



K800[®]

Automated Fueling System

**Standard Version
Operator's Manual**

FSC Version 1.08L

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

K800 SYSTEM OVERVIEW..... 1

 HOW DOES IT WORK?..... 1

 SYSTEM FEATURES..... 2

SPECIFICATIONS..... 3

 K800 FUEL ISLAND TERMINAL 3

 K800 FUEL SITE CONTROLLER..... 4

FUEL ISLAND TERMINAL (FIT)..... 5

 INSTALLATION..... 5

 CARD OR KEY READER 5

 FIT DISPLAY 6

 FIT KEYPAD 6

FUEL SITE CONTROLLER (FSC)..... 7

 INSTALLATION..... 7

 PROGRAMMING WITH A TERMINAL OR COMPUTER 7

 ATTACHING A JOURNAL PRINTER 8

 USING A MODEM..... 8

 BATTERY BACKUP SYSTEM..... 8

 COMMAND ENTRY 9

 SETTING TIME, DATE AND PASSWORDS 9

 SITE CONFIGURATION OVERVIEW..... 9

Available Pump Parameters (see page Error! Bookmark not defined. to set up)..... 9

Required Settings 10

 CARD, KEY, AND ACCOUNT FILES..... 10

 WHAT’S RECORDED FROM EACH TRANSACTION 11

 CREATING REPORTS 12

POWERING UP THE SYSTEM 13

 COMMUNICATION..... 13

 FIRST STARTUP 13

 LATER START-UPS..... 14

MAIN MENU OVERVIEW..... 15

 USING THE SUB-MENUS 15

 SYSTEM SETUP..... 16

Site Configuration..... 16

Tables..... 16

<i>Card/Key/Account Files</i>	16
<i>Transactions</i>	16
<i>Lock</i>	16
<i>Quit (Modem Only)</i>	16
HELP/ESCAPE	17
8.0 SYSTEM SETUP MENU	18
TIME	18
DATE.....	19
DAYLIGHT SAVINGS DATES.....	19
PASSWORD	19
SITE NAME	20
SITE CONFIGURATION MENU	21
FUEL ISLAND TERMINALS.....	21
PUMP PARAMETERS	21
<i>Position (POS)</i>	24
<i>Pump Number (NBR)</i>	24
<i>Status (STAT)</i>	24
<i>Product Number (PRODUCT)</i>	24
<i>Supply Tank (TANK)</i>	24
<i>Quantity Restriction (QNTY)</i>	24
<i>Total Time For Fueling (TOTL)</i>	25
<i>Max Time For Pump Handle (HNDL)</i>	25
<i>Missing Pulse Detect Time (MPD)</i>	25
<i>Pulser Divide Rate (DIVD)</i>	25
<i>Pump Handle Monitor</i>	25
<i>Pump Sentry (SENT)</i>	25
TABLES MENU.....	28
PRODUCT NAMES AND PRICES	28
PRODUCT RESTRICTIONS	29
QUANTITY RESTRICTIONS	30
ACCESS TIME RESTRICTIONS.....	31
FIT MESSAGES	32
CARD/KEY ACCOUNT FILES MENU	35
UNDERSTANDING THE K800 USER FILE	35
<i>Cardless Entry</i>	35
<i>Number</i>	35
<i>Type</i>	36
SHOWING USER FILE(S)	37
EDITING USER FILE(S).....	38
<i>Card/Key Type</i>	39
<i>Validation Status</i>	39

Mileage Flag	39
Keyboard Entry Message	39
Quantity Restriction Level	40
Product Restriction Level	40
Access Time Restriction Level	40
Max Transactions Per Day	40
Card/Key Issue Number	40
PIN	41
Invalid PIN Entries	41
Account Number	41
SHOWING ACCOUNT FILE(S)	43
EDITING ACCOUNT FILES	43
Validation Status	44
Quantity Restriction	44
Product Restriction	44
Access Time Restriction	44
Name	44
TRANSACTIONS MENU	45
NUMBER	45
RECALL	45
POLL	46
ERASE	46
REPORTS MENU	
.....	47
SYSTEM INFORMATION REPORT	48
PUMP TOTALS REPORT	49
PRODUCT TOTALS REPORT	50
INVENTORY REPORT	51
PRINTING A REPORT	52
REPORT PACKAGE	54
APPENDIX A - K800 POLL DATA	
.....	58
POLL DATA FORMAT	58
POLL DATA CHECKSUM	59
APPENDIX B - MODEMS	60
INTRODUCTION	60
HOST MODEM CONFIGURATION	60
SITE MODE CONFIGURATION	61
PASSWORD	61
CALLING A K800 SITE	61
APPENDIX C – EPROM REPLACEMENT	63
OVERVIEW	63
FSC PV245 OR PV249 EPROMS	63
FIT PV247 EPROMS	64
APPENDIX D - CHIPKEY PROGRAMMING	65
OVERVIEW	65

ODOMETER REASONABILITY 65
 MILEAGE VALUES 66
 SERVICE WARNINGS 67
 INCORRECT ENTRY RESPONSES 67
 Method 0 67
 Method 1 67
 Method 4 67
 ENCODING PROCEDURE 68

APPENDIX E – TROUBLESHOOTING

..... **71**
 FIT TEST 71
 STATUS LIGHT ERROR CODES 72
 "PUMP IN USE" MESSAGE 73
 "NOT AVAILABLE - REENTER" MESSAGE 73
 "OUT OF SERVICE REENTER" MESSAGE 73
 TROUBLESHOOTING FLOWCHARTS 74
 Communication Failure Between FSC and Terminal 75
 Display on FIT is Blank 76
 Incorrect Readings (Optical & ChipKey Readers) 77
 Modem Does Not Answer 78
 Printer Not Printing Transactions 79
 "Pump Handle Re-Enter" Message 80
 "System OFF" Message 81
 TRANSFORMER VOLTAGES 82
 NOTES:.....ERROR! BOOKMARK NOT DEFINED.

APPENDIX F..... **83**

FILE CONVERTER FOR K800 PHOENIX **83**

DESCRIPTION..... 83
 ASCII 83

APPENDIX G..... **85**

QUICK-USE OPERATIONAL FLOWCHARTS 85

CLEARING A TRANSACTION 85
 ENTERING FILES AND ACCOUNTS 86
 PROGRAMMING PUMP INFORMATION 87
 RUNNING A REPORT PACKAGE 88

INDEX **89**

Part I - Introduction

K800 System Overview

How Does It Work?

The *K800 Automated Fueling System* is designed to manage a small to mid-size fueling operation. Many features of our larger systems are incorporated into the K800.

The K800 is simple to install and program. Its backlit LCD display prompts your customers through the entire fueling process, making it fast and easy. Despite its ease of use, the K800 is extremely versatile. The system provides for 24-hour unattended fueling.

A K800 system consists of one to four Fuel Island Terminals (**FITs**) mounted at the fueling island, and one Fuel Site Controller (**FSC**).

The **FIT** is the device used by the customer, and houses the reader device (cards or ChipKeys), keypad, display and emergency stop button. Four hoses per FIT can be controlled simultaneously. Up to 10,000 cards and 1,800 transactions can be held in memory. This allows smaller operations to expand, without having to invest in more equipment.

ChipKeys can be used with or in place of cards. Rugged, tamper-proof, they fit on a driver's key ring, making them hard to misplace. The FITs "talk" to the FSC through Petro Net, a twisted pair of wires.

The **FSC** is an indoor computer, containing battery- backed memory for card/key and account files and transactions. The FSC provides the interface to the printer, the programming terminal or computer, and a modem option. Security is provided with changeable, user-selected PINs. An automatic user lockout detects bad PIN entries, and various limitations based on product volume or dollar amount can also be programmed.

A "Features Checklist" for your K800 appears on the next page. All are described in various parts of the manual.

System Features

- Twenty-four hour fueling
- Optical Card, Magnetic Card or ChipKey compatible
- One to four simultaneous hoses per FIT
- Manual bypass switch for each hose
- Memory for up to 10,000 cards and 1800 transaction records
- System can lock out any card or key
- PIN number entry with lockout
- Four levels of time access
- Product or quantity restrictions
- Odometer or miscellaneous entries accepted
- Adjustable pump timeouts
- Pump handle monitor for safety
- Self-diagnostics
- Journal printer uses plain paper
- Versatile Report Package standard
- Inventory, Pump and Product Total reports
- Menu-driven programming
- Three serial COMM ports
- Battery-backup
- User-programmable prompts on FIT
- Durable alloy keypad
- Rugged door overlay
- Built-in pulser power supply
- Simple two-wire Petro Net communication
- Built-in pump control relays
- Pedestal mount for easy access

Specifications

K800 FUEL ISLAND TERMINAL	
Power Requirements Standard Optional	120 VAC, 60 Hz, 100W 220 - 240 VAC, 50 Hz
Dimensions	12" H x 13" W x 10" D (30.5cm H x 33cm W x 25.4cm D)
Operating Temperature Range	-40°F to 110°F (-40°C to 43°C)
Reader Standard Magnetic Stripe Optional Optical Card Optional ChipKey	10,000 cards, 1800 transactions 10,000 cards, 1800 transactions 10,000 keys, 1800 transactions
Pump Control	3/4 HP, 120/240 VAC
Pulser Compatibility Power Supply Rate Speed Duty Cycle:	Contact / 12 VDC Electronic 12 VDC, 40 mA max per pulser 1:1 to 1000:1, in one-pulse increments MECHANICAL: 6,000 pulses per minute ELECTRONIC: 100,000 pulses per minute 50%
Maximum Petro Net Wiring Extension	5000 ft (1420 m)

K800 FUEL SITE CONTROLLER	
Dimensions	2" H x 9" W x 11" D (5cm H x 23cm W 28cm D)
Power Requirements Standard Optional	120 VAC, 60 Hz, 30W 220 - 240 VAC, 50 Hz
Ports Petro-Net Printer Terminal Modem	RS-485 RS-232 RS-232 (WYSE 50 emulation) 212A/224A
Operating Temperature Range FSC Peripherals	20°F to 100°F (-7°C to 38°C) 40°F to 85°F (5°C to 29°C)
Port Communication Speeds Petro Net (RS-485) Printer (Epson/serial) Terminal (RS-232) Modem (212A/224A)	9600 baud, maximum 5,000 feet 2400 baud, maximum 6 feet 9600 baud, maximum 50 feet 1200/2400 baud, maximum 50 feet

Fuel Island Terminal (FIT)

Installation

Refer to the K800 Installation Manual supplied with the system for complete installation details.

Up to four FITs can be installed per FSC. The FIT greets your customers, and prompts them through the fueling process. A keypad lets customers enter data like PIN numbers, or account numbers for cardless entry.

FITs communicate with the Fuel Site Controller via Petro-Net, a twisted-pair cable inside a steel conduit. The FSC is described in its own section of this book.

The FIT(s) (and all **K800** components) must be installed as described in the *K800 Installation Manual*. The Installation Manual also contains DIP switch information and LED functions.

Card or Key Reader

Access the **K800** with a card, a ChipKey, or a keypad entry. If a card reader is installed, one or two of the following are in the FIT:

ABA standard track II magnetic stripe cards

Optically-read cards, punch-encoded

ChipKeys

Cardless Access: a keypad data entry is substituted for inserting a card or key*

Dual Access: files are assigned to *both* the driver and the vehicle; restrictions for *both* files must be satisfied in order to fuel

Standard Dual Access: the *second* access number must be read from a card or key

** A DUAL-cardless model is available as special order. This method requires you enter both access numbers from the keypad. Contact Petro Vend for more information.*

FIT Display

The LCD display is visible even in sunlight and is backlit for night viewing. The display shows messages of two lines, each line containing up to 16 characters.

FIT Keypad

[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 customer with the PIN "3733" could remember this as "FRED" by associating each number with a letter from the data key.

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

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

WARNING!

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 subject to approval by the authority having jurisdiction.

[EMERG STOP] - Press the Emergency Stop button to immediately stop the fuel pumps. The system returns to normal operation when the next card or key is inserted.

CAUTION!

Do NOT use high-pressure cleaning equipment to clean the FIT! Wipe the unit down with a cloth moistened with regular household cleaner

Fuel Site Controller (FSC)

Installation

Refer to the *K800 Installation Manual* for complete FSC installation instructions. The FSC must be installed indoors! This small desktop unit houses the memory for your card and account records. The FSC also does the following:

- Manages the operations of the FITs
- Communicates with your terminal or PC
- Sends output to the printer and optional modem.

The FSC must be connected to one of the FITs using twisted pair wiring and rigid steel conduit. Refer to the *Installation Manual*. The Installation Manual also contains DIP switch setup and LED information

CAUTION!

The plug-in transformers for the Petro Vend System2 FSC and the K800 FSC are NOT interchangeable! Using the wrong transformer in your FSC will damage the FSC.

Programming with a Terminal or Computer

You program the *K800* with a terminal, or a PC running emulation software. The system can be programmed locally (with the terminal attached directly to the FSC) or over phone lines with a modem.

When connected to a PC, the PC must run a "terminal emulation" program to simulate the operations of an ASCII terminal.

A **K800** version of the Petro Vend **Phoenix** software package is also available. **Phoenix** is designed especially for interfacing the **K800** to a personal computer.

Along with terminal emulation, **Phoenix** provides all the know-how you need to manage **K800** data quickly and easily. No special computer training or experience is needed.

Additional computer-formatted commands allow the **K800's** data to be polled, backed up, restored or even created by another computer.

Attaching a Journal Printer

Connect a journal printer to the FSC PTR port. The printer is required to use the Report Package (described in an appendix). The standard journal printer is 115VAC, and draws 120W.

Using a Modem

For remote operation, the FSC MODEM port connects to an optional modem to provide you with control from a remote terminal or computer over standard telephone lines. The standard modem uses 115VAC and draws 20 watts.

Modems are discussed in an appendix.

Battery Backup System

An internal battery maintains FSC data even if power is removed from the unit. Press the **BATTERY** button on the front of the FSC. If the battery is good, an LED on the front panel lights.

Test the battery at least once per month. If the battery does not pass the test, contact your Petro Vend distributor for a replacement.

Functional Overview

Command Entry

All the commands to setup the **K800** system and to generate reports are listed on menus: no commands need be memorized. Help screens are available at each menu.

Setting Time, Date and Passwords

You must set the internal clock of the **K800** with the current time and date. You may also program dates for daylight savings changes.

To program a password for modem operation, see the modem appendix.

Site Configuration Overview

You can set the K800 for keyed or keyless/cardless access.

Available Pump Parameters

Pump Number

Pump Status

Product Name

Tank Number

Quantity Restriction

Total Time for Fueling

Max Time for Pump Handle

Max Time for First Pulse

Max Time for MPD

Pulser Divide Rate

Pump Handle Monitor

Pump Sentry

Required Settings

The following data tables *must* be programmed for the K800.

Product names and prices

Product restrictions

Quantity restrictions

Access time restrictions

Card, Key, and Account Files

Define for individuals or vehicles. Each user file contains the following information:

Card/key number

Card/key type

Validation status

Mileage flag

Keyboard entry message

Quantity restrictions per transaction

Product restriction

Access time restriction

Maximum number of transactions per day

Card/key issue number

Personal identification number ("PIN")

Maximum number of bad PIN entries

Account number

User files can also be assigned to accounts, with each account containing the following information:

- Account number
- Validation status
- Quantity restrictions per transaction
- Product restriction
- Access time restriction
- Account name

What's Recorded from Each Transaction

The following information is recorded for each transaction:

- Date and time
- 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. A sample transaction printout is shown above.

Transactions can end in various ways. Possible Transaction TYPES (shown in one column of the printout) are:

Type #	Description
0	Normal
1	Total Time Expired
2	Handle Timer Expired
3	First Pulse Timer Expired
4	Missing Pulse Timer Expired
5	Emergency Stop Pressed
6	Quantity Limit Exceeded
7	Communication Error
8	Power Failure

Creating Reports

The *K800* can generate reports on its status, pump totals and product totals. An internal report package is available to process transaction data.

The internal report package processes quantity and price totals by account or individual. Data can be easily transferred in compressed format to another computer for processing.

Powering Up the System

Communication

To communicate with the **K800**, you must configure your terminal or PC terminal emulation software in the following manner:

Emulation	WYSE 50
Display Lines	24
Scrolling	Jump
COMM Mode	Full Duplex (FDX)
Baud Rate	9600
Data/Stop bits	7/1
Parity	EVEN
Protocol	RS-232C

The above are default values for the Link terminal (available from **Petro Vend**) and do *not* need to be changed. Refer to your particular terminal owner's manual to check or change its configuration.

If you are using a PC, it must run a "terminal emulation" software in order to communicate with the **K800**. Most emulation packages can be set to communicate with the **K800**.

First Startup

If you have not yet started your system, do the following:

1. Power up the FIT(s) and the peripheral devices.
2. Remove the FSC cover and plug in the battery.
3. Plug the power transformer into a convenient AC outlet.
4. Press and hold the FSC **TEST** button. While holding the button, insert the power cable into its socket on the FSC.

5. Hold the **TEST** button until the **STATUS** light flashes continuously.
6. If the **STATUS** light flashes intermittently, it is signaling an error code. See Page 72 for a code list.
7. Replace the FSC cover.

After the Status light begins to flash continuously, the MAIN MENU should appear on the display and the header should print on the printer.

Later Start-ups

There are three types of system start-up, Cold, Warm, and Cool.

COLD START. The **K800** is cold started only when there are no data stored in the FSC.

WARM START. The **K800** is warm started after the AC power supply has been removed or disrupted or if the **RESET** button has been pressed. As long as the FSC battery is functional, *no* data are lost.

COOL START. A cool start occurs when the program EPROM in the FSC is replaced. The system setup, site configuration and table data must be re-entered.

In a cool start, *all card, key and account data remain intact*, as long as the FSC battery is functional.

Part II - Programming

Main Menu Overview

A. SYSTEM SETUP

- A. Time
- B. Date
- C. Daylight Savings Time
- D. Password
- E. Site Name

B. SITE CONFIGURATION

- A. Fuel Island Terminal
- B. Pump Parameters

C. TABLES

- A. Product Names and Prices
- B. Product Restrictions
- C. Quantity Restrictions
- D. Access Time Restrictions
- E. FIT Messages

D. CARD/KEY/ACCOUNT FILES

- A. Show User File(s)
- B. Edit User File(s)
- C. Show Account File(s)
- D. Edit Account File(s)
- E. Backup (computer mode only)
- F. Restore (computer mode only)

E. TRANSACTIONS

- A. Number
- B. Recall
- C. Poll
- D. Erase

F. REPORTS

- A. System Information
- B. Pump Totals
- C. Product Totals
- D. Inventory
- P - Print
- R - Report Package

MAIN MENU

- A - System Setup
- B - Site Configuration
- C - Tables
- D - Card/Key/Account Files
- E - Transactions
- F - Reports

- L - Lock

- Q - Quit (modem only)

- H - Help

Using the Sub-Menus

All sub-menus are accessed from a Main menu. Call the Main menu by pressing the [ENTER] key (possibly several times) from any point.

When first using the system the **Enter Password** message displays. The initial password is the six-digit system serial number. The serial number is on the data sheet supplied with the system, and on a label affixed to the bottom of the FSC. *The "W" in the serial number is not part of the password. This password is also used if you are accessing the system remotely via modem!* Select a function from a menu by pressing the letter key and then [ENTER]. Each Main Menu selection is described below.

System Setup

Use System Setup to set time of day, date, daylight savings time dates, passwords and to assign a site name to your K800.

Site Configuration

Use this menu to display FIT parameters like operational status, reader type and software version number. Also displays and lets you change individual pump parameters.

Tables

The Tables sub-menu lets you specify product names and prices, product restrictions, quantity restrictions, access time restrictions, and FIT messages.

Card/Key/Account Files

Use this sub-menu to show or edit user files, to show or edit account files, and to back up or restore system configuration data (while in computer mode).

Transactions

This sub-menu displays the total number of transactions, lets you display transactions one at a time, transmit transactions (in a "compressed" computer format), or erase transactions from the K800 data base.

Lock

This selection blanks the screen and then "locks" the terminal to prevent unauthorized access. After the terminal is locked, the password must be entered to gain access.

Quit (Modem Only)

When the K800's programming terminal or computer is located at a remote site, modems are used for communication. Selecting Quit from the Main menu disconnects the **K800** from the modem.

Help/ESCAPE

“Help” screens are available for the MAIN MENU and all the submenus. These screens display information about the current menu.

Press (**Esc**) to return to the Main menu. If you press [**Esc**] in the middle of a data entry sequence, the command is aborted and the data not accepted.

8.0 System Setup Menu

Time

When you select this feature, the current time is displayed. You are prompted:

```
Current time:  
Enter New Time (HH:MM) ---->
```

The time must be entered in the specified format, using 24-hour time; for example, `15:57' (which is the equivalent of 3:57 PM).

Press **[ENTER]** to complete the entry. The seconds for the clock are set to zero, and you are returned to the System Setup menu.

To exit this feature *without* entering a new time, simply press **[ENTER]** at the prompt.

```
SYSTEM SETUP  
  
A - Time  
B - Date  
C - Daylight Savings Dates  
D - Password  
E - Site Name  
  
H - HELP  
  
X - Return to Main Menu
```

Date

When you select this feature, the current date is displayed. You are prompted:

```
Current date:  
Enter New Date  
(MMM DD, YYYY) ---->
```

The date must be entered in the specified format; for example, `JAN 02, 1996'. Be sure to enter two digits for the day and four digits for the year.

Press the [ENTER] key to complete the entry and to return to the System Setup menu. To exit this feature *without* entering a new date, simply press [ENTER] at the prompt.

Daylight Savings Dates

This feature lets you choose the dates on which the internal clock will automatically go forward and backward an hour. You are prompted to enter new dates. If you do *not* want to change a date, simply press [ENTER] at the prompt. Once past programmed date, it is automatically deleted and replaced with question marks.

Password

A password must be entered in order to gain access to the **K800**. The initial password is the six-digit system serial number. The serial number is on the data sheet supplied with the system, and on a label affixed to the bottom of the FSC. The "W" in the serial number is not part of the password.

Use the `PASSWORD' command to change the password. The new password can be numbers and/or letters; the password is "case-sensitive;" that is, upper and lower case letters are distinguished. The password must be *exactly* six characters in length.

When you enter the password, you are prompted a second time to ensure a correct entry. Unless the same password is entered both times, the new password is rejected.

IMPORTANT!

Be sure to write down and safely store the new password. It can not be recalled from the system. If you forget the password, contact Petro Vend.

Site Name

The site name appears at the top of every page of transactions and on each page of the reports for the Report Package. The current name is displayed. The maximum length of the site name is determined by your software version:

Version 1.08i: 39 characters max

Version 1.09A: 40 characters max

Enter a new site name (numbers or letters), or simply press **[ENTER]** to leave the site name unchanged.

Site Configuration Menu

```
SITE CONFIGURATION

A - Fuel Island Terminals
B - Pump Parameters

H - HELP

X - Return to Main Menu
```

Fuel Island Terminals

When this feature is selected, the following information is displayed for each FIT:

Operational status (running or down)

Type of reader (magnetic card, optical card, or Chipkey)

Software version number and release date

Press the **[ENTER]** key to exit to the SITE CONFIGURATION MENU.

Pump Parameters

Up to four pumps can be connected to each **K800** FIT. A **K800** system can have up to four FITs, for a total of 16 pumps. The FIT number is determined by DIP switches on the FIT board.

The pumps are identified by the terminal *position* to which they are connected:

FIT #	Pump Positions
1	1 - 4
2	5 - 8
3	9 - 12
4	13 - 16

After you select Pump Parameters the current configuration appears. A typical configuration is shown on the next page. You are also prompted:

Do you wish to change? (Y/N/X)

Enter `N' (for no), `Y' (for yes) or `X' (to exit). If you answer yes, you are prompted to enter a pump position. After entering a position number, you will specify data for each pump parameter.

These parameters are explained in the following paragraphs; the label inside parenthesis is what appears on the screen. Press [ENTER] at a prompt to keep the current data.

PUMP CONFIGURATION

PUMP CONFIGURATION													
<----- TIMERS ----->													
POS	NBR	STAT	PRODUCT	TANK	QNTY	TOTL	HN DL	FRST	MPD	PLSR	DIVD	MON	SENT
01	01	RUN	01-Regular	01	01	600	120	030	010	0100	N	7-3	
02	02	IDLE	02-Super	02	01	600	120	030	010	0100	N	7-1	
03	03	IDLE	03-Unleaded	03	01	600	120	030	010	0100	N	7-0	
04	04	IDLE	04-SuprUnlead	04	01	600	120	030	010	0100	N	7-0	
05	05	IDLE	01-Regular	01	02	600	120	030	010	0100	N	7-0	
06	06	RUN	02-Super	02	02	600	120	030	010	0100	N	7-0	
07	07	IDLE	03-Unleaded	03	02	600	120	030	010	0100	N	7-1	
08	08	IDLE	04-SuprUnlead	04	02	600	120	030	010	0100	N	7-0	
09	11	IDLE	05-Water	05	03	600	120	020	010	0100	N	N-0	
10	12	IDLE	05-Water	05	03	600	120	020	010	0010	N	N-0	
11	13	RUN	05-Water	05	03	600	120	020	010	0010	N	N-0	
12	14	IDLE	05-Water	05	03	600	120	020	010	0010	N	N-0	
13	21	IDLE	06-TransOil	06	04	600	120	045	010	0010	N	N-0	
14	22	IDLE	06-TransOil	06	04	600	120	045	010	0010	N	N-0	
15	23	IDLE	06-TransOil	07	04	600	120	045	010	0010	N	N-0	
16	24	IDLE	06-TransOil	07	04	600	120	045	010	0010	N	N-0	

Enter Pump Position:

Position (POS)

The pumps are identified by the terminal *position* to which they are connected (see Section 9.2). The FIT number is determined by a DIP switch on each unit - refer to the K800 Installation Manual.

Pump Number (NBR)

The pump number is a 2-digit *label* that can be used to identify each pump position. The pump number does *not* have to be the same as the pump position.

Status (STAT)

This indicates the current operational status of a pump. There are four types of pump status:

IDLE - the pump is functional and available to a customer

HNDL - the pump was authorized by the **K800**, but the customer has *not* yet turned the pump on

RUN - the pump is dispensing fuel

PRNT - the transaction has been completed and is ready to print

Product Number (PRODUCT)

Up to 16 different labels can be specified for products. The 2-digit code numbers for these labels are assigned in the Tables Menu.

To specify the label for a pump, enter the corresponding code number.

Supply Tank (TANK)

You can assign a 2-digit number to identify the tank which supplies fuel to the pump. This feature is used for inventory control.

Quantity Restriction (QNTY)

Quantity restriction limits the amount of fuel that can be pumped per transaction. These codes are defined in the Tables Menu.

To specify the quantity restriction for a pump, enter the corresponding code number. Note that code `00' indicates *no* quantity restriction.

Total Time For Fueling (TOTL)

This parameter specifies the maximum amount of time (in seconds) allowed for the user to fuel. Time is measured from when the **K800** authorizes the pump.

Power is automatically removed from the pump when the specified time is exceeded (default = 600 seconds (10 minutes)). A timer value of `000` specifies *no* limit.

IMPORTANT

The pulser divide rate must be accurate for the system to record the correct amount of fuel.

Max Time For Pump Handle (HNDL)

This parameter specifies the maximum amount of time (in seconds) between pump authorization and pump handle retrieval (default = 120 seconds). A timer value of `000` specifies *no* limit.

Missing Pulse Detect Time (MPD)

The missing pulse detector ("MPD") specifies the maximum amount of time (in seconds) allowed between fueling pulses. Power is automatically removed from the pump when the specified maximum time is exceeded (default = 10 seconds). A timer value of `000` specifies *no* limit.

Pulser Divide Rate (DIVD)

This feature specifies the number of pulses the **K800** will receive per unit of fuel. This value must be from `0001` to `1000` (default = 100)

Pump Handle Monitor

When this feature is enabled, a transaction is *not* initiated for a pump if its handle is left in the "on" position after the last transaction; the customer is prompted to enter a different pump number. (default = *not enabled*)

Pump Sentry (SENT)

This feature specifies whether or not to deactivate the pump if there are several "zero quantity" transactions in a row; such an occurrence indicates a probable pulser malfunction.

You can specify from one to nine transactions for this feature. Three or more transactions is recommended for most pumps. You can also disable this feature by entering `N`.

The first digit in the `SENT' column display indicates the programmed value. (default = *not enabled*)

The second digit in the `SENT' column indicates the current number of sequential zero quantity transactions. This number is "zeroed out" whenever there is a non-zero transaction.

For example, a pump is programmed to deactivate after seven "zero quantity" transactions, and the last three transactions for this pump have had zero quantities. Under the `SENT' column, this pump would be indicated as `7-3'. If the next transaction had a quantity of 10 gallons, this pump would then be indicated as `7-0'.

If a pump is locked out because of this feature, you can reset the counter to zero by reprogramming the pump sentry value. For the example above, when the number of zero transactions reached seven, you could reset the pump (and clear the counter) by setting the sentry value to seven (or to any other number from one to nine).

Notes:

Tables Menu

Product Names And Prices

You can specify the names and prices for up to 16 different fuel types. The default name for each product is `Product ##' (where `##' is the product number). The default value for the price is \$1.000.

After you select this menu item, the current names and prices are displayed. You are also prompted:

```
Do you wish to change?  
(Y/N/X) ---->
```

If you enter `N' (for no) or `X' (for exit), you are returned to the TABLES MENU. If you enter `Y' (for yes), you are prompted:

```
Enter Product Number  
(01 - 16 or X) ---->
```

Enter the number of the product you wish to change; or enter `X' to exit. Note that you must enter two digits for the product number. When you enter a product number, you are then prompted:

```
Enter Product Name  
(12 characters) ---->
```

TABLES

```
A - Product Names and Prices  
B - Product Restrictions  
C - Quantity Restrictions  
D - Access Time Restrictions  
E - FIT Messages  
  
H - HELP  
  
X - Return to Main Menu
```

You can enter letters or numbers for the product name. The entry is also "case sensitive;" that is, upper and lower case letters are distinguished; for example, `SuperUnlead1` and `Regular_Fuel`. Note that the entry must have exactly 12 characters. You are then prompted:

```
Enter Product Price
(N.NNN Decimal not needed) --->
```

You must enter exactly four digits for the price; For example, to specify 99 you would enter `0990`.

After entering the price, all the product names and prices are redisplayed. You are also prompted to change another product name and price or to exit to the MAIN MENU.

Product Restrictions

You can specify codes for up to 15 different combinations of product restriction. These codes (`01 - 15`) will be used when configuring the card/key and account files to limit which products each customer or vehicle may use. (The code `00` can also be used to indicate *no* restriction.)

After you select this menu item, the codes and associated valid products are displayed. A `Y` indicates a particular product is valid; a `-` indicates a particular product is invalid (or unavailable). Note that initially *all* products are available for *all* codes. You are also prompted:

```
Do you wish to change? (Y/N/X) ->
```

If you enter `N` (for no) or `X` (for exit), you are returned to the Tables Menu. If you enter `Y` (for yes), you are prompted:

```
Enter Product Restriction Level
(01 - 15 or X) ---->
```

Enter the number of the code you wish to change; or enter `X` to exit. Note that you must enter two digits for the code number. When you enter a code number, you are then prompted:

```
Enter Product Restriction
(16 characters Y or N) ---->
```

You must enter exactly 16 characters; for example, to program a code as valid for products 1 - 8 and invalid for products 9 - 16, you would enter `YYYYYYYNNNNNNNN`.

These product numbers are assigned to the pumps in the Pump Configuration screen. See the section on Pump Configuration.

Example -- Three products could have FOUR restrictions:

Product	Restriction
Product #1 - Unleaded	Product Restriction #1 - YNNNNNNNNNNNNNNNN (unlead only)
Product #2 - Diesel	Product Restriction #2 - NYNNNNNNNNNNNNNNNN (diesel only)
Product #3 - Kerosene	Product Restriction #3 - YYNNNNNNNNNNNNNNNN (unleaded or diesel)
	Product Restriction #4 - NNYNNNNNNNNNNNNNNNN (kerosene only)

If you are using a dual card setup (driver/vehicle) a good way to set up product restriction is to assign a product restriction to the vehicle and set the drivers to Product Restriction #0 (unrestricted).

After entering the restriction, all the codes and associated products are redisplayed. You are also prompted to change another code or to exit to the Main Menu.

Quantity Restrictions

You can specify up to 15 different levels of quantity restriction. The restriction codes ('01 - 15') are used when configuring the card/key and account files and pump parameters to indicate the maximum amount of product a user is allowed per transaction. (Code '00' can also be used to indicate *no* limit.)

After you select this menu item, the codes and associated quantity restriction values are displayed. You are also prompted:

Do you wish to change? (Y/N/X) -->

If you enter 'N' (for no) or 'X' (for exit), you are returned to the Tables Menu. If you enter 'Y' (for yes), you are prompted:

Enter Quantity Restriction Level (01 - 15 or X) ---->

Enter the number of the code you wish to change; or enter 'X' to exit. Note that you must enter two digits for the restriction level. When you enter a restriction level, you are then prompted:

Enter Quantity Restriction Value (NNNNN or X) ---->

You must enter exactly five digits; for example, to specify 125 gallons, you would enter '00125'.

After entering the value, all the product codes and associated quantity limits are redisplayed. You are also prompted to change another restriction code or to exit to the MAIN MENU.

Access Time Restrictions

You can specify codes for up to four different sets of access time restrictions. These codes (`1' - `4') are used when configuring the card/key and account files to limit when each customer or vehicle may fuel. The default value for all codes is *all* times valid. (Code `0' can also be used to indicate *no* time restrictions.)

After you select this menu item, the codes and associated start and end times are displayed. You are prompted:

```
Enter access time restriction
level (1-4 or X)?
```

If you enter `N' (for no) or `X' (for exit), you are returned to the TABLES MENU. If you enter `Y' (for yes), you are prompted:

```
Enter access start time (HH:MM)-->
```

Enter a time in the displayed 24-hour format; for example, `07:30'. You are then prompted:

```
Enter access end time (HH:MM)-->
```

Enter a time in the displayed 24-hour format; for example, `15:30'.

After entering the times, all the codes and associated times are redisplayed. You are also prompted to change another code or to exit to the MAIN MENU.

FIT Messages

There are 50 different messages programmed into the system (table below). These are displayed at the FIT during various stages of the fueling process. These messages can be viewed on the second help screen for the TABLES MENU.

DEFAULT FIT MESSAGES			
1	Insert Card/Key	26	Checking Pump
2	Remove Card/Key	27	Use Pump
3	Insert Driver Card/Key	28	<i>Not used</i>
4	Remove Driver Card/Key	29	<i>Not used</i>
5	Insert Vehicle Card/Key	30	<i>Not used</i>
6	Remove Vehicle Card/Key	31	Enter PIN
7	<i>Not used</i>	32	Select PIN
8	<i>Not used</i>	33	Incorrect PIN
9	<i>Not used</i>	34	Enter Mileage
10	<i>Not used</i>	35	Enter Miscellaneous 1
11	Bad Card/Key	36	Enter Miscellaneous 2
12	Read Error	37	Enter Miscellaneous 3
13	Turn Card Over	38	Enter Miscellaneous 4
14	Not for K800	39	Enter Miscellaneous 5
15	Card/Key Not Programmed	40	Enter Miscellaneous 6
16	Wrong Card/Key	41	Enter Miscellaneous 7
17	Invalid Card/Key	42	Enter Pump
18	Wrong Network	43	Not Available
19	Card/Key Expired	44	Pump In
20	Invalid Time	45	Invalid Pump
21	Transaction Limit	46	Pump Handle ON
22	Card/Key Mismatch	47	Out of Service
23	Invalid Account	48	Wrong Product
24	Account Not Programmed	49	<i>Not used</i>
25	Card/Key Invalidated	50	<i>Not used</i>

To change one or more of these messages, select this option. You are prompted:

```
Enter Message Number
(01 - 50) ----->
```

Enter the number; or press [Enter] to return to the TABLES MENU. After you enter the number, the current version of that message is displayed and you are prompted:

```
Do you wish to change
(Y/N/X) ----->
```

Enter `X' (for exit) to return to the TABLES MENU. Enter `N' (for no) or simply press the [Enter] key to prompt the next message. Enter `Y' (for yes) to changed the displayed message. When you enter `Y' you are prompted:

```
Enter New Message
( 32 Characters ) ----->
```

You MUST enter *EXACTLY* 32 characters.

The entry for a display prompt is "case-sensitive;" that is, upper and lower case letters are distinguished. In addition to numbers and letters, you may also enter most printable characters, such as `!', `?' and `\$'.

Note that the FIT display is two lines with 16 characters each. When prompting a message that requires a keypad response (such as a PIN entry), be sure to leave enough room for keypad entry to display.

After you enter the message, it is re-displayed for verification and you are prompted:

```
Do you wish to change
(Y/N/X) ----->
```

Enter `X' (for exit) to return to the TABLES MENU. Enter `N' (for no) or simply press the [Enter] key to prompt the next message. Enter `Y' (for yes) to change the *same* message.

These prompts are programmable, but you cannot change the functionality of the prompt: **EXAMPLE:** Message 42 says ENTER PUMP. You cannot change this to enter mileage -- the K800is still looking for a pump number entry. But, you **COULD** change it to Hose Number.

Messages 35 to 41 are the miscellaneous entry keyboard messages 1-7. They can be formatted for whatever additional data entry the customer wants his fuelers to enter: such as PO number, tax ID, Vehicle number. These entries are accepted as numeric entries up to ten digits in length. The entries are not checked by the fuel system, they are just accepted as they are entered. This will be recorded in the transaction record under the keyboard field.

Notes:

Card/Key Account Files Menu

Understanding the K800 User File

The K800 user file is a database of Card/key types. When working with the user file you will notice most prompting will say Card/Key, the K800 system can handle also a cardless entry (see Cardless Entry). The user file is a unique number used to identify a driver and/or vehicle in a transaction. It also has the ability of restricting the drivers and vehicles to certain quantities, products, pumps, times, transactions a day and gather addition information such as mileage. The user file has security by allowing PIN (personal identification number) for each user number.

CARD/KEY/ACCOUNT FILES

- A - Show User File(s)
- B - Edit User File(s)
- C - Show Account File(s)
- D - Edit Account File(s)
- E - Backup (computer mode only)
- F - Restore (computer mode only)

- H - HELP

- X - Return to Main Menu

Cardless Entry

The K800 is capable of supporting cardless entry. For the K800 to take a cardless entry you need to set the FIT for keyboard entry (see Installation Manual). If you are using a driver/vehicle setup the first input must be the cardless entry. For example if you have the drivers using cards and the vehicles as cardless the vehicle user number must be entered first then the driver card inserted. The K800 does have optional software that will support using cardless for driver and vehicle.

Note: *Because the cardless entry must be first entry on a driver/vehicle transaction, you may want to format the FIT display message #1 (see FIT Messages) to Enter Driver Number or Enter vehicle number. This would let the users know they need to enter their cardless entry first.*

Number

The K800 system is capable of supporting 9999 Users (Card/Key/Cardless).

Type

This is where you would define the user number as a type, such as single, driver or vehicle. Because there can be only one type per user number, the Single, Driver and vehicle card/keys are unique numbers. There are three types of users defined below.

Single – This type is used if you wish to have only one input to track a driver or a vehicle, but not both.

Driver – This type is used to define this card/key as a driver and is used in conjunction with a vehicle type card/key.

Vehicle – This type is used to define a card/key as a vehicle and is used in conjunction with a driver type card/key

Since you now know what the different types of users (Card/Key/Cardless) are, you now need to know which one to use. Below is breakdown of the advantages and disadvantages of the types.

Single - For simple fuel accountability. By using a single type card/key you can only track the driver who fueled or vehicle that was fueled. If the single type card/key is assigned to a vehicle it can only have one PIN number, so every driver of that vehicle needs the PIN. If the card/key is assigned to a driver you will not know the fueled vehicle. Using these types of card/keys are easiest to maintain, but lack the accountability of who pumped the fuel or which vehicle received the fuel.

Driver/Vehicle - The advantage to using a dual card system is that you can track who fueled the vehicle and what vehicle was fueled. You can also restrict certain drivers to certain vehicles and vice versa (see Card/Account restrictions). This setup gives you the most accountability for the fuel by providing you with the driver and vehicle in the transaction.

Card/Account Restrictions - By using a driver and vehicle card/keys you can restrict certain drivers to vehicles or certain vehicles to drivers. When you setup a driver or vehicle card/key you assign an account number to them. For a driver to use a vehicle card/key his account number must match or the driver or vehicle must be in account 000. So if you put the driver into account 000 then he could use any vehicle or if you put the vehicle into account 000 the any driver could use this vehicle.

Showing User File(S)

This selection is used to display the configuration of the individual card/key files. When you enter this selection, you are prompted:

```
Enter Card/Key Number
(NNNN or X) ---->
```

Enter the 4-digit number to display the data for the specified card/key or enter `X' to exit to the files menu. Note that you must specify the card/key number with exactly four digits; for example, `0123' and `1234'. The card/key parameters are explained on the following pages.

To display the next card/key number, simply press the [ENTER] key. You may display sequential numbers in blocks of 1000. After number #999 (i.e., 0999, 1999, 2999, etc.), you are returned to the CARD/KEY/ACCOUNT FILES MENU.

Editing User File(S)

This selection is used to change the configuration of the individual card/key files. When you enter this selection, you are prompted:

```
Enter Card/Key Number
(NNNNN or X) ---->
```

Enter the 4-digit number or enter `X' to exit the selection. Note that you must specify the card/key number with exactly four digits; for example, `0123' and `1234'. The card/key parameters are explained on the following pages. The prompt is:

```
Do you wish to change
(Y, N or X) ---->
```

Enter `N' (for no) or simply press the [ENTER] key to display the parameters for next card/key number. To exit to the files menu, enter `X'. To change data, enter `Y' (for yes) at the prompt. The **K800** then prompts you to enter data for each field. You may skip a field and leave the data unchanged by pressing [ENTER] *without* making an entry. Enter `X' at any prompt to exit the editing mode and re-display the card/key data.

You may edit sequential numbers in blocks of 1000. After number #999 (i.e., 0999, 1999, 2999, etc.), you are returned to the CARD/KEY/ACCOUNT FILES MENU.

Numbr	Type	Stat	Mile	Kybd	Quan	Prod	Time	Tran/Day	Issu	PIN	Inv	Acnt
0001	Sngl	Val	Y	N	00	01	0	00-00	0	1324-0-4	000	
0002	Drvr	PIN	N	N	00	02	0	00-00	0	5458-4-4	000	
0003	Vehl	Inv	N	N	00	01	0	00-00	0	0000-0-0	000	
0004	Sngl	Val	Y	N	00	03	0	00-00	0	3456-0-0	000	
0005	Sngl	Inv	N	N	00	04	0	00-00	0	3857-0-0	000	
0006	Drvr	Val	N	N	00	01	0	00-00	0	9387-0-0	000	
0007	Vehl	Val	N	N	00	03	0	00-00	0	0000-0-0	000	
0008	Sngl	Val	Y	N	00	01	0	00-00	0	7480-0-0	000	
0009	Vehl	Inv	N	N	00	03	0	00-00	0	0000-0-0	000	
0010	Sngl	Inv	N	N	00	00	0	00-00	0	0000-0-0	000	

The following fields can be programmed for each card/key file.

Card/Key Type

There are three types of card/keys: (1) single, (2) driver and (3) vehicle. In dual card/key operation, the customer first inserts either his or her driver or vehicle card/key. He is then prompted to enter the second card/key.

When you are prompted to enter the card/key type, you may enter `R` to reset the parameters for a file to default values.

Validation Status

Before a file is configured, its status is unprogrammed (`----`). You can configure a card/key file as valid (`Val`) or invalid (`Inv`). This allows you to set up files and activate them at a later date.

The status of a file will be indicated as `PIN` if a customer enters the maximum number of incorrect PIN entries allowed. (See below for details on PIN entry.)

Mileage Flag

To flag for a customer to enter his or her mileage, enter `Y` for this feature. To disable this feature, enter `N`. If mileage is *not* prompted, `??????` appears in the transaction record. This field is ignored for *driver* card/keys.

Keyboard Entry Message

To display a keyboard entry message, enter [1] to [7] to select the message. Enter [N] to disable this feature. If entry is *not* prompted, `????????` appears in the transaction record. For dual card/key operation, the vehicle file takes precedence. If the vehicle file is programmed for *no* keyboard entry, then the driver field is checked.

Keyboard Entry Message No.	Default Display Message	New Display Message
1	35 - Enter Miscellaneous 1	
2	36 - Enter Miscellaneous 2	
3	37 - Enter Miscellaneous 3	
4	38 - Enter Miscellaneous 4	
5	39 - Enter Miscellaneous 5	
6	40 - Enter Miscellaneous 6	
7	41 - Enter Miscellaneous 7	

EXAMPLE: If you set the Keyboard Entry Message to "3" when that card is used it will grab message 37 from the FIT message table. You can change the message to fit your needs (Trailer, Social Sec number, etc) but remember the keyboard entry is only numeric and any input is accepted.

Quantity Restriction Level

The quantity restriction levels (`01' - `15') are used when configuring the card/key files to indicate the amount of product a user is allowed to pump. The default value, code `00', indicates *no* restrictions.

Quantity restrictions can be programmed into pump parameters and into single, driver, vehicle and account files. The actual limit for a transaction is the lowest of *all* the associated quantity restrictions.

Product Restriction Level

The product restriction levels (`01' - `15') are used when configuring the card/key files to indicate the types of product a user is allowed to pump. The default value, code `00', indicates *no* restrictions.

Product restrictions can be programmed into single, driver, vehicle and account files. For fueling to be allowed, the product dispensed from the selected pump must be authorized for *all* associated files.

Access Time Restriction Level

The access time restriction codes (`1' - `4') are used when configuring the card/key files to indicate the time of day a person is allowed to fuel. The default value, code `0', indicates *no* restrictions.

Access time restriction can be programmed into single, driver, vehicle, and account files. For fueling to be allowed, the time must be valid for *all* associated files.

Max Transactions Per Day

You can program the maximum number of transactions per day for each card or key. This can be a number from `01' to `15'; the default value is code `00' for no limit.

The first two digits indicate the maximum number of transactions allowed. The second two digits indicate the number of transactions completed for the current day. This number resets automatically at midnight.

Card/Key Issue Number

If a card/key is lost or stolen, you can reissue another card/key with the same card/key number but with a different *issue* number. Even though the old card/key has the same card/key number, the **K800** will *not* accept it because the issue number is different.

You can enter an issue number of `1' - `9' to match the number encoded in the card/key.

To disable this feature, you may enter an issue number of `0'. This feature is also disabled if the card/key is encoded with issue number `0'.

PIN

The PIN is a 4-digit personal identification number that the customer must enter after inserting his or her card/key.

There are three PIN options for each file:

Deactivate the feature by entering `0000`

Enter the 4-digit PIN number during configuration

Specify `?' during configuration; customer can then select his or her or her own PIN at the FIT when accessing the system for the first time.

Invalid PIN Entries

You can specify the number of bad PIN entries allowed for each customer. This limits the chance of someone trying to guess a PIN with a lost or stolen card/key.

The current quantity of invalid PIN entries for each file is displayed. This number is zeroed whenever a valid PIN entry is made.

Account Number

This number identifies the account, if any, to which a card/key file belongs. The default value, `000`, indicates that a card/key does *not* belong to an account.

The account feature has several uses:

Use to group non-consecutive card/key numbers together for use with the report package.

Provide global product, quantity, and access time restrictions.

Program the same account number in both driver and vehicle card/key records to make a driver can only fuel the vehicle(s) belonging to his or her own account.

For dual card/key operation, it is also possible to program one of the card/key types (driver or vehicle) with an account number and the other with no account (that is, account `000'). This still provides for card/key grouping but eliminates the restriction of drivers fueling only certain vehicles.

Name	Acnt	Stat	Quan	Prod	Time
Petro Vend Inc. 6900 Santa Fe Drive Hodgkins, IL	001	Val	01	02	3
Flowers By Irene 600 West 60th Street Westmont, IL	002	Inv	02	03	1

Showing Account File(S)

This selection displays individual account file configuration. When you enter this selection, you are prompted:

```
Enter Account Number
(NNN or X) ---->
```

Enter the 3-digit number to display the data for the specified account or enter `X' to exit to the files menu. Note that you must specify the account number with exactly three digits; for example, `012' and `123'. The account parameters are explained on the following pages.

To display the next account number, simply press the [ENTER] key. After number #250, you are returned to the CARD/KEY/ACCOUNT FILES MENU.

Editing Account Files

This selection is used to change the configuration of the individual account files. When you enter this selection, you are prompted:

```
Enter Account Number
(NNN or X) ---->
```

Enter the 3-digit number or enter `X' to exit the selection. Note that you must specify the account number with exactly three digits; for example, `012' and `123'. The account parameters are explained on the following pages. You are prompted:

```
Do you wish to change
(Y, N or X) ---->
```

Enter N or press the [ENTER] key to display the parameters for next account number.

To exit to the files menu, enter `X'. To change data, enter `Y' (for yes) at the prompt. The **K800** then prompts you to enter data for each field. Leave data unchanged by pressing [ENTER] *without* making an entry. Enter `X' at any prompt to exit the editing mode and re-display the account data.

After number #250, you are returned to the CARD/KEY/ACCOUNT FILES MENU. The following fields can be programmed for each account file.

Validation Status

Before a file is configured, its status is unprogrammed ('----'). You can configure an account file as valid ('Val') or invalid ('Inv'). This allows you to set up files and activate them at a later date.

Quantity Restriction

The quantity restriction levels ('01' - '15') are used when configuring the account files to indicate the amount of product a user is allowed to pump. The default value, code '00', indicates *no* restrictions.

Product Restriction

The product restriction levels ('01' - '15') are used when configuring the account files to indicate the types of product a user is allowed to pump. The default value, code '00', indicates *no* restrictions.

Access Time Restriction

The access time restriction codes ('1' - '4') are used when configuring the account files to indicate the time of day a person is allowed to fuel. The default value, code '0', indicates *no* restrictions.

Name

To specify the account name and address (or other information), you can enter three lines of up to 36 characters each (numbers and letters) for each account. This entry is "case-sensitive;" that is, upper and lower case letters are distinguished.

Transactions Menu

Number

This feature displays the current number of transactions stored in the FSC print buffer and the transaction buffer.

Recall

This feature allows you to review the transactions that are currently stored in the **K800** memory. One transaction is displayed at a time.

Press the [ENTER] key to display the next transaction.

This feature is exited after the last transaction is displayed. To terminate the display *before* the last transaction, press the [X] key, and the [ENTER] key.

TRANSACTIONS

A - Number
B - Recall
C - Poll
D - Erase

H - HELP

X - Return to Main Menu

IMPORTANT

The printer is "blocked" (prevented from printing) while the TRANSACTIONS MENU is displayed to prevent new transactions from being stored. Up to 200 transactions can be "buffered" (stored in temporary memory) during this time. These transactions are printed and stored in the main transaction memory when the TRANSACTIONS MENU is exited.

Poll

WARNING! Use of this command may cause loss of transactions.

This feature transmits one transaction at a time in a compressed computer format. This feature is usually initiated by a computer in order to extract transactions from the **K800** memory.

Each transaction includes a checksum which the computer can use to verify the accuracy of the transmission.

The **K800** waits for an acknowledge character (``ACK'` or `^F`) before deleting a transaction and transmitting the next. A negative acknowledgment (``NAK'` or `^U`) can also be sent by the computer to cause the **K800** to retransmit a transaction.

An ``X'` can be sent to abort the polling program anytime before the end of transactions.

Erase

This feature allows you to remove transactions from the **K800** memory. This feature is usually used after transactions have been processed by the report package.

You are prompted to enter a date; all transactions *on and before* this date will be erased from the **K800** memory. To erase *all* transactions in memory, specify ``*'` as the date.

Date format: MMM DD, YYYY

Example: DEC 31, 1999

Reports Menu

To display system, pump, product and inventory data, simply enter the corresponding letter from the menu above. Examples of these reports are shown on the following pages.

To print report data, select **PRINT** from the REPORT MENU. A submenu is displayed. Reports are printed in the same format as displayed on the terminal. See Page for more information on printing reports.

When you select the report package, you are prompted whether you want to print or display the data.

REPORTS

- A - System Information
- B - Pump Totals
- C - Product Totals
- D - Inventory
- E - Print
- F - Report Package

- H - HELP

- X - Return to Main Menu

IMPORTANT

The printer is "blocked" (prevented from printing) while the REPORTS MENU or one of the reports is displayed or printing. This prevents new transactions from being stored. Up to 200 transactions can be "buffered" (stored in temporary memory) during this time. These transactions are printed and stored in the main transaction memory when the REPORTS MENU is exited.

System Information Report

This report lists the system serial number, the network number, the FSC software version and the release date for the software. Note that this report can *not* be printed.

K800 SYSTEM INFORMATION

Serial Number: W123456

Network Number: 0123

FSC Software Version: 01.08A

Release date: APR 1992

Pump Totals Report

This report lists the pump totals and totalizer values. The totalizer values can be set to match the totalizers in the pumps to provide a method of reconciliation.

You are first prompted ``Do you wish to clear Totals? (Y/N)'` Enter ``Y'` (for yes) or ``N'` (for no) as appropriate.

If you enter ``N'` you are prompted ``Do you wish to change Totalizers? (Y/N)'`. Enter ``Y'` (for yes) or ``N'` (for no) as appropriate.

If you enter ``Y'` you are prompted to enter a pump number and then a totalizer value.

The totalizer value must be a 10-digit value *without* decimal numbers.

Pump Totals

Pump	Total	Totalizer
01	1234567.123	1234567.123
02	1234567.123	1234567.123
03	1234567.123	1234567.123
04	1234567.123	1234567.123
05	1234567.123	1234567.123
06	1234567.123	1234567.123
07	1234567.123	1234567.123
08	1234567.123	1234567.123
09	1234567.123	1234567.123
10	1234567.123	1234567.123
11	1234567.123	1234567.123
12	1234567.123	1234567.123
13	1234567.123	1234567.123
14	1234567.123	1234567.123
15	1234567.123	1234567.123
16	1234567.123	1234567.123

Product Totals Report

This report lists the product names and the quantities pumped to date. You are prompted:

Do you wish to clear totals? (Y/N)

Enter `Y' (for yes) or 'N' (for no) as appropriate.

Product Totals

Prod	Quantity
01-Unleaded	123456.123
02-Midgrade	123456.123
03-Premium	123456.123
04-Unleaded	123456.123
05-Midgrade	123456.123
06-Premium	123456.123
07-Unleaded	123456.123
08-Midgrade	123456.123
09-Premium	123456.123
10-Premium	123456.123
11-Premium	123456.123
12-Unleaded	123456.123
13-Midgrade	123456.123
14-Premium	123456.123
15-Midgrade	123456.123
16-Premium	123456.123

Inventory Report

This report lists the tank number and inventory amounts for each tank in the system. When the report is displayed, you are prompted:

Do you wish to change inventory? (Y/N) --->

Enter `N' to return to the REPORTS MENU. If you enter `Y', you are prompted:

Enter Tank Number
(01 - 16 or X) ---->

Enter a tank number; or enter `X' to exit to the REPORTS MENU. If you enter a tank number, you are prompted:

Enter Inventory in Full Units
(0000000 - 9999999) ---->

Note that the inventory entry can *not* contain a decimal. After the entry, you are again prompted to change the inventory. Enter `Y' or `N' as appropriate.

Tank Inventory

Tank	Inventory
----	-----
01	1234567.000
02	1234567.000
03	0236067.000
04	1234567.000
05	1234567.000
06	1236067.000
07	1336067.000
08	3216067.000
09	1234567.000
10	1234567.000
11	0236067.000
12	1234567.000
13	1234567.000
14	1236067.000
15	1336067.000
16	3216067.000

Printing a Report

To print report data, select `PRINT' from the REPORT MENU.

There must be a printer attached to the K800 FSC for this function to work.

The submenu above is displayed. When you select either the user or the account feature, you are prompted to specify the first and last file to print.

Enter `X' to return to the REPORTS MENU.

PRINT

- A - User(s)
- B - Account(s)
- C - Pump Configurations
- D - Product Names and Prices
 - Product Restrictions
 - Access Time Restriction
- E - Transactions
- F - Pump Totals
 - Product Totals
 - Inventory

Sample Report

Account #001

Tran	Date	Time	Acnt	Driver	Vehicle	Odomtr	Keyboard	Pump	Prod	Quantity	Price
0001	Jun 12,1991	12:23	001	1333	1200	012000	1234567890	01	07	00045.000	01.000
00045.00											
0002	Jun 12,1991	17:01	001	2451	0333	045005	0005792389	04	06	00025.100	01.469
00036.87											

Usage Total

Product 06 - Unleaded	45.000 Gal	\$ 45.00
Product 07 - Midgrade	25.100 Gal	\$ 36.87

		\$ 81.87

Driver 1234

Tran	Date	Time	Acnt	Driver	Vehicle	Odomtr	Keyboard	Pump	Prod	Quantity	Price
0001	Jun 12,1991	12:23	001	1333-1	1200-1	012000	1234567890	01	07	00045.000	01.000
00045.00											
0002	Jun 12,1991	17:01	001	2451-1	0333-1	045005	0005792389	04	06	00025.100	01.469
00036.87											

Usage Total

Product 06 - Unleaded	45.000 Gal	\$ 45.00
Product 07 - Midgrade	25.100 Gal	\$ 36.87

		\$ 81.87

Vehicle 1234

Tran	Date	Time	Acnt	Driver	Vehicle	Odomtr	Keyboard	Pump	Prod	Quantity	Price
0001	Jun 12,1991	12:23	001	1333-1	1200-1	012000	1234567890	01	07	00045.000	01.000
00045.00											
0002	Jun 12,1991	17:01	001	2451-1	0333-1	045005	0005792389	04	06	00025.100	01.469
00036.87											

Usage Total

Product 06 - Unleaded	45.000 Gal	\$ 45.00
Product 07 - Midgrade	25.100 Gal	\$ 36.87

		\$ 81.87

Report Package

REPORT PACKAGE

When you select the report package, you are prompted:

```
Enter 'Q' to quit or 'R' to Run --->
```

Enter `Q' to return to the REPORTS MENU. When you enter `R', you are prompted:

```
Enter type of report [S]ingle, [D]river, [V]ehicle, [A]ccount --->
```

Enter the appropriate letter to select a report type. You are then prompted:

```
Enter type of system  
[M]etric, [E]nglish ---->
```

Enter the appropriate letter to select the system for units of measurement. You are then prompted:

```
Enter lower card limit ---->
```

Enter the 4-digit number of the first card/key (or account) you wish to included in the report. You are then prompted:

```
Enter upper card limit ---->
```

Enter the 4-digit number of the last card/key (or account) you wish to included in the report.

*NOTE: To report on all cards/keys (or accounts), press the [ENTER] key at both prompts **without** specifying limits.*

You are then prompted:

```
Enter start date (MMM DD, YYYY) -->
```

Enter the first date in the specified format. You are then prompted:

```
Enter last date (MMM DD, YYYY) ---->
```

Enter the ending date in the specified format.

*NOTE: To report on all stored transactions, press the [ENTER] key at both prompts **without** specifying dates.*

You are then prompted:

```
Output to printer or terminal (P/T)? ---->
```

Enter `P` to print the report or `T` to display it on the terminal. If you enter `P`, you are prompted if you want to start a new page for each report. Enter `Y` (for yes) or `N` (for no) as appropriate.

After the report is completed, you are returned to the first prompt.

If you specify a narrow range of card/key (or account) numbers and a small date window, the report will be prepared very quickly. The wider the range of card/key (or account) numbers and the larger the date window, the longer the report preparation will take.

If you do *not* specify a card/key (or account) number range or a date range, the system will take several minutes to search through all of the stored transactions for the desired transactions.

Part III - Appendices

Notes

Appendix A - K800 Poll Data

Poll Data Format

Poll **K800** transactions with **C** from the Transactions Menu. Transactions are transmitted in the computer format shown below; the **K800** then waits for a response.

If ``NAK <CR>' (^U <CR>')` comes in from the target computer, the **K800** resends the same transaction. A ``ACK <CR>' (^F <CR>')` causes the **K800** to transmit the next transaction. An ``X <CR>'` can be entered any time to abort the transmission. An ``EOT'` ("end of transactions") is transmitted when there are no transactions left to poll. The number of sent transactions can be seen with **A** in Transactions Menu.

POS	DATUM	POS	DATUM	POS	DATUM
01	STX	27	VEHICLE (lsd)	53	QUANTITY
02	YEAR (msd)	28	MILEAGE (msd)	54	QUANTITY
03	YEAR (lsd)	29	MILEAGE	55	QUANTITY (lsd)
04	MONTH (msd)	30	MILEAGE	56	PRICE (msd)
05	MONTH (lsd)	31	MILEAGE	57	PRICE
06	DAY (msd)	32	MILEAGE	58	PRICE
07	DAY (lsd)	33	MILEAGE (lsd)	59	PRICE (lsd)
08	HOUR (msd)	34	MISC KEYPAD (msd)	60	TOTAL (msd)
09	HOUR (lsd)	35	MISC KEYPAD	61	TOTAL
10	MINUTE (msd)	36	MISC KEYPAD	62	TOTAL
11	MINUTE (lsd)	37	MISC KEYPAD	63	TOTAL
12	TRANS # (msd)	38	MISC KEYPAD	64	TOTAL
13	TRANS #	39	MISC KEYPAD	65	TOTAL (lsd)
14	TRANS #	40	MISC KEYPAD	66	ETX
15	TRANS # (lsd)	41	MISC KEYPAD	67	CHECKSUM (msd)
16	TRANS TYPE	42	MISC KEYPAD	68	CHECKSUM
17	ACCOUNT (msd)	43	MISC KEYPAD (lsd)	69	CHECKSUM (lsd)
18	ACCOUNT	44	PUMP # (msd)	70	CR
19	ACCOUNT (lsd)	45	PUMP # (lsd)	71	LF
20	DRIVER (msd)	46	PRODUCT # (msd)		
21	DRIVER	47	PRODUCT # (lsd)		
22	DRIVER	48	QUANTITY (msd)		
23	DRIVER (lsd)	49	QUANTITY		
24	VEHICLE (msd)	50	QUANTITY		
25	VEHICLE	51	QUANTITY		
26	VEHICLE	52	QUANTITY		

Poll Data Checksum

The checksum for the poll data format is the decimal addition of the four least significant bits of each character in the data stream between the `STX` and the `ETX` characters.

For example,

Character	ASCII Code	Digit to Add
0	30	0
1	31	1
9	39	9
?	3F	15

Appendix B - Modems

Introduction

The **K800** system can be interrogated and programmed remotely over conventional (voice-grade) telephone lines using a pair of modems. The "local" modem is located at the **K800** site; the "remote" modem is located at the remote terminal or computer.

The baud rate for **K800** and both modems must match. The baud rate for the **K800** modem is set by the DIP switch, position 3 on the FSC board (PV245). When this position is *off* the baud rate is 1200; when the position is *on*, the baud rate is 2400. (Refer to the Installation Manual for details.)

DCD is from the modem which the **K800** uses to know when a call has been received.

DTR is an output from the **K800** which allows the modem to answer.

Note that the modem (available from **Petro Vend**) requires a PC in order to be configured.

Host Modem Configuration

The modem which is connected to the **K800** FSC must have an "answer only" configuration. The following parameters must be set for any type of modem used locally with the **K800**. The commands to enter these parameters for the modem are also indicated.

Parameter	Command
Answers on first ring	ATSO=1
Turns echo OFF	ATEO
Monitors Data Carrier Detect	AT&C1
Result codes NOT returned	ATQ1
READY is turned off	AT&D2

After entering the Hayes-compatible commands enter ``AT&W'` to store the configuration permanently. The default baud rate for the Hayes-compatible modem is 2400.

Site Mode Configuration

You can use the command `AT&F' to load the factory configuration for the modem at the site. The default baud rate is 2400.

Password

The initial password for modem is your system serial number, displayed with the SYSTEM INFORMATION feature in the REPORTS MENU. (A "W" prefix is included in the serial number; this is *not* part of the password.)

The serial number also is listed on the Data Sheet supplied with the system and inside the FIT cabinet(s).

Calling A K800 Site

The **K800** system that you are calling must be at the MAIN MENU in order for the modem connection to be made.

When the call is successfully completed to the **K800** system, the **K800** responds by displaying the following:

Enter Password:

Enter the modem password. If the incorrect password is entered, the **K800** prompts you to try again. If no entry is made within 30 seconds, the **K800** system hangs up.

When the password is entered correctly, the system displays the MAIN MENU. All **K800** menu items are available for selection. To disconnect the modem, enter `Q' (for quit) at the MAIN MENU.

Notes.

Appendix C – EPROM Replacement

Overview

There are two integrated circuits (or "EPROMs") that contain the operating system (or main program) for the **K800**: one chip on the PV245 FSC board and one on the PV247 FIT board. The exact locations of the chips can be seen in the board illustrations in the Installation Manual.

The EPROM chips are in special "zero-force" sockets. Open and close using a screwdriver with a 1/8-inch blade. Note the screw is made of soft metal and can be easily damaged by a smaller blade screwdriver.

The socket screw is at "4 o'clock" when closed and "1 o'clock" when open. These positions are inscribed on the socket as "C" and "O" (although they are difficult to see).

FSC PV245 or PV249 EPROMs

The FSC software version is identified by both a number and a letter code; for example, "1.08 B".

IMPORTANT

Be very careful when handling the EPROMs. Avoid applying excessive pressure when inserting an EPROM into its socket. EPROMs are also sensitive to electrostatic discharge and should be handled in only a static-free environment.

To replace an EPROM with a new version *number*, first make sure the site and system data are written down. When the FSC EPROM is replaced, this information will be lost and must be reentered. If only the *letter* code is different, the data are *not* lost.

1. Check to insure the battery is plugged in and functional. (Press the **TEST** switch located in the front of the FSC. If the **BATTERY** LED lights, the battery is good.)
2. Unplug the FSC. Note that as long as the battery is plugged in and functional, the card/key/account data are *not* lost.
3. Gently turn the socket screw counter-clockwise, releasing the EPROM.
4. Carefully plug the new chip into its socket. The notch on the chip must face the socket screw. Make sure all metal contacts are properly inserted. Holding the chip in place, gently turn the socket screw clockwise.
5. Plug the FSC power cord back in.
6. The status light (located on the front panel of the FSC) flashes error code #7, showing a cool start is necessary.
7. To perform a cool start, press and hold the "Battery Test" button. Momentarily depress the "Reset" button; the FSC status LEDs (on the PV245 board) should flash in sequence. Continue hold the "Battery Test" button until the status light begins to flash rapidly.

8. Reprogram the site specific information.

FIT PV247 EPROMs

1. Turn the power switch in the FIT *off*.
2. Gently turn the socket screw counterclockwise. Carefully remove the old chip by hand.
3. Carefully plug the new chip into its socket. The notch on the chip must face the socket screw. Make sure all metal contacts are properly inserted. Holding the chip in place, gently turn the socket screw clockwise.
4. Turn the FIT power switch *on*.

Appendix D - ChipKey Programming

Overview

With the optional odometer reasonability feature, the ChipKey is able to store the last odometer reading entered by a user. Using the stored reading, the system determines if the current entry is "reasonable" (within the specified range) before allowing access to fuel. The ChipKey also logs the number of unreasonable odometer entries.

The system can prompt service warnings and prevent fueling when odometer entries meet or exceed programmed mileage levels.

The odometer reasonability feature applies only to Single and Vehicle ChipKeys; Driver ChipKeys can *not* store mileage entries.

Odometer Reasonability

A user is prompted to enter an odometer reading via the keypad when this feature is enabled. The system subtracts the previous odometer entry (stored in the ChipKey) from the current entry.

The system then checks if the difference between the two entries is within the range programmed for that particular ChipKey. An entry is considered "reasonable" by the system if the difference between the two entries is within the programmed range.

For example, if the current odometer entry is 1000 and the previous entry was 400, the difference is 600. If the reasonability range is 150 (minimum) to 250 (maximum), then 1000 is *not* a reasonable entry (at this time) because the difference (600) is greater than the range maximum (250).

Mileage Values

The table below lists the minimums and maximums that can be selected for odometer reasonability. Note that different code numbers can be combined for a range. For example, a range could be programmed as 10 to 1000 by selecting code #3 for the minimum and code #11 as the maximum.

TABLE OF MILEAGE VALUES		
Code #	Minimum	Maximum
0	0	<i>none</i>
1	1	10
2	5	50
3	10	100
4	20	150
5	40	200
6	60	250
7	80	300
8	100	350
9	125	400
10	150	500
11	175	1000
12	200	1500
13	250	2000
14	300	3000
15	350	9999

Service Warnings

Two mileage levels can be programmed for every ChipKey. When a user enters an odometer reading that meets or exceeds the "Warning" level programmed for his or her ChipKey, the message **"TIME FOR SERVICE"** is displayed before prompting for the pump number.

The message serves as a reminder to the user that his or her vehicle is due for mileage-related maintenance (such as an oil change). The fueling process continues normally after displaying the warning.

When the user enters an odometer reading that meets or exceeds the "No Fuel" level, the message **"SERVICE OVERDUE"** is displayed and the user is prevented from fueling. The ChipKey must be reprogrammed by the Service Department in order to be reactivated (or reauthorized).

Incorrect Entry Responses

There are three possible system responses to the entry of three sequential unreasonable odometer entries.

Method 0

Method 0 is a "bypass". All odometer entries are defined by the system as reasonable. Fueling is always allowed.

Method 1

This is the most restrictive method: after three bad odometer entries, the ChipKey is invalidated and fueling is disallowed for the user. The system will *not* recognize the invalidated ChipKey until it is reset (reprogrammed).

The bad entry counter for the ChipKey is automatically reset to zero after a good odometer entry.

The odometer reading stored in the ChipKey is *not* updated unless the current odometer entry is reasonable.

Method 4

Method 4 logs bad entries in two ways. Fueling is always allowed. If all three bad entries are different, the transaction is flagged on the report by printing `===` in the mileage field. The odometer reading stored in the ChipKey is *not* updated, but the bad entry log in the ChipKey is reset to zero. The user must enter three or more bad readings for his or her transaction to be flagged again.

If two or three bad odometer entries are the same, the current odometer entry is printed in the mileage field.

The bad entry counter is automatically reset to zero after a good odometer entry.

Encoding Procedure

An encoding ledger for ChipKey data is included in this manual.

To activate the **K800** ChipKey encoding feature, turn the power to the FIT *off* and set position 6 of switch 2 on the FIT board to *on*. Turn the FIT power back *on*.

Insert the first ChipKey. You are prompted:

```
K800 KEY  
PROGRAMMING
```

The next prompt is automatically displayed:

```
AUTO INCREMENT  
KEY#: [Y/N]
```

The "automatic increment" feature is very useful when encoding ChipKeys with sequential identification numbers.

After specifying the number for the first ChipKey, the system automatically increments this number by one after a ChipKey is successfully encoded. The incremented number is prompted for the next ChipKey and may be entered simply by pressing the **[Enter]** key.

To enable this feature, press the **[YES]** key. To disable this feature, press the **[NO]** key.

The next prompt is:

```
ENTER SYS#:
```

Enter the 4-digit system network number. (The system network number is listed in the System Information Report.) The next prompt is:

```
ENTER KEY#:
```

Enter the 4-digit key number. The next prompt:

```
ENTER ISS#
```

Enter the 1-digit issue number. Next prompt is:

```
MILEAGE? [Y/N]
```

This prompt is for the mileage reasonability feature. Press the **[YES]** key to prompt the items for this feature; or press the **[NO]** key to prompt for encoding.

The first prompt for the odometer reasonability feature is:

```
ENTER MILEAGE
```

Enter a 6-digit value for the vehicle's current odometer reading. The next prompt is:

```
WARNING MILE
```

Enter a 6-digit value. The next prompt is:

NO FUEL MILEAGE

Enter a 6-digit value. The next prompt is:

ENTER METHOD

Enter `0', `1', or `4' for the method of response to incorrect entries. The next prompt:

**ENTER MINIMUM
CODE [0 - 15]**

Enter a code number from the table of mileage values. The next prompt is:

**ENTER MAXIMUM
CODE [0 - 15]**

Enter a code number from the table of mileage values. The next prompt is:

**INSERT KEY AND
PRESS [ENTER]**

Place the ChipKey into the reader socket. Make sure it is securely in place, and press the **[ENTER]** key. The following message displays for a few seconds:

**PROGRAMMING
IN PROGRESS**

When the programming is completed, you are prompted for another ChipKey. Proceed as before to encode another key.

When the last ChipKey has been encoded, turn the FIT power *off* and set position 6 of switch 2 on the FIT board to *off*. Return power to the FIT to resume normal operation.

Notes:

Appendix E – Troubleshooting

FIT TEST

The FIT test verifies the operation of the system memory ("RAM"), the 2x16 display, the keypad, the card or key reader and the communications.

To start a FIT test, turn the FIT power *off*. Set position 8 of Switch 2 on the FIT board to "closed". Turn the FIT power back *on*.

The first test is for the RAM. The first prompt is:

```
R A M
TEST (Y/N)?
```

Enter **`NO'** to skip this test and display the next prompt; enter **`YES'** to test the RAM. The RAM is tested by writing data to the specified locations and then reading them.

The second prompt is:

```
D I S P L A Y
TEST (Y/N)?
```

Enter **`NO'** to skip this test and display the next prompt. Enter **`YES'** to test the ***K800*** display. If you enter **`YES'**, the display following message will scroll across the display:

```
***      K800      ***
**  TEST MODE  **
```

The third prompt is:

```
K E Y B O A R D
TEST (Y/N)?
```

Enter **`NO'** to skip this test and display the next prompt. Enter **`YES'** to test the ***K800*** keyboard. Press the digit keys. The corresponding numbers should display. Press the [ENTER] key to exit this test and display the next prompt.

The fourth prompt is:

```
R E A D E R
TEST (Y/N)?
```

Enter `NO' to skip this test and display the next prompt. Enter `YES' to test the **K800** card or key reader. You are prompted to insert a card or key. Any data that are encoded are then displayed.

The fifth prompt is:

```
C O M M
TEST (Y/N)?
```

You must detach the Petro-Net cable connection from the FIT board *before* starting this test.

Enter `NO' to skip this test; enter `YES' to test. The results are shown on the FIT display. Reconnect the Petro-Net cable when the test is completed. Press any key to re-display the first prompt of the FIT test.

When the FIT test is completed, power *off* the FIT and return Switch 2, position 8 to the "open" position. The FIT is ready for normal operation when power is turned back *on*.

Status Light Error Codes

The status light (located on the front panel of the FSC) flashes one of the following codes if an error is detected during startup.

If more than one error is present, the system will stop at the first one detected and flash only that code.

ERROR CODES		
Flashes	Problem	Possible Solution
1	EPROM error	Check that EPROM is installed correctly - no bent pins, socket screw is CLOSED.
2	System RAM error	Check RAM chips are installed correctly - no bent pins.
3	Hardware error	Replace FSC board.
4	Banked RAM error	Check RAM chips for proper insertion - no bent pins.
5	Battery <i>not</i> connected	Connect battery.
6	Cold start needed	See Cold Start procedure in this manual.
7	Cool start needed	See Cool Start procedure in this manual.

"PUMP IN USE" Message

Sometimes, after selecting a pump number, the message **PUMP IN USE** appears. There are typically two instances when this message appears:

1. When the pump IS actually being used by someone
2. When the main memory and print buffer are filled with transaction data.

The FSC memory holds up to 1800 transactions, while the PCT print buffer holds 200 transactions. If these limits are reached, ALL pump positions appear to be busy to the customer.

To free up the pump positions, you must clear the transactions from the FSC memory. After the transactions have been cleared, the PCT printer transactions automatically move into the freed-up FSC memory. They will then print out onto the journal printer, freeing up all pump positions.

CAUTION: *Be sure you save your transactions, or run your reports, before clearing the transactions.*

"NOT AVAILABLE - REENTER" Message

If this message appears after a pump is selected, it may be because the FIT address does not correspond to the pump positions available for that FIT. Check the appropriate switches on the FIT PC board (see the Installation manual). Otherwise, replace the board.

"OUT OF SERVICE REENTER" Message

If this message appears after pump selection, the Pump Sentry feature might be activated. Reprogram the pump sentry feature, and check the pulser and pulser wiring.

Troubleshooting Flowcharts

The following flowcharts help you track down a problem when the K800 exhibits one of the following symptoms:

Communication failure between FSC and terminal

Display is blank

Incorrect reading

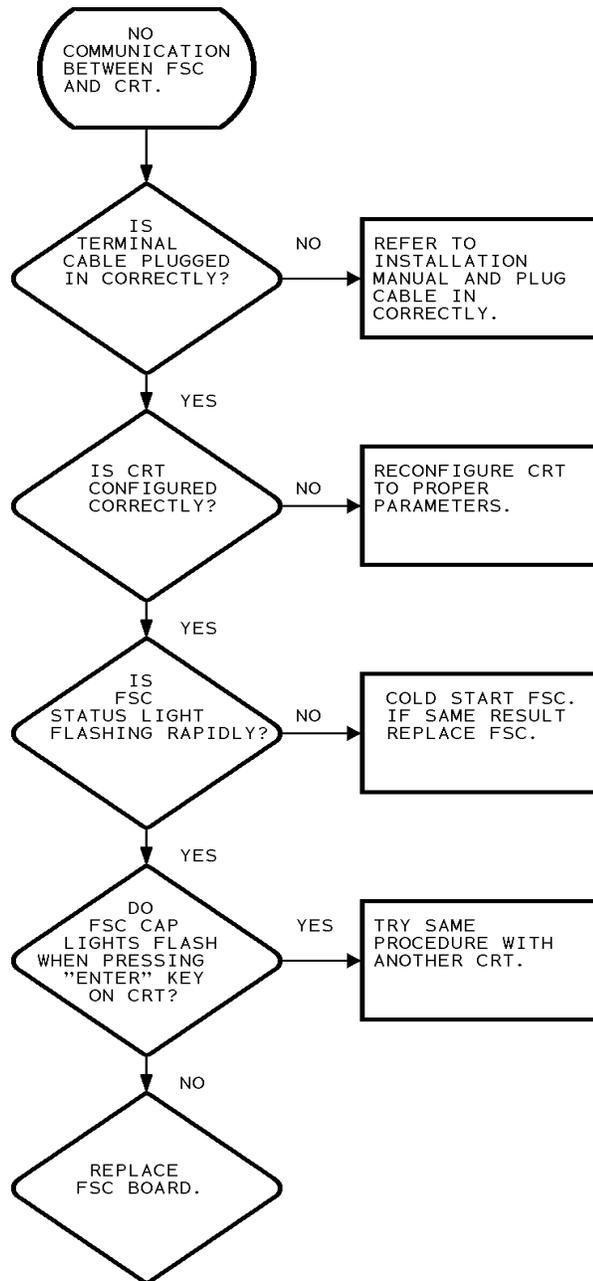
Modem doesn't answer

Printer doesn't print

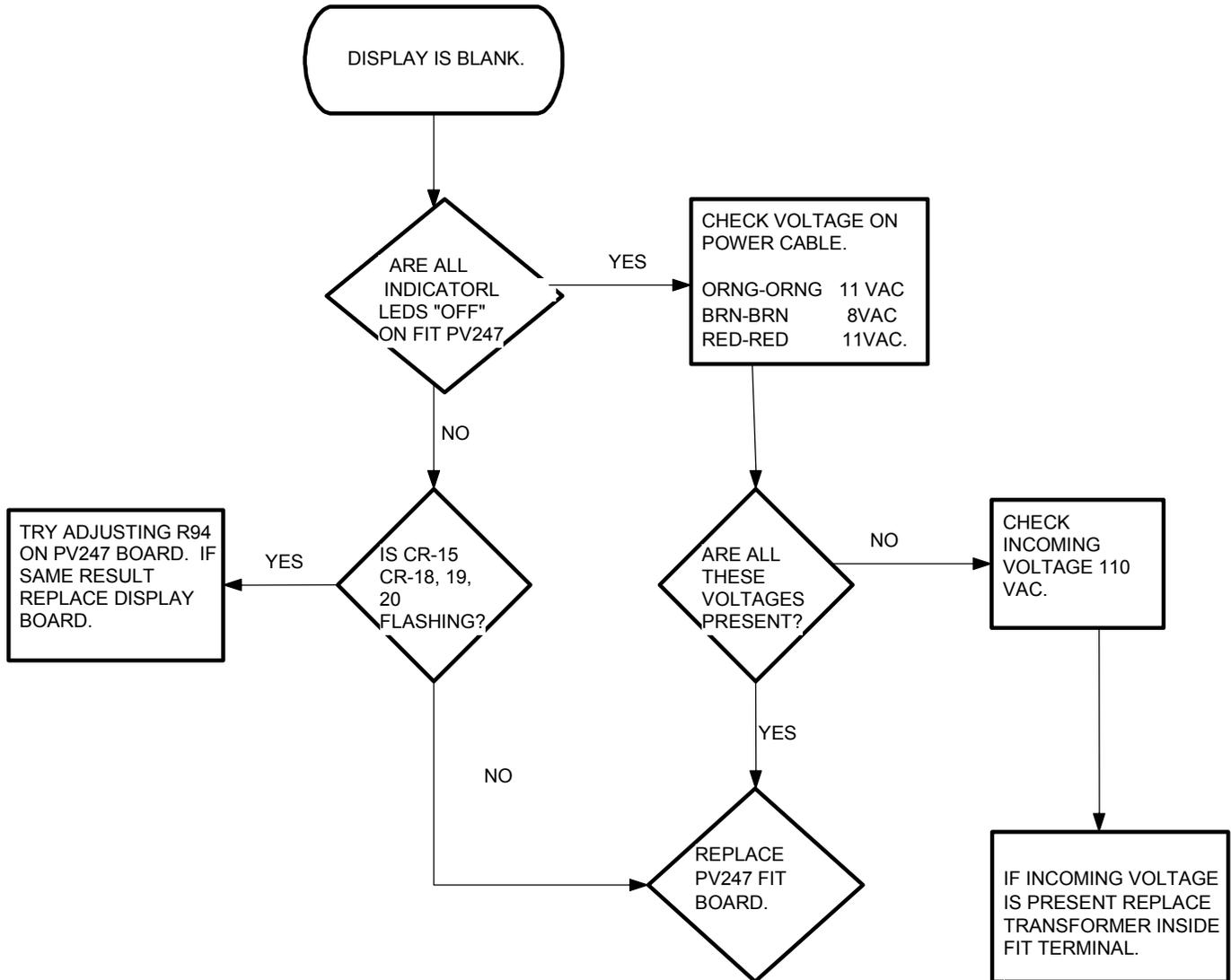
"Pump Handle-Re-enter" message

"System OFF" message

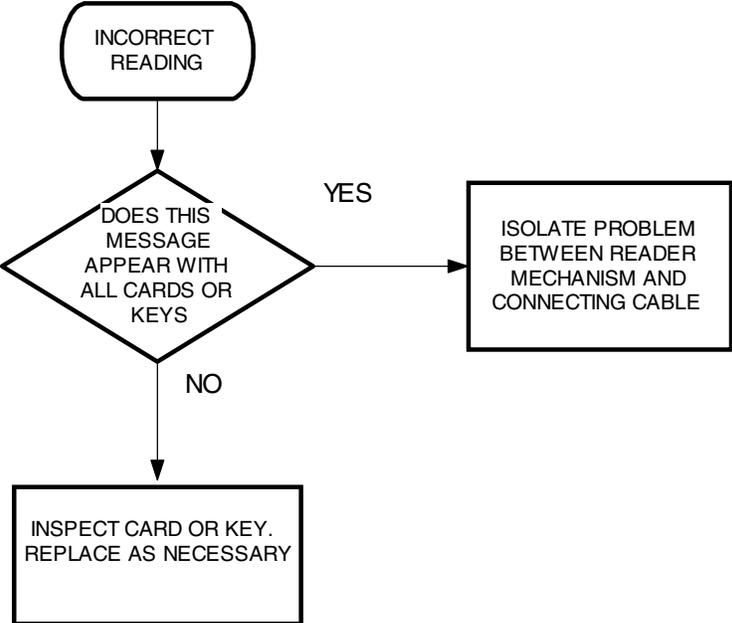
Communication Failure Between FSC and Terminal



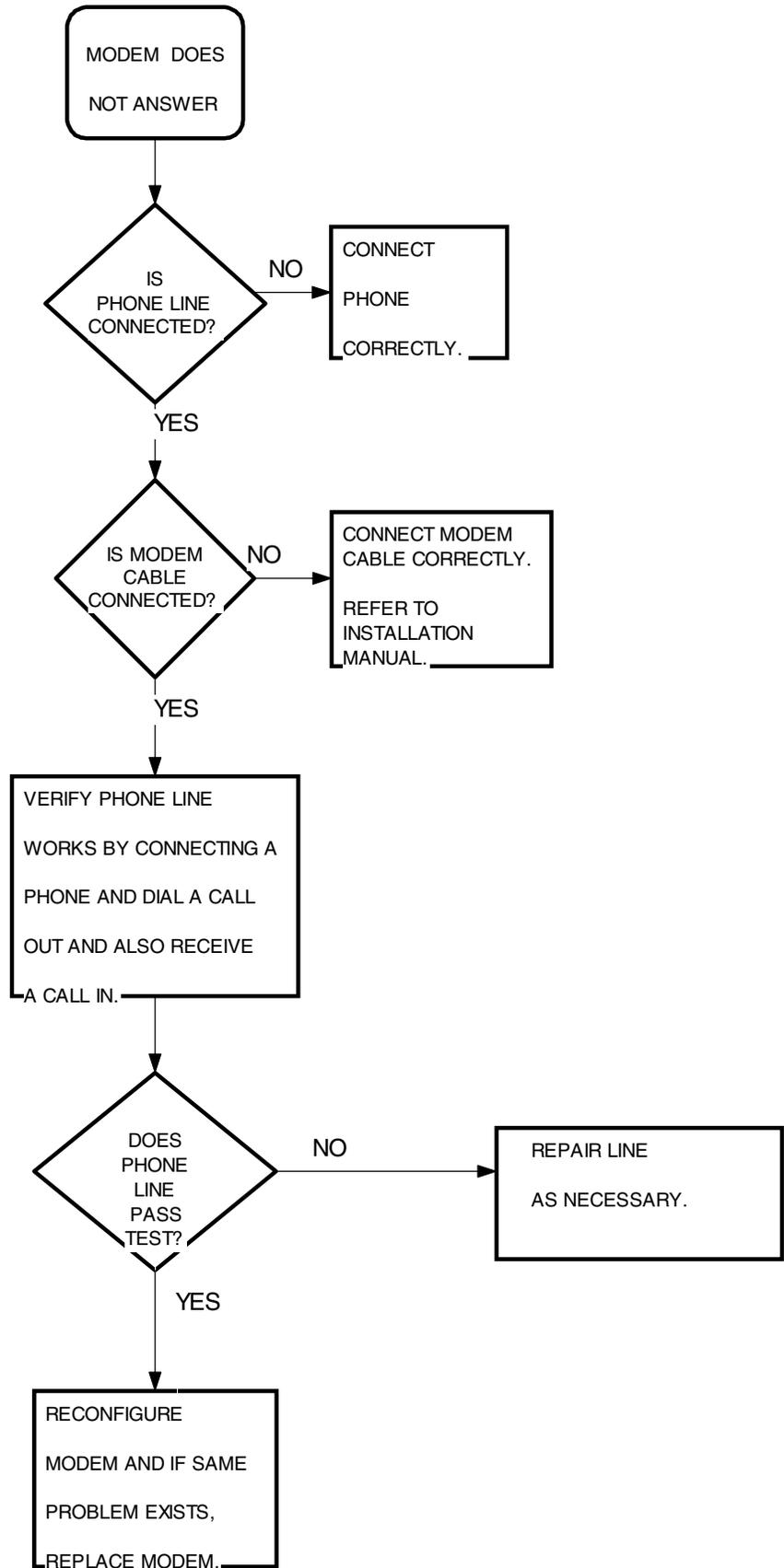
Display on FIT is Blank



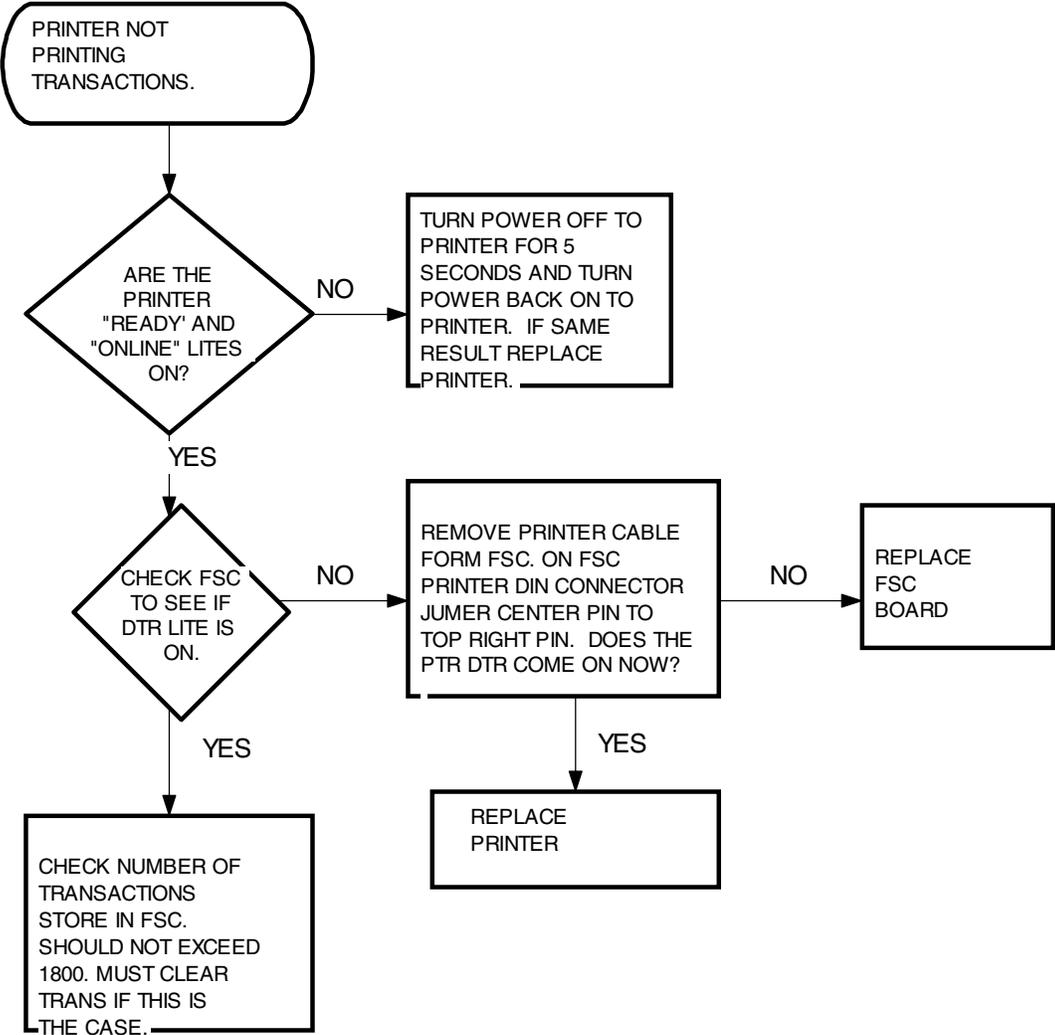
Incorrect Readings (Optical & ChipKey Readers)



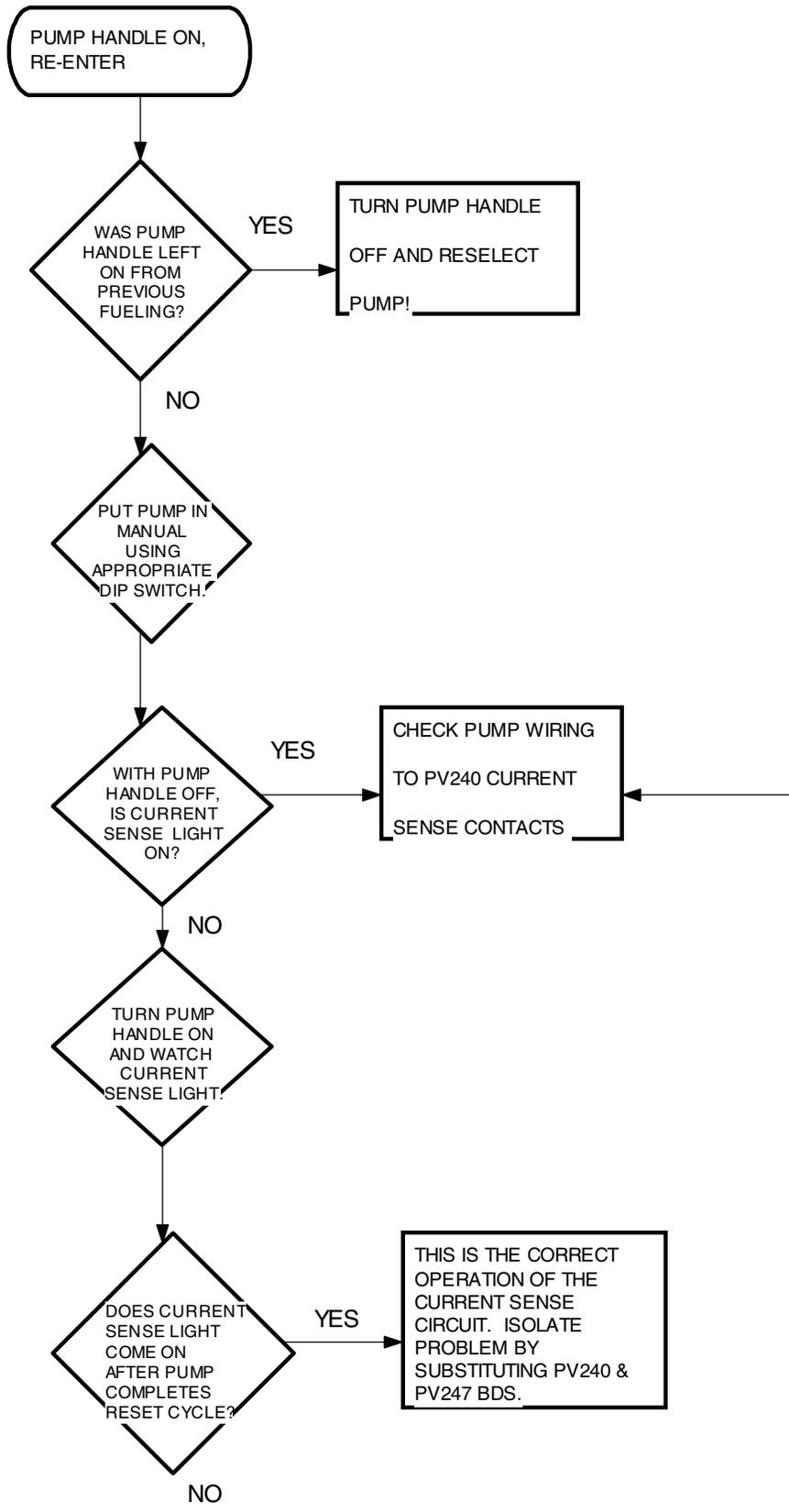
Modem Does Not Answer



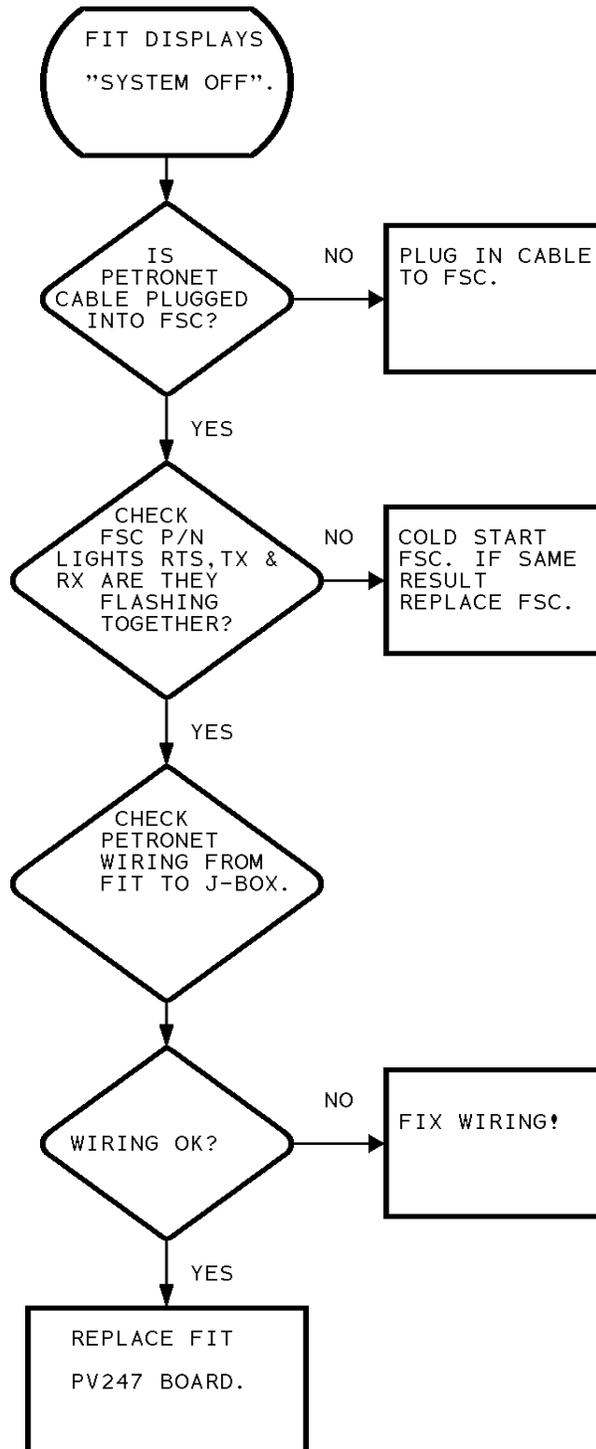
Printer Not Printing Transactions



"Pump Handle Re-Enter" Message



"System OFF" Message



Transformer Voltages

Use a voltmeter to check across the following points in your system FIT and FSC.

FIT/PCT		
<i>TEST ACROSS WIRE COLORS:</i>	<i>CIRCUIT</i>	<i>PROPER VOLTAGE</i>
BROWN BROWN	Petro-Net	8 VAC
ORANGE ORANGE	PCT and Heater	10.5 VAC
RED RED	System logic	10.5 VAC

FSC - The FSC plug-in power supply should produce 12 VAC.

Appendix F

File Converter For K800 Phoenix

Description

If your files are not in ASCII format, software called "Convert" is available from **Petro Vend** for operation with the **K800** Phoenix Plus Backup, Restore, & Emulation PC Utility Program. The K800 transaction files are already in ASCII, however.

Convert produces a readable ASCII flat file from the **K800** Phoenix Plus transaction file, which is then readily accessible to any program which can read ASCII files.

The syntax for ``CONVERT.EXE'` is: ``CONVERT INFILE OUTFILE'`, where ``INFILE'` is the name of the main transaction file produced by the **K800** Phoenix Plus and ``OUTFILE'` is the name of the ASCII file to write the output to.

For example: ``CONVERT TRANSACT.PV ASCDATA.FIL'`.

ASCII

Each transaction record occupies one line which is terminated by a carriage return and a line feed.

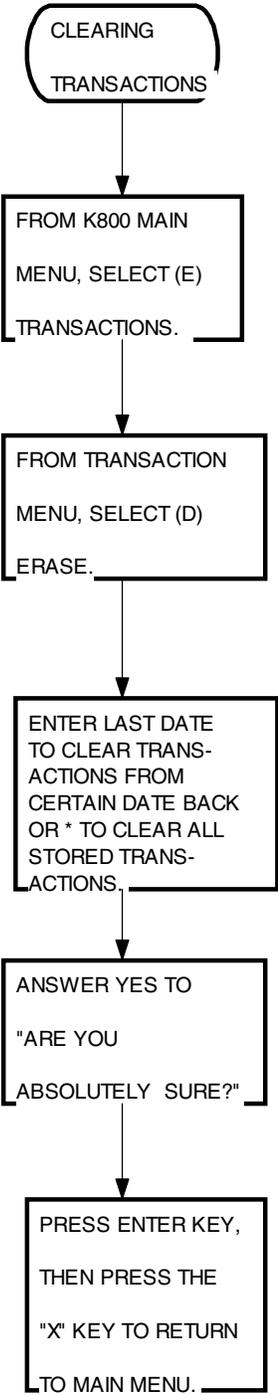
FIELD	DIGITS	<NOTES>
DATE	6	<YYMMDD>
TIME	4	<24 hour format>
TRANS#	4	
ACCT	4	
DRIVER	4	
VEH	4	
MILEAGE	6	
KEYBOARD	10	
PUMP	2	
PRODUCT	2	
QUANTITY	8	<3 decimal places>
PRICE	4	<3 decimal places>
TOTAL	6	<2 decimal places>
SITE#	2	

Appendix G

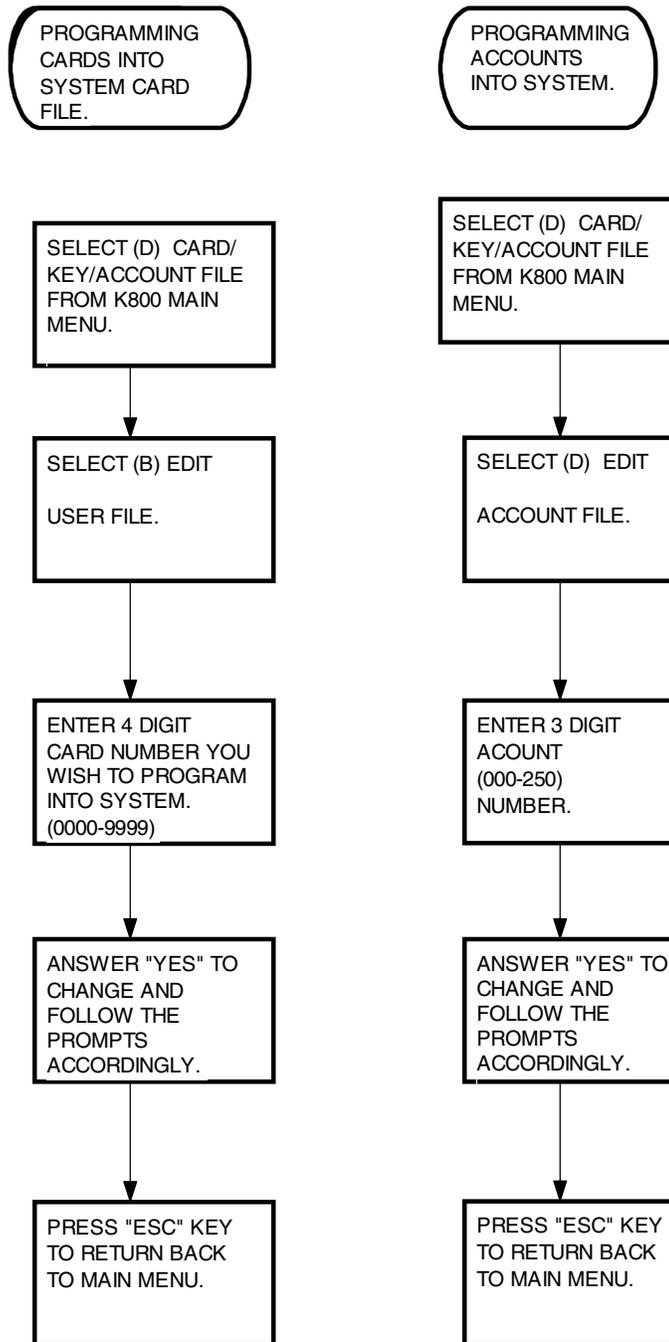
Quick-Use Operational Flowcharts

Use the following flowcharts to perform the indicated jobs more quickly, without having to look up steps in the manual.

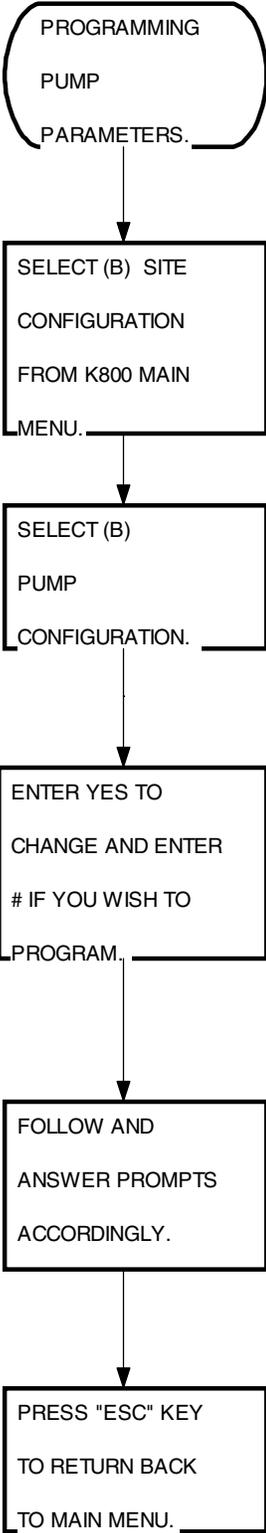
Clearing a Transaction



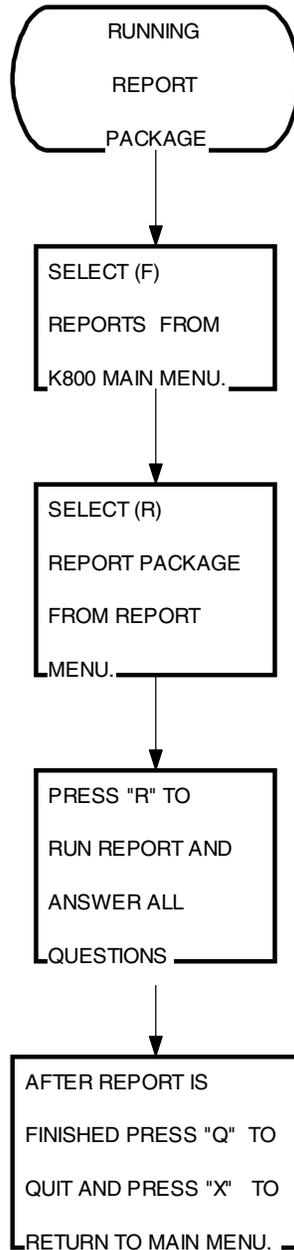
Entering Files and Accounts



Programming Pump Information



Running a Report Package



Index

Access time restriction	27	Poll data format	51
Account files	37	Polling	40
Account number	36	Port speeds	4
Battery backup	8	Power requirements	3
Card compatibility	2	Power-up	13
Card entries	10	Printer, journal	8
Cardless entry	5	Printing reports	46
ChipKey programming	57	Product name	25
ChipKeys	1	Product number	21
Cold start	13	Product Totals report	44
Command entry	9	Pulser compatibility	3
Computer, external	7	Pulser divide rate	22
Cool start	14	Pump In Use message	64
Date and time	9	Pump number	21
Daylight savings	18	Pump parameters	9
Description	1	Pump parameters, setting	19
Emergency stop	6	Pump Sentry	22
Encoding procedure	60	Pump Totals report	43
EPROMs	55	Quantity restriction	21
Erase feature	40	Quick-Use flowcharts	77
Features	2	QUIT command	16
File converter	75	Recall feature	39
FIT (Fuel Island Terminal)		Report package (OPTIONAL)	47
Card readers	5	Reports	12
Cleaning	6	Reports menu	41
Display	6	Required settings	10
Installation	5	Restrictions	10, 26
Messages	28	Service warnings	59
Flowcharts for troubleshooting	65	Site Configuration menu	19
FSC (Fuel Site Controller)		Site name	18
Installation	7	Site setup	16
Transformers	7	Specifications	3
FSC specifications	4	STATUS light codes	63
Inventory report	45	Status, pump	21
Keyboard message	34	System Info report	42
Keypad	6	System Setup menu	17
Lock terminal	16	Tables menu	25
Max transactions per day	35	Tank parameters	9
Menu overview	15	Tank, supply	21
Messages	28	Temperature ratings	3
Mileage flag	34	Terminal emulation	13
Mileage reasonability	58	Time and date	9
Modem	8	Time for fueling	22
Modem password	54	Time for Pump Handle	22
Modems	53	Time of day	17
MPD (Missing Pulse Detect)	22	Transaction detail	11
Not Available message	64	Transactions menu	39
Odometer reasonability	57	Troubleshooting	62
Passwords	19	User files, editing	33
Petro Net specifications	3	User files, showing	32
PIN (Personal Identification Number)	35	Validation status	37



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