



System2[®]

For Fuelman/Gascard
Operator's Manual

FSC Software Version S041270.2C

The material in this manual is subject to engineering changes and editorial revisions

Copyright ©2002 OPW Fuel Management Systems **Manual No. M041-27.02C**

OPW Fuel Management Systems - System and Replacement Parts Warranty Statement

Effective September 1, 2002

System and Replacement Parts Warranty

OPW Fuel Management Systems warrants that all OPW Tank Gauge and Petro Vend Fuel Control systems supplied by OPW Fuel Management Systems to the Original Purchaser will be free from defects in material and/or workmanship under normal use and service for a period of 12 months from the date of installation or 15 months from the date of shipment. Additionally, OPW Fuel Management Systems warrants that all upgrades and replacement parts (new and remanufactured) supplied by OPW Fuel Management Systems will be free from defects in material and workmanship under normal use and service for a period of 90 days from the date of installation or for the remainder of the system's original warranty, whichever is greater, as set forth in the first sentence of this statement. The foregoing warranties will not extend to goods subjected to misuse, neglect, accident, or improper installation or maintenance or which have been altered or repaired by anyone other than OPW Fuel Management Systems or its authorized representative.

The buyer's acceptance of delivery of the goods constitutes acceptance of the foregoing warranties and remedies, and all conditions and limitations thereof.

If a claim is made within the warranted time period that any equipment and/or remanufactured part is defective in material or workmanship under normal use and service, such equipment and/or remanufactured part shall be returned to OPW Fuel Management Systems, freight prepaid. If such equipment or remanufactured part is found by OPW Fuel Management Systems in its sole judgment, to be defective in material or workmanship under normal use and service, OPW Fuel Management Systems, shall, at its sole option, repair or replace such equipment and/or remanufactured part (excluding, in all instances, fuses, ink cartridges, batteries, other consumable items, etc.)

The warranties, as set forth above, are made expressly in lieu of all other warranties, either expressed or implied, including, without limitation, warranties of merchantability and fitness for any particular purpose and of all other obligations or liabilities on OPW Fuel Management Systems part. Further, OPW Fuel Management Systems neither assumes, nor authorizes any other person to assume for it, any other liability in connection with the sale of the systems, or any new/replacement part that has been subject to any damage from any act of nature or any *force majeure*.

The term "Original Purchaser" as used in these warranties shall be deemed to mean the authorized OPW Fuel Management Systems distributor to which the system or any new/replacement part was originally sold. These warranties may be assigned by the original purchaser to any of its customers who purchase any OPW Fuel Management Systems systems or new/replacement parts.

The sole liability of OPW Fuel Management Systems, for any breach of warranty, shall be as set forth above. OPW Fuel Management Systems does not warrant against damage caused by accident, abuse, faulty or improper installation or operation. In no event shall manufacturer's liability on any claim for damages arising out of the manufacture, sale, delivery or use of the goods exceed the original purchase price of the goods. In no event shall OPW Fuel Management Systems be liable for any direct, indirect, incidental or consequential damage or loss of product.

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	3
2.1.3 Display	3
2.1.4 Printer Option	4
2.1.5 Keypad Operation	4
2.1.6 FIT Specifications	4
2.2 Outdoor Payment Terminal (OPT)	5
2.3 Pump Control Terminal (PCT)	6
2.4 Fuel Site Controller (FSC)	8
2.4.1 Installation Overview	8
2.4.2 External Computer Connections	8
2.4.3 Journal Printer	8
2.4.4 Modem Use	9
2.4.5 Battery Backup	9
2.4.6 STATUS LED	9
2.4.7 FSC Specifications	9
3.0 Operational Overview	11
3.2 SYSTEM ACCESS FUNCTIONS	11
3.3 SYSTEM TIMES FUNCTIONS	11
3.4 SYSTEM DEVICES FUNCTIONS	12
3.4.1 FIT Programming Overview	12
3.4.2 PCT Programming Overview	12
3.4.3 UPC Programming Overview	12
3.5 CUSTOMER MESSAGES FUNCTIONS	12
3.6 SYSTEM PARAMETERS FUNCTIONS	12
3.7 RESTRICTIONS FUNCTIONS	13
3.9 TRANSACTION DATA FUNCTIONS	13
3.10 SYSTEM TOTALS FUNCTIONS	14
3.11 JOURNAL PRINTER FUNCTIONS	14

4.0 Practice Session	17
4.1 SESSION OVERVIEW	17
4.2 PROCEDURE	
4.2.1 Terminal Connection	17
4.2.2 Set the Time and Date	18
4.2.3 How Much Memory in the System?	18
4.2.5 What Kind Of Fuel?	18
4.2.6 What Kind Of Tank?	18
4.2.7 Introduce Yourself to the Customer	19
4.2.8 Tell The System About Your Transaction Records	19
4.2.9 How Many Cards? What Should They Say?	20
4.2.10 Configure and Install a PCT Position	20
4.2.11 Configure & Install a FIT	21
4.2.12 Create a Sample Card File & Account	21
4.2.13 Download Your Program	22
4.2.14 Try a Transaction	23
Part II - Programming	
5.0 Functional Overview	25
5.1 COMMANDS & OPTIONS	25
6.0 System Access	27
6.1 OPEN/CLOSE	27
6.2 HELLO/BYE	27
6.3 CALL	28
7.0 System Times	29
7.1 TIME	29
7.2 TIME CHANGE	29
7.3 DATE	30
7.4 SYSTEM ON TIME	30
7.5 LIGHT ON TIME	30
8.0 System Devices	31
8.1 SET TERMINAL	31
8.2 FIT #	31
8.2.1 Show FIT #	31
8.2.2 Configure FIT #	32
8.2.3 Install FIT	32
8.2.4 Remove FIT	33
8.3 OPT #	33
8.3.2 Configure OPT #	33
8.3.3 Install OPT	33
8.3.4 Remove OPT	34
8.4 PCT #	34
8.4.1 Configure PCT #	34
8.4.3 Remove PCT #	34
8.5 PCT #/POSITION #	35
8.5.1 Configure PCT #/Position #	35

8.5.2 Install or Remove PCT/ Position #	36
8.6 PUMP #	36
8.7 PROGRAM	36
8.8 SET PUMP ON	36
8.9 DOWNLOAD	37
8.10 DOWNLOAD FIT #/OPT#/PCT #	37
9.0 Customer Messages	39
9.1 WHAT'S A RECEIPT?	39
9.2 RECEIPT BODY	40
9.3 RECEIPT HEADER	40
9.4 RECEIPT TRAILER	41
9.5 RECEIPT BONUS POINTS	41
9.6 SAMPLE RECEIPTS	41
9.7 DISPLAY (#...)	43
9.7.1 Display Type Overview	43
9.7.2 Dual Languages	43
9.7.3 Special Characters	43
9.7.4 Format Display Default	43
9.7.5 Default FIT or OPT Prompts	44
9.7.6 Standard 2 x 16 Display	45
9.7.7 1 x 40 Display (Optional)	45
9.7.8 Graphics Display (Optional)	45
9.8 KEYBOARD (#...)	59
9.9 MESSAGING	59
9.9.1 Overview	59
9.9.2 Procedure	59
9.10 DATE	61
9.10.1 Procedure	61
9.10.2 Month Labeling	62
9.10.3 Date Order	62
9.10.4 Date Separators	62
10.0 System Parameters	63
10.1 SYSTEM	63
10.2 SITE I.D.	64
10.3 FUELTYPES (#...)	64
10.4 FUELING UNITS	65
10.5 PASSWORD	65
10.6 LANGUAGE	66
10.7 ECHO	66
10.8 BONUS POINTS	66
10.9 RAM	66
10.10 VERSION	67
11.0 Restrictions	69
11.1 ODOMETER REASONABILITY	69
11.1.1 Introduction	69
11.1.2 Bad Entry Options	69
11.1.3 Default Reasonability Ranges	70

11.1.4	Creating a Range	70
11.2	PUMP RESTRICTION	70
11.3	QUANTITY RESTRICTION	71
11.3.1	Overview	71
11.3.2	Procedure	71
11.4	SECURITY	71
11.4.1	PIN Number Generation	71
11.4.2	Procedure	72
12.0	Cards & Accounts	73
12.1	INTRODUCTION	73
12.2	SHOW/PRINT CARDS or ACCOUNTS	74
12.2.1	Showing Or Printing Cards	74
12.2.2	Showing Or Printing Accounts	74
12.2.3	Showing or Printing Card Summaries	74
12.2.4	Showing or Printing Card Account Numbers	74
12.3	INSERT/DELETE/EDIT CARD or ACCOUNT	75
12.3.1	INSERT Card or Account	75
12.3.2	DELETE Card or Account	75
12.3.3	EDIT Card or Account	76
12.4	SET CARD	76
12.4.1	Specify Card/Account Buffer Size	76
12.4.2	Define Card/Account Record	77
12.4.3	Clear Card Record Totals	78
12.4.4	Reconcile Card Record Allocation	78
12.4.5	Clear All Account Record Totals	79
12.4.6	Reconcile Account Record Allocation	79
12.4.7	Month End Totals	79
12.4.8	Set Keyboard Card Control Data	79
12.4.9	Additional Options	79
12.5	COPY CARD #...	80
12.6	SORT	80

13.0 Transaction Data	81
13.1 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE	81
13.2 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY	82
13.3 SHOW/PRINT TRANS (#...)	82
13.4 SET TRANS	82
13.5 CLEAR TRANS	83
13.6 CLEAR TRANS DATE #... SEQUENCE #...	83
13.7 REPORT	83
14.0 System Totals	85
14.1 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEHICLE	85
14.2 SHOW/PRINT TRANS DATE TIME CARD ACCOUNT VEH SUMMARY	85
14.3 SHOW/PRINT MIDNIGHT	86
14.4 SHOW/PRINT DAY	86
14.5 SHOW/PRINT SHIFT	86
14.6 SHOW/PRINT/CLEAR PUMP #...TOTALS	87
14.7 SHOW/PRINT/CLEAR PCT #...TOTALS	87
14.8 SHOW/PRINT FUELTYPE #...TOTALS	87
14.9 SHOW/PRINT/SET TANK (#...)	87
15.0 Journal Printer	89
15.1 SHOW/PRINT/SET JoRNAL PRINTER	89
15.2 LOCK/UNLOCK PRINTER	89
16.0 Network	91
16.1 SET GASCARD	91
16.2 SHOW/PRINT GASCARD	91
Appendix A - Setup Worksheet	93
Appendix B - Memory Levels & Allocations	111
Appendix C - Modem Use	113
C.1 INTRODUCTION	113
C.2 LOCAL MODEM CONFIGURATION	113
C.3 REMOTE MODEM CONFIGURATION	113
C.4 MODEM PASSWORD	113
Appendix D - External Computer Operation	115
D.1 CONNECTING A COMPUTER	115
D.1.1 Direct Connection	115
D.1.2 Modem Connection	115
D.2 TERMINAL EMULATION SOFTWARE	116
D.3 TRANSACTION DATA FORMAT	116
D.3.1 Description	116
D.3.2 Data Checksums	122
D.3.3 Suppressing SYSTEM2 Prompts	124
D.3.4 BACKUP & RESTORE Commands	124

Appendix E - Troubleshooting	127
E.1 COMMON PROBLEMS AND POSSIBLE SOLUTIONS	127
E.2 TROUBLESHOOTING FLOWCHARTS	129
Appendix F - Optional Report Package	139
F.1 DESCRIPTION	139
F.2 MODES OF OPERATION	139
F.3 REPORT PARAMETERS	140
F.3.1 Card Type	140
F.3.2 Card Range	140
F.3.4 Billing Window	140
F.3.5 Subtotals Only	140
F.3.6 Custom Heading	140
F.3.7 Keyboard Field Label	140
F.3.8 Fueling Unit Type	140
F.4 RUNNING THE REPORT	140
F.4.1 Run-Time Only Mode	140
F.4.2 Quick/Permanent Mode	140
Appendix G - Receipt Printer & Card Reader Maintenance	141
G.1 RECEIPT PRINTER MAINTENANCE	141
G.1.1 Paper Feed/Cut Switch	141
G.1.2 Replacing Paper	141
G.1.3 Ribbon Replacement	141
G.1.4 Testing the Printer	142
G.2 CARD READER CLEANING	142
Appendix H - FleetLINK FSC Command Descriptions	143
SHOW SYSTEM	143
INSTALL & REMOVE	144
CONFIGURE VIT # POSITION #	144
SHOW VIT # POSITION #	145
Sample "SHOW VIT # POSITION #" Scenarios	147
INSERT VIU	148
Index	151

1.0 Features

With **SYSTEM2** for Fuelman/Gascard, you can connect to the Fuelman/Gascard fleet fueling network via a Fuelman/Gascard Controller. When a Fuelman/Gascard customer inserts his or her card, the Controller determines if the card id valid, and sends the information to the **SYSTEM2**. When authorization is granted, the customer can access the fuel.

You may need to run additional conduit for the Fuelman/Gascard Controller. *See the System2 Installation Manual* for more details. Features of your system include the following:

- 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) is the customer interface containing the card readers, a keypad, and a display screen. The 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, the small control box, can control up to four FITs, giving you the power to control up to 32 fueling positions in mechanical pumps. The FSC can also handle electronic and alternative fuel dispensers.
- Full Network Compatibility**
The **SYSTEM2** accepts all Fuelman/Gascard network cards.

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

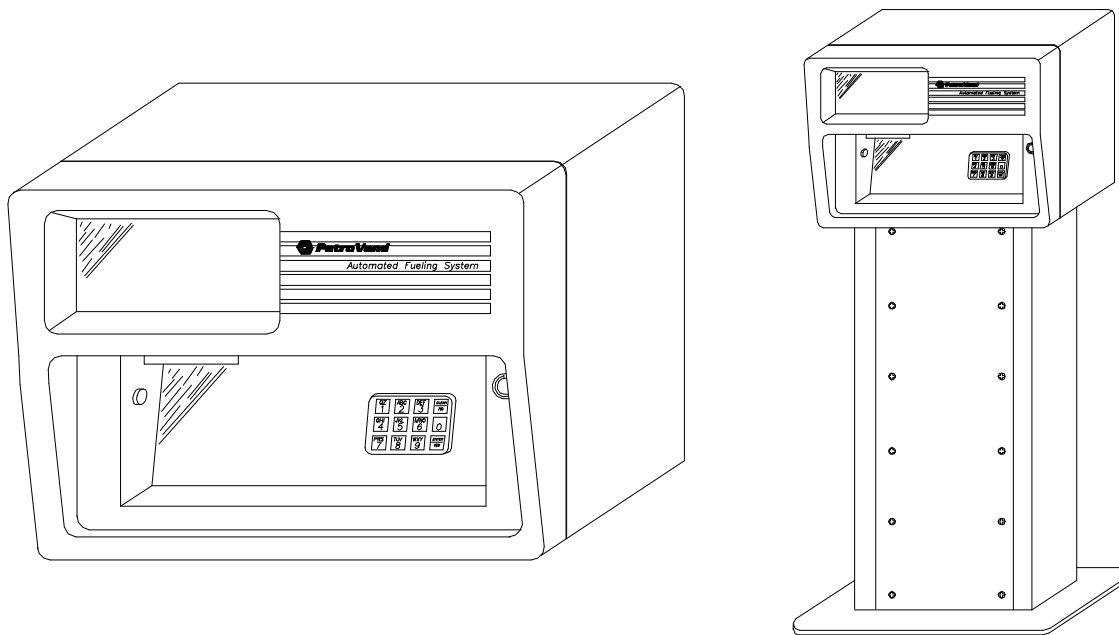
Notes:

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 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.

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) <i>Heater required for FIT operation below freezing point (32°F or 0°C)</i>
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) LCD screen
Reader Options	Magnetic Stripe Reader ("Swipe" or motorized) Optical Reader ChipKey™

[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.

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

2.2 Outdoor Payment Terminal (OPT)

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.

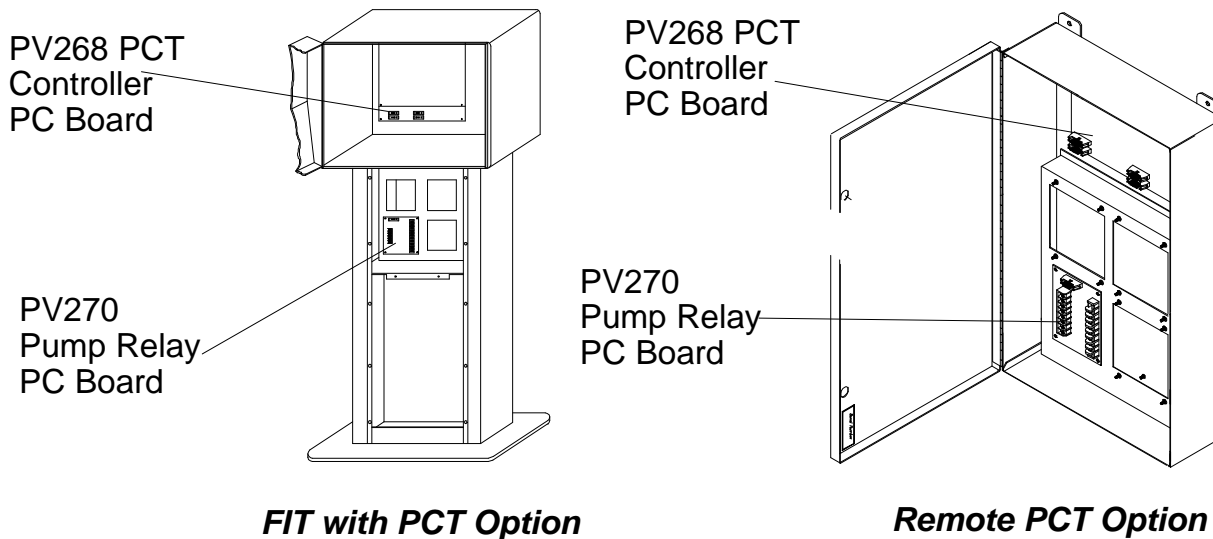
Like the regular FIT, the OPT works with a System2 Fuel Site Controller (FSC); all System2 FSC software works with the OPT as well. With this configuration, a total of four card readers are supported (two regular FITs and one OPT).

- 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 these 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 (see above).

- 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...

- 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.

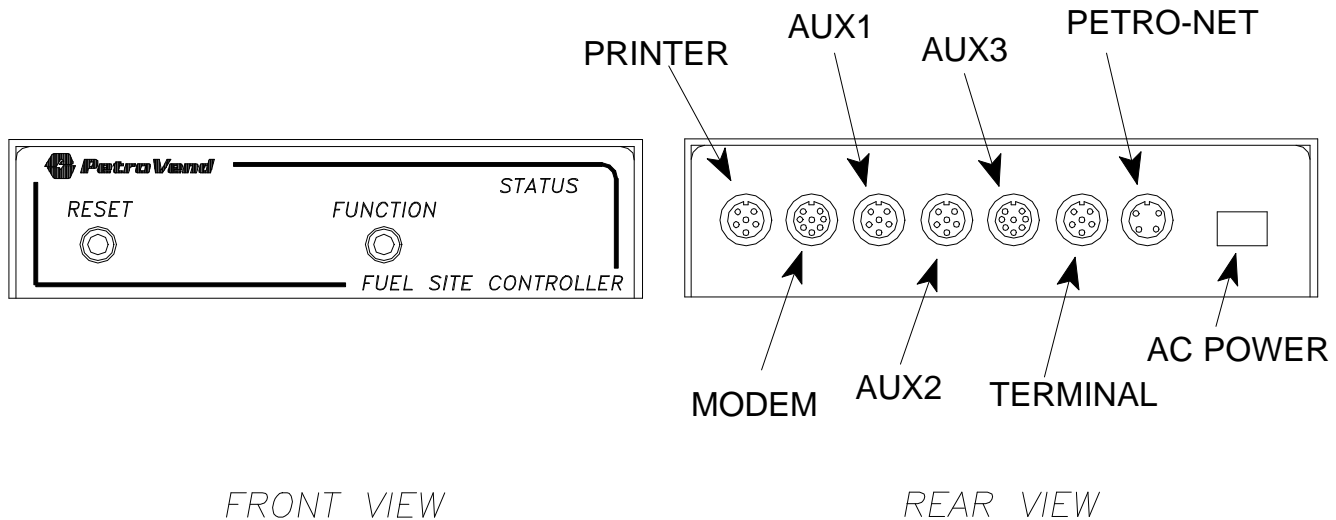
PCT specifications are on the following page.

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	<p>COMPATIBILITY Contact/12VDC electronic, 40 Ma max per pulser</p> <p>RATE RATIO 1:1 to 1000:1 in 1-pulse increments</p> <p>SPEED 6,000 pulses per second (mechanical type), 100,000 pulses per second (electronic type)</p> <p>DUTY CYCLE 50%</p>

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.



#39699816

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.

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

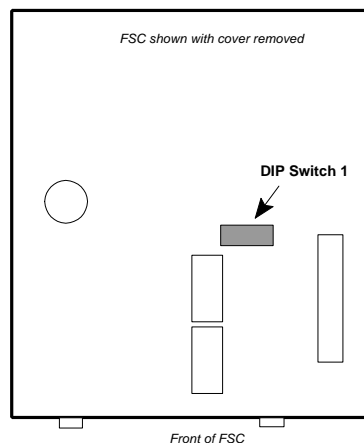
2.4.5 Battery Backup

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.

DIP Switch 1 Location



2.4.7 FSC Specifications

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, type HELLO at the ">" prompt. Then enter the privileged password.

Section 4 (Page 17) is a practice session, giving you a chance to use most of the system features in a simulated site setup.

Non-privileged commands are entered at the ">" prompt. Privileged commands are entered at the P> prompt.

3.2 SYSTEM ACCESS FUNCTIONS

See Page 27. Use this function group 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, type **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 FUNCTIONS

See Page 29. Use System Times to 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 FUNCTIONS

See Page 31. These functions let 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 FUNCTIONS

See Page 39. These let 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 FUNCTIONS

See Page 63. These let 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 dual language feature

- 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 FUNCTIONS

See Page 69. These set up the following:

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

3.8 CARDS/ACCOUNTS FUNCTIONS

See Page 73. 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
- Language type (first or second)

3.9 TRANSACTION DATA FUNCTIONS

See Page 81. Use these functions 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 FUNCTIONS

See Page 85. All completed **SYSTEM2** transactions can be either printed or displayed. With System Totals, 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 FUNCTIONS

See Page 89, 91. 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 NETWORK FUNCTIONS

See Page 73. These let you change (in Privileged mode), view or print the Fuelman/Gascard polling address.

3.13 MANUAL OUTLINE

A. System Access

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

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/configure a-e below*)

- a. FIT
- b. PCT
- c. PCT & Position
- d. Pump
- e. Program
- f. Set Pump ON
- g. FIT Download
- h. PCT 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 (dual ON/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

K. Network

- a. Show, Print or Set Fuelman/Gascard

Notes:

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 PROCEDURE

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 Set the Time and Date

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, 1994:
Type **MAR 21 1994 [ENTER]**. Your entry is echoed, and the **P>** prompt reappears.

4.2.3 How Much Memory in the System? (Page 63).

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

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 63)

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

1. At the **P>** prompt:
Type **SET FUELTYPE 1 [ENTER]**.
2. At the **ENTER FUELING UNIT CODE (1-3)**: prompt: Type 1 [ENTER].
3. At the **CHANGE PRICE? (Y/N)**: prompt:
Type Y [ENTER] 1.39 [ENTER]
4. At the **CHANGE PRODUCT NAME (Y/N)?**: prompt: Type PREMUNLEAD [ENTER].
5. Press **[ENTER]** to return to the **P>** prompt.

4.2.6 What Kind Of Tank? (Page 85)

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.

1. At the **P>** prompt:
Type **SET TANK 1 [ENTER]**.
2. At the **FUEL TYPE CODE (1-16)**: prompt:
Type 1 [ENTER].
3. At the **ENTER QUANTITY**: prompt:
Type 9600 [ENTER]
4. At the **LOW LEVEL QUANTITY**: prompt:
Type 1200 [ENTER]. You will now see a summary of Tank 1.
5. Press **[ENTER]** to return to the **P>** prompt.

4.2.7 Introduce Yourself to the Customer (Page 39)

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".

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

Type **FORMAT DISPLAY 8 [ENTER]**.

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

:Lang 1  ::      :
X
```

2. 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**.
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. 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].

6. *Create A Receipt Trailer:* Type **FORMAT REC TRAILER** at the **P>** prompt.

7. 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]**

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 89, 91)

To specify what data is printed on the printer, do the following.

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

Type **SET JOU [ENTER]**.

2. At each item you want printed, press **Y** followed by **[ENTER]**.

4.2.9 How Many Cards? What Should They Say? (Page 73)

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

1. At the **P>** prompt:
Type **SET CARD [ENTER]**.
2. From Set Card choices:
Press **[1] [ENTER]**. Answer Y to the ...CLEARED? confirmation request.
3. - 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.

3. Answer Y [ENTER] to the SAVE THIS CONFIGURATION? prompt.
4. Press [2] [ENTER]. This step defines which options are enabled for each card you have in your system.
5. 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.

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

7. Press **[ENTER]** to return to the **P>** prompt.

4.2.10 Configure and Install a PCT Position (Page 31)

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.

1. At the **P>** prompt:
Type **CONFIG PCT 1 POS 1 [ENTER]**.
2. Press **[E] [ENTER] [C] [ENTER]**
3. Define a position for the pump. Type 1 at the ENTER POSITION: prompt.
4. Give the pump a number. Type 1 at the ENTER PUMP prompt.
5. Provide the system with pump pulser information. Type 10 at the ENTER PULSES PER GALLON: prompt.
6. 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.
7. 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.
8. Another safety feature is the Maximum Fueling Time limit. Type 15 at the MAX TIME ALLOWED FOR FUELING (MIN) prompt.

9. 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.

10. Install the position by typing **INST PCT 1 POS 1 [ENTER]** at the **P>** prompt.

11. 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 31)

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.

- At the **P>** prompt:
Type **CONFIG FIT 1 [ENTER]**. You will see **ISSUE RECEIPTS?**
- 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.
- Answer **N [ENTER]** to the **KEYBOARD OPTIONS?** prompt.
- 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
```

5. Install the FIT. Type **INSTALL FIT 1 [ENTER]** at the **P>** prompt. You will see **OKAY**, and the **P>** prompt re-appears.

6. 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.

- 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]**.
- 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].

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].

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.

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

Type **DOWNLOAD** [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.

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. 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:**

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 21.

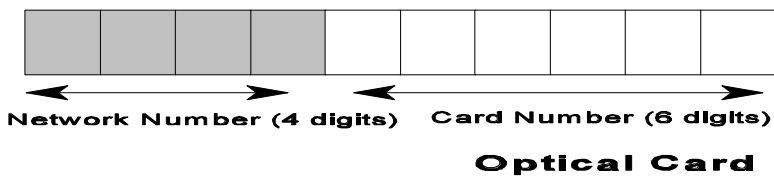
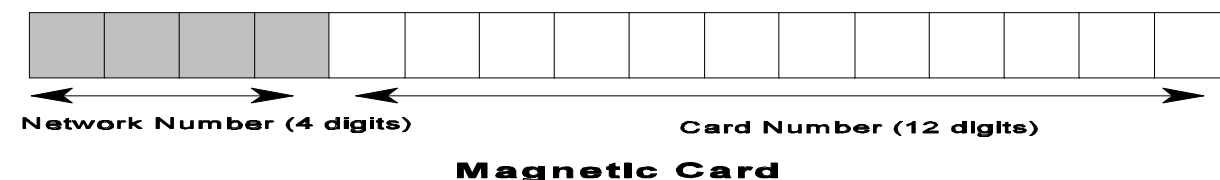
Programming a Card Number into a Database

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 Functional Overview

This manual is arranged as follows:

SYSTEM ACCESS
SYSTEM TIMES
SYSTEM DEVICES
CUSTOMER MESSAGES
SYSTEM PARAMETERS
RESTRICTIONS
CARDS/ACCOUNTS
TRANSACTION DATA
SYSTEM TOTALS
JOURNAL PRINTER
NETWORKS

5.1 COMMANDS & OPTIONS

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

A "command tree" appears on Page 15. 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 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.

Notes:

6.0 System Access

This section explains the following System2 features.

OPEN
CLOSE
CALL
HELLO
BYE
PASSTHRU

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 is used to access 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 **\$>** prompt, type **BYE**.

See Page 65 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**.

7.0 System Times

This section explains the following System2 features.

TIME
TIME CHANGE
DATE
SYSTEM ON TIME
LIGHT ON TIME

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]**.

**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, 1994** for February 11th, 1994.
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).

8.0 System Devices

This section explains the following System2 features:

FIT #...
OPT #...
PCT #...
PCT #..POSITION#..
PUMP #...
PROGRAM
PUMP ON
DOWNLOAD
FIT (#...)
OPT (#...)
PCT (#...)

This section describes System Devices by explaining each option:

FIT #
OPT#
PCT #
PCT #/Position #
Pump #
Program

Commands applicable to each option are described in each section.

8.1 SET TERMINAL

The SET TERMINAL command lets you select a K2500 or System2 terminal prior to other device commands listed in this chapter.

Default terminal type is System2. Change to K2500 as follows. Note you must be in PRIVILEGED mode.

```
P> SET TERMINAL [ENTER]

FIT TYPE: SYSTEM2 FIT
CHANGE TO K2500 FIT (Y/N)?
```

Enter Y or N as appropriate.

8.2 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.

8.2.1 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.

8.2.2 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 75.

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.*

8.2.3 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.

8.2.4 Remove FIT

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

8.3 OPT

8.3.1 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.

8.3.2 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 75.

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.*

8.3.3 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.

8.3.4 Remove OPT

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

8.4 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.

8.4.1 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.

8.4.2 Install PCT

The **INSTALL PCT** command activates the PCT, creating a link between the installed PCT and FSC. One PCT for each FIT. This 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.

8.4.3 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.

8.5 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.

8.5.1 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.

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 65.

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 71) 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 64 for a list of fuel types).

Tank #

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** after configuring a PCT.

8.5.2 Install or Remove PCT/ Position #

Activate/deactivate the specified PCT position.

8.6 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.

8.7 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.

8.8 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'**.

8.9 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.

8.10 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

This section explains the following System2 features:

RECEIPT BODY
RECEIPT HEADER
RECEIPT TRAILER
RECEIPT BONUS POINTS
DISPLAY (#...)
KEYBOARD (#...)
MESSAGES
DATE

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").

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.

9.1 WHAT'S A RECEIPT?

Sample receipts are shown on Page 41. There are four parts to a receipt:

- PRE-PRINTED header
- Header
- Body
- Trailer

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 (in either language ONE or TWO). Other features:

- 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.

If the dual language feature is enabled, receipts can be issued in either language. Refer to Page 66 for more details about the dual language feature.

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.

If Dual Language is enabled, you'll be prompted for the number of the language (1 or 2). See Page 66 for Dual Language instructions. To format receipt headers for both languages, you must enter this command twice.

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 up the receipt format.

The first sample receipt uses Language #1 for 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

05/09/94  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:      123456789012
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
05/10/94	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:	XXXXXXXXXXXX
MISC:	123456789012
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
05/09/94	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:	XXXXXXXXXXXX
MISC:	123456789012
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 44) 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 45.

The type of display that is installed is in the Status Report, produced with a **SHOW SYSTEM** command.

9.7.2 Dual Languages

Using the Dual Language feature, prompts can be displayed in an "alternate" language if the card record for the current customer shows Dual Language enabled.

After a card or key has been successfully read, prompts appear in Language 1 or 2, depending on how that particular card record is configured.

See Page 66 for more information about the Dual Language feature.

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.

IMPORTANT

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

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.

See the *System2 Installation Manual* for more details.

9.7.5 Default FIT or OPT Prompts

The following messages are the default messages for Language 1. Language 2 defaults are blank. 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 127.

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	(blank)
8	PETRO VEND SYSTEM2	34	(blank)
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	{blank}
16	ENTER PUMP #.}	42	(blank)
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	(blank)
25	INCORRECT CARD	51	(blank)
26	ENTER CARD#	52	(blank)

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 44) to edit.

If Dual Language is enabled, the system asks you to edit the display prompt for two languages. Initially, all first language prompts are in English and all second language prompts are blank.

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 44) 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)

Features

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 48. Sample fonts and several examples of prompts with pictures and a list of control characters appear on Page 56.

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 59 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).

If Dual Language is *enabled*, the Graphics Display is limited to 10 prompts of 80 characters. Additional prompts can have 40 characters for each language.

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 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 char of 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.

If Dual Language is enabled, you are shown the display prompts for both languages (the second language prompt is initially blank).

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 48.

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 53.

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 53) 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 (a "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 Display

The graphics display normally shows dark characters on a light background. To invert this - to show light characters on a dark background - use `^M` at the beginning of a prompt (see the "Insert ChipKey" example on Page 45).

Insert `^N` to change the display back to regular "dark-on-light" mode.

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**

*Shield Lens Care Products
Golden Valley, MN
(612) 542-8276*

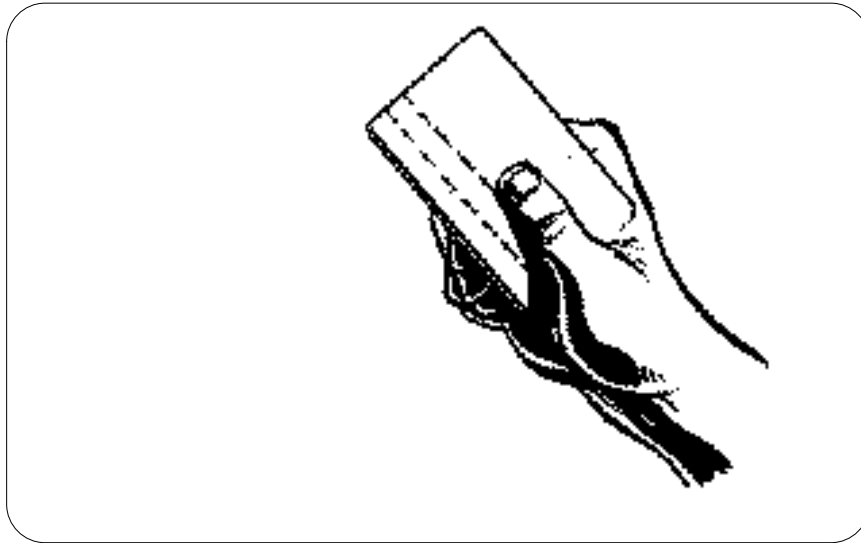
*AR Kleener is available nationwide at
Sunglass Hut stores*

2. **Diamond Glaze Anti-Reflective Cleaner**

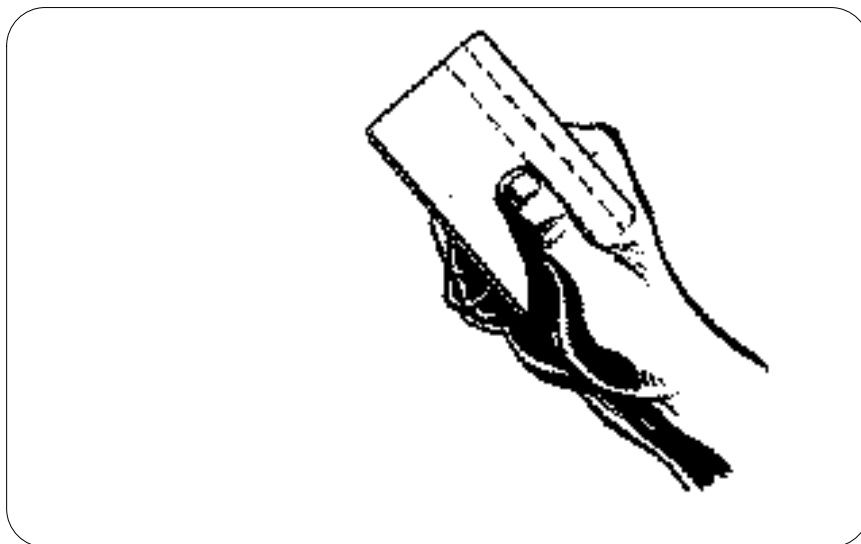
*Diamond Glaze, Inc.
St. Paul, MN
(800) 322-6644
(612) 227-5560*

Call the manufacturers listed above for distributors in your area. Both are widely available in eyeglass stores or optometry clinics.

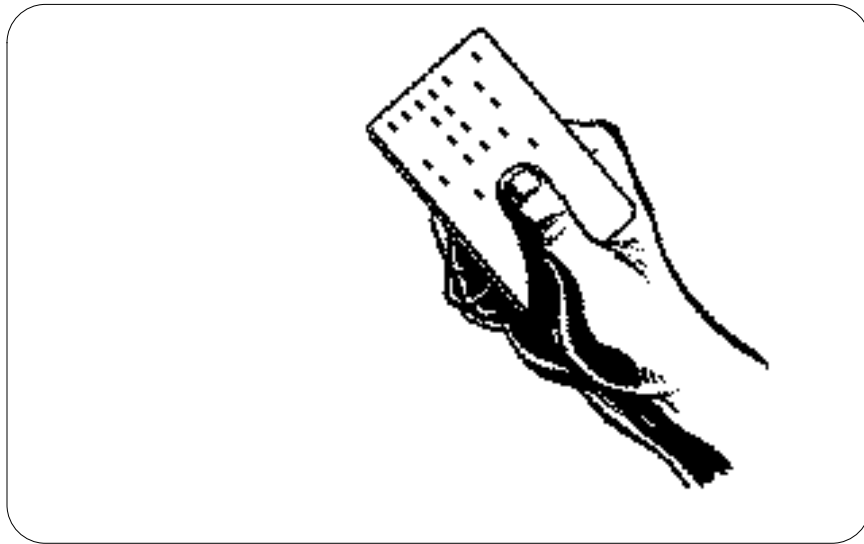
Graphics Display Picture Control Codes & Typical Prompts



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



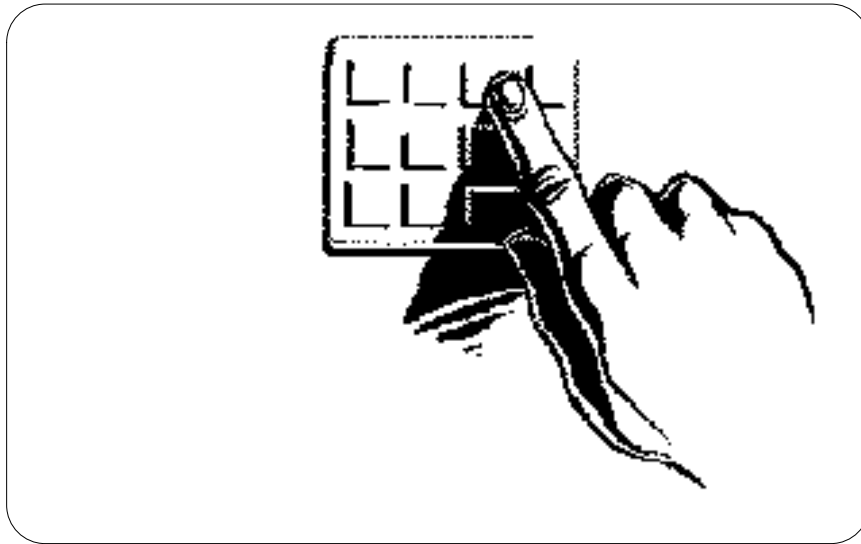
^2' - Mag Card: Stripe Right (FIT prompts: #6, #7, #9, & #24)



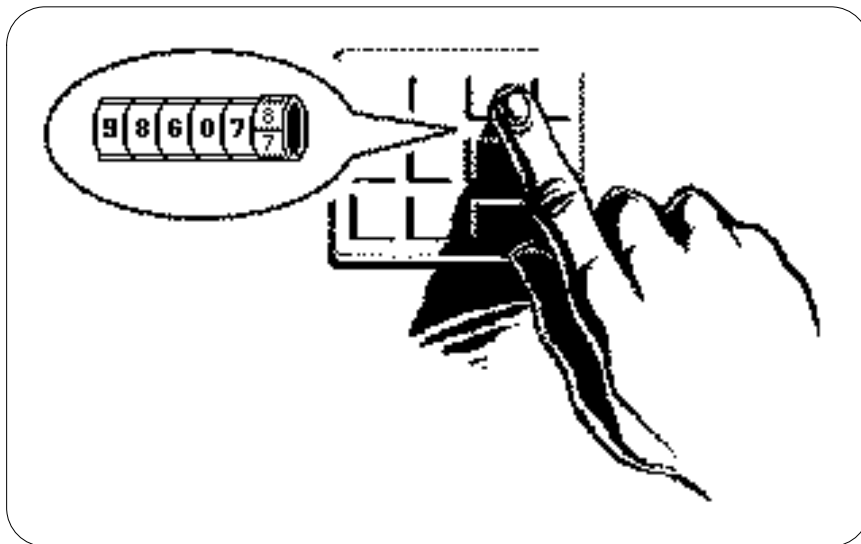
^3' - Optical Card (FIT prompts: #6, #7, #9, #24)



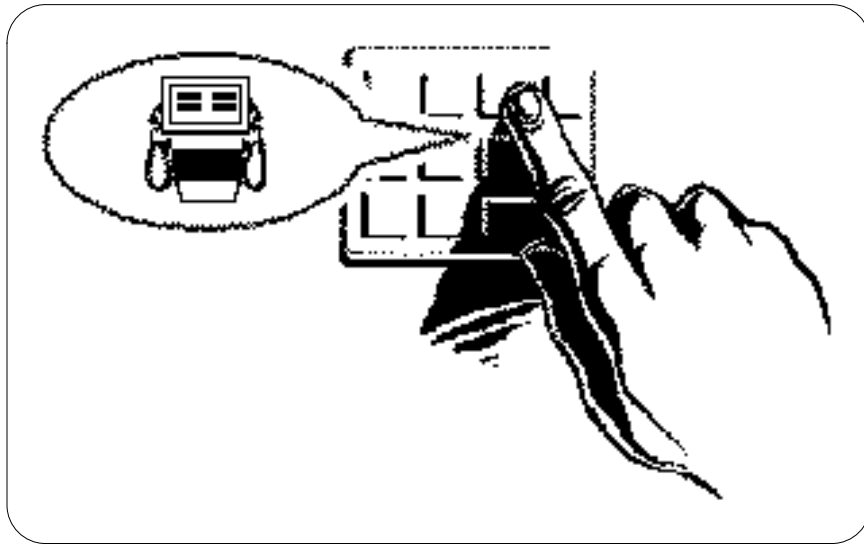
^4' - ChipKey (FIT prompts: #6, #7, #9, #24)



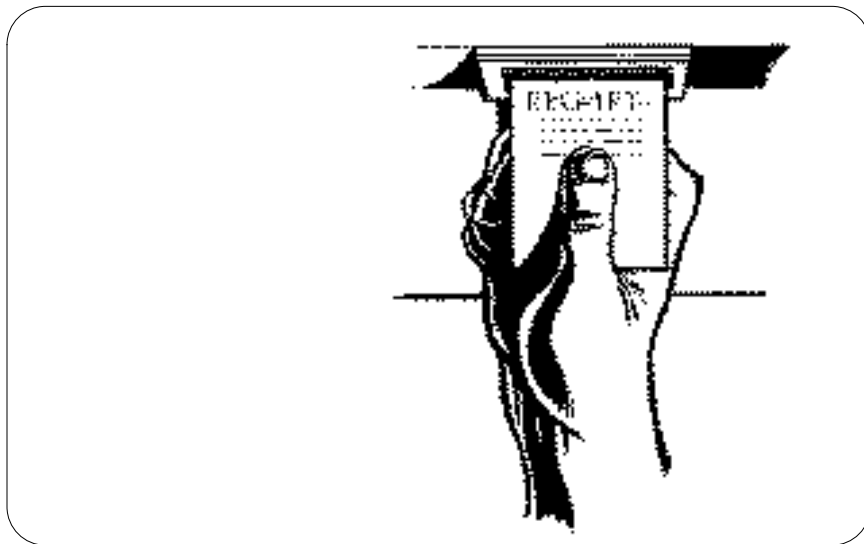
^5' - Keypad Entry (FIT prompts: #26,#27,#29,#30,#31,4)



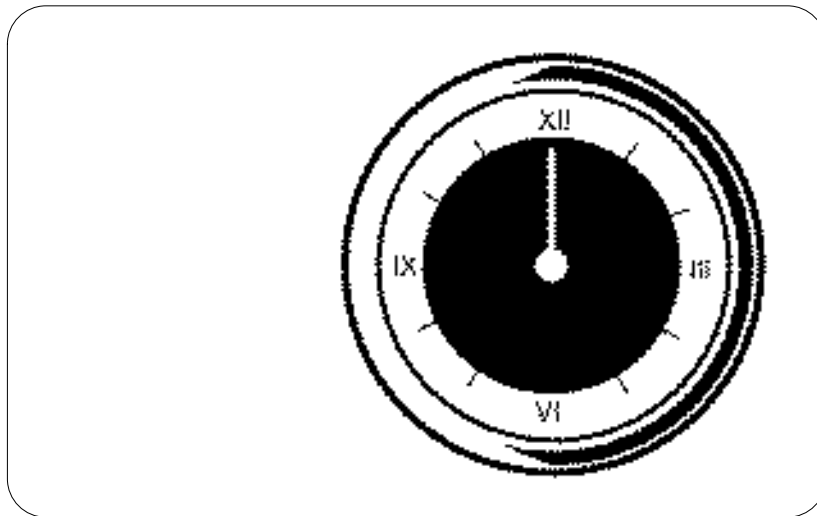
^6' - Odometer Entry (FIT prompts: #28 & #32)



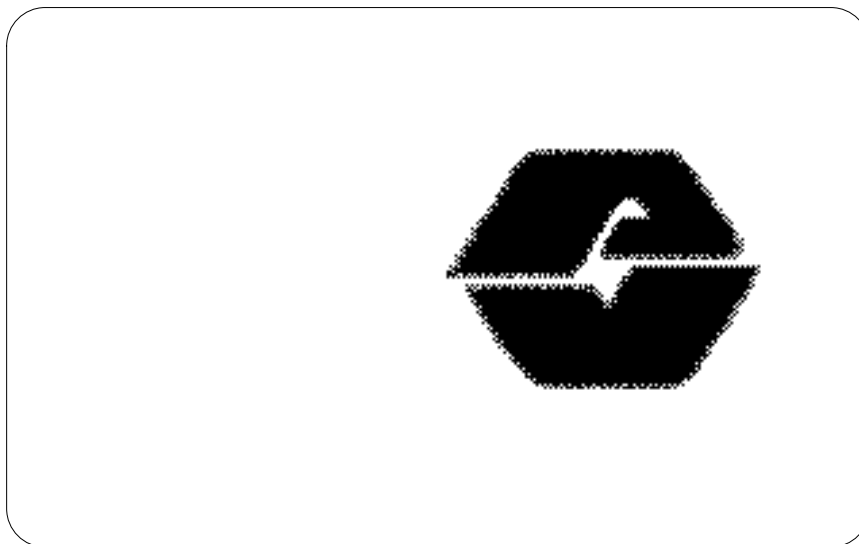
^7 - Pump Selection (FIT prompts: #16, #20, #21, #22)



^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:<=>?@ABCDEFGHIJKLMNPOQRSTUVWXYZ
```

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

```
! # $ % & ( ) * + , - . / 0 1 2 3 4 5
6 7 8 9 : < = > ? @ A B C D E F G H I J
K L M N O P Q R S T U V W X Y Z [ \ ] ^
- " ' ;
```

^Y - Large Serif, 20 characters per line

! # \$ % & () * + , - . / 0 1 2 3 4 5
 6 7 8 9 : < = > ? @ A B C D E F G H I J
 K L M N O P Q R S T U V W X Y Z [\] ^
 - " ' ;

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

! # \$ % & í ú * + , - . / 0 1 2 3 4 5
 6 7 8 9 : ñ = ö ? ü A B C D E F G H I J
 K L M N O P Q R S T U V W X Y Z ä ß é ì
 É Ê á ó

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

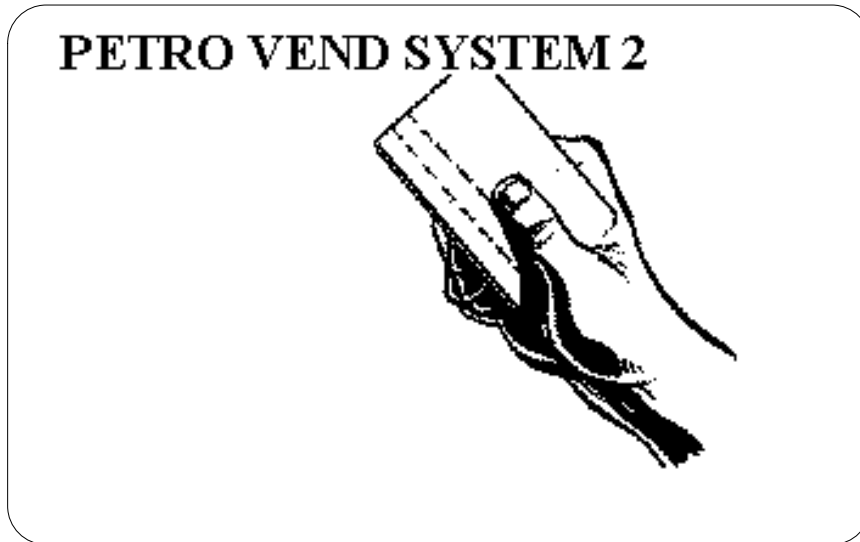
Graphic Code Summary

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

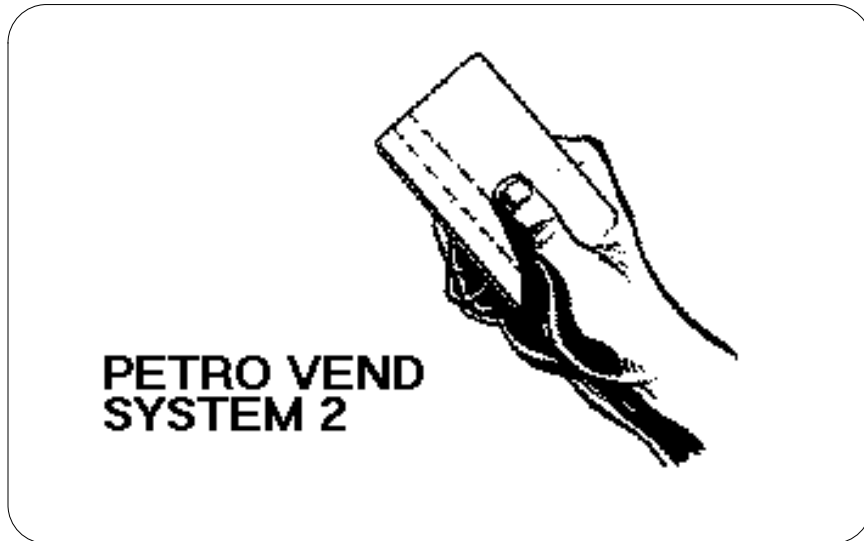
The following displays result from the text/control code strings located under each.



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



`^4^Y^A INSERT CHIPKEY`



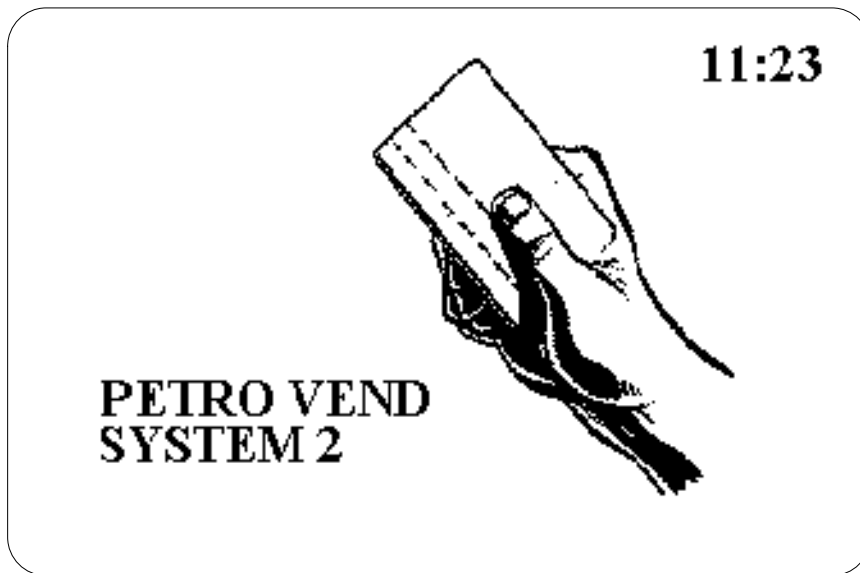
^1^Z^I PETRO VEND ^J SYSTEM 2



^0^Y^E CHECK CARD ^F ORIENTATION



^4^Y^I INSERT ^J CHIPKEY



^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.

If Dual Language is ON, you'll be prompted for two responses (for Language 1 and Language 2).

Enter a **DOWNLOAD** command to enable your changes.

9.9 MESSAGING

The **FORMAT MESSAGE** command ties specific messages to a particular account, single, driver and/or vehicle card. For example, a "Welcome" message 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 76.

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 an 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 Exits.

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
13,1990 Days: |
Dis: 1 Auto-Del: OFF Rec: ON
Call office immediately!

Single #2000          Exp. Date: FEB
15,1990 Days: 1
|                   | Dis: 0 Auto-Del: ON
Rec: ON
Happy Birthday to You!

Single #3000          Exp. Date: FEB
24,1990 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.

- 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.

- 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.

- 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". You are prompted: **DATE ORDER CODE FOR LANGUAGE 1: enter** '1' for month first or '2' for day first (see Section 9.10.3).

If the dual language feature is enabled, you are prompted a second time for the date code. You can specify a different code for each language.

sEparator Select the two field separator characters

eXit Exits.

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	Language 2
1	JAN	01
2	FEB	02
3	MAR	03
4	APR	04
5	MAY	05
6	JUN	06
7	JUL	07
8	AUG	08
9	SEP	09
10	OCT	10
11	NOV	11
12	DEC	12

9.10.3 Date Order

Choose between day first (24 JAN, 1994) or month first (JAN 24, 1994) for the date order. Language 1 default is month first, while Language 2 default is day first.

9.10.4 Date Separators

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

Language 1 default is a space and a comma between the day (or month) and the year (example, **DEC 30, 1993**). Language 2's default is two dashes (for example, **30-12-1993**).

10.0 System Parameters

This section discusses the following aspects of your System2:

SYSTEM
SITE ID
FUELTYPE (#...)
FUELING UNITS
PASSWORD
LANGUAGE
ECHO
BONUS POINTS
RAM
VERSIONS

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 43)

- 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 29.

System State - ON, OFF or RECEIPTS ONLY. See Page 27.

Installed FITs - as set with *System Devices*. See Page 31.

Installed OPTs - as set with *System Devices*. See Page 31.

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 31.

Installed Positions - as set with *System Devices*. See Page 31.

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 87.

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, 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 65.

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 FUELTYPES** procedure (Page 64).

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.

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**.

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.

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.

This command is also used to change the Modem password - see Page 113.

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) ?

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) ?

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

10.6 LANGUAGE

The Dual Language feature allows **SYSTEM2** to be "bi-lingual" to a certain degree - to display or print two different languages.

Use the privileged **SET LANGUAGE** command to turn the Dual Language ON or OFF. Simply answer [Y] or [N] to the **ENABLE DUAL LANGUAGE (Y/N)** prompt, and press [ENTER].

A Language Type is programmed into each card record. When the card is read, the FIT display language changes to the programmed language. Optional receipts also print out in the specified language.

To program bilingual cards, use the **SET CARD** command (see Page 76). The display prompts are explained in detail on Page 43. Receipts are explained beginning on Page 39.

Certain prompts cannot be defined for a second language - prompts #2, 3, 4, 5, 6, 7, 8, 9, 24, 25, 26 and 35 (Page 44) are displayed *before* a card or key has been read, these prompts should *not* be programmed for a second language.

10.7 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 115 for external computer operation.

10.8 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.

10.9 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.

10.10 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.

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

Notes:

11.0 Restrictions

This section discusses the following aspects of your System2:

ODOMETER REASONABILITY
PUMP RESTRICTIONS
QUANTITY RESTRICTIONS
SECURITY

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 76.

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 135 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 75). Define each range with the **SET ODOM** command, or use one of the 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 3 BAD ODOM ENTRIES

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 76), 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* fuel is dispensed from pump 2, and can be used in either new or old trucks
- *Premium* fuel is dispensed from pumps 3 and 4, and 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 automatically 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 31).

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 77) 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 Procedure

1. After entering **SET QUANTITY-**

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 65 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 78).

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 random, 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. 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 (default **00**) provides an additional 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!

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.

12.0 Cards & Accounts

This section discusses the following aspects of your System2:

CARD #...
CARD SUMMARY
ACCOUNT #...
CARD
ACCOUNT
EDIT
SET CARD
COPY CARD #...
SORT

12.1 INTRODUCTION

Cards and Accounts functions let 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. Then, 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.

The Messaging feature (Page 59) 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** 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 **SET CARD** options 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:

```

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

```

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.

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 cards 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:

- A cardless record can be up to eight digits long -the network number does NOT have to be a prefix
- The FIT must be set up for cardless operation. FIT configuration is explained on Page 31
- The PIN entries feature should be enabled for cardless operation.

Dual-Language. If enabled, you are prompted to select the first or second language for the card. (Single and Driver cards only).

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 10 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**).

- If you enter less than four digits for an account number, leading zeros are added. For example, account 12 is defined as 0012
- Only the original price is shown (or printed). The discounted price(s) are displayed only when generating reports with the Report Package
- 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; 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.

If you activate Dual Language after cards have been inserted, change the language designation of the cards with the **EDIT** 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]**.

12.4 SET CARD

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

```

1 - SPECIFY CARD/ACCOUNT BUFFER SIZE
2 - DEFINE CARD/ACCOUNT RECORD
3 - CLEAR CARD RECORD TOTALS
4 - RECONCILE CARD RECORD ALLOCATION
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
ENTER CHOICE:

```

12.4.1 Specify Card/Account Buffer Size

Use 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 **SET CARD**, 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 59. 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.

- 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

- 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, to store 100 transactions, enter 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 66).

- 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.
- 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.

- Press [**2**], then [**ENTER**].

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 71 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 69.
- **Pump restriction:** Authorized pumps. See Page 70 for more information.
- **Quantity restriction:** The product limit per transaction (dollar or volume). See Page 71 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 screen.

12.4.3 Clear Card Record Totals

Press [3] 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 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]** 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 allow a customer to enter their card number after three consecutive bad reads.

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 135 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

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

This section discusses the following aspects of your System2:

TRANS DATE TIME CARD ACCOUNT VEHICLE
TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY
TRANS (#...)
SET TRANS
CLEAR
TRANS DATE # SEQUENCE
REPORT

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. 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 types of response 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, 1994, enter **JAN 22 1994** 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, 1994, enter **<JAN 22 1994** 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 on the next page.

```

>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: 1234567890
--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

The size of the transaction buffer is set when you define card buffer size (see Page 76).

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 **[Y]**, the system processes an unauthorized attempt to use the system as a transaction and logs the event in the transaction buffer. **[N]** - the system ignores 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 115).

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 115 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 135 for more information.

Notes:

14.0 System Totals

This section discusses the following aspects of your System2:

TRANS DATE TIME CARD ACCOUNT VEHICLE
TRANS DATE TIME CARD ACCOUNT VEHICLE SUMMARY
MIDNIGHT
DAY
SHIFT
PUMP #... TOTALS
PCT #... TOTALS
CLEAR
FUELTYPE (#...) TOTALS
TANK #...

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 on Page 81.

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, Page 82.

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, 1994
2: JAN 28, 1994
3: JAN 29, 1994
4: JAN 30, 1994
5: JAN 31, 1994
6: FEB 1, 1994
7: FEB 2, 1994
8: FEB 3, 1994 -- 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

This section discusses the following aspects of your System2:

SHOW, PRINT, SET JOURNAL PRINTER
LOCK, UNLOCK PRINTER

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.

Notes:

16.0 Network

This section discusses the following aspects of your System2:

SHOW, PRINT or SET GASCARD NETWORK PARAMETERS

16.1 SET GASCARD

Most System2 installations will use the default Fuelman/Gascard polling address to communicate with the Fuelman/Gascard controller.

If you ever want to change this address, use the privileged **SET GASCARD** command. When activated, you will see the following prompt:

Enter Gascard polling address:

Enter a valid Fuelman/Gascard polling address; the card prefixes will be displayed next.

16.2 SHOW/PRINT GASCARD

The **SHOW GASCARD** or **PRINT GASCARD** command displays or prints the current polling address. These are both non-privileged commands.

If you issue one of these commands while in the privileged mode, the prefixes are also displayed or printed.

Notes:

Appendix A - Setup Worksheet

SYSTEM TIMES *(Page 29)*

Forward: _____	Backward: _____
System On: _____	System Off: _____
Receipts Only: _____	Time Adjust: _____
Light On: _____	Light Off: _____

SYSTEM DEVICES *(Page 31)*

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	_____

- | | | |
|----------------|---------------------------------------|--------|
| | 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 | _____ |

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	7	8
PCT #2	POSITION #	1	2	3	4	5	6	7	8
PCT #3	POSITION #	1	2	3	4	5	6	7	8
PCT #4	POSITION #	1	2	3	4	5	6	7	8

Instaledl PCTs:

PCT #1 PCT #2 PCT #3 PCT #4

CUSTOMER MESSAGES (Page 39)

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

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		
Key	Message	Default Function
1		YES
2		NO

Receipt Header

	Language ONE Entry	Language TWO Entry	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	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	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	Color
Line 1:			RED BLACK
Line 2:			RED BLACK
Line 3:			RED BLACK
Line 4:			RED BLACK

SYSTEM PARAMETERS (Page 63)

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 ENABLED DISABLED

RESTRICTIONS (Page 69)

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
<i>If YES, Card Invalidation after Three Bad Entries?</i>	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 81)

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 85)

Tank #	Fueltype	Current Quantity	Low Level Alert at
1			
2			
3			
4			
5			
6			
7			
8			

JOURNAL PRINTER (Page 72)

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

Fuelman/Gascard POLLING ADDRESS (Page 73) _____

Notes:

Appendix B - Memory Levels & Allocations

The following table shows the maximum number of transactions and the maximum number of 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 (Page 63).

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 (Option) (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 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 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 65.

Motes:

Appendix D - External Computer Operation

This appendix describes the following:

- Connecting a computer to your system
- Retrieving transaction data from the **SYSTEM2** in computer format
- Sending configuration data to the **SYSTEM2** in computer format
- Backup and restoring card, account and configuration data for the **SYSTEM2**.

To talk to the **SYSTEM2** via a PC, you must run an emulation program. 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 *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 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 118.

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. Field Codes are described on Page 118, 119.

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 1,1989 AND WH TIM > 5:00 PM CF

Transaction report functions are explained in more detail on Page 81.

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 120 and Page 121.

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
SH TRANS 123CF|CR|LF|	abcdefghijklmnop/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|LF|	//|CR|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 <i>or</i> 3 digits if hose number is specified	zero
h	Quantity	7 digits: #####.###, implied decimal	zero
i	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 <i>reasonable</i> 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	10 digits	space
n	Receipt status	1 digit: 1= <i>issued</i> ; 0= <i>not issued</i>	none
o	Account number	4 spaces; account # <i>not</i> available	zero

CARD AND ACCOUNT FIELD CODES

Cod e	Field	Format	Pad
a	Card/Account Number	19 digits, left-justified	space
b	Record Type	8 bytes (see RECORD TYPE 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 fueler 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 123.

For example, in the string ``/ABC'`, the decimal values for each character are: ``/' = 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//123089/1130/000001234/08|CR|LF|
```

Note that when calculating the checksum for a record, you *must* include the slashes (`/`) 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  S I N G L E C H A R $
    =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 Character	Decimal Value	ASCII Character	Decimal Value	ASCII Character	Decimal Value	ASCII Character
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 122. The card and account field codes are listed in tables on Page 118, 119.

- 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/	
02021990/00000809/001000/000100/	
--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 118, 119. Checksum is explained on Page 122.

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.

```

Computer Output                SYSTEM2 Response
-----
-----
|CR|LF|
  P>
RESTORE STATION12345/abcdefghijklmn/
44|CR|LF|
|CR|LF|
10004000000000000000/00100001/1234/
02021990/00000809/001000/000100/--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.

Computer Output	SYSTEM2 Response

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 63).

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 66.

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).
<i>'FAULTY PUMP' message at FIT</i>	<ul style="list-style-type: none">• Three "zero-quantity" transactions: re-install pump with 'INSTALL PCT # POSITION #' command• Bad pump pulser: replace pulser
<i>'RESET QUANTITY EXCEEDED' message at FIT</i>	<ul style="list-style-type: none">• Current sensor/pump handle selector switch in wrong position: change Switch #1 on PV-268 board
<i>'SYSTEM DOWN' message at FIT</i>	<ul style="list-style-type: none">• FIT <i>not</i> installed: install FIT• Petro-Net wiring problem: check, repair wiring• Possible FIT board malfunction: run COMM test to check board; replace board if necessary
<i>'SYSTEM DOWN' at all FITs</i>	<ul style="list-style-type: none">• Possible FIT board malfunction(s): run COMM test for each FIT board; replace board(s)• Possible FSC board malfunction; if all FIT board pass COMM test, replace FSC board
<i>'INCORRECT CARD' message at FIT</i>	<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
<i>'CARD LIMIT AT MAXIMUM' message on FIT</i>	<ul style="list-style-type: none">• If this accompanies a terminated transaction, authorization may have been granted for less than one gallon.

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 jam 2 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

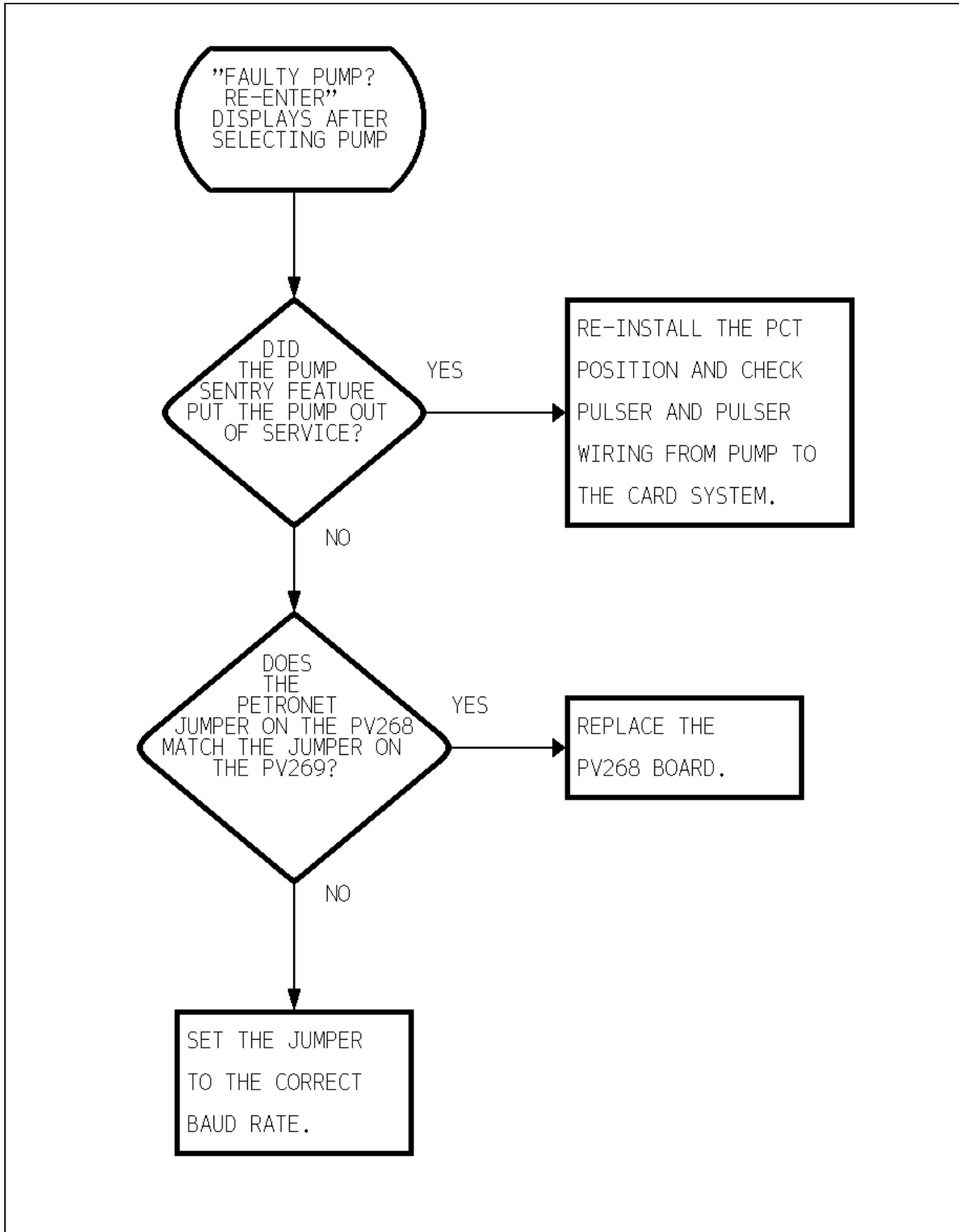
E.2 TROUBLESHOOTING FLOWCHARTS

The flowcharts on the following pages give you advice on what to do when these messages appear on the FIT display:

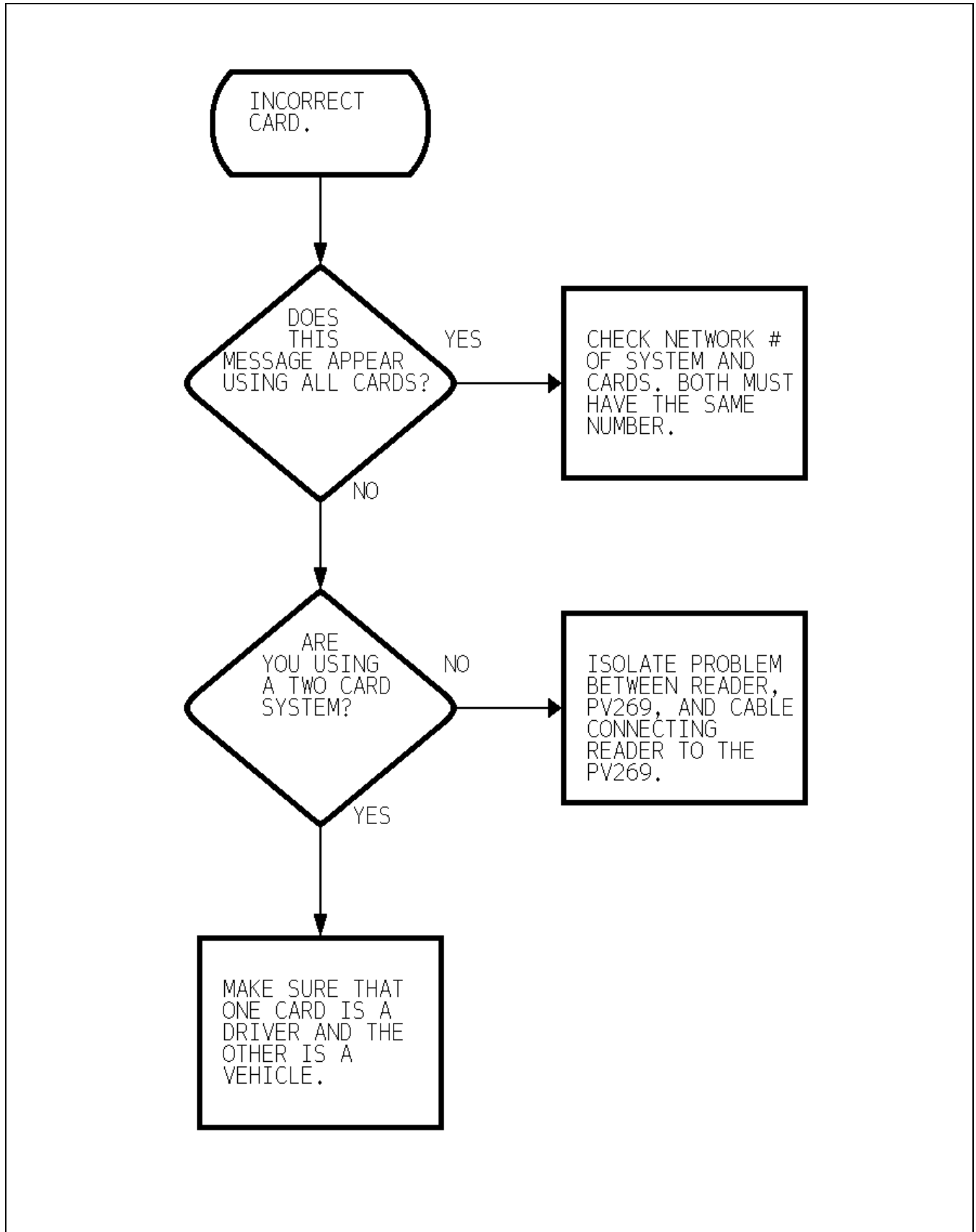
FAULTY PUMP? RE-ENTER
INCORRECT CARD
INCORRECT READING
SYSTEM DOWN
INVALID PUMP, RE-ENTER
PUMP HANDLE? RE-ENTER

Another three charts give you advice when there is:

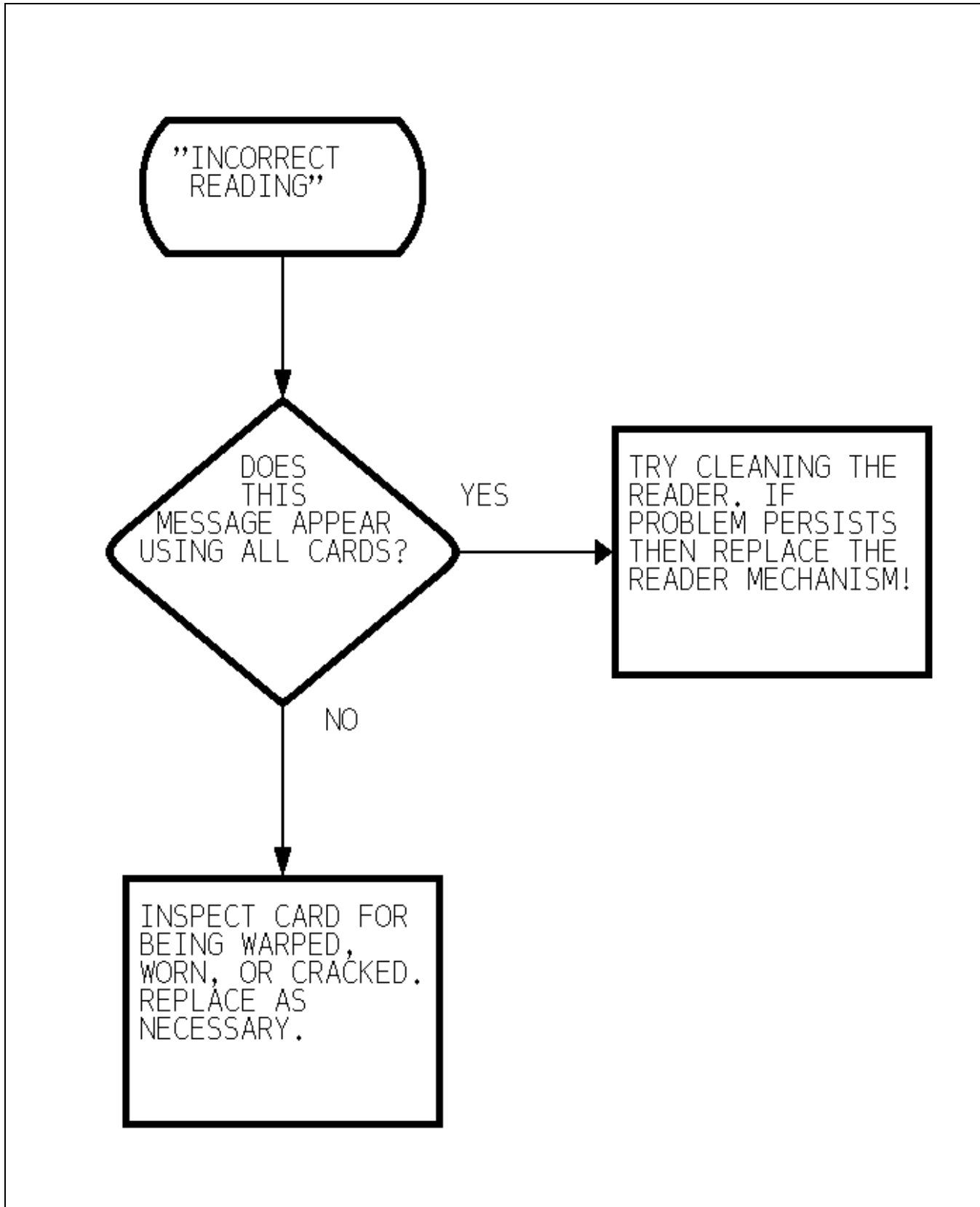
- (1) No quantity shown on the transaction receipts,
- (2) No communication between the FSC and the PC,
- (3) A modem doesn't answer the System2.

"FAULTY PUMP RE-ENTER" MESSAGE

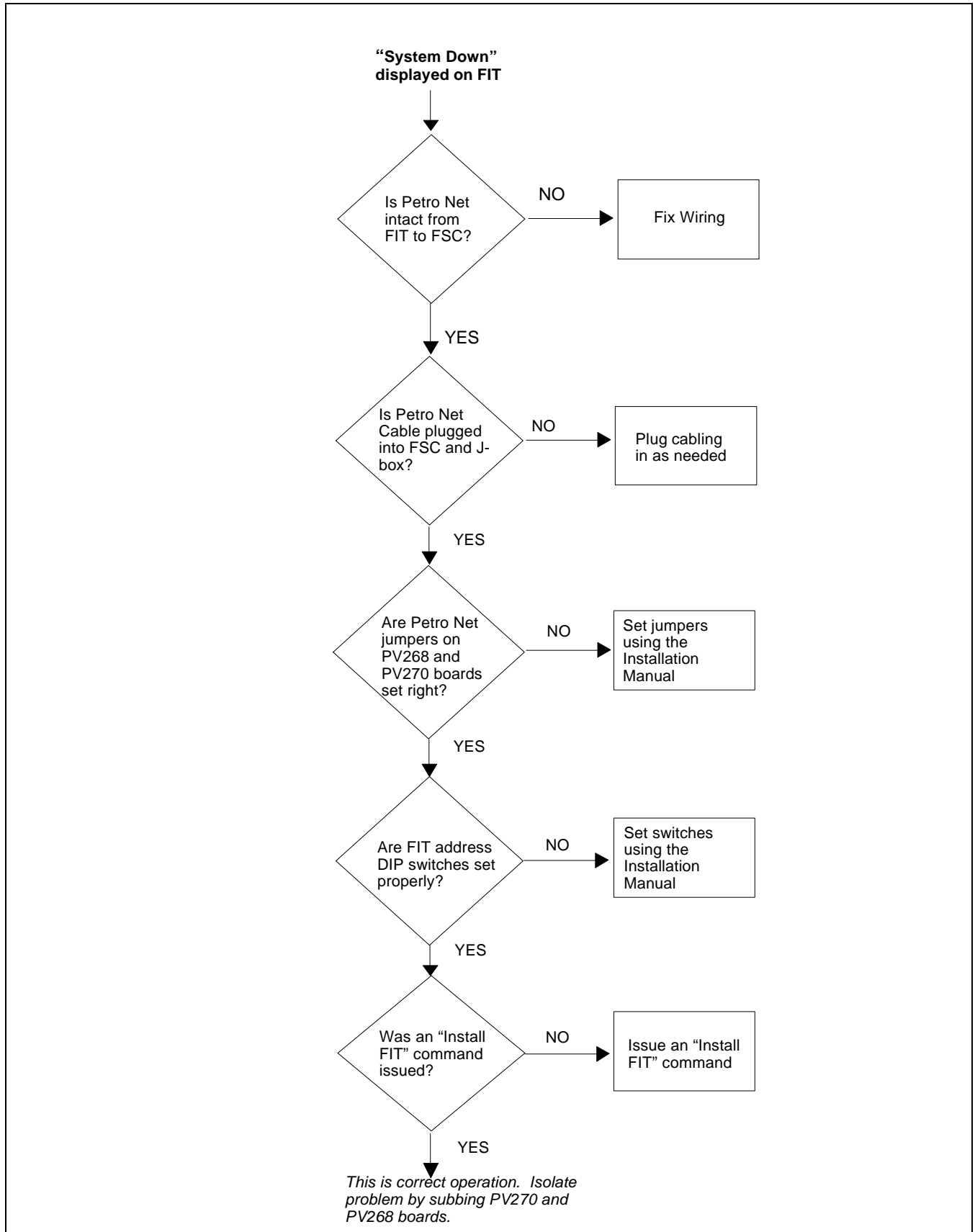
“INCORRECT CARD” MESSAGE



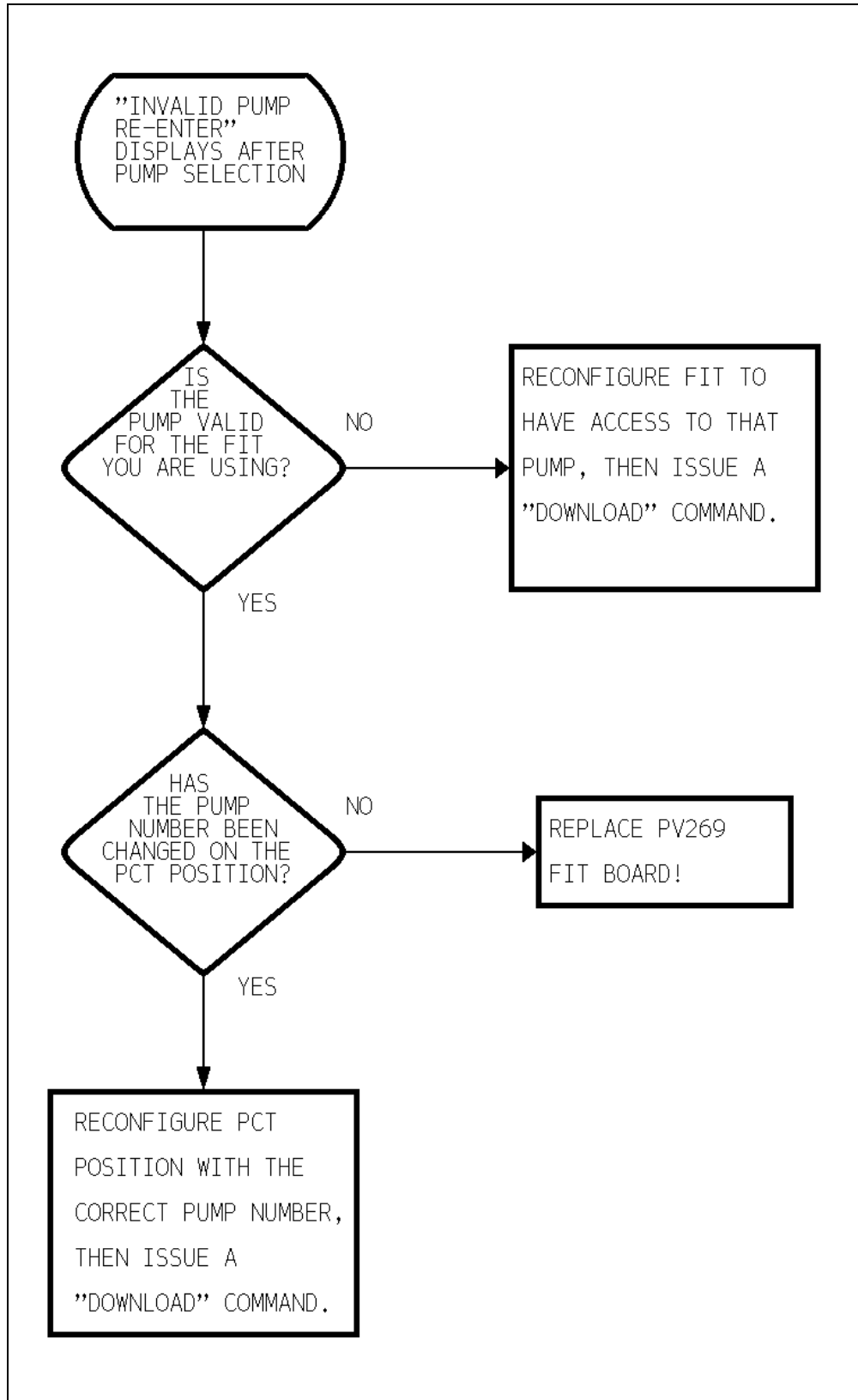
"INCORRECT READING" MESSAGE



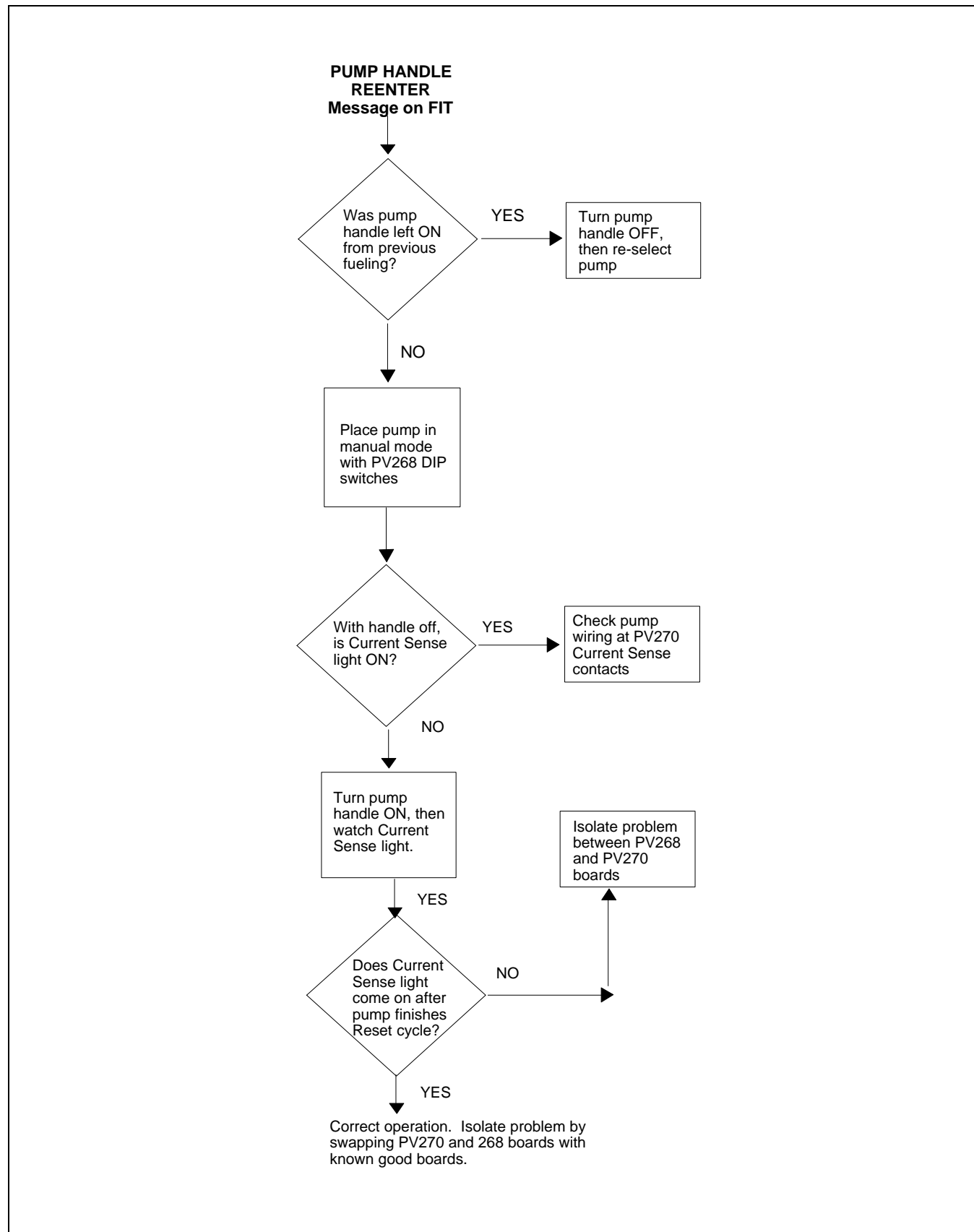
“SYSTEM DOWN” MESSAGE



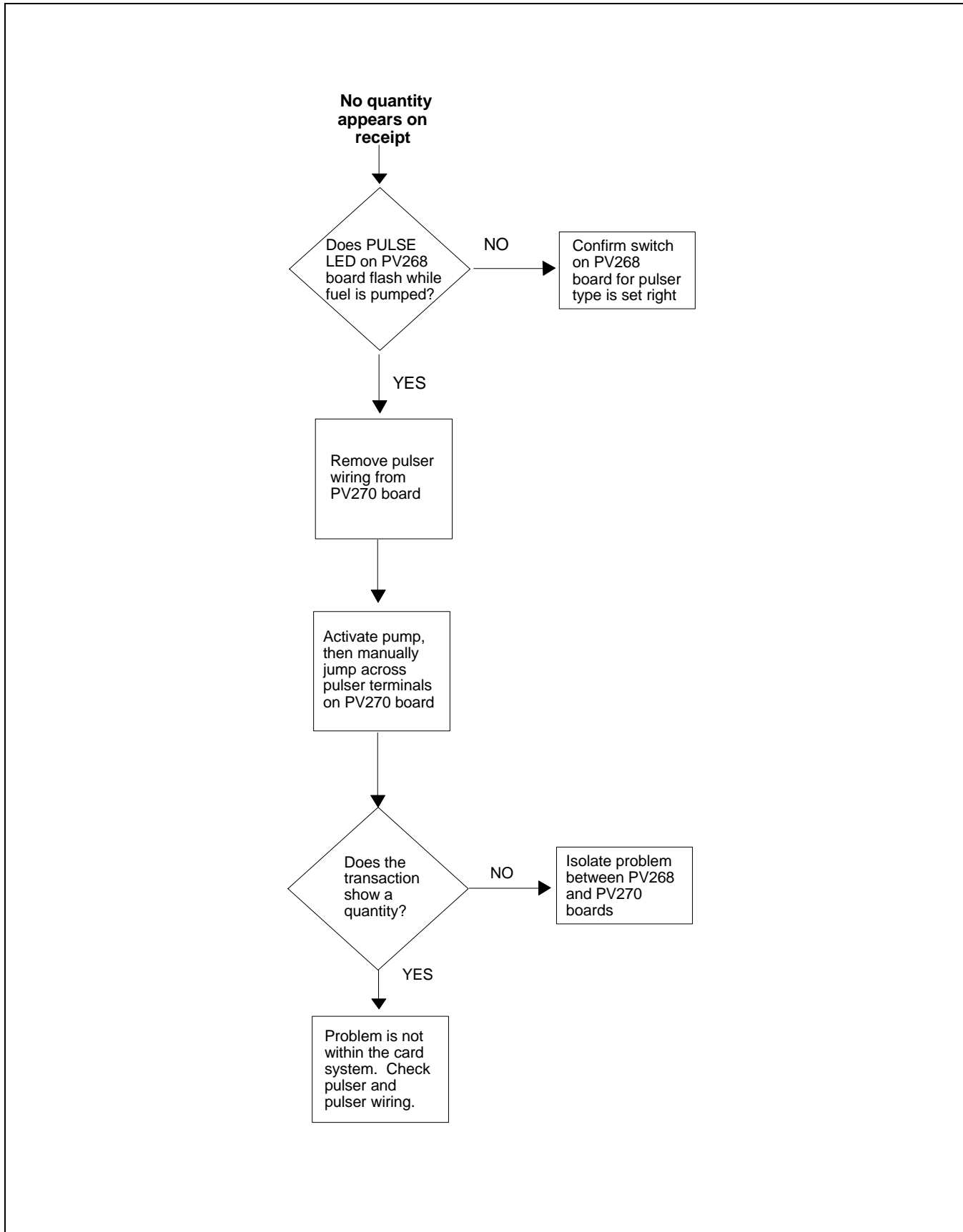
"INVALID PUMP - REENTER" MESSAGE



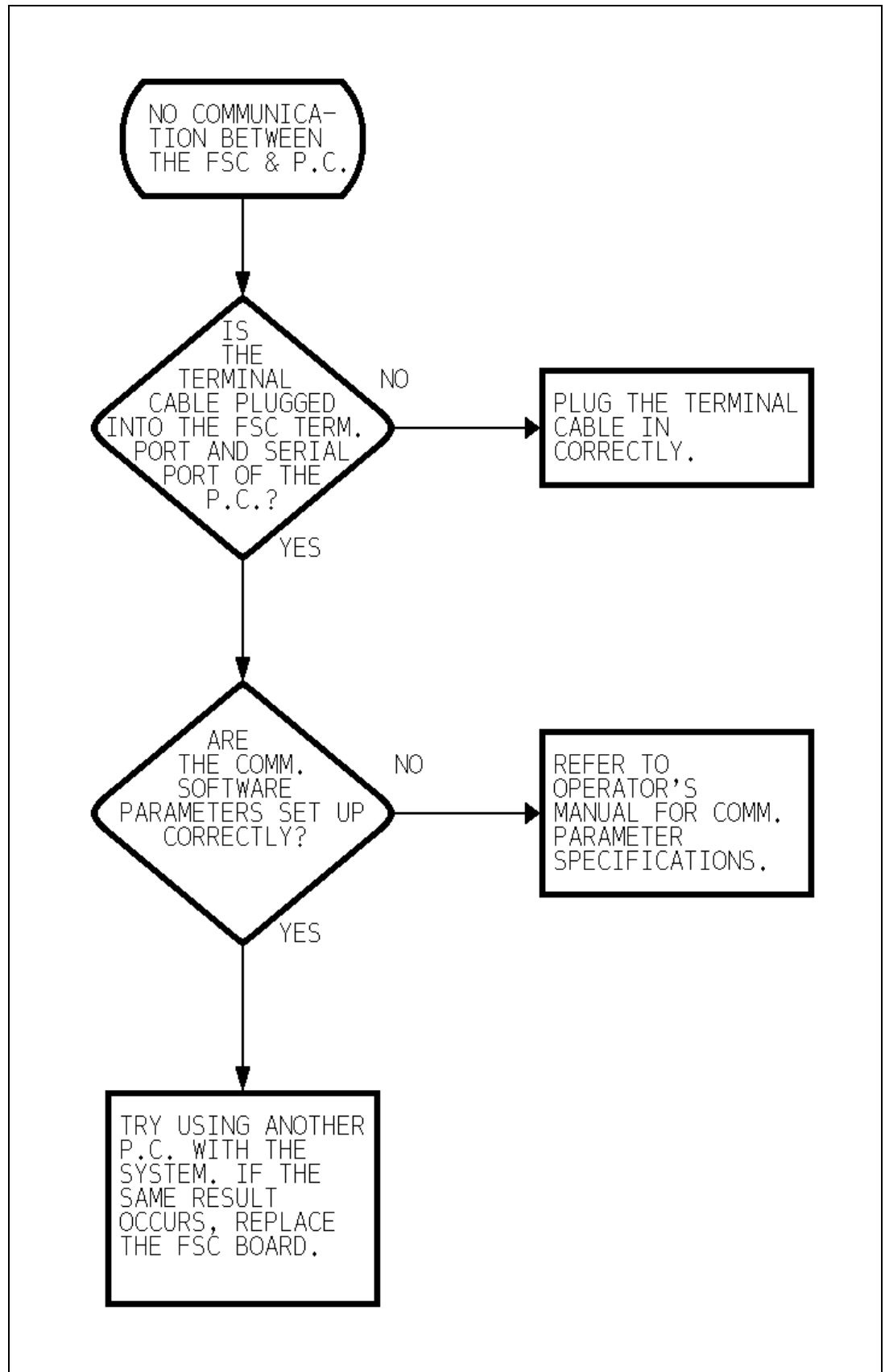
“PUMP HANDLE REENTER” MESSAGE



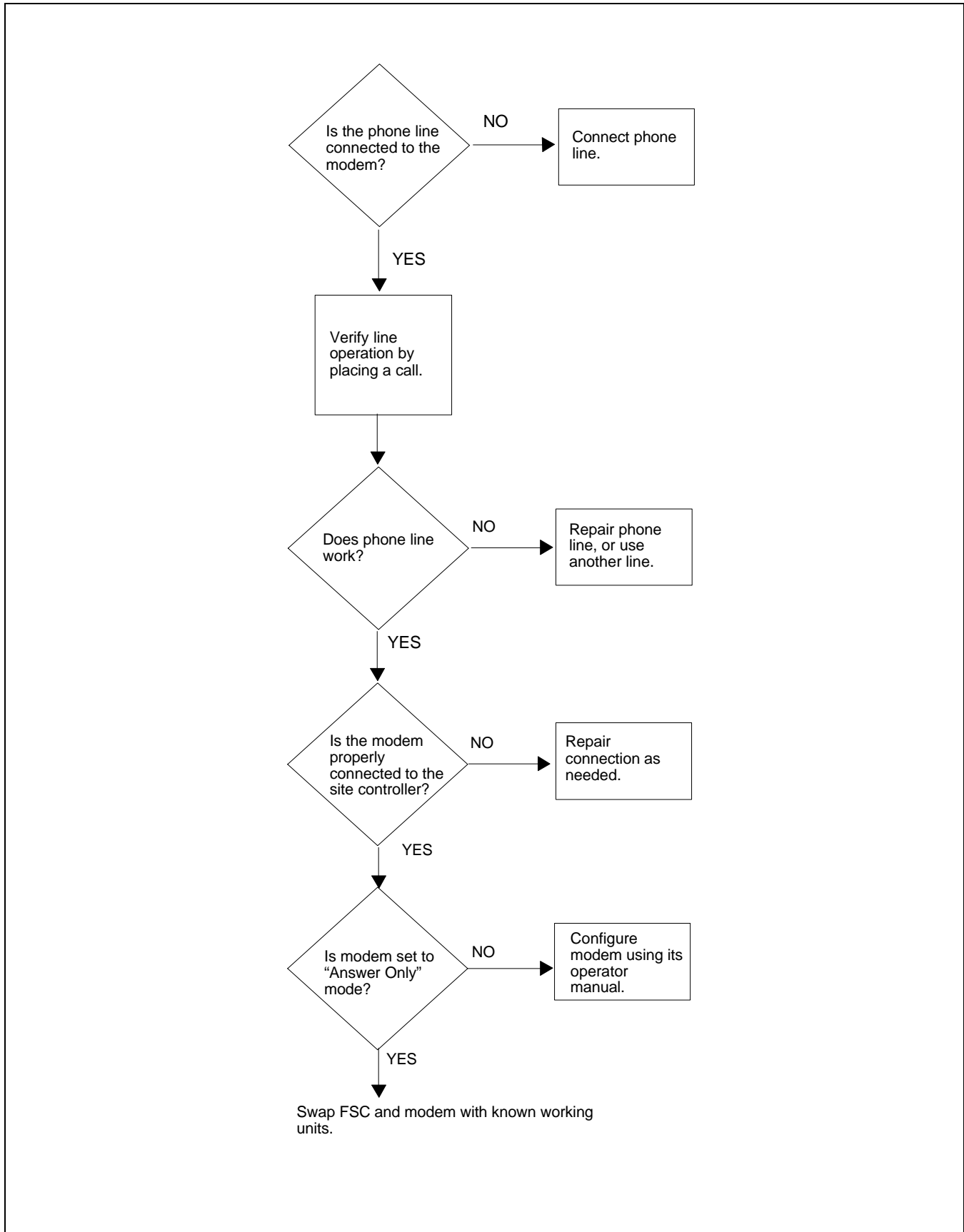
No Quantity Shown on Transaction Receipt



No Communication Between FSC & Terminal



Modem Does Not Answer



Appendix F - Optional Report Package

OPTIONS:

QUICK

1. Run report based on custom defaults

RUN TIME ONLY

2. Specify card type, card range, account grouping and account range.
3. Specify card type, card range, account grouping, account range, billing window and subtotals only.
4. Specify card type, card range, account grouping, account range, billing window, subtotals only. custom heading, keyboard field label and fuel unit type.

PERMANENT

5. Enter custom defaults for all the parameters above
- Enter option number or [RETURN] to exit.

F.1 DESCRIPTION

The optional Report Package allows you to generate reports quickly and easily in a variety of formats.

All reports contain the following information for each transaction:

Date and time of transaction
Transaction number
Miscellaneous entry
Odometer reading
Mileage per gallon (liters/100km)
Pump number
product name
Quantity dispensed
Product price

Each report also contains the following data summaries (or "subtotals"):

Total miles
Average MPG (liter/100km)
Cost per mile (or kilometer)
Average price per gallon (or liter)
Total quantity of fuel dispensed

Total price of fuel dispensed

Transactions may also be grouped by account number. Reports can be displayed on the terminal or printer.

F.2 MODES OF OPERATION

Three modes of operation are available. The **`QUICK'** mode generates a report according to a format that you have previously selected. This enables the fast generation of a "standard" report.

The **`PERMANENT'** mode is used to select the format for the **`QUICK'** mode report.

The **`RUN TIME ONLY'** mode allows you to select a "temporary" format and to generate one report in this format. This mode enables you to create reports without affecting the **`QUICK'** mode format.

F.3 REPORT PARAMETERS

The following parameters (or "variables") can be specified for the reports:

F.3.1 Card Type

There are three types of cards: single, driver and vehicle; only one type of card may be selected for each report.

F.3.2 Card Range

An upper and lower card number may be entered to narrow the transaction search to a limited range of cards; press the [ENTER] key at both prompts to specify *all* cards.

F.3.3 Account Grouping

An upper and lower account number may be entered to narrow the transaction search to a limited range of accounts; press the [ENTER] key at both prompts to specify *all* accounts. Note that when the account 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 can 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 can be selected. Mileage efficiency is calculated as liters per 100 kilometers or miles per gallon, respectively.

F.4 RUNNING THE REPORT

To generate a report, you must be in the privileged mode. At the privileged prompt, enter the command **'REPORT'**.

F.4.1 Run-Time Only Mode

Enter the number for one of the **'RUN TIME ONLY'** options listed above (2, 3 or 4). The system then prompts for the associated parameters. These specify search type.

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:

- Cardtype (single, driver or vehicle)
- Card range (lower and upper limits)
- Account grouping (lower and upper limits)
- Subtotals only (data summaries)
- Custom heading (3 lines of 80 characters)
- Fueling unit type (liters or gallons)

Press the [ENTER] key without entering any data to bypass (and deactivate) a parameter. Note that card type and fueling unit can *not* be bypassed.

After specifying the parameters, the **'QUICK'** mode can be selected anytime to generate the "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 entered simply by pressing the [ENTER] key.

Appendix G - Receipt Printer & Card Reader Maintenance

The 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).

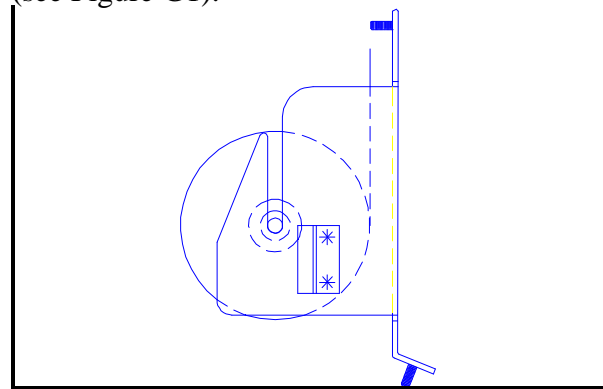


Figure G1 - Paper Roll Orientation

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. Notes:

Appendix H - FleetLINK FSC Command Descriptions

This appendix contains new or modified FSC commands to control the FleetLINK system.

SHOW SYSTEM command

Shows if FleetLINK is ENABLED or DISABLED. If enabled, supported fleet numbers are listed (up to 32 numbers can be factory-programmed). If disabled (no fleet numbers programmed), **FleetLINK DISABLED** is displayed.

This command also shows installed VIT (Vehicle Information Terminal) and VIT position status for two VITs with up to 16 positions each. Similar to INSTALLED PCTs command.

Sample Command Execution

P> sh system e

```
SYSTEM 2: CARD RECORD VERSION #: 21.02A
EPROM CHK: 61E5 FC3D -BAD CHECKSUM, CLEAR ERROR (Y/N)? y
DISPLAY: 2x16      PPU: PROGRAMMABLE
```

```
FleetLINK ENABLED for Fleet/Station Numbers:
3333 5678
JAN 01,1995      06:38 PM      SYSTEM ON      BATTERY OK
```

```
INSTALLED FITs:
INSTALLED OPTs:
INSTALLED VITs:
VIT 1, POSITIONS: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16
STATUS --running
INSTALLED PCTs:
(std) PCT 1, POSITIONS: 1, 2
STATUS --running
LOW TANKS: NONE
POWER FAIL TIMES:
JAN 01,1995      12:00 AM
JAN 03,1995      01:14 AM
JAN 05,1995      01:54 AM
JAN 07,1995      06:23 PM
```

INSTALL & REMOVE commands

These commands are similar to the INSTALL/REMOVE PCT # POSITION # commands.

Sample Command Execution

You Enter	System Response
P> remove vit 1	OKAY
P> install vit 1	OKAY
P> remove vit 1 pos 2	VIT 1 POSITION 2 OKAY
P> install vit 1 pos 2	VIT 1 POSITION 2 OKAY
P>	

CONFIGURE VIT # POSITION # Command

See the SHOW VIT # POSITION # command below for description of fields

You Enter	System Response
P> config vit 1 pos 16	VIT VERSION: 20260304
.....	VIT 1 POSITION 16
.	CONFIGURATION
. . . . .	| - Activate PCT 2 Position 8
. . . . .	| - Authorize with Pump Handle: OFF
. . . . .	| -Status Noise Threshold: 1
.....	ENTER NEW PCT:
3	
.....	ENTER NEW POSITION:
8	
.....	AUTHORIZE WITH HANDLE ON (Y/N)?
y	
.....	ENTER STATUS NOISE THRESHOLD:
1	
.....	P>

SHOW VIT # POSITION # Command

Explanation of Fields

Configuration Fields

- | - **Activate PCT # Position #**
One VIT position is assigned to one hose.
- | - **Authorize with Pump Handle: OFF/ON**
OFF - Requires the pump handle switch be turned off before the transaction can begin. **ON** - Ignores the pump handle and forces the pump on.
- | - **Status Noise Threshold: 1-127**
Tolerance of the system to ignore connection breaks caused by noise at the receiver coil. Should not be changed unless directed to by Petro Vend personnel (default = 1).

Data Fields These fields are self-explanatory:

- | - **Channel State:** "NO CONNECTION ESTABLISHED"
 "CONNECTION ESTABLISHED"
- | - **Authorization State:** "IDLE", OR...
 "PENDING"
 "PUMP HANDLE"
 "AUTHORIZED"
 "TRANSACTION IN PROGRESS"
 "SUSPENDED"
 "TRANSACTION COMPLETED"
 "DENIED - INCORRECT FLEET/STATION NUMBER"
 "DENIED - VIU (CARD) INVALIDATED"
 "DENIED - ACCOUNT INVALIDATED"
 "DENIED - ACCOUNT RECORD NOT FOUND"
 "DENIED - VIU (CARD) RECORD EXPIRED"
 "DENIED - ACCOUNT RECORD EXPIRED"
 "DENIED - ALLOCATION EXCEEDED"
 "DENIED - VIU (CARD) RECORD NOT FOUND"
 "DENIED - PCT POSITION IN USE"
 "DENIED - PUMP SENTRY ALARM"
 "DENIED - PCT DOWN"
 "DENIED - PCT NOT INSTALLED"
 "DENIED - PCT POSITION NOT INSTALLED"

```

|- Pump/Transaction Status:
    . . . . Can be TRANSACTION IN PROGRESS
    . . . . "PUMP CURRENTLY ACTIVE (A GO)"
    . . . . "PUMP RUNNING"
    . . . . OR...
    . . . . TRANSACTION TERMINATED
    . . . . "PUMP ERROR --PUMP HANDLE ON"
    . . . . "PUMP ERROR --PREMATURE BUSY"
    . . . . "PUMP ERROR --RESET QTY EXCEEDED"
    . . . . "NO 'PUMP HANDLE BUSY'"
    . . . . "NO FUELING PULSES"
    . . . . "NORMAL"
    . . . . "QUANTITY LIMIT EXCEEDED"
    . . . . "TOTAL TRANSACTION TIMER EXPIRED"
    . . . . "PULSER ERROR"
    . . . . "EMERGENCY STOP"
    . . . . "MISSING PULSE DETECT"
    . . . . "COMMUNICATION ERROR"
    . . . . "MANAGER ACTIVATED"

```

- |- **Card Number**
What the system looks for in the card record; concatenated fleet number and car number. See the Programmer manual for further info on the following:
- |- **VIU Fleet/Station Number**
Four digits
- |- **VIU Car Number**
Nine digits
- |- **VIU Authorizer Type Code**
Always '1' for VIU
- |- **VIU Reserved Data**
Four digits, reserved field
- |- **VIU User Number**
Four digits stored as miscellaneous entry
- |- **VIU Fueltype**
0 Not used - uses card records code
- |- **VIU Odometer Code**
Determined reading of ODOM and engine hrs
- |- **VIU Odometer**
0018297 - Odometer reading direct from vehicle
- |- **VIU Engine Hours**
Eng hrs direct from vehicle

Sample “SHOW VIT # POSITION #” Scenarios

EXAMPLE 1

In this first example, VIT 1 is removed (it was up and running). No position that is specified displays all positions, since the message not installed only shows configuration data.

```
P> remove vit 1 . . . . . OKAY
P> sh vit 1 . . . . . . . . . . NOTE: VIT NOT INSTALLED
. . . . . VIT VERSION: 20260304
. . . . . VIT 1 POSITION 1
. . . . . CONFIGURATION
. . . . . | - Activate PCT 1 Position 1
. . . . . | - Authorize with Pump Handle: OFF
. . . . . | - Status Noise Threshold: 1
. . . . .
. . . . . VIT 1 POSITION 2
. . . . . CONFIGURATION
. . . . . | - Activate PCT 1 Position 2
. . . . . | - Authorize with Pump Handle: OFF
. . . . . | - Status Noise Threshold: 1
```

Repeat for up to 16 positions.

```
. . . . . VIT 1 POSITION 16
. . . . . CONFIGURATION
. . . . . | - Activate PCT 2 Position 8
. . . . . | - Authorize with Pump Handle: OFF
. . . . . | - Status Noise Threshold: 1
P>
```

EXAMPLE 2

In the second example, VIT 1 installed and running. Position 2 specified - INSTALLED shows position status, but since there is no connection, and system is in idle state, no VIU data is shown.

```
P>sh vit 1 pos 2 . . . . .      VIT VERSION: 20260304
. . . . .
. . . . .      VIT 1 POSITION 2
. . . . .      CONFIGURATION
. . . . .      - Activate PCT 1 Position 2
. . . . .      - Authorize with Pump Handle: OFF
. . . . .      - Status Noise Threshold: 1 DATA
. . . . .      - Channel State: NO CONNECTION ESTABLISHED
. . . . .      - Authorization State: IDLE
. . . . .      - Pump/Transaction Status: I - NORMAL
```

P>

EXAMPLE 3

In this example, VIT 1 installed and running. Position 1 specified - since it is installed, it shows position status. Also, since a VIU connection exists and is not idle, VIU data is shown.

```
P>sh vit 1 pos 1 . . . . .      VIT VERSION: 20260304
. . . . .
. . . . .      VIT 1 POSITION 1 CONFIGURATION
. . . . .      - Activate PCT 1 Position 1
. . . . .      - Authorize with Pump Handle: OFF
. . . . .      - Status Noise Threshold: 1 DATA
. . . . .      - Channel State: CONNECTION ESTABLISHED
. . . . .      - Authorization State: TRANSACTION IN
PROGRESS
. . . . .      - Pump/Transaction Status: H - PUMP RUNNING
. . . . .      - Card Number: 3333123456789
. . . . .      - VIU Fleet/Station Number: 3333
. . . . .      - VIU Car Number: 123456789
. . . . .      - VIU Authorizer Type Code: 1
. . . . .      - VIU Reserved Data: 0000
. . . . .      - VIU User Number: 2222
. . . . .      - VIU Fueltype: 0
. . . . .      - VIU Odometer Code: 5
. . . . .      - VIU Odometer: 0018297
. . . . .      - VIU Engine Hours: 0000000
```

P>

INSERT VIU Command

Notes

1. The INSERT VIU command is similar to the INSERT CARD command.
2. The command does not prompt for User Entry fields even if cards are set up for this. These entries are auto-disabled for VIUs.

3. An INSERT CARD command can be used instead; prompts for N/A fields.
4. VIU records are identical to *card* records.
5. You must use SHOW/EDIT/DELETE CARD to access the record because there is no EDIT/DELETE/SHOW VIU command.
6. Vehicle VIUs are not supported in the first version; this would require driver ID, which is not supported.
7. The first four digits of the card number is the VIU Fleet Number. The next nine digits of the card number is the VIU Card Number. Alpha (letters) are not supported even though they appear to be programmable in the VIU.
8. The fleet number must match one of the 32 fleet number that can be programmed into the factory programmed FSC.

```

P> INSERT VIU ...          ENTER CARD #: 33331234
  . . . .                CARD TYPE (S)INGLE, (V)EHICLE: S
  . . . .                VALID (Y/N)? y
  . . . .                ACCOUNT # (0-9999): 1234
  . . . .                EXPIRATION DATE: dec 31, 1995
  . . . .                MONTHLY ALLOCATION: $100
  . . . .                DAILY ALLOCATION: $20
  . . . .                PUMP RESTRICTION CODE: 1
  . . . .                QUANTITY RESTRICTION CODE: 1
  . . . .                DRIVER NAME: JOE
  . . . .                --ANY MORE CARDS (Y/N)? N
  . . . .                SORT DONE

P>

```

Notes:

Index

Allocations, card record	78	Optional	45
ASCII table	123	Standard	45
Backup/Restore	124	FleetLINK commands	143
Battery	9, 63	CONFIGURE VIT	144
Bonus Points	41, 66	INSERT VIU	148
Card Error Counter	31	INSTALL/REMOVE	144
Cardless records	75	SHOW SYSTEM	143
Cards/Accounts menu	73	SHOW VIT	145
Checksum	122	Flowcharts	
Commands		Troubleshooting	129
COPY CARD	80	FSC	
DISPLAY #	43	Battery	9
EDIT CARD	76	Modem used with	9
EDIT CARD/ACCOUNT	75	Fueling Units	35, 65
INSERT CARD/ACCOUNT	75	Fueltype number	36
LOCK PRINTER	89	Gallon/liter conversion	35, 36
MESSAGE	59	Gascard polling address	91
PCT TOTAL	87	Graphics Display	
PRINT TRANS	81	Cleaning	47
RESTORE SITE	125	Control codes	48
SET CARD	76	Display/Typestyle codes	53
SET JOURNAL	89	Examples	56
SET SITE	64	Features	45
SET TRANS	82	Picture selection	46
SHOW CARD/ACCOUNT	74	Text styles	46
SHOW DAY	86	Headers	118
SHOW PUMP	87	Hose Totals, clearing	36
SHOW SYSTEM	63	Journal Printer menu	89
SHOW TRANS	81	Keyboard #	59
SORT	80	LIGHT ON TIME command	30
SYSBACKUP	126	LOCK/UNLOCK command	89
UPDATE SITE	125	Low Tank alarm, setting	87
COMPUTER command	124	MANAGER ACTIVATED termination	36
Computer, external	8	Max Fuel Per Transaction	35
COPY CARD command	80	Max Time	
Customer Messages menu	39	Between pulses	36
Data format	116	First pulse	36
DAY commands	86	Fueling	36
Daylight savings time adjust	29	Handle	36
DISPLAY # command	43	Memory allocation	111
Dual Language	66	Menus	
Dual-card operation	75	Cards/Accounts	73
Echoing characters	66	Customer Messages	39
EDIT CARD command	76	Journal Printer	89
Error messages	127	Main	25
FIT		Restrictions	69
Setting	31	System Access	27
FIT Display		System Devices	31

System Parameters	63	Site ID	64
System Times	29	Size Code, transaction	77
System Totals	85	Software version	13
Transaction Data	81	SORT command	80
Messaging	59	SYSBACKUP command	126
Messaging Size Code	77	SYSRESTORE command	126
Midnight totals	86	System Access menu	11, 27
Modems	113	System Devices menu	31
Local	113	System Parameters menu	63
Remote	113	System Times menu	11, 29
Month End totals	79	System Totals menu	85
Network menu	91	Tank number	36
Network numbers	75	Termination codes	120
OPT (Outdoor Payment Terminal)	5	Time of Day	
PC Logic modem	113	In graphics display	47
PCT		Time Set	
Configuration	34	Current	29
PCT (Pump Control Terminal)		Daylight savings	29
Specifications	6	Drift adjust	30
PCT totals	87	Receipts only	30
Phoenix software use	124	System ON	30
PIN number, bad entry	79	Transaction Data menu	81
PIN Numbers	71	Troubleshooting	127
Polling address	91	UPC	6
Privileged mode	11	with PCT	34
Privileged mode, accessing	27	UPDATE SITE ID command	125
Pulse Per Unit	35	Worksheet, set-up	93
Pulser specs	7	YES/NO keys, changing response	59
Pulser support	6		
Pump restrictions	70		
Pump Sentry	35		
Pump totals	87		
Quantity transaction field	118		
Receipt counter	32, 33		
Receipts			
Body	40		
Bonus Points	41		
Defined	39		
Header	40		
Trailer	41		
Reconciling card records	78		
Report Package discount	80		
Restricted mode	11		
Restrictions menu	69		
SET CARD command	76		
SET GASCARD command	91		
SET PUMP command	70		
SET TERMINAL command	31		
Shifts	86		
SHOW TRANS command	81		

Notes:



OPW Fuel Management Systems
6900 Santa Fe Drive
Hodgkins, IL 60525
708-485-4200