐ Odometer entries
- ☐ Odometer reasonability with minimum and maximum levels
- ☐ Pump or product restriction
- ☐ Quantity restriction per transaction
- ☐ Miscellaneous data prompting
- ☐ Driver name or vehicle description
- ☐ Card or ChipKey number

3.9 TRANSACTION DATA MENU

See Page 127. Use this menu to program the following information for each transaction:

- ☐ Driver and vehicle card/key numbers
- ☐ Transaction and pump numbers
- ☐ Product type, quantity and price
- ☐ Keypad entries (for odometer entries and miscellaneous data).

A "fixed length" format is used for all transaction records.

3.10 SYSTEM TOTALS MENU

See Page 133. All completed **SYSTEM2** transactions can be either printed or displayed. Using the System Totals menu you can restrict the transactions you want to see by the following parameters:

- ☐ Date
- ☐ Time
- ☐ Transaction, card, account, or vehicle number
- ☐ Pump
- ☐ Fueltype
- ☐ Day, shift, or midnight.

3.11 JOURNAL PRINTER MENU

See Page 139, 141. The journal printer must be set before it can print **SYSTEM2** data. You can temporarily block the transaction logging function to prevent transactions from being interspersed throughout a report printout.

3.12 MAIN MENU OUTLINE

A. System Access

- a. Open
- b. Close
- c. Call
- d. Hello
- e. Bye
- f. Passthru

B. System Times (*show/print/set*)

- a. Time
- b. Time Change
- c. Date
- d. System ON Time
- e. Light ON Time

C. System Devices (*show/ print/ install/remove/configure a-f below*)

- a. FIT
- b. PCT
- c. OPT
- d. PCT & Position
- e. Pump
- f. Program
- g. Set Pump ON
- h. FIT Download
- i. PCT Download
- j. OPT Download

D. Customer Messages (*show/ print/ format*)

- a. Receipt Body
- b. Receipt Header
- c. Receipt Trailer
- d. Receipt Bonus Points
- e. Display Number
- f. Keyboard Number
- g. Messages
- h. Date

E. System Parameters (*show/print/set*)

- a. System (show only)
 - *Current Time/Date*
 - *Installed FITs and PCTs*
 - *Low Tanks*
 - *Power failure times*
- b. Site ID
- c. Fuel Type Assignments
- d. Fueling Units
- e. Password
- f. *Language (NOT ACTIVE)*
- g. Menu (ON or OFF)
- h. Echo (ON or OFF)
- i. Bonus Points
- j. RAM (memory level 0-4)
- k. Version (software version)

F. Restrictions (*show/ print/ set*)

- a. Odometer Reasonability (code 0-15)
- b. Pump Restriction (code 0-15)
- c. Quantity Restriction (code 0-15)
- d. Security (row 1/2)

G. Cards/Accounts (*show/print/insert/ delete/ edit/ set/ copy/ sort*)

- a. Card Number (show or print)
- b. Card Summary (show or print)
- c. Card Account Number (show or print)
- d. Account Number (show or print)
- e. Card Insert/Delete/Edit
- f. Account Insert/Delete/Edit
- g. Card Set

- 1. *Specify Card/Account Buffer Size*
- 2. *Define Card/Account Record*
- 3. *Clear Card Record Totals*
- 4. *Reconcile Card Record Totals*
- 5. *Clear ALL Account Record Totals*
- 6. *Reconcile Account Record Allocation*
- 7. *Month-End Totals*
- 8. *Set Keyboard Card Control Data*
- 9. *Additional Options*
- X. *Exit*

- h. Copy Card
- i. Sort

H. Transaction Data (*show/print/ set/ clear*)

- a. Transaction by date/time/card/account/vehicle (show or print)
- b. Summary of "a" above (show/ print)
- c. Transaction by number (show/ print)
- d. Transaction Set or Clear
- e. Clear Transaction by date/sequence
- f. Report

I. System Totals (*show/ print/ set/ clear*)

- a. Transaction by date/time/card/account/vehicle (show or print)
- b. Summary of "a" above (show/ print)
- c. Midnight (show or print, eight days)
- d. Day (show or print, current day)
- e. Shift (show/print, change shift)
- f. Pump Totals (show, print, or clear)
- g. PCT Totals (show, print, or clear)
- h. Fuel Type Totals (show or print)
- i. Tank Totals (show, print, or set)

J. Journal Printer

- a. Set, Show, Print Printer Configuration
- b. Lock or Unlock Printer

4.0 Practice Session

This section leads you step-by-step through a typical site configuration. This session assumes your system is completely installed, and that the hardware has passed all self-diagnostics.

The references made in each step are to other sections of this manual where you can find complete details on the function used.

CAUTION

This is ONLY an exercise! When you are finished with this session, be sure to clear all the sample configuration data from the system before putting YOUR data into the system.

4.1 SESSION OVERVIEW

This exercise will let you do the following:

- Set the current time and date
- Set the memory (RAM) level of your system
- Define a fuel type
- Define a tank
- Create a FIT customer message and receipt
- Configure the system for a printer
- Define a simple card base
- Configure and install a PCT/Position
- Configure and install a FIT
- Create an individual card record
- Create an account
- Generate transactions
- Define and run a report.

4.2 STEP-BY-STEP PROCEDURE

Issue commands in one of two ways:

- Via menus (takes longer, but the related functions of the system are easier to understand)
- Via direct typed commands.

This *manual* is organized around the menus, but this does not mean you **MUST** use the menus. For more information about menus and command lines, see Page 15.

This practice session uses both methods; choose your preferred method, but it is suggested you at least *try* both methods.

4.2.1 Terminal Connection & Power-Up

1. To issue any commands to the system, you must first have an RS232 terminal connected to the FSC TERM port. Set the terminal to the baud rate the FSC is set for (factory default is 1200), full-duplex communication, with 7 data bits, 1 stop bit, even parity.
2. Apply power to all system components. After self-tests, the following prompt (the "non-privileged" prompt) should be on the terminal:

>

Press the **[ENTER]** key several times to confirm the system is receiving commands. The prompt will repeat.

3. Enter the "privileged" mode by doing the following: (1) Type **HELLO** and press **[ENTER]**, (2) Type the password and press **[ENTER]**. From the factory, the original factory password is **HELLO**. The prompt changes to the following:

P>

The system is now in Privileged mode, allowing you to set or configure it.

4.2.2 Should You Use the Menus?

This manual is organized around the menus that are built into the system software. All menus "branch out" from a Main menu; the Main menu is displayed after you power up the FSC and terminal, and press the **[ENTER]** key several times.

Turn the menus ON or OFF by typing **SET MENU** (and pressing **[ENTER]**) at the **P>** prompt. Answer **Y** or **N** at the **ENABLE MENUS?** prompt as desired.

You can use the menus to guide you through the setup procedure, or you can enter commands directly at the **P>** prompt. Both methods are provided in this practice session.

4.2.3 Set the Time and Date

Menu Method

1. From the Main menu:
Press **[B] [ENTER]**.
2. From the System Times menu:
Press **[C] [ENTER] [A] [ENTER]**
3. At the **SET TIME** prompt, enter the time of day. For example, at 3:15 PM:
Type **3:15 PM [ENTER] [ENTER]**.
4. You should be back in the System Times menu. Next, set the date:
Type **[C] [C] [ENTER]**
5. At the **SET DATE** prompt enter the current date. For example, to set a date of March 21, 1996:
Type **MAR 21 1996 [ENTER] [ENTER]**.
6. Press **[ENTER]** once again to return to the Main menu.

Command Line Method

1. At the **P>** prompt:
Type **SET TIME [ENTER]**.
2. At the **SET TIME** prompt, enter the time of day. For example, at 3:15 PM:
Type **3:15 PM [ENTER]**.
3. You should be back to the **P>** prompt. Next, set the date:

Type **SET DATE [ENTER]**

4. Enter a date. For example, to set a date of March 21st, 1996:

Type **MAR 21 1996 [ENTER]**. Your entry is echoed, and the **P>** prompt reappears.

4.2.4 How Much Memory in the System? (Page 97).

This procedure tells the system software how much RAM memory is in your system. The amount is determined by a code number.

Menu Method

1. From the Main menu:

Press **[E] [ENTER]**.

2. From the System Parameters menu:

Press **[C] [ENTER] [J] [ENTER]**

3. At the **ENTER OPTION** prompt, enter a RAM level. For example, to define Level 2:
Type **1 [ENTER] [ENTER]**.

You should be back in the System Parameters menu. Press **[ENTER]** once again to return to the Main menu.

Command Line Method

1. At the **P>** prompt:

Type **SET RAM [ENTER]**.

2. At the **ENTER OPTION** prompt, enter a RAM level. For example, to define Level 2:

Type **1 [ENTER] [ENTER]**.

This returns you to the **P>** prompt.

4.2.5 What Kind Of Fuel? (Page 97)

This section defines fueltype code #1 as being unleaded premium gasoline, selling for \$1.39 a gallon.

Menu Method

1. From the Main menu:
Press **[E] [ENTER]**.
2. From the System Parameters menu:
Press **[C] [ENTER] [C] [ENTER]**.
3. At the **ENTER FUELTYPE:** prompt:
Type **1 [ENTER]**. The current name and price of fueltype #1 appears, along with a list of Fueling Unit Codes (1-3).
4. At the **ENTER FUELING UNIT CODE (1-3):** prompt:
Type **1 [ENTER]**.
5. At the **CHANGE PRICE? (Y/N):** prompt:
Type **Y [ENTER] 1.39 [ENTER]**
6. At the **CHANGE PRODUCT NAME (Y/N)?:** prompt:
Type **PREMUNLEAD [ENTER]**.
7. Press **[ENTER] ENTER** to return to the Main menu.

Command Line Method

1. At the **P>** prompt:
Type **SET FUELTYPE 1 [ENTER]**.
2. Follow Steps 4-6 in the "Menu Method" above.
3. Press **[ENTER]** to return to the **P>** prompt.

4.2.6 What Kind Of Tank? (Page 133)

This section shows how to define a sample Tank #1 as containing 9600 gallons of premium unleaded gasoline. The sample tank will alert the system when its level drops to 1200 gallons.

The "fuel type" was defined in Section 4.2.5.

Menu Method

1. From the Main menu:
Press **[I] [ENTER]**.
2. From the System Totals menu:
Press **[J] [ENTER]**.
3. At the **ENTER TANK:** prompt:
Type **1 [ENTER]**.
4. At the **FUEL TYPE CODE (1-16):** prompt:
Type **1 [ENTER]**.
5. At the **ENTER QUANTITY:** prompt:
Type **9600 [ENTER]**
6. At the **LOW LEVEL QUANTITY:** prompt:
Type **1200 [ENTER]**. You will now see a summary of Tank 1.
7. Press **[ENTER] [ENTER]** to return to the Main menu.

Command Line Method

1. At the **P>** prompt:
Type **SET TANK 1 [ENTER]**.
2. Follow steps 4-6 in the "Menu Method" above.
3. Press **[ENTER]** to return to the **P>** prompt.

4.2.7 Introduce Yourself to the Customer (Page 65)

This section gives you practice with programming a 2 x 16 FIT display to give details on the "**ABC OIL COMPANY**", and creating a custom receipt header and trailer with details about the "ABC Oil Company", and its "special offer".

Menu Method

1. From the Main menu:
Press **[D] [ENTER]**.
2. *Create A LCD Display:* From the Customer Messages menu:
Press **[C] [ENTER] [E] [ENTER]**.
3. At the **ENTER DISPLAY:** prompt type **8 [ENTER]**. The current Message #8 appears (factory default is **PETRO VEND SYSTEM2**) along with an entry field for your new message. The figure below shows the display; the cursor is shown by an "X".

```
MESSAGE 1  DISPLAY #8:
PETRO VEND      SYSTEM2

:Lang 1      ::      :
X
```

4. The space between each set of colons represents a line break on the display. Type **ABC OIL**. Press the space bar until the cursor is within the second set of brackets, then type **COMPANY**.
5. Press **[ENTER] [ENTER]** to complete the entry and return to Customer Messages menu.
6. *Create The Receipt Header:* From the Customer Messages menu, press **[C] [ENTER] [B] [ENTER]**. A prompt similar to the one for the display (Step 3) appears.

7. Type **ABC OIL CO. [ENTER]**. When prompted for "**RED PRINT?**", just press **[ENTER]** again. Then:
 - Type **1234 SMITH ST. [ENTER] [ENTER]**.
 - Type **ANY TOWN USA [ENTER] [ENTER]**.
 - Type **555-1234 [ENTER] [ENTER] [ENTER]**.
8. *Create A Receipt Trailer.* From the Customer Messages menu, press **[C] [ENTER] [C] [ENTER]**. A prompt similar to the one for the header appears.
9. Type **SPECIAL! [ENTER]**. When prompted for "**RED PRINT?**", just press **[ENTER]** again. Then:
 - Type **10W30 OIL [ENTER] [ENTER]**
 - Type **.89 PER QT [ENTER] [ENTER]**
 - Type **STOCK UP NOW [ENTER] [ENTER] [ENTER]**
10. Download. From the Main menu:
 - Press **[C] [ENTER]**.
 - From the System Devices menu:
Press **[G] [ENTER]**

This completes the display, header and trailer creation via the menus.

Command Line Method

1. **At the P> prompt:**
Type **FORMAT DISPLAY 8 [ENTER]**. The display shown above in "Menu Method" appears.
2. Follow Step 4 in the "Menu Method" above.
3. Press **[ENTER]** twice to complete your entry and return to the **P>** prompt.
4. *Create A Receipt Header:* At the **P>** prompt:
Type **FORMAT REC HE [ENTER]**.
5. Follow Step 7 in the Menu Method to create your header. Then, press **[ENTER]** until you see the **P>** prompt again.
6. *Create A Receipt Trailer:* Type **FORMAT REC TRAILER** at the **P>** prompt.

7. Follow Step 9 in the Menu Method. Press **[ENTER]** when done to complete your footer and return you to the **P>** prompt.
8. Download your changes. Type **DOWNLOAD** and press **[ENTER]**.

This completes the display and receipt practice.

4.2.8 Tell The System About Your Transaction Records (Page 139, 141)

You can specify what data is printed on the printer. Do the following.

Menu Method

1. From the Main menu:
Press **[J] [ENTER]**.
2. From the Journal Printer menu:
Press **[C] [ENTER]**.
3. Answer all the prompts by pressing **Y** followed by **[ENTER]**.
4. After the last prompt, press **[ENTER]** once again to return to the Journal Printer menu.

Command Line Method

1. At the **P>** prompt:
Type **SET JOU [ENTER]**.
2. Answer all the prompts by pressing **Y** followed by **[ENTER]**.

4.2.9 How Many Cards? What Should They Say? (Page 113)

You can tell the system how many card records it can handle, and what data each card can process.

Menu Method

1. From the Main menu:

Press **[G] [ENTER]**.

2. From the Cards/Accounts menu:

Press **[F] [ENTER]**.

3. From the Set Card menu:

Press **[1] [ENTER]**. Answer **Y** to the **...CLEARED?** confirmation request.

4. - Answer **N** to **ENABLE MESSAGING?**
- Enter **1** for **TRANSACTION SIZE CODE**

You will now see how many messages the system will hold, for cards that have **NO** options set and cards that have **ALL** options set.

5. Answer **Y [ENTER]** to the **SAVE THIS CONFIGURATION?** prompt. You are returned to the Set Card menu.

6. From the Set Card menu, press **[2] [ENTER]**. This step defines which options are enabled for each card you have in your system.

7. The first prompt is **SPECIFY CARD/ACCOUNT RECORD?** Press **Y [ENTER]**. Press **Y [ENTER]** again at the confirmation request.

Now begins the actual card definition. For this exercise you will create a card with all possible options enabled EXCEPT for the Expiration Date, Daily Allocation, and Odometer Reasonability options.

8. For each prompt, press **Y [ENTER]** except for the three exceptions above, which you should answer with **N**.

At the end of this process you will see how many cards this particular configuration will let you use.

9. Press **[ENTER]** once again to return to the Cards/Accounts menu.

Command Line Method

1. At the **P>** prompt:
Type **SET CARD [ENTER]**.
2. Follow the Menu Method, beginning with Step 3 and ending with Step 8.
3. Press **[ENTER]** to return to the **P>** prompt.

4.2.10 Configure and Install a PCT Position (Page 53)

This part of the exercise tells you how to define a pump for the system: its number, pulses per unit of fuel, how much fuel it should dispense, and various timeout limits.

Menu Method

1. From the Main menu:
Press **[C] [ENTER]**.
2. From the System Devices menu:
Press **[E] [ENTER] [B] [ENTER]**

For each of the following entries, remember you must press the **[ENTER]** key after each entry.

3. Give the PCT a number. Type **1** at the **ENTER PCT:** prompt.
4. Answer N to the **IS THIS A UPC** prompt.
5. Press **[E] [ENTER] [C] [ENTER]**
6. Define a position for the pump. Type **1** at the **ENTER POSITION:** prompt.
7. Give the pump a number. Type **1** at the **ENTER PUMP** prompt.

8. Provide the system with pump pulser information. Type **10** at the **ENTER PULSES PER GALLON:** prompt.
9. Specify how much fuel the pump is allowed to dispense per transaction. This entry is a safety feature: if the nozzle falls out of the filler neck while dispensing fuel, it will not continue to spew fuel indefinitely. Type **50** at the **MAX FUEL TO BE DISPENSED PER TRANSACTION** prompt.
10. Enable the "Pump Sentry". This feature automatically disables a pump if it registers zero product in three consecutive transactions. Type **Y** at the **PUMP SENTRY OPTIONS** prompt, and again at the **ENABLE PUMP SENTRY** prompt.
11. Another safety feature is the Maximum Fueling Time limit. Type **15** at the **MAX TIME ALLOWED FOR FUELING (MIN)** prompt.
12. To prevent a pump from being turned ON and then "forgotten", a Time To Retrieve Pump Handle feature is provided. Type **90** at the **MAX TIME ALLOWED TO RETRIEVE PUMP HANDLE (SEC)** prompt. Also, enter **60** at the **MAX TIME ALLOWED TO DETECT FIRST FUELING PULSE** prompt.
13. Specify the maximum time between starting and stopping the fuel flow: type **30** at the **MAX TIME ALLOWED BETWEEN FUELING PULSES (SEC)** prompt.
14. Specify a fuel type; for this example, type **1** (premium unleaded) at the **ENTER FUELTYPE CODE** prompt. Type **1** at the **ENTER TANK** prompt. Clear the pump totals by typing **Y** at the **CLEAR PUMP TOTALS** prompt. Finally, enter a new totalizer value of 14,500.
15. Press **[ENTER]** once again. You should now be back in the System Devices menu. Confirm your PCT/position/pump setup by typing **A [ENTER] C [ENTER]**, and then enter **1**, to display the following screen:

```
PCT 1  POSITION 1  PUMP 1
PULSES PER GALLON: 1
ABSOLUTE MAX QUANTITY: 50 GALLON
PUMP INACTIVE
PUMP SENTRY: ENABLED
*** PUMP TIME-OUTS ***
TOTAL FUELING TIME-OUT (MIN): 15
PUMP HANDLE TIME-OUT (SEC)   : 90
FIRST PULSE TIME-OUT (SEC)   : 60
MISSING PULSE TIME-OUT (SEC): 30
FUELTYPE CODE TANK# TOTALS  TOTALIZER
1: UNLEAD      1      0.0    14500.0
```

16. Install the PCT position. From the System Devices menu, type **[C] [ENTER] [C] [ENTER]**. Then, enter **1** for the PCT and **1** for the POSITION (press **[ENTER]** after each). When you see **PCT 1 POSITION 1 OKAY**, press **[ENTER]** to return to the System Devices menu.
17. Download your changes (use the same procedure described earlier).

Command Line Method

1. At the **P>** prompt:
Type **CONFIG PCT 1 POS 1 [ENTER]**.
2. Follow the Menu Method beginning with Step 5 and ending with Step 12. Press **[ENTER]** until you see the **P>** prompt again.
3. Install the position by typing **INST PCT 1 POS 1 [ENTER]** at the **P>** prompt.
4. Download your changes. The procedure is described earlier.

The PCT position has been installed when you see **OKAY**.

4.2.11 Configure & Install a FIT (Page 53)

Your sample Fuel Island Terminal will do the following: Issue receipts within a month of the transaction, clear the receipt counter, and shut off PCT position 1 when the E-stop button is pressed. The access to pumps will not change.

Menu Method

1. From the Main menu:
Press **[C] [ENTER]**.
2. From the System Devices menu:
Press **[E] [ENTER] [A] [ENTER]**

For each of the following entries, remember you must press the **[ENTER]** key after each entry.

3. Define FIT #1 by typing **1 [ENTER]** at the **ENTER FIT:** prompt.

4. Since you want the FIT to issue receipts, answer **Y [ENTER]** to the **ISSUE RECEIPTS?** prompt. Then, enter **30** (one month) for the **LIMIT TO RECEIVE RECEIPT...** prompt. Answer **NO** to the **CLEAR RECEIPT COUNTER?** prompt.
5. Answer **N [ENTER]** to the **KEYBOARD OPTIONS?** prompt.
6. You want a customer to be able to shut off PCT 1 with the Emergency Stop button, so press **Y [ENTER]** to the **SPECIFY PCTs TO SHUT OFF...** prompt. Then, press **1 [ENTER]** to specify PCT 1 will be the only PCT to shut off. Answer **NO** to **CHANGE FIT ACCESS TO PUMPS?**

After pressing **[ENTER]** following the PCT entry, a summary of the FIT should appear on your monitor (shown below).

```
FIT NOT INSTALLED
RECEIPT: 0    30 DAY LIMIT
KEYBOARD ACCESS: DISABLED
PCTS TO SHUT OFF ON E-STOP: 1
CARD READER ERROR COUNTER: 0
-- ACCESS TO ALL PUMPS
```

Press **[ENTER]** to return to the System Devices menu.

7. Install the FIT. From the System Devices menu:
Press **[C] [ENTER] [A] [ENTER]**.

Enter the FIT number. Press **[ENTER]** to use FIT #1. Now, do a download (described earlier).

You will see **OKAY**. Press **[ENTER] [ENTER]** to return to the Main Menu.

Command Line Method

1. At the **P>** prompt:
Type **CONFIG FIT 1 [ENTER]**. You will see **ISSUE RECEIPTS?**
2. Follow the Menu Method beginning with Step 4 and ending with Step 6. Press **[ENTER]** until you see the **P>** prompt again.
3. Install the FIT. Type **INSTALL FIT 1 [ENTER]** at the **P>** prompt. You will see **OKAY**, and the **P>** prompt re-appears.
4. Do a download (described earlier).

4.2.12 Create a Sample Card File & Account

This section lets you create a card file and an account, and then assign the card to the account.

Menu Method

1. From the Main menu:

Press **[G] [ENTER]**.

2. Create (Insert) a new card: From the Cards/Accounts menu:

Press **[C] [ENTER] [E] [ENTER]**

3. To define your card settings, answer the following prompts as indicated:

- **AUTO-GENERATE PIN.** Type **N [ENTER]**
- **CARD #?** Type **1 [ENTER]**
- **CARD TYPE (S)ingle (D)river (V)ehicle** Type **S [ENTER]**
- **VALID?** Type **Y [ENTER]**
- **ACCOUNT # (0-9999)** Type **100 [ENTER]**
- **MONTHLY ALLOCATION: \$** Type **500 [ENTER]**
- **ENABLE MISC ENTRY?** Type **Y [ENTER]**
- **PIN#:** Type **1234 [ENTER]**
- **ENTER CURRENT ODOM?:** Type **Y [ENTER]**
- **PUMP RESTRICTION CODE:** Type **1 [ENTER]**
- **QUANTITY RESTRICTION CODE:** Type **1 [ENTER]**
- **DRIVER NAME:** Enter your first name here and press **[ENTER]**.

OPTIONAL: Program another card if you want by pressing **Y [ENTER]** at the **ANY MORE CARDS?** prompt. Otherwise, go on to the next section to make an account.

4. Verify your card record: From the Cards/Accounts menu press **A [ENTER] A [ENTER] 99 [ENTER]**. You should see the following:

```
CARD#: 99
SINGLE CARD
ACCOUNT#: 0100
MONTHLY ALLOCATION: $500.00
--TOTALS TO DATE: 0.00
MISC ENTRY: ENABLED
PIN #: 1234
ODOMETER: ENABLED
PUMP RESTRICTION CODE: 1
QUANTITY RESTRICTION CODE: 1
DRIVER NAME: YOUR NAME
```

5. Press **[ENTER]** again until you see the Cards/Accounts menu.
6. Create your account. This account will be Account #100. Card 99 will be part of it. All purchases billed to Account 100 will have a 15% discount when billed through the Report Package. All cards within Account 100 will be able to draw a total of \$5000.00 worth of products per month - no more.

To create your account from the Cards/Accounts menu: Press **C [ENTER] F [ENTER] 100 [ENTER]**.

7. To define your account, answer the following prompts as shown:

- **VALID?** Press **Y [ENTER]**
- **ACCOUNT DISCOUNT** Press **15 [ENTER]**
- **MONTHLY ALLOCATION** Type **5000 [ENTER]**
- **PUMP RESTRICTION CODE:** Type **0 [ENTER]**
- **QUANTITY RESTRICTION CODE:** Type **1 [ENTER]**
- **ACCOUNT NAME:** Type your name and press [ENTER]
- **ANY MORE ACCOUNTS?** Type **N [ENTER]**. You will see **SORTING CARD/ACCOUNT DONE.** Press [ENTER] to return to the Cards/Accounts menu.

8. To view or edit the account from the Cards/Accounts menu press E [ENTER] F [ENTER] 100 [ENTER]. The summary of Account 100 appears:

```
ACCOUNT#: 0100
ACCOUNT RECORD
DISCOUNT (%): 15.0
MONTHLY ALLOCATION: $5000.00
--TOTALS TO DATE: 0.00
PUMP RESTRICTION CODE: 1
QUANTITY RESTRICTION CODE: 1
DRIVER NAME: YOUR NAME
```

9. Press [ENTER] after each line to say you do not want to change it (unless you see an error).

Command Line Method

1. At the P> prompt:
Type INSERT CARD [ENTER]. First you are asked **AUTOMATICALLY GENERATE PIN NO?** Type N. You will see **ENTER CARD #**. Type 99 [ENTER].
2. Follow Step 3 in the Menu Method, to define your card information. To review your card setup, type SHOW CARD 99 at the P> prompt. You will see POSITIVE CARD FILE... and a message telling you how many cards are used and how many cards this configuration will allow.
3. Create your account. Type INSERT ACCOUNT [ENTER] at the P> prompt. Type 100 [ENTER] at the **ACCOUNT #** prompt.
4. Follow the Menu Method Step 7.
5. Verify the account setup by typing EDIT ACCOUNT [ENTER]. Then, enter 100 [ENTER].
6. Press [ENTER] for each correct line.

4.2.13 Download Your Program

You need to generate a download to make your changes effective. Although downloads have been done throughout this practice session, it cannot hurt to do one more at the end of everything.

You will not be able to see the FIT display changes until you issue a download.

Menu Method

1. From the Main menu:
Press [C] [ENTER].
2. From the System Devices menu:
Press [G] [ENTER]

Command Line Method

1. At the P> prompt:
Type DOWNLOAD [ENTER].

4.2.14 Try a Transaction

You will need a system card to perform a transaction. You can also try any card you might have in your wallet. The drawback is the card's numbering system may not match the System format.

If you do NOT have a card, enable "keyboard access" to "punch in" a card number. See Page 36.

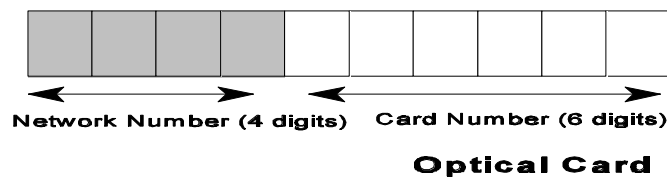
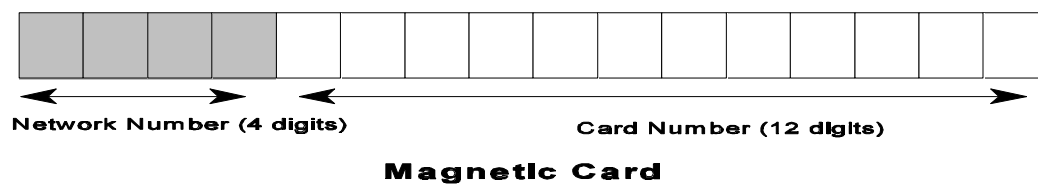
Programming a Card Number into a Database

Magnetic Card

The sixteen-digit card number for mag cards consists of a four-digit network number and a 12-digit card number, as shown below.

Optical Card or ChipKey

The ten-digit card number for optical cards or ChipKeys consists of a four-digit network number and a six-digit card number, as shown below.



Notes:

Part II - Programming

5.0 Menu Overview

MAIN MENU

A - SYSTEM ACCESS
B - SYSTEM TIMES
C - SYSTEM DEVICES
D - CUSTOMER MESSAGES
E - SYSTEM PARAMETERS
F - RESTRICTIONS
G - CARDS/ACCOUNTS
H - TRANSACTION DATA
I - SYSTEM TOTALS
J - JOURNAL PRINTER

'RETURN' FOR COMMAND LINE

5.1 USING THE MENUS

The system is initially in "command line" mode, meaning you must issue commands at the ">" prompt (such as **> SET TIME**). Menus are available, however, to simplify operations.

To turn the menus ON, do the following:

1. Get into the *privileged* mode by entering the privileged password at the prompt.
2. Enter SET MENU at the P> prompt (^P>').
3. When the message ENABLE MENUS (Y/N)? appears, enter Y.

If you do *not* enable the menus, SYSTEM2 continues to operate in "command line" mode, which is the mode used in the Petro-Vend K2500.

To suspend the menus for one command, press [ENTER] several times at the prompt, until the command line reappears. After the command is entered at the command line, the menus reappear.

Use the SET MENU command to enable or disable the menus for your entire programming session.

To select a menu item, simply press the matching letter key, followed by the [Return] (or [ENTER]) key. For example, to select "System Access", press the [A] key, then press the [Return] key. You can use the backspace key ([–]) to change your selection *before* pressing the [Return] key.

A submenu is displayed after you select an item from the MAIN MENU. To display a help screen for the MAIN MENU, type `?', then press [ENTER].

5.2 COMMANDS & OPTIONS

Some menus require you type only a letter corresponding to a command (such as SET) to activate a particular function; others require first a command and then an option (such as INSTALL, followed by PCT).

A "menu tree" with relevant commands (arranged for menu use) appears on Page 22. The three most used commands are SHOW, PRINT and SET:

- **SHOW.** Displays information from a SYSTEM2 data base on the screen of your terminal or PC. This command does not require privileged status.
- **PRINT.** Sends data to your external journal printer to make a hard copy. Most (but not all) information can be printed, including all setup data (cards, accounts, fueltypes, prices, etc.) and all transaction information (time, date, amount, price, cost, etc.). This command does not require privileged status.
- **SET (FORMAT and CONFIGURE work similarly).** These commands are used to enter or change the setup data. These commands are privileged. Note that after FORMAT or CONFIGURE commands is used, one of the `DOWNLOAD' commands must then be entered.

Other menu commands are listed below:

- INSERT, DELETE, EDIT, COPY, SORT - These commands are used with the card and account files. Some are privileged commands, some are not.
- INSTALL/REMOVE - These commands activate and deactivate a device (such as a PCT). Privileged commands.
- CLEAR - There are several CLEAR commands, which erase transactions from the system data base. Privileged command.
- REPORT - activates the optional Report Package. Privileged command.

5.3 HELP SCREENS

A help screen is available for each item listed in the submenus. These screens display information about the current menu.

To get a help screen, select a menu item in the usual manner but type a question mark (?) before pressing [ENTER].

For example, to display the help screen for SET TIME, type `C' (for the command) from the System Times menu, and then type `A?' and then press [ENTER].

To return to a current submenu, press the [ENTER] key a second time. To return to the MAIN MENU, press the [ENTER] key until the Main menu reappears.

For help from a command line, type HELP at either the privileged or non-privileged prompt.

Motes:

6.0 System Access Menu

From the MAIN menu, press [A]

```
-----  
SYSTEM ACCESS      ** PRIVILEGED **  
-----  
A: OPEN  
B: CLOSE  
C: CALL  
D: HELLO  
E: BYE  
F: PASSTHRU  
-----  
^ENTER COMMAND:
```

6.1 OPEN/CLOSE

The OPEN and CLOSE commands give immediate access to pumps. Both commands are privileged, requiring the main password. When a CLOSE command is issued, all activities in progress (pumping, printing a receipt, etc.) complete normally but no new activities are allowed to begin.

CAUTION

Closing the system with the **CLOSE** command is not the same as pressing the Emergency Stop button! Emergency Stop removes power from the pumps and interrupts the pumping process.

6.2 HELLO/BYE

HELLO accesses the privileged mode. You'll be prompted for the system password (the factory default password is `HELLO').

The BYE command exits the privileged mode.

Use the privileged mode to enter and change setup data. You **MUST** enter the "main" password to Privileged mode. To return to normal mode from the command line \$> prompt, type BYE. See Page 101 for information on changing your passwords.

6.3 CALL

The CALL command creates a virtual link between the TERMINAL port and the MODEM port on the Fuel Site Controller.

Before executing the CALL command, a modem and terminal must be connected to the MODEM and TERMINAL ports, respectively.

After executing CALL, you can use a terminal connected to the FSC TERMINAL port to issue dialout commands directly to the modem.

To break the connection, type BYE.

6.4 PASSTHRU

The PASSTHRU command lets two intelligent devices (such as a Petro Vend SiteSentinel and a SYSTEM2) "talk" to each other via only one terminal. The terminal can be connected to either of the devices.

The second device must use the RS-232 standard interface, and must be set at the same baud rate and parity as the SYSTEM2: 7-bit, even parity, 1 stop bit.

Connect the second device (for example, the SiteSentinel) to the AUX3 port on the SYSTEM2. The terminal goes to the TERMINAL port as before. This must be done before issuing the PASSTHRU command.

After you issue the PASSTHRU command, SYSTEM2 enters a "transparent" mode, where characters sent to it by the terminal or a modem are passed through to the second intelligent device. Any characters coming from the other device would likewise pass through to the terminal or modem.

Press [CNTL] [Z] to break the passthru connection.

7.0 System Times Menu

From the MAIN menu, press [B]

```
-----  
SYSTEM TIMES      ** PRIVILEGED **  
-----  
  
A: SHOW           A: TIME  
B: PRINT          B: TIME CHANGE  
C: SET            C: DATE  
                  D: SYSTEM ON TIME  
                  E: LIGHT ON TIME  
  
-----  
^ENTER COMMAND:   ^ENTER OPTION:
```

7.1 TIME

The SHOW TIME or SET TIME command displays or sets the current time of day. The SET TIME command changes time as follows:

1. After issuing the command, you are prompted to enter the time.
2. Enter the time in the format: `hh:mm am/pm'. For example, 12:57 PM.

If PM is not specified, AM is assumed.

3. Press the [ENTER] key to complete the entry; this sets seconds to zero. The new time and current (or default) date are displayed.

Press [ENTER] to leave the current time unchanged.

7.2 TIME CHANGE

The SET TIME CHANGE command sets dates on which the internal clock moves ahead or back by one hour, to adjust for the change between daylight savings time and "standard" time. The change occurs at 2:00 AM on the date specified.

The SHOW TIME CHANGE command displays change dates in the system. The SET TIME CHANGE command changes the dates as follows:

1. After issuing the command you are prompted:

ENTER DATE WHEN TIME IS MOVED BACK 1 HOUR:

2. Enter the "move-back" date in the format
mmm dd yyyy (the year must be four digits). Press [ENTER].
3. The following prompt appears:

ENTER DATE WHEN TIME IS MOVED AHEAD 1 HOUR:

Enter the "move ahead" date in the same way. *The word CHANGE can be abbreviated CH in these and other line commands.*

7.3 DATE

The SHOW DATE or SET DATE command displays or sets the current date within the system's memory. The SET DATE command changes the date as follows:

1. After issuing the command you are prompted to enter a date:
ENTER DATE (MMM DD, YYYY):
2. Enter the date in the indicated format (for example, type FEB 11, 1996 for February 11th, 1996.
3. Press the [ENTER] key to complete the entry; the new date is now displayed.

Press [ENTER] to leave the current date unchanged.

7.4 SYSTEM ON TIME

The SHOW SYS TIME and SET SYS TIME commands display or set the time the system goes ON and OFF, and the time during which only "transactions in progress" can be performed ("receipts only" time).

The SET SYS TIME command lets you set the following four options (time for the first three is entered in the same format as for System Time - **hh:mm**).

SYSTEM ON TIME - specifies when SYSTEM2 goes active. When the system is on, it displays messages, and accepts card insertions or keypad entries.

SYSTEM OFF TIME - specifies when the system goes inactive. No new transactions are allowed to begin, but any in progress are allowed to finish.

RECEIPTS ONLY TIME - specifies when the system allows no new transactions to begin, but does allow "just completed" customers to get their receipts. This time would typically precede the 'SYSTEM OFF TIME' by several minutes.

For example, a gas station that dispenses fuel from 9:00 AM until 7:00 PM would have the 'SYSTEM ON TIME' set to 9:00 AM, the 'SYSTEM OFF TIME' set to 7:10 PM and the 'RECEIPTS ONLY TIME' set to 7:00 PM.

TIME ADJUST - this feature allows a software adjustment to the internal time clock. In the event of a noticeable time drift, a number of seconds can be added to or subtracted from each day, until a proper hardware adjustment can be made.

7.5 LIGHT ON TIME

The SET LIGHT command lets you set the SYSTEM2 to turn the "pocket" lights in the standard FIT ON and OFF at designated times.

After selecting this option, the following prompts appear:

ENTER LIGHT ON TIME:
ENTER LIGHT OFF TIME:

Enter time in the same format as that for SYSTEM ON TIME (previous section).

Notes:

8.0 System Devices Menu

From the MAIN menu, press [C]

SYSTEM DEVICE ** PRIVILEGED **	

A: SHOW	A: FIT #...
B: PRINT	B: OPT #...
C: INSTALL	C: PCT #...
D: REMOVE	D: PCT #..POSITION#..
E: CONFIGURE	E: PUMP #...
	F: PROGRAM

F: SET	G: PUMP ON

G: DOWNLOAD	

H: DOWNLOAD	H: FIT (#...)
	I: OPT (#...)
	J: PCT (#...)

^ENTER COMMAND:	^ENTER OPTION:

This section describes the System Devices menu by explaining each of the available menu options: **FIT #**, **OPT#**, **PCT #**, **PCT #/Position #**, **Pump #** and **Program**. Commands applicable to each option are described in each section.

8.1 FIT

The SHOW, PRINT, INSTALL, REMOVE and CONFIGURE FIT # commands let you view, configure, install or remove FITs, and determine if the receipt printer will issue receipts, whether the keyboard is enabled or disabled, which PCTs to shut off when the emergency stop button is pressed, and reset the card reader error counter.

The FIT number is set with a DIP switch on the PV-269 board - refer to the System2 Installation Manual to set the FIT number.

8.1.1 Show FIT

Issuing a SHOW FIT command, along with a valid FIT number, displays the following message:

```
FIT INSTALLED
NO RECEIPTS
KEYBOARD ACCESS - DISABLED
PCTs TO SHUT OFF ON E-STOP: 1,2,3,4
CARD READER ERROR COUNTER: 0
-- ACCESS TO ALL PUMPS
```

Entries will vary depending on current FIT settings. The CONFIGURE FIT command (explained next) changes these settings.

8.1.2 Configure FIT

The following prompts appear one by one after using CONFIGURE FIT #:

ISSUE RECEIPTS (Y/N)? - Enter Y to have the optional receipt printer issue a receipt (N is default). If you enter [Y] to the ISSUE RECEIPTS? prompt, two additional prompts appear;

ENTER LIMIT TO RECEIVE RECEIPT IN DAYS (0..99) - this is the number of days after a transaction that a customer can receive a receipt. Default is NO LIMIT (press [ENTER]).

CLEAR RECEIPT COUNTER (Y/N)? - The receipt counter keeps a running total of all receipts issued to date. It can be used to keep track of the receipt paper and to indicate when the paper is running low.

KEYBOARD OPTIONS (Y/N) ? - Default is N. Enter [Y] to display:

ENABLE KEYBOARD ACCESS (Y/N) ? - Default is N. With this feature enabled, a customer can enter their card number on the FIT keyboard. For more details about "cardless" card records, see the INSERT CARD command on Page 115.

The card reader is not disabled by enabling keyboard access.

SPECIFY PCTs TO SHUT OFF ON E-STOP (Y/N)? - Default is N (meaning ALL PCTs shut off upon E-STOP). If you enter [Y] to select which PCTs will be turned off, you'll see:

ENTER PCTs TO SHUT OFF (#,#..) – Enter a range and press [ENTER].

If there are card reader errors logged, the next prompt you'll see is:

CLEAR CARD READER ERROR COUNTER (Y/N) ?

This prompt is only displayed if the error counter is greater than zero. This counter keeps a running total of bad reads by the card reader.

The system defines a bad read as one where the card reader cannot read a card correctly in three sequential attempts. Such a failure could indicate that the card reader needs cleaning or replacement.

Enter [Y] to clear the counter. Enter [N] to keep the counter the same and to display the next prompt. The last FIT configuration prompt is:

CHANGE FIT ACCESS TO PUMPS (Y/N) ? - Default is N. Enter [Y] to change which pumps can be activated by the specified FIT:

ENTER VALID PUMPS (p1, p2, ..)

If you enter **[N]**, all pumps will be accessible from this FIT. You will see **ALL PUMPS ACCESSED** if you choose **[N]**.

Enter the DOWNLOAD command after FIT configuration.

8.1.3 Install FIT

This command activates the specified FIT, establishing a communication link between the installed FIT and the FSC.

FIT #1 is automatically installed on power-up.

8.1.4 Remove FIT

This privileged command stops the FSC from communicating with the specified FIT.

8.2 OPT

8.2.1 Show OPT

Issuing a SHOW OPT command, along with a valid OPT number, displays the following message:

```
OPT INSTALLED
RECEIPTS: 0 NO LIMIT TO RECEIVE RECEIPT
KEYBOARD ACCESS - ENABLED
CARD READER ERROR COUNTER: 0
LIST OF VALID PUMPS - NONE
```

Entries will vary depending on current OPT settings. The CONFIGURE OPT command (explained next) changes these settings.

8.2.2 Configure OPT

The following prompts appear one by one after using CONFIGURE OPT #:

ISSUE RECEIPTS (Y/N)? - Enter Y to have the OPT receipt printer issue a receipt (N is default). If you enter [Y] to the ISSUE RECEIPTS? prompt, two additional prompts appear;

ENTER LIMIT TO RECEIVE RECEIPT IN DAYS (0..99) - this is the number of days after a transaction that a customer can receive a receipt. Default is NO LIMIT (press [ENTER]).

CLEAR RECEIPT COUNTER (Y/N)? - The receipt counter keeps a running total of all receipts issued to date. It can be used to keep track of the receipt paper and to indicate when the paper is running low.

KEYBOARD OPTIONS (Y/N) ? - Default is N. Enter [Y] to display:

ENABLE KEYBOARD ACCESS (Y/N) ? - Default is N. With this feature enabled, a customer can enter their card number on the OPT keyboard. For more details about "cardless" card records, see the INSERT CARD command on Page 115.

The card reader is not disabled by enabling keyboard access.

If there are card reader errors logged, the next prompt you'll see is:

CLEAR CARD READER ERROR COUNTER (Y/N) ? *This prompt is only displayed if the error counter is greater than zero.* This counter keeps a running total of bad reads by the card reader.

The system defines a bad read as one where the card reader cannot read a card correctly in three sequential attempts. Such a failure could indicate that the card reader needs cleaning or replacement.

Enter [Y] to clear the counter. Enter [N] to keep the counter the same and to display the next prompt. The last OPT configuration prompt is:

CHANGE OPT ACCESS TO PUMPS (Y/N) ? - Default is N. Enter [Y] to change which pumps can be activated by the specified OPT:

ENTER VALID PUMPS (p1, p2, ..)

If you enter **[N]**, all pumps will be accessible from this OPT. You will see **ALL PUMPS ACCESSED** if you choose **[N]**.

Be sure to enter the DOWNLOAD command after OPT configuration.

8.2.3 Install OPT

This command activates the specified OPT, establishing a communication link between the installed OPT and the FSC.

OPT #1 is automatically installed on power-up.

8.2.4 Remove OPT

This privileged command stops the FSC from communicating with the specified OPT.

8.3 PCT

You can SHOW, PRINT, INSTALL, REMOVE, or CONFIGURE a PCT#. Each SYSTEM2 FIT has a PCT board (part number PV-268) to control pump operations. This board, located in the FIT or in a remote cabinet, must be uniquely numbered.

PCT number is set with DIP switch #5 on each PV-268 board. See the *System2 Installation Manual* for details.

If the FSC is equipped with UPC (Universal Pump Controller) software, it can authorize fueling transactions via a pump control console (such as used in a self service station).

Pumps controlled by UPC software do *not* require a PCT.

8.3.1 Configure PCT

The CONFIG PCT # command (a number is required) first asks if a UPC will be substituted for the specified PCT. Press [Y] or [N] as appropriate.

If yes, you are prompted if the UPC is internal (built into the FSC) or external (in a separate cabinet). Refer to the appropriate System2 UPC manual before proceeding with UPC configuration.

If you want to reconfigure an installed PCT as a UPC, you must first remove the PCT using the command REMOVE PCT #.

When SYSTEM2 is "cold started" (with no setup information in the data base), PCT #1 is automatically installed as not a UPC. A cold start is required: (1) when SYSTEM2 is first installed or (2) if both the system power and backup battery fail.

8.3.2 Install PCT

The INSTALL PCT command activates the PCT, creating a link between the installed PCT and FSC. There is a PCT for each FIT. This command does *not* install all positions for a PCT.

IMPORTANT

Pumps must be installed before the PCT is installed.

After installing each pump position, the PCT(s) themselves *must* be installed in order for the pumps to operate as part of the system.

- A PCT can be configured and kept nonoperative by *not* installing it.
- On power-up, PCT #1 is automatically installed.

8.3.3 Remove PCT

The REMOVE PCT command ends FSC-to-PCT communication to the specified PCT and deactivates all positions in the specified PCT.

All the programmed parameters remain intact; you can re-install the "removed" PCT without reconfiguring it.

8.4 PCT #/POSITION

You can SHOW, PRINT, INSTALL, REMOVE, or CONFIGURE a position within a PCT#. These commands configure or show individual positions within a PCT. PCT positions can be viewed, printed, installed, removed or configured. Each PCT can control up to eight pumps, located at positions #1 - #8.

8.4.1 Configure PCT #/Position

After issuing this command, the following parameters must be specified for each position:

Pump #

This is the pump number displayed for this PCT position (example: `USE PUMP #12'). This number is only a label and does *not* have to match the PCT position number.

A pump number can be assigned to more than one position on the same PCT. When that pump number is selected by a customer, all the associated positions are activated.

For example, say pump number "2" is assigned to positions #1 and #2. A customer with a large saddle-tank equipped truck could speed his fueling by putting Position 1's pump into one of the tanks and the Position 2 pump into the other tank.

Each PCT position records its own transaction; in this example, two transactions would be recorded (one for each pump). *Multiple pump use is not possible when using UPC software.*

Pulses Per Unit

Specifies the number of pulses per "unit" of fuel. A unit is typically gallons, liters or quarts. The prompted unit is the one related to the fuel type just entered. Default value is 100. For more information on fueling units, see Page 100.

Optional Position Entries

The following optional items have defaults that should be appropriate for most systems. Press [ENTER] to skip past an optional item and enter the default value. To change a default, enter your new value at the prompt.

Max Fuel Per Transaction

This is the maximum fuel amount to be dispensed for any transaction using this pump). Default is 10 units.

Max Fuel Per Transaction is *not* the same as Quantity Restriction (described on Page 108) or the Daily/ Monthly Allocations described in the Cards/Accounts section of this manual.

Enable/Disable Pump Sentry Feature

This option deactivates the pump if three "zero quantity" transactions appear in a row, signalling possible pump or pulser trouble.

You will be prompted twice: `PUMP SENTRY OPTIONS (Y/N) ? '. Enter [Y] to enable the sentry.

If you enter [Y], you'll see `ENABLE PUMP SENTRY (Y/N) ? ' ; press [Y] or [N] as appropriate. Default is disabled. A "premature busy" error does NOT increment counter.

Gallon to Liter Conversion

For systems with pulsers that record in GALLONS, but for which LITERS are required for data processing purposes, answer Y to the GALLON PULSER OPTIONS? prompt, then answer Y to the ARE THE GALLON PULSES TO BE CONVERTED TO LITERS? prompt.

Answering Y to the above causes the FSC to automatically perform a gallon-to-liter conversion.

IMPORTANT

The Pulses Per Unit value for the pump must be in number of pulses per *gallon*.

Max Time For Fueling

This is the time limit (in minutes) given the user to fuel. Default is five minutes. Time is measured from when the pump is first activated; power is removed from the pump when Max Time is exceeded. To deactivate this feature, enter `0'.

Max Time For Pump Handle

The maximum time allowed (in seconds) between pump activation and pump handle retrieval; default is 60 seconds. Enter "0" to deactivate.

Max Time For First Pulse

The maximum time allowed (in seconds) to detect the first fueling pulse from when the pump handle is first retrieved. Pump power is removed when the specified time is reached. Default is 60 seconds. Enter "0" to deactivate.

Max Time Between Pulses

The maximum time allowed (in seconds) between fueling pulses. Pump power is removed when this time is reached. Default is 60 seconds. To deactivate, enter "0".

Fueltype Code #

This is a number, from 1 to 16, that represents the type of fuel this position will dispense (see Page 98 for a list of fuel types).

Tank #

This is the tank number from which product will be pumped. A PCT position with the same fuel type as the tank from which product is drawn must be defined. Default tank number is *position #*.

Clear Pump Totals

Lets you clear running pump totals; default is *no*.

Totalizer Value

Set a number to match the totalizer counter on the pump face; tracks the amount of fuel actually dispensed by the pump and as seen by SYSTEM2. Default is "0". For UPC-equipped systems, the last four prompts are repeated for up to four hoses.

Do a DOWNLOAD either directly, or via the menu, after configuring a PCT.

8.4.2 Install or Remove PCT/ Position #

Activate/deactivate the specified PCT position.

8.5 PUMP #

The SHOW, PRINT, INSTALL, REMOVE and CONFIGURE PUMP # commands let you reconfigure a PCT position, using the assigned pump number as a reference. The items are prompted as with the CONFIGURE PCT #...POSITION # command.

8.6 PROGRAM

The SHOW, PRINT, INSTALL, REMOVE and CONFIGURE PROGRAM commands let you used with UPC-equipped systems only. Refer to your UPC documentation for more information.

8.7 SET PUMP ON

This command lets you turn a pump on from the terminal or PC. You're prompted for the following customer information:

CARD #1	VEHICLE NAME
CARD #2	ACCOUNT NAME
ACCOUNT #	ODOMETER
DRIVER NAME	MISCELLANEOUS

No card validation is performed - customer data is taken as entered. Transaction termination is recorded as 'MANAGER ACTIVATED'.

If the pump is never actually activated, a 'MANAGER ACTIVATED' transaction is generated, but the pump number is '0'.

8.8 DOWNLOAD

Use DOWNLOAD after all 'CONFIGURE' and 'FORMAT' commands are complete. Changes in configuration do not appear until a download is done. You do NOT have to do a download until all changes are finished.

8.9 DOWNLOAD FIT #/OPT#/PCT

After issuing this System Devices command, enter the FIT, OPT or PCT number for which you want to download data. To download data for *all* of a particular device type, press [ENTER].

After issuing this command you are prompted for a number; enter the number of the device for which you want to download data, or just press [ENTER] to download data for all of them.

Notes:

9.0 Customer Messages Menu

From MAIN menu, press [D]

```
-----  
CUSTOMER MESSAGES ** PRIVILEGED MODE **  
-----  
  
A: SHOW          A: RECEIPT BODY  
B: PRINT          B: RECEIPT HEADER  
C: FORMAT        C: RECEIPT TRAILER  
                  D: RECEIPT BONUS POINTS  
                  E: DISPLAY (#...)  
                  F: KEYBOARD (#...)  
                  G: MESSAGES  
                  H: DATE  
  
-----  
^ENTER COMMAND:    ^ENTER OPTION:
```

This section explains how to format printed receipts (body, header, trailer, and bonus points), how to set up messages and prompts on the various types of FIT or OPT displays, and how to change the response from a keyboard input (for example, "Y" or "N").

9.1 WHAT'S A RECEIPT?

Sample receipts are shown on Page 69.
There are four parts to a receipt:

- PRE-PRINTED header
- Header
- Body
- Trailer

The receipts pictured in this section come from a standard System2 FIT. OPT receipts are a little different, and are shown in the *OPT User's Guide*. Both types are programmed in the same way, however.

The HEADERS take five lines:

- 2 top lines are blank, and act as a separator.
- 2 lines are the pre-printed header itself.
- 1 line is the separator between the pre-printed area and the receipt body.

For typeface ONE (the larger style), two of the top four lines are defined. For typeface TWO (smaller style), all four of the top lines are used.

The BODY uses up to 20 lines:

- 1 line at the top is blank separator
- 18 lines are user-programmable
- 1 line at the bottom is blank

The TRAILER uses up to 4 lines.

Other receipt features are:

- The header and trailer/bonus points messages are printed in expanded format unless you specify otherwise.
- Receipt body fields can be set in any order
- Current date & time are automatically printed on each receipt
- Receipt size is fixed - make sure the programmed number of receipt body lines will fit onto the receipt.

9.2 RECEIPT BODY

In the body of the receipt, you define what data, and its order, are printed.

Fill in the first 10 characters of a line (the field entry), and then specify a Receipt Code (listed in the table opposite) to print data from the transaction or card file on the same line. After issuing a command, you'll see:

ENTER (Show, Delete, Insert, eXit, Line #):

Select a function by entering the capitalized letter; for example, to exit, press the [X] key and then the [ENTER] key. Each function is described below:

Show	Displays the current receipt body
Delete	Removes a line from the receipt body
Insert	Inserts another line into the body
eXit	Ends this function
Line #	This is a prompt for a valid line number to edit. The label and code items can be modified.

Figure 9-1 -- Receipt Codes

Code #	Transaction Data
1	Number Of Card 1
2	Number Of Card 2
3	Transaction Number
4	Product Name
5	Quantity Dispensed
6	Price Per Unit
7	Total Price
8	Driver Name
9	Vehicle Name
10	Company/Account Name
11	Site I.D.
12	Miscellaneous
13	Current Odometer Reading
14	Miles Per Gallon (MPG)
15	Liters Per 100 Kilometers
16	Pump Number
17	Account Number

9.3 RECEIPT HEADER

You can show, print, or format a header. The Receipt Header is the programmed message printed at the top of the receipt.

When formatting a header, enter up to four lines, one at a time. Each line can contain up to 11 characters. Red or black print can be specified for each line. If you don't want to use all four lines, press [ENTER] to skip lines.

9.4 RECEIPT TRAILER

The receipt trailer programs a message to print at the end of each receipt. The format is the same as for the header.

9.5 RECEIPT BONUS POINTS

This option lets you specify a "coupon" value (based on amount of fuel dispensed) to print on each receipt. You can have a different message print (instead of the Receipt Trailer message) when Receipt Bonus Points is enabled.

When formatting the Bonus Points message, insert a '#' character in the message at the point you want the number of points to print. For example:

YOU HAVE EARNED # BONUS POINTS

9.6 SAMPLE RECEIPTS

The following sample receipts show some of the many ways you can set the receipts.

The first sample receipt uses all four of the header lines; only one of the footer lines (in typeface one) is used. Because only one footer line is defined, the receipt body can contain more information.

```
LINE 1      PRE-PRINTED
LINE 2      PRE-PRINTED

LINE 3      CUSTOM
LINE 4      CUSTOM

05/09/96    11:11 AM
CARD #:     1
TRANS #:    12
PRODUCT:    PREMIUM
QUANTITY:   10.7
PR/UNIT:    1.199
TOTAL:      12.83
DRIVER:     T. ROBINSON
ACCT.NAME:  K.O. TRUCKING
SITE ID:    XXXXXXXXXXXXXXXX
MISC:       123456789
ODOM:       139750
PUMP #:     6
ACCOUNT#:   123456789

THANK YOU!
```

The following receipt uses one of the pre-printed header line (typeface one), and all four footer lines (also typeface one). Note how the header "gives up" three lines so that the footer can grow. Note also how the body has shifted upwards to accommodate the larger footer.

LINE 1	PRE-PRINTED
05/10/96	11:11 AM
CARD #:	1
TRANS #:	12
PRODUCT:	PREMIUM
QUANTITY:	10.7
PR/UNIT:	1.199
TOTAL:	12.83
DRIVER:	T. ROBINSON
ACCT. NAME:	K.O. TRUCKING
SITE ID:	XXXXXXXXXXXXX
MISC:	123456789
ODOM:	130445
PUMP #:	6
ACCOUNT#:	123456789
THANK YOU	
FOR STOPPING AT	
THE WORLD'S LARGEST	
FUELING STATION	

The receipt below uses both of the pre-printed header lines and all four of the custom-defined header lines. In this configuration, no footer lines can be defined.

LINE 1	PRE-PRINTED
LINE 2	PRE-PRINTED
LINE 3	CUSTOM
LINE 4	CUSTOM
LINE 5	CUSTOM
LINE 6	CUSTOM
05/09/96	11:11 AM
CARD #:	1
TRANS #:	12
PRODUCT:	PREMIUM
QUANTITY:	10.7
PR/UNIT:	1.199
TOTAL:	12.83
DRIVER:	T. ROBINSON
ACCT. NAME:	K.O. TRUCKING
SITE ID:	XXXXXXXXXXXXX
MISC:	123456789
ODOM:	130445
PUMP #:	6
ACCOUNT#:	123456789

9.7 DISPLAY (#...)

The FORMAT DISPLAY # command determines the prompts that appear on the FIT or OPT display.

9.7.1 Display Type Overview

The FIT or OPT display guides customers through the fueling process with a series of prompts. The system generates default prompts (Page 74) for certain events.

Three types of display are available:

- Standard 2x16 display shows two lines of text with up to 16 characters per line.
- *Optional* 1x40 display shows one line of text with up to 40 characters.
- *Optional* graphics display allows a picture to be displayed with a prompt. The Graphics Display is described in depth beginning on Page 76.

The type of display that is installed is in the Status Report, produced with a SHOW SYSTEM command (Option A in the System Parameters menu).

9.7.2 Dual Languages

This feature is not active in this version of software.

9.7.3 Special Characters

Punctuation: In addition to numbers and letters, you may include most characters such as `!`, `?` and `\$` in the display prompts.

Beep: Add the `}` (right curly bracket) char. to any prompt to have an audible tone to sound when the prompt is displayed. The bracket itself does not appear.

9.7.4 Format Display Default

Issue a **FORMAT DISPLAY DEFAULT** command to override the physical Display Type DIP switch settings on the PC board.

IMPORTANT

You **MUST** issue a **DOWNLOAD** command after altering a prompt, in order for it to be visible.

See the *System2 Installation Manual* for more details.

9.7.5 Default FIT or OPT Prompts

The following messages are the default FIT messages your customers see.

Prompts #6 and #7 alternately display when prompting for a receipt. Messages #8 and #9 alternately display while waiting for a customer to activate the system (if #8 and #9 are six characters less than maximum, the current time is also shown).

If changing the default message, remember that only the text is changed, *not* any function. For example, 'INSERT CARD' can be changed to 'PUT IN CARD' but *not* to 'ENTER CURRENT TIME'.

Many of the following messages are explained in the Troubleshooting Appendix, page 191.

Number	Display Prompt	Number	Display Prompt
1	SYSTEM OUT OF SERVICE	27	ENTER PIN:
2	READING CARD	28	ENTER ODOM:
3	REMOVE CARD	29	ENTER MISC:
4	INCORRECT READING	30	ENTER 2ND CARD:
5	CHECK CARD ORIENTATION	31	RE-ENTER PIN:
6	INSERT CARD FOR RECEIPT	32	RE-ENTER ODOM:
7	INSERT CARD FOR RECEIPT	33	CREDIT CARD SYSTEM OFF
8	PETRO VEND SYSTEM2	34	PROCESSING PLEASE WAIT
9	INSERT CARD	35	NOT IN CARD FILE
10	SYSTEM CLOSED	36	CARD EXPIRED
11	PLEASE WAIT	37	CARD RECORD EXPIRED
12	PRINTING RECEIPT	38	CARD INVALIDATED
13	TAKE RECEIPT	39	3 BAD PIN ENTRIES
14	PRINTER ERROR	40	ALLOCATION EXCEEDED
15	ISSUE RECEIPT?:	41	UNABLE TO PROCESS
16	ENTER PUMP #:}	42	"NETWORK SPECIFIC"
17	IN USE, RE-ENTER:	43	ACCOUNT EXPIRED
18	INVALID, RE-ENTER:	44	ACCOUNT INVALIDATED
19	PUMP HANDLE? RE-ENTER:	45	ACCOUNT #S DO NOT MATCH
20	FAULTY PUMP, RE-ENTER:	46	ACCOUNT REC NOT FOUND
21	UNAUTH ZED, RE-ENTER:	47	(blank)
22	RESTRICTED, RE-ENTER:	48	JOURNAL ERR GET MANAGER
23	USE PUMP	49	SYSTEM BUSY -BUFFER FULL
24	INSERT 2nd CARD	50	PRESET
25	INCORRECT CARD	51	RE-ENTER
26	ENTER CARD#	52	3 BAD PRESET \$ ENTRIES

Number Keypad

 1 NO
 2 YES

9.7.6 Standard 2 x 16 Display

After issuing the FORMAT DISPLAY command, enter the number of the display prompt (Page 74) to edit.

After entering a prompt number, the current prompt and *four* vertical lines appear (two for each row of the message). These lines represent the maximum length of the message; the new message must fit under the space between the lines - two rows, each with a maximum of 16 characters.

Upper and lower case letters can be used.

Enter the new prompt and press [ENTER] to complete the entry.

9.7.7 1 x 40 Display (Optional)

After issuing the FORMAT DISPLAY command, enter the number of the FIT or OPT prompt (Page 74) you want to edit.

After entering a prompt number, the current prompt and *two* vertical lines appear. These lines represent the maximum length of the message; the new prompt must fit under the space between the lines. Upper and lower case letters can be used.

Enter the new prompt and press [ENTER] to complete the entry.

9.7.8 Graphics Display (Optional)

If your system has the optional Graphics Display, pictures and text (in multiple styles) can be placed on one or more lines of the display. The current time can also be displayed with any prompt.

Up to 80 characters can be displayed. To combine pictures with text, you add "control characters" (on a computer, CTRL characters display as ^) to text prompts. In addition to defining pictures, these characters also allow you to:

- Position text on the display
- Select a text style
- Show the current time
- Clear the picture from the display.

Graphics pictures are shown on Page 80. Sample fonts and several examples of prompts with pictures and a list of control characters appear on Page 88.

The graphics codes described in this section can also be added to the keyboard responses and to the individual messages generated by the messaging feature. Refer to Page 91 for more information about these features.

Graphic prompts are limited to 80 text characters, each control character is equal to two text characters. Use this prompt as an example:

`^1^Z ENTER CARD`

This prompt consumes 18 characters: two for `^1` (the code that displays picture #1), two for `^Z`, (the code that selects the font), and twelve for the text `ENTER CARD` (including three spaces).

Graphics Display Command Syntax

Editing the text portion of a Graphics Display is like editing a standard one or two line display. After you issue a `FORMAT DISPLAY #` command, enter the number of the prompt to edit.

The text prompt for editing the Graphics Display is like a double version of the 1 x 40 display. When specifying the display number, you are shown the current prompt and two vertical lines spaced 40 characters apart.

The first 40 characters of the display prompt are shown on one line, in the space underneath the two vertical lines; the second 40 characters of the prompt (if applicable) are shown on a second line.

Enter the new prompt and press [ENTER] to complete the entry for the first line. Enter a second line for the prompt if desired. To format another prompt, re-enter the command.

Graphics Display Picture Selection

Pictures are defined within the text prompt. To associate a picture with a display prompt, simply add the control character for that picture to the display prompt text.

Place the picture control character *before* the prompt text. Only one picture can be connected to each message. You can tie the same picture to as many display prompts as desired.

Picture control codes and prompts, typically attached to each picture, are shown on Page 80.

Graphics Display Text Position

To specify where on the display your text will go, insert one or more "position codes" in your prompt. There are 12 "lines" on the display; each of the 12 lines has a position code. These position codes are shown on Page 85.

The position code must be a CAPITAL letter and must be placed *before* the text. For example:

^C THIS IS ON LINE THREE

The ^C in the above prompt specifies the text will appear on line three. If *no* position control character is specified, the text begins on the first (top) line of the display.

Graphics Display Font Selection

Your text messages can be displayed in one of the typestyles (illustrated on Page 85) listed below. The control character that defines the font is shown below as well:

- Serif, 20 characters per line (^Z)
- Sans-serif, 20 characters per line, Std set (^Y)
- Sans-serif, 20 characters per line, Intl set (^X)
- Serif, 40 characters per line (^V).

Serifs are the small "tails" on type. The first character below is a serif typestyle, while the second is sans-serif:

T T

All typestyles use fixed-width characters (in other words, an "I" takes up as much room as a "W").

IMPORTANT

Only one typestyle can be used per message.

If you do not specify a font style, the last style you specified is used. If you don't specify *any* styles for any prompts, Style 1 (Serif 20-char-per-line) is used.

Showing the Time of Day

To show current time in a prompt, insert control character `^T' at the *end* of any display prompt. The time is always displayed in the top right corner of the display. It appears in the current typeface.

Inverting the Graphics Screen

FIT VERSION 1.01: Use ^M to invert the image on the graphics screen (white becomes black, and black becomes white). Use ^N to restore the display to normal. FIT VERSION 1.02A OR HIGHER: Use ^P to invert the image on the graphics screen (white becomes black, and black becomes white). Use ^Q to restore the display to normal.

Clearing the Graphics Screen

Insert the code `^0' (control *zero*) *before* the prompt text to clear the screen before displaying a prompt. This command is typically used with two-part messages; insert the command after the first part of the message to "erase" the screen for the second part.

A Graphics Display picture remains on the screen until one of the following occurs:

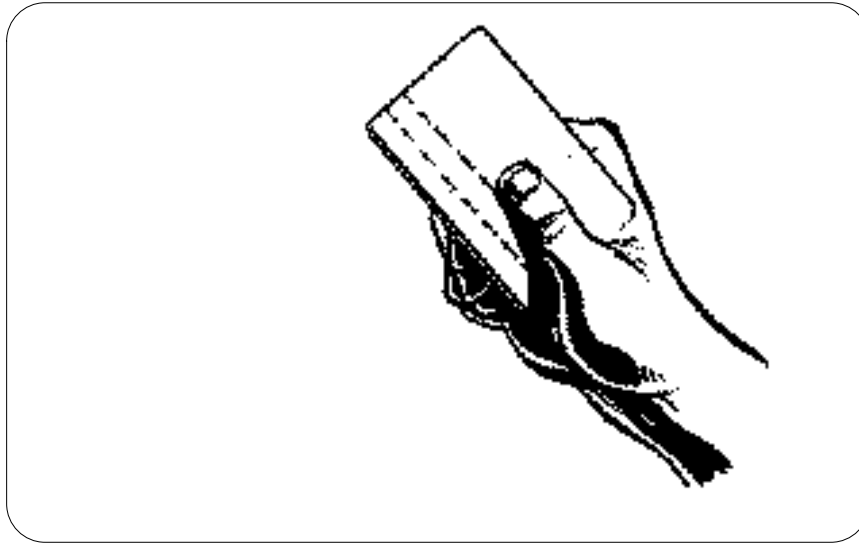
1. Another FIT or OPT prompt with a picture is displayed
2. A prompt with the "clear screen" control code is displayed.

Display Cleaning Products

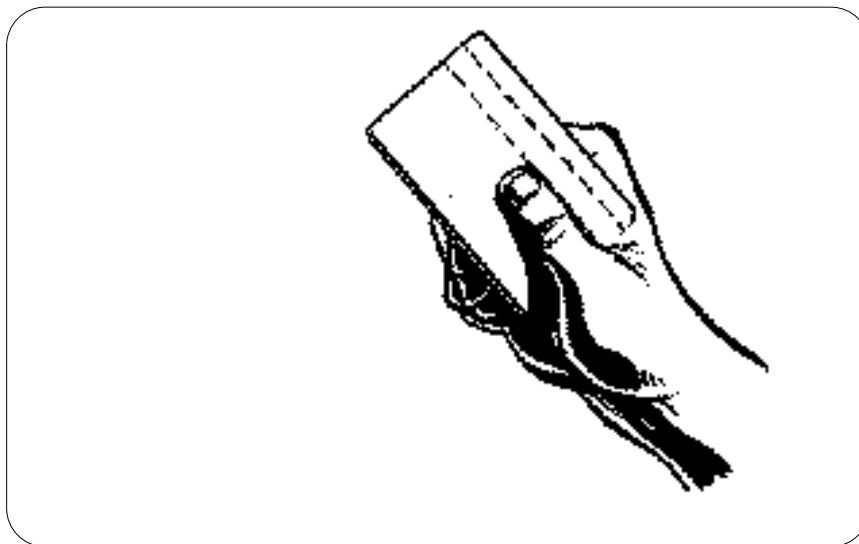
The Graphics Display has a thin anti-glare coating. DO NOT use harsh detergents or any petroleum-based solvents to clean the display! The following products are safe for use on the System2 graphics display panel:

1. *AR Kleener - Anti-Reflective (available nationwide at Sunglass Hut stores)*
Shield Lens Care Products
Golden Valley, MN
(612) 542-8276
2. *Diamond Glaze Anti-Reflective Cleaner*
Diamond Glaze, Inc.
St. Paul, MN
(800) 322-6644

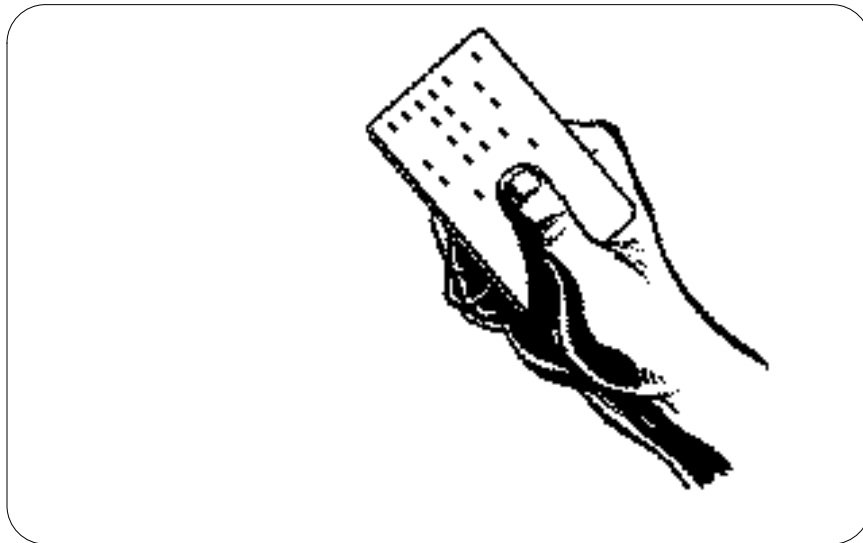
Graphics Display Picture Control Codes & Typical Prompts



`^1' - Mag Card: Stripe Left (FIT prompts: #6, #7, #9, & #24)



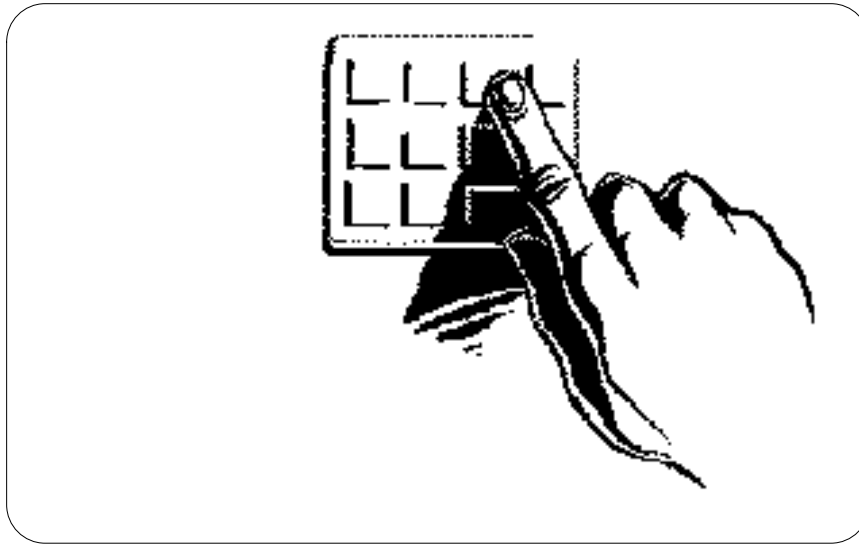
`2' - Mag Card: Stripe Right (FIT prompts: #6, #7, #9, & #24)



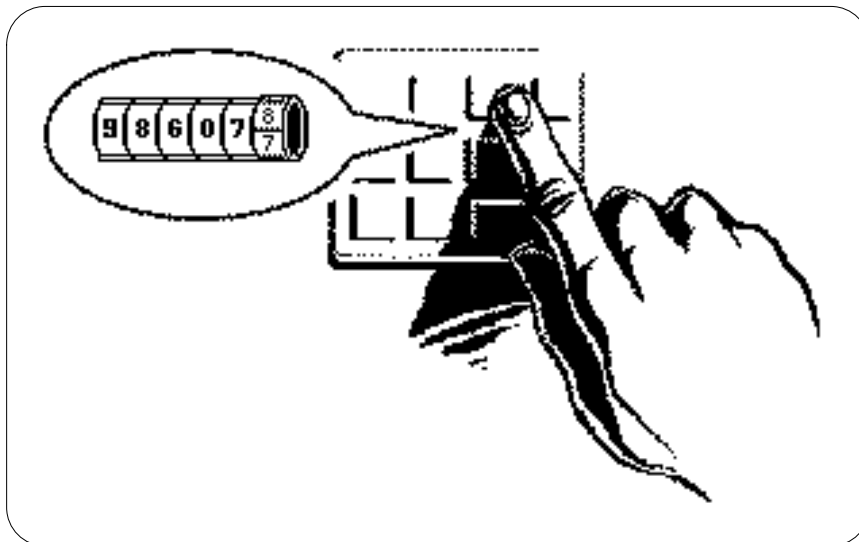
^3' - Optical Card (FIT prompts: #6, #7, #9, #24)



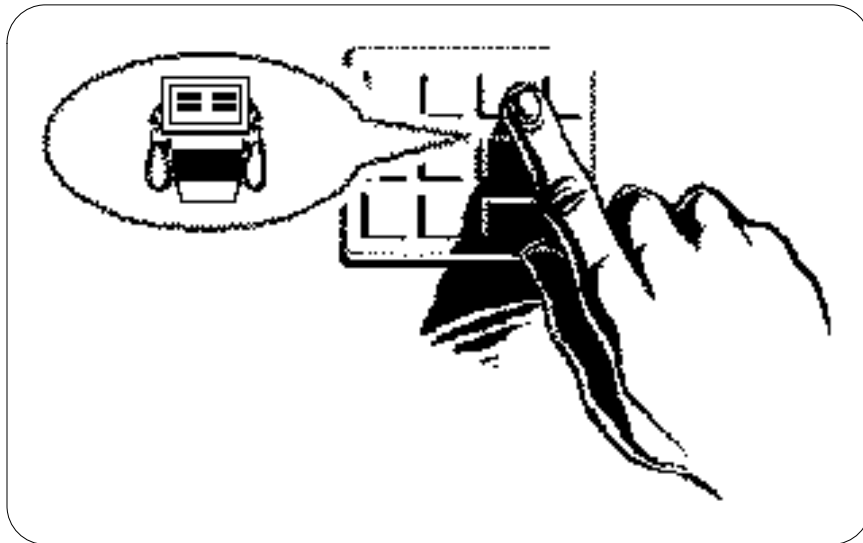
^4' - ChipKey (FIT prompts: #6, #7, #9, #24)



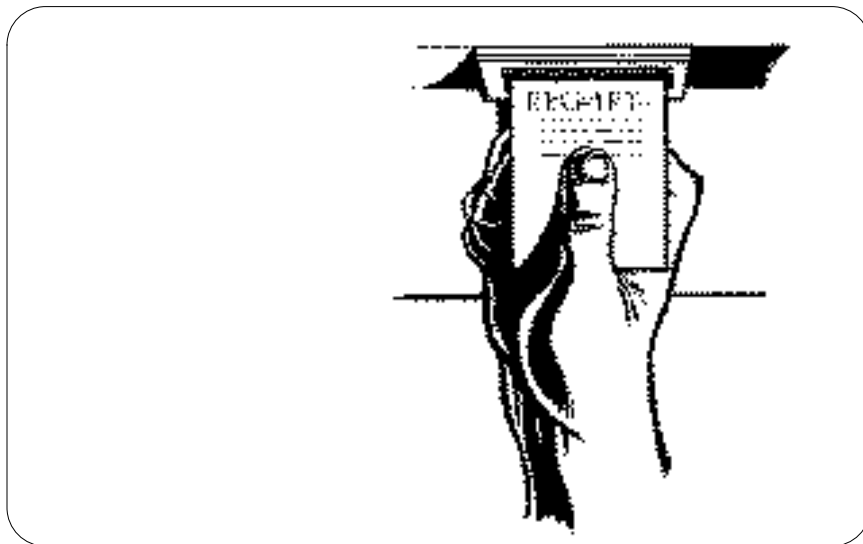
^5' - Keypad Entry (FIT prompts: #26,#27,#29,#30,#31,4)



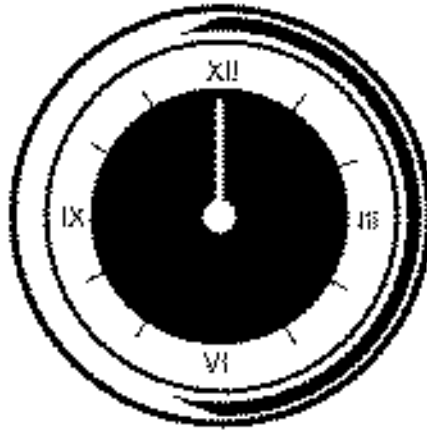
^6' - Odometer Entry (FIT prompts: #28 & #32)



^7 - Pump Selection (FIT prompts: #16, #20, #21, #22)



^8 - Transaction Receipt (FIT prompt: #13)



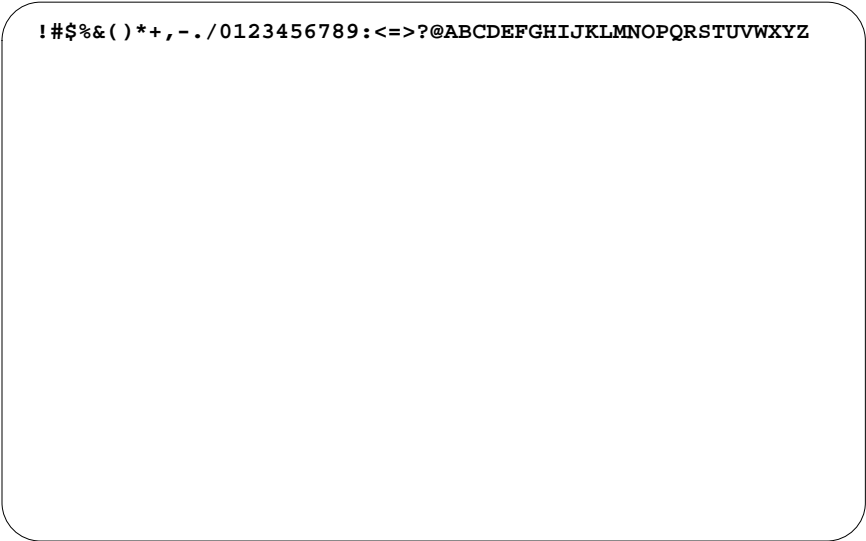
^9' - Wait (FIT prompt: #11)



^:' - Petro Vend Logo (FIT prompt: #8)

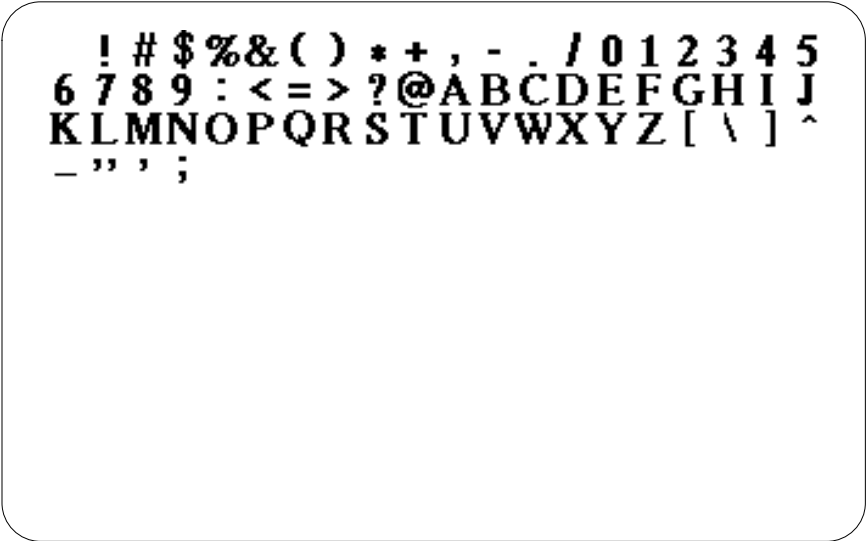
Graphics Display Typestyles and Position Codes

The following screens show the available typestyles, with their matching control code. Up to 12 lines of text can be displayed for each typestyle. Position control codes (^A through ^L in FIT version 1.01, ^A through ^O FIT 1.02A and over) specify where on the display the line of text appears; codes apply to all typestyles. For example, to have the prompt INSERT CARD appear at the bottom of the display (perhaps under a picture), enter: ^LINSERT CARD.



!#\$%&()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ

^V - Small Sans-Serif, 40 characters per line



!#\$%&()*+,-./012345
6789:;<=>?@ABCDEFGHIJ
KLMNOPQRSTUVWXYZ[\] ^
_ ' ' ;

^Y - Large Serif, 20 characters per line

!#\$%&()*+,-./012345
 6789:<=>?@ABCDEFGHIJ
 KLMNOPQRSTUVWXYZ[\] ^
 _ " ' ;

^Z - Large Sans-Serif, 20 characters per line

!#\$%&íú*+,-./012345
 6789:ñ=ö?üABCDEFGHIJ
 KLMNOPQRSTUVWXYZäßéí
 ÉÇ á ó

^X - Large INTERNATIONAL Sans-Serif, 20 char per line

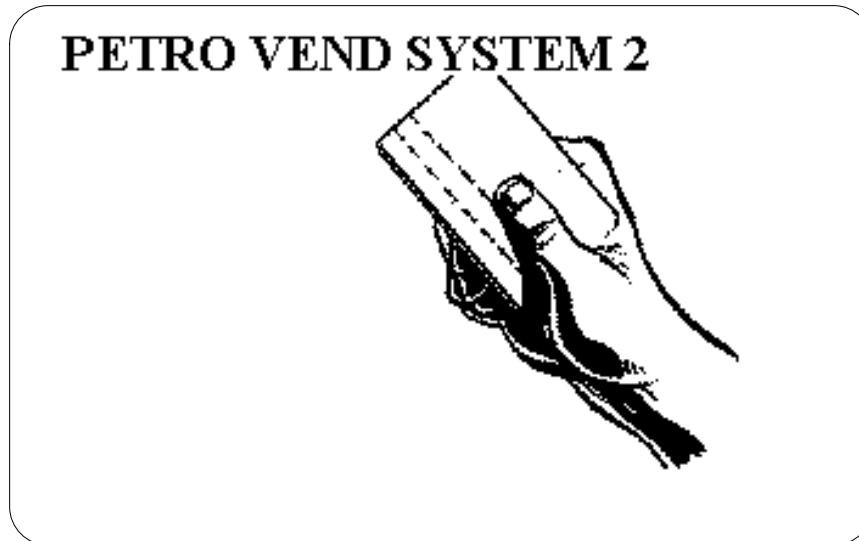
Graphic Code Summary

The action of control codes in both FIT software 1.01 and 1.02A (or above) are listed below.

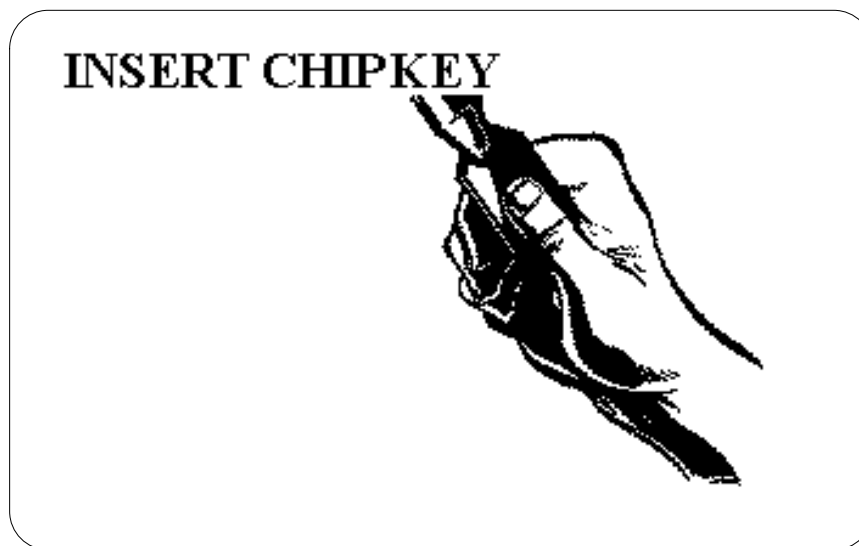
CODE	FIT 1.01	FIT 1.02A or over
^A	Position on Line 1	Position on Line 1
^B	Position on Line 2	Position on Line 2
^C	Position on Line 3	Position on Line 3
^D	Position on Line 4	Position on Line 4
^E	Position on Line 5	Position on Line 5
^F	Position on Line 6	Position on Line 6
^G	Position on Line 7	Position on Line 7
^H	Position on Line 8	Position on Line 8
^I	Position on Line 9	Position on Line 9
^J	Position on Line 10	Position on Line 10
^K	Position on Line 11	Position on Line 11
^L	Position on Line 12	Position on Line 12
^M	Invert graphics display	Position on Line 13
^N	Restore graphics display	Position on Line 14
^O	n/a	Position on Line 15
^P	n/a	Invert graphics display
^Q	n/a	Restore graphics display
^T	Insert Current Time	Insert Current Time
^V	Small Sans-Serif Font	Small Sans-Serif Font
^X	Large Sans-Serif Font, Int'l	Large Sans-Serif Font, Int'l
^Y	Large Serif Font	Large Serif Font
^Z	Large Sans-Serif Font, Std.	Large Sans-Serif Font, Std.
^0 (zero)	Clear Screen	Clear Screen

Graphics Display Examples

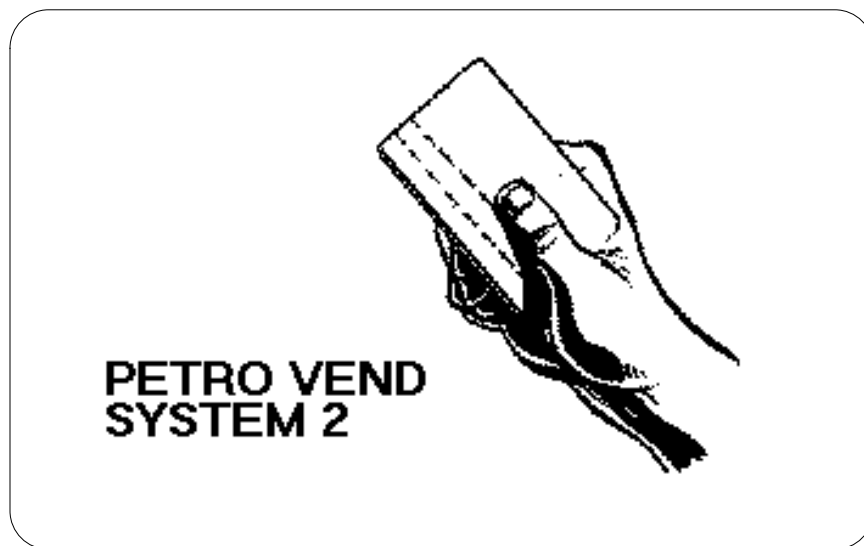
The following displays result from the text/control code strings located under each.



`^1^Y^A` PETRO VEND SYSTEM 2



`^4^Y^A` INSERT CHIPKEY



^1^Z^I PETRO VEND ^J SYSTEM 2



^0^Y^E CHECK CARD ^F ORIENTATION

**INSERT
CHIPKEY**



^4^Y^I INSERT ^J CHIPKEY

**PETRO VEND
SYSTEM 2**



11:23

^1^Y^T^I PETRO VEND ^J SYSTEM 2

9.8 KEYBOARD (#...)

The FORMAT KEYBOARD command changes the response that the customer sees when pressing the [YES] and [NO] keys. The response can be up to eight characters. The actual function of the two keys cannot be changed.

The default response is the key's label - "YES" or "NO". To change the [NO] key's response, enter 1 when prompted for KEYBOARD NUMBER. To change the [YES] key's response, enter 2 when prompted for a keyboard number.

9.9 MESSAGING

The FORMAT MESSAGE command ties messages to a particular account, single, driver and/or vehicle card. For example, "Welcome" could appear for new account members, or a "Just a Reminder" message could be displayed to check the oil.

9.9.1 Overview

Before using the Messaging feature, you **MUST** use the SET CARD command to format memory space for messaging. See Page 119.

When a Messaging message appears (before fueling), the customer must acknowledge it by pressing any key on the keypad. The response is *not* saved; it is used only to continue the transaction.

If your system has the receipt printer, the message can be printed on the receipt as well.

Each message has five programmable parts:

1. **Identifier:** A Card Number (up to 19 digits) or Account Number (up to 4 digits).
2. **Message:** the message itself can contain numbers, letters and most punctuation (such as `!`, `?`, `#`, etc.). The length limit depends on the display you have: two lines of 16 characters, or two lines of 40 characters.

3. **Term** - when to stop displaying a message:
 - *Duration* - the number of days to display the message, from 0 (always displayed) to 99. Each message record also contains the days remaining until message stops, and how many times the message has appeared
 - *Expiration Date* - the last day to display the message (format='mmm dd, yyyy')
4. **Auto-Delete** - if enabled, automatically removes the message from the data buffer when display term is over
5. **Receipt** - prints the displayed message on the receipt.

9.9.2 Procedure

The card/account record must be created before you can program a message for it.

1. The first prompt you see after issuing a FORMAT MESSAGE command is:

ENTER (Edit, Show, Delete, eXit, [return] Card #):

Edit	Display and modify all the messages of a selected type - Single, Driver, Vehicle, or Account
Show	Displays all the message records for a selected type
Delete	Remove a message. Enter the identifier to select a specific message to delete, or enter 'ALL' to delete all messages
eXit	Return to the previous menu.
Card #/	
Acct #	Press [ENTER] to toggle between the 'Card #' and 'Acct #' prompts, then enter the number, followed by the message.

2. After selecting Edit, Show, or Delete, following prompt appears:

SELECT TYPE (Single, Driver Vehicle)

Enter the first letter of the message type, followed by [ENTER], as follows:

[S] Display all the Single messages.
[D] Display all the Driver messages.
[V] Display all the Vehicle messages.

[A] or [ENTER] Displays all the Account messages.

[X] Ends the command.

After entering a message type, the format information and number of times each message has been shown ('Dis') are displayed. For example,

```
***** SINGLE CARD MESSAGES *****

Single #1000          Exp. Date: FEB 13,1999 Days: |
                  | Dis: 1 Auto-Del: OFF Rec: ON
Call office immediately!

Single #2000          Exp. Date: FEB 15,1999 Days: 1
|                   | Dis: 0 Auto-Del: ON Rec: ON
Happy Birthday to You!

Single #3000          Exp. Date: FEB 24,1999 Days: 7
|                   | Dis: 0 Auto-Del: OFF Rec: ON
Please check trans oil
```

Next, the display changes to the "two vertical lines" prompt, and existing message. The message must fit in the space under the two vertical lines. The entry is "case-sensitive;" that is, upper and lower case letters are distinguished.

3. After entering a message, you'll see:

MESSAGE EXPIRE OPTIONS (Y/N) ?:

If you want to change the expiration date or duration of the message, press [Y]. If not, just press [ENTER].

If you press [Y], you are prompted:

ENTER (Duration or Exp. Date): NONE Days: (Y/N) ?:**

Enter either a duration (0 - 99) or an expiration date ('mmm dd, yyyy') for the message. If duration is specified, an expiration date is also calculated and displayed. Press [Y] to complete the entry.

4. The next prompt is:

AUTO DELETE OPTION (Y/N) ?

Press [Y] for automatic message deletion when duration is up. You will have a confirmation prompt if you answer Y.

5. The next prompt is:

RECEIPT OPTION (Y/N) ?

Press [Y] to change the status. If you press [Y], you are prompted:

PRINT MSG ON RCPT (Y/N) ?

Press [Y] if you want the message on the optional receipt. This concludes the message entry.

9.10 DATE

The FORMAT DATE command displays the following prompt:

ENTER (Show, Order, sEparator, eXit, Month #):

9.10.1 Procedure

Press the first letter of one of the options (below) to select that option.

Show	Displays current data.
Order	Two "orders" are available, each associated with a code number: (1) "month day year" and (2) "day month year").
sEparator	Select the two field separator characters
eXit	Returns you to the previous menu
month #	Changes the label(s) for the selected month (see the following section).

9.10.2 Month Labeling

The default date month labels are listed below:

MONTH #	Language 1
1	JAN
2	FEB
3	MAR
4	APR
5	MAY
6	JUN
7	JUL
8	AUG
9	SEP
10	OCT
11	NOV
12	DEC

9.10.3 Date Order

Choose between day first (24 JAN, 1996) or month first (JAN 24, 1996) for the date order. Month is first by default.

9.10.4 Date Separators

Date separators distinguish the parts of the date; any printable ASCII character can be used.

Notes:

10.0 System Parameters Menu

From the MAIN menu, press [E]

```
-----
SYSTEM PARAMETERS      ** PRIVILEGED **
-----
A: SHOW                A: SYSTEM
B: PRINT               B: SITE ID
C: SET                 C: FUELTYPE (#...)
                      D: FUELING UNITS
                      E: PASSWORD
                      F: LANGUAGE
                      G: MENU
                      H: ECHO
                      I: BONUS POINTS
                      J: RAM
                      K: VERSIONS
-----
^ENTER COMMAND:        ^ENTER OPTION:
```

10.1 SYSTEM

The SHOW SYSTEM or PRINT SYSTEM commands displays the following current system information (this is a read-only function; SET SYSTEM is not applicable):

FSC Software Version - for example, 21.02A.

Checksums - Results of an FSC program check. Typically, a number such as **8A49**.

Display Type (see Page 72)

2 X 16: 2 lines with 16 characters each

1 X 40: 1 line with 40 characters

2 x 40: (Graphics)

Date and Time - As set with *System Times*. See Page 49.

System State - ON, OFF or RECEIPTS ONLY. See Page 47.

Installed FITs - as set with *System Devices*. See Page 53.

Installed OPTs - as set with *System Devices*. See Page 53.

Status of each FIT - RUNNING or DOWN

Number of receipts issued to date per FIT

Receipt Printer Errors - paper jams, outs, etc.

Installed PCTs - as set with *System Devices*. See Page 53.

Installed Positions - as set with *System Devices*. See Page 53.

Pump Sentry Alarm - a position number in parentheses shows a pump automatically put out of service by the system.

Low Tanks - Tanks that are below their programmed low levels. To set a "Low Tank" limit, see Page 137.

Power Failures - Dates and times of the last four power failures.

10.2 SITE I.D.

Use the SET SITE command to enter a 12-character code to give a site a unique name. The system defaults a site "name" of "XXXXXXXXXXXX".

This code can be printed on receipts, and is used during backup and restore operations with an external computer. Your site ID must be *exactly* 12 characters long. It can contain spaces, though the first character cannot be a space.

10.3 FUELTYPES (#...)

Fuel units (gallons, liters, etc), prices, and names can be assigned for up to 16 different products. Each product is assigned a code number, which you assign during PCT configuration. Fueltype data can be assigned individually to each pump or hose.

The following are the system default names for the 16 products. Each product has a default "price-per-unit" of \$1.00. The "unit" default is gallons; this can be changed using the SET FUELING UNITS command, Page 100.

CODE	DEFAULT PRODUCT
1	Unleaded
2	Premium
3	Regular
4	Marked Fuel
5	#1 Diesel
6	#2 Diesel
7	Gasohol
8	Alcohol
9	Propane
10	LPG
11	Lubeoil 1
12	Lubeoil 2
13	Trans Oil
14	Coolant
15	Water
16	Air

To change a fuel type:

1. Issue the **SET FUELTYPE #** command, where '#' is the code number (1-16). The first prompt is:

ENTER FUELING UNIT CODE (1-3):

A fueling unit (gallon, litre, quart) must be specified with the SET FUELING UNITS command (next section). Default code is "1". The default for code 1 is GALLON.

2. The next prompt is:

CHANGE PRICE (Y/N)?

To keep the price the same, press [ENTER]. If you want to change price per unit, enter [Y] to display the next prompt:

ENTER PRICE PER GALLON

Default price is \$1.00 per unit. Price can be specified to a tenth of a cent; for example, '\$1.059'. A price of '\$0.000' can be specified for non-retail sites.

IMPORTANT

The *current* fuel price is recorded for every transaction. Changing the fuel price does *not* affect *completed* transactions.

3. The next prompt is:

CHANGE PRODUCT NAME (Y/N)?

To keep the name the same, press [ENTER]. To change it, press [Y] to display the next prompt:

ENTER FUELTYPE 1:

Names can be up to ten characters long. Type a name, and press [ENTER]. Change other fueltype codes as desired.

10.4 FUELING UNITS

Three different unit-of-measure labels can be connected to product types (previous section). These are simply labels - no conversion is done.

The default labels, and their "Fueling Unit Codes", are:

(1) gallon (2) liter (3) quart

The code numbers (1, 2, or 3) are input at the FUELING UNIT CODES prompt during the SET FUELTYPE procedure (Page 98).

To change the default values:

1. Enter the SET FUELING UNITS command. You are then prompted for each of the three labels:

**ENTER FUELING UNIT 1:
ENTER FUELING UNIT 2:
ENTER FUELING UNIT 3:**

To leave a unit the same, just press [ENTER].

2. To change a unit, enter a label of up to 10 characters and press [ENTER].

10.5 PASSWORD

There are three modes of operation for SYSTEM2: (1) normal, (2) privileged and (3) restricted.

Normal Most SHOW and PRINT commands are useable in normal mode. The screen prompt (in non-menu mode) is >.

Privileged Most SET or FORMAT commands require privileged access. The screen prompt is P>.

Restricted This mode, signified by a \$ prompt, requires a password be entered for *any* screen display to be visible. This mode is off until you enable it with SET PASSWORD.

The SET PASSWORD command changes the passwords for the Privileged and Restricted modes, and enables or disables the Restricted mode.

Your unit comes from the factory with all passwords set as HELLO, and the Restricted mode OFF. Passwords do not have to be changed, or the Restricted mode enabled, in order for SYSTEM2 to operate.

IMPORTANT

If all you see is a dollar sign prompt (\$), Restricted mode is ON. To turn this mode OFF, use the SET PASSWORD command (Privileged mode) to turn it OFF.

This command is also used to change the Modem password - see Page 173.

To change any or all passwords:

1. Enter SET PASSWORD. The system prompts first for the MAIN (Privileged mode) password.
2. Enter up to six characters for the main password (or press [ENTER] to retain the old password). There is no difference between upper and lower case letters. The system now prompts you for the MODEM password.
3. Enter a new Modem password or press [ENTER] to retain the old password and move to the next prompt.
4. After entering the modem password, the next prompt enables or disables the Restricted mode:

`SHOW' PASSWORD OPTIONS (Y/N) ?

`SHOW' PASSWORD OPTIONS (Y/N) ?

5. If you don't want to use the Restricted mode (it is disabled by default), press [ENTER] to skip. If you press [Y]:

ENABLE SHOW PASSWORD (Y/N) ?

6. Press [Y] or [N] as appropriate. If you enter [Y], you are prompted to enter a new show password.

10.6 LANGUAGE

This feature is not active in this version of software.

10.7 MENU

The SET MENU command turns the system's menus ON or OFF. When menus are OFF, commands must be entered at the prompts (>, P>.).

Menus are shown on the first page of each section of this manual. When issuing commands without menus, you typically type the command as it appears on the menu. For example, for the menu ON/OFF function, the menu lists SET on the left and MENU on the right (SET MENU).

Menus are ON by system default, and appear automatically at system power-up.

10.8 ECHO

During programming, the FSC sends back (echos) every character it receives from the terminal if echo is enabled. Echo must be ON in order for you to see the characters as you type them into the terminal.

Echo is typically disabled with the SET ECHO command only when interfacing to an external computer. Refer to Page 175 for external computer operation.

10.9 BONUS POINTS

The SET BONUS POINTS command allows you to specify a "coupon" value (based on the amount of fuel dispensed) to be printed on each receipt. A Bonus Points message can also be specified.

For example, bonus points can be awarded to customers as credit toward using a local car wash facility.

10.10 RAM

Initially configuring your SYSTEM2 requires you define the size of the system memory with the SET RAM command.

The card file and transaction records are stored in RAM chips on the FSC board. The number of RAM chips on your FSC board depends on the amount of RAM you ordered.

Enter the privileged command `SET RAM'. You are prompted to enter the code appropriate for your system:

CODE TO ENTER	MEMORY LEVEL	RAM SIZE
0	1 (Standard)	256 Kb
1	2 (Optional)	512 Kb
2	3 (Optional)	1 Mb
3	4 (Optional)	2 Mb

Press **[ENTER]** to keep the current code. You cannot enter a memory code if there isn't sufficient RAM in the system (for example, you cannot enter "2" if you only have 512 KB of memory).

Privileged mode is lost if the system rejects a RAM entry; the password must be re-entered.

If you don't know the RAM size, you can determine it by trial and error. Start by entering **3** and continue on down until SYSTEM2 accepts the entry.

10.11 VERSION

The SHOW or PRINT VERSION command displays the current software version (for example, 21.02A). This information is also included in the Show System display (Option A in System Parameters).

This is a read-only function: there is no SET VERSION command.

11.0 Restrictions Menu

From the MAIN menu, press [F]

```
-----
RESTRICTIONS          ** PRIVILEGED **
-----
A: SHOW               A: ODOMETER REASONABILITY
B: PRINT              B: PUMP RESTRICTIONS
C: SET                C: QUANTITY RESTRICTIONS
                     D: SECURITY
-----
^ENTER COMMAND:      ^ENTER OPTION:
```

11.1 ODOMETER REASONABILITY

11.1.1 Introduction

This option checks the difference between two user-entered odometer readings, and determines if the difference is within a range you specified for that card. Sixteen ranges are available.

In order for reasonability to work, you must program the FIT or OPT display to tell users to enter an odometer value on the FIT keypad. This value is stored in the card/account file, and used for comparison to the next mileage entered by that user.

The two values are compared; an entry is considered "reasonable" by SYSTEM2 if the difference between the entries is within your specified range.

For example, if a current odometer entry is 55,000 and the previous entry was 54,400, the difference is 600. If the reasonability range is 50 - 250 (this is default code #6 on the following page) the entry is not reasonable.

Enable Reasonability when configuring the Card/Account file; see Page 118.

Odometer entries are used in the Report Package (optional) to calculate vehicle efficiency (miles per gallon, cost per mile, etc.); this information can be used to track driver and vehicle efficiency. See Page 199 for Report Package details.

11.1.2 Bad Entry Options

If three unreasonable customer entries are input, you can program SYSTEM2 for one of two responses:

1. Accept The Third Entry: SYSTEM2 accepts the third entry as the current odometer value; the message --BAD ENTRY ACCEPTED is included when this transaction is viewed with the SHOW TRANSACTIONS or PRINT TRANSACTIONS commands.

2. Reject The Third Entry: A Transaction is aborted after the third bad entry. At this point the customer must reinsert their card and begin another transaction. *Fueling is not allowed until a reasonable odometer entry is made.*

11.1.3 Default Reasonability Ranges

Fifteen ranges are available. The Code # for a range is entered during the INSERT CARD setup procedure (Page 115). Define each range with the SET ODOM command, or use one of the following presets:

CODE	MINIMUM	MAXIMUM
1	0	100
2	0	250
3	0	500
4	0	1000
5	50	150
6	50	300
7	50	600
8	50	1000
9	100	200
10	100	400
11	100	700
12	100	1000
13	150	400
14	150	700
15	150	1000

11.1.4 Creating a Range

If none of the pre-programmed ranges is acceptable, do the following to make your own:

1. After issuing a **SET ODOM** command, the first prompt is:

1) ENTER MINIMUM MILEAGE

2. Enter a minimum mileage and press [ENTER]. The next prompt appears:

ENTER MAXIMUM MILEAGE

3. Enter a maximum mileage and press [ENTER]. This completes entry for code #1, and the prompt now asks for code #2 minimum entry. Define as many range codes as you wish; to escape without going thru all 16, enter a letter instead of a number at a prompt.

4. After defining the range codes, you'll see:

CHANGE ACTION AFTER BAD ODOM ENTRIES (Y/N)

Default is NOT to change the option - the option is NOT to accept the third bad entry. Two options are available; these are described earlier in Section 11.1.2. If you enter [Y], you are prompted with the following (Y is default):

ALLOW FUELING AFTER 3 BAD ODOM ENTRIES (Y/N)?

11.2 PUMP RESTRICTION

The SET PUMP command defines codes for up to 15 sets of pump restrictions. Use restriction codes when configuring card files (see Page 118), they define what customers can use what fuel.

Use the following pump configuration as an example on setting restrictions:

- *Leaded* fuel is dispensed from pump 1, and cannot be used in newer trucks
- *Unleaded* is dispensed from pump 2; can be used in either new or old trucks
- *Premium* is dispensed from pumps 3 and 4; should not be available to any trucks.

Enter pump #1 as valid for CODE 1, and pumps #1 and #2 as valid for CODE 2. Do not assign pumps 3 or 4 - pumps not entered as valid are assumed invalid.

Now use Codes 1 and 2 to configure the vehicle card files for the trucks; other codes could be created to include the premium fuel pumps as required. *The default for all codes is ALL VALID.*

Code 0 can be used to indicate no restrictions. In the example above, code 0 could be specified for vehicles that would have access to all four pumps.

Pumps must be installed to be valid (see Page 53).

11.3 QUANTITY RESTRICTION ---

11.3.1 Overview

Fifteen Quantity Restriction codes can be defined with the SET QUANTITY command. Restrictions can be by sale amount or by volume (gallons, liters or quarts).

The Quantity Restriction codes are used during Card File configuration (Page 120) to specify how much product a particular customer has access to.

Quantity Restriction is often set to match a vehicle's tank size. Sale defaults are as follows (Code 0 turns OFF the function):

CODE	PRICE RESTRICTION
0	No restriction
1	\$20
2	\$40
3	\$60
4	\$80
5	\$100
6	\$120
7	\$140
8	\$160
9	\$180
10	\$200
11	\$220
12	\$240
13	\$260
14	\$280
15	\$300

11.3.2 Quantity Restriction Procedure

1. After entering **SET QUANTITY**, you'll see:

QUANTITY RESTRICTION CODES:

CODE 0: NO RESTRICTIONS

CODE 1: \$

2. Press [ENTER] (without an entry) to select the default value, or enter a different value.
3. After the last entry, you are prompted:

QTY RESTRICTION VALUE OPTIONS (Y/N)

If you press [Y], you are prompted:

USE VALUES AS \$ (Y/N) ?

Press [Y] to use the values as dollars or [N] to use the values as quantities.

The quantity values represent gallons, liters or quarts, depending on the quantity units. See Page 100 for Fueling Units information.

11.4 SECURITY

11.4.1 PIN Number Generation

Each system has a "security table" built into the software. The security table is made up of ten 2-digit hexadecimal numbers (in two rows of five) used by the INSERT CARD and COPY CARD # commands for automatic PIN number generation.

The default table values are the same for every SYSTEM2 - you **MUST** set new values with this command in order to generate unique PIN numbers for your system.

PIN numbers are stored in the card records created by the INSERT CARD *and* COPY CARD # commands (see Page 121).

Once created, these records are not affected by changes in the security table. Only PIN numbers generated after modifying the table or code number are affected.

11.4.2 Procedure

After entering the SET SEC command, you are prompted with the current value of ROW 1 (the system defaults are shown):

ROW 1: 01 23 45 67 89

1. Enter five 2-digit hex numbers, pressing the [ENTER] key after each.

Hex numbers include the decimal numbers 0 to 9 and the letters A to F.

The entries should be as random as possible to maximize the uniqueness of the PIN numbers that will be generated from this table. For example, 'A0 E9 83 DD 1C' is good, but '12 12 12 12 12' is *not*.

2. After the fifth entry, you are prompted for the second row (ROW 2) in the same way as the first.
3. Again, enter five different 2-digit hex numbers.
4. After entering the last digit in row 2, you are prompted with:

SECURITY CODE: 00
ENTER CODE:

The Security Code (system default is 00) provides an additional degree of randomness to the security table. Changing only the security code causes different PIN numbers to be generated from the same security table. Enter any 2-digit hex number (except '00') for this code.

IMPORTANT

Be sure to record your Security Table numbers on the worksheet (Appendix A)! If you are reconfiguring your system, or wish to generate PIN numbers to match another SYSTEM2, the row and security code numbers must match your original entries!

K-3000 Users: To generate PIN numbers compatible with a K-3000 system, enter the first five 2-digit security numbers from the K-3000 System Data Sheet for Row 1. Enter the next five 2-digit security numbers for Row 2.

DO NOT use the last six numbers listed on the K-3000 data sheet. Enter '00' for the security code.

PIN numbers are stored in the card records created by the INSERT CARD and COPY CARD # commands. Once created, these records are not affected by changes in the security table. Only PIN numbers generated after modifying the table or code number are affected.

Notes:

12.0 Cards/Accounts Menu

From the MAIN menu, press [G]

```
-----  
CARDS/ACCOUNTS ** PRIVILEGED **  
-----  
A: SHOW                      A: CARD (#...)  
B: PRINT                     B: CARD SUMMARY  
                              C: CARD ACCOUNT  
                              D: ACCOUNT (#...)  
-----  
C: INSERT                    E: CARD  
D: DELETE                    F: ACCOUNT  
E: EDIT  
-----  
F: SET                        G: CARD  
-----  
G: COPY                      H: CARD #...  
-----  
H: SORT  
-----  
^ENTER COMMAND:             ^ENTER OPTION:
```

12.1 INTRODUCTION

The Cards/Accounts menu lets you view or print cards or account summaries, remove, add, or change cards within an account, remove add or change entire accounts, copy cards, and sort cards or accounts.

Before using most of the Card/Account features, you must first issue a SET CARD command, and then, from that submenu, do the following two things:

1. You must "reserve" memory space in the system for the cards and accounts - use the 1.) SPECIFY CARD/ACCOUNT BUFFER SIZE command (in the SET CARD submenu) command does this.

The Messaging feature (Page 91) also requires you define memory space using SET CARD.

2. After specifying the Card/Account Buffer Size, you must use 2.) DEFINE CARD/ACCOUNT RECORD (also in the SET CARD submenu) to select the items to be included for each record in the file.

Both tasks must be done before any cards can be programmed.

The remaining options in the SET CARD submenu are used to manipulate transaction data for the card/account files, and can be used any time.

12.2 SHOW/PRINT CARDS or ACCOUNTS

Card files can be shown or printed individually (SHOW CARD #), as a total group (SHOW CARD SUMMARY) or only as those cards in a particular account (SHOW CARD ACCOUNT). PRINT also applies to all three of these options.

12.2.1 Showing Or Printing Cards

SHOW CARD displays the data for one or more card records. Specify beginning digits of the card number to display groups of cards. For example, assign cards 1000-1999 to group 1, cards 2000-2999 to group 2 and cards 3000-3999 to group 3.

In this example, to show all cards for group 1, enter the command SHOW CARD 1. To print only card 1234, enter the command PRINT CARD 1234.

When more than one screen of data is available, you can press any key (except [X]) to stop and to start the scrolling of the data across the screen. You may also press the [X] key to abort one of these commands prematurely.

12.2.2 Showing Or Printing Accounts

To show or print a single account record you must specify the four-digit account number.

To display *all* the records, enter the command *without* specifying a number. If the account data does not fit onto one screen, the data will scroll up until finished.

Press any key to stop or start the scrolling. Press the [X] key to exit this command without showing the remaining account records.

12.2.3 Showing or Printing Card Summaries

SHOW CARD SUMMARY displays the breakdown of records in the buffer. The selected configuration options and the number of single, driver and vehicle cards are listed.

This command also checks for duplicate numbers in the card file and tests the record numbers in the file to ensure their integrity.

If a record is corrupted, SYSTEM2 will not be able to find it. If a corrupted number is found, the record is displayed. If you are in Privileged mode, you can delete it.

12.2.4 Showing or Printing Card Account Numbers

SHOW CARD ACCOUNT shows all of the card records under a specified account number. For example, to show cards in file 7890, use the command SHOW CARD ACCOUNT 7890. The card data are displayed in the form below:

When this command is executed, the card records scroll. Press any key (except [X]) to stop or start the scrolling. Press the [X] key to exit this command and skip any unviewed records.

```
CARD #: 1111222233334444
SINGLE CARD
ACCOUNT #: 7890
MONTHLY ALLOCATION: $100.00
-- TOTALS TO DATE: $39.85
MISC ENTRY: DISABLED
PIN #: DISABLED
ODOMETER: DISABLED
PUMP RESTRICTION CODE: 0
DRIVER NAME: RICHARD
```

12.3 INSERT/DELETE/EDIT CARD or ACCOUNT

These commands are used to program individual cards and accounts for the system. Cards and accounts must exist prior to using these commands.

12.3.1 INSERT Card or Account

The INSERT CARD or ACCOUNT commands only prompt for entries if memory space is available.

Inserting Cards

Petro Vend magnetic cards require 16-digit numbers. Optically-read cards require 10 digit numbers.

The first four digits for both types of card must be one of the network numbers for your system. The network numbers are listed on your system's data sheet; most systems have just one network number.

Cardless Records. A cardless "card" is not a physical card, but simply a number entered at the SYSTEM2 keypad.

The following apply to cardless cards:

- C A cardless record can be up to eight digits long -the network number does NOT have to be a prefix
- C The FIT must be set up for cardless operation. FIT configuration is explained on Page 53
- C The PIN entries feature should be enabled for cardless operation.

PIN Number. If enabled, you are prompted for automatic PIN number generator. Enable this field to have SYSTEM2 generate the PIN numbers; card numbers must be five or more digits long.

Card Type. Single, Driver or Vehicle must be specified for each card record.

Valid? Specify if the card record is valid. This allows you to create an invalid card record now, and activate it at a later date.

Misc Entry. This option allows the fueler to enter up to nine numbers (such as a job number) that will be included in the transaction record.

The remainder of the prompts are described in the SET CARD command. Some or all of the specified parts can be selected for each record.

Inserting Accounts

The system prompts for an account number, expiration date, validity, discount, monthly and daily allocations, pump and quantity restrictions and an account name (as explained in SET CARD).

- C If you enter less than four digits for an account number, leading zeros are added. For example, account 12 is defined as 0012
- C Only the original price is shown (or printed). The discounted price(s) are displayed only when generating reports with the Report Package
- C In Dual-card operation, driver and vehicle cards must be assigned to the same account number. To allow access to vehicle(s) from any account, you can assign the vehicle(s) to account 0000.

As an example, say a company has cars assigned to each department, each with its own account number. The company also has a van that is needed by *everyone*. By assigning the vehicle card for the van to account 0000, members of all departments (or accounts) can use the van.

12.3.2 DELETE Card or Account

DELETE CARD eliminates an individual card record; you are prompted for the card number. Enter the number and press [ENTER] to delete the card record.

DELETE ACCOUNT eliminates an account record; you are prompted for the account number. Enter the number and press [ENTER] to delete the account.

12.3.3 EDIT Card or Account

Editing Cards

EDIT CARD modifies an existing card record. Do one of the following when the system prompts for a card number:

- Enter a number, and the system calls up that card record for modification, OR...
- Enter ALL. The system displays the entire card file, one card at a time, using the form **CARD ##### (Y/N/X) ?** Press [Y] to edit the displayed card record, or just press [ENTER] to leave this record unchanged and go to the next one in the file. After the last card record has been altered, enter 'X' to exit this command .

Editing Accounts

After you enter the EDIT ACCOUNT command, the system prompts:

ENTER ACCOUNT #:

Enter an account number and press [ENTER] to bring up that account for editing. OR, enter A (for ALL) and press [ENTER] to list ALL accounts, one at a time. Press [Y] to edit the displayed account, or press [ENTER] to leave this account unchanged and go to the next one in the file.

When you are done editing, press [X] to return to the Cards/Accounts menu.

12.4 SET CARD

After issuing the SET CARD command, the following submenu appears:

```
1 - SPECIFY CARD/ACCOUNT BUFFER SIZE
2 - DEFINE CARD/ACCOUNT RECORD
3 - RECONCILE CARD RECORD TOTALS
4 - RECONCILE CARD RECORD ALLOCATION
5 - RECONCILE ALL ACCOUNT RECORD TOTALS
6 - RECONCILE ACCOUNT RECORD ALLOCATION
7 - MONTH END TOTALS
8 - SET KEYBOARD CARD CONTROL DATA
9 - ADDITIONAL OPTIONS
X - EXIT
   ENTER CHOICE:
```

12.4.1 Specify Card/Account Buffer Size

This Set Card option is used before any other Card/Account function can be used. The command splits memory buffer into two or three sections.

WARNING!

This command destroys all transaction data when activated.

The Card/Account Buffer Size procedure is as follows:

1. From the SET CARD submenu, press [1], then [ENTER]. You will be prompted:

TRANSACTION AND MESSAGE BUFFER WILL BE CLEARED (Y/N)?

2. Press [Y], then [ENTER], to partition the buffer and continue. The next prompt is:

ENABLE MESSAGING (Y/N) ?

Messaging is described on Page 91. If you enable Messaging, the buffer is divided into *three* sections, and less memory is available for card records.

If you DO NOT enable Messaging, the buffer is divided into *two* sections, and more memory is available for card records.

3. If Messaging is enabled, the next prompt is:

ENTER MESSAGING SIZE CODE(1..4):

The Size Code determines the maximum number of messages the system can display:

SIZE CODE	# OF MESSAGES
1	25
2	50
3	75
4	100

4. The next prompt is:

ENTER TRANSACTION SIZE CODE:

The Transaction Size Code is determined by the formula:

$$\text{Size Code} = (\text{number of transactions}) \div 25$$

For example, 100 transactions requires a size code of 4 ($100 \div 25 = 4$).

The number of transactions you can store is limited by the amount of RAM. The amount of RAM in your system is shown in the SYSTEM PARAMETERS - RAM screen (Page 103).

5. After entering a size code, the system displays the configuration data. For example,

```
# OF CARDS/ACCOUNTS (MIN OPTIONS):  
####  
      (MAX OPTIONS): ###  
      (CURRENT OPTIONS): ####  
      # OF TRANSACTIONS: ##  
      # OF MESSAGES: ##  
-- SAVE THIS CONFIGURATION (Y/N) ?
```

This information helps you decide how to divide the buffer. The number of records SYSTEM2 can manage depends both on:

- The number of transactions retained
- The way the card/account file is defined (see the *Define Card/Account Record* option)

This display shows the following:

- The maximum number of records if *no* options are selected for the file ('MIN')
 - Maximum number of records if *all* options are selected ('MAX')
 - The maximum number of records if the *current* options are retained.
 - Number of allowed messages.
5. Press [Y], then [ENTER] to save the configuration. Just press [ENTER] to erase changes and start again.

12.4.2 Define Card/Account Record

This SET CARD option defines the type of card and account records to be used for the INSERT CARD, COPY CARD #, and INSERT ACCOUNT commands, also accessed from the Cards/Accounts menu.

1. Press [2], then [ENTER], from the SET CARD menu.

If the card file has been previously defined, the following message is displayed:

```
CARD/ACCOUNT RECORDS:  # OF POSSIBLE ####  
                        # OF TRANSACTIONS:  ###
```

This is the number of records already defined, the total amount records that can be defined and the number of transactions that can be retained. If the card/account file has *not* been previously defined, these numbers are not available.

2. The next prompt is:

```
SPECIFY CARD/ACCOUNT RECORD (Y/N) ?
```

To specify a new type of card/account record, press [Y]. You will see:

```
CARD/ACCOUNT FILE WILL BE DESTROYED!!!  
SURE (Y/N) ?
```

IMPORTANT

This command destroys all the records in the card/account file.

Press [Y] to continue.

3. You are now prompted to include (one after the other) each of the following for the card/account file. Enter [Y] to enable the option or [ENTER] to leave it unchanged. Default for all is NO. Pressing [ENTER] leaves each at NO.

IMPORTANT

The ACCOUNT # and EXPIRATION DATE must be set at setup. The remainder of the fields can be changed any time.

- **Account #'s:** a department or company identification number of up to four digits; cards can be grouped together for allocation or reporting by assigning them to the same account.
- **Expiration Date:** Card or account validity termination day.
- **Monthly Allocation:** Pumping restriction based on dollar amount.
- **Daily Allocation:** Pumping restriction based on dollar amount.
- **PIN #:** Personal Identification Number (card records only, not applicable to accounts). Also see Page 109 for more PIN information.
- **Card invalidation:** after three bad PIN entries (cards only, not applicable to accounts).
- **Save Odometer Entries:** Save entries from user (card records only, not applicable to accounts). This option must be activated for MPG or km/L calculations to be performed (via the optional Report package).
- **Odometer Reasonability:** Checks if entry is within range. Also see Page 105.
- **Pump restriction:** Authorized pumps. See Page 107 for more information.
- **Quantity restriction:** The product limit per transaction (dollar or volume). See Page 108 for more information.
- **Driver/Vehicle/Account name:** Up to nine characters.

After entering all your Card/Account Record definitions, you are returned to the SET CARD submenu.

12.4.3 Clear Card Record Totals

Press [3] from the SET CARD menu to clear dollar amounts for all cards. You are prompted ARE YOU SURE? before the clear actually occurs. Press [ENTER] to confirm.

12.4.4 Reconcile Card Record Allocation

This SET CARD function compares (reconciles) the amount of product pumped to date with the monthly amount allocated for a card. The amount pumped is subtracted from the amount allocated, and the Amount Pumped is reset to zero.

The monthly allocation can be used as a kind of "on-going" allocation. For example, say a customer begins with a \$200 allocation. After using \$100 of this, the customer makes a payment of \$50, which is added to the original allocation. The new allocation is \$250 (with \$150 remaining). Although this process can continue indefinitely, the totals may become too large for good bookkeeping.

The Reconcile function keeps these numbers from getting too large. In this example, the new amounts (after reconciliation) would be \$150 allocation and \$0 product pumped.

Press [4] from the SET CARD menu to activate the Reconcile function. You are prompted SURE? Press [Y], then [ENTER], to confirm.

12.4.5 Clear All Account Record Totals

This SET CARD function clears dollar totals for all accounts. Press [5], then [ENTER]. You are prompted **SURE?** Press [Y], then [ENTER], to confirm.

12.4.6 Reconcile Account Record Allocation

This SET CARD function compares (reconciles) the amount of product pumped to date with the monthly amount allocated for an account. The amount pumped is subtracted from the amount allocated, and the Amount Pumped value is reset to zero.

Press [6], then [ENTER]. You are prompted SURE? Press [Y], then [ENTER], to confirm.

This feature is similar to Reconcile Card Record Allocation. See the example in Section 12.4.4.

12.4.7 Month End Totals

This SET CARD function specifies whether or not to clear the dollar totals for all card and account records automatically at the end of each month.

Press [7], then [ENTER]. You are prompted:

AUTOMATICALLY CLEAR MONTH END TOTALS?

Press [Y], then [ENTER], to confirm.

12.4.8 Set Keyboard Card Control Data

This SET CARD function works with the system ability to allow a customer to enter their card number after three consecutive bad reads of the card.

This ability is set with position 4 of DIP switch #2 on the FIT board - if CLOSED, manual entry cannot be done. If OPEN, the customer is prompted to enter the number after three bad reads.

Card control data is added to the end of the customer's entry. The system takes this new string and treats it as that customer's card data when they key in their card number. The data string is then used for this customer in the future - whenever they key in their card number.

Press [8], then [ENTER]. You are prompted:

ENTER THE CARD CONTROL DATA STRING:

Enter up to 30 characters, then press [ENTER].

12.4.9 Additional Options

This SET CARD feature accesses two more:

- Card invalidation Via Bad PIN Entry
- Report Package Discount.

Card Invalidation Via Bad PIN Entry. All cards are affected by this command. When enabled, SYSTEM2 invalidates a card record when a customer enters three bad PIN numbers during a single transaction.

The customer can *not* gain access to SYSTEM2 until their card is revalidated by a system manager. This helps to prevent unauthorized access to SYSTEM2.

To revalidate an invalid card, use the EDIT CARD command, explained earlier.

Report Package Discount. This works with the optional Report Package. See Page 199 for more information on the Report Package option.

12.5 COPY CARD #...

The COPY CARD command lets you copy a card record under a different card number. This lets you make numerous card records with the same account number, expiration date, monthly allocation, daily allocation, odometer reasonability range, pump restriction and/or quantity restriction.

The new card number must be at least five digits for the automatic PIN # generator to work.

After duplication, use the EDIT CARD command to modify items within the copies. The original record is not affected.

The PIN number, current odometer and driver name are NOT duplicated with this command.

After entering COPY CARD, specify the number of the card record to be duplicated. For example:

Display	Keyboard Entry

P>	COPY CARD 12345 [ENTER]
P> COPY CARD	22222
AUTO GENERATE PIN #'S (Y/N)?	Y [ENTER]
AUTO GENERATE PIN #'S (Y/N)?	Y
ENTER CARD #:	55555 [ENTER]
ENTER CARD #:	55555
PIN #:	4766
CURRENT ODOM:	10,000 [ENTER]
CURRENT ODOM	10,000
DRIVER NAME:	WILLIAM [ENTER]
DRIVER NAME:	WILLIAM
ENTER CARD #:	

SYSTEM2 automatically prompts for the next card number, allowing multiple copies of an individual card record.

Enter a new card number or press the [ENTER] key to exit this command. This command automatically checks for duplicate card numbers in the file. The card file is resorted when this command is exited.

12.6 SORT

This function sorts all records in the card/account file.

The records are usually sorted automatically after power up, and whenever an INSERT or DELETE command is executed. There are several occasions when a "manual" sort is required:

- If the carrier is lost during modem use
- The privileged mode times out while inserting or deleting a record

If you try to display a record or records when the file is unsorted, an error message is displayed.

13.0 Transaction Data Menu

From the MAIN menu, press [H]

```
-----
TRANSACTION DATA
-----
A: SHOW                A: TRANS DATE TIME CARD ACCOUNT
VEHICLE
B: PRINT              B: TRANS DATE TIME CARD ACCOUNT VEHICLE
SUMMARY                C: TRANS (#...)
-----
C: SET                D: TRANS
D: CLEAR
-----
E: CLEAR              E: TRANS DATE #... SEQUENCE #...
-----
F: REPORT
-----
^ENTER COMMAND      ^ENTER OPTION
```

13.1 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE

This function displays or prints completed transactions stored in the SYSTEM2 data base. Even though *all* transactions are recorded by the system, what you actually see is determined by the SET TRANS command, described below.

When you issue a SHOW TRANS or PRINT TRANS, you are prompted as follows:

```
ENTER DATE:
ENTER TIME:
ENTER CARD:
ENTER ACCOUNT:
ENTER VEHICLE:
```

There are four possible types of responses to these prompts. Pressing [ENTER] at each prompt tells the system to ignore that parameter.

To narrow the range of transactions to print or show, enter a specific time, date, or number at a prompt. For example, to display only the transactions from January 22, 1996, enter JAN 22 1996 at the date prompt, and then press [ENTER] at the other four prompts.

When specifying the time or date, you can also include one of two following prefixes:

- < ("less than" sign). Will include all transactions up to and including the current time or date. For example, to include all transactions up to and including Jan 22, 1996, enter <JAN 22 1996 at the date prompt.
- > ("greater than" sign). Will include all transactions starting with and including the specified time or date. For example, to include all that occurred after 5:00 PM (and before midnight), you would enter >5:00 PM at the time prompt. An example of a typical transaction is shown below.

```
>PRINT TRANSACTION 161
  -ALLOW WRAP AROUND
  -SAVE UNAUTHZ'D USERS ALSO
  -TRANSACTION BUFFER SIZE: 25

SEQUENCE #: 123
REASON FOR TERMINATION: NORMAL
ACCOUNT: TRUXCO
DRIVER: SMITH
VEHICLE: VAN1
FEB 22, 1989    07:11 PM
TRANSACTION #: 123
CARD #: 20001
FUELTYPE: UNLEADED
PUMP #: 3
QUANTITY: 25.000 GALLON
PRICE: $1.000
TOTAL: $25.00
ODOMETER: 66555
DISTANCE PER UNIT: 10.5
MISCELLANEOUS: 123456789
--RECEIPT ISSUED
ACCOUNT #: 1234
```

13.2 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY

This command displays only the product totals without listing all the transactions. For example,

```
-ALLOW WRAP AROUND
-SAVE AUTHZ'D USERS
-TRANSACTION BUFFER SIZE: 25

*** PRODUCT TOTALS ***

UNLEADED      : 46.080 GALLON  TOT: $46.08
PREMIUM       : 35.840 GALLON  TOT: $35.84
REGULAR       : 34.900 GALLON  TOT: $34.90

TRANSACTIONS: 9      GRAND TOTAL: $116.82
AVERAGE: $12.98
```

13.3 SHOW/PRINT TRANS (#...)

This command is quick method of displaying transaction data. You are prompted only for the transaction number.

13.4 SET TRANS

Transaction buffer size is set when you define card buffer size (see Page 118).

The SET TRANS command specifies how the transaction buffer is to be configured. The first prompt is:

SET WRAP AROUND OPTIONS ?

If wraparound is enabled, and the transaction buffer is full, the SYSTEM2 overwrites (erases) the older transactions when new transactions are received.

When wraparound is disabled, transactions can *not* be overwritten; *no* fueling is allowed if the buffer is full. If you enter [Y], you will be prompted again:

ENABLE WRAP AROUND ?

Press [Y] to confirm.

IMPORTANT

Do not enable wraparound unless you are certain that transaction data will not be accidentally destroyed.

The next prompt is:

RE-DEFINE TRANSACTION ?

Enter [Y] to redefine transactions and display:

TRANS=UNAUTHZ'D USERS ALSO ?

If you enter [Y], the system processes an unauthorized attempt to use the system as a transaction and logs the event in the transaction buffer.

Entering [N] causes the system to ignore any unauthorized users and events; only cases where a pump was activated by the SYSTEM2 are recorded.

The third SET TRANS prompt is:

SPECIFY DISPLAY FIELDS ?

This lets you tell the system which fields to display when a SHOW TRANSACTION or PRINT TRANSACTION command is issued. Choose from the following fields:

ACCOUNT, DRIVER, VEHICLE
DATE & TIME
CARD #1
CARD #2
FUELTYPE
PUMP #
HOSE #
QUANTITY
PRICE
TOTAL
ODOMETER
DISTANCE PER UNIT
MISCELLANEOUS
RECEIPT STATUS
ACCOUNT #

Chosen fields are also used in the External Computer Transactions (see Page 175). If access was denied to a fueler, only the first four fields and the transaction number are recorded for that transaction.

There must be at least one transaction recorded in your system in order to show all the selected data fields.

The last SET TRANS option (displayed after the account number prompt) is:

COMPUTER FORMAT CHECK DATA IN HEADER ?

When transferring data to an external system in the computer format, an optional data check can be prefixed to the transaction header to provide greater data integrity. The data check includes: (1) the number of records and (2) the sum of the quantities for records. See Page 175 for External Computer instructions.

Press [Y] to *enable* or [N] to *disable* the data check.

13.5 CLEAR TRANS

The CLEAR TRANS command clears all transactions. To ensure that you do *not* clear transactions accidentally, the system prompts you a second time before clearing the transactions.

You *cannot* clear transactions in the middle of the buffer.

13.6 CLEAR TRANS DATE #... SEQUENCE #...

This version of the CLEAR TRANS command clears all transactions that occurred up to and including the specified transaction on the specified date.

13.7 REPORT

The REPORT command activates the optional report package. If the package is not installed in your system, you will see:

**** NOT AVAILABLE ****

If you have the Report package, turn to Page 199 for more information.

Notes:

14.0 System Totals Menu

From the MAIN menu, press [I]

```
-----
SYSTEM TOTALS
-----
A: SHOW          A: TRANS DATE TIME CARD ACCOUNT
VEHICLE
B: PRINT          B: TRANS DATE TIME CARD ACCOUNT VEHICLE
SUMMARY
                  C: MIDNIGHT
                  D: DAY
                  E: SHIFT
-----
C: SHOW          F: PUMP #... TOTALS
D: PRINT          G: PCT #... TOTALS
E: CLEAR
-----
F: SHOW          H: FUELTYPE (#...) TOTALS
G: PRINT
-----
H: SHOW          I: TANK (#...)
I: PRINT
J: SET
-----
^ENTER COMMAND    ^ENTER OPTION
```

14.1 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE

This version of SHOW TRANS or PRINT TRANS lets you print and show the completed transactions that stored in the SYSTEM2 data base. This function is very similar to the SHOW/PRINT TRANS command explained in the *Transaction Data* menu, Page 127.

14.2 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY

This command displays only product totals, without listing all the transactions. This function is very similar to the SHOW/PRINT TRANS SUMMARY command in the *Transaction Data* menu, Page 129.

14.3 SHOW/PRINT MIDNIGHT

The MIDNIGHT function summarizes totals for a day. The following data is logged in the SYSTEM2 journal at 12:00 AM - midnight:

- Daily transaction totals for each POS position of each PCT
- Daily product totals
- Daily transaction records

On the Midnight screen, when a POS position is installed, the pump number is indicated next to the POS number. If one or more of the eight POS positions is *not* installed, the position is indicated with an 'X'.

You can use SHOW MIDNIGHT TOTALS to display the data for any of the preceding eight days. When you enter the command, you are prompted to specify which day. For example,

```
1: JAN 27, 1996
2: JAN 28, 1996
3: JAN 29, 1996
4: JAN 30, 1996
5: JAN 31, 1996
6: FEB 1, 1996
7: FEB 2, 1996
8: FEB 3, 1996 -- ACTIVE
  ENTER CHOICE:
```

Enter [1] -[8] to select the day, or [ENTER] to exit.

The current date is the 'ACTIVE' date. Note that the data are stored in a "wrap-around" buffer. This means that as new data are recorded, old data are erased. In the above list, when data for February 4 is recorded, data for January 27 will no longer be available for display.

14.4 SHOW/PRINT DAY

The SHOW DAY or PRINT DAY commands display or print the following information for the specified day:

- Amount of each product dispensed
- Number of transactions
- Grand total of product dispensed
- Total dollar amount
- Dollar value of average transaction for the specified day.

14.5 SHOW/PRINT SHIFT

SYSTEM2 can keep track of transactions on a "per shift" basis. This allows you to match transaction data to employee times.

The SHOW SHIFT or PRINT SHIFT commands displays or prints the following information for the current shift:

- Starting time
- Amount of each product dispensed
- Number of transactions
- Grand total of product dispensed
- Total dollar value
- Dollar value of average transaction.

Change Shifts. Along with the transaction data, you are asked if you want to change shifts now. Press [Y] if you want to begin a new shift.

14.6 SHOW/PRINT/CLEAR PUMP #...TOTALS

These commands manipulate the totals for a specified pump and its totalizer value. The CLEAR PUMP command is privileged; the SHOW PUMP and PRINT PUMP commands are not.

The following prompts appear when you want to show or print pump totals:

```
ENTER PUMP: X
** PUMP X TOTALS **

TOTALS:      0.0
TOTALIZER:   0.0
```

14.7 SHOW/PRINT/CLEAR PCT #...TOTALS

These commands manipulate totals and totalizer values for all the pumps connected to the specified PCT. The CLEAR PCT TOTAL command is privileged; the SHOW PCT TOTAL and PRINT PCT TOTAL commands are not.

A PCT number must be specified for any of the commands. The following is a typical display after issuing a SHOW PCT 1 TOTAL command:

```
** SHOW PCT 1 TOTALS **

PUMP 1
TOTALS:      0.0
TOTALIZER:   0.0

PUMP 2
TOTALS:      0.0
TOTALIZER:   0.0
```

Non-installed PCT positions are not shown.

14.8 SHOW/PRINT FUELTYPE #...TOTALS

The SHOW FUELTYPE TOTALS and PRINT FUELTYPE TOTALS commands total all pumps of the same type of fuel. For example, you could use this command to see how much midgrade unleaded was dispensed from all pumps in a station.

The following prompts appear after issuing a SHOW FUELTYPE 2 TOTAL command:

PREMIUM QTY: 0.0 GALLON

14.9 SHOW/PRINT/SET TANK (#...)

The SHOW TANK and PRINT TANK commands (not privileged) display or print the following for each programmed tank:

- Tank numbers
- Fueltypes
- Current quantities
- Low-level alarm quantities

The SET TANK command (privileged) lets you set the amount that is in a tank, and the level at which a "LOW TANK" alarm is activated.

Notes:

15.0 Journal Printer Menu

From the MAIN menu, press [J]

```
-----  
JOURNAL PRINTER  
-----  
A: SHOW                A: JOURNAL PRINTER  
B: PRINT  
C: SET  
-----  
C: LOCK                B: PRINTER  
D: UNLOCK  
-----  
^ENTER COMMAND        ^ENTER OPTION
```

15.1 SHOW/PRINT/SET JOURNAL PRINTER

An external printer can be connected to the PRINTER port on the back of the FSC to make a hard copy of all transaction data, providing added protection against data loss. The journal printer records transaction, pump and product numbers, date and time, first card number, the product quantity and dollar total.

The SHOW JOURNAL and PRINT JOURNAL commands display current printer configuration. Use the privileged SET JOURNAL command to specify the system will operate with an external printer. If so, you can also specify which of the following items will be printed:

1. Account Name, Driver, Vehicle names. Odometer entry. Miscellaneous entry.
2. Account number and second card.

The following is a typical prompt sequence after issuing a SET JOURNAL command and answering [Y] to all prompts:

```
OFFICE JOURNAL (Y/N) Y  
SET JOURNAL PRINTER OPTIONS (Y/N) Y  
PRINT:  
ACCOUNT, DRIVER, VEHICLE, ODOM, and MISC (Y/N)  
ACCOUNT #, CARD 2 (Y/N)  
JOURNAL ERROR OPTION (Y/N)  
  -- ENABLE AUTH ON JOURNAL ERROR (Y/N)
```

The JOURNAL ERROR OPTION specifies if the system should authorize fueling when the printer is not operating. The printer may "block" if an error, such as a paper outage, occurs. After fixing the error, unblock the communication with the SET PRINTER command.

15.2 LOCK/UNLOCK PRINTER

The LOCK command lets you turn OFF the logging function for the printer, useful for when multiple PRINT commands are executed.

If you want to print several items (for example, several types of transaction data) you can keep the printouts together by issuing the LOCK PRINTER command. No "incoming" items will be printed until you turn OFF the LOCK.

The UNLOCK PRINTER command returns the printer to its normal logging function. Any transactions that were locked out are printed when the printer is unlocked.

If no command is generated for 10 minutes while the printer is locked, the system exits the privileged mode and unlocks the printer.

16.0 Buypass Network Functions

16.1 OVERVIEW

To communicate with the Buypass network, you must first program the following **System2** communication parameters: Baud Rate, Terminal ID and Down Line Load (DLL) telephone number.

Use the **'SET NETWORK'** command to enter this information. Also use the **SET NETWORK** command for communication tests, forcing POS transaction captures, transaction resubmissions, POS transaction totals and DLL requests.

After entering the communication parameters, initiate a DLL from the network. The DLL sends credit card information to the Bank Table. Additional data can then be programmed into the table using the **'SET BANK'** command, including how POS transactions are authorized.

You must set the size of the card/account buffer and define the card/account record before using either of the POS configuration commands.

Typical POS Transaction

First, the customer inserts their credit card into the **System2** reader. After checking the cardfile and Bank Table, the system either grants local authorization or calls for network authorization. Customers are authorized, and then enter a pump number. They can then pump fuel up to the authorized dollar amount. When the transaction is completed, the data are recorded in the **System2** transaction record. Data is downloaded to the network for the next authorization call.

16.2 SET NETWORK

This *privileged* command displays the following menu:

Enter an option number or press **[Enter]** to exit.

If you request an option requiring a modem, and the modem is already in use (for an authorization request), you will see a 30-second "countdown message". If the modem

becomes available before the countdown ends, the request is processed. If not, you are exited from the option. If the modem becomes available later, you can use the option.

BUYPASS NETWORK CHOICES

- 1 - SET COMMUNICATION PARAMETERS
- 2 - PERFORM COMMUNICATION TEST
- 3 - FORCE TRANSACTION CAPTURE
- 4 - PERFORM A RETURN or REVERSAL
- 5 - MARK TRANSACTION FOR RESUBMISSION
- 6 - PERFORM NETWORK TOTALS

Option 1 does NOT try to reach the modem until AFTER you exit the option. If the modem is still unavailable when the countdown ends, you must select Option 1 again, and possibly re-enter your data..

Option 1

The communication parameters are used when the **System2** system calls the network. When you enter Option 1, the following menu is displayed:

DIAL MODE

The dial mode can be either tone or pulse.

DIAL RATE

For tone dialing, the rate can be fast, medium or slow.

DIAL TONE

The system can be programmed to wait for a dial tone before dialing.

```

POS COMMUNICATION PARAMETERS      NETWORK: BUYPASS

                                     Current
                                     -----
1 - DIAL MODE.....TONE
2 - DIAL RATE.....MEDIUM
3 - DIAL TONE.....YES
4 - BAUD RATE.....1200
5 - POS SYSTEM ON time.....6:00 AM
6 - POS SYSTEM OFF time.....10:00 PM
7 - INVALIDATE DECLINED CARDS.....YES
8 - SAVE DECLINED AUTHORIZATIONS..NO
9 - CONNECT TIME (seconds).....90
10 - TERMINAL I.D.....6113000000001
11 - DLL PHONE NUMBER.....14045551212
12 - REQUEST DOWN LINE LOAD

```

BAUD RATE

The network access baud rate can be 300, 1200 or 2400. Buypass does *not* currently support the 2400 baud rate.

POS SYSTEM ON time

This is the time when the system will begin accepting POS customers.

POS SYSTEM OFF time

This is the time when the system will stop accepting POS customers.

INVALIDATE DECLINED CARDS

If a card authorization is denied, you can tell the **System2** to define that card number as "invalid" and insert the number in its "hot" file. If the customer uses the card again, the **System2** displays the message **'CARD INVALID'** and denies the access to the system *without* calling the network. This prevents unnecessary telephone charges for declined cards.

Certain network cards require a PIN number be entered before authorization is given. If this number is incorrectly entered, authorization is declined. The **System2** does *not* distinguish the reasons for declining cards. When the hot file is activated, all declined cards are included.

SAVE DECLINED TRANSACTIONS

When a card is declined, you can program the **System2** to save the declined transaction. This allows you to monitor the number of and reasons for such transactions.

CONNECT TIME

This is the time the system will wait for the network to answer a call. Note that this time must be entered in *seconds*; For example, to enter a time of 1.5 minutes for this feature, you would enter 90 seconds at the prompt.

TERMINAL I.D.

This is a 13-digit number issued from Buypass that is used to identify the system.

DLL PHONE NUMBER

This is the telephone number (issued by Buypass) that the system calls for a "Down Line Load" (DLL).

REQUEST DOWN LINE LOAD

The Down Line Load (DLL) is a transmission of credit card information from the network. This information is stored in the Bank Table.

This option requests a DLL from the network. You must request a DLL as part of the initial configuration of the **System2**.

To request a DLL on an operational site, all POS transactions must be completed and captured *before* making the request. See Option 3 below for details on forcing a capture.

Option 2

This option tests communication between the **System2** and the network.

The response **'COMM TEST PASSED'** indicates good communication. If one of the following responses appears, follow the suggestion and try the test again.

Message	Suggestion
BAUD 300 ERROR	check modem baud rate
RING DETECTED	check telephone number
NO CARRIER	check modem, telephone number
BAUD 1200 ERROR	check modem baud rate
NO DIAL TONE	check telephone line connection
BUSY	check telephone number
NO ANSWER	check telephone number
AUTH'Z TIMEOUT	check connect time, phone number
BAUD 2400 ERROR	check modem baud rate
TIMEOUT NO ANSR	check telephone number
MODEM NOT CNFGD	check modem connection
NO CONNECT NTWK	check telephone number
NO PHONE OR ID	check telephone number, terminal ID
NTWRKS EXHAUSTED	call Buypass customer service
NO MODEM RESP.	check modem connection

To check the communication parameters, refer to Option 1.

Option 3

Use this option to force the network to immediately capture any uncaptured transaction(s) in the **System2**. This should be done *before* a totals request is done (Option 5). When you select this option, the **System2** first checks its buffer for uncaptured transaction(s) - the call to the network is made only if there are any uncaptured transactions. This may take several minutes.

Option 4

If the **System2** incorrectly records a transaction, you can correct it with this option. There are two types of correction: (1) reversal and (2) return.

A reversal must be one of the last 20 POS transactions. A reversal also must be for the exact amount of the original transaction. When a transaction is reversed, the transaction status is changed from "captured" to "reversed" and the customer is never billed. A small entry is made in the transaction journal.

When a transaction is returned, a second transaction is created; it is recorded in the transaction buffer and with the journal printer in the usual manner. The amount of the returned transaction can be equal to or less than the amount of the original transaction.

Note that the amount for a reversal or a return must be very carefully entered. Once a transaction is reversed or returned, the amount can *not* be changed with the **System2**. *Contact the network directly if a transaction is incorrectly reversed or returned.*

When you select this option, you are prompted to enter the finance password. After its correct entry, you are prompted to enter the number of the transaction to be returned or reversed.

The transaction is displayed and you are prompted: **`Correct (Y/N):'**. If the incorrect transaction is displayed, enter **`N'** (for no) and begin again. If the correct transaction is displayed, enter **`Y'** (for yes); you are prompted: **`SELECT (1=Return 2=Reversal)'**. Enter **`1'** or **`2'** as appropriate; note that if the selected transaction is *not* one of the last 20, you are only prompted for return selection. If you select a return, you are also prompted to enter the amount.

After the final entry, the **System2** processes the operation for about 30 seconds and displays a message when it is completed.

Option 5

The **System2** can recover from most minor problems that may occur when downloading transactions to the network. In the unlikely event that the network fails to correctly capture a transaction *and* the **System2** does *not* detect an error, the transaction can be marked for retransmission. In such a case, the network will telephone the merchant and tell him the trace number for the transaction in question. Refer to Section III:H for details on transaction searches. Note that the finance password must be entered to use Option 5.

Option 6

This option dials to the network, gets the network totals, and displays the current totals for the network and the **System2**. Declined transactions are shown as well. This **`SYSTEM2'** side of the table is updated whenever a transaction is downloaded to the network. For example,

JAN 12, 1994	Network		SYSTEM2	DECLINED
-----	-----	-----	-----	-----
	AO	100	\$10000.00	100
\$10000.00	BP	20	\$ 2000.00	20
\$ 2000.00	CC	30	\$ 3000.00	30
\$ 3000.00	1 DS	\$ 50.00	\$ 5000.00	50
\$ 5000.00				
-----	-----	-----	-----	-----
TOTAL		\$10000.00	\$10000.00	\$
50.00				
LAST DP		\$12000.00		
DP DATE		11/22/91		

The **`AO'** line ("Authorized Only") shows the sums of all network authorized transactions; this line is *not* included in the transaction totals. The **`LAST DP'** line lists the previous deposit amount; the next line indicates the date of that deposit.

Note that the **System2** and network totals should match. The declined totals should be empty. If one or more declined transactions are indicated, refer to Section III:J for further information about reconciling transaction totals.

16.3 SHOW NETWORK

This command displays the current communication parameters that are set by Option 1. In addition, three data strings ("dial," "logon1" and "logon2") are displayed. You can *not* reprogram these strings. However, in the event of a communication problem with the Bypass network, you may be requested to provide them with this information.

16.4 SET PROMPT

This *privileged* command programs the prompts that the network fueler enters after swiping his card. The **`SET BANK'** command sets the sequence of the prompts the fueler sees. Each prompt has an associated code field to identify it. The prompt codes range from **`A'** to **`C'**. Each prompt has three fields of information.

The prompt field is a variable 24-character text message that the fueler sees on the FIT display. Be sure to leave enough room for the fueler's entry to be displayed. For example, when prompting for a 4-digit PIN, the text message should be no more than 20 characters.

The next field is the entry field. There are three types of entries: (1) numeric, (2) hidden numeric, and (3) yes/no.

A numeric entry requires a number to be entered via the FIT keypad; when a key is pressed, the corresponding number is displayed. The data entry is completed by pressing **[ENTER]** when the complete number is displayed. The customer can clear the display by pressing the **[CLEAR]** key *before* pressing **[ENTER]**. This type of data entry is typically used for items such as odometer readings and job numbers.

A hidden numeric entry also requires a data entry at the FIT keypad. However, for added security when a key is pressed, an asterisk ("*") is displayed instead of the corresponding number. The data entry is completed by pressing **[ENTER]** when the complete number is displayed. The customer can clear the display by pressing **[CLEAR]** *before* pressing **[ENTER]**. This type of data entry is typically used for PINs.

A yes/no entry requires a "yes" or "no" response at the FIT keypad. "Yes" is entered by pressing the **[ENTER]** key or the **[1]** key. "NO" is entered by pressing the **[CLEAR]** key or the **[0]** key.

The last field in the prompt table is the `#'. This field specifies the maximum number of characters that can be entered for each prompt. For example, an odometer prompt could be specified with a 6-character entry, while a yes/no entry would require only a single character response.

Below is an example of the **`SET PROMPT'** command.

```
P>set prompt

Network : BT TYMNET

-----
| Code | Prompt                               | Entry | # |
|-----|-----|-----|---|
| A    | EXTRA PROMPT 1                     | Num   | 1 |
| B    | EXTRA PROMPT 2                     | Num   | 1 |
| C    | EXTRA PROMPT 3                     | Num   | 1 |
|-----|-----|-----|---|

Enter (prompt table row # (A-C) or [ENTER] to exit) : A

-----
| A | EXTRA PROMPT 2 : | Num | 1 |
|-----|-----|-----|---|

ENTER PROMPT : ENTER SECURITY # :
ENTER ENTRY Mode (default = 0) 0=Numeric, 1=Hidden,
2=Yes/No : 1
ENTER ENTRY # Code (default = 1) (1..9) : 4

ENTER (prompt table row # (A-C) or [ENTER] to exit) : 0
```

16.5 SHOW PROMPT

This command shows the current prompt configuration data.

You must set the communication parameters and successfully request an initial DLL from the network *before* you can use the **`SET BANK' command for the first time.**

16.6 SET BANK

This *privileged* command displays the POS Bank Table; for example,

Network : BUYPASS							
FLOOR LIMITS : CC = \$ 025 DS = \$ 025 PR = \$ 025 TE = \$025							
PromptLocal	Totals	Card	March	Auth			
No.	Card	Bucket	Token	Enbld			
Amount	StringAuth						
---	-----	-----	-----	-----			-----
1	Buypass Fleet		BP	BP	Y	\$ 50	
N							
2	Visa	CC	VS	Y	\$ 50	Y	
3	MasterCard		CC	MC	Y	\$ 50	
Y							
4	Discover	DS	DS	Y	\$ 50	Y	
5	American Exp.		TE	AX	Y	\$ 50	
Y							
6	Diners Club		TE	DN	Y	\$ 25	
Y							
7	Carte Blanche		TE	CB	Y	\$ 50	
Y							
8	Generic Prop		PR	PC	Y	\$ 50	
Y							

The table row numbers, the card names, the prompt strings, the totals bucket assignments, and the card tokens are built into the **System2**. The DLL from the network will enable up to 16 of these lines of data for your Bank Table. You can *not* reprogram any of this information.

The floor limits are also sent from the network during a DLL. Initially, all the floor limits are zero, but you can request the network to increase them. Note that most card types in the table have a bucket type which corresponds to one of the floor limits.

When you enter the **'SET BANK'** command, you are prompted for a table row number. Enter a number from the table; or press **[Enter]** *without* an entry to exit.

Enable Card Type

After you specify a card type, you are prompted: **'Enable card type? (Y/N)'**. Enter **'Y'** (for yes) or **'N'** (for no) as appropriate. Your response is listed in the table in the **'Merch Enbld'** column.

When you enable a card type, you are prompted for the authorization amount. If you enter a value that is equal to or *less* than the corresponding floor limit, a transaction for that card type will be locally authorized; that is, the network will *not* be called, but the journal printer must be available.

Authorization Limit

If you enter an authorization amount that is *larger* than the corresponding floor limit, the system will attempt to contact the network for authorization *before* allowing a customer to fuel. Note that when a card type does not have a corresponding floor limit, all transactions for the card type *must be* authorized by the network.

The authorization amount should be large enough for most customer purchases. If the value is *too* large, customers close to their credit limit may be denied access. For example, if a customer has an available limit of \$15 and the authorization request is \$100, he will be denied access.

A typical authorization amount is 25 - 50 dollars. Note that when authorization is granted by the network, the transaction should *not* be declined when it is downloaded to the network for billing.

Network Card Type

The **Enter PROMPT SEQ.** : prompt is the network card type. The prompt sequence uses the code letters (A - C) from the **'SET PROMPT'** command. Three additional code characters can be included in the prompt sequence.

Immediate Connection The **`*`** character causes the **System2** to begin connecting to the network immediately (instead of waiting for the prompting sequence to complete). This allows the fueler to answer prompts while the **System2** is connecting. Usually, this character should be put first in the prompt sequence.

*Take care when using the * character! Dialing too soon may allow the modem to connect before the prompting is complete; this in turn causes the modem to disconnect, increasing the authorization process time.*

Pump Number

The **`#`** character prompts for the pump number. When a valid pump number is entered, the System2 reserves the specified pump until a response to the authorization request is received. When authorization is received from the network, the message **'USE PUMP #'** (where **`#`** is the selected pump number) appears on the FIT display, and the customer can activate the pump and begin fueling. If the transaction is declined, the pump is canceled and the message **'UNABLE TO PROCESS'** appears on the FIT display; *no* fueling is allowed.

Transaction Limit

The **`\$`** characters prompts for a transaction cost limit ("preset \$ amount"). The maximum amount the fueler can request is based on the authorization amount (online or offline). For an online transaction, authorization is requested from the network for the amount specified by the customer (when it is within the prompted range). If the customer fails to enter an acceptable amount in three attempts, he is prompted **'3 BAD PRESET \$ ENTRIES'** and the transaction is aborted.

When you enable a card type, you are also prompted if you want to allow customers to fuel if the network can *not* be contacted for authorization. When enabled, fueling is allowed to either the corresponding floor limit or the network authorization amount, whichever is less. If disabled, fueling is *not* allowed.

EXAMPLE:

Prompt string of ***\$#** causes the **System2** to begin dialing as soon as the card is identified. While the call is placed, the customer will be prompted to enter an Authorization Amount and Pump Discount. By prompting in this way, the “customer perceived authorization time” is determined.

For a POS transaction to be locally authorized, the system must be able to make a hard (or printed) copy of the transaction. This means that the journal printer must be powered up, on-line, unblocked, unlocked and have paper available.

Local authorization is prompted for a card type only if the bucket type has a corresponding floor limit. In the example above, the *`BP'* bucket (for the Buypass Fleet card type) is not listed; as a result, this card type can not have the local authorization feature enabled.

SHOW BANK

This command displays the current data in the bank table.

Transaction Status Codes

When a credit card is inserted, a transaction is initiated and assigned an access status code by the **System2**. After downloading the transaction to the network, a capture status code is assigned. These codes are in the following tables:

Code	Access Status
A	Network authorization
B	Local authorization
C	Network declined: reason indicated
D	Declined: modem/communication error and local authorization disabled
R	Returned

Code	Captured Status
K	Declined: previously authorized
I	Captured: previously authorized
R	Returned
V	Reversed

For a transaction to be locally authorized, a journal printer must be available to record the transaction.

Notes:

Appendices

Appendix A - Setup Worksheet

SYSTEM TIMES (Page 49)

Forward: _____ Backward: _____
System On: _____ System Off: _____
Receipts Only: _____ Time Adjust: _____
Light On: _____ Light Off: _____

SYSTEM DEVICES (Page 53)

FIT Setup

FIT #1	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	PCTs to shut off on E-stop	1, 2, 3, 4	
	Valid pump numbers	_____	
FIT #2	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access	yes	no
	PCTs to shut off on E-stop	1, 2, 3, 4	
	Valid pump numbers:	_____	
FIT #3	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	PCTs to shut off on E-stop	1, 2, 3, 4	
	Valid pump numbers:	_____	
FIT #4	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	PCTs to shut off on E-stop	1, 2, 3, 4	
	Valid pump numbers:	_____	

Installed FITs

FIT #1	FIT #2	FIT #3	FIT #4
--------	--------	--------	--------

OPT Setup

OPT #1	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #2	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #3	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #4	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #5	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #6	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #7	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #8	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #9	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #10	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no

	Valid pump numbers	_____
OPT #11	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #12	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #13	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #14	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #15	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #16	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #17	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #18	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____

OPT #19	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #20	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #21	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #22	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #23	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #24	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #25	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #26	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____
OPT #27	Issue receipts?	yes no
	Limit for receiving a receipt (0..99)	_____
	Enable keyboard access?	yes no
	Valid pump numbers	_____

OPT #28	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #29	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #30	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #31	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	
OPT #32	Issue receipts?	yes	no
	Limit for receiving a receipt (0..99)	_____	
	Enable keyboard access?	yes	no
	Valid pump numbers	_____	

PCT Setup

There are up to four PCTs in a SYSTEM2, each PCT controlling 8 positions. Copy this page and the next as needed. Circle the appropriate PCT and position numbers.

Note that most PCT configurations do *not* require *all* of this information.

PCT Number	1	2	3	4
POSITION NUMBER	1	2	3	4
Pump Number				
Pulses / Unit				
Max Fuel/Transaction				
Sentry Feature				
Max Time Fuel				
Max Time Handle				
Max Time 1st Pulse				
Max Time Between Pulses				
POSITION NUMBER	5	6	7	8
Pump Number				
Pulse / Unit				
Max Fuel/Transaction				
Sentry Feature				
Max Time Fuel				
Max Time Handle				
Max Time 1st Pulse				
Max Time between Pulses				

PCT Number	1	2	3	4
POSITION NUMBER	1 / 5	2 / 6	3 / 7	4 / 8
Fueltype Code #				
Fueling Tank				
Clear Pump Totals				
Totalizer Value				

Installed PCT positions:

PCT #1	POSITION #	1	2	3	4	5	6	78
PCT #2	POSITION #	1	2	3	4	5	6	78
PCT #3	POSITION #	1	2	3	4	5	6	78
PCT #4	POSITION #	1	2	3	4	5	6	78

Installed PCTs:

PCT #1	PCT #2	PCT #3	PCT #4
--------	--------	--------	--------

CUSTOMER MESSAGES (Page 65)

Language One

Message # Prompt

1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____

14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	

- 49 _____
- 50 _____
- 51 _____
- 52 _____

Language Two (THIS SOFTWARE DOES NOT SUPPORT TWO LANGUAGES)

Message #	Prompt
1	_____
2	_____
3	_____
4	_____
5	_____
6	_____
7	_____
8	_____
9	_____
10	_____
11	_____
12	_____
13	_____
14	_____
15	_____
16	_____
17	_____
18	_____
19	_____
20	_____
21	_____
22	_____
23	_____
24	_____
25	_____
26	_____
27	_____
28	_____

29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	

Keyboard Messages

Language One		
Key	Message	Default Function
1		YES
2		NO
Language Two (NOT ACTIVE IN THIS SOFTWARE)		
Key	Message	Default Function

1		YES
2		NO

Receipt Header

	Language ONE Entry	Language TWO Entry (NOT ACTIVE)	Color
Line 1:			RED BLACK
Line 2:			RED BLACK
Line 3:			RED BLACK
Line 4:			RED BLACK

Receipt Trailer

	Language ONE Entry	Language TWO Entry NOT ACTIVE)	Color
Line 1:			RED BLACK
Line 2:			RED BLACK
Line 3:			RED BLACK
Line 4:			RED BLACK

Receipt Body

	Language ONE Entry	Language TWO Entry (NOT ACTIVE)	Receipt Code
Line 1:			
Line 2:			
Line 3:			
Line 4:			
Line 5:			

Line 6:			
Line 7:			
Line 8:			
Line 9:			
Line 10:			
Line 11:			
Line 12:			
Line 13:			
Line 14:			
Line 15:			

Bonus Points

ONE POINT PER _____ CENTS			
	Language ONE Entry	Language TWO Entry (NOT ACTIVE)	Color
Line 1:			RED BLACK
Line 2:			RED BLACK
Line 3:			RED BLACK
Line 4:			RED BLACK

SYSTEM PARAMETERS (Page 97)

Site ID _____

Fueltypes

Type #	Fueling Unit	Price Per Unit	Product Name
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

Fueling Units

Code #	Label
1	
2	
3	

Passwords

Main: _____ Modem: _____ Show: _____

Dual Language DISABLED

RESTRICTIONS (Page 105)**Pump Restriction**

Restriction No.	Pumps Restricted:
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	

Quantity Restriction

Code No.	Max. Qty.	Code No.	Max. Qty
1		9	
2		10	
3		11	
4		12	
5		13	
6		14	
7		15	
8			

CARDS/ACCOUNTS (Page 61)

Account Nos? YES NO

Expiration Date? YES NO

Monthly allocation? YES NO

Daily allocation? YES NO

PIN? YES NO

*If YES, Card Invalidation after
Three Bad Entries?* YES NO

Save Odometer Entries? YES NO

Odometer Reasonability? YES NO

Pump Restriction? YES NO

Quantity Restriction? YES NO

Driver/Vehicle/Account Name? YES NO

TRANSACTION DATA (Page 127)

Enable Wraparound	yes	no
Log Unauthorized Transactions	yes	no
Display fields		
Account, Driver, Vehicle	yes	no
Date & Time	yes	no
Card #1	yes	no
Card #2	yes	no
Fueltype	yes	no
Pump #	yes	no
Quantity	yes	no
Price	yes	no
Total	yes	no
Odometer	yes	no
Miles per unit	yes	no
Miscellaneous	yes	no
Receipt Status	yes	no
Account #	yes	no

SYSTEM TOTALS (Page 133)

Tank Number	Fueltype	Current Quantity	Low Level Alert at
1			
2			
3			
4			
5			
6			
7			
8			

JOURNAL PRINTER (Page 139, 141)

Print card 2 number	yes	no
Print card name (account, driver, vehicle)	yes	no
Print odometer, miscellaneous	yes	no
Allow fueling on journal error	yes	no

Appendix B

Memory Levels & Allocations

The table shows the maximum number of transactions, cards or keys available with the standard and optional (expanded) levels of RAM in your System2. "Minimum Options" and "Maximum Options" refers to the options you enable or disable in the SET CARD procedure. The memory level is displayed or set through the "RAM" option in the System Parameters menu on Page 97.

The Messaging feature is disabled for all memory numbers specified. The "Approx. Number Of Cards" is rounded to the nearest hundred.

MEMORY SIZE/LEVEL	TRANSACTION SIZE CODE	NUMBER OF TRANSACTIONS	APPROX. NUMBER OF CARDS/KEYS AVAILABLE	
			With Minimum Options Enabled	With Maximum Options Enabled
Level 1 - Standard (256 KB)	4	100	10,600	3,700
	40	1000	5,800	2,000
	60	1500	3,100	1,100
Level 2 - Optional (512 KB)	40	1000	20,300	7,100
	80	2000	15,000	5,200
	120	3000	9,700	3,400
Level 3 - Optional (1 MB)	40	1000	49,500	17,100
	100	2500	15,000	14,400
	200	5000	28,200	9,700
	300	7500	14,800	5,100
Level 4 - Optional (2 MB)	40	1000	107,700	37,300
	200	5000	86,400	29,900
	400	10,000	59,700	20,700
	600	15,000	33,100	11,500

Notes:

Appendix C - Modem Use

C.1 INTRODUCTION

SYSTEM2 can be interrogated and programmed remotely over conventional (voice-grade) telephone lines using a pair of modems. The "local" modem is at the SYSTEM2 site; the "remote" modem is a remote terminal or computer.

The Data Carrier Detect ("DCD") is an output from the modem which SYSTEM2 uses to know when a call has been received. The Data Terminal Ready ("DTR") is an output from SYSTEM2 which allows the modem to answer.

The PC Logic modem (available from **Petro Vend**) requires a PC in order to be configured.

C.2 LOCAL MODEM CONFIGURATION

The modem connected to the SYSTEM2 must have an "answer only" configuration.

The following parameters are required for ANY local modem. The PC Logic commands to enter these parameters are shown (these commands are only for the PC Logic modem).

Parameter	PC Logic Command
Answers on 1st Ring	ATS0=1
Monitors Data Carrier Detect	AT&C1
Result codes NOT returned	ATQ1
Resets when Data Terminal Ready is turned OFF	AT&D2

After entering the PC Logic commands listed above, enter **`AT&W'** to store the configuration permanently. The default baud rate for the PC Logic modem is 2400.

C.3 REMOTE MODEM CONFIGURATION

You can use the command **`AT&F'** to load the factory configuration for the remote PC Logic modem. The default baud rate is 2400.

C.4 MODEM PASSWORD

The initial modem password is **`HELLO'**. To change the modem password, see *System Parameters* on Page 101.

Appendix D

External Computer Operation

This appendix describes the following:

- How to connect a computer to the System2
- How to retrieve transaction data from the **SYSTEM2** in computer format
- How to send configuration data to the **SYSTEM2** in computer format
- How to backup and restore card, account and configuration data for the **SYSTEM2**.

To interface with the **SYSTEM2** via a PC, you must run an emulation program in your PC. This program is explained later in this appendix.

D.1 CONNECTING A COMPUTER

If the distance between the FSC and PC is *less than 50 feet*, the FSC is considered directly connected to the PC. See *Direct Connection* section. When the distance is *greater than 50 feet*, modems are required. See *Modem Connection* section.

CAUTION

BEFORE making any connections, be sure your computer and peripheral equipment (printer, converter, modem, etc.) are OFF.

D.1.1 Direct Connection

A four-conductor cable connects the **SYSTEM2** FSC to the PC. One end of the cable is terminated with a DIN connector, the other end has a 25-pin "D" connector.

- The DIN connector plugs into the **TERMINAL** socket on the rear of the FSC
- The 25-pin connector plugs into your PC, typically in the COM1 or COM2 serial port.

If the "gender" of the 25-pin connector on your computer is the same as that of the communication cable (for example, they are both female), you will have to purchase a "gender-bender" adaptor.

Refer to your PC instruction manual for more information on the serial ports - *not every 25-pin connector on the PC is a communications port*.

Some machines may only have a 9-pin serial port. If so, you will have to purchase an adaptor to convert the 25 pin plug to a 9-pin plug. Most electronic or computer supply stores carry these adapters.

If there is only one serial port on your machine, and it is already being used, you can purchase an additional Serial Card at most computer supply stores. Be sure to read your computer owner's manual prior to buying or installing a card.

Plug the PC power cord into a standard wall socket. You are ready to power up the PC and begin setting up the terminal emulation software.

D.1.2 Modem Connection

A modem must be used if you want to communicate with the system from any distance greater than 50 feet.

A Hayes® (or Hayes compatible) modem must be used, because **SYSTEM2** uses Hayes® commands. Most modems have four sockets, for the following functions:

- A 25-pin "D" socket for the PC
- An RJ11 socket (for TEL line)
- An RJ11 socket (for telephone)
- A POWER IN socket

The modem should have come with the cables you need to make the following connections. (If not, you can purchase what you need at most computer supply stores.)

1. Connect the 25-pin socket to the COM1 or COM2 serial port on the back of your computer.
2. Connect a phone cable from the modem RJ11 "LINE IN" jack to your facility telephone jack.
3. If you want the PC to share its line with a telephone, connect the telephone to the RJ11 modem "TEL" jack.

You cannot use the telephone (for voice communication) and the modem simultaneously.

4. Plug the power adapter into its socket on the modem and into a standard 115 VAC wall socket.

D.2 TERMINAL EMULATION SOFTWARE

For a PC to communicate with **SYSTEM2**, you must run a terminal emulation program. **Petro Vend** strongly suggests you use PROCOMM® emulation software, made by DATASTORM TECHNOLOGIES, INC. Contact your Petro Vend distributor for details.

Read the manual for your Terminal Emulation software carefully. You will need to set the following values (refer to the *System2 Installation Manual* for instructions on changing these settings):

Baud Rate . Must match **SYSTEM2**
Data Bits . . . 7
COMM Port PC port being used
Parity Even
Stop Bits . . 1

If you are using direct connection, you will need to set the software to "go local". If you are using a modem, you will need to set its program switches. You will also need to enter the telephone number of the **SYSTEM2** site.

D.3 TRANSACTION DATA FORMAT

D.3.1 Description

The transaction data format is designed to be read by people, and includes a header with configuration data and labels for each included field. In the display format, the transmission of transaction records can be cued from the keyboard.

The header is described in a table on Page 180.

Computer formatted data eliminates these labels, substituting data checks, field codes and field separators. This format is meant to transfer transaction data to a computer data base.

The Field Codes are described on Page 180, 181.

To pace the data stream, the transmission of each transaction record must be cued by a specific computer response.

To retrieve transaction data in the computer format, append the prefix **`SHOW'** and the suffix **`CF'** to one of the following commands (an example appears on the next page):

TRANSACTIONS
TRANSACTION ###
TRANSACTIONS WHERE DATE = mmm dd, yyyy
TRANSACTIONS WHERE DATE < mmm dd, yyyy
TRANSACTIONS WHERE DATE > mmm dd, yyyy
TRANSACTIONS WHERE TIME = hh:mm am/pm
TRANSACTIONS WHERE TIME < hh:mm am/pm
TRANSACTIONS WHERE TIME > hh:mm am/pm
TRANSACTIONS WHERE CARD = #
TRANSACTIONS WHERE VEHICLE = #
TRANSACTIONS WHERE ACCOUNT = #

The following command will call up transaction 123 in computer format:

SHOW TRANSACTIONS 123 CF

Search commands can be combined with **`AND'** in the computer format. For example:

SH TRANS WH DAT = JAN 1,1996 AND WH TIM > 5:00 PM CF

Transaction report functions are explained in more detail on Page 127. When data is requested from **SYSTEM2** in the computer format, **SYSTEM2** first transmits the transaction header and the first transaction. This header *always* includes:

- Codes to indicate which transaction fields will be included in the transmitted record(s)
- a 2-digit checksum and a carriage return
- a line feed (**`|CR|LF|'**).

All transactions include the sequence number and Reason For Termination code(s). The fields are included as specified by the transaction field codes listed in the header. All items are separated by a slash (**`/'**). The Reason For Termination codes - both for Granted and Denied transactions - are listed in the tables on Page 182 and Page 183.

Each record is terminated with **`|CR|LF|'**. The external computer responds with **`|CR|LF|'** to initiate the transmission of the next record. The **SYSTEM2** will send records each time it receives **`|CR|LF|'** up to the last record. At the last record, the system sends **`//|CR|LF|'**.

If the computer session is terminated by the computer with an **`X'**, **SYSTEM2** sends **`\\|CR|LF|'**. If access was denied to a fueler, only the first four data fields are recorded (and can be transmitted) for that transaction.

The graphic below is an example of a transaction data retrieval in the computer format. Note that a data check was *not* included in the header.

The 'SHOW TRANSACTION' command has been abbreviated to SH TRANS.

' | **CR** | **LF** | ' indicates a carriage return and a line feed.

^' indicates a "space pad." A transaction record is sent as one string.

For clarity, the example shows line breaks between fields.

External Computer Output	SYSTEM2 Response
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18
19	19
20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30	30
31	31
32	32
33	33
34	34
35	35
36	36
37	37
38	38
39	39
40	40
41	41
42	42
43	43
44	44
45	45
46	46
47	47
48	48
49	49
50	50
51	51
52	52
53	53
54	54
55	55
56	56
57	57
58	58
59	59
60	60
61	61
62	62
63	63
64	64
65	65
66	66
67	67
68	68
69	69
70	70
71	71
72	72
73	73
74	74
75	75
76	76
77	77
78	78
79	79
80	80
81	81
82	82
83	83
84	84
85	85
86	86
87	87
88	88
89	89
90	90
91	91
92	92
93	93
94	94
95	95
96	96
97	97
98	98
99	99
100	100

```
SH TRANS 123CF|CR|LF|          abcdefghijklmno/07|CR|LF|
          123/I/TRUXCO---/SMITH----/VAN1-----/
```

02221989/0711/0123/20001-----/

60001-----

/03/03/0025000/00100/

000002500/0066555/105/1234567890/1/1234/

11 / | CR | LF |

$$|CR| \quad |LF| \quad // \quad |CR| \quad |LF|$$

TRANSACTION HEADER

Item	Format	Pad	Inclusion
Number of transactions	4 digits, left justified	zero	optional
Sum of quantities	9 digits, left justified	zero	optional
Transaction field codes	0 - 15 characters	none	always
Checksum	2 digits	none	always

TRANSACTION FIELD CODES

Code	Field	Format	Pad
a	Account/driver/vehicle	9 characters each	space
b	Date/time	8/4 digits: mmddyyyy/hhmm	zero
c	Transaction number	4 digits	zero
d	Card #1	19 digits, left justified	space
e	Card #2	19 digits, left justified	space
f	Fueltype	2 digits: 1 - 16	zero
g	Pump number	2 digits: 1 - 99 or 3 digits if hose number is specified	zero
h	Quantity	7 digits: #####.###, implied decimal	zero
l	Price	5 digits: ##.###, implied decimal	zero
j	Total	9 digits: #####.##, implied decimal	zero
k	Odometer	1 char, 6 digits: X#####; `?' in 1st location indicates <i>unreasonable</i> entry, `0' indicates reasonable entry; all blanks if odometer entry <i>not</i> prompted (<i>not valid for ChipKeys</i>).	zero
l	MPG	3 spaces: mpg <i>not</i> available	zero
m	Miscellaneous	9 digits	space
n	Receipt status	1 digit: 1=issued; 0= <i>not</i> issued	none
o	Account number	4 spaces; account # <i>not</i> available	zero

CARD AND ACCOUNT FIELD CODES

Code	Field	Format	Pad
a	Card/Account Number	19 digits, left-justified	space
b	Record Type	8 bytes (see <i>RECORD TYPE</i> table, below)	none
c	Account Number	4 digits, right-justified	zero
d	Expiration Date	8 digits: mmddyyyy	none
e	Fuel Totals to Date	8 digits: #####.## (implied decimal)	zero
f	Fuel Totals for Today	8 digits: #####.## (implied decimal)	zero
g	Monthly Allocation	6 digits: ##### (dollars only, no decimal)	zero
h	Daily Allocation	6 digits: ##### (dollars only, no decimal)	zero
i	PIN Number (card records only)	6 digits	space
j	Odometer	6 digits	zero
k	Reasonability	2 digits	zero
l	Product Restriction	2 digits	zero
m	Quantity Restriction	2 digits	zero
n	Driver, Vehicle or Account Name	9 characters	space

RECORD TYPES (Code "b" Field Code, above)

Byte (s)	Definition
1	0: Valid 1: Invalidated by manager
2	0: Valid 1: Invalidated by system (3 bad entries)
3	0: Miscellaneous Entry DISABLED 1: Miscellaneous Entry ENABLED
4	0: Odometer Entry DISABLED 1: Odometer Entry ENABLED
5-8	0001 Single/Language 1 1001 Single/Language 2 0010 Driver/Language 1 1010 Driver/Language 2 0011 Vehicle 0100 Account

Example: **00110010** is a *Valid Language 1 Driver* card with *miscellaneous AND odometer* entry enabled.

REASON FOR TERMINATION CODES (AUTHORIZATION GRANTED)

Code	Reason	Cause	Possible Solution
C	Pump error, premature busy	<i>No suggestions</i>	
D	Pump error --reset quantity exceed	Pulses being received without current being sensed or handle switch detection.	Check PV268 DIP switch #6 for correct selection (current sense or handle switch). Check current: s/b 100 mA AC minimum.
E	No 'PUMP HANDLE BUSY'	No current sense or handle switch detection after pump authorization.	Check PV268 DIP switch #6 for correct selection. Check current draw: s/b 100 mA AC minimum. Make sure handle timeout is long enough. Check wiring to PV270 relay board.
F	No fueling pulses	Current sensed or handle switch detected, but no pulses received from pulser.	Check PV268 DIP switch #1 for correct pulser type. Check pulser wiring. Check pump's First Pulse timer.
G	Pump currently active	<i>No suggestions</i>	
I	Normal	Good transaction.	May appear even for incomplete transaction if current sense threshold is too close to actual current draw. Contact Petro Vend Technical Support.
J	Quantity limit exceeded	Card, account or pump limit reached.	Check programming for card, account or pump
K	Total transaction time exceeded	Pump is programmed to dispense fuel only for a programmed length of time.	Check "MAX TIME FOR FUELING" value, and adjust accordingly. See Section 8.4.
L	Pulser error	Only in flowswitch applications. Pulses not received within five seconds of flow switch activation.	Check pulser. Possible faulty flow switch.
M	Emergency stop	Emergency stop button was depressed during fueling.	If button was NOT pressed, check E-STOP button for short.
N	Missing pulse detected	Current sensed, pulses received, then fueller stops pumping. As long as pump is ON, Pulse Timer runs.	Lengthen the Pulse Timer duration, or hang the pump up.
O 01	Communication errors	Power interruption during fueling caused termination of transaction.	Check power source. Are noise filters installed in pump motors, solenoid valves, and contactors?
Z	Manager activated	<i>No suggestions</i>	

REASON FOR TERMINATION CODES (AUTHORIZATION *DENIED*)

Code	Reason	Cause	Possible Solution
b	Bad PIN entry	Wrong PIN entered three times.	Verify PIN assigned to card is correct. If yes, check the keypad with FIT test program.
c	Bad odometer entry	Fueler's card is set for odometer reasonability, and entry falls outside acceptable limits.	Re-enter odometer value. Change reasonability (see Section 11).
d	Bad miscellaneous entry	NOT USED	NOT USED
e	User entry timeout	Fueler did not enter data after inserting card.	Operator error, or possible keypad malfunction.
f	Card # not in positive file	Invalid card.	
g	Card expired	Card has expiration date assigned to it. This date has passed.	Assign new expiration date to card, or issue new card.
h	Card record expired	Card record in the system is assigned an expiration date, which has passed.	Assign new expiration date to card record, or issue new card.
i	Card invalidated	Card has not been validated for use in this system.	Change validation status of card.
j	Three bad PIN entries	Fueler has entered incorrect PIN three times.	Verify PIN assigned to card is correct. If yes, check the keypad with FIT test program.
k	No allocation	Daily or monthly limit has been reached on card or account.	If daily, fueler must wait until midnight to reset daily totals. If monthly, new limits must be programmed or totals cleared.
n	Account expired	The card is assigned to an account that has expired.	Program new expiration date on account.
o	Account invalidated	Card has not been validated for use in this system.	Change validation status for the account.
p	Account numbers do not match	Driver card is not assigned to the same account as the Vehicle card.	Program both cards to the same account.
q	Account record not found	Card is assigned to an account record that has not been programmed into the card/account file.	Program the card into the file.

D.3.2 Data Checksums

The checksum is a number included with data to ensure the integrity of the data.

Description

The checksum used by the **SYSTEM2** is a 2-digit number calculated by adding the decimal values of the ASCII characters in a string and truncating the sum.

An ASCII table appears on page 185.

For example, in the string ``IABC'`, the decimal values for each character are: ``I' = 47`, ``A' = 65`, ``B' = 66` and ``C' = 67`. Adding these numbers produces 245. Truncating the number in this case means removing all but the last two digits - for 245, this results in 45.

The checksum is included with transaction, card, and account records sent by the **SYSTEM2**. You can also checksum each record when using the ``RESTORE'` command. As an example, the following transaction record has a checksum of 08.

```
123/I/123089/1130/000001234/08|CR|LF|
```

Note that when calculating the checksum for a record, you *must* include the slashes (``I'`) in the calculation.

An example of a checksum in a ``RESTORE'` command is:

```
RESTORE STATION12345/abcdef/75|CR|LF|
```

The checksum is 75. Note that you *must* include the slash and the blank space (between ``RESTORE'` and ``STATION12345'` in the example above) in the checksum calculation.

Calculating a Checksum

The following BASIC program can be used to determine the checksum for a line of data:

```
10  CHKSUM% = 0
20  TRANSACTION$ = "LINE OF DATA 0123456789"
30  NUMCHARS% = LEN(TRANSACTION$)
40  FOR INDEX% = 1 TO NUMCHARS%
50  SINGLECHAR$ =MID$(TRANSACTION$,INDEX%,1)
60  CHKSUM% = CHKSUM% + ASC(SINGLECHAR$)
70  NEXT INDEX%
80  TEMP$ = STR$(CHKSUM%)
90  TEMP$ = RIGHT$(TEMP$,2)
100 PRINT TEMP$
110 END
```

DECIMAL VALUES OF ASCII CHARACTERS

Decimal Value	ASCII Char	Decimal Value	ASCII Char	Decimal Value	ASCII Char	Decimal Value	ASCII Char
032	space	056	8	080	P	104	h
033	!	057	9	081	Q	105	i
034	"	058	:	082	R	106	j
035	#	059	;	083	S	107	k
036	\$	060	<	084	T	108	l
037	%	061	=	085	U	109	m
038	&	062	>	086	V	110	n
039	'	063	?	087	W	111	o
040	(	064	@	088	X	112	p
041	)	065	A	089	Y	113	q
042	*	066	B	090	Z	114	r
043	+	067	C	091	[	115	s
044	,	068	D	092	\	116	t
045	-	069	E	093	]	117	u
046	.	070	F	094	^	118	v
047	/	071	G	095	_	119	w
048	0	072	H	096	'	120	x
049	1	073	I	097	a	121	y
050	2	074	J	098	b	122	z
051	3	075	K	099	c	123	{
052	4	076	L	100	d	124	|
053	5	077	M	101	e	125	}
054	6	078	N	102	f	126	~
055	7	079	O	103	g		

D.3.3 Suppressing SYSTEM2 Prompts

The prefix **COMPUTER** can be placed before any command (*except* **PRINT** or **SHOW**) to suppress the usual **SYSTEM2** prompts and allow only a carriage return ('**CR**') or line feed ('**LF**') to be returned.

The '**P>**' prompt is returned after each command sequence has been *successfully* completed. The following command suppresses prompts, and enables checksum (the **".."** enables checksum):

```
COMPUTER HELLO/HELLO/ ..
```

If the prompt is *not* returned when expected, a 'R' (for **RETRY**) is returned instead. To abort a command sequence, send a '^C' (ASCII 03). Then, re-issue the command.

D.3.4 BACKUP & RESTORE Commands

Backing up the card validation data allows you to safeguard this information and to minimize system downtime when modifying or repairing a **SYSTEM2**. You can also backup one and restore the data to another **SYSTEM2** systems are to have the same data base.

The '**BACKUP**' and '**RESTORE**' commands must be included as part of a computer program that can format, store and transmit the raw computer data produced by the **SYSTEM2**.

The **Phoenix** or **Phoenix Plus** software package from **Petro Vend, Inc.** provides all the know-how you need to backup and restore card data quickly and easily using an IBM®-compatible personal computer. **Phoenix** is available from your local **Petro Vend** distributor.

BACKUP/BACKUP Card Commands

These *privileged* commands transmit card and account data from the **SYSTEM2** data base to an external computer.

From an external computer, the **BACKUP** commands request **SYSTEM2** to transmit site id, card and account field code(s), checksum, carriage return and a line feed ('**CR**'**LF**'), all separated by a slash ('/').

The records themselves are then sent following each `|CR|LF|` sent by the external computer. After the last record, the **SYSTEM2** sends `//|CR|LF|`. Checksum is explained on Page 184. The card and account field codes are listed in tables on Page 180, 181.

- If NO card number is specified, backup starts transmission at the first card/account record
- If a card number is specified, the transmission starts at the specified record. Because the records are sorted by number, this command allows you to backup a latter portion of the file.

Card and account records are sorted *only* by number; that is, account 2222 would be between card 1111 and card 3333. The **BACKUP** commands back up *both* record types.

There is no command to specify only card or only account. The illustration on Page 86 illustrates a typical **BACKUP** communication sequence.

The following is an example of the information exchanged with the **BACKUP** command.

Computer Output	SYSTEM2 Response

|CR|LF|	P>
BACKUP|CR|LF|	STATION12345/abcdefghijklmn/44|CR|LF|
|CR|LF|	100040000000000000/00100001/1234/ 02021996/00000809/001000/000100/ --5903/0014060/02/00/ 01/RIKARD---/54|CR|LF|
|CR|LF|	//|CR|LF|

In this example, **STATION12345** is the site ID and **44** is the checksum. The **-** indicates a "space pad." Card and account records are sent as single strings. For clarity, the example above shows line breaks between fields.

RESTORE site id (/fields) (/checksum)

This *privileged* command loads card and account information from an external computer to the **SYSTEM2** data base.

The SITE ID, CARD or ACCOUNT numbers (field "a") and RECORD TYPES (field "b") must be specified. You may specify any additional field codes you wish to restore (see Restoring Fields below). You may also include a checksum for the command line and/or the data records.

The field codes are listed on Page 180, 181. Checksum is explained on Page 184.

IMPORTANT

Field codes must be specified with lower case letters. The command RESTORE and any letters in the site ID must be specified with upper case letters.

A typical **RESTORE** communication sequence appears on Page 87. The following information exchanged with the **RESTORE** command.

```
|CR|LF|                                     P>
RESTORE STATION12345/abcdefghijklmn/
44|CR|LF|                                     |CR|LF|
10004000000000000000/00100001/1234/
02021996199619961996199619961996/00000809/001000/000100/--5903/
0014060/02/00/01/RIKARD---/54|CR|LF|         |CR|LF|
//|CR|LF|                                     P>
```

The **|CR|LF|** indicates a carriage return and a line feed. The **`-'** indicates a "space pad." A card or account record must be sent as one string. For clarity, the example above shows line breaks between fields.

Restoring Fields

The **SYSTEM2** allocates space in its data base when it receives the field codes.

You can restore a different number of fields than were in the data base when it was backed up. For example, if a field was accidentally omitted during configuration, you can add that field without losing any card or account data.

First, back up the current card or account data. Then, use the **SET CARD BUFFER** command to include all the old and new fields. *This destroys the old data!*

Finally, restore the card or account data, specifying the original fields *plus* the new field(s). The new fields can be filled with blanks or actual data.

Similarly, you can restore fewer fields - this increases the number of transactions or card and account records to be retained by the **SYSTEM2**.

Backing up the **SYSTEM2** is like taking a snapshot of the data base. When data is restored, **SYSTEM2** returns to exactly the same state as when backed up.

Frequent data base backups reduce the need to update any specific fields (e.g. mileage) in the data base when you use the **RESTORE** command.

UPDATE site id (/fields) (/checksum)

This *privileged* command modifies existing card or account records in the **SYSTEM2**.

SITE ID and CARD # must be specified for this command; all other field changes are optional. A field *must* be present in the original record to be updated. Checksum data can be sent if desired.

The sequence for the **UPDATE** command is similar to that of **RESTORE** (see Page 87). The following is an example of changing the PIN number (field "I") for card 10004000000000000000 with the command.

```
UPDATE STATION12345/ai/80|CR|LF|          |CR|LF|
10004000000000000000/--6666/91|CR|LF|    |CR|LF|
//|CR|LF|                                P>
```

IMPORTANT

The message 'SYSTEM DOWN' is shown on the FIT display while backing up or restoring configuration data. Normal fueling access is *not* allowed while this message is displayed.

The '|CR|LF|' indicates a carriage return and a line feed. The '-' indicates a "space pad." A card or account record must be sent as one string.

SYSBACKUP Command

When this command is executed, **SYSTEM2** transmits the configuration data and the version number of the system. *You CANNOT back up configuration data while a transaction is in progress.*

SYSRESTORE ####(#)/<checksum> Command

When this command is invoked, **SYSTEM2** does the following:

- tests the FSC version for compatibility
- clears the card buffer
- clears all transactions
- restores configuration data
- restarts all tasks
- optionally changes the size of the system memory (RAM)

SYSRESTORE requires the FSC version number and checksum be specified. Version number must be the same for *both* the system that was backed up and the system that will be restored (the letter after the version number can be ignored for this command).

The FSC version number is printed on the cover of this manual; it can also be displayed using the **SHOW SYSTEM** command (Page 97). The decimal point is *not* included.

For example, if a **SYSTEM2** with FSC software version 21.01E and standard RAM memory is backed up, the command **SYSRESTORE 2101** can be used to reconfigure the same system or another system with the same FSC version number and the same size memory.

Differing RAM Size

SYSRESTORE also lets you restore differing size system memory (RAM) by specifying the size code (#) for the system to be restored. RAM size code is explained on Page 103.

*The memory size specified with the **SYSRESTORE** command MUST match the actual memory size of the **SYSTEM2** being restored!*

If the specified memory is larger than the system's memory, **SYSTEM2** locks up and must be cold started (the power and battery turned OFF and then ON). If the specified memory is smaller than the system's memory, **SYSTEM2** will *not* be able to access the additional memory.

The **SYSBACKUP** command takes a "snapshot" of **SYSTEM2** data. Any configuration data that may have been changed since the last backup - time, date, tank levels, etc. - must be re-entered after executing the **SYSRESTORE** command.

No pumps can be active at the time of a **SYSBACKUP** or **SYSRESTORE** command.

Appendix E - Troubleshooting

E.1 COMMON PROBLEMS AND POSSIBLE SOLUTIONS

Problem	Possible Solution
<i>No FIT display messages</i>	<ul style="list-style-type: none">Adjust "display viewing angle" potentiometer (on top of the display PC board).
`FAULTY PUMP' message at FIT	<ul style="list-style-type: none">Three "zero-quantity" transactions: re-install pump with `INSTALL PCT # POSITION #' commandBad pump pulser: replace pulser
`RESET QUANTITY EXCEEDED' message at FIT	<ul style="list-style-type: none">Current sensor/pump handle selector switch in wrong position: change Switch #1 on PV-268 board
`SYSTEM DOWN' message at FIT	<ul style="list-style-type: none">FIT <i>not</i> installed: install FITPetro-Net wiring problem: check, repair wiringPossible FIT board malfunction: run COMM test to check board; replace board if necessary
`SYSTEM DOWN' at all FITs	<ul style="list-style-type: none">Possible FIT board malfunction(s): run COMM test for each FIT board; replace board(s) if necessaryPossible FSC board malfunction; if all FIT board pass COMM test, replace FSC board
`INCORRECT CARD' message at FIT	<ul style="list-style-type: none">Incorrect network number encoded on card(s); replace card(s)Incorrect network number programmed in FIT EPROM: replace EPROM

Problem	Possible Solution
<i>`SYSTEM FULL' message at FIT</i>	<ul style="list-style-type: none">• Printer error: clear error• Transaction buffer filled: clear buffer• Buffer wrap-around <i>not</i> enabled: enable wrap-around
<i>`MEMORY ERROR' message at terminal</i>	<ul style="list-style-type: none">• Expanded memory failure: battery switch <i>not on</i> during system power failure• Battery failure: replace battery• Expanded Memory failure: replace FSC board
<i>Pulser not counting pulses</i>	<ul style="list-style-type: none">• Active/passive pulser selector switch set incorrectly: change Switch #1 on PV-268 board
<i>Newly programmed messages or pump parameters not working</i>	<ul style="list-style-type: none">• Changes were not downloaded: use `DOWNLOAD command
<i>Printer not printing transactions</i>	<ul style="list-style-type: none">• Communications blocked due to printer error: unblock with `SET JOURNAL' command; printer locked: unlock printer with `UNLOCK' command
<i>Printer Error LED flashing</i>	<ul style="list-style-type: none">• Printer error code:<ul style="list-style-type: none">1 flash - paper jam2 flashes - paper low (or out)3 flashes - printer cutter jam
<i>Black square on FIT display after card inserted</i>	<ul style="list-style-type: none">• No display message for second language has been programmed: program message

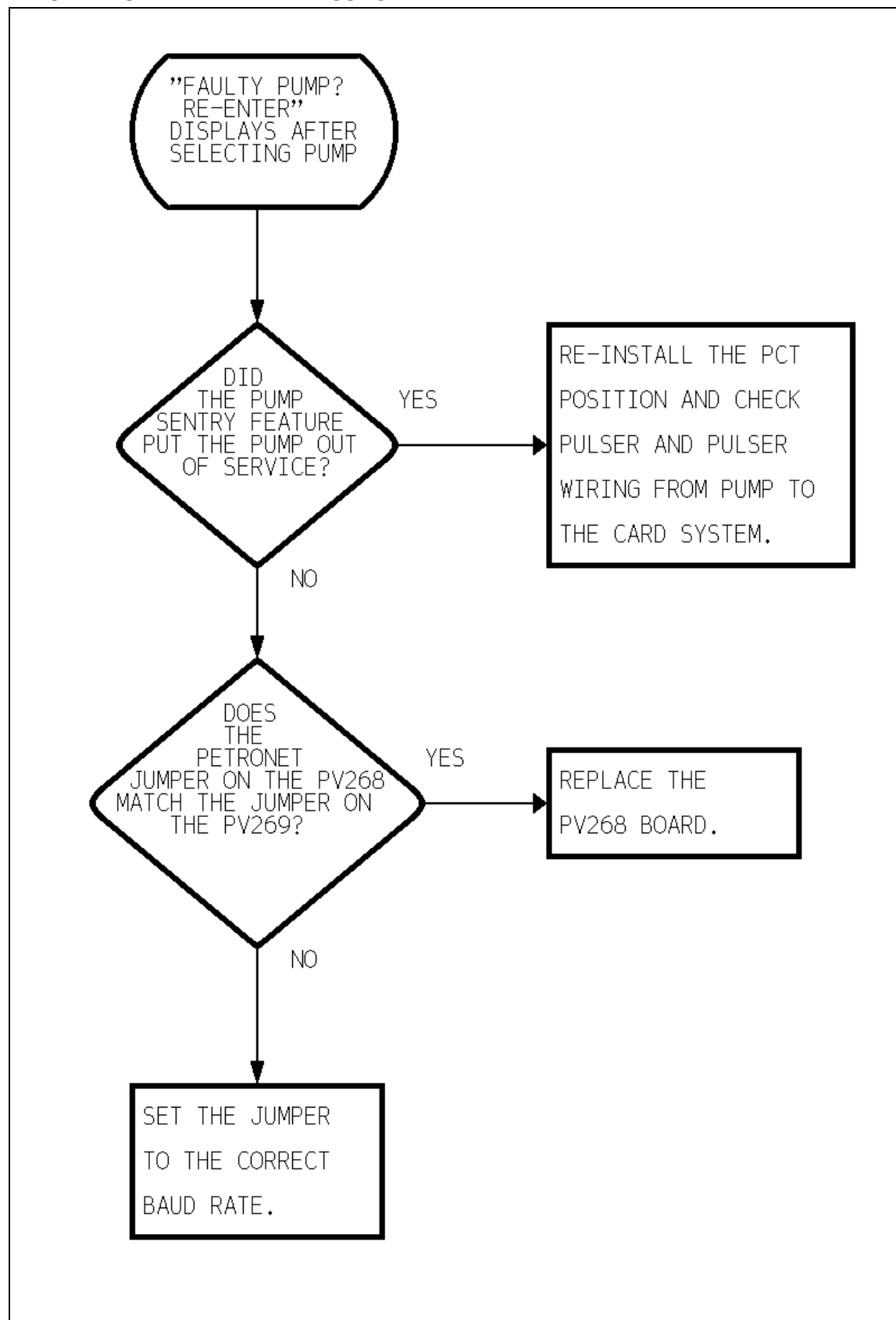
E.2 TROUBLESHOOTING FLOWCHARTS

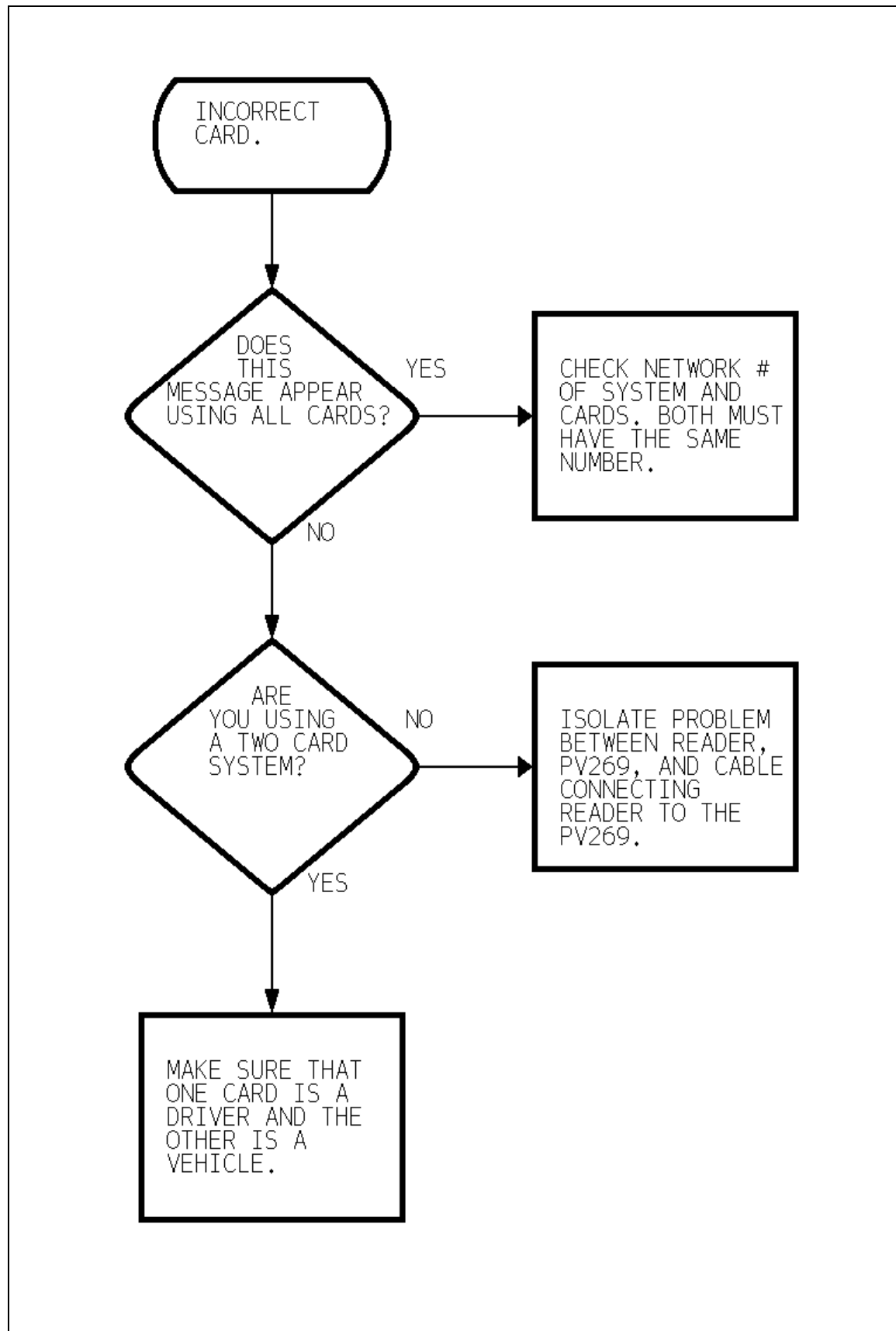
The flowcharts on the following pages give you advice on what to do when these messages appear on the FIT display:

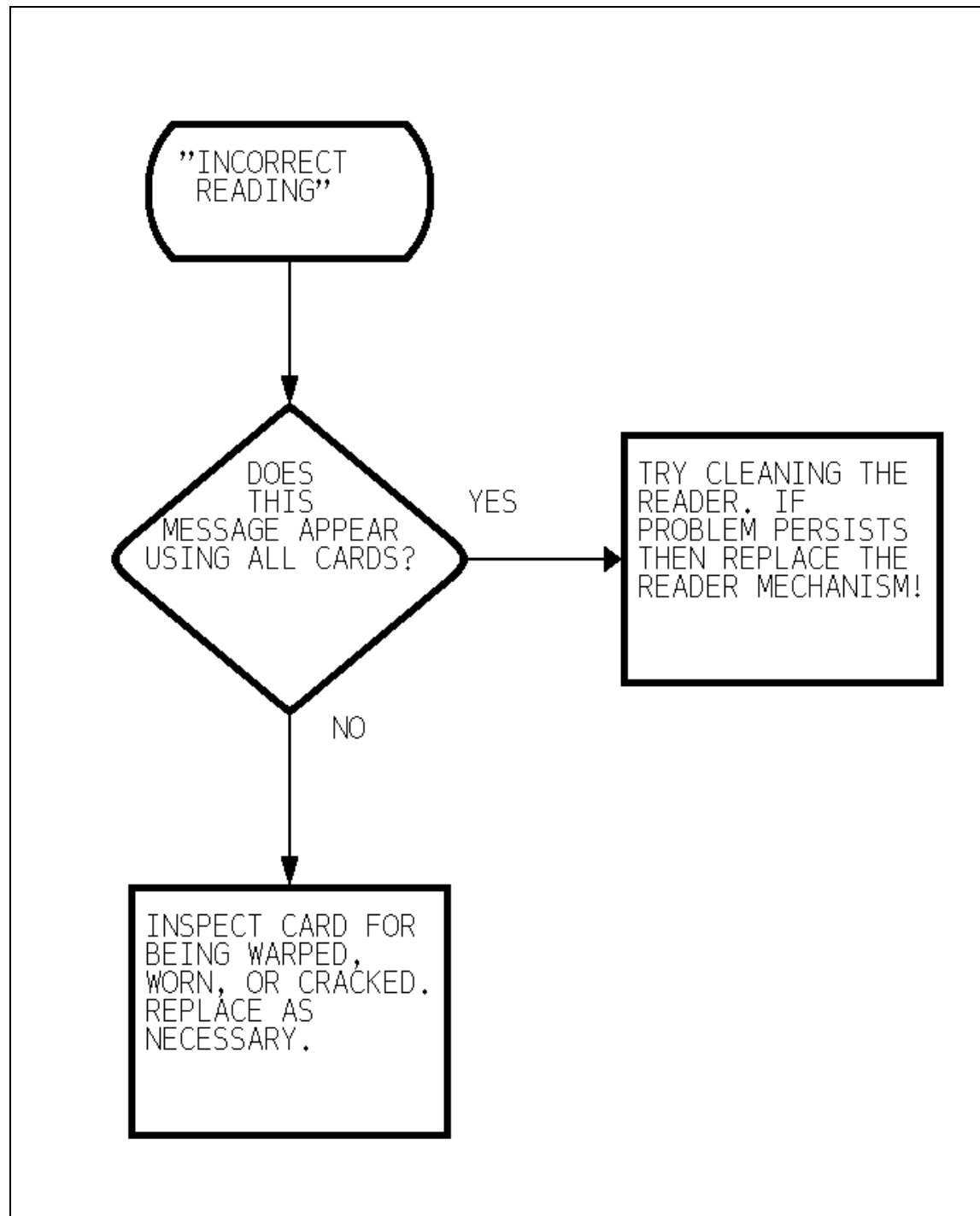
**FAULTY PUMP? RE-ENTER
INCORRECT CARD
INCORRECT READING
SYSTEM DOWN
INVALID PUMP, RE-ENTER
PUMP HANDLE? RE-ENTER**

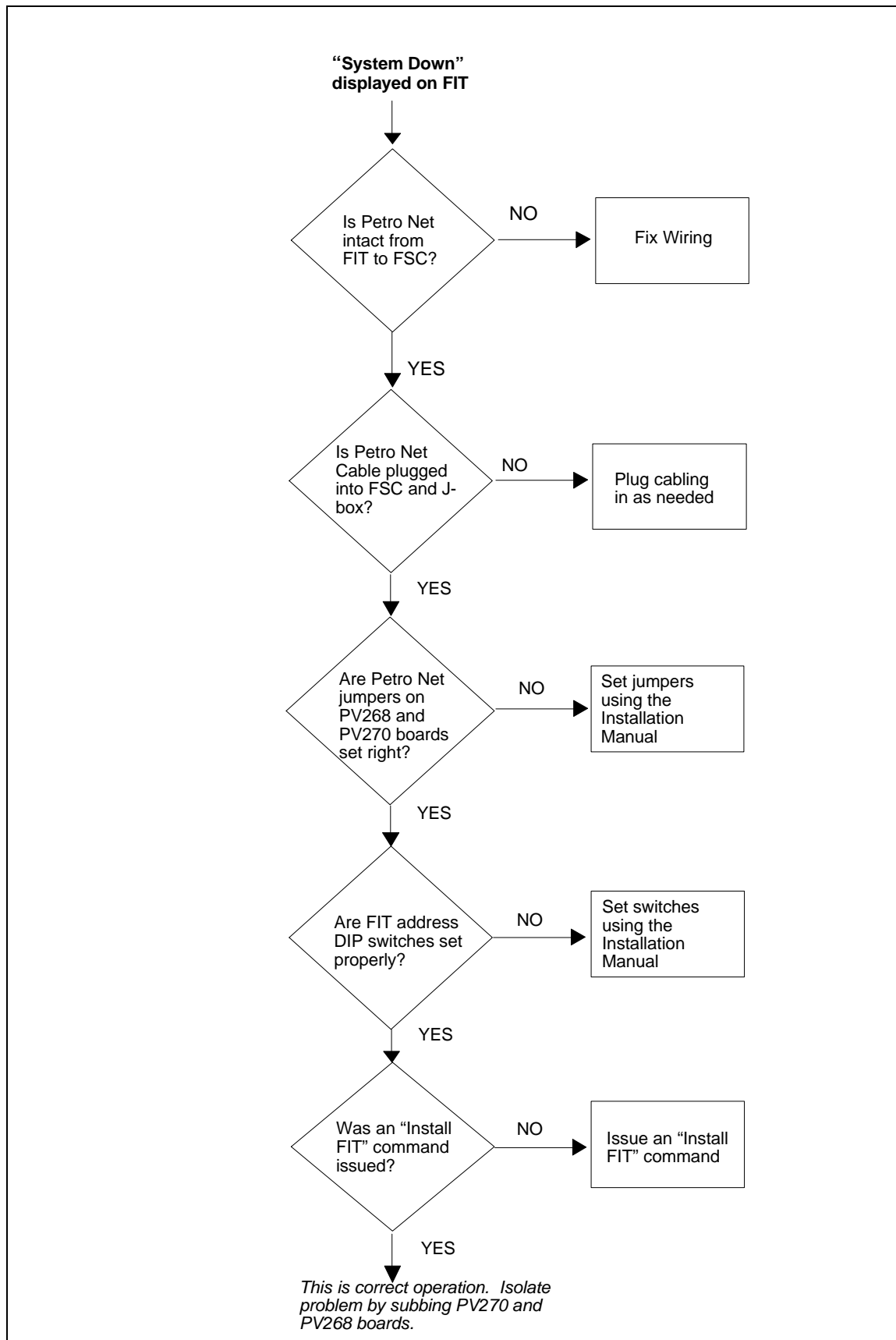
Another three charts give you advice when there is:

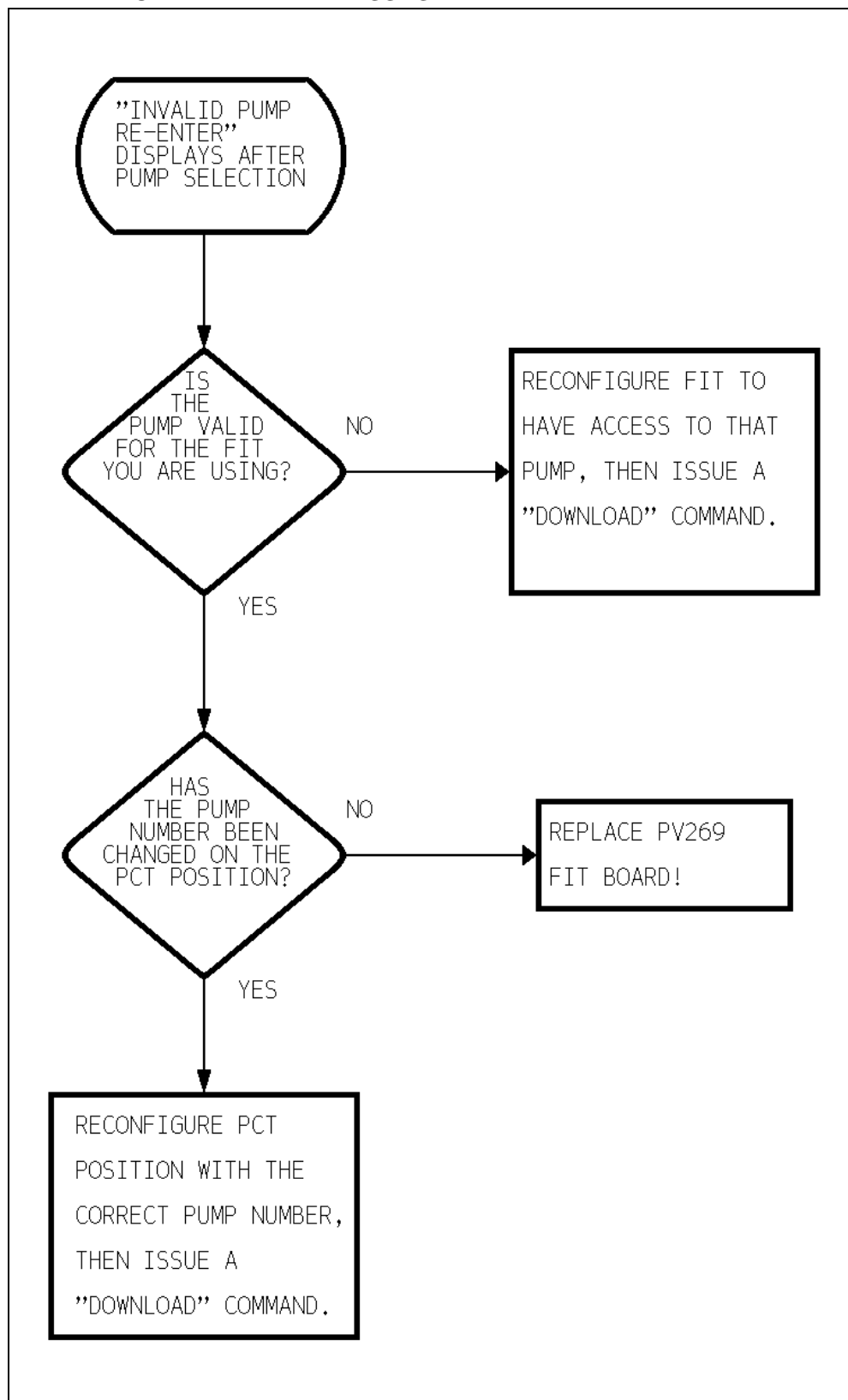
- (1) No quantity shown on the transaction receipts,
- (2) No communication between the FSC and the PC,
- (3) A modem doesn't answer the System2.

"FAULTY PUMP RE-ENTER" MESSAGE

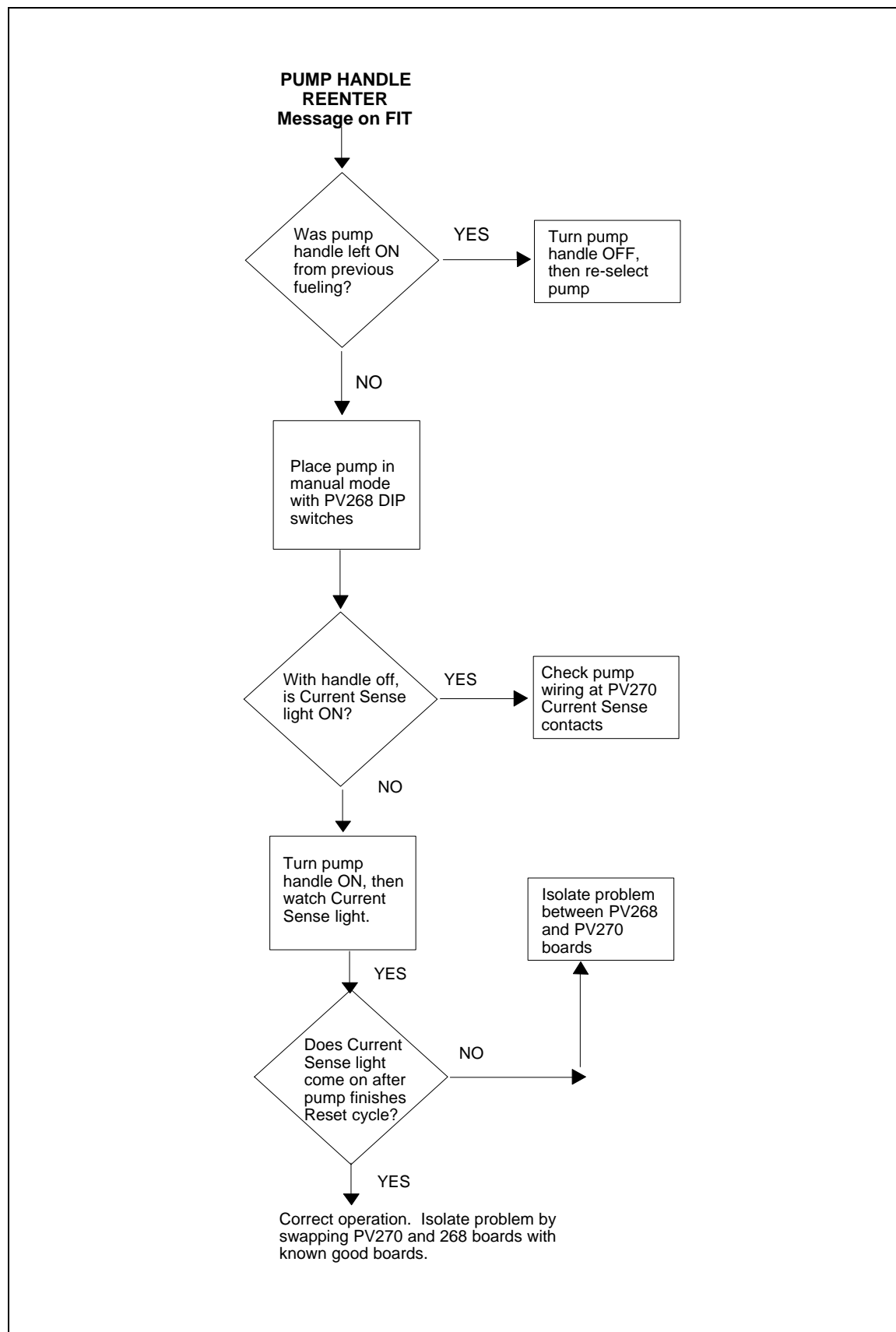
"INCORRECT CARD" MESSAGE

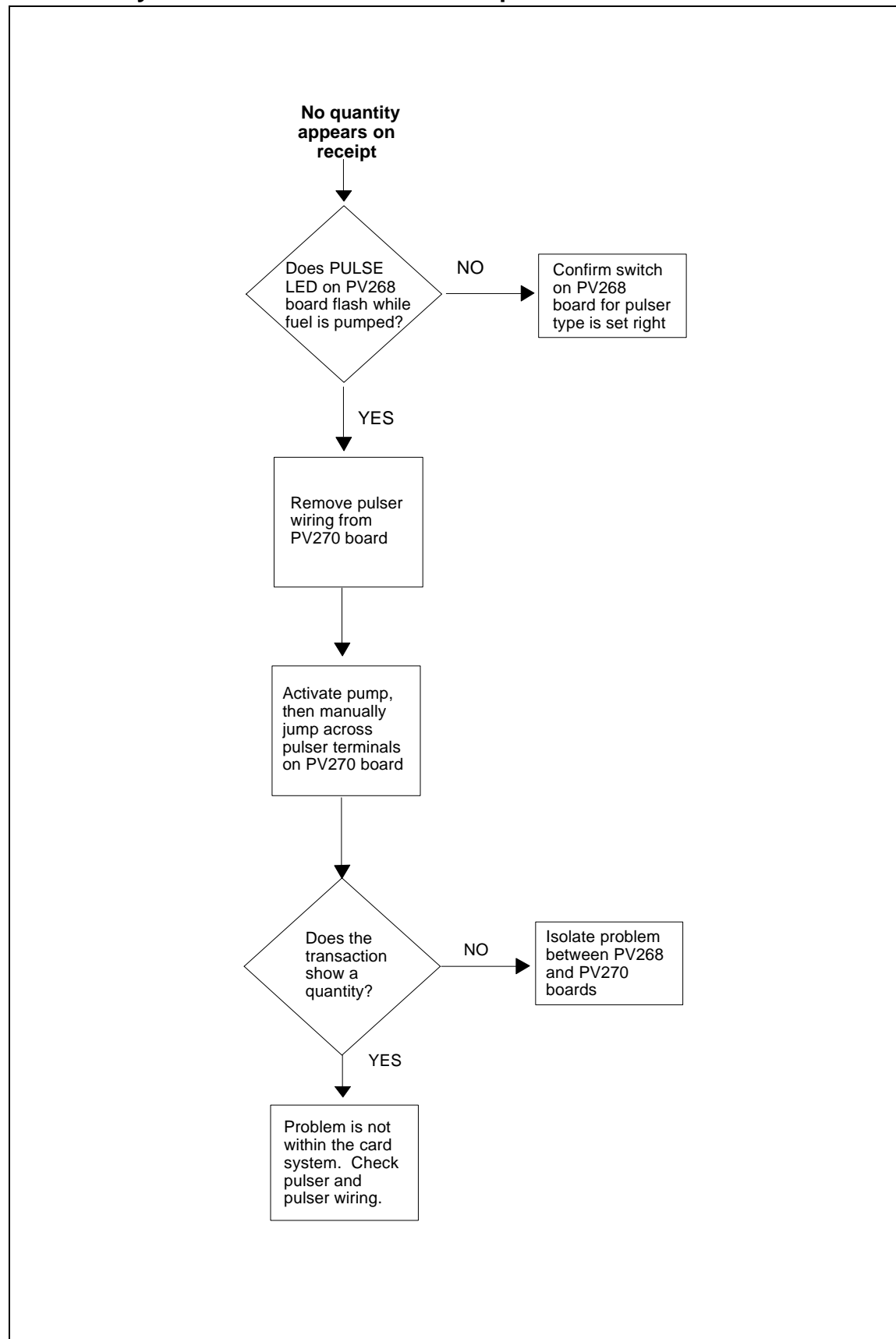
"INCORRECT READING" MESSAGE

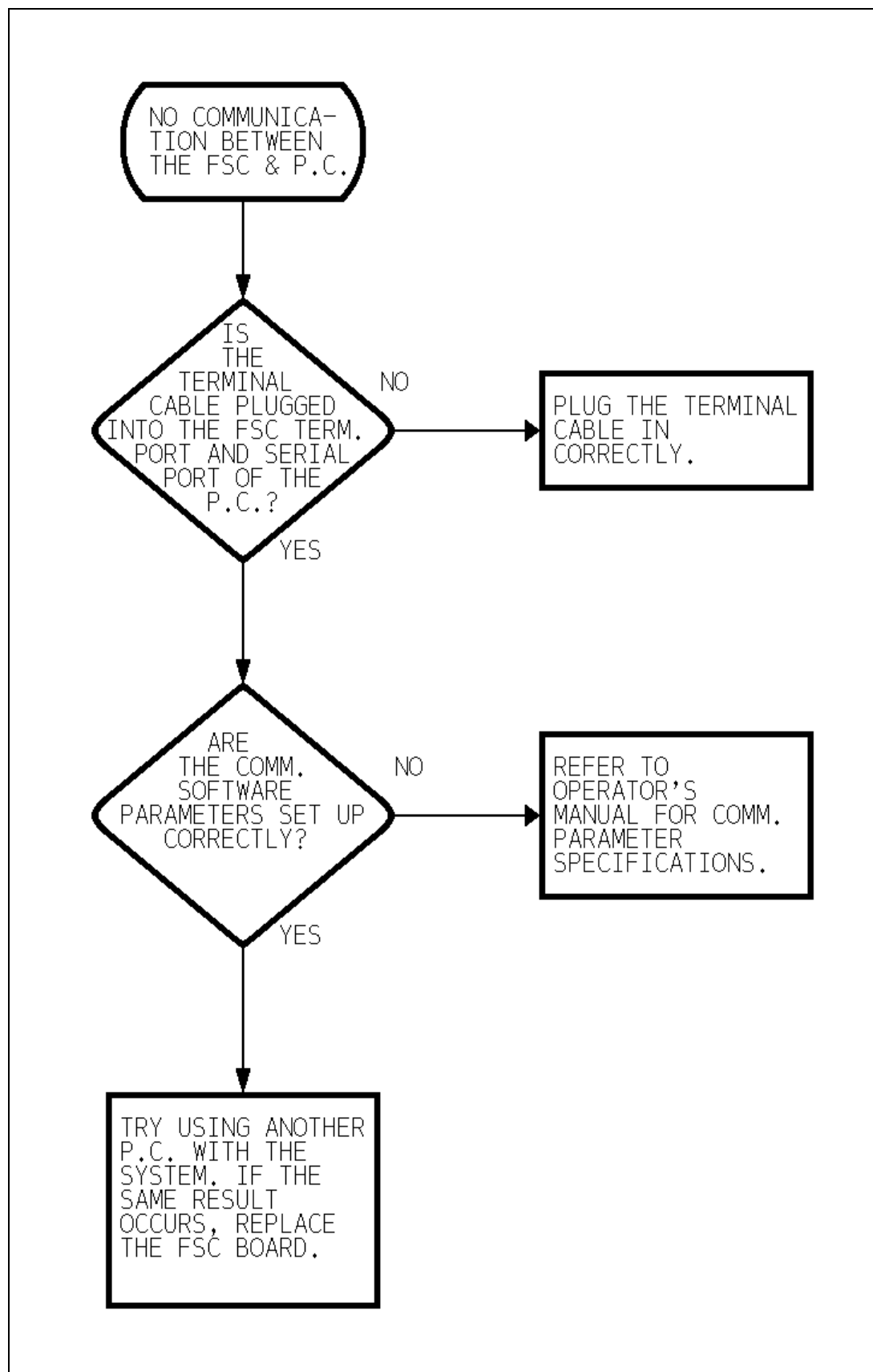
“SYSTEM DOWN” MESSAGE

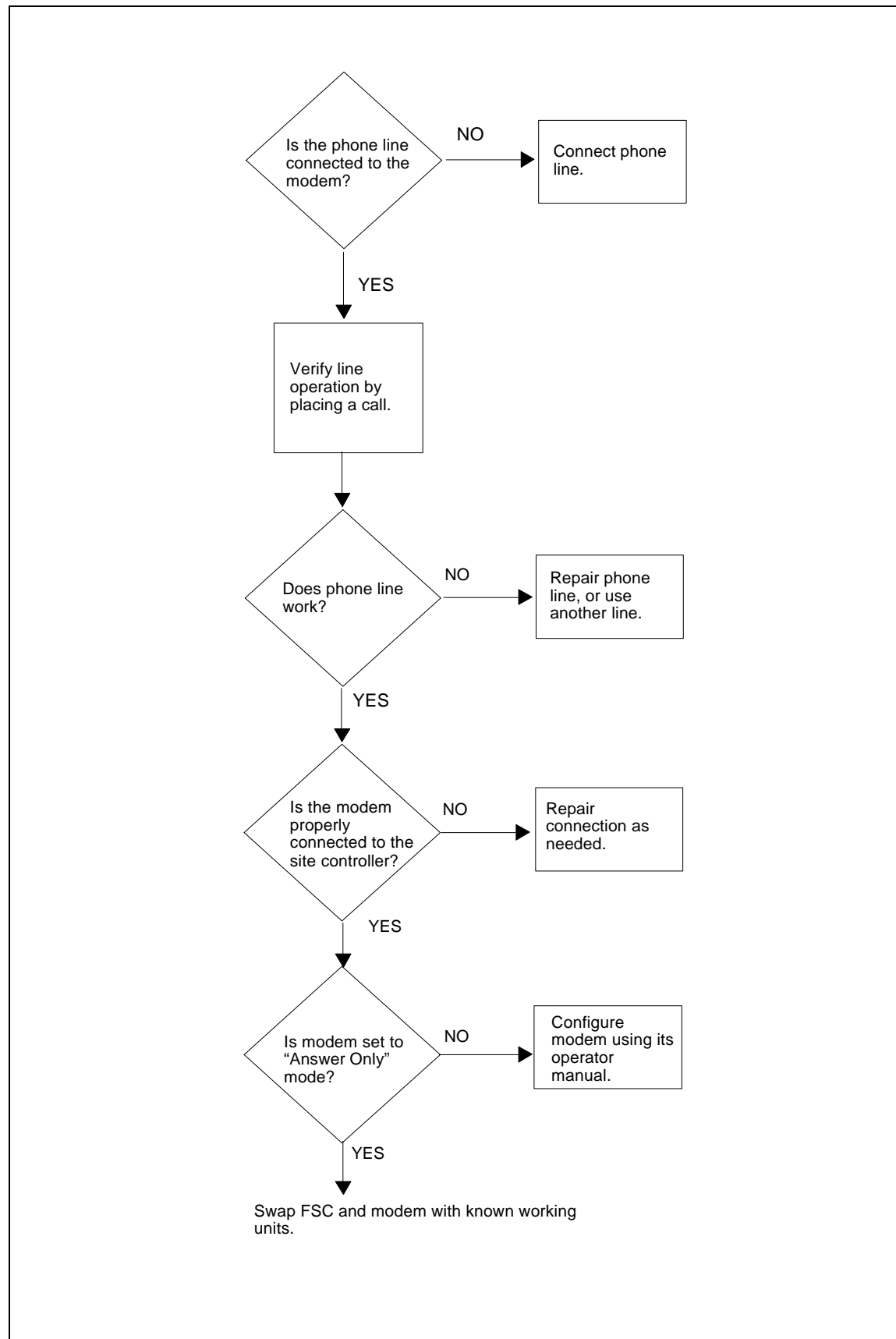
"INVALID PUMP - REENTER" MESSAGE

“PUMP HANDLE REENTER” MESSAGE



No Quantity Shown on Transaction Receipt

No Communication Between FSC & Terminal

Modem Does Not Answer

Appendix F

Optional Report Package

F.1 What is the Report Package?

The optional Report Package allows generation of transaction reports quickly and easily in a variety of formats. Transactions may be grouped either by Card or Account number. Reports may be output to the display or printer.

All reports contain the following information for each transaction unless subtotals only are requested:

- Date and Time of Transaction
- Transaction Number
- Miscellaneous Entry
- Odometer Reading
- Miles/Gallon (liters/100km)
- Pump Number
- Product Name
- Quantity Dispensed
- Product Price
- Total Sale

Each report also contains the following data summaries (or subtotals):

- Total Miles
- Average MPG (liter/100km)
- Cost Per Mile (or Kilometer)
- Average Price/Gallon (or Liter)
- Total Quantity of Fuel Dispensed
- Total Price of Fuel Dispensed
- Total Price after Account Discount

Shown Below is an Example of a Driver Card Report; Reports can also be generated by Vehicle and Single Cards.

Account name: Company ABC Oil
Account # 0001

Single: Bob
Single card # 0300000000000001

DATE	TIME	TRAN	N	ODOM	MPG	P#	PRODUCT	QUANTITY	PRICE	TOTAL
		50000								
12/09/97	0853A	24		50145	35.0	1	UNLEADED	4.140	1.678	6.95
12/09/97	0853A	26		50503	35.2	2	PREMIUM	10.180	1.870	19.04
12/09/97	0859A	29		50743	28.8	1	UNLEADED	8.330	1.678	13.98
12/09/97	0900A	31		51003	29.1	1	UNLEADED	8.920	1.678	14.97
12/09/97	0901A	33		51250	31.3	1	UNLEADED	7.900	1.678	13.26
12/09/97	0904A	36		51555	31.8	2	PREMIUM	9.620	1.870	17.99
12/09/97	0905A	37		52042	26.8	1	UNLEADED	18.160	1.678	30.47
Subtotals:								67.250	116.66	
miles	2042	avg mpg	30.36	cpm	17.50	avg ppg	1.735			

PRODUCTS	TOTAL QTY.	TOTAL COST
UNLEADED	47.450	79.63
PREMIUM	19.800	17.25
	67.250	116.66
Cost after 5.0% discount:		110.83

F.2 Modes of Operation

Three modes of operation are available:

- 1 - The **Quick** mode generates a report according to a format that you have previously selected in the 'Permanent' mode. This option enables the fast generation of a standard report.
- 2 - The **Run Time Only** mode allows selection of a temporary format and generation of a report in this format.
- 3- The **Permanent** mode is used to select the format for the 'Quick' mode report and will be saved until 'Permanent' mode is again chosen.

F.3.1 Card Type Options

Reports may be generated in the following formats:

1. Single cards
2. Driver cards
3. Vehicle cards
4. Driver and Single cards
5. Vehicle and Single cards

Since generation of a report does not clear transactions reports may be run in each available format individually.

F.3.2 Card Range

An upper and lower card number may be entered to narrow the transactions displayed to a limited range of cards. Press the **[ENTER]** key when prompted for the lower and upper card numbers to generate a report on all cards.

F.3.3 Account Grouping

An upper and lower account number may be entered to narrow the transactions displayed to a limited range of accounts. Press the **[ENTER]** key when prompted for the account numbers to generate a report on all accounts. When the account grouping option is selected, the transactions are arranged first by account number and then by card number.

F.3.4 Billing Window

A starting and ending date may be entered to narrow the transaction search to a limited range of dates. This range is also called a “billing window”.

F.3.5 Subtotals Only

This option prevents transaction data from being included in a report. Final totals and card subtotals are always included.

F.3.6 Custom Heading

The heading is printed at the top of the first page of a report. Up to three lines of up to 80 characters each may be specified.

F.3.7 Keyboard Field Label

The customer may be prompted to enter a number at the FIT as part of his transaction. These entries appear under the ‘KEYBOARD FIELD’ label in the reports. This label can be given any name up to eight characters in length.

F.3.8 Fueling Unit Type

Liters or gallons may be selected. Efficiency is calculated as liters per 100 kilometers or miles per gallon. When prompted enter L for Liters or G for Gallon.

F.4 Running the Report

To generate a report privileged mode must be enabled. At the privileged prompt enter the command 'REPORT'. Select the option desired.

F.4.1 Run-Time Only Mode

Enter the number for one of the '**Run-Time Only**' options listed below. The system then prompts for the associated parameters. These parameters will specify how the final output of the report will be displayed.

- § Option 1 allows you to specify card type, card range, account grouping, and account range.
- § Option 2 additionally allows the entry of a billing window and a subtotal only final report.
- § Option 3 is the same as Option 2 except the custom heading, keyboard field label, and fueling unit type may be specified.

F.4.2 Quick/Permanent Mode

To generate a report in the 'Quick' mode, you must first enter the 'Permanent' mode and select the following parameters:

- § Card Type (single, driver, vehicle, single and driver or single and vehicle)
- § Card Range
- § Account Grouping
- § Subtotals Only
- § Custom Heading
- § Keyboard Field Label
- § Fueling Unit Type

Press the [ENTER] key at each prompt without entering any data to bypass (and deselect) a parameter. The Card Type and the Fueling Unit Type may not be bypassed.

After specifying the 'Permanent' parameters the 'Quick' mode may be selected at anytime to generate a quick report. The system prompts for a billing window and for an output device (terminal or printer) before generating the report. The terminal is the default output device and may be selected by pressing the [ENTER] key when prompted.

Appendix G

Receipt Printer/Card Reader Maintenance

Your Fuel Island Terminal may have a receipt printer installed to provide customers with receipts. The FIT can also have one or two magnetic or optical card readers. This Appendix describes how to replace the printer paper roll and the ribbon cartridge, and how to clean the card reader.

For additional information on the printer, its control board, status LEDs, and switches, refer to the *SYSTEM2 Installation Manual*.

G.1 RECEIPT PRINTER MAINTENANCE

G.1.1 Paper Feed/Cut Switch

The paper feed/cut switch has two functions. When you press and hold the switch, paper is advanced through the printing mechanism as long as the switch is pressed. When you press and immediately release the switch, the paper cutter is activated.

WARNING!

Exercise caution when near the paper cutter. Do not use your fingers to remove paper near the cutter.

G.1.2 Replacing Paper

Power to the FIT must be ON to remove and reload paper.

To remove the low paper roll, lift the paper roll up from the paper holder and cut the paper away from the printing mechanism. Note where the paper enters the mechanism. This is where you will feed the new paper.

Press and hold the paper feed/cut switch for several seconds to advance the remaining paper through the printing mechanism.

Remove the spindle from the old roll and place it into the new roll. Slide the new paper roll back onto the paper holder.

Orient the new roll so that the paper feeds to the printer from the **BOTTOM** and **BACK** of the roll (see Figure G1).

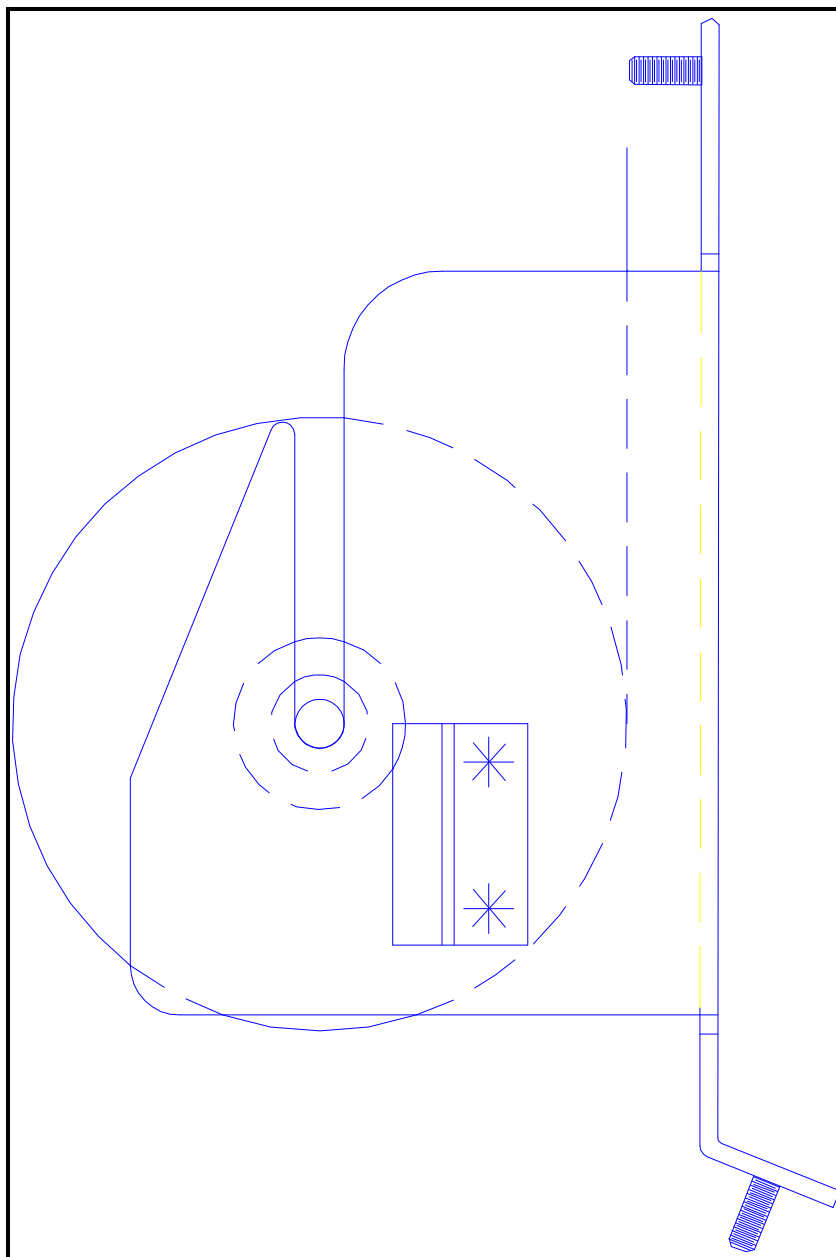


Figure G1 - Paper Roll Orientation

Be careful not to damage the "paper out" sensor mounted on the right side of the paper holder. Also, **DO NOT BEND THE PAPER GUIDES**.

Feed the end of the paper into the printer. Press and hold the paper FEED/CUT switch to move the paper through the printer. The paper should curve *down* as it feeds through the assembly. Press the paper FEED/CUT switch to cut off any excess paper.

G.1.3 Ribbon Replacement

Power to the FIT must be ON. Press and hold the paper feed/cut switch to advance the paper about two inches (5 cm) through the printing mechanism. This prevents the paper from slipping out of the printing mechanism when you move the cutter assembly.

The cutter assembly is attached to the printer mechanism by hinges. (Note the illustration on the printer.) Gently swing the cutter assembly toward you to reveal the ribbon cartridge underneath.

The word "LIFT" and an arrow indicating which side are inscribed on the printer cartridge. Gently pull on this side first to release the cartridge. Remove the cartridge.

Before installing the new printer cartridge, tighten its ribbon with the adjustment wheel on the cartridge. The ribbon should be as tight as possible in order to fit into the narrow slot of the printer.

Gently snap the new ribbon cartridge into place. Be sure that the ribbon is properly positioned in its slot. If the ribbon is noticeably visible after you install the cartridge, remove the cartridge and tighten the ribbon.

Swing the cutter mechanism back into place.

G.1.4 Testing the Printer

To test the printer:

1. Press *both* the paper feed/cut switch and the printer reset switch *simultaneously*.
2. Release the reset switch and hold the paper feed/cut switch until the printing begins.

When the printer is properly installed and functioning, it prints a message with: (1) current printer software version, (2) samples of all font sizes in both red and black print, (3) format selections for DIP switch position #1, and (4) selected currency symbol.

When the test is completed, the receipt is cut.

The printer RESET switch resets the printer. If the printer jams (indicated by CR2 flashing), press the printer reset button after correcting the cause of the jam (clearing an obstacle from the mechanism, freeing the paper or ribbon, etc.).

G.2 CARD READER CLEANING

ALL systems using optical or magnetic card readers require these readers be cleaned on a regular basis. The reader should be cleaned at a *minimum once a month*, though once a week cleaning is strongly suggested. Clean the head more often for busy sites, or whenever performance begins to suffer (numerous bad reads, etc.).

You will need a Cleaning card (several supplied with the system), and isopropyl alcohol

1. System power should be ON.
2. Apply a little isopropyl alcohol to a cleaning card, and immediately insert the card into the reader.
3. Withdraw the card, and throw it away. Cards are single-use ONLY.

Index

- Allocations, card record 123
- ASCII table 185
- Backup/Restore 186
- Bank cards, defining 147
- Battery 11, 98
- Bonus Points 68, 103
- Byypass network
 - Connect time 143
 - Declined transactions 143
 - Errors 144
 - POS system time 142
 - Setup 141
- Card Error Counter 53
- Cardless records 116
- Cards/Accounts menu 113
- Checksum 184
- Commands
 - COPY CARD 125
 - DISPLAY # 72
 - EDIT CARD 117
 - EDIT CARD/ACCOUNT 115
 - INSERT CARD/ACCOUNT 115
 - LOCK PRINTER 140
 - MESSAGE 91
 - PCT TOTAL 136
 - PRINT TRANS 127
 - RESTORE SITE 188
 - SET CARD 119
 - SET JOURNAL 139
 - SET SITE 98
 - SET TRANS 129
 - SHOW CARD/ACCOUNT 114
 - SHOW DAY 135
 - SHOW PUMP 136
 - SHOW SYSTEM 97
 - SHOW TRANS 127
 - SORT 126
 - SYSBACKUP 189
 - UPDATE SITE 189
- COMPUTER command 186
- Computer, external 10
- COPY CARD command 125
- Customer Messages menu . . . 65
- Data format 177
- DAY commands 135
- Daylight savings time adjust . . 50
- DISPLAY # command 72
- Dual-card operation 117
- Echoing characters 103
- EDIT CARD command 117
- Error messages 191
- FIT
 - Setting 53
- FIT Display
 - Optional 75
 - Standard 75
- Flowcharts
 - Troubleshooting 193
- FSC
 - Battery 11
 - Modem used with 11
- Fueling Units 60, 100
- Fueltype number 61
- Gallon/liter conversion 61
- Graphics Display
 - Cleaning 79
 - Control codes 80
 - Display/Typestyle codes 85
 - Examples 88
 - Features 76
 - Picture selection 77
 - Text styles 78
- Headers 180
- Hose Totals, clearing 62
- Journal Printer menu 139
- Keyboard # 91
- LIGHT ON TIME command . . . 51
- LOCK/UNLOCK command . . . 140
- Low Tank alarm, setting 137
- MANAGER ACTIVATED termination 62
- Max Fuel Per Transaction . . . 60
- Max Time
 - Between pulses 61
 - First pulse 61
 - Fueling 61
 - Handle 61
- Memory allocation 171
- Menus
 - Cards/Accounts 113

Customer Messages . . .	65	Reconciling card records . . .	123
Journal Printer	139	Report Package discount . . .	125
Main	43	Restricted mode	16
Restrictions	105	Restrictions menu	105
System Access	47	SET CARD command	119
System Devices	53	SET PUMP command	107
System Parameters . . .	97	Shifts	135
System Times	49	SHOW TRANS command . . .	127
System Totals	133	Site ID	98
Transaction Data	127	Size Code, transaction	120
Menus, activating	43	Software version	19
Messaging	91	SORT command	126
Messaging Size Code	120	SYSBACKUP command	189
Midnight totals	134	SYSRESTORE command . . .	190
Modems	173	System Access menu	16, 47
Local	173	System Devices menu	53
Remote	174	System Parameters menu . . .	97
Month End totals	124	System Times menu	17, 49
Network		System Totals menu	133
Authorization limit . . .	149	Tank number	62
Network numbers	116	Termination codes	182
Network setup	141	Time of Day	
OPT (Outdoor Payment Terminal)		In graphics display	79
.	6	Time Set	
PC Logic modem	173	Current	49
PCT		Daylight savings	50
Configuration	58	Drift adjust	51
PCT (Pump Control Terminal)		Receipts only	51
Specifications	7	System ON	51
PCT totals	136	Transaction Data menu	127
Phoenix software use	186	Troubleshooting	191
PIN number, bad entry	125	UPC	8
PIN Numbers	109	with PCT	58
Privileged mode	16	UPDATE SITE ID command	189
Privileged mode, accessing . .	47	Worksheet, set-up	155
Prompts, network	146, 147	YES/NO keys, changing response	91
Pulse Per Unit	60		
Pulser specs	9		
Pulser support	8		
Pump restrictions	107		
Pump Sentry	60		
Pump totals	136		
Quantity transaction field . . .	180		
Receipt counter	54, 56		
Receipts			
Body	66		
Bonus Points	68		
Defined	65		
Header	67		
Trailer	68		

Notes:



OPW Fuel Management Systems
6900 Santa Fe Drive
Hodgkins, IL 60525
708-485-4200